STATE OF MICHIGAN

DEPARTMENT OF ENVIRONMENTAL QUALITY

SUBJECT: Part 31, Water Resources Protection, and Part 632, Nonferrous Metallic Mineral Mining, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (NREPA)

Petitions of the Keweenaw Bay Indian Community, Huron Mountain Club, National Wildlife Federation, and Yellow Dog Watershed Environmental Preserve, Inc., on the Permits Issued to Kennecott Eagle Minerals Company

File Nos. GW1810162 and MP 01 2007

FINAL DETERMINATION AND ORDER

This contested case is the subject of a Proposal for Decision (PFD) entered on August 18, 2009. The PFD recommended granting applications for permits submitted by Kennecott Eagle Minerals Company (Kennecott) under Part 31 and Part 632. MCL 324.3101, *et seq.* (Part 31), and MCL 324.63201, *et seq.* (Part 632), respectively. The Keweenaw Bay Indian Community, Huron Mountain Club, National Wildlife Federation, and Yellow Dog Watershed Environmental Preserve, Inc., (Petitioners), Kennecott, and the Department of Environmental Quality (DEQ) filed Exceptions to the PFD. [1] The Interim Director of the DEQ, Jim Sygo, issued the permits at issue in this case. Therefore, in an Order of Delegation entered on January 5, 2009, the Interim Director delegated the authority to decide this matter to Frank J. Ruswick, Jr., Senior Policy Advisor.

In a Remand Order entered on November 5, 2009, a schedule was established for the filing of briefs on a legal issue raised in the PFD: whether a land feature identified as Eagle Rock is a place of worship under R 425.202(2)(p). Consistent with that order, the parties filed briefs and responses. Having read those filings, the provision in the

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[1] The Part 31 permit was issued by the Water Bureau, while the Part 632 permit was issued by the Office of Geological Survey. For the sake of clarity, this Final Determination and Order refers to these entities collectively as the DEQ.

Remand Order directing the issuance of a Supplemental PFD is vacated. See MCL 24.281(1). Rather, this contested case, including the legal issue identified in the Remand Order, is now before the decision-maker for a final agency decision. MCL 324.99903(7); R 324.1(3); R 324.74. The decision in this case is based solely on the PFD, evidentiary record, and argument of the parties. MCL 24.285; R 324.74.

Oral Argument

The Petitioners requested Oral Argument in both their Exceptions and Brief in Response to the Order of Remand. In a contested case where the final decision maker did not preside at the hearing, the Administrative Procedures Act (APA) requires the parties be afforded an opportunity to submit written argument, but provides for Oral Argument "with consent of the agency." MCL 24.281(1). See also R 324.74(1). In this case, the Petitioners' Exceptions consist of 338 pages, along with three Appendices, one of which consists of 429 pages of proposed findings of fact. The Petitioners' Brief and Response on Remand consists of 45 and 62 pages, respectively. In considering this record, the arguments of the parties are clearly set forth in their respective pleadings, rendering Oral Argument unnecessary. Therefore, the request for Oral Argument is denied.

Legal Issues

The Petitioners raise two legal arguments in their Exceptions that must be addressed prior to analyzing the project under the substantive permitting standards. The first argument is that the PFD failed "to address dozens of Petitioners' Proposed Findings of Fact and Conclusions of Law...." Petitioners' Exceptions, Record Citations, and Argument in Response to PFD for Mining Permit No. MP 01 2007, p. 127. In support, the Petitioners rely on § 85 of the APA, which requires a final order rule on each proposed factual finding submitted by a party. MCL 24.285. However, this directive is limited to proposed findings "that would control the decision...." *Id.* Thus, if a proposed finding is not addressed, or a

contrary finding is made, a ruling on it is unnecessary because it does not control the decision.[2]

The second argument pertains to the burden of proof, which the Petitioners claim is properly assigned to Kennecott. As a general principal, "in contested cases under the APA, the proponent of an order or petition has the burden of proof and the burden of going forward." *Bunce v Secretary of State*, 239 Mich App 204, 216; 607 NW2d 372 (2000), [citations omitted]. See also *Superior Public Rights v Department of Natural Resources,* 80 Mich App 72; 263 NW2d 290 (1977); R 324.64(1).[3] In this case, the Petitioners are the proponent of an order that denies the applications for a permit. As such, they have the burden to prove entitlement to the relief sought by a preponderance of the evidence. See *Aquilina v General Motors*, 403 Mich 206, 210-211; 267 NW2d 923 (1978). Similar to a civil case, in a proceeding before an administrative agency the preponderance of the evidence standard "requires that the factfinder believe the evidence supporting the existence of the contested fact outweighs the evidence supporting its nonexistence." *Blue Cross and Blue Shield of Michigan v. Governor*, 422 Mich 1, 89; 367 NW2d 1 (1985). The deficiency in the Petitioners' argument is that they conflate requirements in the statute regarding information that must be provided in an application with the burden of proof in a contested case. See MCL 324.63205(3). Neither Part 31 nor Part 632 can be construed as shifting the burden of proof in a contested case from a petitioner to an applicant or the agency. Therefore, the Petitioners assumed the burden of proof in this matter through the filing of a petition for a contested case hearing as a person aggrieved by the issuance of the Part 31 and Part 632 permits. MCL 324.3113(3); MCL 324.63219(1).

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[2] While § 85 does not impose the same requirement on proposed conclusions of law, the effect is the same.

[3] The *Superior Public Rights* Court cited a treatise for the proposition that the burden of proof is a secondary consideration in an administrative hearing: "In determining whether a party has carried a burden of proof, no special requirement of a degree of persuasion is generally applied. The agency finding of fact must be supported by evidence, and reflect a judgment that the evidence preponderates in favor of the finding, but it may be based on reasonable inferences of fact." 80 Mich App at 80, [citations omitted].

The remaining legal issue, and the basis for the November 5, 2009, Order of Remand, concerns the PFD's recommendation that the permit contain a condition that requires any direct impact to Eagle Rock be avoided. The basis for this recommendation is the PFD's finding that Eagle Rock is within a geographic area covered by an 1842 Treaty, and corresponding legal conclusion that the feature constitutes a place of worship for members of the Keweenaw Bay Indian Community (KBIC), a Petitioner in this case. PFD, pp. 170-172. Both the DEQ and Kennecott contend, on a number of grounds, the holding is legally deficient, and thus object to the recommendation.

The first argument advanced by the DEQ and Kennecott is that the Petitioners stipulated that the spiritual and cultural significance of Eagle Rock, along with any rights the KBIC may possess under a 1842 Treaty, were not issues in this case. In this regard, on March 14, 2008, Kennecott filed a pre-hearing Motion to Exclude Claims and Evidence Regarding Cultural and Treaty Rights. In its collective Response to the Motion, the Petitioners stated that the witnesses would only be offered to provide a factual basis to establish KBIC's standing to maintain this contested case and entitlement to receive notice of the application under MCL 324.63205(6) and 324.63219(2) as an "affected federally recognized Indian tribe." In an Order entered on April 9, 2008, Kennecott's Motion was denied based on the representation in the Response. Kennecott and the DEQ assert the Petitioners' representation constitutes a stipulation, rendering improper the subsequent testimony of those witnesses concerning those claims, admitted over objection, and the PFD's consideration of the spiritual significance of Eagle Rock and recommendation to mitigate the purported impact to that use.

In considering this record, the Motion, Response and, most importantly, the Order of April 9, 2008, served to limit the Petitioners' proofs concerning the KBIC's use of Eagle Rock to the issue of its standing. Therefore, in both form and substance the pleadings and Order constitute a stipulation, the legal effect of which is axiomatic:

> To the bench, the bar, and administrative agencies, be it known herefrom that the practice of submission of questions to any adjudicating forum, judicial or quasi-judicial on stipulation of fact, is praiseworthy in proper cases. It eliminates costly and time consuming hearings. It narrows and delineates issues. But once stipulations have been received and approved they are sacrosanct. Neither a hearing officer nor a judge may thereafter alter them. This holding requires no supporting citation. The necessity of the rule is apparent. A party must be able to rest secure on the premise that the stipulated facts and stipulated ultimate conclusionary facts as accepted will be those upon which adjudication is based. Any deviation therefrom results in a denial of due process for the obvious reason that both parties by accepting the stipulation have been foreclosed from making any testimonial or other evidentiary record.
> *Dana Corporation v Employment Security Commission*, 371 Mich 107, 110; 123 NW2d 277 (1963).

Consistent with this principle, the testimony concerning the spiritual significance of Eagle Rock to members of the KBIC and treaty rights is admissible only as it pertains to that entity's standing to challenge the permits at issue in this case. More importantly, the effect of the stipulation precludes any consideration of Eagle Rock as a place of worship or treaty rights, rendering the recommendation in the PFD invalid.

Assuming, *arguendo*, that the representation embodied in the Petitioners' Response to the Motion to Exclude and the April 9, 2008, Order denying the Motion based on that representation did not constitute a stipulation, the question becomes whether the purported impact to Eagle Rock is a basis to deny an application under Part 632. Consistent with the legislative findings, nonferrous metallic mineral mining will provide important economic benefits to this State. However, due to special concerns with the mining process, it can be carried out only if the protection of the environment, natural resources, and public health and welfare are assured. MCL 324.63202. To achieve the balance between conservation and development, Part 632 establishes a comprehensive regulatory scheme grounded in resource protection. See MCL 324.63205(11)(b); See also MCL 324.63205(3). To identify all of the potential impacts from a proposed mine, an application must include:

> An environmental impact assessment for the proposed mining operation that describes the natural and human-made features, including, but not limited to, flora, fauna, hydrology, geology, and geochemistry, and baseline conditions in the proposed mining area and the affected area that may be impacted by the mining, and the potential impacts on those features from the proposed mining operation. The environmental impact assessment shall define the affected area and shall address feasible and prudent alternatives.
> MCL 324.63205(2)(b).

To give effect to this provision, R 425.202 (Rule 202) sets forth the information required in an environmental impact assessment (EIA). The EIA must identify and describe, *inter alia*, "[r]esidential dwellings, places of business, places of worship, schools, hospitals, government buildings, or other buildings used for human occupancy all or part of the year." R 425.202(2)(p). The PFD found Eagle Rock was a "place of worship," and, based on that finding, recommended relocation of the mine portal to mitigate the impact to that land feature and the uses of it by members of the KBIC.[4]

Both Kennecott and the DEQ argue that the PFD improperly inflated the EIA requirements in Rule 202 to substantive permitting standards. These parties argue that Rule 202 must be construed as mandating submission of information that relates to impacts properly considered under Part 632, along with impacts outside the statute's regulatory reach, such as the one the PFD found would occur to Eagle Rock. In general, this argument is valid under the provision that requires an EIA identify the measures proposed to reduce or mitigate impacts to features listed in Rule 202(2) from the proposed mining, including those that "are not required under part 632...." R 425.202(1)(a)(iv). Obviously, an impact to any of the features listed in Rule 202(2)(p) does not implicate the resource protection purpose of Part 632. Rather, the identification of these specific features in an EIA is merely a means to provide the agency and public with notice of potential impacts by the proposed mine.

[4] The PFD alludes to Eagle Rock as having cultural significance. An EIA must identify "[c]ultural, historical or archaeological resources." R 425.202(2)(ee). However, to qualify as such a resource, the feature must be listed on either a state or federal registry. R 425.102(1)(g). Since Eagle Rock is not listed on any of the enumerated registries, it is not a cultural, historical or archaeological resource that must be identified and described in an EIA.

However, measures to reduce or mitigate impacts to certain features listed in Rule 202(2)(p) are outside of the regulatory framework of Part 632.

It is also evident that Part 632 does not regulate the purported impact to Eagle Rock when considering that Kennecott's rights in that area derive under a lease it holds from the Department of Natural Resources (DNR). Generally, the DNR controls land under Part 5, General Powers and Duties, of the NREPA. MCL 324.501, *et seq.* The DNR may, at its discretion and consistent with the provisions of Part 5, enter into agreements to extract minerals from that land. MCL 324.503(3). In this case, the DNR's decision to enter into a lease with Kennecott, and approve the proposed use under that lease, controls the impact to Eagle Rock absent any regulatory overlap with the statutes administered by the DEQ. Since the regulatory reach of Part 632 does not extend to potential non-resource impacts to Eagle Rock, the DNR's action cannot be collaterally attacked in this contested case hearing. Rather, if the Petitioners seek to overturn the DNR's decision to allow Kennecott to mine the property, they must do so in the proper forum. [5]

Assuming again, *arguendo*, that impacts to the features listed Rule 202(2)(p) are properly regulated and mitigated under Part 632, the inquiry turns to whether Eagle Rock is a "place of worship." The PFD relied on the testimony of the Petitioners' witnesses that members of the KBIC have used Eagle Rock for prayer and ceremony "since time immemorial, and continue [that use] to this day." PFD, p. 170. [6] Given this testimony, the PFD held Eagle Rock is a "place of worship" under a dictionary definition, thereby requiring mitigation of the impact to the feature. *Id.*, pp. 171-172. The question is whether the PFD's construction of the term "place of worship" under a dictionary definition, is proper.

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[5] This Tribunal takes notice that the Petitioners' challenge to the lease was rejected *in National Wildlife Federation, et al v Department of Natural Resources*, unpublished opinion of the Ingham County Circuit Court, issued March 3, 2009 (Docket No. 08-263-AA).

[6] Given the stipulation that these witnesses would testify only to establish the factual predicate regarding the KBIC's standing, neither the DEQ nor Kennecott offered any evidence concerning the religious and cultural significance of Eagle Rock. Stipulations are unassailable to avoid this very result. *Dana Corporation, supra.*

Whether Eagle Rock is a "place of worship" must be ascertained under the principles of statutory construction, which apply equally to the construction of administrative rules. *City of Romulus v Department of Environmental Quality*, 260 Mich App 54, 65; 678 NW2d 444 (2003). To properly construe a statute, the language is examined, and if it is clear and unambiguous, it must be applied as written with no interpretation allowed. *In re MCI*, 460 Mich 396, 411; 596 NW2d 164 (1999). Further, every word or phrase is accorded its plain and ordinary meaning, unless defined in the statute, taking into account the context in which the words are used. *Cornerstone Investments, Inc. v Cannon Township*, 231 Mich App 1, 9; 585 NW2d 41 (1998). If, and only if, the language of the statute is ambiguous, may a court go beyond the words of the statute to ascertain the legislative intent. *Luttrell v Department of Corrections*, 421 Mich 93, 103; 365 NW2d 74 (1984). In such a situation, specific provisions must be read in context of the entire statute so as to produce a harmonious whole. *People v Gregg*, 206 Mich App 208, 213; 520 NW2d 690 (1994).

Of the six features specifically enumerated in Rule 202(2)(p), four unquestionably occur in structures: residential dwellings, schools, hospitals and government buildings. The other two, places of business and places of worship, could be reasonably construed as not requiring a structure. However, Rule 202(2)(p) contains a catch-all provision that the PFD did not address: "or other buildings used for human occupancy all or part of the year." R 425.202(2)(p). This inclusion of this phrase means an EIA must identify all buildings, including those used for the six enumerated features, in the proposed mining area and affected area. Consistent with the rules of statutory construction discussed above, I conclude, as a Matter of Law, Rule 202(2)(p) applies only to buildings used for human occupancy. I further conclude, as a Matter of Law, because Eagle Rock is not a building used for human occupancy, there is no basis to require the EIA identify and describe the feature as a "place of worship." Concomitantly, the EIA submitted by Kennecott complies in all respects with § 62505(2)(b) and Rule 202, and I so conclude, as a Matter of Law.

The PFD sets forth the components of the project proposed by Kennecott, the DEQ's determinations concerning the project and action on the permit, the numerous issues the Petitioners raised in their challenge of that action, and the procedural history underlying this contested case. See PFD, pp. 1-52. The findings contained in that portion of the PFD accurately reflect the substantive evidence on this record, and thus are adopted and incorporated into this Final Determination and Order (FDO). However, because they are either incomplete or inaccurate, it is necessary to supplement or reject other findings and conclusions in the PFD.

PART 31 – FINDINGS OF FACT AND CONCLUSIONS OF LAW

The PFD properly addressed and rejected the Petitioners' contentions concerning the Part 31 permit issued to Kennecott authorizing a groundwater discharge. The findings concerning those contentions are adopted. However, as noted in the DEQ's Exceptions, the PFD did not provide a factual predicate for its recommendation that Kennecott's entitlement to a Part 31 permit has been established. Thus, the DEQ seeks adoption of the following findings:

Wastewater Characterization and Treatment
R 323.2218 (Rule 2218) and R 323.2220 (Rule 2220)

1. The DEQ properly determined that Kennecott's proposed wastewater treatment plant (WWTP) is designed with sufficient hydraulic capacity and detention time to accommodate the influent. Further, Kennecott properly determined the influent volume in accordance with Rule 2218(2)(a).

2. In order to demonstrate that the WWTP has sufficient hydraulic capacity and detention time, the applicant must submit a basis of design for the treatment system. The basis of design must include the volume of wastewater to be treated per unit time. Rule 2218(2)(a).

3. The Petitioners' arguments centered on their assertions that the inflow to the WWTP could be much higher than the permitted rate of 350 gallons per minute (gpm), but the PFD correctly finds as a matter of fact that the Petitioners' alternative hypothesis of higher inflows to the mine is not supported by the record. (See PFD, p. 115).

4. The application (Respondent's Exhibit 141, p. 14) clearly states that the WWTP is sized to accommodate up to 350 gpm. This volume is the proposed volume to be treated and is the maximum rate authorized by the permit.

5. Witnesses for both the DEQ and Kennecott testified that the treatment system is designed to handle a maximum volume of 350 gpm. (Mariuzza Tr. 6668:9-12; Fassbender Tr. 4490:23 to 4491:4). Likewise, testimony was given that the maximum allowable rate under the groundwater discharge permit is 350 gpm or 504,000 gallons per day. (Mariuzza Tr. 6700:17-25; Janiczek Tr. 7171:25 to 7172:9). Petitioners' own witnesses agreed that the permit does not authorize a discharge of greater than 350 gpm. (Miller Tr. 2263:8-17; Prucha Tr. 1823:9-21).

6. The DEQ properly determined that the treatment system is designed adequately to treat the anticipated pollutant loading in the influent to the treatment system. Further, the DEQ correctly determined that Kennecott's wastewater characterization meets the requirements of Rule 2218(2)(b) and Rule 2220(6).

7. The Petitioners have erroneously argued that the applicant significantly underestimated the quality of the influent wastewater that will be treated by the WWTP, and, therefore, the DEQ has improperly determined that the influent has been adequately characterized, and that the treatment system is capable of handling the characteristics of the influent.

8. Rule 2218(2)(b) requires that the basis of design include an analysis of the influent, including the substances to be treated and the concentrations of these substances.

9. Under Rule 2220(6), for a facility that is not yet operating, the discharger must characterize the anticipated discharge using the best available information.

10. The DEQ relied on the wastewater characterization provided by Kennecott (Mariuzza Tr. 6676:15-21; Janiczek Tr. 7253:6-12) in reviewing the groundwater permit application. Much of the characterization was based on the geochemical analyses performed by Kennecott under the Part 632 permit application.

11. The PFD correctly finds that there is no reasonable basis to upwardly adjust Kennecott's predictions of water quality. (PFD, p. 82). Therefore, it follows that Kennecott's wastewater characterization is sufficient.

12. The DEQ also reasonably concluded that the treatment system proposed by the applicant can effectively treat the wastewater. The wastewater treatment system is composed of a series of unit processes, each with a specific treatment purpose. John Fassbender testified in detail about each of these processes (Tr. 4438-4449) and concluded that the effluent from the treatment system will meet the permit limits. (Tr. 4488:21-25).

13. The DEQ properly determined that Kennecott's proposed treatment methods before discharge are adequate to properly treat the anticipated influent to the treatment system. Kennecott provided a description of the existing or proposed treatment in accordance with Rule 2218(2)(c).

14. Petitioners specifically rely on Rule 2218(2)(c), which requires the basis of design to include a description of the existing or proposed treatment. Petitioners assert that the applications projected efficacy of the treatment processes fail to consider several factors, and that the DEQ's approval of the system is invalid under Rule 2218(2).

15. Petitioners erroneously claim that Kennecott failed to properly characterize the wastewater and that the treatment system will not adequately treat the influent wastewater.

16. The treatment system will be able to treat the influent wastewater even if the concentrations of the wastewater constituents are considerably greater than predicted. (Fassbender Tr. 4489:1-7 and Tr. 4442:16 to 4443:22).

17. Petitioners claim that the applicant omitted several influent characteristics, such as temperature, total dissolved solids, total suspended solids, alkalinity, total organic carbon, and silica content that are critical in determining the efficacy of the treatment system. Mr. Fassbender testified that these characteristics were considered in the design of the treatment system. (Tr. 4479:6 to 4480:4). As an example, he testified that Kennecott anticipated a minimum temperature that would be close to freezing during the wintertime, and that this information was forwarded to the equipment suppliers so the suppliers could build that into their equipment design.

18. Petitioners claim that the calculations of the effluent quality and the related spreadsheet model were not provided, preventing any evaluation of whether the calculations are supportable. Mr. Fassbender testified that the effluent will meet all permit limits based on his calculations. Kristen Mariuzza's approval of the basis of design is, in large part, based on the calculations provided by Mr. Fassbender. Ms. Mariuzza requested, as part of her initial review of the application, that the applicant provide, step-by-step, how their numbers were developed. (Tr. 6621:2 to 6622:1; R. Ex. 159). Kennecott responded to this request (Tr. 6622:2-5; Int. Ex. 235) and provided the information needed. In particular, a new and

revised Appendix G-I of the application (Int. Ex. 138) was submitted that contained the estimated effluent concentrations, including a detailed calculation for nickel. (Tr. 6624:23 to 6626:10). Ms. Mariuzza ultimately concluded that the basis of design information met the requirements of Rule 2218. (Tr. 6629:2-6; P. Ex. 194).

19. Petitioners also claim that from an operational standpoint, the reverse osmosis system will have difficulty removing boron, and that Kennecott's estimated removal efficiency is extremely optimistic.

20. Petitioners did not offer any solid testimony or proof that boron would not be adequately treated. Their expert, Glen Miller, Ph.D., testified that the Kennecott proposal is not unreasonable and only offered that it may or may not work. (Tr. 2169:14-18.) He also testified that the second reverse osmosis process will further clean the water, but it will also get rid of the boron. (Tr. 2197:2-4).

21. Mr. Fassbender testified regarding a treatability study that was conducted and contained in Int. Ex. 140. (Tr. 4468:15 to 4469:20). This study encompassed the metal hydroxide process, the filtration process, and the reverse osmosis process. As a result of the study, Mr. Fassbender concluded that the wastewater treatment plant would meet the permit limits. (Tr. 4472:13-18).

22. Petitioners assert that the permit was issued before crucial aspects of the treatment system were finalized. Petitioners, for example, argue that there is no information on the membranes to be used in the reverse osmosis units. Mr. Fassbender testified that it is unusual to commit to a certain manufacturer and type of membrane at the application stage. (Tr. 4449:13-21). Testimony was also given that the plans and specifications for the wastewater treatment system must be approved by the DEQ prior to construction. (Fassbender Tr. 4449:22-24; Mariuzza Tr. 6640:16-21). This requirement is contained in the Part 632 permit. (R. Ex. 117 at Special Condition 21, p. 14).

23. Petitioners claim that the treatment system design is overly complex, untested, and unconventional. Petitioners offer no factual basis for this assertion, only stating that this type of system has never been used at a mine before and is designed in a fairly speculative manner. (Miller Tr. 4210:2-5). Ms. Mariuzza testified that the treatment methods are all demonstrated technologies (Tr. 6704:18 to 6705:3), and Mr. Fassbender testified that similar combinations of the selected technologies have been used in other industrial settings. (Tr. 4475:19 to 4476:18). Witnesses also testified that there is no reason to expect that the technologies would not work in the mining industry (Fassbender Tr. 4476:15-18; Mariuzza Tr. 6704:7 to 6705:17), and that metals from a mining site are no different than methods from other industrial sites either from a treatment perspective or a biological or water quality standpoint. (Fassbender Tr. 4532:16 to 4533:6; Mariuzza Tr. 6705:4-17; LeSage Tr. 7721:5-10; Janiczek Tr. 7288:17-21).

Permit Limitations
R 323.2222 (Rule 2222)

24. The permit limitations for nitrate, nitrite, and ammonia do not violate Rule 2222.

25. Petitioners claim that under the permit should have set effluent limits for total inorganic nitrogen based on Rule 2222(2)(a).

26. Rule 2222(2) provides for effluent or groundwater limits for substances capable of being treated by the actions of soil, soil microorganisms, or plants.

27. It was the conclusion of the DEQ that since the system was designed as a rapid infiltration system, and there was no credit given for treatment by soil, soil microorganisms or plants, Rule 2222(2) was not the appropriate rule for establishing the groundwater standard for nitrogen. (Janiczek Tr. 7155:8 to 7156:4).

28. The PFD correctly describes the DEQ's decision to apply the more general "default" prohibition in R 323.2204(2)(f) requiring that a discharge cannot create a facility under Part 201, Environmental Remediation, of the NREPA. MCL 324.20101, *et seq.* (PFD, pp. 163-165).

29. Using this "default" prohibition, the DEQ set effluent limits of 10 milligrams per liter (mg/l) for both ammonia nitrogen, and nitrate nitrogen, which are the Part 201 Generic Residential Criteria for each substance. Because these limitations comply with Section 3109 of Part 31, the discharge will not be injurious to the protected uses of groundwater. (Janiczek, Slide 67; Tr. 7220:6-14).

30. Likewise, the limit for nitrite is related to the Part 201, Generic Residential Criteria. However, Part I, Section 4 of the Permit, in the column entitled "Maximum Daily Limit," contains the term "Report" in that column, and does not list a specific limit. This does not mean that the discharger can allow groundwater to exceed the applicable standard. James Janiczek testified that each parameter listed in the permit is limited either directly or by rule reference. (Tr. 7197:17 to 7198:11, 7192:20 to 7193:4, and 7188:24 to 7189:19).

31. Part I, Section 9 of the groundwater discharge permit (Ex. 118) prohibits the discharge from becoming injurious to the waters of the state, and prohibits the discharge from creating a facility as defined by Part 201.

32. The Generic Residential Criteria of Part 201 for nitrite is 1.0 mg/l. Although the limit is not specifically listed in the permit, nitrite is limited by the rule and the permit language that prevents a discharge from becoming a facility as defined by

Part 201. This limitation complies with Section 3109 of Part 31, and thus the discharge will not be injurious to the protected uses of groundwater. (Janiczek, Slide 67; Tr. 7220:6-14).

33. The permit limitations for inorganic substances do not violate Rule 323.2222.

34. The Petitioners erroneously state that the limitations established by the DEQ in the groundwater discharge permit fail to meet and ensure compliance with Rule 2222.

35. Rule 2222 requires that the concentration of an inorganic substance not described in subrule (2)(a) or (b), or subrule (3) "shall not exceed a concentration 1/2 way between the background groundwater quality and the concentration at which the site would be a facility as defined by Part 201." R 323.2222(5)(a). Background groundwater quality for this purpose shall be determined by upgradient wells located pursuant to the hydrogeologic report described in R 323.2221.

36. Petitioners claim that Kennecott failed to properly establish background groundwater quality is incorrect. (Chatterson Tr. 7455 and 7479).

37. The parameters that the Petitioners allege are in violation of this rule include beryllium, boron, and lead.

38. Delegation Memorandum WB-31-11, dated December 15, 2005, delegates the authority to establish discharge limits in groundwater permits from the Director of the DEQ to the Chief of the Groundwater Permits Unit, Water Bureau. Mr. Janiczek testified about his delegated authority. (Tr. 7142:16 to 7143:3). After conducting the calculations prescribed in Rule 2222(5)(a), the DEQ rounded the calculated values upward to whole numbers to be included as permit limitations. (Janiczek Tr. 7216:1 to 7218:7). Specifically, Mr. Janiczek testified that the permit limitations were still below Part 201 criteria and are not injurious.

39. The critical issue is whether the permit limits are in violation of Part 31 or the Part 22 Rules. Every groundwater discharge authorization, including the Kennecott permit, contains the statement that the discharge must comply with R 323.2204. (See Part I, Section 9 of groundwater discharge permits GWI 810162, Ex. 118). R 323.2204(2)(a) states that a discharge shall not be, or likely to become, injurious.

40. The term "injurious" is defined as "any damage to or change in the condition of background groundwater quality that causes or may cause groundwater to no longer be fit for 1 or more protected uses." R 323.2201(s). Mr. Janiczek testified that the limitations in the permit will not be injurious to any protected uses. (Tr. 7220:6-14).

41. The limits that are in the permit ensure that the groundwater would still be fit for all of the protected uses, do not constitute injury as a result of the discharge, and, therefore, are in compliance with both Part 31 and the Part 22 Rules.

Because these findings constitute the substantive and credible evidence on this record, they control the decision under Part 31. MCL 24.285. Therefore, these findings are adopted and incorporated into this FDO.

The PFD also determined that the groundwater discharge does not require a National Pollution Discharge Elimination System permit, despite the fact that the effluent will eventually vent to surface waters. That determination is factually and legally correct. See R 323.2106(3). However, the DEQ proposes the following findings concerning the issue of whether the groundwater discharge authorized under the Part 31 permit will also be protective of surface waters:

42. The DEQ is governed by Part 31 and specific administrative rules when developing permit limits for the protection of surface water quality where a discharge to the waters of the state is proposed.

43. For surface water, the applicable rules are the Part 4 Rules, Water Quality Standards (WQS), and the Part 8 Rules, Water Quality Based Effluent Limit Development for Toxic Substances, of Part 31. (LeSage Tr. 7657-7658).

44. In devising discharge limits for the Kennecott groundwater permit, the DEQ took into account data for the proposed effluent characteristics, including the location of the discharge and flow and chemical characteristics of the proposed discharge. Also part of the analysis, the DEQ reviewed the receiving surface water's flow, chemical characteristics, and location where the discharge to surface water would occur, as determined by the hydrogeologic study. (LeSage Tr. 7659).

45. The DEQ performed an analysis of the mixing zone, which is the area where the proposed discharge would mix with waters of the state. R 323.1044(b). The DEQ also quantified the reasonable potential to cause or create an excursion above any WQS, and established discharge limits that are protective of human health and aquatic life. (LeSage Tr. 7660-7664).

46. In its analysis, the DEQ became aware that the likely discharge point was from seeps in a stream with very little flow. It was established that the design flow for this surface water was zero cubic feet per second, which is the most conservative

flow for a receiving water body under the rules. The effluent limits calculated using this flow would be protective of any surface waters, if such other discharge were to occur. (LeSage Tr. 7659-7678).

47. As prescribed by the Part 8 Rules, the DEQ then conducted a reasonable potential analysis, calculated a potential effluent quality, and compared the resulting data to a preliminary effluent limit. For parameters where the potential effluent quality exceeded the preliminary effluent limit, the DEQ made recommendations for limits. Additionally, the DEQ proposed values protective of surface waters at the point where the seeps vent from the groundwater into the surface water, otherwise known as the groundwater/surface water interface. The values for the venting groundwater discharge included values for cadmium, copper, selenium, mercury, and silver. Additionally, monitoring of the composite effluent for nickel and beryllium were also recommended. (LeSage Tr. 7707; R. Ex. 188,192).

48. The DEQ further evaluated the effluent limitation recommendations and developed permit discharge limits based on the recommended values. Slight adjustments were made to account for advection and dispersion in the groundwater as it traveled from the point where the composite effluent enters the Treated Water Infiltration System and travels approximately 4,000 feet before venting to the surface water. (Tr. 7205-7210 and 7750-7751). However, these slight adjustments were made only after it was determined that an exceedance of WQS would not be caused by the discharge. (Tr. 7751-7752).

49. In seeking to establish claimed violations of surface water quality standards, Petitioners relied on the testimony of Ann Maest, Ph.D. While Dr. Maest has academic training and experience in geochemistry, she was unqualified to offer any expert opinion with respect to the establishment of surface water quality protection standards under Part 31. Indeed, she acknowledged not even having read applicable rules under Part 31. (Maest Tr. 8235:6-15 and 8248:18-22).

50. Dr. Maest prepared P. Ex. 190, which purports to compare calculated surface water quality standards with final permit effluent limits. That exhibit and her testimony are flawed. First, Dr. Maest used daily maximum (or acute) limits, while the calculated standards from Sarah LeSage are monthly average (or chronic) limits. This comparison is inappropriate. Dr. Maest testified that the monthly average limit for selenium is 5 micrograms per liter (ug/l) which is the chronic surface water standard calculated by Ms. LeSage. (Tr. 8262:17-23).

51. Second, Dr. Maest testified that she did not use a dissolved to total metals translator as provided for in R 323.1209 (Tr. 8252:2 to 8253:11), which would increase the surface water standard. For example, the translator for zinc is 2.1 [R 323.1209 (Table 2)], making the standard for zinc 138 ug/l (65.7 x 2 1) rather

than the 65.7 ug/l listed in Ex. 190. Even at five times the expected effluent quality of 17 ug/l, the effluent concentration of 85 ug/l would be less than the surface water standard of 138 ug/l.

52 A condition of the permit, contained in Part I, Section 10(d) (p. 14), requires that if any chemical listed in Attachment I is detected in the effluent monitoring at concentrations greater than five times the Expected Effluent Quality identified in Attachment I, Kennecott must notify the DEQ. The DEQ will then evaluate the data and notify Kennecott if additional monitoring, treatment, or other corrective actions are necessary. Mr. Janiczek (Tr. 7191:25 to 7192:12) and William Creal (Tr. 7792:19 to 7793:3) both testified regarding Section 10(d) of the permit.

53. Third, Dr. Maest testified (Tr. 8237:14-18) that she could not state that the values in her Ex. 190 are consistent with the requirements of the rules promulgated by the DEQ under Part 31.

54. Finally, Dr. Maest's testimony on the subject of "hardness" – one of the components of calculation of water quality-based effluent limits is also flawed. Dr. Maest testified that the hardness that is predicted to be coming out of the wastewater treatment plant is predicted to be very, very low, and that no addition of hardness can be contemplated. (Tr. 1997:8-13).

55. Dr. Maest improperly applied the rules related to land application to surface water standards. (Tr. 1997:20 to 1998:4). Furthermore, Dr. Maest offered no evidence to support a claim that the hardness of the water venting at the seeps will be at the concentration predicted in the effluent as it is discharged to the seep. There is no discharge standard for hardness in the Part 22 Rules, nor is there a water quality standard for hardness contained in the Part 4 Rules. Hence, the application of the land treatment rules to hardness is inappropriate. Hardness is used in the calculation of surface water limits. (LeSage Tr. 7681:2-9).

56. In her calculations, Ms. LeSage used a hardness value of 50 mg/l. (Tr. 7681:10-16). There is considerable support in the record for using this value. Gerald Eykholt testified regarding his application of an analytical solution using advection dispersion equations. (Tr. 4758:9-17). He calculated a predicted hardness at the seeps of 40-46 mg/l. (Tr. 4758:20 to 4759:1). He further testified that dissolution of minerals present in the sands and other water sources such as runoff will add to the calculated hardness. (Tr. 4760:11 to 4761:7). His calculation is contained in R. Ex. 180.

57. Eric Chatterson testified regarding the DEQ's independent analysis of hardness. (Tr. 7493:21 to 7495:9). In particular, he testified regarding the mineralization of the water as it travels to the seeps, and the analysis of rainwater which also enters the groundwater system with very low hardness. Ms. LeSage testified regarding relevant field data on hardness of the seeps (Tr. 7681:17 to 7682:14) contained

the Whitewater report. The values contained in the report ranged from 50 to 70 mg/l. Mr. Creal testified that for two reasons, both of which are based on site-specific conditions, the 50 mg/l value was appropriate. The first was the validity of Mr. Chatterson's analysis that a discharge of very low hardness enters the groundwater and re-mineralizes, or adds hardness back to it, as it travels 4,000 to 5,000 feet before it vents the surface waters. (Tr. 7748). The second was Ms. LeSage's actual measurements of hardness at the seeps. *Id.*

58. The analyses of Mr. Eykholt, Mr. Chatterson, Ms. LeSage, and Mr. Creal all support that a hardness of 50 mg/l was appropriately used by the DEQ in the calculations of surface water limits.

59. In summary, the evidence clearly shows that the limits established in the Part 31 permit are consistent with the requirements of Part 31 and its Rules, and that the discharges authorized by the permit will neither be "injurious" nor cause pollution, impairment, or destruction of natural resources. (Janiczek Tr. 7192-7193 and 7197-7199; LeSage Tr. 7700-7701; Creal Tr. 7749-7753).

The foregoing adequately reflects the credible evidence on this record, and thus controls the decision under Part 31. MCL 24.285. Therefore, the findings set forth above are adopted and incorporated into this FDO.

Based on the findings in the PFD and this FDO, I conclude, as a Matter of Law:

1. The Part 31 permit, as issued, complies with all applicable requirements of Part 31 and the administrative rules promulgated under its authority.

2. The discharge to the waters of the state authorized by the Part 31 permit, as issued, will neither be injurious to the public health, safety, or welfare or to any uses protected by Part 31, nor will likely cause pollution, impairment, or destruction of natural resources, or the public trust therein, in violation of Part 17, Michigan Environmental Protection Act, of the NREPA.

Consistent with the findings of fact and conclusions of law, Kennecott is entitled to the Part 31 permit that authorizes a groundwater discharge from the Treated Water Infiltration System. R. Ex. 118.

PART 632: FINDINGS OF FACT AND CONCLUSIONS OF LAW

With a notable exception addressed below, the PFD determined that the project complies with the standards set forth in this regulatory scheme. In so doing, the PFD

addressed the relative merit, or more precisely the lack thereof, of the numerous issues the Petitioners' argued inveighed against the issuance of the permit. For example, the PFD rejected the Petitioners' claim that the crown pillar of the mine was potentially unstable. See PFD, pp. 29-52. Similarly, the PFD rejected the Petitioners' argument that the operation of the mine poses potential environmental harm from acid rock drainage (ARD) and acid mine drainage (AMD). *Id.*, pp 57-79. However, as set forth in the DEQ's Exceptions, the PFD's analysis is deficient in regards to ARD and AMD, and the permit conditions concerning the Temporary Development Rock Storage Area (TDRSA) intended to prevent either from occurring. The DEQ provides proposed findings, based on the testimony of Margie Ring and Ted Eary, Ph.D., which control this inquiry. Therefore, I find, as a Matter of Fact:

1. Ms. Ring has many years of experience reviewing landfill designs, containment, and leak detection systems for liners and monitoring the performance of those facilities. (R. Ex. 17; Tr. 6513-6515).

2. The liner system, leak detection system, and construction techniques proposed to be used for the TDRSA are similar to those used for landfills. (Tr. 6576-6577).

3. At Ms. Ring's recommendation, Special Condition F.1 in the permit requires that the leak detection system extend beneath the entire primary liner system. (Tr. 6539-6540).

4. At Ms. Ring's recommendation, Special Condition F.21 requires the calculation of an average daily flow rate in the leak detection system (i.e., the quantity of any liquid that seeps through the primary composite liner system and is captured in the secondary liner system beneath it) and establishes a specific action level to trigger a mandated response by Kennecott. (Tr. 6530-6533). This condition does not authorize any leakage of liquid from the TDRSA into the environment, and all liquid collected in the leak detection system must be routed to the wastewater treatment plant. (Tr. 6540-6542, 6571-6572).

5. As Ms. Ring explained, consistent with the Part 632 Rules, Special Condition F.3 prohibits, without exception, more than one foot of hydraulic head (i.e., a water level of one foot) to accumulate on the TDRSA liner at any time. (Tr. 6533-6534). Because of the design of the TDRSA, which includes a two-foot thick groundwater drainage layer above the primary composite liner, stored development rock cannot come into contact with any standing liquid on the liner allowed under Condition F.3. (Tr. 6571-6572).

6. Ms. Ring testified that the TDRSA, as designed and regulated under the conditions of the permit, is consistent with the requirements of Part 632 and its Rules. (Tr. 6549-6552).

7. Ms. Ring further testified that the TDRSA, as designed and regulated under the permit, will reasonably minimize the potential release of contaminants into the environment (Tr. 6574-6475), consistent with Part 632.

8. The DEQ retained Dr. Eary, an independent expert in geochemistry and mineralogy with extensive training and professional experience relevant to acid rock drainage at mine sites (R. Ex. 215, Slides 2-4), to review the mining permit application with respect to characterization of geological materials, prediction of the potential for acid rock drainage and metal leaching, and development of mitigation and monitoring programs. (R. Ex. 215, Slide 6).

9. Dr. Eary performed his review of the Kennecott application, formed his opinions and wrote his report (R. Ex. 76) before his subsequent involvement with Kennecott Utah on an entirely separate matter. He disclosed that subsequent work to the State and affirmed that it did not in any way influence his opinions or testimony in this case. (Tr. 7065 and 7112-71123).

10. Dr. Eary concluded that the geochemical studies submitted by Kennecott followed industry practice and provided a thorough characterization of the rock types that would be mined and their potential reactivities. (R. Ex. 76, p. 4; and R. Ex. 214, Slides 8-18).

11. Dr. Eary concluded that the Mine Plan incorporates a number of engineered mitigation systems that minimize the potential for acid mine drainage during the handling and storage of development rock in the TDRSA and in the backfilled underground workings, as well as monitoring mitigation measures after mining ceases. He opined that the proposed mitigation and monitor programs are appropriate (R. Ex. 76, pp. 4 and 18; R. Ex. 214, Slides 14, 15, 17, 18).

12. Dr. Eary testified (Tr. 7041-7058; R. Ex. 214, Slides 19-28) about his assessment of the report prepared by Dr. Maest and Stratus Consulting for Petitioners, Geochemical Review of the Eagle Project Mine Permit Application. (P. Ex. 632-3, Appendix 7).

13. Dr. Eary compared Maest's modeling and predicted effects on water quality in drainage from the TDRSA; water pumped from the mine during operations; and water in the re-flooded mine after operation with the modeling and predictions submitted by Geochemica for Kennecott. (R. Ex. 214, Slides 19-28).

14. Dr. Eary concluded that Stratus based its model on incorrect assumptions about the rock types to be stored in the TDRSA; included only a small selected subset of leaching data; failed to consider the acid neutralizing effects of the addition of limestone; and produced incomplete and invalid water chemistries. (Tr. 7056-7058; R. Ex. 214, Slide 28).

15. Dr. Eary concluded that Kennecott adequately characterized the relevant geological materials and the potential for acid rock drainage and metal leaching consistent with Part 632 and industry practice, and, based upon those data, prepared an appropriate mitigation and monitoring program.

16. Dr. Eary explained that the purpose of the geotechnical modeling efforts is not to precisely and absolutely quantify the expected chemistries of TDRSA drainage, mine operation water, and water in the re-flooded mine, but to guide management decisions about the need for mitigation and monitoring measures. (Tr. 7020; R. Ex. 214, Slides 6, 14, 15, 17, and 18).

17. Based on the geotechnical modeling efforts, mitigation and monitoring measures are warranted and are specifically required in the mining permit. These mitigation and monitoring measures are appropriate for protecting water quality in the groundwater system during and after mining. (R. Ex. 76; Tr. 7034).

18. Kennecott's mining and reclamation plan and the permit provide that after mining is completed, Kennecott shall accelerate re-flooding of the underground opening through wells that will pump water into the mine workings in the upper and lower bedrock to prevent further exposure to oxygen. (R. Ex. 117, Special Condition P.4, p. 3).

19. Dr. Eary testified that such rapid re-flooding of the mine is a recognized mitigation technique to prevent oxygen from reaching sulfides and, thereby, stopping continued acid production. (Eary Tr. 7025-7029; R. Ex. 214, Eary Slide 17).

In conjunction with the foregoing findings, and to clarify the PFD's legal conclusions under Part 632, the DEQ seeks adoption of the following:

> Section 63205(11) and Rule 201(7) provide that "the department shall approve a mining permit if it determines both of the following: (a) the permit application meets the requirements of this part [and] (b) the proposed mining operation will not pollute, impair, or destroy the air, water or other natural resources or the public trust in those resources, in accordance with part 17 of this act...." Based on the foregoing findings of fact and conclusions of law, I find that: (a) Kennecott's permit application meets the requirements of Part 632, and (b) Kennecott's proposed mining operation, as regulated in the Part 632 and Part 31 permits, will not pollute, impair, or destroy the air, water, or other natural resources, in accordance with Part 17,

Michigan Environmental Protection Act, of the NREPA. In making this determination, I have taken into account the extent to which the DEQ's permit determinations under Part 55, Air Pollution Control, of the NREPA, and Part 31 afford protection to natural resources.

The foregoing is predicated on the findings in the PFD and this FDO, and accurately sets forth the law. Therefore, it is adopted as a legal conclusion.

The final decision in this matter is based solely on the PFD, exhibits, transcripts, pleadings, and arguments. In consideration of the entire record in this matter, and based upon the Findings of Fact and Conclusions of Law, Kennecott is entitled to the permits issued by the DEQ, and entered on this record as R. Ex. 117 (Part 31 permit) and R. Ex. 118 (Part 632 permit).

NOW, THEREFORE, IT IS ORDERED:

1. The PFD entered on August 18, 2009, is adopted as modified in this FDO.

2. The application for a permit submitted by Kennecott Eagle Mineral Company under Part 31 and Part 632, and processed under File Nos. GW1810162 and MP 01 2007, is GRANTED.

3. The permits entered as R. Ex. 117 and R. Ex. 118 shall be issued with an effective date of this FDO.

4. The DEQ does not retain jurisdiction in this matter.

Dated: 1/14/10

Frank J. Ruswick, Jr., Senior Policy Advisor
Department of Environmental Quality