BASIS FOR DECISION MEMO

Processor: Alvin Lam
Permit No. MI0058649

Designated Name: **Eagle Mine LLC-Humboldt Mill**

Date: 10/23/2014
PID #: 104481.1

Monitoring Point 001A: Authorization to discharge **1.4** MGD of treated process wastewater, **treated laboratory wastewater**, and **treated water treatment backwash** from Monitoring Point 001A through Outfall 001 via a pipeline. Outfall 001 discharges to the wetland contiguous to the Middle Branch Escanaba River.

Parameter	Maximum Limits for Quantity or Loading: Monthly	Daily	Units	Maximum Limits for Quality or Concentration: Monthly	Daily	Units	Monitoring Frequency	Sample Type	Basis for Limits
Intermediate Monitoring and Reporting (Applicable When the Wastewater Treatment Plant is Operating)									
Total Suspended Solids	---	---	---	(report)	(report)	mg/l	Weekly	Grab	PWJ
Total Dissolved Solids	---	---	---	(report)	(report)	mg/l	Weekly	Grab	PWJ
Total Copper	---	---	---	(report)	(report)	ug/l	Weekly	Grab	PWJ
Total Nickel	---	---	---	(report)	(report)	ug/l	Weekly	Grab	PWJ
Total Selenium	---	---	---	(report)	(report)	ug/l	Weekly	Grab	PWJ
Total Mercury	---	---	---	*(report)*	*(report)*	*ng/l*	*Weekly*	*Grab*	*PWJ*
Total Mercury									
– Corrected	**(report)**	**(report)**	**lbs/day**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Calculation**	**PWJ**
– Uncorrected	**(report)**	**(report)**	**lbs/day**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Duplicate	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
– Laboratory Method Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
Total Sulfate	---	---	---	(report)	(report)	mg/l	Weekly	Grab	PWJ
Final Effluent Limitations, Monitoring, and Reporting									
Flow	(report)	(report)	MGD	---	---	---	Daily	Report Total Daily Flow	PWJ
Biochemical Oxygen Demand (BOD_5)		---	---	(report)	(report)	mg/l	2X Monthly	Grab	WQC
Total Suspended Solids	---	---	---	20	30	mg/l	Weekly	Grab	ELG
Ammonia Nitrogen (as N)	---	---	---	(report)	(report)	mg/l	2X Monthly	Grab	WQC

Total Phosphorus (as P)	*6.8*	*---*	*lbs/day*	*1.0*	*---*	*mg/l*	*Weekly*	*Grab*	*WQBEL*
Total Phosphorus (as P)	**12**	**---**	**lbs/day**	**1.0**	**---**	**mg/l**	**Weekly**	**Grab**	**WQBEL**
Total Dissolved Solids	---	---	---	(report)	(report)	mg/l	Weekly	Grab	WQC
Total Residual Chlorine	**---**	**---**	**---**	**---**	**38**	**ug/l**	**Daily**	**Grab**	**WQBEL**
Total Arsenic	*1.0*	*---*	*lbs/day*	*150*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Arsenic	**0.12**	**---**	**lbs/day**	**10**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Cadmium	*0.04*	*---*	*lbs/day*	*6*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Cadmium	**0.09**	**---**	**lbs/day**	**8.0**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Cobalt	*0.68*	*---*	*lbs/day*	*100*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Cobalt	**1.2**	**---**	**lbs/day**	**100**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Copper	*0.13*	*---*	*lbs/day*	*19*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Copper	**0.29**	**---**	**lbs/day**	**25**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Lead	*0.5*	*---*	*lbs/day*	*73*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Lead	**2.0**	**---**	**lbs/day**	**170**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Manganese	*19*	*---*	*lbs/day*	*2,800*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Manganese	**43**	**---**	**lbs/day**	**3,700**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Nickel	*0.56*	*---*	*lbs/day*	*82*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Nickel	**1.2**	**---**	**lbs/day**	**105**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Selenium	*0.03*	*---*	*lbs/day*	*5*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*
Total Selenium	**0.06**	**---**	**lbs/day**	**5.0**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Zinc	*2.5*	*---*	*lbs/day*	*360*	*---*	*ug/l*	*Weekly*	*Grab*	*PWJ*

Total Zinc	**5.4**	**---**	**lbs/day**	**460**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Mercury	*0.000009*	*---*	*lbs/day*	*1.3*	*---*	*ng/l*	*Weekly*	*Grab*	*WQBEL*
Total Mercury									
– Corrected	**0.000015**	**(report)**	**lbs/day**	**1.3**	**(report)**	**ng/l**	**Weekly**	**Calculation**	**WQBEL**
– Uncorrected	**(report)**	**(report)**	**lbs/day**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Duplicate	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
– Laboratory Method Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
Total Antimony	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Barium	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Boron	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Chromium	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Fluoride	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Lithium	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Molybdenum	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Strontium	---	---	---	(report)	(report)	ug/l	2X Monthly	Grab	WQC
Total Sulfate	---	---	---	(report)	(report)	mg/l	Weekly	Grab	WQC
Available Cyanide	**0.06**	**---**	**lbs/day**	**5.2**	**(report)**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Hardness	**---**	**---**	**---**	**---**	**(report)**	**mg/l**	**Monthly**	**Grab**	**WQC**
Acute Toxicity	---	---	---	---	1.0	TU_A	Monthly	Grab	WQBEL
Chronic Toxicity	---	---	---	1.0	---	TU_C	Monthly	Grab	WQBEL
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual	PWJ

				Minimum Daily					
pH	---	---	---	6.0	9.0	S.U.	Daily	Grab	WQBEL
Dissolved Oxygen	---	---	---	*(report)*	---	*mg/l*	*Daily*	*Grab*	*WQC*
Dissolved Oxygen	**---**	**---**	**---**	**4.0**	**---**	**mg/l**	**Daily**	**Grab**	**WQBEL**

Monitoring Point 002A: Authorization to discharge 1.4 MGD of treated process wastewater, treated laboratory wastewater, and treated water treatment backwash from Monitoring Point 002A through Outfall 002 via a pipeline. Outfall 002 discharges to the wetland contiguous to the Middle Branch Escanaba River.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration					
Parameter	**Monthly**	**Daily**	**Units**	**Monthly**	**Daily**	**Units**	**Monitoring Frequency**	**Sample Type**	**Basis for Limits**
				Intermediate Monitoring and Reporting (Applicable When the Wastewater treatment Plant is Operating)					
Total Suspended Solids	**---**	**---**	**---**	**(report)**	**(report)**	**mg/l**	**Weekly**	**Grab**	**PWJ**
Total Dissolved Solids	**---**	**---**	**---**	**(report)**	**(report)**	**mg/l**	**Weekly**	**Grab**	**PWJ**
Total Copper	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**Weekly**	**Grab**	**PWJ**
Total Nickel	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**Weekly**	**Grab**	**PWJ**
Total Selenium	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**Weekly**	**Grab**	**PWJ**
Total Mercury									
– Corrected	**(report)**	**(report)**	**lbs/day**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Calculation**	**PWJ**
– Uncorrected	**(report)**	**(report)**	**lbs/day**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Duplicate	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
– Laboratory Method Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
Total Sulfate	**---**	**---**	**---**	**(report)**	**(report)**	**mg/l**	**Weekly**	**Grab**	**PWJ**
				Final Effluent Limitations, Monitoring, and Reporting					
Flow	**(report)**	**(report)**	**MGD**	**---**	**---**	**---**	**Daily**	**Report Total Daily Flow**	**PWJ**

Biochemical Oxygen Demand (BOD_5)	**---**	**---**	**(report)**	**(report)**	**mg/l**	**2X Monthly**	**Grab**	**WQC**
Total Suspended Solids	**---**	**---**	**---**	**20**	**30**	**mg/l**	**Weekly**	**Grab**	**ELG**
Ammonia Nitrogen (as N)	**---**	**---**	**---**	**(report)**	**(report)**	**mg/l**	**2X Monthly**	**Grab**	**WQC**
Total Phosphorus (as P)	**12**	**---**	**lbs/day**	**1.0**	**---**	**mg/l**	**Weekly**	**Grab**	**WQBEL**
Total Dissolved Solids	**---**	**---**	**---**	**(report)**	**(report)**	**mg/l**	**Weekly**	**Grab**	**WQC**
Total Residual Chlorine	**---**	**---**	**---**	**---**	**38**	**ug/l**	**Daily**	**Grab**	**WQBEL**
Total Arsenic	**0.12**	**---**	**lbs/day**	**10**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Cadmium	**0.09**	**---**	**lbs/day**	**8.0**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Cobalt	**1.2**	**---**	**lbs/day**	**100**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Copper	**0.29**	**---**	**lbs/day**	**25**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Lead	**2.0**	**---**	**lbs/day**	**170**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Manganese	**43**	**---**	**lbs/day**	**3,700**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Nickel	**1.2**	**---**	**lbs/day**	**105**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Selenium	**0.06**	**---**	**lbs/day**	**5.0**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Zinc	**5.4**	**---**	**lbs/day**	**460**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Mercury									
– Corrected	**0.000015**	**(report)**	**lbs/day**	**1.3**	**(report)**	**ng/l**	**Weekly**	**Calculation**	**WQBEL**
– Uncorrected	**(report)**	**(report)**	**lbs/day**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Duplicate	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Grab**	**PWJ**
– Field Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
– Laboratory Method Blank	**---**	**---**	**---**	**(report)**	**(report)**	**ng/l**	**Weekly**	**Preparation**	**PWJ**
Total Antimony	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Barium	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**

Total Boron	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Chromium	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Fluoride	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Lithium	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Molybdenum	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Strontium	**---**	**---**	**---**	**(report)**	**(report)**	**ug/l**	**2X Monthly**	**Grab**	**WQC**
Total Sulfate	**---**	**---**	**---**	**(report)**	**(report)**	**mg/l**	**Weekly**	**Grab**	**WQC**
Available Cyanide	**0.06**	**---**	**lbs/day**	**5.2**	**---**	**ug/l**	**Weekly**	**Grab**	**WQBEL**
Total Hardness	**---**	**---**	**---**	**---**	**(report)**	**mg/l**	**Monthly**	**Grab**	**WQC**
Acute Toxicity	**---**	**---**	**---**	**---**	**1.0**	**TU_A**	**Monthly**	**Grab**	**WQBEL**
Chronic Toxicity	**---**	**---**	**---**	**1.0**	**---**	**TU_C**	**Monthly**	**Grab**	**WQBEL**
Outfall Observation	**(report)**	**---**	**---**	**---**	**---**	**---**	**Daily**	**Visual**	**PWJ**
				Minimum					
				Daily					
pH	**---**	**---**	**---**	**6.0**	**9.0**	**S.U.**	**Daily**	**Grab**	**WQBEL**
Dissolved Oxygen	**---**	**---**	**---**	**4.0**	**---**	**mg/l**	**Daily**	**Grab**	**WQBEL**

PERMIT CONDITIONS:

Monitoring Point 001A
Monitoring Points 001A and 002A
Request for Discharge of Water Treatment Additives
Final Effluent Limitations for Storm Water Dischargers with Required Monitoring
Storm Water Pollution Prevention Plan

Option to Provide Additional Toxicity Data
Facility Contact
Storm Water Pollution Prevention

NOTES: Both outfalls discharge to the wetland contiguous to the Middle Branch Escanaba River. The proposed discharge location of outfall 002 is much closer to the river than the discharge location of outfall 001. The drainage point from the wetland to the Middle Branch Escanaba River for outfall 001 effluent is downstream of the drainage point for the proposed outfall 002 effluent.

Limit Change Key
Normal Type = existing requirement – carried over from previous version
Bold Type = new requirement – not in previous version
Italic = deleted requirement – not carried over from previous version

Basis for Limits Key
WQBEL - Water Quality Based Effluent Limit
WQC - Water Quality Concerns
ELG - Treatment Technology Based Effluent Limit based on federal guidelines (BAT, BPT, etc.)
PWJ - Permit Writer's Judgment