



Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us | Equal Opportunity Employer

October 24, 2012

TO: INTERESTED PARTIES

RE: Mesabi Nugget Delaware, LLC - Request for Approval of Findings of Fact, Conclusions of Law, and Order and Authorization to Grant a Variance and to Reissue National Pollutant Discharge Elimination System/State Disposal System Permit MN0067687

On October 23, 2012, the Minnesota Pollution Control Agency (MPCA) Citizens' Board voted to approve the Findings of Fact, Conclusions of Law, and Order approving the issuance of the NPDES/SDS Permit No. MN0067687 to Mesabi Nugget Delaware, LLC, Hoyt Lakes, Minnesota. The Findings of Fact, Conclusions of Law, and Order document concludes that the decision to reissue the Mesabi Nugget Delaware, LLC Permit satisfied the requirements of Minn. Stat. chs. 115 and 116.

We appreciate the time and effort of those who submitted comments on the NPDES/SDS Permit for the Mesabi Nugget Delaware, LLC facility.

Sincerely,

A handwritten signature in black ink that reads "John L. Stine".

John Linc Stine
Commissioner

JLS/KF:rm

BANDS EX. 1

**STATE OF MINNESOTA
MINNESOTA POLLUTION CONTROL AGENCY**

**IN THE MATTER OF THE REISSUANCE OF
NPDES/SDS PERMIT NO. MN0067687,
INCLUDING A VARIANCE FROM WATER QUALITY STANDARDS,
TO MESABI NUGGET DELAWARE, LLC
ST LOUIS COUNTY
HOYT LAKES, MINNESOTA**

**FINDINGS OF FACT
CONCLUSIONS OF LAW
AND ORDER**

The above-entitled matter came before the Minnesota Pollution Control Agency (MPCA) Citizens' Board at a regular meeting held in St. Paul, Minnesota on October 23, 2012. Based on the MPCA staff review, comments and information received during the comment period, and other information in the record of the MPCA, the MPCA hereby makes the following Findings of Fact, Conclusions of Law, and Order:

FINDINGS OF FACT

This matter involves the application of Mesabi Nugget Delaware LLC (Mesabi Nugget) for reissuance of a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit authorizing operation of wastewater treatment facilities and the discharge of treated wastewater from the Mesabi Nugget iron nugget facility in Hoyt Lakes, Minnesota to Second Creek, a water of the state. The application for reissuance of the NPDES/SDS Permit included an application for a variance from water quality standards for certain Class 3 (industrial consumption) and Class 4A (agriculture) parameters in the discharge. The MPCA must decide whether, under applicable statutes and rules, it should reissue the permit and grant the variance.

BACKGROUND

1. Mesabi Nugget owns and operates a commercial scale iron nugget production facility (Large Scale Demonstration Plant) in Hoyt Lakes, Minnesota. The facility is located on a portion of the former LTV Steel Mining Company taconite operation in Hoyt Lakes. LTV Steel Mining Company, and its predecessor Erie Mining Company, conducted mining operations from the mid 1950s to 2001 at which time LTV Steel Mining Company went bankrupt and the property on which LTV Steel Mining Company operated was acquired by Cliffs Erie LLC. The predecessor to Mesabi Nugget Delaware LLC, Mesabi Nugget LLC, purchased a portion of the property from Cliffs Erie LLC in 2005 for construction and operation of the iron nugget production facility.
2. The facility is a commercial scale demonstration iron nugget manufacturing facility which produces iron nuggets from iron ore concentrate. The facility has the capacity to produce 600,000 metric tons of iron nuggets per year. The nuggets are approximately 96 to 98 percent iron, and can be fed directly into electric arc furnaces (mini-mills) as well as to blast furnaces at conventional integrated steel manufacturing facilities. Raw materials for nugget manufacturing consist of iron ore concentrate, various coals, fluxes, and binders.

3. Mesabi Nugget, LLC was issued NPDES/SDS Permit No. MN0067687 in 2005 authorizing the construction and operation of wastewater treatment facilities at the then-proposed facility and for discharge of treated wastewater from the facility to Second Creek, a water of the state. This initial permit included a variance from the Class 3 and Class 4 water quality standards for hardness, bicarbonates, total dissolved solids (TDS) and specific conductance. This variance expired upon permit expiration in June 2010 at which time the interim effluent limitations in the permit were no longer applicable and the final effluent limitations in the permit became effective. Mesabi Nugget Delaware, LLC submitted a timely application for the reissuance of the permit and thus continues to operate, albeit without discharge, under the terms and conditions of the expired permit.
4. The permit was modified in November 2007 to reflect a change in ownership from Mesabi Nugget, LLC to Mesabi Nugget Delaware, LLC, which is owned by Steel Dynamics, and in February 2011 to allow the use of the neighboring Area 2WX Pit to provide operational flexibility for continued storage of treated wastewater for purposes of complying with the terms and conditions of the permit.
5. Although the facility was originally permitted in 2005, construction was delayed until 2009 because of financing issues and a change in ownership. The facility became operational on a limited, commissioning basis in January of 2010 and has gradually increased production levels over time. The facility reached a cumulative production amount of 200,000 tons in November 2011, at which point a number of air studies were initiated by Mesabi Nugget as required under its Air Emissions Permit. The results of these studies may affect the final water treatment design at the facility.
6. As stated above, final effluent limitations became effective at the time of permit expiration in June 2010. Since the discharge would not have been in compliance with the final effluent limitations, Mesabi Nugget ceased its discharge in July 2010 and utilized available storage capacity in the Area 1 Pit and, after the permit was modified in February 2011, additional storage capacity in the Area 2WX Pit. The Area 1 Pit and Area 2WX Pit are inactive mining areas and are water bodies under an NPDES/SDS permit and are not "waters of the state" as defined in Minn. R. ch. 7050.0130 subp. 2. Mesabi Nugget continues to operate its production facility and wastewater treatment systems without a discharge utilizing remaining storage capacity in the two pits.
7. Mesabi Nugget is seeking reissuance of the NPDES/SDS permit to authorize continued operation of wastewater treatment facilities and discharge of treated wastewater to Second Creek. An application for reissuance of the permit and an application for continuation of the variance were submitted by Mesabi Nugget in December 2009.
8. The current processing facility has one surface water discharge point. The proposed reissuance of the permit does not authorize expansion of the facility beyond the 2005 permit authorization and does not change the operation of currently permitted treatment systems associated with the Mesabi Nugget processing plant or the daily or annual maximum volume of discharge of treated wastewater to Second Creek.
9. In April 2011, the MPCA entered into a stipulation agreement with Mesabi Nugget for violations that occurred between March 2007 and March 2010 pertaining to reporting violations, effluent limit violations and discharge flow rate violations. Mesabi Nugget has satisfactorily completed the requirements specified in the stipulation agreement.

PROJECT DESCRIPTION

10. Mesabi Nugget appropriates water from the inactive and water-filled Area 1 Pit for water supply for process temperature control (noncontact and contact cooling) and for process water, including for the wet scrubber air emissions control system at approximate average and maximum rates of 2.9 million gallons per day (MGD) (2000 gallons per minute – gpm) and 7.2 MGD (5000 gpm), respectively. The makeup water is sequentially cycled and cascaded from the noncontact cooling system to the contact cooling system to the wet scrubber system. Blowdown from the scrubber system is routed to a multi-stage wastewater treatment system for treatment prior to discharge into the Area 1 Pit. The primary pollutants in the wastewater are suspended solids, dissolved solids (sulfate, hardness, bicarbonates), metals, and mercury.
11. The wastewater treatment system consists of conventional chemical (lime) precipitation followed by filtration through a Mesabi Nugget-developed mercury filtration system that utilizes taconite tailings as the filtration media. Wastewater from the scrubbers is routed through the chemical precipitation unit for sulfate, fluoride, solids and metal removal, then to the first of two available mercury filtration units for enhanced mercury and solids removal, and from there into the west end of the Area 1 Pit. Water from the east end of the Area 1 Pit is then pumped to Outfall SD001 (with the option for additional treatment in the second mercury filtration unit, if needed) for ultimate discharge into Second Creek.
12. Mesabi Nugget is authorized under the current permit to discharge at a maximum rate of 5.8 (MGD). The initial receiving water is Second Creek, a tributary to the Partridge River, which is part of the St. Louis River Watershed that ultimately drains to Lake Superior.
13. Second Creek is a Class 2B, 3C, 4A, 4B, 5 and 6 water under Minn. R. 7050.0430, Unlisted Waters, and is classified for the protection of aquatic life and recreation, industrial use, agriculture and wildlife, aesthetic enjoyment and navigation, and other uses, and is an Outstanding International Resource Water under Minn. R. ch. 7052. Second Creek is not listed on the MPCA Clean Water Act Section 303(d) List of Impaired Waters, however portions of the St. Louis River downstream of the discharge are listed for mercury-related (fish consumption) and other impairments (for pollutants not anticipated to be present in the Mesabi Nugget discharge). The Partridge River and portions of Second Creek downstream of the discharge have been determined by the MPCA staff to be waters used for the production of wild rice to which the Class 4A 10 mg/L wild rice standard would be applicable. Since the last permit reissuance, the industrial use classification for unlisted waters in Minn. R. 7050.0430 has changed from Class 3B to Class 3C. This has resulted in a change in the water quality standard for hardness applicable to Second Creek and Partridge River from 250 mg/L to 500 mg/L.

VARIANCE APPLICATION

14. Mesabi Nugget applied for reissuance of its NPDES/SDS permit on December 30, 2009. The application for permit reissuance included a variance proposal based on provisions in Minn. R. 7050.0190, subp. 1 and pursuant to Minn. R. 7000.7000, requesting a temporary variance from water quality standards for four pollutants in the discharge: hardness, bicarbonates, total dissolved salts (solids) and specific conductance.
15. Water quality standards for the four pollutants in question are specified in Minn. R. 7050.0223, subp. 4, (Class 3C standards) and 7050.0224, subp. 2, (Class 4A standards). The relevant standards are: 500 milligrams per liter (mg/L) for hardness (Class 3C), 5 milliequivalents (250 mg/L) for bicarbonates (Class 4A), 700 mg/L for total dissolved solids (Class 4A), and 1,000 micromhos per centimeter (umhos/cm) for specific conductance (Class 4A). Class 3C standards are protective for use of the water for industrial consumption and Class 4A standards are protective for use of the water for agricultural irrigation. There is no known historic, existing or foreseeable future use of Second Creek or Partridge River for the Class 3C or Class 4A designated uses. Mesabi Nugget is NOT requesting a variance from any Class 2B water quality standards in place for the existing designated use of protection of aquatic life and recreation.
16. Concentrations of these four pollutants currently exceed water quality standards in the existing discharge to Second Creek as monitored under the existing NPDES/SDS Permit. Approximate average concentrations of these four pollutants in the existing discharge are: 740 mg/L for hardness, 330 mg/L for bicarbonate, 824 mg/L for total dissolved solids (TDS), and 1194 umhos/cm for specific conductance.
17. Monitoring data indicates that concentrations of these four pollutants exceed applicable water quality standards in Second Creek at least some of the time. Under certain circumstances (which, in part, is dependent on other activities/discharges in the watershed) flow in Second Creek consists solely or primarily of the Area 1 Pit discharge during significant portions of the year. As a result, a technical determination was made by the MPCA staff that the annual 7Q10 low flow for Second Creek is zero. The term 7Q10 means the lowest flow over a seven day period with a once in ten year recurrence frequency.
18. Minn. R. 7000.7000 governs the procedure for issuance of variances by the MPCA and specifies the information that must be included in the written application for a variance, including the nature of the variance sought, economic and/or technical basis for the requested variance, a description of the facility and materials handled pertinent to the requested variance, alternatives considered, a plan for reducing discharges to the lowest levels practical, and concise statements on the effects on air, land and water resources and on business, trade, and other economic interests. If the applicant is seeking a variance on the grounds that compliance is not technically feasible, the applicant must submit a report from a registered professional engineer, or other person acceptable to the agency, stating fully the reasons why compliance is not technologically feasible.
19. The MPCA determined under Minn. R. 7000.7000, subp. 3 that the application for a variance was complete.

20. The existing permit issued in 2005 included a variance, with corresponding interim effluent limitations, for the same parameters as in the current variance request. The currently requested variance is in essence a continuation of the existing variance. For three of the four parameters (bicarbonate, specific conductivity and TDS), however, the magnitude of the current requested variance is less than that granted in the previous variance. Interim limits (monthly average and daily maximum, respectively) for bicarbonate decreased from 396 mg/L and 445 mg/L in the existing permit to 363 mg/L and 378 mg/L in the reissued permit, specific conductivity went from 2159 umhos/cm and 2425 umhos/cm to 1889/cm umhos/cm and 1965 umhos/cm, and TDS went from 1619 mg/L and 1818 mg/L to 1160 mg/L and 1228 mg/L. The interim limits for hardness increased from 740 mg/l and 831 mg/L in the existing permit to 831 mg/L and 863 mg/L in the reissued permit.
21. By eliminating the discharge to Second Creek for portions of the year, Mesabi Nugget is proposing to reduce the duration and maximum potential loading of the requested variance as compared to the previous variance. Mesabi Nugget is proposing to eliminate the discharge to Second Creek from April 1 through August 31 due to the potential for impacts to downstream wild rice from sulfate in the discharge. As part of the permit development, the MPCA staff determined that the downstream waters used for production of wild rice are susceptible to damage from high sulfate levels during the months of April through August. In addition, because intermittent seasonal chronic toxicity in the discharge has been observed in the past, the discharge would need to be restricted during the month of September each year pending demonstration by Mesabi Nugget through whole effluent toxicity (WET) testing that chronic toxicity does not exist in the discharge. Thus, the current variance request represents a reduction in both magnitude and duration as compared to the previously granted variance.
22. Minn. R. 7050.0190, subp. 1 allows for a variance from water quality standards in a situation where the MPCA finds by reason of exceptional circumstances the strict enforcement of any provisions with the standards would cause the discharger undue hardship, that the disposal of the sewage, industrial waste or other wastes is necessary for the public health, safety or welfare, and that strict conformity with the standards would be unreasonable, impractical or not feasible under the circumstances.
23. The MPCA staff have determined that the 'exceptional circumstances' applicable to Mesabi Nugget's variance request relate to the pre-existing water quality of the Area 1 Pit and to the unanticipated delay in construction and operation of the manufacturing and wastewater treatment facilities. As a result of previous mining activity by LTV Steel Mining Company, the discharge from the Area 1 Pit already exceeded water quality standards for the variance parameters prior to the initial permitting of the then-proposed Mesabi Nugget facility in 2005. In addition, as stated above in the Procedural History section of this document, a change of facility ownership subsequent to 2005 and financing difficulties resulted in a delay in construction and operation of the facility until early 2010, thus precluding the development and implementation of potential mitigation envisioned by the 2005 permit.
24. In accordance with Minn. R. 7050.0190, subp. 1, Mesabi Nugget is requesting a variance primarily on the grounds that "strict conformity with the standards would be unreasonable, impractical, or not feasible under the circumstances." In particular, requiring construction of additional

wastewater treatment systems, such as reverse osmosis (RO), *at this time* to meet the final effluent limitations is not technically feasible under the circumstances. The MPCA staff reviewed and concurred with Mesabi Nugget's assessment that a treatment technology such as RO may at some point in time be capable of achieving applicable effluent limitations, but such treatment cannot be implemented immediately without further evaluation of future wastewater characteristics and undergoing facility-specific engineering design and testing.

25. The options for wastewater treatment are driven by the decisions made for air pollution control equipment. The current air emissions permit requires the use of a wet scrubber to provide sufficient removal of particulate matter and acid gases to meet the various air quality standards, including visibility in the Boundary Waters Canoe Area. The use of a wet scrubber for air emission control results in the transfer of pollutants to the wastewater stream.
26. Since the facility was the first commercial installation of its kind, there was considerable question on how to scale emission factors from testing that had been done on the previous pilot plant and the efficiency of the new air control equipment to be used on the full-scale plant. As a result, the original Air Emissions Permit was issued with requirements for additional testing related to determining optimum scrubber efficiency, to determine whether additional nitrogen oxide (NO_x) controls were needed, and whether mercury emissions could be reduced.
27. Mesabi Nugget is in the process of conducting various studies on its air emission control/scrubber systems as required by the facility's Air Emissions Permit, which may result in significant changes in the nature of the influent to a RO treatment system. In particular, Mesabi Nugget is required to complete a Wet Scrubber Optimization Study, a NO_x Control Study and a Mercury Reduction Study. Changes in liquid flow rate as a result of the Scrubber Optimization Study could result in the presence of additional dissolved solids and particulate matter in the influent. A requirement to install a selective noncatalytic reduction system (SNCR) or alternate technology for NO_x control would result in significant quantities of nitrogen compounds reporting to the wastewater treatment system. These nitrogen compounds can be detrimental to the performance of RO membranes and may require the installation of additional pretreatment. If additional control equipment is required to remove mercury in the air emissions, the most likely candidate would be the injection of activated powdered halogenated carbon. This would likely change the composition of the influent by adding monovalent ions, thereby affecting the selection of an effective membrane, as well as the selection of pretreatment technology due to the addition of the very finely divided activated carbon.
28. Given that these air emission control studies are still in progress and the determination of what, if any, air control improvements will be implemented has not yet been made, it would be difficult and infeasible to design and install the wastewater pretreatment and RO treatment systems at this time. The results of the air emission control studies are expected to be submitted to the MPCA no later than the end of May 2013; therefore, the proposed variance schedule in the draft NPDES/SDS, in part, considers this timeframe.
29. Mesabi Nugget investigated the technical feasibility of several wastewater treatment technologies that were identified as having a potential of effectively treating the discharge including biological treatment (anaerobic reactors, wetlands), chemical precipitation (lime softening, ettringite

precipitation, barium precipitation), ion exchange (Sulf-IX) and membrane treatment (nanofiltration, reverse osmosis). Of those technologies evaluated, the only option considered potentially technically capable of reducing the levels of the variance parameters to water quality standards was reverse osmosis with evaporation and crystallization of the reject water.

30. Even with RO, however, some technological uncertainty remains for the Mesabi Nugget discharge, particularly with respect to pretreatment requirements, selection of an effective membrane(s) for variable influent quality, likely fouling and scaling of the heat transfer surfaces, disposition of the reject brine and general design/scale-up considerations for a system capable of treating up to 3,000 gallons per minute. At a minimum, Mesabi Nugget has indicated that in order to make an informed decision on the potential installation of additional wastewater treatment, a reasonable amount of time would be needed to fully characterize future wastewater characteristics resulting from potential changes or enhancements to the air quality control systems—and to conduct the bench and/or pilot testing necessary for engineering design and detailed economic evaluation.
31. The MPCA staff have reviewed the information submitted by Mesabi Nugget and agree that of the technologies evaluated, the RO with evaporation/crystallization technology has the greatest likelihood of being able to meet effluent limitations. The MPCA staff also agree that given the uncertainty at this time over the nature and volume of the wastewater (due to the ongoing air emission control studies and the subsequent need for site-specific bench and/or pilot testing) and the lack of a successful full-scale demonstration at a similar facility, a reasonable period of time for additional evaluation and testing is needed before an informed decision on the selection and/or design of additional treatment can be made.
32. Since immediate installation of an additional wastewater treatment system at Mesabi Nugget given the current state of knowledge on the subject is technically infeasible at this time, further investigation of RO with evaporation/crystallization technology is warranted. The proposed permit contains variance conditions and a schedule in which Mesabi Nugget would be required to further investigate the feasibility of applying this technology at its facility.
33. Mesabi Nugget is also requesting the variance on the grounds that “by reason of exceptional circumstances the strict enforcement of any provision of these standards would cause undue hardship” as stipulated in Minn. R. 7050.0190, subp. 1. Mesabi Nugget indicated that it would be unreasonable to require construction and operation of a complex treatment facility, which is not technically feasible at this time, which would require extensive pilot testing and engineering to determine whether the technology could achieve the results, and which is estimated to cost approximately \$29.5 million in capital costs and \$1 million in operating costs translating to an annualized cost of \$4.3 million and a net present value of approximately \$37.6 million over the 10 year financing period.
34. The MPCA staff reviewed and concurred with Mesabi Nugget’s assessment that the immediate installation of additional advanced wastewater treatment facilities would cause Mesabi Nugget undue hardship.
35. The Mesabi Nugget Large Scale Demonstration Plant is the first and only plant of its kind in the world. The facility started production, on a limited basis, in January 2010 and has yet to achieve a

full production level. Mesabi Nugget has indicated that the first two years of operation have been difficult for a number of reasons. First, the scale up of the process from the pilot facility to the full-scale facility has been more difficult and time-consuming than anticipated. Second, the cost of operating the facility is substantially higher than expected. This has been driven by factors across the operation from raw material pricing to energy pricing, process yield and maintenance requirements. And third, the price received for iron nuggets has not kept pace with the historically high prices for the iron concentrate and coal raw materials.

36. Mesabi Nugget has provided a brief evaluation of how the projected cost for immediate installation of treatment (assuming that all the design uncertainties were resolved), could affect the cost of iron nugget production and how that could affect market competitiveness. The company concluded that with the current worldwide competition in iron supply, even a relatively small percentage increase in operating costs would present the company with a significant competitive disadvantage during all economic cycles and particularly so during downturns in iron nugget/pig iron pricing such as occurred in 2009.
37. Mesabi Nugget has indicated that it is currently operating at a loss. The company states that while short term losses are not entirely unexpected with a first commercial development of a new technology, the current and future projected losses are considerably larger than the company expected, are not sustainable, and will jeopardize the future of this facility, and the ITMk3 technology overall, if costs cannot be controlled in the near future. Mesabi Nugget has determined that the addition of an annualized cost of \$4.3 million for the immediate installation of an additional RO wastewater treatment system capable of meeting final effluent limitations for the variance parameters would add unsustainable losses for the foreseeable future such that the entire \$300 million project would be jeopardized.
38. Mesabi Nugget has estimated that closure of the existing facility would result in the permanent lay-off of 111 people from the facility and up to an additional 200 contractors and suppliers according to studies on impacts of layoffs to other industries. In addition, Mesabi Nugget states that closure of the Large Scale Demonstration Plant would likely result in the abandonment of the Mesabi Mining project (iron ore concentrate from the proposed mining project would no longer be needed for the LSDP) resulting in the future loss of an estimated 240 additional jobs.
39. Mesabi Nugget states that the total county and state taxes, royalties and leases paid by Mesabi Nugget was approximately \$1.4 million in 2011 and is projected to be approximately \$3.1 million in 2012. Closure of the facility would eliminate a significant portion (but not all) of these tax and related payments. In 2010 and 2011, Mesabi Nugget indicated that it paid over \$133 million in wages and benefits to its employees and payments to Minnesota vendors and contractors and that shutdown of the facility would result in the loss of this economic contribution to the local community.
40. The MPCA staff have also reviewed information that indicates “that disposal of the sewage, industrial waste, or other waste is necessary for the public health, safety or welfare” in accordance with Minn. R. 7050.0190, subp. 1. MPCA staff concur that if the facility were to shut down because of the costs associated with the immediate installation of additional advanced treatment facilities,

the Area 1 Pit would continue to discharge to the environment without the benefit of the treatment currently provided by Mesabi Nugget.

41. The Area 1 Pit would continue to discharge through SD001 whether the Mesabi Nugget plant is in operation or not, albeit without the wastewater treatment of pit waters that the nugget facility is currently providing. Area 1 Pit watershed hydrology is such that total water inflows exceed water losses to groundwater and evaporation resulting in a long-term overflow or discharge of the pit to Second Creek. This overflow would occur naturally and there is no way to stop it. This overflow discharge, when it last occurred naturally prior to the permitting of the original Mesabi Nugget facility in 2005, did not meet water quality standards for the variance parameters. Even if the Mesabi Nugget plant was not present or operating, discharges from the Area 1 Pit to Second Creek would continue at levels exceeding water quality standards and, if the permit associated with the requested variance is not approved and issued, the discharge would occur year-round rather than be seasonally controlled thereby potentially adversely affecting downstream wild rice resources.
42. The MPCA staff have reviewed the permit and variance applications and supporting information and concur that the three conditions for granting a variance specified in Minn. R. 7050.0190, subp. 1 have been satisfied.
43. Effects upon air, land, and water resources were evaluated in the variance application review process. The MPCA staff have determined that if the proposed variance is approved there will be no impacts on air resources and only a very slight potential for minor impacts to land resources (i.e., soils) should downstream waters be “unofficially” used as a source of water for private gardens or grasses (such use is not known to exist at this time). There are no endangered species impacts associated with this discharge.
44. The potential exists for impact on sensitive macroinvertebrates as a result of the discharge. Chronic toxicity testing conducted on the existing discharge and on the Area 1 Pit indicates no effect on fathead minnows but the potential for effect on *Ceriodaphnia dubia*. Testing results seem to suggest that this potential for impact to *C. dubia* is of greater concern in late summer and is intermittent in nature (i.e., toxicity is not observed in each testing event). Given these observations, the potential for impact within the receiving water itself, if it were to occur at all, would be intermittent and temporary in nature and would be localized to the immediate area of discharge given the larger flows of downstream waters such as the Partridge and St. Louis Rivers relative to the discharge.
45. As a result of these toxicity test results, Mesabi Nugget has begun the Toxicity Reduction Evaluation (TRE)/Toxicity Identification Evaluation (TIE) process. The continuation of the TRE/TIE process and facility specific requirements for the duration of this process have been included in the NPDES/SDS permit in order to identify and eliminate the source of intermittent toxicity observed. In order to avoid adverse impacts on the receiving water, the permit contains a condition prohibiting discharge from SD001 during September of each year unless Mesabi Nugget can demonstrate through WET testing that toxicity exceeding one chronic toxicity unit is not present.

46. It is anticipated that total dissolved solids (TDS) and specific conductance may in the short term increase in the discharge if the variance is approved (hardness and bicarbonate are expected to continue to decline). To evaluate the potential effect that such an increase in TDS and/or specific conductance may have on the chronic toxicity of the discharge, Mesabi Nugget compared specific conductance values taken at the time the toxicity sample was collected against the results of the toxicity test. This evaluation indicates that an observable increase in the toxicity of discharge would not be expected even if specific conductance and/or TDS were to increase over the short term, and that this existing Class 2B (aquatic life and recreation) use of the water would not be removed or materially degraded with granting of the variance.
47. Mesabi Nugget has evaluated the potential for impact on downstream waters if the variance is granted. This evaluation included potential impacts on the concentration of the variance parameters (hardness, TDS, specific conductance and bicarbonate) and sulfate to the immediate receiving water, Second Creek, as well as potential impacts to the downstream waters of the Partridge and St. Louis Rivers. The evaluation included projections for both average stream flow and 'worst-case' 7Q10 low flow conditions.
48. In general, under average stream flow conditions the applicable water quality standards for the variance parameters would continue to be exceeded in Second Creek downstream of the SD001 discharge over the short term; however, water quality standards for these parameters would continue to be met in the Partridge and St. Louis Rivers. Under "worst-case" 7Q10 low flow conditions (which by definition would occur only approximately 0.2 percent of the time), the SD001 discharge when considered alone was projected to result in standards continuing to be exceeded in Second Creek for all four variance parameters and exceedances being extended to the Partridge River for TDS and specific conductance.
49. The water quality standards for the variance parameters applicable to these waters are the Class 3C (Industrial Use) standard for hardness and the Class 4A (Irrigation) standards for specific conductance, TDS and bicarbonate. There is no known historic, present or foreseeable actual use of these waters for the Class 3C or 4A use classifications. In addition, the proposed permit includes a provision that prohibits the discharge to Second Creek from April 1 to August 31 of each year, which is generally the same timeframe as any irrigation would potentially occur and for which the Class 4A standards would be most protective of an agricultural designated use. Based on the MPCA staff review of the data submitted by Mesabi Nugget, the MPCA staff conclude that granting of a variance to Mesabi Nugget for the four listed parameters will not result in the removal of an existing actual use of these waters.
50. U.S. Environmental Protection Agency (EPA) must approve any MPCA variance to its water quality standards. Under federal regulations (40 CFR § 131.10(g)(6)) and EPA guidance on variances, a "states may remove a designated use" (for example, through a temporary variance) "which is not an existing use... if the state can demonstrate that attaining the designated use is not feasible because... controls more stringent than those required by sections 301(b) and 306 of the [Clean Water] Act would result in substantial and widespread economic and social impact."
51. The MPCA staff have reviewed the information submitted by Mesabi Nugget to support the variance from EPA regulations (summarized in Findings of Fact No. 33 through No. 39 above) and

concur that the information would support an EPA determination under EPA regulations that the temporary removal of the industrial consumption and agricultural uses based on substantial and widespread economic and social impact would result if the variance was not granted.

52. EPA staff have indicated that, based on the information provided by Mesabi Nugget and on extensive discussions with MPCA staff, they would support a determination that the temporary removal of the industrial consumption and agriculture designated uses is warranted on the basis that substantial and widespread economic and social impact would result if the variance was not granted.

DRAFT PERMIT

53. The monitoring requirements, reporting requirements, and special conditions included within the proposed permit are enforceable permit requirements. As a result, the MPCA believes the monitoring requirements are adequate, enforceable, and will provide sufficient protection of surface waters.
54. The MPCA discussed the proposed draft permit with water program staff and managers from Region 5 of the EPA during development of the draft permit. During these discussions, which occurred over a period of several months, the EPA understood and did not object to the MPCA's permitting approach. As discussed above, EPA staff indicated that it is likely that the variance request meets the requirements specified in federal rule 40 CFR 131.10(g)(6) and that the variance is warranted based on substantial and widespread economic and social impacts that are anticipated to occur without this variance.
55. EPA must grant its final approval of the variance request before the variance, and draft permit, can be issued by the MPCA and become effective (40 CFR § 131.10; 40 CFR § 122.44(d)). EPA must make their determination for approval of the variance application within 60 days after MPCA's decision or for denial of the variance application within 90 days after MPCA's decision (40 CFR 131.21).
56. The Commissioner of the MPCA made a preliminary determination that the variance should be granted and provided public notice of the preliminary determination pursuant to the requirements of Minn. R. 7000.7000. The public notice of the preliminary determination was included as part of the public notice for the draft NPDES/SDS Permit.

VARIANCE SCHEDULE

57. The proposed NPDES/SDS Permit contains conditions associated with granting the variance. The purpose of the additional conditions is to measure and document potential impacts of granting the variance and to ensure that Mesabi Nugget will make reasonable progress in ultimately achieving compliance with the water quality standards.
58. 40 CFR § 122.44 (d)(1) requires that pollutants be evaluated for the potential to exceed water quality standards using acceptable technical procedures and accounting for variability in the effluent. Evaluation of the data submitted with the permit and variance applications indicates that the four pollutants in question currently exceed, and are expected to continue to exceed, their

respective water quality standards in the receiving water for the near future. Interim and final effluent limitations for the four pollutants are included in the NPDES/SDS Permit.

59. The proposed permit contains Water Quality Based Effluent Limitations (WQBELs) based on the underlying water quality standards in Minn. R. 7050.0223 and 7050.0224 that were calculated using a coefficient of variation of 0.1 and a twice monthly monitoring frequency. The calculated monthly average and daily maximum WQBELs are, respectively, 512 mg/L and 532 mg/L for hardness, 257 mg/L and 267 mg/L for bicarbonates, 726 mg/L and 768 mg/L for total dissolved solids, and 1025 umhos/cm and 1066 umhos/cm for specific conductance. Final effluent limits calculated for the permit reissuance were based on monitoring data from the facility which had been generated over the permit term. Since the issuance of the current permit in 2005, the industrial use classification for unlisted waters in Minn. R. 7050.0430 has changed from Class 3B to Class 3C. This has resulted in a change in the water quality standard for hardness applicable to Second Creek and Partridge River from 250 mg/L to 500 mg/L.
60. The proposed permit contains interim effluent limits for variance pollutants. The NPDES/SDS Permit contains interim limits effective upon permit issuance for the four pollutants based on current concentrations in the discharge for hardness and bicarbonates and on projected levels in five years for TDS and specific conductance. The interim limits for specific conductivity and TDS are based on projected levels because they may be affected by changes to the facility related to optimization of air controls or fully-operational process components. Actual monthly average and daily maximum interim effluent limitations included in the NPDES/SDS Permit are, respectively, 831 mg/L and 863 mg/L for hardness, 362 mg/L and 378 mg/L for bicarbonates, 1160 mg/L and 1228 mg/L for total dissolved solids, and 1889 umhos/cm and 1965 umhos/cm for specific conductance.
61. The NPDES/SDS Permit contains specific language stating that the permit and the variance may be modified by the MPCA if revisions to water quality standards are applicable to the pollutants involved in the variance.
62. The NPDES/SDS Permit requires in-stream monitoring of Second Creek for the four variance parameters upstream and downstream of the discharge. The purpose of the monitoring is to determine whether the discharge complies with water quality standards, to determine any seasonality of noncompliance with the underlying water quality standards, to help determine the source of any noncompliance with the underlying water quality standards, and to establish the criteria for potential future modification of the variances or permit limits based on receiving water information.
63. The proposed permit includes a schedule for completion of required studies that will ultimately result in a plan to accomplish reductions in TDS-related parameters over the short term as well as the development of a specific plan of action with a schedule for the longer term that will result in reductions in the concentrations of the variance parameters in the discharge such that compliance with final effluent limitations is achieved as soon as possible but no later than August 1, 2021.
64. The short-term permit requirements include completion and implementation of a Short Term Water Quality Improvement Study to identify improvements that could be made to the existing processing

and wastewater treatment facilities to reduce TDS-related pollutants, including potentially sulfate, in the discharge and to reduce the levels of TDS and specific conductance in the SD001 discharge. These improvements may include actions that would result in pollutant reductions that may not necessarily be sufficient to result in compliance with final effluent limitations. The timeframe for implementation of the short-term improvements is within 18 to 24 months of permit reissuance.

65. Over the longer term, completion of a series of studies is required, including:
- A Water Balance Study which will identify and quantify water flows into and out of the Area 1 Pit;
 - A Chemical Balance Study which will identify the source and fate of pollutant loadings into the Area 1 Pit including those from operation of the plant and from watershed sources such as from leaching of adjacent stockpiles; and
 - A Pollutant Reduction Study. The Pollutant Reduction Study will be informed by the Short Term Water Quality Improvement Study, the Water Balance Study and Chemical Balance Study. This study will also include an evaluation of source control strategies, treatment technologies and process optimizations and will propose a detailed plan and schedule that will result in compliance with effluent limitations as soon as possible. The timeframe for submittal of the Pollutant Reduction Study and commencing the implementation of the approved plan and schedule is expected to be three to three and a half years from the date of permit issuance. Subsequent compliance with final effluent limitations is required as soon as possible thereafter but no later than August 1, 2021.
66. The term of the variance is based on potential time required for Mesabi Nugget to complete studies, as well as time for implementation of any final plans for attaining compliance, including time for obtaining various regulatory approvals. The schedule does not automatically grant the maximum timeframe, but requires MPCA approval at interim steps and requires that all interim steps proceed to compliance with final effluent limitations as soon as possible. The schedule requires the Permittee to make progress toward meeting the final effluent limitations for the variance parameters for the duration of the variance.
67. The interim requirements described above and which are included in the permit as conditions include completion of the Short Term Water Quality Improvement Study, the Water Balance Study, the Chemical Balance Study, and the Pollutant Reduction Study for the facility. The permit also requires ongoing progress reports. The permit specifies maximum timeframes for completion of the interim requirements. All aspects of the schedule for compliance with final effluent limitations are enforceable terms of the permit.

MERCURY

68. Mercury monitoring of the discharge from the Area 1 Pit is required by the existing NPDES/SDS Permit.

69. A Reasonable Potential evaluation was completed for mercury based on projected effluent mercury concentrations. The evaluation indicated that there was a reasonable potential to exceed water quality standards. Thus, effluent limitations for mercury are included in the NPDES/SDS Permit.
70. Mesabi Nugget must meet the mercury water quality standard of 1.3 ng/L at the point of discharge, upon commencement of discharge, without benefit of a mixing zone, and with no eligibility to apply for a variance from the mercury standard. The mercury effluent limitations were calculated using EPA approved methodology. Providing for effluent variability and a monitoring frequency of twice monthly, effluent limitations based on the underlying 1.3 ng/L water quality standard were calculated to be 1.8 ng/L monthly average and 3.2 ng/L daily maximum.
71. Twice monthly monitoring of the discharge for mercury using low-level EPA analytical method 1631 and EPA clean sampling method 1669 is included in the NPDES/SDS Permit.
72. Due to the location of the facility and the discharge in the Lake Superior basin, certain administrative remedies for mercury noncompliance are not available to Mesabi Nugget in the event the mercury filters do not provide the degree of mercury removal projected. Mesabi Nugget is not eligible to apply for a variance for mercury; thus, the company must follow existing stringent permit terms and conditions for addressing compliance with the mercury effluent limitations. Therefore, to eliminate or minimize the potential for a noncompliant mercury discharge, the existing permit prescribes actions the company must take if monitoring data indicates that the mercury effluent limitations are being exceeded. These conditions remain unchanged with this reissuance.
73. If monitoring of the discharge indicates that the mercury monthly average effluent limitation is not being achieved, the NPDES/SDS Permit requires that Mesabi Nugget cease the discharge to Second Creek. The Permittee may continue to manufacture product provided the Area 1 Pit has previously been pumped down to create excess storage capacity (thus eliminating the immediate need for a discharge to Second Creek) and provided treatment of wastewater through at least the first two treatment units (chemical precipitation and mercury filter #1) continues prior to discharge into the Area 1 Pit.
74. If excess storage capacity becomes unavailable and the Area 1 Pit fills to the point where it will discharge on its own, the NPDES/SDS Permit requires the Permittee to cease its manufacturing process and cease generating wastewater until such time that compliance with the mercury effluent limitations can be demonstrated.

SULFATE AND PROTECTION OF WATERS USED FOR THE PRODUCTION OF WILD RICE

75. The Class 4A sulfate numeric standard for wild rice included in Minn. R. 7050.0224, subp. 2 is "10 mg/L, applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels." Application of the wild rice sulfate standard, is made on a case by case basis. The first step is to develop a staff recommendation related to which waters in the area are waters used for production of wild rice. Whether a seasonal discharge should be considered and if so, the period when wild rice is susceptible to damage by high sulfate

levels is determined by the MPCA and Minnesota Department of Natural Resources (MDNR) staff on a site-specific basis.

76. The evaluation of the Partridge River with regard to the sulfate standard is summarized in the August 27, 2012, the MPCA draft staff recommendation, "Seasonal Application of the Wild Rice Sulfate Standard - Partridge River," (Attachment 2). In that memo, the MPCA concluded that the 10 mg/L sulfate standard is applicable to portions of the Partridge River used for wild rice production April 1 through August 31. Based on this conclusion, the permit prohibits the discharge from Area 1 Pit from April 1 through August 31. As outlined in the draft staff recommendation, these dates take into account general variability associated with annual climatic variations, geographic locations and individual stand variability within the Partridge River watershed.
77. The application of the 10 mg/L sulfate standard on a seasonal basis for the Partridge River considers the travel and residence time of the river system from the discharge point to the location of wild rice. It also recognizes that hydrogen sulfide toxicity is less likely in flowing water conditions, such as those found in the Partridge River, than in stagnant water conditions – due to oxygenated sediment conditions preventing the formation of hydrogen sulfide and the moving water preventing accumulation of any hydrogen sulfide that may form.
78. Since the permit will prohibit a discharge from the April 1 to August 31 period, no effluent limit for sulfate is required in the permit. However, the permit requires twice monthly monitoring for sulfate concentrations in the facility discharge when a discharge does occur outside of the April 1 to August 31 period.
79. In addition, the permit requires Mesabi Nugget to complete a Wild Rice Impact Study within 48 months after MPCA approval of the work plan, which is required to be submitted within 90 days after permit issuance. This study will include monitoring and measuring the effects on water chemistry, hydrology and wild rice resources downstream of SD001. The 48 month timeframe for completion of the Wild Rice Impact Study is intended to take into account to the extent possible in a five-year permit the known cyclic nature of natural wild rice crops. Written annual progress reports, including a preliminary evaluation of data collected to date, are required by the permit. Further details on work plan and study requirements are included in the permit.
80. The permit requires the completion of a Sulfate Transport Study within 12 months after the MPCA approval of the associated workplan, which is required to be submitted within 90 days after permit issuance. The Sulfate Transport Study is a modeling effort intended to evaluate and predict sulfate concentrations in the waters between the SD001 discharge and the confluence of the Partridge River, taking into account multiple stream flow and discharge scenarios. The Study is intended to provide facility-specific information that may, in combination with the results of the state sponsored wild rice/sulfate studies, be used to inform future decisions on permit requirements. Further details on work plan and study requirements are included in the permit.

WHOLE EFFLUENT TOXICITY

81. WET testing has been conducted on Area 1 Pit since 2006. Area 1 Pit water has not shown evidence of having chronic toxicity to fathead minnows, but has been intermittently chronically

toxic to *C. dubia*. The TIE/TRE process began in 2008 and has continued through 2011. The intermittent chronic toxicity has resulted in a reduction in the number of young per bearing female, but not complete reproduction failure (i.e. zero young per bearing female).

82. Mesabi Nugget is required to continue with the TIE and TRE process as required in the permit. For the duration of this TIE/TRE process, Mesabi Nugget will also be required to conduct monthly chronic WET tests for the discharge, (or water samples representative of the discharge). In addition, quarterly updates regarding the progress of the TIE and TRE are required to be submitted to the MPCA, and an annual summary of all WET-related activities which occurred in the previous year.
83. Once the TRE process has been completed, Mesabi Nugget is also required to continue conducting monthly chronic toxicity testing on the station SD001 discharge to Second Creek in order to track the potential effects of the facility discharge on toxicity. A total of twelve consecutive monthly tests must pass the chronic toxicity standard (<1.0 TUc) before the facility will be allowed to reduce the level of monitoring to every other month for the duration of the permit. Since testing must be conducted during periods of discharge, the twelve monthly tests will equate to approximately two years of passing monthly chronic WET tests prior to the reduction in monitoring. These requirements provide assurance that the facility's discharge has no further reasonable potential for chronic toxicity.
84. The toxicity testing must follow standardized procedures as outlined in the EPA's Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002 (EPA-821-R-02-013), and the permit specifies the required organisms, dilution series, sampling method and reporting requirements.

FINANCIAL ASSURANCE

85. The Area 1 Pit is a part of the wastewater treatment system for the facility. As such, there is the potential that the Area 1 Pit may accumulate some concentration of pollutants that may remain present at the time of facility closure and that may require continued treatment prior to discharge during the closure period.
86. In order to ensure that funding is available to continue operation of relevant portions of the treatment system after closure (in particular mercury filtration unit No. 2), the permit contains a provision for financial assurance. Specifically, the permit requires that an irrevocable letter of credit, fully-funded cash trust fund, or another method of financial assurance approved in advance by the MPCA in the amount of \$5 million be provided. Mesabi Nugget provided an irrevocable letter of credit in the amount of \$5 million to the MPCA in 2005; this financial assurance mechanism and amount is still required under the permit.
87. The specific amount of financial assurance was based on the estimated cost of operating the treatment facility, based on the design information available at the time of permit drafting, for the amount of time necessary to return Area 1 Pit water quality to its natural background levels. The estimated time for additional treatment needed to achieve natural background levels was determined to be approximately three to five years. The permit provides for an annual review of

the amount of financial assurance, at which time the dollar amount may be adjusted upwards or downwards.

88. The financial assurance provisions described above are a requirement of the existing permit and remain unchanged in the reissued permit.

PROCEDURAL HISTORY

89. Pursuant to Minn. R. 7001.0100, a draft permit was prepared by the MPCA staff on the proposed permit reissuance.
90. The public comment period for the draft permit began on January 30, 2012, and ended on February 29, 2012, and in accordance with provisions of Minn. R. 7001.0100 was provided to all persons on the mailing list for the county in which the facility is located and to any interested person upon request, and was circulated within the geographic area of the facility.

PUBLIC COMMENTS AND MPCA RESPONSE

91. During the 30-day comment period, comments received by MPCA included those from EPA – Region 5, Mesabi Nugget (the Permittee), WaterLegacy, Sierra Club—North Star Chapter, Minnesota Center for Environmental Advocacy, Save Lake Superior Association, the Grand Portage Band of Chippewa and the Fond du Lac Band of Lake Superior Chippewa, and 5 letter and 166 e-mails from individual citizens. The comments expressed a variety of opinions and concerns about the content and legality of the proposed variance, the sulfate discharge levels from the facility and the seasonal application of the Class 4A water quality standard for sulfate, mercury requirements, ongoing aquatic toxicity, and nondegradation issues.
92. The MPCA reviewed each of the comments and provided a detailed response to each. Comment letters received have been hereby incorporated by reference as Appendix A to these findings. The MPCA responses to comments received are hereby incorporated by reference as Appendix B to these findings.
93. In addition, the Permittee submitted a number of minor edits and administrative comments on the draft permit during the public notice period, which were considered in the finalizing of the permit. Any edits that were accepted are discussed in the Board Item document.

FINAL DETERMINATION ON WHETHER TO GRANT VARIANCES AND ISSUE PERMIT

94. In Minnesota, there are two types of water quality permits, the NPDES permit and the SDS permit. The NPDES permit is issued by the MPCA pursuant to authority delegated by EPA pursuant to the federal Clean Water Act. The SDS permit is issued under authority in Minn. Stat. ch. 115. When both permits are required, the MPCA issues a joint NPDES/SDS permit. Mesabi Nugget's permit is a NPDES/SDS Permit.
95. The MPCA has jurisdiction to reissue the NPDES/SDS permit to Mesabi Nugget under the provisions of Minn. R. 7001.0140.
96. The MPCA has followed the procedures for the reissuance of the NPDES/SDS Permit in accordance with the provisions in Minn. R. ch. 7001.

97. The MPCA's decision to grant the variance is governed by its variance rule, Minn. R. 7000.7000, and by the water quality standards variance provision, Minn. R. 7050.0190, subp. 1. Specifically, Minn. R. 7000.7000 subp. 8 states, in part, that:

Subpart 8. Board decision. The board shall make all final decisions on variance applications pursuant to Minnesota Statutes, section 116.02, subdivision 6, clause (6) or subdivision 8. The board shall approve or deny each application. The board may grant a variance upon such conditions as the board may prescribe.

The MPCA has followed the procedures for granting of a variance in accordance with the provisions of Minn. R. 7000.7000.

CONCLUSIONS OF LAW

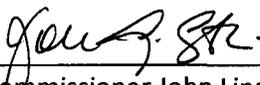
98. The MPCA is authorized to administer and enforce all laws relating to the pollution of the air and water of the state. Minn. Stat. chs. 115 and 116. The MPCA has jurisdiction over the NPDES/SDS Permit and the temporary water quality standard variance for the Mesabi Nugget Project.
99. The MPCA has the authority to reissue the NPDES/SDS Permit under Minn. Stat. chs. 115 and 116 and Minn. R. chs. 7000 and 7001.
100. Under the federal Clean Water Act, the MPCA is delegated the authority from EPA to issue NPDES permits. 33 U.S.C. § 1342; Minn. Stat. § 115.03, subd. 5.
101. The MPCA has the authority to issue an SDS permit for the construction, installation, or operation of disposal systems. Minn. R. 7001.0020. D.
102. A draft permit for the Mesabi Nugget facility was prepared and publicly noticed in accordance with the requirements of Minn. R. 7001.0100.
103. The Commissioner of the MPCA determined that the variance application submitted by Mesabi Nugget was complete in accordance with the requirements in Minn. R. 7000.7000, subp. 4.
104. Public notice of the temporary variance was completed in accordance with the requirements of Minn. R. 7000.7000, subp. 4 through 7.
105. The provisions in Minn. R. 7050.0190 for granting the temporary variance have been satisfied.
106. The MPCA determines that the Permittee will comply with all applicable state and federal pollution control statutes and rules administered by the MPCA, and the conditions of the reissued NPDES/SDS Permit.
107. The NPDES/SDS Permit contains effluent limitations and special requirements that are protective of the environment and ensure compliance with the Great Lakes mercury water quality standard.

108. The temporary water quality standard variance is reasonable under the circumstances and MPCA has included necessary and appropriate provisions in the NPDES/SDS Permit to minimize any impact of granting the temporary variance.
109. The findings of the MPCA justify issuance of the NPDES/SDS Permit and granting of the temporary variance and do not support denial of the permit or denial of the request for a variance.
110. The permit will be reissued upon EPA approval of the variance pursuant to provisions in 40 CFR §§ 131.10, 131.21 and 122.44(d).
111. Any findings that might properly be termed conclusions and any conclusions that might properly be termed findings are hereby adopted as such.

ORDER

The Minnesota Pollution Control Agency Board approves the proposed variance and submittal of the variance to EPA for approval. The Minnesota Pollution Control Agency Board also approves the reissuance of the National Pollutant Discharge Elimination System/State Disposal System Permit No. MN0067687 upon EPA approval of the variance.

IT IS SO ORDERED



Commissioner John Linc Stine
Chair, Citizens' Board
Minnesota Pollution Control Agency

10/24/12

Date

EPA Review of the Minnesota Pollution Control Agency (MPCA)
Request for Approval of a Variance from Water Quality Standards
Mesabi Nugget Delaware, LLC – Hoyt Lakes, Minnesota
MN Permit No. MN0067687
Under Section 303(c) of the Clean Water Act
WQSTS # MN2012-452

Date: **DEC 27 2012**

I. Summary

A. Date Received by EPA: October 30, 2012

B. Submittal History: On October 26, 2012, the Minnesota Pollution Control Agency (MPCA) sent EPA a request for approval of a water quality standard variance for discharge by Mesabi Nugget Delaware, LLC into Second Creek of the Partridge River Basin (St. Louis County, Minnesota) covering the Mesabi Nugget Large Scale Demonstration Plant in Hoyt Lakes which processes wastewater from Mesabi Nugget's commercial scale iron nugget production facility via Outfall 002, under MN Permit Number MN0067687.

C. Documents in the official submittal from MPCA:

- Certified (signed) copy of the Findings of Fact, Conclusions of Law, and Order for the National Pollution Discharge Elimination System/State Disposal System (NPDES/SDS) Permit MN0067687, Oct 24, 2012 (the Findings document)
- MPCA Metallic Mining Sector Letter (Ann Foss) to Tinka Hyde, Mesabi Nugget Variance Request for formal EPA approval, October 26, 2012, received October 30, 2012
- MPCA Letter to Interested Parties, on Mesabi Nugget Delaware, LLC NPDES/SDS Permit No. MN0067687, October 12, 2012
- Notice of Agenda for MPCA Citizens' Board Meeting, Monday, Oct 22, 2012 and Tuesday, Oct 23, 2012
- Attachment 1: Proposed Findings of Fact, Conclusions of Law, and Order for the National Pollution Discharge Elimination System/State Disposal System (NPDES/SDS) Permit MN0067687, Including a Variance from Water Quality Standards, to Mesabi Nugget Delaware, LLC. St. Louis County, Hoyt Lakes, Minnesota, undated/unsigned (20 pp.)
- Attachment 2: Draft MPCA Staff Recommendation, August 27, 2012(Update/Clarification), Seasonal Application of the Wild Rice Sulfate Standard – Partridge River (18 pp.)
- Attachment 3: MPCA Draft Staff Recommendation, August 13, 2012, Waters Used for Production of Wild Rice – Partridge and Embarrass Rivers, Revised Draft (Reflecting Tribal Staff Feedback)

- Attachment 4: Draft MPCA Permit MN0067687, for Mesabi Nugget Delaware LLC to Second Creek (Class 2B, 3C, 4A, 4B, 5, 6 waters), undated (48 pp.)
- Attachment 5: Statement of Basis, Mesabi Nugget Delaware, LLC, PO Box 235, Hoyt Lakes, MN 55750, NPDES/SDS Permit No. MN0067687, prepared by Kate Frantz, September 2012 (12 pp.)
- Attachment 6: MPCA Variance Issue Statement for Mesabi Nugget Delaware, LLC, NPDES/SDS Permit No. MN0067687, September 2012 (27 pp.)
- Attachment 7: Mesabi Nugget Delaware, LLC, Glossary Acronyms (3 pp.)
- Appendix A: MPCA List of Comment Letters (178) Received Mesabi Nugget Delaware, LLC NPDES/SDS Permit MN0067687 (76 pp. includes 12 hardcopy letters; 168 electronic letters not included)
- Appendix B: MPCA Responses to Comments of the NPDES/SDS Permit MN0067687, undated (25 pp. Response to Electronic Form Letters provided under #11, pp. 23-24)
- Appendix C: List of Permit Changes and associated commenter who requested the change, undated (13 pp.)
- MPCA Issue Statement, October 23, 2012, Mesabi Nugget Delaware, LLC – Request for Approval of Findings of Fact, Conclusions of Law, and Order and Authorization to Grant a Variance and to Reissue National Pollution Discharge Elimination System/State Disposal System (NPDES/SDS) Permit MN0067687
- Public Notice of Intent to Reissue NPDES/SDS Permit MN0067687 to Mesabi Nugget Delaware, LLC, State of MN MPCA Industrial Division, Jan 30, 2012
- Effluent Limit Review Checklist for MN0067687, Mesabi Nugget Delaware, LLC and Steel Dynamics, Inc., Completed by Mike Anderson, Oct 4, 2010 (8 pp.)
- Effluent Limitations Summary, From Richard Clark to Katrina Kessler, Jul 1, 2010 (3 pp.)
- Legal certification, Beverly M. Conerton to Michelle Beeman, December 18, 2012 (2 pp.)

D. Other documents received from MPCA:

- Additional Information Submittal Mesabi Nugget NPDES Permit MN0067687, March 2012. Prepared for Mesabi Nugget Delaware LLC., by Barr Engineering (30 pp., with Tables & Figures)
- Technical Memorandum, Mike Hansel (Barr Engineering Co.) to Richard Clark (MPCA), Downstream Impacts of Discharges at low flow (7Q10) under Permit MN 0067687, May 19, 2011, Mesabi Nugget Phase I NPDES Permit Reissuance
- Technical Memorandum, Mike Hansel (Barr Engineering Co.) to Richard Clark (MPCA), Benefits of Iron Nugget production vs. traditional iron making, Project 23/69-0B65, May 31, 2011
- Technical Memorandum, Mike Hansel (Barr Engineering) to Richard Clark (MPCA), Mesabi Nugget – connection between AQ and NPDES permit, Project 23/69-0B65, May 31, 2011

- Area 1 Pit Water Treatment Evaluation in Support of the Nondegradation Analysis, Mesabi Nugget Phase II Project, Prepared by Barr Engineering for Mesabi Mining, LLC. June 2011
- “Dissolved Solids and Chemical Balance, Mesabi Nugget Phase II Project,” December 2009 Attachment to Letter to Kirk Rosenberger, MN DNR, Prepared by Barr Engineering for Steel Dynamics Inc. and Mesabi Mining, LLC. December 14, 2009
- Certification Statement of Approval of a Variance to Water quality Standards, Mesabi Nugget Delaware LLC, MPCA Permit No. MN0067687, dated December 9, 2008
- Variance Application, NPDES/SDS Permit Renewal, Permit No. MN0067687, Mesabi Nugget LSDP Facility, June 2010. Prepared for Steel Dynamics, Inc. Mesabi Nugget LLC., by Barr Engineering
- Mesabi Nugget LLC Toxic Release Reasonable Potential Memo, 09-10-2010.
- DMR Summary Reports (5), SD001, Mesabi Nugget Delaware LLC (MN 0067687), 2006 through 2010
- Mesabi Nugget-Cliffs Erie Map 1.JPG
- Additional information to support different interim limits for Total Dissolved Solids, from MPCA, Undated
- MN0067687 Permit Change Request Form to MPCA, Jan 21, 2011
- Mesabi Wastewater Diagram-No Action Alternative, May 01, 2008

E. Other Documents Considered:

- “Wild rice in Minnesota.” John B. Moyle, Journal of Wildlife Management, Vol. 8, No. 3, July, 1944, pp. 177 – 184
- “Wild rice in Minnesota.” John B. Moyle and Paul Krueger, State of Minnesota Department of Conservation, Division of Game and Fish, June 26, 1969 (10 pp.)
- “Wild rice – some notes, comments, and problems.” John B. Moyle, State of Minnesota Department of Conservation, Division of Game and Fish, Special Publication# 47, September, 1975 (10 pp.)
- 2012 Fish and Wildlife Service Website, County Distribution of Minnesota’s Federally Threatened, Endangered, Proposed and Candidate Species, accessed on 10/29/2012. <http://www.fws.gov/Midwest/Endangered/lists/minn-sty.html>
- E-mail from Paula Maccabee, Just Change Law, to Kevin Pierard et al., EPA, 11/1/12, “Steel Dynamics and NPDES/SDS Permit MN0067687,” 2 attachments.
- Letter from Paula Maccabee, Just Change Law, to Linda Holst and David Pfeifer, EPA, 11/8/12, “RE: Mesabi Nugget, LLC and Steel Dynamics Inc. Proposed Variance NPDES/SDS permit MN0067687.”
- E-mail from Kathryn Hoffman, Minnesota Center for Environmental Advocacy, to Linda Holst and David Pfeifer, EPA, 11/2/12, “Mesabi Nugget Variance,” 1 attachment.
- Letter from Tinka Hyde, EPA, to Karen Diver, Chairwoman, Fond du Lac Tribal Council, 11/15/12, 1 attachment
- Letter from Tinka Hyde, EPA, to Norman W. Deschampe, Chairman, Grand Portage Reservation Tribal Council, 11/15/12, 1 attachment

- Letter from Tinka Hyde, EPA, to Kevin Leecy, Chairman, Bois Forte Tribal Council, 11/15/12, 1 attachment
- E-mail from Christine Wagener, EPA, to various recipients, 11/15/12, "EPA Requesting Tribal Consultation on Mesabi Nugget," 2 attachments
- E-mail from Wayne Dupuis, Fond du Lac Tribe, to Christine Wagener, EPA, 11/16/2012, "RE: EPA Requesting Tribal Consultation on Mesabi Nugget"
- E-mail from Nancy Schuldt, Fond du Lac Tribe to Christine Wagener, EPA, 11/16/2012. "FW: EPA Offer to CONSULT - Mesabi Nugget NPDES Permit"
- E-mail from Nancy Schuldt, Fond du Lac Tribe, to Christine Wagener, EPA, 11/19/2012, "RE: EPA Requesting Tribal Consultation on Mesabi Nugget"
- E-mail from Christine Wagener, EPA, to various recipients, 11/27/12, "Mesabi Nugget-Understanding of Concerns for Monday, 3 December," 1 attachment
- E-mail from Margaret Watkins, Grand Portage Tribe, to Christine Wagener, EPA, et al., 11/27/2012, "PolyMet pilot RO plant processed more that 1.4 million gallons of water"
- E-mail from Margaret Watkins, Grand Portage Tribe, to Christine Wagener, EPA, et al., 11/28/2012, "RE: Mesabi Nugget-Understanding of Concerns for Monday, 3 December"
- Letter from Karen Diver, Fond du Lac Band of Lake Superior Chippewa Reservation Business Committee, to Tinka Hyde, 12/03/2012
- E-mail from Margaret Watkins, Grand Portage Tribe, to Christine Wagener, EPA, et al., 12/04/2012, "40 CFR part 132, section VIII, appendix F limits variance to 5 years"
- E-mail from Margaret Watkins, Grand Portage Tribe, to Christine Wagener, EPA, et al., 12/04/2012, "Old LTV site and VIC program," 1 attachment
- E-mail from Nancy Schuldt, Fond du Lac Tribe, to Kevin Pierard, EPA, et al., 12/12/2012, "RE: Additional Information regarding consultation for the proposed Mesabi Nugget NPDES permit," 2 attachments

F. Description of Action:

MPCA submitted to EPA for review a discharger specific variance from Minnesota's water quality standards for Mesabi Nugget Delaware, LLC (hereafter referred to as Mesabi). The variance affects the Class 3C industrial water supply use and applicable hardness criterion as well as the Class 4A Agricultural Irrigation use and applicable bicarbonate, total dissolved solids, and specific conductance criteria for the Second Creek of the Partridge River Basin of the St. Louis River Watershed complex. Water quality standards for the four pollutants in question are specified in Minn. R. 7050.0223(4) (Class 3C standards) and 7050.0224(2) (Class 4A standards). The relevant standards are: 500 milligrams per liter (mg/L) for hardness (Class 3C), 5 milliequivalents (250 mg/L) for bicarbonates, 700 mg/l for total dissolved solids, and 1000 micromhos per centimeter ($\mu\text{mhos/cm}$) for specific conductance (Class 4A). Minnesota's rules at Minn. R. 7050.0223(4) describe the affected industrial use as follows: "The quality of Class 3C waters of the state shall be such as to permit their use for industrial cooling and materials

transport without a high degree of treatment being necessary to avoid severe fouling, corrosion, scaling, or other unsatisfactory conditions.” Minnesota’s rule at Minn. R. 7050.0224(2) describes that Class 4A use as follows: “The quality of Class 4A waters of the state shall be such as to permit their use for irrigation without significant damage or adverse effects upon any crops or vegetation usually grown in the waters or area, including truck garden crops.”

In addition to the criteria identified above to protect waters for use in the irrigation of crops, Minnesota’s water quality standards at Minn. R. 7050.0224(2) also include a criterion of 10 mg/L sulfate, “applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels.” In drafting the permit for Mesabi, MPCA evaluated the use of the downstream waters for the production of wild rice (see attachment 3 of Minnesota’s submittal, “MPCA Draft Staff Recommendation, August 13, 2012, Waters Used for Production of Wild Rice – Partridge and Embarrass Rivers, Revised Draft (Reflecting Tribal Staff Feedback)”) and included conditions in the Mesabi discharge permit to comply with this element of Minnesota’s 4A standard (see attachment 2 of Minnesota’s submittal, “Draft MPCA Staff Recommendation, August 27, 2012 (Update/Clarification), Seasonal Application of the Wild Rice Sulfate Standard – Partridge River”). Mesabi did not request a variance from this standard. The sulfate criterion is the only chemical-specific criterion in Minnesota’s water quality standards that is related to the protection of water used for the production of wild rice. Review of the papers by John Moyle that are the basis of Minnesota’s wild rice protection criterion (Moyle, 1944; Moyle, 1969; Moyle, 1975) provides no indication that the parameters for which Mesabi is requesting a variance would be expected to adversely affect wild rice if the sulfate criterion is met. Since the sulfate criterion is not part of the submitted variance, for the remainder of this document, Minnesota’s Class 4A use refers to the agricultural irrigation use exclusive of the 10 mg/L sulfate criterion for the protection of waters used for the production of wild rice.

The submitted variance does not seek relief from any other uses or criteria contained in Minnesota’s water quality standards. The other uses identified in Minnesota’s water quality standards applicable to Second Creek are: Class 2, Aquatic Life and Recreation; Class 5, Aesthetic Enjoyment and Navigation; and Class 6, Other Uses. The designated uses of the receiving stream, Second Creek are: 2B (the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats; aquatic recreation of all kinds, including bathing); 3C (industrial consumption), 4A (agricultural irrigation), 4B (livestock and wildlife watering), 5 (aesthetics and navigation), and 6 (other uses). The submitted variance pertains to the criteria to protect the industrial consumption and agricultural irrigation uses only.

Under the submitted variance the following effluent concentrations reflect the water quality that is feasible to achieve prior to completion of any of the actions Mesabi is required to take to improve the quality of its effluent. Specifying in the variance a numeric value that reflects an effluent condition for Mesabi during the term of the

variance is a reasonable alternative to adopting interim limited agricultural and industrial designated uses and criteria because the resulting instream concentration reflects the expected interim uses and interim criteria. The table below provides the interim effluent limits effective during the term of the variance:

	Limits Applicable during the term of the variance		Limits applicable upon expiration of the variance, August 1, 2021	
	Daily Max	Monthly avg	Daily Max	Monthly avg
Hardness	863	831	532	512
Specific conductivity	1965	1889	1066	1025
TDS	1228	1160	768	726
Bicarbonates	378	363	267	257

Consistent with the Findings document for the variance, Mesabi must also:

- Complete and implement a Short Term Water Quality Improvement Study to identify improvements that could be made to the existing processing and wastewater treatment facilities to reduce TDS-related pollutants, including potentially sulfate, in the discharge and to reduce the levels of TDS and specific conductance in the SD001 discharge. These improvements may include actions that would result in pollutant reductions that may not necessarily be sufficient to result in compliance with final effluent limitations. The timeframe for implementation of the short-term improvements is within 18 to 24 months of permit reissuance.
- A Water Balance Study which will identify and quantify water flows into and out of the Area 1 Pit
- A Chemical Balance Study which will identify the source and fate of pollutant loadings into the Area 1 Pit including those from operation of the plant and from watershed sources such as from leaching of adjacent stockpiles
- A Pollutant Reduction Study. The Pollutant Reduction Study will be informed by the Short Term Water Quality Improvement Study, the Water Balance Study and Chemical Balance Study. This study will also include an evaluation of source control strategies, treatment technologies and process optimizations and will propose a detailed plan and schedule that will result in compliance with effluent limitations as soon as possible. The timeframe for submittal of the Pollutant Reduction Study and commencing the implementation of the approved plan and schedule is expected to be three to three and a half years from the date of permit reissuance.
- Compliance with final effluent limitations is required as soon as possible thereafter but no later than August 1, 2021.

G. Public Participation in Minnesota's Process:

MPCA issued a Public Notice announcing the Mesabi Nugget variance request and permit on January 30, 2012. EPA Region 5 submitted comments via letter to MPCA on February 29, 2012. MPCA adequately addressed EPA-specific comments and much of their response is now reflected in the permit as approved by the MPCA Citizens Board

(NPDES/SDS Permit No. MN0067687). Comments from a total of 180 respondents were received from the public; 12 of these were submitted as letters or packages to MPCA while 168 were submitted as electronic form-letters; 2 of these were received following the comment period.

H. Basis of Minnesota's Action:

Minnesota Administrative Codes: Minn. R. 7050.0190, 7053.0195, 7000.7000

Minnesota's administrative rules at Minn. R. 7050.0190 provides for a variance from water quality standards when MPCA finds that by reason of exceptional circumstance, the strict enforcement of such provisions in the standards would cause the discharger undue hardship, and that strict conformance with the standards would be unreasonable, impractical or not feasible under the circumstances. Additionally, Minn. R. 7053.0195 allows for variance from treatment requirements when strict enforcement of any provision of this chapter would cause undue hardship; that disposal of the sewage, industrial waste, or other waste is necessary for the public health, safety, or welfare; and that strict conformity with the effluent limits would be unreasonable, impractical, or not feasible under the circumstances.

Minn. R. 7000.7000 governs the procedure for issuance of variances by the MPCA and specifies the information that must be included in the written application for a variance, including the nature of the variance sought, economic and/or technical basis for the requested variance, a description of the facility and materials handled pertinent to the requested variance, alternatives considered, a plan for reducing discharges to the lowest levels practicable, and concise statements on the effects on air, land and water resources and on business, trade, and other economic interests. If the applicant is seeking a variance on the grounds that compliance is not technically feasible, the applicant must submit a report from a registered professional engineer, or other person acceptable to the agency, stating fully the reasons why compliance is not technologically feasible.

In determining whether or not to grant the variance requested by Mesabi, MPCA considered the use and values of the waters affected for industrial water supply and agricultural irrigation uses. The Findings document explains the information MPCA evaluated in its consideration of these uses:

- There is no known historic, existing or foreseeable future use of Second Creek or Partridge River for the Class 3C Industrial Water Supply or Class 4A Agricultural Irrigation designated uses.
- MPCA's October 17, 2012 Variance Issue Statement describes the existing conditions in the mine pit and Second Creek (Variance Issue Statement, pages 4 – 5). Based on data from 2010 – 2011, water quality in the mine pit for the variance parameters is reported as hardness, 739 mg/L (3C criterion = 500 mg/L); bicarbonate, 329 mg/L (4A criterion = 250 mg/L); total dissolved salts (TDS), 872 mg/L (4A criterion = 700 mg/L); specific conductance, 1269 µmhos/cm (4A criterion = 1000 µmhos/cm).

Concentrations of these four pollutants currently exceed water quality standards in the existing discharge to Second Creek as monitored under the existing NPDES/SDS Permit. Approximate average concentrations of these four pollutants in the existing discharge are: 740 mg/L for hardness, 330 mg/L for bicarbonate, 824 mg/L for TDS, and 1194 umhos/cm for specific conductance.

- Monitoring data indicates that concentrations of these four pollutants exceed applicable water quality standards in Second Creek at least some of the time. The Variance Issue Statement reports concentrations of the variance parameters in Second Creek downstream of the Mesabi discharge point are: hardness, 661 mg/L; bicarbonate, 294 mg/L; TDS, 751 mg/L; specific conductance, 1030 µmhos/cm. Under certain circumstances (which, in part, is dependent on other activities/discharges in the watershed) flow in Second Creek consists solely or primarily of the Area 1 Pit discharge during significant portions of the year. As a result, a technical determination was made by the MPCA staff that the annual 7Q10 low flow for Second Creek is zero. The term 7Q10 means the lowest flow over a seven day period with a once in ten year recurrence frequency.
- Mesabi Nugget is in the process of conducting various studies on its air emission control/scrubber systems as required by the facility's Air Emissions Permit, which may result in significant changes in the nature of the influent to a reverse osmosis (RO) treatment system. In particular, Mesabi Nugget is required by the permit to complete a Wet Scrubber Optimization Study, a NOX Control Study and a Mercury Reduction Study. Changes in liquid flow rate as a result of the Scrubber Optimization Study could result in the presence of additional dissolved solids and particulate matter in the influent. A requirement to install a selective noncatalytic reduction system (SNCR) or alternate technology for NOX control would result in significant quantities of nitrogen compounds reporting to the wastewater treatment system. These nitrogen compounds can be detrimental to the performance of RO membranes and may require the installation of additional pretreatment. If additional control equipment is required to remove mercury in the air emissions, the most likely candidate would be the injection of activated powdered halogenated carbon. This would likely change the composition of the influent by adding monovalent ions, thereby affecting the selection of an effective membrane, as well as the selection of pretreatment technology due to the addition of the very finely divided activated carbon.
- Mesabi Nugget investigated the technical feasibility of several wastewater treatment technologies that were identified as having a potential of effectively treating the discharge including biological treatment (anaerobic reactors, wetlands), chemical precipitation (lime softening, ettringite precipitation, barium precipitation), ion exchange (Sulf-IX) and membrane treatment (nanofiltration, reverse osmosis). Of those technologies evaluated, the only option considered potentially technically capable of reducing the levels of the variance parameters to meet water quality standards was reverse osmosis with evaporation and crystallization of the reject water.

- Even with RO, however, technological uncertainty remains for the Mesabi Nugget discharge, particularly with respect to pretreatment requirements, selection of an effective membrane(s) for variable influent quality, likely fouling and scaling of the heat transfer surfaces, disposition of the reject brine and general design/scale-up considerations for a system capable of treating up to 3,000 gallons per minute. At a minimum, Mesabi Nugget has indicated that in order to make an informed decision on the potential installation of additional wastewater treatment, a reasonable amount of time would be needed to fully characterize future wastewater characteristics resulting from potential changes or enhancements to the air quality control systems—and to conduct the bench and/or pilot testing necessary for engineering design and detailed economic evaluation.
- Mesabi Nugget also requested the variance on the grounds that “by reason of exceptional circumstances the strict enforcement of any provision of these standards would cause undue hardship” as provided in Minn. R. 7050.0190(1). Mesabi Nugget indicated that it would be unreasonable to require construction and operation of a complex treatment facility that is not technically feasible at this time and would require extensive pilot testing and engineering to determine whether the technology could achieve the results.

Upon consideration of the use and value of the waters for industrial water supply and agricultural irrigation uses, MPCA reached the following conclusions:

- The MPCA determined under Minn. R. 7000.7000(3) that the application for a variance was complete.
- There is no known historic, present or foreseeable actual use of these waters for the Class 3C industrial water supply or 4A agricultural irrigation use classifications. In addition, the permit approved by the MPCA Citizens Board includes a provision that prohibits the discharge to Second Creek from April 1 to August 31 of each year, which is generally the same timeframe as any irrigation would potentially occur and for which the applicable Class 4A standards would be most protective of an agricultural designated use. Based on the MPCA staff review of the data submitted by Mesabi, the MPCA staff concluded that granting of a variance to Mesabi for the four listed parameters will not result in the removal of an actual existing use of these waters for industrial water supplies or agricultural irrigation.
- The MPCA reviewed the permit and variance applications and supporting information and concurred that the three conditions for granting a variance specified in Minn. R. 7050.0190(1) have been satisfied.
- The MPCA reviewed and concurred with Mesabi’s assessment that the immediate installation of additional advanced wastewater treatment facilities would cause Mesabi undue hardship.

- The MPCA determined that the ‘exceptional circumstances’ applicable to Mesabi’s variance request relate to the pre-existing water quality of the Area 1 Pit and to the unanticipated delay in construction and operation of the manufacturing and wastewater treatment facilities. As a result of previous mining activity by LTV Steel Mining Company, the discharge from the Area 1 Pit already exceeded water quality standards for the variance parameters prior to the initial permitting of the then-proposed Mesabi facility in 2005. In addition, as stated in the Procedural History section of MPCA’s Findings document, a change of facility ownership subsequent to 2005 and financing difficulties resulted in a delay in construction and operation of the facility until early 2010, thus precluding the development and implementation of potential mitigation envisioned by the 2005 permit.
- MPCA staff reviewed and concurred with Mesabi’s assessment that a treatment technology such as RO may at some point in time be capable of achieving applicable effluent limitations, but such treatment cannot be implemented immediately without further evaluation of future wastewater characteristics and undergoing facility-specific engineering design and testing.
- Given that these air emission control studies are still in progress and the determination of what, if any, air control improvements will be implemented has not yet been made, it would be difficult and infeasible to design and install the wastewater pretreatment and RO treatment systems at this time. The results of the air emission control studies are expected to be submitted to the MPCA no later than the end of May 2013; therefore, the variance schedule in the NPDES/SDS permit approved by the MPCA Citizens Board, in part, considers this timeframe.
- The MPCA reviewed the information submitted by Mesabi and agreed that of the technologies evaluated, the RO with evaporation/crystallization technology has the greatest likelihood of being able to meet effluent limitations. The MPCA staff also agreed that given the uncertainty at this time over the nature and volume of the wastewater (due to the ongoing air emission control studies and the subsequent need for site-specific bench and/or pilot testing) and the lack of a successful full-scale demonstration at a similar facility, a reasonable period of time for additional evaluation and testing is needed before an informed decision on the selection and/or design of additional treatment can be made.
- Since immediate installation of an additional wastewater treatment system at Mesabi is technically infeasible at this time for the reasons described above, further investigation of RO with evaporation/crystallization technology is warranted. The permit approved by the MPCA Citizens Board contains variance conditions and a schedule in which Mesabi will be required to further investigate the feasibility of applying this technology at its facility.

Based on the above input from the MPCA, the MPCA Citizens Board granted Mesabi’s request for a variance on October 24, 2012.

II. Area Affected and Environmental Impacts

A. Area Affected:

The area affected by this variance is Second Creek and the downstream Partridge River Basin of the St. Louis River Watershed in St. Louis County, Minnesota. The discharge from the Mesabi Nugget wastewater treatment facility flows into the Partridge River at the outlet of Second Creek, approximately 2 miles downstream. The annual average design flow of the discharge is 1.5 MGD and the daily maximum is 5.8 MGD. The 7 day, 10 year low flow (7Q10) for Second Creek is 0 cfs. The 7Q10 used in the WQBEL calculations was 0 cfs.

B. Environmental Impacts:

- Aquatic Life

As described in detail in section III C below, this variance does not affect aquatic life use protection under Minnesota's water quality standards.

- Human Health & Wildlife

As described in detail in section III C below, this variance does not affect the protection of human health and wildlife afforded by Minnesota's water quality standards.

III. Clean Water Act (CWA) Section 303(c)/40 CFR 131 Review

A. EPA's authority under CWA section 303(c)(2):

Water quality standard requirements of CWA §§ 101(a)(2) and 303(c)(2) are implemented via federal regulations contained in 40 CFR part 131. Section 303(c)(2)(A) of the CWA and 40 CFR § 131.21 require EPA to review and approve or disapprove new or revised water quality standards.

Possible EPA actions include:

- **Approval** (where EPA has concluded that new or revised water quality standards meet the requirements of the CWA and implementing regulations and that approval of certain revisions will have no effect on listed species, or is otherwise not subject to ESA consultation),
- **Approval subject to ESA consultation** (where EPA has concluded that certain new or revised WQS may affect listed species (including beneficial effects)),
- **Disapproval** (where EPA has concluded that certain revisions do not meet the requirements of the CWA or federal regulations), and

- **No EPA action** (where EPA has concluded that certain revisions are not revisions to the State's or Tribe's WQS and therefore do not need to be reviewed under Section 303(c) of the CWA).

Consistent with 40 CFR § 131.21, new or revised water quality standards do not become effective for CWA purposes unless and until EPA approves them.

Section 101(a)(2) of the CWA establishes “the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be attained by July 1, 1983.” Section 303(c)(2) of the CWA requires states and tribes to adopt water quality standards that consist of designated uses for navigable waters and water quality criteria based upon the designated uses. Section 303(c)(2) states:

Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.

EPA's regulations at 40 CFR part 131 interpret and implement these CWA provisions by requiring that water quality standards provide for the uses specified in Section 101(a) unless those uses have been shown to be unattainable, effectively creating a rebuttable presumption of attainability. *See* 40 CFR §§ 131.5(a)(4), 131.6(a), 131.10(g), 131.10(j), 131.10(k) and 131.20(a). The mechanism in EPA's regulations used to rebut this presumption is a use attainability analysis (UAA), which is defined at 40 CFR § 131.3(g) as a “structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in § 131.10(g).”

40 CFR § 131.10(j) provides that a state must conduct a UAA whenever the state designates or has designated uses that do not include the uses specified in CWA section 101(a), when the state wishes to remove uses specified in CWA section 101(a), or when the state adopts subcategories of the uses specified in CWA section 101(a)(2) that require less stringent criteria. To justify not including one or more of the uses specified in CWA section 101(a)(2), a state must demonstrate through a UAA that the use is not attainable for one of the six reasons set forth at 40 CFR § 131.10(g). 40 CFR § 131.10(k) makes clear that a UAA is not *required* if the uses a state or tribe proposes to designate or not designate include those specified in CWA section 101(a)(2). Given 40 CFR § 131.10(k), to justify not including one or more of the uses specified in CWA section 303(c)(2) but not in CWA section 101(a)(2), specifically, the use of surface waters for public water supplies, industrial water supplies, agricultural irrigation and navigation, a state *may*, but is not required to document its consideration of the use in question by

showing that the use is not attainable for one of the six reasons set forth at 40 CFR § 131.10(g).

A variance is a time-limited change to a state's or tribe's water quality standards that may apply to only a specific discharger and limited number of pollutant parameters. As with any other change to a state's or tribe's water quality standards, variances are subject to review and approval by EPA, consistent with CWA section 303(c).

B. EPA's review of the variance

40 CFR § 131.5(a) specifies the factors that EPA must consider in determining whether to approve new and revised water quality standards, including variances from water quality standards. Each of these factors is discussed below.

1. § 131.5(a)(1): Whether the State has adopted water uses which are consistent with the requirements of the Clean Water Act.

40 CFR § 131.10 specifies the requirements applicable to states and tribes in designating uses for surface waters. Each specific provision of 40 CFR § 131.10 is discussed individually below:

a. 40 CFR § 131.10(a)

40 CFR § 131.10(a) implements Section 303(c)(2)(A) of the CWA in requiring that states "specify appropriate water uses to be achieved and protected. The classification of the waters of the State must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation."

Under Minnesota's water quality standards the waters affected by this action were assigned the designated uses described in detail in section I.F. above. These standards were approved previously by EPA as required by the Federal regulations at 40 CFR § 131.21 and are the effective water quality standards for Clean Water Act purposes unless and until EPA approves revisions. MPCA's adoption and EPA's approval of these uses satisfied 40 CFR § 131.10(a). The variance currently before EPA for review only impacts two of those use designations—3C (industrial consumption) and 4A (agricultural irrigation use)—and only four of the criteria for those uses: hardness, specific conductance, TDS and bicarbonates. For purposes of reviewing the revision at issue here, EPA's review is based on consistency with CWA section 303(c)(2)(A) which addresses these types of issues and thus on evaluation of the appropriateness of MPCA's consideration of factors relevant to the use and value of the Second Creek and Partridge River for agricultural and industrial purposes consistent with 40 CFR

§ 131.10(a). EPA's action does not address the previously approved water quality standards that are not modified by this variance and remain applicable to the waters at issue.

MPCA's variance to the criteria for four parameters for the 3C (industrial consumption) and 4A (agricultural irrigation) designated uses implicitly establishes an interim, time-limited, restricted agricultural irrigation and limited industrial use. MPCA provided a significant amount of information to show that it considered the use and value of the water for the full agricultural irrigation and industrial consumption, consistent with CWA section 303(c)(2)(A) and 40 CFR § 131.10(a), before determining this variance was appropriate. Specifically, when evaluating the use and value of Second Creek, MPCA considered and submitted to EPA the information documented in sections I.C and D that addresses all of the provisions at 40 CFR § 131.10, even though some of the provisions of this section might not be directly relevant to EPA's evaluation of revisions to uses specified in CWA section 303(c)(2)(A) that are not specified in CWA section 101(a)(2). Due to the thorough information considered as part of the analysis of the variance and MPCA's assessment that "There is no known historic, present or foreseeable actual use of these waters for the Class 3C industrial water supply or 4A agricultural irrigation use classifications", EPA concludes that, in granting the variance, MPCA adequately took into consideration the use and value of the waters at issue for the purposes specified in 40 CFR § 131.10(a). However, EPA has still evaluated whether the information provided by MPCA satisfies each provision of 40 CFR § 131.10.

b. 40 CFR § 131.10(b)

This provision requires states to account for attainment and maintenance of downstream water quality standards when designating uses and criteria for waters. In the Findings document, MPCA identifies the area directly impacted by the variance as follows: "In general, under average stream flow conditions the applicable water quality standards for the variance parameters would continue to be exceeded in Second Creek downstream of the SD001 discharge over the short term; however, water quality standards for these parameters would continue to be met in the Partridge and St. Louis Rivers. Under "worst-case" 7Q10 low flow conditions (which by definition would occur only approximately 0.2 percent of the time), the SD001 discharge when considered alone was projected to result in standards continuing to be exceeded in Second Creek for all four variance parameters and exceedances being extended to the Partridge River for TDS and specific conductance." (Findings document, p. 10) The waters downstream of the variance waters are, in order, the St. Louis River, and Lake Superior.

In considering the water quality standards of downstream waters, the state evaluated the existing and potential uses of the downstream waters. The Findings document at paragraph 49 (Findings document, p. 10) states that there is no known historic, present, or foreseeable actual use of these waters for industrial

consumption or agricultural irrigation uses that are affected by the four parameters addressed in this variance. To ensure that the WQS variance continues to provide for the attainment and maintenance of the water quality standards downstream, the State's Findings document specifically addressed the use of downstream waters for agricultural wild rice. It provides that the variance does not affect the sulfate criteria established in Minnesota's water quality standards to protect wild rice. "In addition, the permit approved by the MPCA Citizens Board includes a provision that prohibits the discharge to Second Creek from April 1 to August 31 of each year, which is generally the same timeframe as any irrigation would potentially occur... Based on the MPCA staff review of the data submitted by Mesabi Nugget, the MPCA staff conclude that granting of a variance to Mesabi for the four listed parameters will not result in the removal of an existing actual use of these waters." (Findings document, p. 10) Based on the above, EPA concludes that MPCA adequately considered the protection and maintenance of downstream uses as required by 40 CFR § 131.10(b).

In light of numerous comments that were raised regarding wild rice, EPA reiterates that this variance does not impact the protection that Minnesota's water quality standards provide pertaining to wild rice (i.e., the sulfate criterion), as discussed in detail in section I. F. above. Any NPDES permit issued for Mesabi must include specific conditions to ensure that Minnesota's existing water quality based requirements pertaining to wild rice are adequately addressed.

c. 40 CFR § 131.10(c)

This provision deals with the adoption of subcategories of uses. The Mesabi variance does not contemplate adoption of subcategories of uses and so was not relevant to MPCA's consideration, and is not relevant to EPA's review, of the Mesabi variance.

d. 40 CFR § 131.10(d)

This provision provides that a use is deemed attainable if the water quality necessary to support the use can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the CWA and cost effective and reasonable best management practices for nonpoint source controls. According to the document identified as Attachment 5: Statement of Basis, Mesabi Nugget Delaware, LLC, PO Box 235, Hoyt Lakes, MN 55750, NPDES/SDS Permit No. MN0067687, prepared by Kate Frantz, September 2012 in the list of documents in the Minnesota submittal (see I.C. above), the limitations for the discharges at issue here that are required under sections 301(b) and 306 of the CWA are ones that are based on the New Source Performance Standards (NSPS) for the Iron and Steel Manufacturing Point Source Category, Other Operations Subcategory set forth in 40 CFR part 420, Subpart M. Specifically, the NSPS limits for this facility are ones for total suspended solids (TSS). The variance at issue here is for different pollutant parameters than TSS. Consequently, attainment of the criteria

at issue here cannot be achieved through imposition of effluent limits required under sections 301(b) and 306 of the CWA.

In addition, attainment and/or nonattainment of the uses at issue (Class 3C, industrial consumption, and Class 4A, agricultural irrigation use) is a function of the four pollutants at issue being discharged from the point source rather than any nonpoint source contribution. Therefore, it is reasonable to conclude that the Class 3C, industrial consumption, and Class 4A, agricultural irrigation use cannot be achieved by the imposition of cost effective and reasonable best management practices for nonpoint source controls.

e. 40 CFR § 131.10(e)

This provision requires public notice and an opportunity for a hearing prior to any action adding or removing any use or establishing a sub-category of a use. MPCA provided public notice on the draft variance and NPDES permit for Mesabi Nugget LLC on January 30, 2012. The notice provided a 30-day comment period and an opportunity to request a hearing. MPCA provided a second public notice on October 12, 2012 on the MPCA Citizens Board meeting to act on the variance request. MPCA received and responded to comments, providing a copy of its response to comments as part of its submittal. Minnesota's rules governing variances at 7000.7000(4) state:

After a variance application is complete, the commissioner shall make a preliminary determination as to whether the variance should be issued or denied. The commissioner shall prepare a notice of the completed application and the preliminary determination. The notice must include a statement as to the manner in which the public may submit comments on the variance application and the manner in which a person may serve a request pursuant to part 7000.0650, subpart 4 or 7000.1800, asking that a contested case hearing or public informational meeting be held on the variance application. The notice must provide the public 30 days in which to submit these comments or requests.

Based on the above, the requirements of 40 CFR § 131.10(e) were satisfied.

f. 40 CFR § 131.10(f)

This provision authorizes states and tribes to adopt seasonal uses as an alternative to replacement of a use with a use requiring less stringent criteria. The Mesabi variance does not contemplate seasonal uses and so was not relevant to MPCA's consideration, and is not relevant to EPA's review of the Mesabi variance.

g. 40 CFR § 131.10(g)

This provision provides that uses may be removed which are not existing uses if attaining the designated use is not feasible for one of six reasons. MPCA's Findings document clearly states that Minnesota considered and determined that there is no known historic (including existing uses as defined in 40 CFR § 131.3(3)), present, or foreseeable actual use of these waters for industrial consumption or agricultural irrigation uses that are affected by the four parameters addressed in this variance. With respect to the feasibility of attaining the 3C (industrial) and 4A (agricultural irrigation) uses, MPCA provided information considering that the variance is needed for the period of time necessary to finalize air controls and design, test, and construct waste water treatment based on the actual quality of the waste water resulting from full operation of the final air quality control systems. The submitted variance is for a period of time that is as short as possible, but in no event to go beyond August 1, 2021.

EPA's understanding is that Mesabi is using the mine pit for source water for their operations. They use water for actual manufacture of the pellets, for cooling, and for air pollution control. While this results in less overall water in the pit and less additional wastewater, rain, snow and groundwater inputs to the pit still exceed what Mesabi takes out. As described in II.H. above, water quality in the pit does not attain the criteria for the parameters and uses for which Mesabi is seeking a variance, even without additional pollutants being added from the plant operations. Further, the Findings document states:

Area 1 Pit watershed hydrology is such that total water inflows exceed water losses to groundwater and evaporation resulting in a long-term overflow or discharge of the pit to Second Creek. This overflow would occur naturally and there is no way to stop it. This overflow discharge, when it last occurred naturally prior to the permitting of the original Mesabi Nugget facility in 2005, did not meet water quality standards for the variance parameters. Even if the Mesabi Nugget plant was not present or operating, discharges from the Area 1 Pit to Second Creek would continue at levels exceeding water quality standards and, if the permit associated with the requested variance is not approved and issued, the discharge would occur year-round rather than be seasonally controlled thereby potentially adversely affecting downstream wild rice resources. (Findings document, p. 9)

Depending upon how the air pollution control process proceeds (see below), treated wastewater is either returned to the pit in approximately the same condition as when it was withdrawn, or, if a wet scrubber is used, there could be some build up of additional dissolved solids over time due to the cumulative effect of the discharge from the scrubber.

The variance is based upon information that: (1) the pollutants would be

discharged from the mine pit whether the facility is in operation or not; (2) air pollution control systems capable of achieving compliance with air pollution requirements applicable to Mesabi are uncertain given that this is a demonstration plan (the first of its kind) 2) the ultimate nature of the air controls has a significant effect on the quality of the wastewater that any wastewater treatment system must be designed to treat; therefore it is reasonable for MPCA to conclude that Mesabi cannot begin the process of achieving compliance with water quality standards unless and until either the air pollution treatment is completed and operational, or an air pollution control system is selected that does not produce a wastewater effluent that must be treated by the waste water treatment system. For these reasons, EPA concludes that MPCA's arguments are consistent with 40 CFR § 131.10(g)(3): "Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied" for the period of time required to complete air controls and design and construct waste water treatment. The variance includes terms and conditions to be included in Mesabi's NPDES permit that will ensure compliance with WQS as soon as possible, but no later than 2021.

h. 40 CFR § 131.10(h)

This provision provides that uses may not be removed if they are either existing uses or if the uses can be attained by implementing effluent limits required under sections 301(b) and 306 of the CWA and by implementing cost-effective and reasonable best management practices for nonpoint source control. As discussed above in the consideration of 40 CFR § 131.10(g), the affected uses are not existing uses. In addition, as discussed above in the consideration of 40 CFR § 131.10(d), the uses impacted by the variance for the four criteria at issue here cannot be attained by implementing effluent limits required under sections 301(b) and 306 of the CWA and by implementing cost-effective and reasonable best management practices for nonpoint source control.

i. 40 CFR § 131.10(i)

This provision requires states and tribes to revise their designated uses where the designated uses are less than the uses presently being attained. This provision is not relevant in the case of the Mesabi variance request.

j. 40 CFR § 131.10(j)

40 CFR § 131.10(j) identifies the circumstances when a state or tribe is required to conduct a use attainability analysis as defined at 40 CFR § 131.3(g). Those are: when a state or tribe wishes to remove a use as specified in section 101(a)(2) of the CWA, when a state or tribe wishes to designate a subcategory of a 101(a)(2) use to which less stringent water quality criteria apply, or when a state or tribe designates uses for a water that do not include those specified in 101(a)(2) of the CWA. Since the Mesabi variance does not seek to modify the 101(a)(2) uses applicable to

Second Creek and the Partridge River, a use attainability analysis is not required to support the variance.

k. 40 CFR § 131.10(k)

This provision specifies that states and tribes are not required to conduct a use attainability analysis when they include uses for a water that include those specified in section 101(a)(2) of the CWA. As stated above, Minnesota has designated uses that include those specified in section 101(a)(2) of the CWA for Second Creek and the Partridge River and those uses are not changed by the proposed variance. Consequently, this factor is not relevant to EPA's evaluation of the variance.

2. 40 CFR § 131.5(a)(2) Whether the State has adopted criteria that protect the designated uses.

As described above, the variance is in effect an establishment of interim non 101(a)(2) use designations – limited Class 3C (industrial consumption) and limited Class 4A (agricultural irrigation use)— and interim requirements for specific pollutants relevant to these two uses that would allow discharges of pollutants in excess of the otherwise applicable criteria for four pollutant parameters for a limited period of time. In adopting this variance, Minnesota adopted effluent limitations that effectively serve as the interim criteria. These limits establish the water quality that is feasible to achieve that protects the interim use created by the variance.

3. 40 CFR § 131.5(a)(3) Whether the State has followed its legal procedures for revising or adopting standards.

Minnesota law designates MPCA as the decision making authority for variances from water quality standards (Minn. Stat. § 116.02(6)). Minnesota's regulations designate the MPCA Citizen's Board as the final decision-making authority for variances: "The board shall make all final decisions on variance applications pursuant to Minnesota Statutes, section 116.02, subdivision 6, clause (6), or subdivision 8. The board shall approve or deny each application. The board may grant a variance upon such conditions as the board may prescribe." Minn. R. 7000.7000(8).

The final "Findings of Fact, Conclusions of Law, and Order," dated October 24, 2012, documents the Citizens Board's decision to grant Mesabi Nugget Delaware LLC's request for a variance from Minnesota's water quality standards for hardness, bicarbonate, total dissolved solids, and specific conductance.

As required by Minnesota rules 9, the commissioner of the MPCA John L. Stine served notice of the decision to interested parties by letter dated October 24, 2012. Minn. R. 7000.7000(9). MPCA transmitted an electronic copy of the signed notice of the decision to EPA as certification that the variance was duly adopted pursuant to Minnesota law. On December 18, 2012, MPCA submitted a certification from the

Minnesota Attorney General's Office that the variance was duly adopted in accordance with Minnesota law.

Based on EPA's review, Minnesota followed its legal procedures for granting a variance. Therefore, this requirement is satisfied.

4. 40 CFR § 131.5(a)(4) Whether the State standards that do not include the uses specified in section 101(a)(2) of the CWA are based upon appropriate technical and scientific data and analyses.

As described above, Minnesota's water quality standards for the Second Creek and the Partridge River include the uses specified in CWA section 101(a)(2) and so this provision is not applicable to this action.

5. 40 CFR § 131.5(a)(5) Whether the State submission meets the requirements included in § 131.6 of this part and, for Great Lakes States and Tribes, the requirements of 40 CFR part 132.

With respect to the requirements of 40 CFR § 132, 40 CFR § 132.4(e)(2) provides: "The Great Lakes States and Tribes may, but are not required to, apply procedures consistent with procedures 1, 2, 3, 4, 5, 7, 8, and 9 of appendix F of this part in establishing controls on the discharge of any pollutant set forth in Table 5 of this part. Any procedures applied in lieu of these implementation procedures shall conform with all applicable Federal, State, and Tribal requirements." Table 5 in 40 CFR § 132 is entitled "Pollutants Subject to Federal, State, and Tribal Requirements," and identifies pollutants that are not subject to the criteria procedures in 40 CFR § 132. The parameters that are the subject of this variance are included in Table 5. As stated in the preamble to the Guidance:

States and Tribes do not have to adopt and apply the final Guidance methodologies and procedures for the 14 pollutants listed in Table 5 of part 132. EPA believes that some or all of the methodologies and procedures are not scientifically appropriate for these pollutants.

Therefore, Minnesota is not required to apply Procedure 2 concerning variances of appendix F to 40 CFR § 132 in this case. The applicable requirement is that the procedures followed conform with all applicable Federal, State, and Tribal requirements. EPA's analysis above describes how Minnesota complied with applicable Federal requirements.

With respect to the requirements included in 40 CFR § 131.6, MPCA submitted:

- Use designations consistent with the provisions of CWA sections 101(a)(2) and 303(c)(2) (40 CFR § 131.6(a)) (see the discussion in this document above pertaining to 40 CFR § 131.5(a)(1));

- Methods used and analyses conducted to support water quality standards revisions (40 CFR § 131.6(b)) (see Section I of this document, summarizing the information submitted by MPCA);
- Water quality criteria sufficient to protect the designated uses (40 CFR § 131.6(c)) (see the discussion in this document above pertaining to 40 CFR § 131.5(a)(2));
- Certification by the State Attorney General or other appropriate legal authority within the State that the water quality standards were duly adopted pursuant to State law (40 CFR § 131.6(e)); and
- General information which will aid the Agency in determining the scientific basis of the standards which do not include the uses specified in CWA section 101(a)(2) of the Act as well as information on general policies applicable to State standards which may affect their application and implementation (40 CFR § 131.6(f)) (see Section I of this document, summarizing the information submitted by MPCA).

The variance does not propose changes to Minnesota's approved antidegradation policy and implementation procedures and, therefore, 40 CFR § 131.6(d) is not applicable. Therefore, MPCA's submission satisfied the requirements of 40 CFR § 131.6.

C. Conclusion:

Based on the review presented above, MPCA's proposed variance determination is consistent with the CWA and federal regulations. EPA approves MPCA's final variance determination for Mesabi Nugget LLC.

IV. Endangered Species Act (ESA) Section 7 Evaluation

A. Summary of ESA Section 7 Evaluation Performed by EPA

Consistent with section 7 of the ESA and federal regulations at 50 CFR part 402, EPA is required to consult with the U.S. Fish and Wildlife Service (FWS) on any action taken by EPA that may affect federally-listed threatened and endangered species or their designated critical habitat.

Listed endangered species identified as occurring in St. Louis county, MN, are Piping Plover (*Charadrius melodus*) and the Canada Lynx (*Lynx canadensis*). Canada Lynx is not aquatic or aquatic dependent, so it will not be affected by this variance. Piping Plover, is aquatic-dependent, but is only expected to be present in coastal areas of the Great Lakes. The only designated critical habitat for Piping Plover in St. Louis County is in Duluth Harbor at the mouth of the St. Louis River. The area where concentrations of hardness, bicarbonate, TDS, and specific conductance will be greater than the water quality criteria is limited to Second Creek and portions of the Partridge River. Therefore,

Piping Plover is not expected to be present in the action area and the variance is expected to have no effect on listed species. Because the variance will have no effect on listed species, consultation under section 7 of the ESA is not required.

V. Tribal Consultation

On May 4, 2011, EPA issued the “EPA Policy on Consultation and Coordination with Indian Tribes” to address Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments.” The EPA Tribal Consultation Policy states that “EPA’s policy is to consult on a government-to-government basis with federally recognized tribes when EPA actions and decisions may affect tribal interests.”

In a November 15, 2012 letter, the U.S. Environmental Protection Agency (EPA) invited the Grand Portage Band of Chippewa Indians (Grand Portage), the Fond du Lac Band of Lake Superior Chippewa Indians (Fond du Lac), and the Bois Forte Band of Chippewa Indians (Bois Forte) tribal governments to provide input on EPA’s review of the Minnesota Pollution Control Agency’s (MPCA) request for approval of a variance from water quality standards for Mesabi Nugget Delaware, LLC – Hoyt Lakes, Minnesota (MN Permit No. MN0067687) under Section 303(c) of the Clean Water Act (CWA). In response to the invitations to consult, EPA held two consultation teleconferences and written comments were received from Grand Portage and Fond du Lac.

Consultation calls were held on November 29, 2012, with representatives from Bois Forte, and on December 3, 2012, with representatives from Fond du Lac and Grand Portage. During the calls, tribal representatives raised a number of issues, many of which are addressed in this decision document. Consultation was concluded with letters from Tinka Hyde to the chairs of the Bois Forte, Grand Portage, and Fond Du Lac Tribes. In these letters, EPA summarized the issues identified by the Tribes during consultation related to EPA’s review of the variance and provided EPA’s responses to the Tribes’ issues.

VI. Unsolicited Comments

EPA also received comments on the variance from two environmental advocacy groups. EPA believes that these comments have been addressed in the decision document.