



Division of Surface Water Response to Comments

**Project: The National Lime and Stone Company, National Pollutant Discharge Elimination System (NPDES) Permit
Ohio EPA ID #: 4IJ00113**

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Ohio EPA held a public hearing Nov. 9, 2015 regarding The National Lime and Stone Co.'s proposed NPDES permit. This document summarizes the comments and questions received at the public hearing and during the associated comment period, which ended Dec. 16, 2015.

Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format.

Water Quality Concerns

Comment 1: **The Kokosing River is a stunning river that is a valuable resource. This resource is more valuable than oil, food or anything. We are totally reliant on clean water. We think it is clean now, but what about in a few years, after a few more permits like this one? It could be gone.**

Response 1: The water that will be discharged is required to meet all applicable water quality criteria. The state has standards to protect human health and aquatic life use as well as to protect the following Kokosing River use designations: exceptional warmwater habitat; agricultural water supply; industrial water supply; and primary contact recreation.

Comment 2: **What is the water quality of the pit impoundment water compared to that in the Kokosing River? After blending the two, what will the results be? Will it enhance or degrade the river?**

Response 2: The main sources of water to the quarry are ground water and storm water. These sources are expected to contain low levels of pollutants.

On March 24, 2016, Ohio EPA sampled the quarry water that will be discharged to the Kokosing River for total suspended solids (TSS), Total Dissolved Solids (TDS), metals, organic chemicals and oil and grease. The results for many parameters were below the detection level. All parameters that were detected were at levels less than water quality standards and at levels less than background concentrations already present in the Kokosing River. Ohio has water quality standards to ensure human health, aquatic life and designated uses are protected. The standards protect the water inside the zone where the water is being blended, called the mixing zone, and the water after it is blended.

Please see Attachment 1 for sampling results from the quarry, sampling results from the Kokosing River and the applicable water quality standards. The water quality standards listed are the concentrations of pollutants that need to be met in the Kokosing River to be protective.

Any new source of water has the potential to degrade the receiving stream. However, a full antidegradation review has been completed and it has been determined that all existing beneficial uses of the Kokosing River will be maintained and protected.

Comment 3: **Quantitative data can be taken from the point of impact. Because there are total suspended solids coming out of the lake, it will generate more when it hits the river. Is it possible that the EPA can put in a condition that the 4 million gallons per day (MGD) is discharged over a 24-hour period instead of a shorter duration to minimize the turbidity this will cause? The turbidity will block photosynthesis.**

Response 3: To address this concern, a Part II condition has been added to the permit that requires National Lime and Stone to design, construct and maintain the discharge point to control

the discharge velocity to prevent stream bank erosion or streambed scour.

Comment 4: **It is difficult to trust the industry to monitor and report their effluent quality.**

Response 4: Nationally, a key component of the NPDES program is the reliance on monitoring data reported by the permittee (self-monitoring data). Ohio EPA has the ability to conduct facility inspections and audits as additional checks of the self-monitoring program. For example, Ohio EPA sampled the quarry water March 24, 2016.

Reports are required to be submitted to Ohio EPA on a monthly basis. Frequency of sampling and monitoring the effluent varies for each pollutant, from daily to monthly, depending on the potential of the pollutant to exceed water quality standards. Each time a monthly report is received, it is reviewed by the Agency. Pollutants that exceed permitted limits are flagged as a violation. The Ohio EPA inspector will follow up with the facility to ensure violations do not continue and enforcement protocols are followed as appropriate.

Comment 5: **The hellbender salamander, an endangered species, lives in the Kokosing River. Their population has plummeted in the last 10 years mainly due to disturbance of their habitat. What will this do? Will this wipe them out? Siltation is the greatest threat because it smothers their habitat. What chemicals or other toxins will be in the water that may harm the salamander?**

Response 5: The discharge from National Lime and Stone will meet Ohio Water Quality Standards to protect aquatic life. The U.S. Fish and Wildlife Service is the principal partner responsible for administering the Endangered Species Act (ESA). For more information, please see the Fish and Wildlife Service's website at: <http://www.fws.gov/endangered/about/index.html>.

Ohio EPA sampled the quarry water that will be discharged to the Kokosing River. The results did not show any other chemicals or toxins in the water that would harm the salamander. Please see Response 2 and Attachment 1 for details.

Comment 6: **National Lime and Stone has requested from our county commissioners permission to apply oil field brine onto their gravel for ice control. There are many components**

in oil field brine that could potentially destroy wildlife in the stream. In addition to the hellbender salamander, we have the spotted darter, which is also an endangered species. Are the only things being tested total suspended solids, pH and flow rate? Testing should be done to ensure there are no oil field contaminants or contaminants from the diesel trucks.

Response 6: National Lime and Stone does apply oil field brine onto the gravel for ice control and dust suppression. Ohio EPA tested the quarry to ensure there were no additional contaminants. Please see Response 2 and Attachment 1 for details. In addition, TDS monitoring was added to the final outfall, as well as downstream monitoring to ensure brine does not threaten the Kokosing River.

Comment 7: **The release of 4 MGD may impact the biota of the Kokosing State Scenic River. Specifically, sediment issues and possible impacts on critical downstream riffle areas in addition to possible negative impacts on the entire floodplain during seasonal high-water flood events. The Kokosing is one of the highest quality streams remaining in Ohio and Ohio EPA should think twice before allowing any private enterprise to possibly jeopardize the long-term ecological integrity of the river simply for short-term financial gain. I am hopeful that Ohio EPA will not approve National Lime and Stone's application to discharge up to 4 MGD from their gravel pit into the Kokosing State Scenic River.**

Response 7: Ohio EPA has evaluated data from the National Lime and Stone facility and has written the NPDES permit to ensure that the long-term ecological integrity of the river is protected.

Comment 8: **The displacement of ground water could have a drastic, negative impact on the quality of local bodies of water. If this occurs, what, if any, recourse is available for this, and to whom is the responsibility of monitoring given?**

Response 8: The Division of Surface Water (DSW) is responsible for protecting the quality of surface water and the Division of Drinking and Ground Waters is responsible for the protection of ground water quality. The NPDES permit has been written to ensure protection of all designated uses of the Kokosing River.

Comment 9: With the understanding that the Ohio EPA's scope of permit only extends to the quality of the water being discharged, it would seem reasonable that the permit includes quantitative limits of:

- **CDOM**
- **Chlorophyll and other Fluorescing Materials**
- **Conductivity, Salinity and TDS**
- **Dissolved Oxygen**
- **Nutrients: Phosphorus and Nitrogen as Nitrate and Ammonia**
- **PAR and Total Solar Radiation**
- **pH**
- **Turbidity, TSS and Clarity**
- **Water Temperature**
- **All Toxic and Hazardous Substances**

Response 9: CDOM: This is a measure of organic matter in water that absorbs light. Ohio has no water quality standards for CDOM, and it is not something we usually address in NPDES permits. DSW has no regulatory authority to include CDOM limits.

Chlorophyll and other Fluorescing Materials: Chlorophyll levels can indicate if there is an overabundant growth of algae or plants. Nutrients can contribute to high levels of chlorophyll. Ohio EPA tested the quarry for nutrients on March 26, 2016. Samples taken from the quarry show a total phosphorus result of less than 0.010 milligrams per liter (mg/L), nitrite result of less than 0.020 mg/L, ammonia result of 0.382 mg/L and a nitrate-nitrite result of 0.11 mg/L. At these levels, it is unlikely that there could be an overabundance of algae or plant growth.

Conductivity, Salinity and TDS: These three parameters are all related. The sampling results from the quarry water showed a TDS concentration of 314 mg/L. Please see Attachment 1 for details. There is no reasonable potential that the quarry discharge will contribute to a violation of the water quality standard of 1,500 mg/L, so limits are not included in the permit. However, monitoring for TDS has been included in the permit.

Dissolved Oxygen: A limit of 6.0 mg/L minimum has been added to the permit. This limit is based on water quality standards.

Nutrients: Phosphorus and Nitrogen as Nitrate and Ammonia: Samples taken from the quarry show a total phosphorus result of less than 0.010 mg/L, nitrite result of less than 0.020 mg/L, ammonia result of 0.382 mg/L and a nitrate-nitrite result of 0.11 mg/L. For reference, please see Attachment 1 for a comparison of water quality standards, nutrient levels in the quarry and nutrient levels in the Kokosing River. The quarry water contains nutrient levels below existing levels in the Kokosing River, indicating that limits are not necessary.

PAR and Total Solar Radiation: DSW does not have the authority to add quantitative limits for these parameters.
pH: The permit includes limits requiring pH of the discharge to be between 6.5 and 9.0 S.U.

Turbidity, TSS and Clarity: These three parameters are related and a daily maximum limit of 45 mg/L and a monthly average limit of 30 mg/L for TSS are included in the permit.

Water Temperature: Ohio does have water quality standards to ensure water being discharged is not too hot. However, the quarry is fed by ground water and the temperature is expected to be relatively cool. There is no reason to suspect that the water will be hot.

All Toxic and Hazardous Substances: It is not reasonable to include monitoring and limits for all toxic and hazardous substances. Ohio EPA did sample the quarry on March 26, 2016. There were no detections of toxic or hazardous substances above reporting levels. Please see Attachment 1 for details.

Comment 10: There should be baseline evaluations of the Kokosing River, National Lime and Stone lake and major surrounding commercial bodies of water such as DelCo and Chester Lake Estates. It is not understandable how a baseline test of both bodies of water has never been requested prior to any permitting. Any time a questionable medium is introduced into another medium, an analysis of both must be made to determine if there is a negative (or positive) effect on the other to protect all parties while maintaining neutrality to the facts.

- Response 10:** There has been monitoring of the Kokosing River and the quarry, which are the two bodies of water that will be mixed. Please see Attachment 1 for details. In general, the quarry contains lower levels of pollutants than the Kokosing River.
- Comment 11:** **If the EPA could present multiple records in which a large body of water like the lake has been expelled into a smaller, Ohio scenic river with no negative effect, it would help damper these concerns.**
- Response 11:** Premier Silica LLC, Millwood Plant has had an NPDES permit to discharge into the Kokosing River since May 1, 2002, and there have been no issues noted. Ohio EPA performed fish monitoring downstream of the Millwood Plant's discharge with results showing the Kokosing River meeting Exceptional Warmwater Habitat designation.
- Comment 12:** **The Kokosing River should be monitored downstream during the entire pumping period. This is an essential piece of information to the community throughout the life of the permit to protect both parties.**
- Response 12:** Downstream monitoring for pH and TDS has been added to the permit.
- Comment 13:** **A salient concern of the community is the self-watchdog opportunity being given to National Lime and Stone when monitoring general tests. While this is not speculating that National may have malicious objectives, it is possible that equipment used may not be as in-depth as the community would like to see.**
- i. It is my understanding this is not given in other mining environments.**
- ii. Independent/EPA/real-time monitoring of quantitative data would help ensure proper data is collected and is offered by Fondriest and similar companies.**
- Response 13:** Please see Response 4. All mining facilities self-monitor, as do all NPDES permittees. While DSW does perform compliance sampling, Ohio has more than 3,300 facilities with NPDES permits and does not have the resources to continuously monitor every facility. However, Ohio EPA does perform inspections of every facility with an NPDES permit and now that National Lime and Stone has an NPDES permit, it will be routinely inspected.

Comment 14: Some data is not available for analysis onsite. To accommodate for this, it is felt that water samples should be taken at various depths of the lake during the pumping process to verify the contents of the water being displaced. If hazardous items are present, it would seem logical they would settle and become more concentrated at greater depths than at the shallows.

Response 14: Some pollutants such as TSS and metals will settle and be more concentrated at greater depths. Dissolved parameters such as TDS and organic pollutants are expected to be more evenly distributed. TSS will be monitored and reported to Ohio EPA monthly, and there are TSS limits for the duration of the permit.

Comment 15: Any pump discharge will result in substantial eroding at its exit point. With an allowed average of 4 MGD being pumped, it is inevitable that any hydraulic effects will generate disruption to the ecosystem downstream increasing undesirable factors. If a reservoir system and weir release were used, the 4 million-plus gallons would be gradually introduced into the river over a 24-hour period to suppress flow. It is our understanding that National would be responsible for doing this if damage occurred; the residents of this community would prefer a proactive versus reactive approach prior to any pumping.

Response 15: To address this concern, a Part II condition has been added to the permit that requires National Lime and Stone to design, construct and maintain the discharge point to control the discharge velocity and prevent stream bank erosion and streambed scour.

Application Concerns

Comment 16: There need to be alternatives proposed other than dewatering into the Kokosing River.

Response 16: National Lime and Stone is exempt from submitting alternatives under OAC 3745-1-05 (D)(1)(b)(ii) and (h), which state that the facility is exempt if the discharge contains less than 65 mg/L TSS, 10 mg/L oil and grease and the discharge of any other regulated pollutant will result in less than a 5 percent change in the ambient water concentration.

Comment 17: **The application needs revised. It is based on similar sources, but there are no specifics on what similar sources are. Where's the data? What former applications are you talking about? What are similar sources? Similar sources should mean an exact replica of the Kokosing; a small Ohio designated Scenic River.**

Response 17: Similar sources were other quarry discharges. For example, Premier Silica LLC, Millwood Plant has had an NPDES permit to discharge into the Kokosing River since May 1, 2002, and there have been no issues noted. Ohio EPA performed fish monitoring downstream of the Millwood Plant's discharge with results showing the Kokosing River meeting Exceptional Warmwater Habitat designation.

Ohio EPA did a site inspection and collected a sample from the water in the quarry that will be discharged. Please see Response 2 and Attachment 1 for more details.

Comment 18: **The Kokosing River is a State Scenic River and Outstanding State Water based on exceptional ecological values. In addition, the permit application indicates that sampling was not taken of the proposed discharge; rather, the TSS and pH values associated with the proposed discharge are based on "past experience at similar sources." Actual field samples should have been taken to determine whether there is the reasonable potential to discharge TSS at or above 65 mg/L (the qualifying threshold for the (D)(1)(h)(1) exemption).**

For the foregoing reasons, the Ohio Environmental Council requests a full antidegradation review for the above enumerated draft permit.

Response 18: Ohio EPA took actual field samples on March 24, 2016, of the water that is proposed to be discharged. Please see Response 2 and Attachment 1 for details. TSS was below 5 mg/L.

Flooding/Well Concerns

Comment 19: **There are prehistoric Native American burial mounds along the banks of the Kokosing River and if the river erodes in high flood situations, exacerbated by more water going into the river who gets involved?**

Response 19: The Army Corps of Engineers and Ohio State Preservation Office can address archeological concerns. The discharge of the proposed volume of flow would raise the river level less than one foot when discharging, an amount that is unlikely to cause flooding.

Comment 20: **When they tried to put a manhole sewer system, they were required to pump into the Kokosing River to be able to bring down the water table around the area. It required extraneous power, extra manpower, extra equipment, special equipment, and then it immediately filled itself back up. Maybe this isn't just surface water. There are three aquifers. We have data and overlays that show there may be underlying factors that are pushing into this area, bringing the water back up.**

Response 20: The quarry at National Lime and Stone is fed by ground water. Ohio EPA is involved with the quality of water, while the Ohio Department of Natural Resources (ODNR) is involved with the quantity of ground water. ODNR staff hydrogeologists are responsible for monitoring ground water levels in Ohio and compiling other hydrologic data.

Comment 21: **The Knox Dam is very important to the Kokosing River for protecting the Mount Vernon area. It is a very large area that is helping to prevent flooding. Is this going to have any effect?**

Response 21: The discharge of the proposed volume of flow would raise the river level less than one foot when discharging, an amount that is unlikely to cause flooding.

Ohio EPA does not have the regulatory authority to evaluate flooding concerns. Morrow County has authority on floodplain management. For more information, please see Morrow County's floodplain management website located here:

<http://morrowcountyohio.gov/index.php/property/floodplain>.

Comment 22: **If there is increased flooding, it could cause the loss of cropland, grazing land and hay fields.**

Response 22: Please see Response 21.

Comment 23: Use of U.S. Geological Survey (USGS) data should be used to ensure pumping is not continued during flood/anticipated flood periods. This area is notorious for its flooding patterns; hence the creation of the Kokosing Dam which is roughly 3 and 3/8 the size of the largest lake being drained. The USGS monitors and records various data affecting the Kokosing River going back decades with historical proofs. Permit stipulations should include factors that prevent pumping from occurring during periods in which the river is already inundated with flow.

Response 23: Please see Response 21.

Comment 24: Will such a drawdown of the aquifer have an impact on people's wells? There is an extensive aquifer extending along the Kokosing River Valley from Morrow County into Knox County and Delco Water presently has a large ground water extraction plant that is already withdrawing water from the same aquifer. National Lime and Stone was well aware that the gravel pit had been played out when they acquired the facility. Now they want to enhance their investment at the expense of wasting the precious ground water all of us in the area depend on for drinking and watering livestock.

Response 24: ODNR, Division of Mineral Resources is evaluating a modification of National Lime and Stone's Mining Permit. They have completed a hydrogeologic study and if wells are impacted, ODNR will determine if National Lime and Stone is responsible.

Comment 25: Chesterville Sand and Gravel seemed satisfied with the amount of gravel they were pulling out. Now someone new is coming in who either didn't do their homework or has planned from the beginning to destroy our water tables, ruin our river, take the money and gravel and go.

Response 25: The NPDES permit is written to ensure that the river is protected.

Comments made by National Lime and Stone

Comment 26: Part IV, E. Inspections (page 22)

Permit Statement - "Beginning the effective date of this permit, you shall conduct the inspections in Part IV.E.1, Part IV.E.1, and Part IV.E.3 at your facility."

Comment - It is not necessary to conduct any of these inspections based upon the effective date of the permit. Instead, inspections should not be required until there is an actual storm water discharge from the facility. Please address this issue, and all similar issues throughout the entire permit.

Response 26: This change has not been made. Inspections should be conducted prior to actual storm water discharge from the facility in order to insure that best management practices and controls are properly installed to minimize or eliminate pollutants discharging or commingling with storm water and/or snow melt.

Comment 27: **Part IV, E.,2. Quarterly Visual Assessment of Storm Water Discharges (pages 23-24)**

Permit Statement - Entire section of the permit.

Comment - The section regarding the requirement to conduct quarterly visual assessments should be removed in its entirety. This permit is being issued for the dewatering of an open sand and gravel mining pit and not solely for storm water which does or could come into contact with industrial-type activities. Instead, storm water which does come into contact with industrial-type activities will drain into the mining permit, be comingled with ground water and eventually pumped off the property as a single discharge. In this case, storm water would represent a small portion of the discharge and it is not economically feasible to keep the discharge separated. Not to mention, this permit requires monthly sampling and analysis of TSS, which is adequately sufficient and a reliable mechanism of understanding the quality of the discharge. It appears that the requirement to conduct a quarterly visual assessment was taken directly from the terms and conditions of the industrial storm water general permit and is used to evaluate how the discharge compares to benchmark monitoring which does not apply in the permit. Please address this issue by removing the entire section from the permit.

Response 27: This change has been made.

Comment 28: **Part IV, G. Deadlines for SWPPP Preparation and Compliance {page 26}**

Permit Statement - "1. The plan for a storm water discharge associated with industrial activity; a. shall be prepared within six months of the effective date of this permit ... b. shall provide for implementation and compliance with the terms of the plan within twelve months of the effective date of the permit. 2. Upon showing good cause, the Director may establish a later date for preparing and compliance with a plan for storm water discharge associated with industrial activity."

Comment - There is currently no discharge from this facility and the date when the first discharge is yet to be determined. Therefore, it is not practical to assume what a storm water plan may entail at this time or possibly even within six months of final issuance of this permit. Instead, the requirement to develop a storm water plan should not be until six months following initial discharge and implementation of the plan should not be until twelve months following initial discharge.

Response 28: This change has not been made. During Ohio EPA's inspection on March 24, 2016, barren areas that discharge to the Kokosing River were noted. In addition, storm water generated now goes into the quarry, and will be discharged.

Comment 29: **Part IV, J., 4., b. Pertaining to Monitoring and Inspection (pages 29-30)**

Permit Statement - "Where applicable, you shall document in your SWPPP your procedures for conducting analytical storm water monitoring. You shall document in your SWPPP your procedures for performing, as appropriate, the three types of inspections specified by this permit, including: 1) Routine facility inspections ..., 2) Quarterly visual assessment of storm water discharges..., and 3) comprehensive site inspections..."

Comment - The requirement to perform quarterly visual assessments should not apply. See 2) above.

Response 29: This change has been made.

Comment 30: Part IV, K. Sector-Specific Requirements (pages 30-35)

Permit Statement - Entire section of the permit.

Comment - The section establishing sector-specific requirements should be removed in its entirety. This permit is being issued for the dewatering of an open sand and gravel mining pit and not solely for storm water which does or could come into contact with construction-type or industrial-type activities. Instead, storm water which does come into contact with construction-type or industrial-type activities will drain into the mining permit, be commingled with ground water and eventually pumped off the property as a single discharge. In this case, storm water would represent a small portion of the discharge and it is not economically feasible to keep the discharge separated. Not to mention, this permit requires monthly sampling and analysis of total suspended solids which is adequately sufficient and a reliable mechanism of understanding the quality of the discharge. It appears that the requirement to have sector-specific requirements was taken directly from the terms and conditions of the construction storm water general permit and industrial storm water general permit which do not apply in this permit. Please address this issue by removing the entire section from the permit.

Response 30: This change has not been made. Control measures and best management practices need to be employed at the facility to minimize or eliminate pollutants discharging or commingling with storm water and/or snow melt.

Comment 31: Part V., A.,1. Reporting Benchmark Monitoring Data to the Ohio EPA (page 36)

Permit Statement - "Benchmark monitoring data shall be submitted to Ohio EPA in accordance with Part III Item 4. of this permit."

Comment- Benchmark monitor does not apply. Please remove this statement.

Response 31: This change has been made.

Comment 32: Part V., B. Storm Water Monitoring Requirements (page 36}

Permit Statement - "See Part I.A. of this NPDES permit for the benchmark sampling and monitoring requirements."

Comment - Benchmark monitoring does not apply. Please remove the word 'benchmark'.

Response 32: This change has been made.

End of Response to Comments

Attachment 1

Parameter	Units	Quarry Water	Kokosing River ^A	WQS ^B
Oil and Grease	mg/L	<2.2	NT	10
Total Dissolved Solids	mg/L	314	292	1,500
Total Suspended Solids	mg/L	2	36	--
pH	S.U.	8.25	7.5	6.5-9.0
Arsenic	µg/L	<2.0	2.6	100
Barium	µg/L	78	79.5	220
Cadmium	µg/L	<0.20	<0.20	4.7
Chloride	mg/L	24.9	27.6	--
Chromium	µg/L	<2.0	<2.0	100
Copper	µg/L	<2.0	<2.0	19
Iron	µg/L	196	1,659	5,000
Lead	µg/L	0.3	1.95	18
Nickel	µg/L	2.4	<2.0	100
Selenium	µg/L	<2.0	<2.0	5
Strontium	µg/L	334	680	21,000
Zinc	µg/L	<10	10.5	240
Ammonia	mg/L	0.382	<0.05	1.4
Nitrate+Nitrite	mg/L	0.11	NT	100
Phosphorus	mg/L	<0.10	0.015	--
Organic Analysis				
Benzene	µg/L	<0.50	NT	160
Bromobenzene	µg/L	<0.50	NT	--
Bromochloromethane	µg/L	<0.50	NT	--
Bromodichloromethane	µg/L	<0.50	NT	460
Bromoform	µg/L	<0.50	NT	230
Bromomethane	µg/L	<0.50	NT	16
n-Butylbenzene	µg/L	<0.50	NT	--
sec-Butylbenzene	µg/L	<0.50	NT	--
tert-Butylbenzene	µg/L	<0.50	NT	--
Carbon tetrachloride	µg/L	<0.50	NT	44
Chlorobenzene	µg/L	<0.50	NT	47
Chloroethane	µg/L	<0.50	NT	--
Chloroform	µg/L	<0.50	NT	140
Chloromethane	µg/L	<0.50	NT	--
2-Chlorotoluene	µg/L	<0.50	NT	--
4-Chlorotoluene	µg/L	<0.50	NT	--
Dibromochloromethane	µg/L	<0.50	NT	340
1,2-Dibromo-3-chloropropane	µg/L	<0.50	NT	--
1,2-Dibromoethane	µg/L	<0.50	NT	--
Dibromomethane	µg/L	<0.50	NT	--
1,2-Dichlorobenzene	µg/L	<0.50	NT	23
1,3-Dichlorobenzene	µg/L	<0.50	NT	22

Parameter	Units	Quarry Water	Kokosing River ^A	WQS ^B
1,4-Dichlorobenzene	µg/L	<0.50	NT	9.4
Dichlorodifluoromethane	µg/L	<0.50	NT	--
1,1-Dichloroethane	µg/L	<0.50	NT	--
1,2-Dichloroethane	µg/L	<0.50	NT	990
1,1-Dichloroethene	µg/L	<0.50	NT	32
cis-1,2-Dichloroethane	µg/L	<0.50	NT	--
trans-1,2-Dichloroethene	µg/L	<0.50	NT	140,000
1,2-Dichloropropane	µg/L	<0.50	NT	390
1,3-Dichloropropane	µg/L	<0.50	NT	--
2,2-Dichloropropane	µg/L	<0.50	NT	--
1,1-Dichloropropene	µg/L	<0.50	NT	--
cis-1,3-Dichloropropene	µg/L	<0.50	NT	--
trans-1,3-Dichloropropene	µg/L	<0.50	NT	--
Ethylbenzene	µg/L	<0.50	NT	61
Hexachlorobutadiene	µg/L	<0.50	NT	500
Isopropylbenzene	µg/L	<0.50	NT	4.8
4-Isopropyltoluene	µg/L	<0.50	NT	16
Methylene chloride	µg/L	<0.50	NT	1,900
Napthalene	µg/L	<0.50	NT	21
n-Propylbenzene	µg/L	<0.50	NT	--
Styrene	µg/L	<0.50	NT	32
1,1,1,2-Tetrachloroethane	µg/L	<0.50	NT	85
1,1,2,2-Tetrachloroethane	µg/L	<0.50	NT	110
Tetrachloroethene	µg/L	<0.50	NT	53
Toluene	µg/L	<0.50	NT	62
1,2,3-Trichlorobenzene	µg/L	<0.50	NT	--
1,2,4-Trichlorobenzene	µg/L	<0.50	NT	940
1,1,1-Trichloroethane	µg/L	<0.50	NT	76
1,1,2-Trichloroethane	µg/L	<0.50	NT	420
Trichloroethene	µg/L	<0.50	NT	220
Trichlorofluoromethane	µg/L	<0.50	NT	--
1,2,3-Trichloropropane	µg/L	<0.50	NT	--
1,2,4-Trimethylbenzene	µg/L	<0.50	NT	15
1,3,5-Trimethylbenzene	µg/L	<0.50	NT	26
Vinyl chloride	µg/L	<0.50	NT	930
o-Xylene	µg/L	<0.50	NT	--
Total m&p-xylenes	µg/L	<0.50	NT	27
Aldrin	µg/L	<0.0019	NT	0.0014
a-BHC	µg/L	<0.0019	NT	0.13
b-BHC	µg/L	<0.0019	NT	0.46
d-BHC	µg/L	0.0023 ^C	NT	--
γ-BHC	µg/L	0.0015 ^D	NT	0.057

Parameter	Units	Quarry Water	Kokosing River ^A	WQS ^B
4,4'-DDD	µg/L	<0.0058	NT	0.0084
4,4'-DDE	µg/L	<0.0019	NT	0.0059
4,4'DDT	µg/L	<0.0058	NT	0.0059
Dieldrin	µg/L	<0.0019	NT	0.0014
Endosulfan I	µg/L	<0.0019	NT	240
Endosulfan II	µg/L	<0.019	NT	240
Endosulfan sulfate	µg/L	<0.0019	NT	240
Endrin	µg/L	<0.0058	NT	0.036
Endrin aldehyde	µg/L	<0.0019	NT	0.036
Heptachlor	µg/L	<0.0019	NT	0.0021
Heptachlor epoxide	µg/L	<0.010	NT	0.0011
Methoxychlor	µg/L	<0.010	NT	--
Mirex	µg/L	<0.0019	NT	0.00011
Hexachlorobenzene	µg/L	<0.10	NT	0.0077
PCB-1016	µg/L	<0.10	NT	0.0017 ^E
PCB-1221	µg/L	<0.10	NT	0.0017 ^E
PCB-1232	µg/L	<0.10	NT	0.0017 ^E
PCB-1242	µg/L	<0.10	NT	0.0017 ^E
PCB-1248	µg/L	<0.10	NT	0.0017 ^E
PCB-1254	µg/L	<0.10	NT	0.0017 ^E
PCB-1260	µg/L	<0.10	NT	0.0017 ^E
Acenaphthylene	µg/L	<5.6	NT	--
Anthracene	µg/L	<2.3	NT	0.02
Benzo[a]anthracene	µg/L	<2.3	NT	0.49
Benzo[a]pyrene	µg/L	<2.3	NT	0.49
Benzo[b]fluoranthene	µg/L	<2.3	NT	0.49
Benzo[g, h, i]perylene	µg/L	<2.3	NT	--
Benzo[k]fluoranthene	µg/L	<2.3	NT	0.49
bis(2-Chloroethoxy)methane	µg/L	<5.6	NT	--
bis(2-Chloroethyl)ether	µg/L	<2.3	NT	14
bis(2-Chloroisopropyl)ether	µg/L	<2.3	NT	170,000
bis(2-Ethylhexyl)phthalate	µg/L	<11.2	NT	8.4
4-Bromophenyl-phenylether	µg/L	<5.6	NT	--
Butylbenzylphthalate	µg/L	<2.3	NT	23
4-Chloro-3-methylphenol	µg/L	<11.2	NT	--
2-Chloronaphthalene	µg/L	<5.6	NT	4,300
2-Chlorophenol	µg/L	<2.3	NT	32
4-Chorophenylphenylether	µg/L	<2.3	NT	--
Chrysene	µg/L	<2.3	NT	0.49
Di-n-butylphthalate	µg/L	<5.6	NT	12,000
Di-n-octylphthalate	µg/L	<2.3	NT	--
Dibenz[a,h]anthracene	µg/L	<2.3	NT	0.49

Parameter	Units	Quarry Water	Kokosing River ^A	WQS ^B
2,4-Dichlorophenol	µg/L	<2.3	NT	11
Diethylphthalate	µg/L	<5.6	NT	220
2,4-Dimethylphenol	µg/L	<11.2	NT	15
Dimethylphthalate	µg/L	<5.6	NT	1,100
4,6-Dinitro-2-methylphenol	µg/L	<5.6	NT	770
2,4-Dinitrophenol	µg/L	<22.5	NT	14,000 ^F
2,6-Dinitrotoluene	µg/L	<2.3	NT	81
2,4-Dinitrotoluene	µg/L	<2.3	NT	44
Fluoranthene	µg/L	<2.3	NT	0.8
Fluorene	µg/L	<2.3	NT	19
Hexachlorocyclopentadiene	µg/L	<2.3	NT	17,000
Hexachloroethane	µg/L	<5.6	NT	89
Indeno[1,2,3-cd]pyrene	µg/L	<2.3	NT	0.49
Isophorone	µg/L	<2.3	NT	920
N-Nitroso-di-n-propylamine	µg/L	<2.3	NT	14
N-Nitrosodiphenylamine	µg/L	<5.6	NT	160
Naphthalene	µg/L	<2.3	NT	21
Nitrobenzene	µg/L	<2.3	NT	380
2-Nitrophenol	µg/L	<2.3	NT	73
4-Nitrophenol	µg/L	<22.5	NT	--
Pentachlorophenol	µg/L	<11.2	NT	18 ^G
Phenanthrene	µg/L	<2.3	NT	2.3
Phenol	µg/L	<2.3	NT	400
Pyrene	µg/L	<2.3	NT	4.6
1,2,4-Trichlorobenzene	µg/L	<2.3	NT	940
2,4,6-Trichlorophenol	µg/L	<5.6	NT	4.9

^A Samples were taken from the Kokosing River at River Mile 45.44, approximately one mile upstream of the proposed discharge. Samples were taken 2006-2008 and the table shows mean values.

^B The lowest applicable water quality standard for each parameter is presented in the table.

^C d-BHC was also present in the lab control at 0.0022 µg/L.

^D y-BHC present at a level lower than the reporting level, but higher than the method detection level.

^E 0.0017 µg/L is the water quality standard for PCBs.

^F 14,000 µg/L is the water quality standard for Dinitrophenols.

^G Value at a pH of 8.0.