BEFORE THE ENVIRONMENTAL APPEALS BOARD UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C.

In re:	)
Eagle Mine LLC (a Subsidiary of Lundin Mining Corporation) Permit No. GW1810162	)

PETITION FOR REVIEW

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INTRODUCTION

Pursuant to 40 CFR § 124.19(a), Save the Wild U.P. ("Petitioner" or "Save the Wild U.P.") petitions for review of the issuance of Groundwater Discharge Permit No. GW1810162 ("the Permit"), which was issued to Eagle Mine LLC, a Subsidiary of Lundin Mining Corporation ("Permittee" or "Eagle Mine LLC") on March 25, 2015 by the Michigan Department of Environmental Quality ("MDEQ"). The State of Michigan is responsible for enforcing and upholding standards of the Clean Water Act pursuant to a delegation of authority by the United States Environmental Protection Agency. The permit at issue in this proceeding authorizes Eagle Mine LLC to discharge industrial wastewater — "504,000 gallons per day, 184,000,000 gallons per year of mine contact water, from the Eagle Mine Waste Water Treatment Facility" — to waters of the State of Michigan. State of Michigan regulators are utilizing the wrong permitting program, with EPA Region 5's tacit approval. Due to abuse of discretion, inadequate assessment of environmental conditions, and permit conditions based on erroneous findings of fact and/or conclusions of law, the MDEQ, with EPA's approval, has issued a groundwater discharge permit to the mine instead of the proper permit, a permit issued in accord with the National Pollutant Discharge Elimination System ("NPDES") and with all of the protections of the Clean Water Act.

Specifically, Petitioner asks that the Environmental Appeals Board ("EAB" or "Board") instruct EPA Region 5 to require a NPDES permit for the Facility in accordance with Clean Water Act requirements. In concurring (with the MDEQ opinion) that wastewater discharges would not "immediately" impact springs and headwaters of the Salmon Trout River, EPA Region 5 officials acted on erroneous findings of fact, and failed to exercise considered judgment in making a regulatory decision, meeting the "clearly erroneous" standard of review of this Board.

As issued, the Groundwater Discharge permit is the wrong permitting tool, as it is not designed to be and is not protective of surface water quality. The following conditions of the issued permit demonstrate both imminent harm to surface waters and the failure of the issued permit to protect surface water from this discharge:

1. The Groundwater Discharge Permit fails to protect, monitor or enforce surface water quality at nearby springs of the Salmon Trout River where there is no dispute that this discharge empties into, as required under the Clean Water Act, due in part to a flawed conclusion from MDEQ.[1]
2. Harmful **pH** allowances are increased in downgradient wells. This permit condition is harmful to surface water.
3. Language regarding the installation of new monitoring wells, as required by the reissued permit, fails to include detailed siting requirements, which enables the Permittee to place monitoring wells in favorable or arbitrary locations. In addition to Petitioner's long-standing and articulated concerns about lack of groundwater monitoring and flow-modeling generally, the specific language requiring installation of additional monitoring wells appears designed to leave certain areas untested and unmonitored, including the critical zone between the Treated Wastewater Infiltration System (TWIS) and the groundwater-surface water interface (GSI); that concern is magnified now that discharges from the TWIS are leaving the mine's property through the surficial aquifer, and entering the unmonitored zone.
4. Facility monitoring demonstrates continuously rising levels of Uranium in sump water liner of the Temporary Development Rock Storage Area (TDRSA); while new Uranium monitoring language was added to the reissued permit, the water is considered exempt from drinking water standards, and the Permittee has not adhered to the source identification notification protocol set forth by the permitting body. Uranium is unregulated at this site.
5. Limits for Chloride and Sodium were recently increased, after a recent amendment to the State of Michigan's Natural Resources and Environmental Protection Act (NREPA). The Michigan legislature, just prior to the date of the draft permit reissue,[2] increased the values for Chloride and Sodium parameters, but a fact not mentioned in the draft permit. The NREPA Amendment increased allowable limits for Chloride and Sodium discharges, both in groundwater and in effluent, threatening surface water, as it fails to be conservative in protecting aquatic life values for the groundwater- surface water interface (GSI).

[1] http://www.epa.gov/r5water/uic/kennecott/

[2] NREPA 324.3109e "Sodium or chloride in groundwater discharge permit; limitation; discharge of sodium or chloride causing groundwater concentration exceeding certain levels; duties of Permittee; response activities." http://legislature.mi.gov/doc.aspx?mcl-324-3109e

6. Permitted facility's experimental use of double pass Reverse Osmosis in the water treatment process appears causal to the continued increase of levels of Vanadium in monitoring wells surrounding the discharge point (to levels exceeding permit limits).[3]

* * *

LOCATION

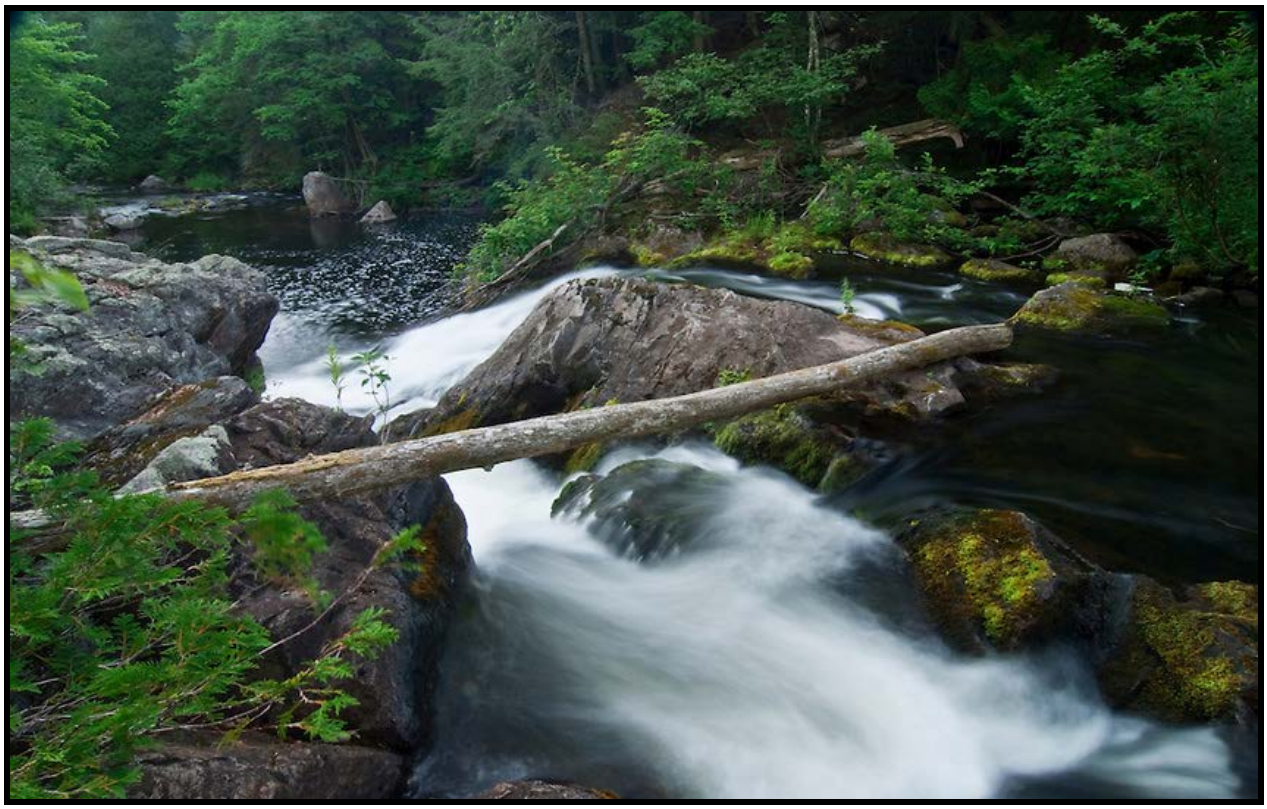

Figure 1: East Branch Salmon Trout River (© Aaron Peterson, photographer)

Eagle Mine's facility (orebody, mining portal, coarse ore storage area, contact water basins, wastewater treatment plant, and treated wastewater infiltration system, etc.) are in northern Marquette County, Michigan, in Sections 11 and 12 of Township 50 North, Range 29 West. Groundwater discharges (addressed by this EAB permit appeal) flow northeast, beyond the discrete "affected area" as defined in Eagle Mine's mining permit.[4] Groundwater expresses as surface water at

[3] "MDEQ has taken no enforcement action. In fact, the mine has exceeded its vanadium limit more than 20 times (as of January 2014). Instead of enforcing the limit, in this renewal permit, MDEQ is easing the limit." Michelle Halley, "New Ground Water Discharge Permit proposed for Lundin Eagle Mine: Analysis" http://savethewildup.org/2014/01/halley_gwdp/

[4] Petitioner contends that the "affected area" as identified in the Permittee's EIA, due to significant potential for adverse environmental impacts, should not have been limited to the mine site itself, but should have included the area "outside the mine" (including adjacent surface waters) as defined by NREPA Part 632.

springs of the Salmon Trout River, approximately 3500' northeast, in the (adjacent) Section 1 of Township 50 North, Range 29 West.

Located in a rugged, forested, previously unindustrialized tract of Michigan's Upper Peninsula, "The Salmon Trout River watershed includes high quality aquatic and terrestrial ecosystems of regional significance and should be protected and maintained as such. Because of its unique natural state and significant natural resources, the Salmon Trout River watershed is a haven for scientific study."[5]

Figure 2: Hogback Falls, East Branch Salmon Trout River (© Jacob Emerick, photographer)

The Salmon Trout River is groundwater-fed, and "...winter temperatures are undoubtedly warmer than in most other area streams due to the same considerable groundwater seepage in the upper watershed that keeps the water cool in summer months. These temperatures make the river system well suited for brook trout production. *The surrounding mature forest, relatively undisturbed watershed, and extensive headwater spring seepage are significant factors in maintaining this vital stability not often found in Lake Superior tributaries."* [6]

Eagle Mine's polymetal orebody, a buried pipe of volcanic massive sulfide, was discovered at (in fact, underneath) the headwaters of the Salmon Trout River, on the Yellow Dog Plains, a remote and pristine area of glacial outwash feature. Immediately downgradient from Eagle Mine, numerous

[5] Carl Lindquist, Executive Director, Superior Watershed Partnership.
[6] See: "Fisheries Management Plan for the Salmon Trout River, Marquette County, Michigan" Michigan Fisheries Division, Technical Report (No 88· 7, July 20, 1988): https://www.michigan.gov/documents/dnr/88-7tr_363004_7.pdf

spring-fed upper branches of the Salmon Trout River emerge from a north-facing slope, converging, and running swiftly downhill on their way to Lake Superior, flowing through private wilderness lands owned by the The Huron Mountain Club, which was "founded primarily to preserve the land's recreational values (...) the club's long-standing restrictions on road building and logging also had served to preserve to a large degree the land's special biological and scientific values. (Aldo) Leopold noted that these values could be sustained only if understood within their larger landscape context (stating) 'The Club property is deeply affected by what the neighboring owners do....'"

"The Salmon Trout River watershed is located in the northwest portion of Marquette County, Michigan. It is part of the much larger Dead-Kelsey Watershed, United States Geological Survey (USGS) Cataloging Unit: 04020105. The watershed covers a 49.5 square mile area (31,687 acres) which flows northerly from the Yellow Dog Plains, an area of glacial sand deposits, through a heavily wooded and largely unpopulated area known as the Huron Mountains, until finally making its way to Lake Superior." [7]

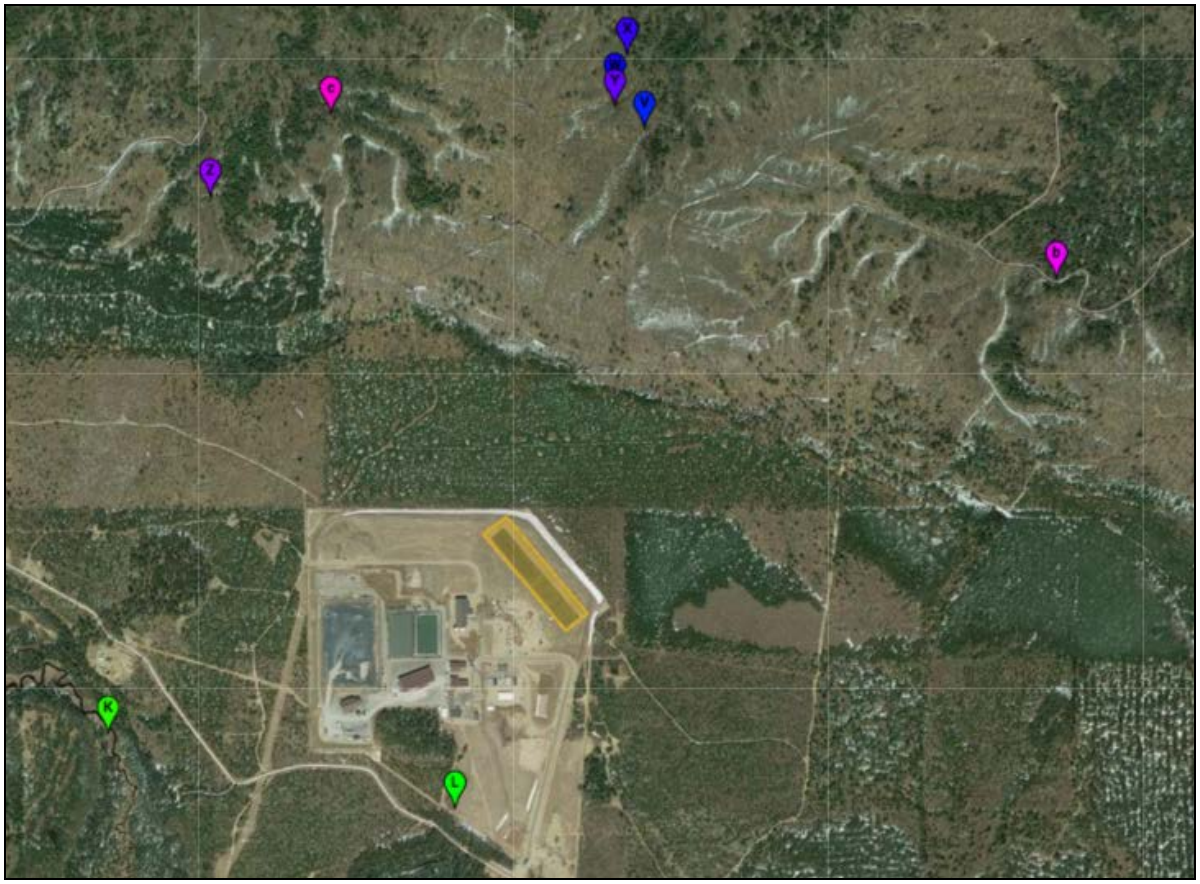

Figure 3: Screenshot showing proximity of Eagle Mine, Treated Wastewater Infiltration System (TWIS, diagonal) and groundwater springs located to the northeast. It is undisputed that groundwater flows northeast in this area (© Google Map satellite view)

[7] See: Salmon Trout River Watershed Management Plan, 2007.
http://www.michigan.gov/documents/deq/wb-nps-salmontrout-wmp_284714_7.pdf

* * *

JURISDICTION

In light of the clear industrial nature of Eagle Mine's wastewater, the presence of salts and hazardous metals in the wastewater, the failure of Permittee to identify cause of, and/or correct exceedances (including pH, arsenic, copper, lead, molybdenum, silver, vanadium), in the absence of any permit-enforced monitoring regime for the acknowledged groundwater-surface water interface (GSI), and given the Permittee's lack of hydrologic flow assessment for groundwater now moving from the Treated Wastewater Infiltration System (TWIS) toward springs venting into the Salmon Trout River watershed, Petitioner requests that the EAB exercise its authority under 40 CFR § 124.2(a), requiring EPA to either require MDEQ to require Eagle Mine to obtain a NPDES permit which will more appropriately protect surface water and aquatic life, or to require EPA to intervene and do so itself in accord with 40 C.F.R. § 122. In a letter from Tinka Hyde (EPA Region 5) to Petitioner Jeffery Loman, EPA Region 5 issued a certification (equivalent to a final agency decision), stating "We have considered the potential applicability of the Clean Water Act's NPDES program to the process wastewater being generated by the Eagle Mine and discharged to groundwater. We do not believe that there is evidence of a direct discharge from this treatment unit to surface waters at this time." (See Attachment 3 "Letter from EPA Region 5 to Jeffery Loman, February 21, 2014"). Even if this letter does not serve as a final agency action, a final agency action is not a proper prerequisite for review since this is "failure-to-act" petition.

* * *

ISSUES PRESENTED FOR REVIEW

The Wrong Permit was Issued Under Clearly Erroneous Conclusions of Law and Facts and Violates the Clean Water Act

As issued, this Groundwater Discharge Permit is in violation of the Clean Water Act, as groundwater discharged by the mining facility irrefutably expresses in the springs of the Salmon Trout River (specific location USGS STE-51-023) as surface water. By applying Safe Drinking Water Act limits to to effluent and groundwater that expresses as surface water, the permitting body acted under Clearly Erroneous Conclusions of Law. The Safe Drinking Water Act is focused solely on placing constituent limits on groundwater, while the Clean Water Act is protective of surface waters and its inhabitants. Within surface waters, there are fragile macroinvertebrates and complex benthic communities which form the foundation of healthy surface water ecosystems. Groundwater limitations are not sufficiently protective of these surface water ecosystems. Based on evidence the Permittee claimed concerning groundwater flow, and the groundwater-surface water interface (GSI), the permitting

body (MDEQ) came to erroneous conclusions of law in applying Safe Drinking Water standards instead of Clean Water Act standards.

The Salmon Trout River is an outstanding natural resource of regional significance threatened by the discharges from Eagle Mine and requires CWA protection. Therefore, permits for this facility need to be protective of surface waters of the United States and yet the Permittee has violated the recursion permit to the current Groundwater Discharge Permit more than 100 times at Eagle Mine --and the mine has been operating for less than one year. These exceedances lead to the degradation of the vital surface waters, tributaries, wetlands and watersheds of the Lake Superior Basin. The current GWDP, not to mention MDEQ's lack of enforcement, is simply not protective of the world's third largest source of freshwater. The Clean Water Act contains specific antidegradation and antibacksliding conditions that are meant to ensure the Permittee cannot degrade water quality and that all permitted activities must ensure the designated uses of the water body in question. The GWDP does not adhere to the anti-backsliding provisions of the Clean Water Act as shown by the multiple instances of weakened effluent limits contained in Permit No. GW1810162 detailed below.

The Groundwater Discharge permit was authorized under Clearly Erroneous Findings of Fact. This permit, issued by the MDEQ, was apparently approved under the belief that groundwater would not express itself as surface water[8]. Current United States Geological Survey (USGS) monitoring of the Salmon Trout River shows groundwater from the mining facility expressing itself as surface water at the spring identified as STE-51-023.[9] The Permittee has intentionally avoided installing additional wells between the TWIS and the groundwater-surface water interface (GSI).

As issued, this Groundwater Discharge permit is in violation of the Clean Water Act because its limits are based on groundwater quality limits and not limits set to be protective of surface water and its uses. As the petitioners have shown, groundwater does express as surface waters in the springs and headwaters of the Salmon Trout River. The Salmon Trout River is the only known breeding ground of the Coaster Brook Trout on the southern shores of Lake Superior, and is only one of the four surviving runs in Lake Superior. This is delicate habitat that must be protected with the limitations and regulations that only a National Pollutant Discharge Elimination Systems (NPDES) permit can provide.

DEMONSTRATION OF ISSUES RAISED DURING PUBLIC COMMENT PERIOD

Collectively, Petitioner asserts verbally and in writing that the Michigan Department of Environmental Quality has applied the wrong regulatory tool (Groundwater Discharge Permit rather than NPDES permit), and has made numerous procedural and substantive errors in approving a Groundwater Discharge Permit, including: failure to set numeric limits for heavy metals, including antimony, chromium, cobalt, lead, nickel, thallium and zinc[10]; improperly paraphrased and inadequate answers to submitted comments in the MDEQ's response to comments document; failing to respond to

[8] See: http://www.epa.gov/r5water/uic/kennecott/
[9] See: 46°45'38.9"N 87°52'30.4"W, http://bit.ly/1IOuzNU
[10] Groundwater Discharge Permit GW1810162, Part 1, Effluent Monitoring Chart, Point EQ-1, page 4.

concerns enumerated in written comments; enabling modifications relaxing conditions related to to Eagle Mine's current Groundwater Discharge Permit, despite unknown causes of Vanadium increases in groundwater; failing to require facility to conclusively determine source of rising levels of Uranium in sump water from the facility's Temporary Development Rock Storage Area (TDRSA); failing to calculate or evaluate mass contaminant-loading impacts to surface waters caused by localized deposition[11] of airborne/precipitation-borne particulate matter emissions (estimated at 7.7 tons pm emission per year) from the Eagle Mine's unfiltered Main Ventilation Air Raise (MVAR), including 6.6 lb Chromium per year, 546.7 lb Magnesium per year, 12.7 lb Copper per year, and 15.5 lb Nickel per year.[12]

The issues raised in this petition have been before the MDEQ and EPA. Petitioners' board and advisory board members have given verbal testimony and submitted written comments on these matters. EPA Region 5 states "MDEQ has taken steps through the groundwater permitting process to protect surface water by including limits in the groundwater permit based on surface water standards." (See: Attachment 3).

Save the Wild U.P. supporter and former advisory board member Jeffery Loman ("Petitioner") submitted written comments explaining that groundwater expresses as surface water, dated January 10, 2014, stating:

> "First, as evident by the record of activities of the MDEQ, there is a connection between the water discharged through the rapid infiltration system at Eagle mine and surface water. The record of activities by MDEQ as they processed permit applications makes this abundantly clear. MDEQ, the mine owners, and numerous experts employed by various plaintiffs who have brought legal challenges to the permitting of this mine have all agreed that these industrial mine water discharges will 'vent' to the surface and flow into the East Branch of the Salmon Trout River which eventually flows into Lake Superior. Next, as clearly describe in both Rio Tinto's communication to EPA Region 5, on March 24, 2010,[13] and in the July 1, 2010, letter signed by Nancy Stoner, Deputy Assistant Administrator for Water, acting for Peter S.

[11] "Air Deposition and the Salmon Trout Watershed: The soil deposition estimates used only one soil density (1.6 grams/cm3) to determine maximum annual metals deposition to extrapolate a long-term metals-in-soil concentration level (...) The Salmon Trout River Watershed is a 36 sq. mile watershed containing at least 5 distinct soil types. At least 4 soil types of varying density are represented within the study area." (Superior Watershed Partnership). See: http://www.superiorwatersheds.org/images/SWP-CommentsOnRioTinto-Permit.pdf

[12] Eagle Mine's Main Ventilation Air Raise (MVAR) is the outlet from the fresh air ventilation system; emissions produced by underground activities are vented through the MVAR, activities which include vehicle travel, drilling, blasting, ore and development rock handling, backfill material handling etc. Permit fails to adequately calculate threats to surface water from local mass loading of contaminants in the form of airborne pollutants, generated by Eagle Mine's unfiltered Main Ventilation Air Raise, including contaminants transported by precipitation, spring melt, and storm water runoff beyond Eagle Mine's narrowly defined "Area of Mining Impacts." The MDEQ's response summary document addressed only soil load and soil-residency of contaminants, and failed to calculate water transport as a direct risk to surface water (including sensitive headwaters). Eagle Mine facility and the adjacent Salmon Trout River headwaters are situated in a sandy area, in a region with above-average precipitation, especially snow cover. Eagle Mine constructed the MVAR without a fabric filter dust collector.

[13] See: http://www.epa.gov/r5water/uic/kennecott/pdf/2010/2010-03-24_peacey_to_harvey.pdf

Silva, Assistant Administrator for Water, "the fluid distribution system is above ground and is thus not a subsurface system."[14]

Save the Wild U.P. president Kathleen Heideman ("Petitioner") submitted written comments dated April 1, 2014, stating:

"This flawed permit fails to address the certainty that the wastewater discharged at the TWIS, into the groundwater, will be emerging into groundwater-surface water interface a short distance later — the permit dodges this, but MDEQ cannot dodge the issue. By failing to require a NPDES permit to authorize and monitor the surface discharge points, the current Groundwater Discharge Permit is authorizing an illegal discharge. A NPDES permit must be required."

Save the Wild U.P. supporter and former executive director Alexandra Thebert ("Petitioner") submitted written comments dated April 1, 2014, stating:

"Fundamentally, the Eagle Project lacks a NPDES permit and we feel that the MDEQ is skirting regulations by not requiring an NPDES to the great detriment of our watersheds... perplexing given the public statements by state regulators that the discharges of the Eagle project will become surface waters."

Save the Wild U.P. advisory board member and attorney Michelle Halley ("Petitioner") submitted written comments concerning surface water, dated January 19, 2014, stating:

"MDEQ continues ignoring its statutory duty to regulate surface water discharge. MDEQ continues to refuse to regulate, as required by the Clean Water Act, the surface water discharge at the seeps,[15] where the water regulated by this permit indisputably expresses to surface water. The draft permit, in Part III, No. 1 on p. 22 states: Discharge to the Surface Waters: This permit does not authorize any discharge to the surface waters. The Permittee is responsible for obtaining any permits required by federal or state laws or local ordinances.

Unfortunately, this permit **does** regulate surface water discharge to the seeps. It does so illegally and inadequately, but it is the only regulation MDEQ has ever imposed on the discharge to the seeps. Michigan has been delegated by the United States the authority to regulate surface water discharges via the Clean Water Act's National Pollutant Discharge Elimination System. Its failure to do so is egregious. This is particularly evident given MDEQ's refusal to apply any numeric limitations (for uranium, calcium, iron and magnesium...) even though this water ends up in the Salmon Trout River and Lake Superior."

Save the Wild U.P. board member and professor emeritus of chemistry at Northern Michigan University Gail Griffith ("Petitioner") submitted written comments addressing the lack of hydrogeological data, dated March 24, 2014, stating:

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[14] See: http://www.epa.gov/r5water/uic/kennecott/pdf/2010/2010-07-01_silva_to_cherry.pdf

[15] B.R. Hall, et al., ''Environmental Influences on Plant Species Composition in Groundwater Seeps in the Catskill Mountains of New York,'' Wetlands 21:125– 134 (2001).

"The Permit allows displacement and relocation of 504,000 gallons per day of underground water, most of which has never been above ground, to the shallow infiltration system. If the area could absorb that much extra water, it wouldn't be covered by rivers, wetlands and seeps. At least a portion of this water will become surface water, not groundwater. There is no adequate hydrogeological data to assess this groundwater-to-surface water excursion. Regulatory treatment of it as groundwater is not appropriate without a thorough hydrogeological study."

Save the Wild U.P. president Kathleen Heideman ("Petitioner") submitted written comments regarding pH levels, dated April 1, 2014, stating:

"The pH limit set for compliance wells in the original groundwater discharge permit already exceeds the EPA's range for groundwater pH. For this reason, increasing the pH of a discharge which shortly vents to surface waters is not protective of groundwater – and certainly not protective of surface water. A third of a mile away from the compliance wells, groundwater with a higher than natural pH could soon be emerging from the hillside, in the form of springs and spring-fed tributaries of the Salmon Trout River. Water monitoring of these streams, and the Salmon Trout River, has shown consistent surface water pH ranges between 6 and 7.5. MDEQ limnology data from 2004 supports very low initial natural levels and a natural pH as low as 6.1 in the adjacent Salmon Trout headwaters. This is corroborated by data collected by Yellow Dog Watershed and USGS. Raising the groundwater discharge permit's levels will fail to be protective of the stream's natural pH, and aquatic stream life."

Save the Wild U.P. advisory board member and attorney Michelle Halley ("Petitioner") submitted written comments regarding levels or uranium dated January 19, 2014, stating:

"In 2013, uranium was found in the wastewater stream at the Eagle Mine. The Permittee makes unsubstantiated assertions that the origin of the uranium is some unknown offsite location from which it obtained building materials. MDEQ has the responsibility to regulate uranium, and every other federally regulated constituent, to federal levels. It is failing to do so with the proposed limits and the numerous "report only" constituents, including uranium."

Regarding chloride limits, Save the Wild U.P. president Kathleen Heideman ("Petitioner") submitted written comments, dated April 1, 2014, stating:

"...most recently, in quarter 4 of 2013, chloride levels in an D-level well near the TDRSA registered more than 600 mg/L for chloride. The federal limit is 250 mg/L. By comparison, a bedrock A-level well at Eagle, tested in 2004, registered 18 mg/L for chloride. Something has changed, but it isn't the natural soil conditions. At the hearing, MDEQ staff acknowledged that the chloride exceedances continue to be upward trending "over 700 mg/L." And yet, MDEQ has failed to issue a single groundwater quality violation."

In response to rising levels of Vanadium, Michelle Halley ("Petitioner") stated on January 19, 2014:

"In fact, the mine has exceeded its vanadium limit more than 20 times. Instead of enforcing the limit, in this renewal permit, MDEQ is easing the limit. This is completely backwards. The MDEQ's role is regulator, not conciliator. The limits were set, supposedly based upon sound

science, as MDEQ strenuously argued during the months long contested case that encompassed the current groundwater discharge permit. Now, rather than protecting water quality, the draft simply increases the limits to industry's preferred levels. The facility's performance should be required to meet the regulatory standards rather than the regulatory standards being adjusted to meet the facility's performance."

* * *

FACTUAL AND STATUTORY BACKGROUND

The Michigan Groundwater Discharge permitting program regulates the discharge of wastewater to groundwater through the authority of the Michigan Department of Environmental Quality. The permit issued through this agency's authority is regulating the wastewater discharge at the Eagle Mine, the 'only primary nickel mine in the United States'. In light of the undisputed fact that groundwater at the Eagle Mine facility expresses as surface water, the facility needs to be regulated by a National Pollutant Discharge Elimination Systems permit under the authority of the Environmental Protection Agency.

The original owners of the Eagle Mine, Rio Tinto-Kennecott applied to the EPA for several Underground Injection Control ("UIC") permits. The state of Michigan does not have delegated authority to issue such permits. Rio Tinto-Kennecott modified the design of their Treated Water Infiltration System ("TWIS") by covering the infiltration pipes with styrofoam instead of earth in order to avoid the federal permitting process. The modified design of the TWIS allowed for a Groundwater Discharge permit and EPA allowed the company to avoid obtaining an UIC, and corollary NPDES permit. The circumstances that led to the issuance of the current Groundwater Discharge Permit instead of a NPDES permit were intentionally crafted by the company and unfortunately, endorsed and participated in by EPA Region 5.

* * *

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioner satisfies the threshold requirements for filing a petition for review under Part 124, to wit: (**1.)** Petitioner has standing to petition for review of the permit decision because it participated in the public comment period on the permit. See 40 C.F.R. § 124.19(a). Petitioner commented in writing, participated in, and provided verbal comments at the public hearing held Tuesday, March 25, 2014 at 6:00 pm, at Westwood High School in Ishpeming, MI 49849;

and (2.) The issues raised by Petitioner in its petition were raised during the public comment period and therefore were preserved for review.[16]

* * *

PARTIES AND STANDING

The Petitioner, Save the Wild U.P. through its members of the Board of Directors and Advisory Board, called for and actively participated in a Public Hearing, and provided extensive written comment during the Public Comment Period related to Permit No. GW1810162. In requesting an EAB review of this permit and EPA's failure to require a NPDES permit, the Petitioner is acting in accordance with their bylaws, as Save the Wild UP "is organized exclusively for scientific, educational and charitable purposes within the meaning of § 501(c)(3) of the Internal Revenue Code of 1986 or comparable provisions of subsequent legislation (the "Code"). The purposes for which Save the Wild UP + Action is organized are to protect Michigan's Upper Peninsula from unsustainable development, degradation, and dangerous contamination through public awareness and education, and to preserve natural, scenic and recreational areas important to the life of present and future residents of the Upper Peninsula."[17]

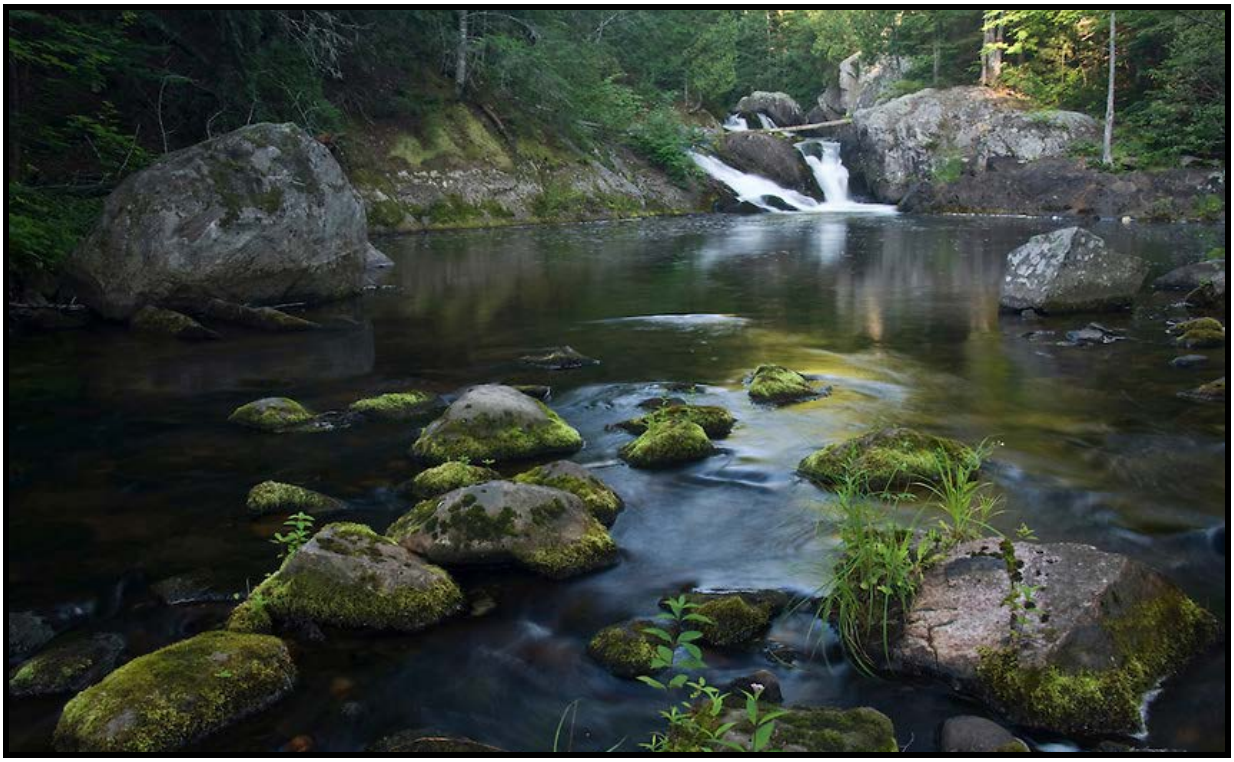

Figure 4: Twin Falls, East Branch Salmon Trout River (© Aaron Peterson, photographer)

[16] See Attachments 1A-1F: Save the Wild U.P. Written Comments

[17] Save the Wild U.P. + Action Bylaws § 1.

The Petitioner resides in the Upper Peninsula of Michigan. Since 2004, the Petitioner has actively participated in public meetings, panel discussions, and public hearings related to Michigan's nonferrous metals mining legislation, respectfully expressing environmental concerns, and providing informed verbal input and written comment upon permitting decisions related to Eagle Mine's facilities, including the wastewater treatment facilities at issue in this Petition for Review.

The Petitioner's representatives own property, reside, derive livelihood and/or recreate on lands adjacent to the Salmon Trout River and the Yellow Dog River plains, Eagle Mine's facility, the Eagle Mine Waste Water Treatment Facility (WWTF), and the Eagle Mine Treated Wastewater Infiltration System (TWIS).[18] The Petitioner and its representatives suffer both immediate and long-term harm from Eagle Mine's activities, especially air, land and water pollution[19], and degradation of the Salmon Trout River and Yellow Dog River watersheds.

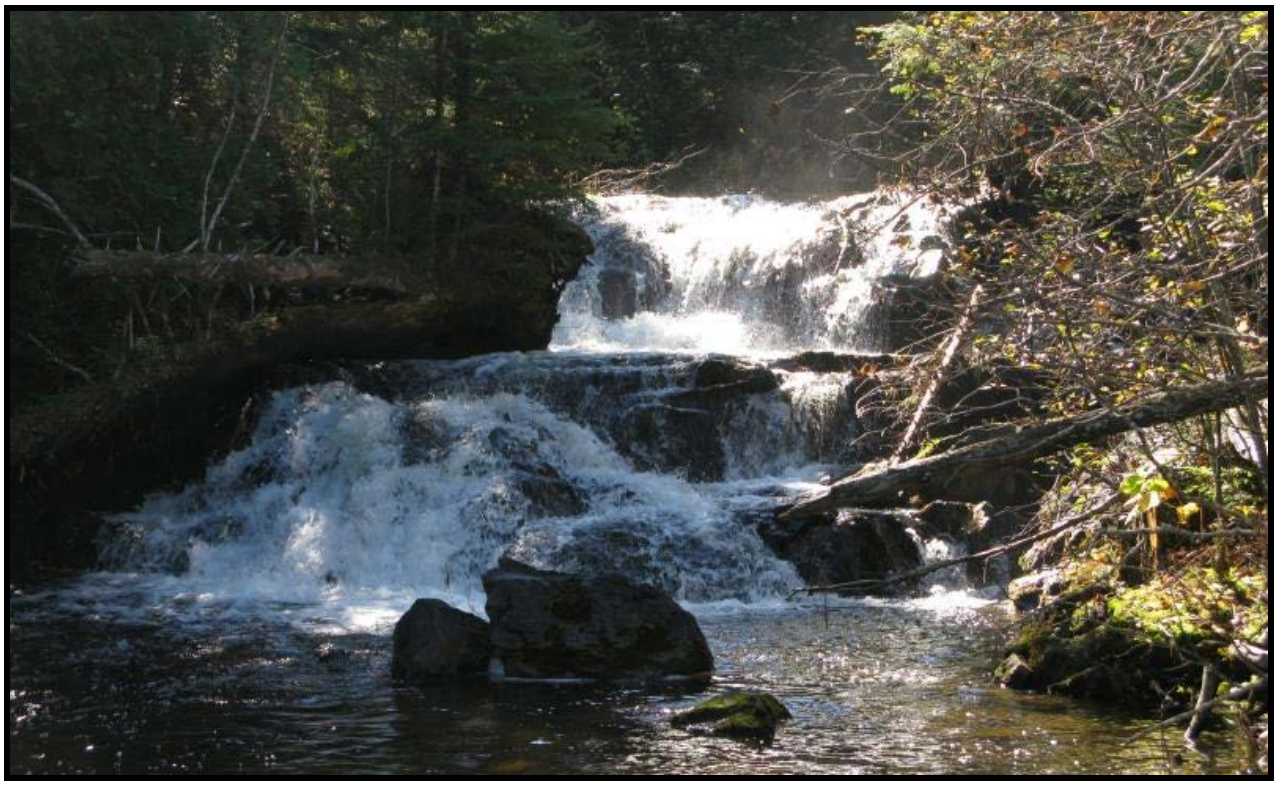

Figure 5: Dodge City Falls, East Branch Salmon Trout River (© Jacob Emerick, photographer)

[18] As originally designed, Eagle Mine's TWIS system qualified as a Class V underground injection well (UIC) permit, but Eagle Mine later claimed their modified TWIS design would not require federal permitting, and EPA Region 5 allowed the TWIS facility to operate with a Groundwater Discharge Permit issued by MDEQ.

[19] The CWA prohibits the discharge of pollutants from a point source without a permit, and defines the discharge of a pollutant as being "any addition of any pollutant to navigable waters from a point source." See 33 U.S.C § 1311(a).

PERMIT DECISION HARMS PETITIONER AND THEIR USE OF THE RESOURCE

The Petitioner (Board Members, Advisory Board Members, and Save the Wild U.P. supporters) use, reside near, depend upon, derive livelihood from, and otherwise enjoy abundant natural resources of the Salmon Trout River Watershed, including fishing for trout and other coldwater fish; foraging for edible plants including wild huckleberries and blueberries *(Vaccinium spp.)*, sugarplums *(Amelanchier),* chokecherries *(Prunus virginiana),* wild black raspberry *(Rubus occidentalis),* thimbleberries, wintergreen, sorrel, mint, wild onions and garlic *(Allium),* fiddleheads *(Matteuccia struthiopteris*, cattail tubers, watercress, wild chicory and various wild mushrooms; timber production; diverse recreational uses (including camping, rock climbing, hiking and birdwatching); aesthetic, creative, spiritual and religious retreat; hunting; use of lakes, ponds, springs, riparian zones, aquatic wetlands, waterfalls, swimming holes, rivers and other natural areas surrounding the Eagle Mine facility; **and especially reliance upon shallow wells operated by traditional hand-pumps for drinking water and household needs, at both seasonal and year-round residences.**

Petitioner contends that Eagle Mine's Environmental Impacts Assessment, which narrowly limited the mine's "affected area" to a discrete fenced zone surrounding the facility itself, and egregiously failed to measure or assess diverse and predictable impacts beyond the facility's property line, including but not limited to extensive infrastructure changes, degradation of recreational values, degradation of property values, threats to food harvesting, air and soil contamination, and serious threats to both groundwater and surface waters of the State of Michigan. Eagle Mine's cumulative impacts[20] directly affect the Salmon Trout River and Yellow Dog River watersheds, and the Yellow Dog Plains of Northern Marquette County, a remote and formerly pristine area, off-the-electrical grid, and beyond the reach of cell phone tower service. This remote area, approximately 25 miles from east to west, and 30 miles from north to south, could not be crossed *except by seasonal sand logging roads* until the Fall 2014, when the Marquette County Road Commission cleared, constructed and paved a controversial "County Road" which now ends at the gate of the Eagle Mine facility. Such a road constitutes an unpermitted haul road for Eagle Mine, under the State of Michigan's Part 632 legislation governing nonferrous metallic mining.

The Petitioner representatives are personally harmed by Eagle Mine's noise pollution, light pollution, air pollution and water pollution, including calculable airborne heavy-metals contamination of air,

[20] The Eagle Mine and all of its connected actions, including Mine, Mill, haul road, infrastructure, and permit revisions must be considered in their entirety. Through a tactic of regulatory steamrolling there is momentum and bias in favor of permitting a project. 1989, now-Justice Breyer referred to this as "a bureaucratic steam roller," the very action which environmental regulations were designed to prevent: "The way that harm arises may well have to do with the psychology of decision-makers, and perhaps a more deeply rooted human psychological instinct not to tear down projects once they are built. But the risk implied by a violation of NEPA is that real environmental harm will occur through inadequate foresight and deliberation. The difficulty of stopping a bureaucratic steam roller, once started, stills seems to us, after reading *Village of Gambell,* a perfectly proper factor for a district court to take into account in assessing that risk, on a motion for a preliminary injunction." *Sierra Club v. Marsh,* 872 F.2d 497,504 (1st Cir1989).

wild foods and fish, especially critical with regards to aquatic life, reliance upon wetland plants, coldwater fisheries and reliance upon drinking water pumped from shallow surficial wells in the sandy soils surrounding Eagle Mine's facility.

* * *

ARGUMENT

A. Standard of Review

Pursuant to 40 C.F.R. §

B. Primary Concerns re: Conditions of Permit No. GW1810162, All Indicating Non-Compliance With the Clean Water Act

1. Surface Water Concerns

In comment from the GWDP Public Hearing, 2014, Petitioner commented: "The Eagle Mine needs an NPDES permit. The permit is authorizing an illegal discharge to surface water." In response, the MDEQ noted, "The EPA responded in February of 2014 to a request for an NPDES permit for this discharge by stating effluent and monitoring well data from the mine do not indicate exceedances of surface water based limits. In addition, they do not think there is evidence of a direct discharge to surface waters. The permit protects both groundwater and surface water. The Part 22 Groundwater Quality Rules require any discharge within 1,000 feet of a surface water must meet the Water Quality Standards for surface water, [Rule 2224]. Even though the venting location is greater than 3,000 feet from the discharge site, the MDEQ requires the mine to treat the wastewater to meet surface water based limits. In doing so the permit is more protective of surface water than the groundwater rules require. Further, the MDEQ has protected surface water by including limits that are protective of the springs where the discharge vents."

Petitioner contends that limits set by MDEQ fail to protect aquatic life, and are in fact calculated using hardness values that are unrealistic, unachievable, unmonitored, and unconfirmed.[21]

[21] Groundwater-surface water interface standards are based on the hardness of the receiving water (discharge at the springs); MDEQ and Kennecott are using **50 milligrams per liter** for standard calculations.

Parameter	Surface Water Standard at 50 mg/L Hardness	Downgradient Groundwater Permit Limit	NEW Permit Effluent, Max Daily Limit
Barium	210	1,000	Report
Beryllium	0.41	3	Report
Cadmium	1.34	3.0	5
Chromium	42.0	52	Report
Copper	5.0	10	21
Lead	4.8	3.0	Report
Nickel	28.9	57	Report
Zinc	65.7	1,200	Report

Source: Foth & Van Dyke, 2006, Table 2; Groundwater Discharge Permit.

Figure 6: Table compares Eagle Mine's (2006, Foth & Van Dyke) calculations for metals in **groundwater monitoring wells** with MDEQ's limits for **surface water**. Downgradient maximum contaminant limits for groundwater persist in the new permit, but **effluent limits** have increased for Cadmium and Copper, and other metals are listed as Report-only. Groundwater limits are clearly not protective of groundwater/surface interface standards. Additionally, Eagle Mine and MDEQ are using a hardness value of 50 milligrams per liter to calculate their surface water standard, *but actual hardness of the water coming out the TWIS will be less than 5 mg/l.* Neither the mine nor the agency can demonstrate that Eagle Mine's groundwater discharges, once vented or expressed to surface water, are compliant with federal Clean Water Act requirements, or protective of Aquatic Life values. There are no monitoring or compliance wells sited between the TWIS and the GSI (springs). All parties agree that groundwater discharges will be expressed as surface water, now or in the immediate future, at sensitive springs considered the "groundwater surface-water interface" (GSI), sometimes referred to as "seeps" although these springs flow year round, have measurable discharge, and are clearly hydrologically connected with the adjacent surficial groundwater system. The interconnection between TWIS, groundwater, GSI and the Salmon Trout River has been acknowledged and understood from the start, even prior to Eagle Mine's application for the initial Groundwater Discharge Permit.[22] The GSI springs have visible and significant nexus to the Salmon Trout River, and play a critical ecological role in the health of this cold-water trout stream of excellent water quality.

[22] See Exhibits, MDEQ letter dated September 14, 2005, from William Creal, Chief of Permits Section, MDEQ Water Bureau to Mr. Cherry of Kennecott (Eagle Mine), discussing concerns over mercury in discharges from the TWIS, which acknowledges ultimate venting of the discharge into a tributary of the Salmon Trout River (through springs).

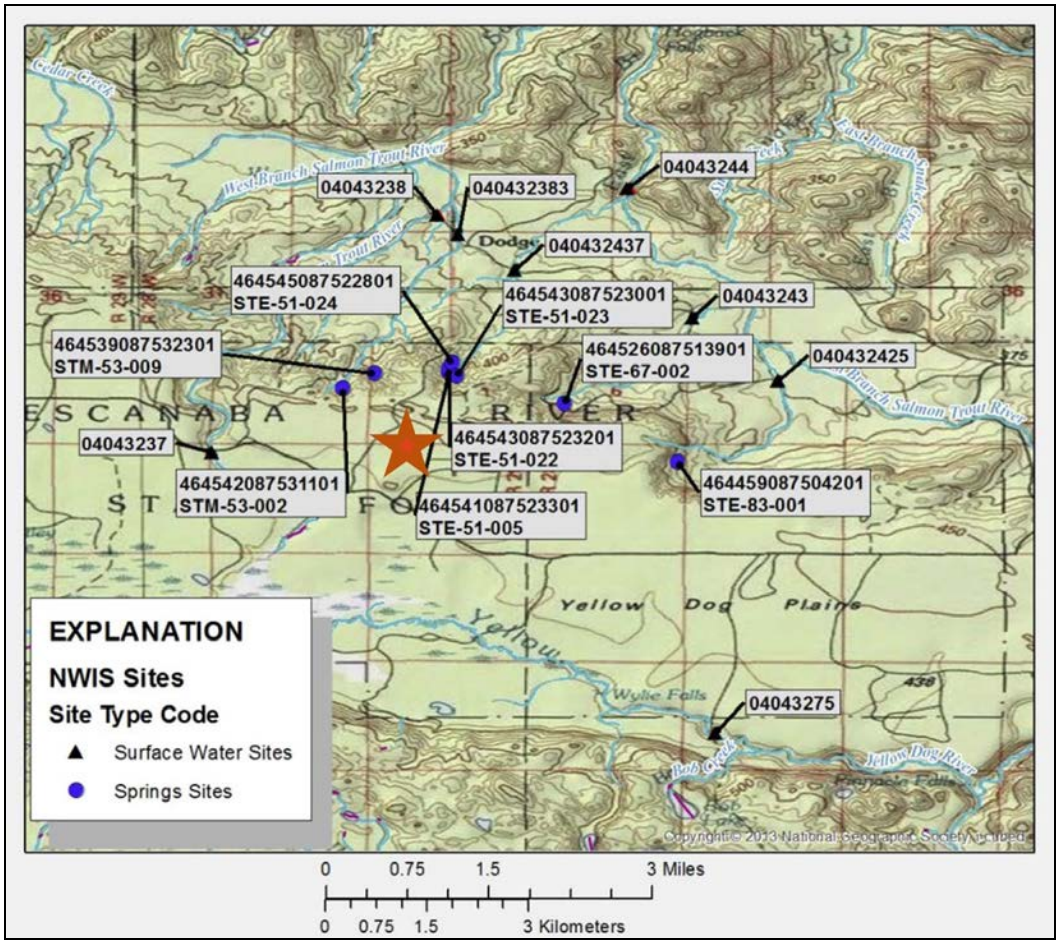

Figure 7: USGS map showing locations of Springs and Stream sampling sites on the Salmon Trout River (star identifies Eagle Mine)

Under terms of the Groundwater Discharge Permit, Eagle Mine and MDEQ require no monitoring plan for the GSI. No surface water limits are included in the Groundwater Discharge Permit, and groundwater flow contours included in the revised permit application were outdated. Effluent limits have been established for only a handful of constituents. Regardless of effluent MCL standards, Petitioners contend that the effluent enters groundwater as *deionized water,* which appears to be contributing to the uptake and transport of metals and other constituents of concern.

In addressing the public's concerns over MCLs, the MDEQ included (See MDEQ Response Summary, p. 17) an untitled table, stating that it "shows allowable limits for protection of surface and groundwater. The surface water limits in that table are compliant with the Federal Clean Water Act." The MDEQ's table includes permitted effluent limits, expected effluent values, groundwater limits and default WQBELs. According to EPA's own guidelines, WQBELs should more appropriately be a value calculated to reflect actual water quality for receiving waters, and analysis of point source pollutants. As such, WQBELs, being NPDES "water quality-based effluent limitations" for point source discharges,

are inappropriate to cite in Eagle's Groundwater Discharge Permit, reinforcing the Petitioner's claim that NPDES is the appropriate regulatory tool for this industrial discharge, and a Clean Water Act permit should be required for the facility.

MDEQ offers no "primary headwater stream standards" for use in assessing and protecting sensitive and healthy headwaters of watershed such as the Salmon Trout River, and fails to protect the springs of the Salmon Trout River as "lotic surface water" as defined under Administrative Rules, "Part 8 Water Quality Based Effluent Limit Development for Toxic Substance." The MDEQ's inclusion of WQBELs[23] in their response summary demonstrates a fundamental misunderstanding of the CWA § 303(c)(2)(8) designed for protection of aquatic life. According to the EPA, "Water quality standards are important because they help to protect and restore the quality of the Nation's surface waters, consistent with the requirements of the Clean Water Act. Standards help to identify water quality problems caused by, for example, improperly treated wastewater discharges, runoff or discharges from active or abandoned mining sites..."[24] It is exactly these types of standards the petitioners seek to apply at the Eagle Mine facility, as a NPDES permit is more protective of surface waters.

According to EPA Region 5's website, EPA initially required the Eagle Mine TWIS facility to be permitted under the Safe Drinking Water Act (SDWA) to protect underground sources of drinking water.[25] However,"MDEQ determined that there is no immediate connection[26] between the water discharged underground at the site and local surface water. Therefore, MDEQ did not require the company to apply for a surface water discharge permit. EPA evaluated this decision and concurred." There is no evidence given to support the MDEQ's claim that discharges and surface water are not connected, in fact, all evidence supports the opposite conclusion. Any question of timing or "immediacy" addresses uncertainty about the exact delivery date. There is no doubt as to the immediate underlying connectivity of groundwater discharges (at 1,440' elevation) and the venting of groundwater in springs (at 1,267' elevation) at a site ~3,500' northeast, downgradient of the TWIS.

Petitioner contends that EPA Region 5 failed to comprehend the basic functions of this mining operation, general hydrology of the mine site ("affected area"), and the harmful impacts of discharges of industrial wastewater at the Eagle Mine. In written comments dated January 10, 2014, Petitioner (Jeffery Loman) stated: "First, as evident by the record of activities of the MDEQ, there is a connection between the water discharged through the rapid infiltration system at Eagle mine and surface water.

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[23] Part 8, R 323.1205 (e)"Monthly average water quality-based effluent limit (WQBEL)" means an effluent specific water quality-based effluent limit in a NPDES permit developed to protect aquatic life, human health, and wildlife from chronic chemical specific toxicity or aquatic life from chronic whole effluent toxicity. http://water.epa.gov/scitech/swguidance/standards/upload/2006_11_02_standards_wqslibrary_mi_mi_5_wqs-toxics.pdf

[24] http://water.epa.gov/scitech/swguidance/standards/imp.cfm

[25] http://www.epa.gov/r5water/uic/kennecott/

[26] This statement by the MDEQ and EPA Region 5 appears based on an erroneous finding of fact, and an arbitrary definition of hydrological 'connection' as distinct from 'immediate connection.' Additionally, *"The words 'forthwith' and 'immediately' have the same meaning... whether there has been such action is a question of fact, having regard to the circumstances of the particular case."* Cockburn, C. J., in Reg. v. Justices of Berkshire, 4 Q. B. Div. 471.

The record of activities by MDEQ as they processed permit applications makes this abundantly clear. MDEQ, the mine owners, and numerous experts employed by various plaintiffs who have brought legal challenges to the permitting of this mine have all agreed that these industrial mine water discharges will "vent" to the surface and flow into the East Branch of the Salmon Trout River which eventually flows into Lake Superior. Next, as clearly describe in both Rio Tinto's communication to EPA Region 5, on March 24, 2010, (See: http://www.epa.gov/r5water/uic/kennecott/pdf/2010/2010-03-24_peacey_to_harvey.pdf) and in the July 1, 2010, letter signed by Nancy Stoner, Deputy Assistant Administrator for Water, acting for PeterS. Silva, Assistant Administrator for Water, "the fluid distribution system is above ground and is thus not a subsurface system.
(See: http://www.epa.gov/r5water/uic/kennecott/pdf/2010/2010-07-01_silva_to_cherry.pdf)

Section 402 of the Clean Water Act mandates a permitting authority to require a NPDES permit for any facility that discharges pollutants to surface waters of the United States. Clean Water Act (CWA), Section 402; 33 USCA 1342. Congress intended the broadest possible regulation of United States waters. *See United States v Rivera Torres, 826 F2d 151, 154* (1st Cir1987) (citing Conference Report on Section 2770, reprinted in *1 A Legislative History of the Water Pollution Control Act Amendments of 1972, at 178); US v Texas Pipe Line Co,* 611 F2d 345, 347 (10th Cir1979). In light of Congress's purpose in enacting the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," the scope of this regulation encompasses discharges that end up in surface waters. *Solid Waste Agency of Northern Cook County v United States Army Corps of Engineers,* 531 US 159; 121 S Ct 675, 680 (quoting 33 U.S.C. § 1251(a)).

A facility must obtain a permit for indirect discharges into surface waters when the discharges come from the facility as a point source. The record demonstrates without a doubt that water from the mine will discharge to surface waters, in this case the East Branch of the Salmon Trout River via groundwater, subjecting the discharges to NPDES permitting requirements. Not requiring a permit for groundwater discharges from a point source would frustrate Congress's purpose in enacting the Clean Water Act. *See United States v Earth Sciences, Inc,* 599 F2d 368, 373 (10th Cir 1979).

1. Case law requires NPDES permitting for groundwater discharges where there is a connection to surface waters.

Applicable case law affirms that groundwater discharges necessitate an NPDES permit when it can be shown that such discharges will reach surface waters. The U.S. Supreme Court has not had the opportunity to resolve confusion among lower courts specifically regarding CWA coverage of groundwater, but a recent opinion strongly suggests that groundwater sharing a "significant nexus" with surface waters of the United States fall under the jurisdiction of the CWA. *See Rapanos v United States, 126 S Ct 2208* (US 2006), discussed *infra.*

The interpretive history of the CWA does not suggest that Congress intended to exclude from regulation discharges into hydrologically connected groundwater which adversely affect surface

water. *Idaho Rural Council v Bosma,* 143 F Supp 2d 1169, 1180 (D Idaho 2001). Further, the District Court found"that the CWA extends federal jurisdiction over groundwater that is hydrologically connected to surface waters that are themselves waters of the United States." *Id.,* at 1180.

After an extensive review of current case law on the issue of whether groundwater discharges require an NPDES permit, a Washington federal district court concluded, "The logic of these cases is compelling: since the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit." *Washington Wilderness Coalition v Hecla Mining Co,* 870 F Supp 983 (ED Wash 1994).

Several additional decisions hold that Congress intended to regulate "discharges of pollutants that could affect surface waters of the United States." *Id.,* citing *McClellan,* 707 F Supp 1182, 1196 (ED Cal 1988); *Sierra Club v Colorado Refining Co,* 838 F Supp 1428 (D Colo 1993) ("discharge of any pollutant into 'navigable waters' includes such discharge which reaches 'navigable waters' through groundwater").

The Tenth Circuit "has placed a broad interpretation on the scope of the Clean Water Act," finding that it "was designed to regulate to the fullest extent possible those sources emitting pollution into rivers, streams and lakes." *Sierra Club v Colorado Refining Co,* 838 F Supp 1428, 1433 (D Colo 1993). Discussing the applicability of the Clean Water Act to groundwater, "[i]n *United States v Earth Sciences, Inc.,* the court ruled that unpermitted leach mining waste escaping into the Rito Seco Creek through overflow of a reserve sump and through groundwater seeps violated the Clean Water Act." 599 F2d 368, 373 (10th Cir1979).

Similarly, in *Quivira Mining Company v EPA,* 765 F2d 126 (10 Cir1985), the Tenth Circuit held that the Clean Water Act gave the EPA authority to issue NPDES permits to regulate discharges from a uranium mining company into normally dry arroyos in New Mexico. While acknowledging that "the arroyos were not navigable in fact," the Court's reasoned as follows:

> the [S]urface flow occasionally occurs, at times of heavy rainfall, providing a surface connection with navigable waters independent of the underground flow. Additionally, the waters of the [arroyos] soak into the earth's surface, become part of the underground aquifers, and after a lengthy period, perhaps centuries, the underground water moves toward eventual discharge at Horace Springs or the Rio San Jose.

Sierra Club v Colorado Refining Co, 838 F Supp 1428 (1993), 1434 (D Colo 1993), quoting *Quivira,* 765 F2d at 129.

Thus, the Tenth Circuit does not require a connection of continuously running water from groundwater to surface water but rather requires the anticipated result that groundwater discharge will ultimately reach surface waters of the United States. In reaching this conclusion, the *Quivira* court repeatedly stressed that "it was the clear intent of Congress to regulate waters of the United States to the fullest extent possible." Id. at 1434, quoting *Quivira,* 765 F2d at 130.

The Seventh Circuit appears to have taken a more restrictive approach, noting that "the possibility of a hydrological connection between ground and surface waters is insufficient to justify CWA regulation." *Village of Oconomowoc Lake v Dayton Hudson Corp,* 24 F3d 962 (7th Cir1994). But notably, *Oconomowoc Lake's* broad statement does not suggest that Congress did not intend to regulate groundwater but rather that a permit would be required if there were a connection between that groundwater and surface water – and that is an undisputed fact at the Eagle site. In addition, *Oconomowoc Lake* fails to make mention of an earlier Seventh Circuit decision which held that the EPA is authorized to regulate tributary groundwater, "at least when the regulation is undertaken in conjunction with limitations on the Permittee's discharges into surface waters." *United States Steel Corp v Train,* 556 F2d 822, 852 (7th Cir1977).

In *Rapanos v United States,* 126 S Ct 2208 (2006), Justice Kennedy's controlling opinion stressed that until clarifying regulatory language is drafted, the test for whether the connection is sufficiently close between a non-navigable water and a navigable one to allow an assertion of CWA jurisdiction, is whether the requisite "nexus" can be shown between the two. Justice Kennedy would find such a nexus when the non-navigable water (wetlands in the *Rapanos* case),"significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as "navigable." (Id. at 2248).

Justice Kennedy's opinion indicates a potentially broader application over waterways which share a hydrologic connection with navigable waters. For example, his opinion posits that "certain water-bodies could conceivably constitute both a point source and a water," 2006 U.S. LEXIS 4887, and calls for decision-makers to "establish a significant nexus on a case-by-case basis" until more specific regulations are drafted.

A district court in Texas has already applied the "significant nexus" test as proposed by Kennedy in *Rapanos.* See *United States v Chevron Pipe Line Co,* 2006 WL 1867376, *7 (ND Tex 2006). Because in *Rapanos,* Justice Kennedy "failed to elaborate on the 'significant nexus' required," the district court looked for guidance from governing precedent, and made its determination on a "case-by-case basis." (*Id.* at *24) Thus, under Kennedy's case-by-case, "significant nexus" test, discharges into groundwater with a demonstrated connection to surface waters of the United States would require an NPDES permit.

The majority of courts recognize the goal of the Clean Water Act as a broad mandate to protect surface waters, focusing on the effect of pollutants reaching the surface waters rather than on the nature of the water transporting pollutants to those surface waters. The Supreme Court has not rejected this conclusion; rather, existing opinions and its recent ruling in *Rapanos* reinforce the likelihood that hydrologically connected groundwater falls within the judicially-determined scope of permitting requirements. Given the purpose of the CWA to protect water, it does not matter whether the pollutants reach the surface water directly or indirectly via groundwater, an NPDES permit is required.

Finally, the permits issued to Kennecott do not require monitoring of surface water quality, even at the Groundwater/Surface water interface (GSI). It is undisputed that Kennecott's waste water will exit the ground via "seeps" that run into the East Branch of the Salmon Trout River. It is inexcusable and violative of the Part 632 rules and the Clean Water Act that this water is not monitored at any point near where it enters surface water. This violation is even more poignant given that the MDEQ staff recommended that surface water quality standards apply to the GSI. Obviously that has not happened and there has been no satisfactory answer to the question of "why not?" These facts lead to an outdated and blind acceptance of a situation wherein no one will know the quality of Kennecott's waste water as it empties into the Salmon Trout River and ultimately Lake Superior. This state of affairs defies common sense and is unfair to the citizens of Michigan who rely on the MDEQ and EPA to protect their water. In this instance, there is no way that ignorance will be bliss.

2. The MDEQ Has Determined That Eagle Mine's Activity Will Result In Discharge To Surface Waters Of The State

A September 14, 2005 letter from the MDEQ Water Bureau's Permit Section Chief to Kennecott officials determined that Kennecott's proposed groundwater discharge "is anticipated to result in a new loading of pollutants, specifically mercury, to the surface waters of the state" and *"requires compliance with Water Quality Standards."* The letter goes on to state that "we believe that Rule 323.1098 applies to this activity." Rule 323.1098 addresses any activity "that is anticipated to result in a new or increased loading of pollutants by any source to surface waters of the state and for which independent regulatory authority exists requiring compliance with water quality standards." Mich Admin Code R 323.1098. By invoking this rule, the MDEQ acknowledged that mining activities would result in a discharge to surface waters, that Rule 1098 applies and that the Agency has regulatory authority over this discharge. Despite this evidence, the MDEQ and EPA decided just the opposite and offers no substantive reasoning for his decision.

Based on case law as well as the MDEQ's own determinations evidenced in the record, the Eagle Mine requires a NPDES permits for discharge of pollutants reaching surface waters. Case law regarding the Clean Water Act's scope of regulation recognizes the impact of a discharge to surface waters, whether the discharge is direct or occurs through natural forces or hydrologically connected groundwater.

2. Permit Condition: Part I, § 3: pH Maximum Daily Limit (MDL) raised to 9.7 at downgradient wells; allowable pH levels have been increased from the original permit to enable, rather than regulate, pH levels which have been rising in water monitoring wells surrounding the Treated Wastewater Infiltration System.

3. Permit Conditions: Part 1, § 2 and Part 1, § 3: Addition of monitoring well, MW-X an upgradient/ side gradient monitoring well: no specifications or mandates about location were given for this well. New downgradient groundwater monitoring wells will be required, QAL075A and QAL075D: no specifications or mandates about location were given for this well.

4. Permit Conditions: Part 1, § 9, Subsection f:Uranium Notification (language added to permit issued March 25, 2015). Total Uranium added to list of effluent constituents. Wastewater Treatment Methods of Concern: Multiflo Clarifier (metals precipitation): Metals precipitate known to contain Uranium; disposal methods are unknown.[27] While there is new language adding "Uranium Notification" (on effluent), the actual table of effluent limitations does not include the stated 5 ug/L limit, "Report / Weekly / 24 hour composite." Presence of uranium in sump-water from the Eagle Mine facility was detected in 2013; Permittee has failed to provide evidence identifying the source of the Uranium, which has risen from 33 ug/L at detection (April 2013), to 103 ug/L (November 2014);[28] there is no reason to believe the facility can comply with remediation methods as Uranium levels continue rising. "Reverse Osmosis" is the EPA-recommended treatment, according to the MDEQ's Response Summary.[29]

The MDEQ's Response Summary address issues of Uranium, but fails to calculate the potential harms of experimental Reverse Osmosis for groundwater discharges. "Regardless of the source of Uranium, all rock at Eagle Mine is required to be actively managed so that all water that comes into contact with rock within the contact area must be controlled and treated before being released to the environment."[30] The only method of Uranium-removal, however, is "Reverse Osmosis," a much-touted feature of the Eagle Mine WWTF, which de-ionizes the water prior to discharge. No conclusion as to the source or future sources of uranium have been drawn. Groundwater exceedances in compliance wells surrounding the TWIS, however, appear causally-related to the use of Reverse Osmosis in the WWTF, and the MDEQ has suggested that they may experimentally "try bypassing the Reverse Osmosis" to correct exceedances in TWIS compliance wells. Reverse Osmosis has never been used for treating mining wastewater prior to groundwater discharge and must be considered an experiment running in real-time with unknown environmental repercussions, and unknown impacts to surface waters fed by groundwater recharge at this site. If facility's use of Reverse Osmosis is experimentally bypassed (as MDEQ suggests), the Petitioner contends that Uranium would fail to be removed from wastewater discharges.

5. Permit Conditions: Part 1, § 11 Subsections f and g: 1, 2, & 3: Chloride and Sodium Maximum Daily Limits (MDL) changed to Report. Due to recent changes in legislation, sodium and chloride limits have been raised for both contaminants in effluent and groundwater.

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[27] **MDEQ's addition of Uranium Notification**: "Should Uranium levels in the effluent reach or exceed 5 ug/l, the Permittee must notify the Department within 24 hours, and within seven days submit a report indicating the source of the uranium and describe the steps taken or to be taken to reduce or eliminate the source." As of late 2014, levels of Uranium in facility's sump water were 103 ug/L.

[28] See statement on Uranium monitoring, Community Environmental Monitoring Program: http://www.cempmonitoring.com/wp-content/uploads/2012/10/CEMP-Monthly-Update_December-2014.pdf

[29] **On Uranium From Michigan Department of Environmental Quality Response Summary:**
The permit now contains language requiring notification within 24 hours if uranium levels in the effluent exceed 5 ug/l. In addition, within 7 days, the permit requires a plan for reducing or eliminating the source of uranium. MDEQ has the authority to require additional activities to address any exceedance of applicable standards (the drinking water standard is 30 ug/l). See Part I 8 (f) for more detail.

[30] GW1810162, MDEQ Response Summary, page 13.

6. Permit Condition: Wastewater Treatment Methods and Part 1, Effluent Monitoring point EQ 1: Double Pass Reverse Osmosis**:** Related to Vanadium concerns, Reverse Osmosis seems to be cause of Vanadium spiking in groundwater. Total Vanadium Maximum Daily limits raised to 3.1 ug/l: While Vanadium levels continue to rise, the source of the increase has not been determined. Allowing for more Vanadium is not a solution. Monitoring wells experiencing highest vanadium levels were QAL008A and QAL0051A and were specifically exempted from the groundwater limit (Part 22 Groundwater Standard) of 3.1 ug/l.[31] According to MDEQ, the "Background Groundwater Quality" at the site is 1.6 ug/L for Vanadium. Monitoring well QAL008A has risen to

Based on changes seen in pH contours of the Eagle Mine site monitoring wells, together with conclusions reached in Ground Water Quality Reports, Petitioner contends that rising total levels for Vanadium and other toxic metals, esp. as measured in wells QAL008A and QAL0051A, are likely the result of changing geochemical conditions brought on by the discharge of deionized water to the shallow aquifer by mounding from TWIS. These changes are possibly caused when rising water caused by TWIS discharges flow along subterranean channels, previously untraveled and less saturated, thereby dissolving constituents contained within the glacially-deposited sand. Changes in redox conditions (salinity, pH and metals exceedances) at the Eagle Mine appear causally-related to TWIS discharges.

[31] **On Vanadium From Michigan Department of Environmental Quality Response Summary:**
According to the MDEQ response summary: "Vanadium has been detected in the A and D Zone aquifer at several wells both upgradient and downgradient of the TWIS. Over the past year, vanadium levels in wells QAL008A and QAL051A (within the mound) have increased significantly, while vanadium in QAL053A (outside the mound) have either remained non detect or increased slightly. As a result, the permit now requires installation of a monitoring well cluster downgradient of well QAL008A, and outside of the influence of the mound. The site specific limit for Vanadium will then be applied to the new wells. Monitoring wells QAL008A and QAL051A have been changed to report only for vanadium. The MDEQ will continue to review vanadium levels in QAL051A and require any necessary changes to the monitoring program should levels continue to increase."

* * *

CONCLUSION AND RELIEF REQUESTED

The NPDES program is intended to regulate discharges to U.S. waters from industrial point source facilities. NPDES permits more appropriately ensure that the state's surface water quality standards and, critically, federal requirements of the Clean Water Act, are attained.

Eagle Mine's argument that allowable contaminants (chloride, sodium, vanadium, pH, nitrate, iron, phosphorus, potassium) were increased in the new permit so as to "align with the natural conditions of the groundwater" has no merit, as MDEQ failed to calculate, monitor, or assess impacts to aquatic life in the nearby groundwater-surface-water-interface, where baseline stream sampling shows most contaminants are below the detection point.

According to the Watershed Management Plan for the Salmon Trout River, and based upon ongoing monitoring by USGS, "The majority of the tributaries of the Salmon Trout River are groundwater fed, providing consistent base flows throughout the year," and "groundwater seeps and groundwater fed wetlands are of primary importance to the maintenance of stream ecosystems and flow regimes. This source of water is maintained through recharge, or the infiltration of water from the ground surface down to the water table." (Salmon Trout River 2006 Watershed Management Plan, p.6, 7)

In the State of Michigan, "all surface waters of the state are designated for and shall be protected for (...) 5. Warmwater fishery (or coldwater fishery) 6. Other indigenous aquatic life and wildlife." Citation: R323.1100 of Part 4, Part 31 of the Natural Resources and Environmental Protection Act, 1994 PA 452, as amended.

Given clear evidence that groundwater-fed springs of the Salmon Trout River are located a short distance northeast of the Eagle Mine "Treated Wastewater Infiltration System" (discharges authorized by Permit No.GW1810162); given clear evidence that MDEQ and Eagle Mine baseline hydrologic surveys demonstrate a northeasterly flow of groundwater through surficial aquifers; given broad consensus that Spring 23 (USGS monitoring point STE-51-023) is the likely point of GSI for groundwater discharges from Eagle Mine — Petitioner concludes that the current GWDP is inadequate for regulating discharges to surface waters of the state of Michigan.

The Groundwater Discharge Permit for Eagle Mine constitutes an illegal and unregulated wastewater discharge to headwater springs of the Salmon Trout River, fails to protect "coldwater fishery values" and "indigenous aquatic life."

This Groundwater Discharge Permit is the wrong tool with which to regulate Eagle Mine's wastewater discharges. After being discharged to groundwater, effluent is transported through a shallow aquifer in unconsolidated glacial sands, to re-emerge downgradient (3,500' northeast of Eagle Mine's Treated

Wastewater Infiltration System), in the form of freshwater springs feeding the East Branch of the Salmon Trout River. It is undisputed that the discharges leaving the mine will end up in springs, rivers and ultimately Lake Superior (at a point 10 miles NE). Permit conditions set for effluent discharge fail to protect surface water. The Petitioner requests that the EPA require Eagle Mine to obtain a Clean Water Act permit or require EPA to do so, with limits sufficiently protective of the identified groundwater-surface water interface, including aquatic life, fish and wildlife dependant upon the health of freshwater springs, the Salmon Trout River, and Lake Superior.

With regards to the (TWIS) used for industrial wastewater discharges at the Eagle Mine facility located in Marquette County, Michigan, in Sections 11 and 12 of Township 50 North, Range 29 West, Petitioner requests the regulation in accordance with the Clean Water Act, specifically by use of a National Pollution Discharge Elimination Systems (NPDES) with oversight provided by the regulatory authority of the Environmental Protection Agency.

_____

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Petitioner

Kathleen Heideman, Save the Wild U.P. president (signing for "Petitioner")

Alexandra Maxwell, Save the Wild U.P. interim director (signing for "Petitioner")
Date: April 24, 2015

* * *

LINKS TO EAGLE MINE GROUNDWATER DISCHARGE PERMIT FILES

- Notice of Public Hearing for Eagle Mine Groundwater Discharge Permit
  http://www.michigan.gov/documents/deq/wrd-gw-EagleMine-PublicHearing-PN_446876_7.pdf

- Eagle Mine Groundwater Discharge Permit Application
  http://www.michigan.gov/documents/deq/deq-wrd-gw-EagleMine-application_445401_7.pdf

- Eagle Mine Groundwater Discharge Permit-DRAFT
  http://www.michigan.gov/documents/deq/deq-wrd-gw-EagleMine-permit_DRAFT_445403_7.pdf

- Eagle Mine Groundwater Discharge Permit-FINAL
  http://www.michigan.gov/documents/deq/wrd-gw-EagleMine-permit-final_485411_7.pdf

- Eagle Mine Groundwater Discharge Permit-Fact Sheet
  http://www.michigan.gov/documents/deq/wrd-gw-EagleMine-FactSheet_451498_7.pdf

- Eagle Mine Contour Maps
  http://www.michigan.gov/documents/deq/wrd-gw-EagleMine-ContourMaps_451499_7.pdf

- Eagle Mine Public Hearing Presentation
  http://www.michigan.gov/documents/deq/wrd-gw-EagleMine-Hearing-presentation_455676_7.ppt

- Eagle Mine Groundwater Permit Responsiveness Summary
  http://www.michigan.gov/documents/deq/wrd-gw-EagleMine-ResponseSummary_485414_7.pdf

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LIST OF ATTACHMENTS

Attachments 1A-1F: **Save the Wild U.P. Written Comments**

- **Michelle Halley, SWUP Advisory Board Member**
  File: "1A_MHalley_GWDP_WrittenComments_SWUP.pdf"
- **Kathleen Heideman, SWUP President**
  File: "1B_KHeideman_GWDP_WrittenComments_SWUP.pdf"
- **Gail Griffith, SWUP Board Member**
  File: "1C_GGriffith_GWDP_WrittenComments_SWUP.pdf"
- **Jeffery Loman, SWUP Supporter and former SWUP Advisory Board Member**
  File: "1D_JLoman_GWDP_WrittenComments_SWUP.pdf"
- **Richard Sloat, SWUP Advisory Board Member**
  File: "1E_RSloat_GWDP_WrittenComments_SWUP.pdf"
- **Alexandra Thebert, SWUP Supporter (formerly Exec. Director)**
  File: "1F_AThebert_GWDP_WrittenComments_SWUP.pdf"

Attachment 2: **MDEQ letter dated September 14, 2005, from William Creal, Chief of Permits Section, MDEQ Water Bureau to Mr. Cherry of Kennecott (Eagle Mine) -** discussing concerns over mercury in discharges from the TWIS, and acknowledging the ultimate venting of the wastewater discharge into a tributary of the Salmon Trout River via springs.

File: "2_MDEQ-Creal_letter-2005.pdf"

Attachment 3: **Letter from EPA Region 5 to Jeffery Loman, February 21, 2014**

File: "3_Letter_EPARegion5-to-Loman-Feb2014.pdf"

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LIST OF FIGURES INCLUDED IN APPEAL

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STATEMENT OF COMPLIANCE

The petition has been prepared in complied with the formatting and length requirements specified in the Environmental Appeal Board's Practice Manual.