

Application Type Renewal  
Facility Type Industrial  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL INDUSTRIAL WASTE (IW)  
AND IW STORMWATER**

Application No. PA0004278  
APS ID 1048838  
Authorization ID 1371411

**Applicant and Facility Information**

Applicant Name	<u>Holcim Quarries NY, Inc.</u>	Facility Name	<u>Duquesne Slag</u>
Applicant Address	<u>6401 Golden Triangle, #440</u> <u>Greenbelt, MD 20770</u>	Facility Address	<u>4810 Buttermilk Hollow Road</u> <u>West Mifflin, PA 15122-1106</u>
Applicant Contact	<u>James Carroll</u>	Facility Contact	<u>Sean Marshall</u>
Applicant Phone	<u>(240) 564-3877</u>	Facility Phone	<u>(412) 335-9013</u>
Client ID	<u>340767</u>	Site ID	<u>553223</u>
SIC Code	<u>1481</u>	Municipality	<u>West Mifflin Borough</u>
SIC Description	<u>Nonmetallic Minerals Services, Except Fuels</u>	County	<u>Allegheny</u>
Date Application Received	<u>September 30, 2021</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>October 4, 2021</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES Permit Renewal</u>		

**Summary of Review**

The Department received an NPDES permit renewal application from Redland Quarries NY Inc. (Redland) for its Duquesne Slag facility (Duquesne Slag) on September 30, 2021. This facility receives Air Cooled Blast Furnace Slag (ACBFS), historically from the US Steel, Edgar Thompson facility in Braddock and processes it onsite, stockpiling graded materials for sale into the construction materials market. Depending on grade, these materials are useful as a base for roadway construction, in certain concrete applications and as an aggregate in similar applications. In contrast, steel slag is often less in demand and has generally been found, depending on residual constituents, as unsuitable for most construction purposes. For example, the inclusion of magnesium oxides can lead to future material volume instabilities, making it less suitable for many road or concrete applications.

Redland's Duquesne Slag facility has been in operation since circa 1930, then operated by the Duquesne Slag Products Company or its predecessors. The site is located over a long-abandoned coal mine. The former owner conducted extensive earthwork activities at the site in order to facilitate different operations such as slag quenching, hydrating, washing, sorting, grading and stockpiling slag. Wastewaters from some of these activities entered the subterranean mine pool.

The site previously covered approximately 270 acres (at its apex) and was historically accessed from Noble Drive (aka Noble Road). The site was bordered on the east by Buttermilk Hollow Road (and still has an alternate access off this road), on the south by the Allegheny County Airport, on the west by Lebanon Road (Route 885) and on the north by a residential area known as Lincoln Place. Over the decades, parcels of the former slag processing areas have been closed and subsequently sold or leased to other industrial businesses. Other areas have become covered in unmarketable materials, processing and wash pond fines and eventually regraded, capped with soil, seeded, and closed. Some of these areas have been donated and repurposed, e.g. for the West Mifflin soccer fields.

Approve	Deny	Signatures	Date
X		 John L Duryea, Jr., P.E. / Environmental Engineer	April 2, 2024
X		 Michael E. Fifth, P.E. / Environmental Engineer Manager	April 12, 2024

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A series of ownership changes began toward the end of 1989. In addition to the original owner, prior owner's names include Standard Slag Company, LaFarge Corporation, Lafarge North America Inc. and LafargeHolcim after the merger of the European based Lafarge (French) and Holcim (Swiss) companies in 2015. In January 2017, this site was merged by the parent company into their existing Redland subsidiary. Circa 2020, the Duquesne Slag site was reassigned by the parent company to be the responsibility of the mid-Atlantic region of LafargeHolcim's US Aggregates and Construction Materials (ACM) division, based in Maryland, from the parent company's regional management over New York and New England, based in Amherst, NY. On August 24, 2022, the Department was informed that the name had been changed again in May 2022 to Holcim Quarries NY, Inc. (Holcim).

The various owners of the Duquesne Slag site have entered into a series of Consent Order Agreements (COA) and COA amendments with the Department including in 1980, 1997 and 2008, this last COA was amended in 2018. All of these were superseded by the COA signed on June 17, 2021 and its first amendment, signed on January 10, 2023. Under these COAs, the current owner has agreed to treat discharges of abandoned mine drainage (AMD) including that seeping out along an adjacent portion of Buttermilk Hollow road before the treated effluent is discharged at the site's Outfall 001 to Thompson Run. This commitment was also captured in the prior NPDES permit renewal effective on January 1, 2017. This permit included provisions for future pond treatment of onsite mining processing wash water and stormwater runoff before discharge at future Outfalls 002 and 003. On April 10, 2018, the Department transferred this NPDES permit (**PA0004278**) to Redland. As noted above, this client's company name was changed to Holcim Quarries NY in May 2022.

Historically there have been several prior attempts to establish treatment systems to address the AMD seepage onsite. Duquesne Slag was ordered to abate discharges into Thompson Run by the Sanitary Water Board via administrative orders on January 30, 1946 and again on October 25, 1954. Duquesne Slag received an industrial waste permit **466128** from the Allegheny County Health District on July 26, 1967 for the collection of storm water runoff and other surface flows that infiltrate the site, collected in two unlined settling ponds near the end of what is now the viaduct. Water Quality Management (WQM) Part II permit **0280301** was issued on November 9, 1981 and later transferred to Lafarge on March 25, 2002. Intended to permit an active treatment system and to discharge its effluent at a prior outfall (004) to an unnamed tributary to Thompson Run, running parallel to nearby Mifflin Road, this system is no longer in use and Outfall 004 was removed from the NPDES permit in the 2016/2017 renewal. In October 2022, Holcim informed the Department that they intend to terminate this older WQM permit. However, no formal request has yet been received by the Department.

WQM Part II permit **0208201** was issued on August 11, 2008 to cover construction and use of a Wetland Treatment System designed to treat AMD from the deep mine pool below this site. On May 10, 2018, the Department transferred this permit to Redland. The system consisted of an anoxic limestone drain (ALD), a sedimentation pond and two constructed wetland ponds, these three ponds, operated in series and constituted a passive treatment system. This system was able to maintain effluent within the permitted limits for some periods but tended to be less effective in the coldest months. Its effectiveness also eroded over the years since its installation as solids built up in the sequential ponds. The ALD was recharged and the ponds were cleaned out of accumulated solids and vegetation during 2021. This passive treatment system layout is essentially the same as the treatment system in use today, discharging near the present location of Outfall 001.

Since its construction, modifications have been made to this passive treatment system. Amendment **0208201 – A1** was issued on September 12, 2017 primarily to install equipment to facilitate the addition of sodium hydroxide (NaOH) to increase the treatment system's pH. This was intended to affect a reduction in manganese and iron levels in the effluent.

The permittee applied for another amendment (**A2**) to document system changes to upgrade and automate the chemical addition system. With the implementation of these upgrades, the treatment is considered an active treatment, using ChemStream's formula 302 as the chemical additive which adds sodium permanganate (NaMnO<sub>4</sub>) blended with NaOH. This additive should both oxidize the entrained metals and raise the pH levels to facilitate the precipitation of certain metals, especially, manganese. In addition, mechanical aeration has been added to the first treatment pond; as well as, multiple pond curtains to prolong the treatment dwell time. The current permit, WQM Part II **0208201 - A2** was issued on September 7, 2022. This amendment also covered the installation of shallow French drains along Buttermilk Hollow Road and along the treatment system's access road to collect AMD seepage known to occur in these areas. A flume flow measurement device has been installed near the Outfall (**001**) discharge point.

In addition to the NPDES and WQM permits, the site maintains a non-coal surface mining permit (02030301) for coverage to reclaim and process slag held onsite. After processing, materials found to be suitable, were to be sorted and stockpiled for sale as construction material. The renewal application notes a Standard Industrial Code (SIC) of "14" and a NAICS code of "212399" which is currently described by the NAICS site as "All Other Nonmetallic Mineral Mining". The application shows the prior definition of this code as "Mining and Quarrying of Nonmetallic Minerals, except Fuels." Therefore, the closest

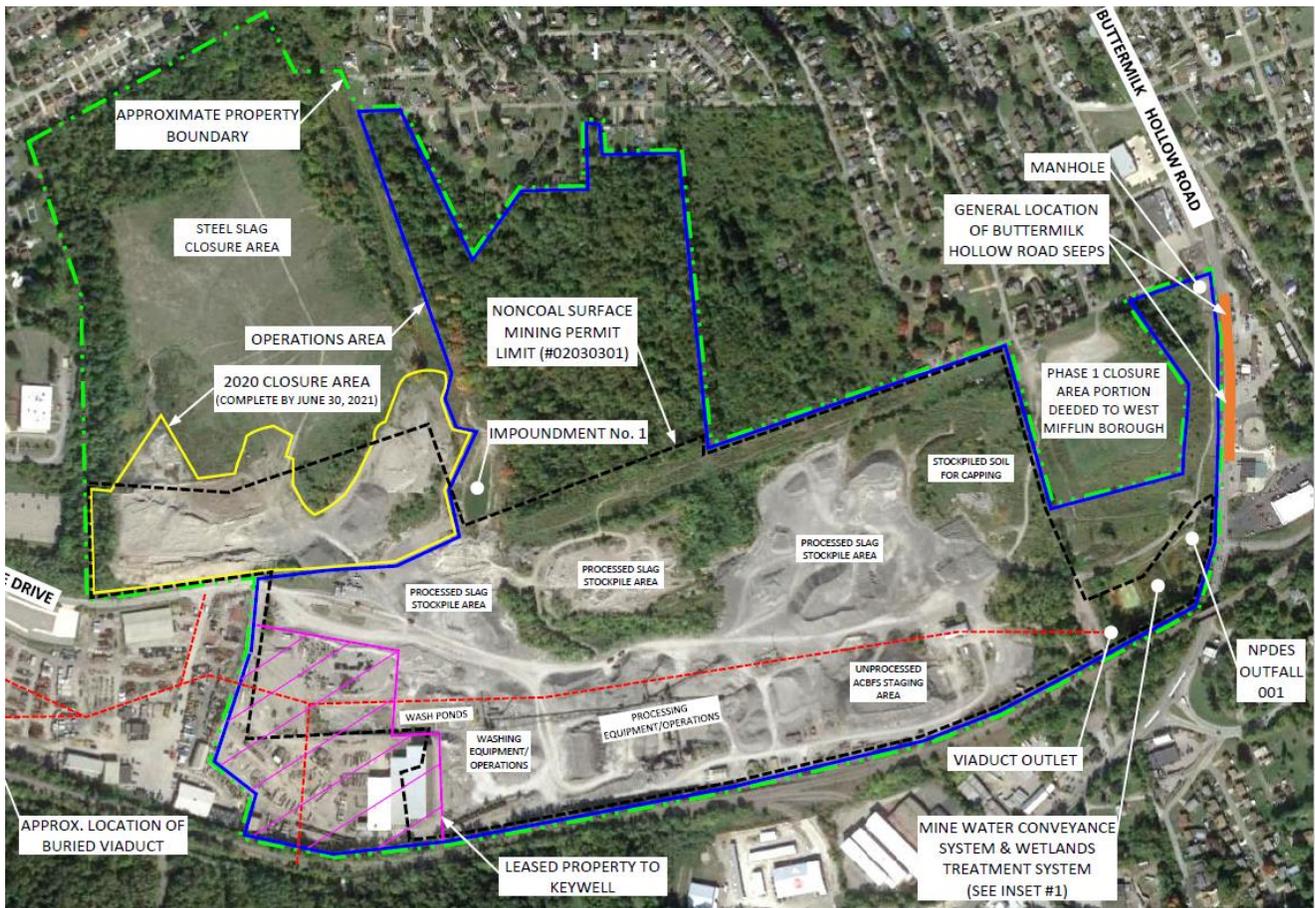
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corresponding SIC is "1481" with description, "Nonmetallic Minerals Services, Except Fuels". In October 2022, the permittee disclosed that they intend to begin the process of terminating this mining permit since these mined materials have proven to be unmarketable. However, the closure process could take a number of years.

The Duquesne Slag facility is defined under 25 Pa. Code § 92a.26 as a minor facility with an applicable Federal Effluent Limit Guideline (ELG). Although this is not a coal mining facility, the discharge from the AMD treatment facility is considered to be covered by the Coal Mining Effluent Limitations Guidelines (40 CFR 434). Prior permits and subsequent renewals imposed effluent limitations based upon these guidelines.

The original 2021 renewal application notes that the discharge locations include Outfalls 001 through 003; as well as, planned sedimentation ponds A and B, and a treatment system for "deep mine drainage water." However, as noted above, these sedimentation ponds were intended to treat water associated with onsite mining activities. Sedimentation ponds A and B have yet to be constructed, to date, and the associated outfalls were never implemented. The Department discussed with the permittee in October 2022 whether these outfalls (002 and 003) should be removed from the permit in this renewal, but, the consultant felt that these may still be needed as part of the mine closure process and therefore these outfalls will be maintained in this renewal.

The receiving waters for these discharges are all listed as being to Thompson Run which is listed in Chapter 93 as a warm water fishery (WWF). Site locations are shown on an excerpt from the client supplied map, included below as Figure 1.



**Figure 1: Holcim's Duquesne Slag Excerpt from Permit Boundary Map**

The image above provides an overview of the remaining active areas under this permit. The lower center portion shows the primary slag processing areas, central to the site's operation. Today ACBFS is trucked in, off Noble Drive from the west, weighed at the Holcim entrance and then deposited in the unprocessed ACBFS staging area (lower center right). From there it is processed and assessed (lower center). Processed materials are then deposited in the various staging areas shown on

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the active areas of the site. Other materials, like revetement, may enter the site and/or be transferred during processing for preprocessing at the wash ponds, shown toward the northeast of the Keywell Metals' leased area (lower center left).

The collection for treatment of AMD begins primarily along Buttermilk Hollow Road at the "manhole" and also in the shallow French drain running along this road at the eastern extreme of the permitted site. From there it is conveyed through an ALD to the three treatment ponds (formerly part of the Wetlands Treatment System) located at the southeastern corner of the site.

Running the length of and under all of these active areas in Figure 1 is a red dashed line representing the most likely location of the viaduct. The viaduct basically is a culvert which conveys Thompson Run under the active areas of the Holcim site. It begins in the Headwaters Closure Area, still owned by Holcim, east of the present active operational areas of their site. The upstream portion of Thompson Run enters a 30-inch concrete pipe in this area. Further downstream the culvert is in a brick arched enclosure. The culverted stream receives stormwater runoff from the surrounding areas including from the northern areas of the Allegheny County Airport to the southeast of the Holcim site (NPDES permit PAR806134). In addition, West Mifflin Borough operates a Municipal Separate Stormwater Sewer System (MS4) which extends along Noble Drive and is believed to discharge via piping conveyances toward the viaduct (NPDES permit PAG136166). The viaduct daylights at its outlet to the southeast of (and near) the site's first treatment pond (see Figure 1). The course of Thompson Run after it emerges from the viaduct was previously diverted to run just to the south of Holcim's three treatment ponds.

The topography of the site has been significantly altered during the near century of Slag processing operations. Slag processing has extended towards Route 885 (Lebanon Road) but has predominantly been north of the Union Railroad Right-of-Way. Mid-last century, slag movements were handled in rail cars on rail spur lines, transported by engines. Noble Drive now passes under a rail trestle which once contained a Pittsburgh Railway Company line. This railway crossing is believed to be, roughly, the origination point of the slag processing at this Duquesne Slag site, illustrated in Figures 2-6, below.



**Figure 2: Aerial View of the Duquesne Slag Products Co. Site Circa 1938**



**Figure 3: Aerial View of the Duquesne Slag Products Co. Site Circa 1956**

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Figure 4: Lafarge's Duquesne Slag Site Circa 1995

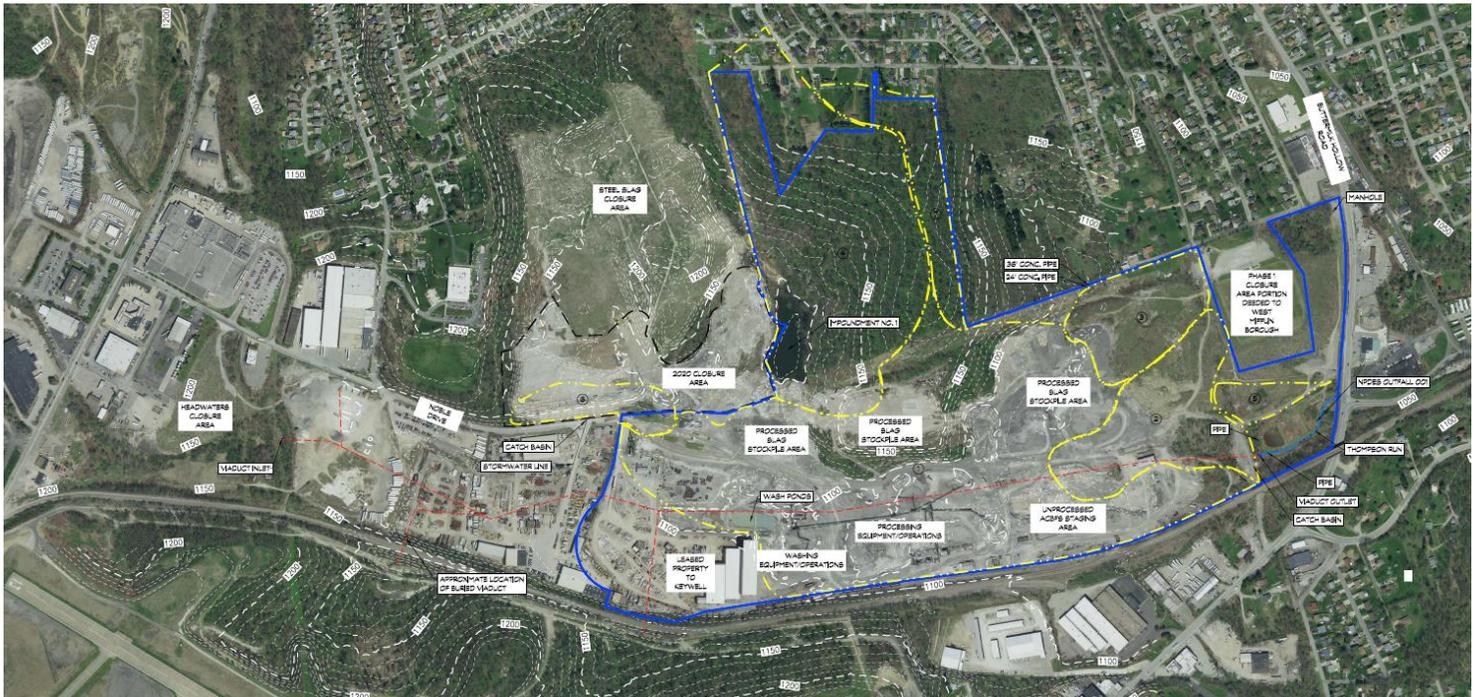


Figure 5: Redland's Duquesne Slag Plant Circa 2021

As can be seen from the figures above, slag processing activities have expanded from their origin near today's intersection of Noble Drive and Buttermilk Hollow Road towards the north and west. More recently there have been several areas of the site which have been regraded, covered with soil, vegetated, and closed. These include the "Headwaters Closure Area", the "Phase 1 Closure Area", the "Steel Slag Closure Area", and the "2020 Closure Area." All of these can be seen in Figure 5 above. Also shown in this last figure is the permitted area today (outlined in blue) and the storm watersheds determined in the permittee's "Operations Area Stormwater Report" as revised in May 2022 (shown in yellow). As a result of these stormwater studies, an **Outfall 005** was added at the catch basin on Noble Drive, just north of the Union Railroad trestle and

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its intersection with Buttermilk Hollow Road. This addition was discussed in a telephone communication with the consultant on October 19, 2022. The consultant also disclosed that an update to the renewal application submittal was being prepared.

A brief summary of the recent and current outfalls defined for Holcim's Duquesne Slag site are as follows:

**Outfall 001** is designated as the discharge point for effluent from the treatment system for AMD located in the southeast portion of the permitted area. This outfall is shown in both Figures 1 and 5 and is at the site of a yellow pin in Figure 4. This discharge is currently measured and sampled. It discharges to Thompson Run downstream of the viaduct outlet.

**Outfall 002** is designated as the discharge from a postulated sedimentation pond contemplated, but not yet implemented. It is associated with permitted onsite non-coal mining activities and processing.

**Outfall 003** is also designated as the discharge from another postulated sedimentation pond contemplated, but not yet implemented. It is also associated with the onsite permitted non-coal mining activities and processing.

**Outfall 004** is prior outfall from the active treatment system permitted under WQM permit **0280301**, issued on November 9, 1981. Its location was at the recirculation pump station off Mifflin Road (toward the east of Buttermilk Hollow Road). This outfall was maintained in the permit renewal issued on May 12, 2008 as a backup to the passive treatment system implemented circa that year. However, it was removed from the most recent permit renewal, effective on January 1, 2017. This older treatment system will not be returned to service. Its associated outfall, now also discontinued, previously discharged to the unnamed tributary to Thompson Run running roughly parallel with Mifflin Road.

**Outfall 005** is newly designated at an existing stormwater catch basin to the east of Noble Drive near the location of the viaduct outlet. Stormwater captured in this inlet is believed to be conveyed to Thompson Run shortly after this stream daylight from the viaduct outlet.

All other outfalls designated in the Department's electronic system "eFacts" will be set to "Inactive" as will **Outfall 004**.

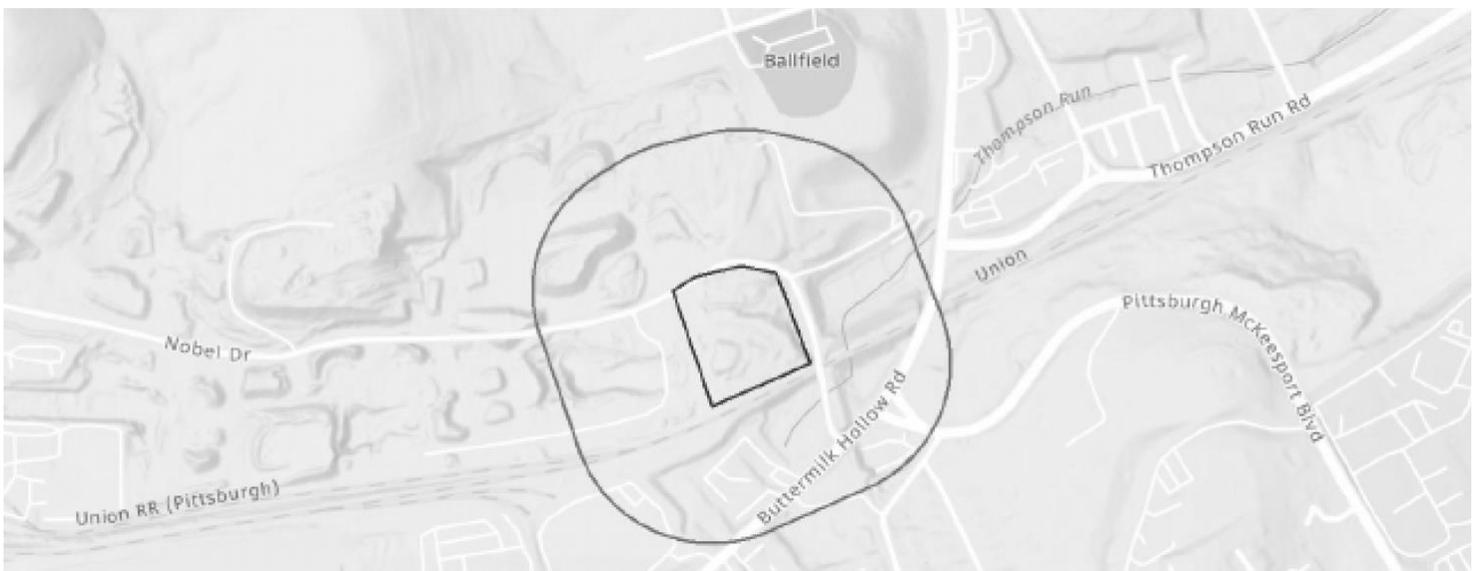
The updated application submittals received December 19, 2022 documented that all remaining active outfalls discharge to Thompson Run (37449) which is tributary to the Monongahela River. This receiving waterway of the Commonwealth was previously assessed as impaired from supporting aquatic life by acid mine drainage and associated metals and has been designated under 25 Pa. Code Chapter 93 as a warm water fishery (WWF). Thompson Run was originally listed on the 1996 Pennsylvania Section 303(d), list of impaired waters. Consequently, this waterway has had a series of established Total Maximum Daily Load (TMDL) documents. The most recent of these, established by the Department in January 2016, superseded the prior report by the U.S. Environmental Protection Agency (EPA), Region 3 published on April 9, 2003.

A Federal Effluent Limit Guideline (ELG) has been established for effluent from any coal mine at which the extraction of coal is taking place. The extensive underground coal mines underlying the Duquesne Slag site have been long idled. Nevertheless EPA collected substantial applicable data in establishing specific limits for mine pool discharges pursuant to regulating wastewater discharges from mine drainage, among others, in 1975 and then amended in 1976, 1977, 1979, 1982, 1985 and 2002, and subsequently. In particular, the development document for the 1982 amendment noted the similarity between the mine drainage from active and abandoned mines. Although essentially identical, EPA did not specifically impose the developed ELG on AMD under 40 CFR § 434 to abandoned mines. In past renewals of PA0004278, however, the ELG was imposed. This was reasonable, can be supported and continued in this renewal based on Best Professional Judgement (BPJ).

A number of written communications were exchanged with Holcim and its consultants in late 2022 through early 2024, most notably including updated sample results for Outfall 001 received in June 2023 and an amendment application to add a temporary concrete batch plant in February 2024. During preparation for this draft, more detailed and tabulated, electronic Discharge Monitoring Report (eDMR) data was received via email from Holcim's consultant on March 13, 2024 for iron, manganese and nickel.

This concrete batch plant, planned as a standalone addition by Golden Triangle Construction (GTC), is planned to support local highway construction activities exclusively for the Pennsylvania Department of Transportation (PennDOT). The operation of this plant is intended as being separate from that of the Holcim's Duquesne Slag plant. GTC's consultant, Hunt Valley Environmental, submitted a separate PPC plan for this 4.2-acre subset of Holcim's site. No discharge from this operation is intended and the plant is expected to operate for 4 – 5 years. The location of this batch plant is shown in annotated satellite images included as Figure 6 below, with planned construction details shown in Figure 7.

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**Figure 6: Proposed Location of GTC Concrete Batch Plant on Holcim’s Duquesne Slag Plant**

As can be seen from that two images that make up Figure 6 above, this GTC plant is adjacent to the railway right of way, near the railroad trestle over Nobel Road. This location affords easy access to the site by rail or truck, being just off Buttermilk Hollow Road. Although the plant is not intended to discharge stormwater, it is located across the road from the newly identified Outfall 005. Therefore, monitoring at this outfall will be reviewed with this in mind and updated, if appropriate.

A more detailed drawing of the planned batch concrete plant is shown in Figure 7. Included are the partial enclosures for stockpiles of materials planned as feed stock for processing, “Frac Tank” storage of water, trailer storage of dry feed stock (“PIG”s), electrical generators, a chiller for cooling equipment, a boiler for process heating, the batch plant with its siloes, loading ramps for the mixer trucks, the “non-discharge pond” where stormwater is directed and held for production use and the concrete washout ponds for mixer trucks. All of these details are shown in Figure 7 below:

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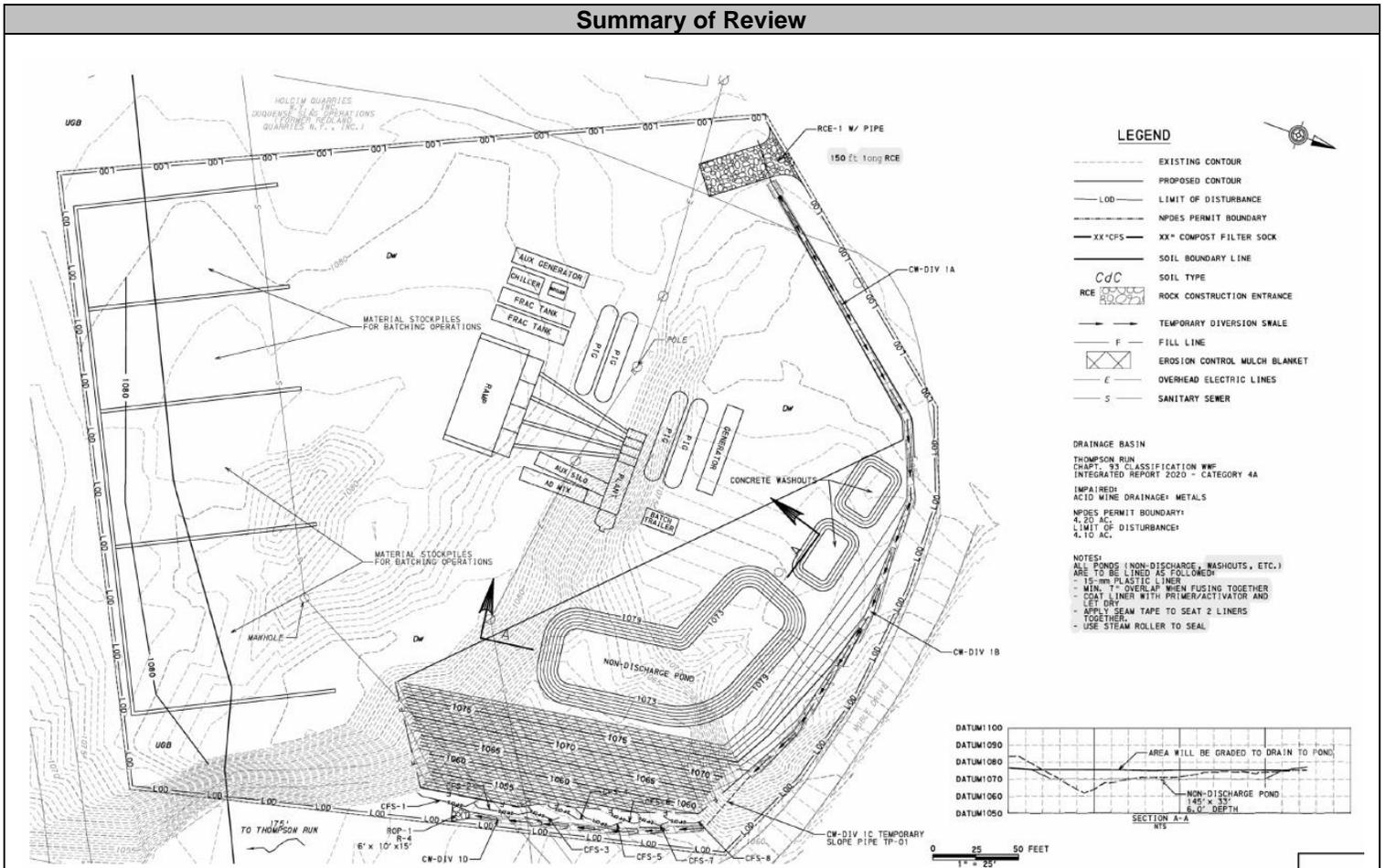


Figure 7: Proposed Details of GTC Concrete Batch Plant on Holcim's Duquesne Slag Plant

The permittee has complied with Act 14.

It is recommended that a draft permit be published for public comment in response to this application.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.65
Latitude	40° 21' 37.8"	Longitude	-79° 54' 29.3"
Quad Name	Glassport	Quad Code	1606
Wastewater Description: Treated AMD with ELG and Stormwater			
Receiving Waters	Thompson Run (WWF)	Stream Code	37449
NHD Com ID	99408130	RMI	4.09
Drainage Area	1.14	Yield (cfs/mi <sup>2</sup> )	0.00965
Q <sub>7-10</sub> Flow (cfs)	0.011	Q <sub>7-10</sub> Basis	USGS StreamStats
Elevation (ft)	1000	Slope (ft/ft)	
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use	<b>Aquatic Life</b>	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final	Name	Thompson Run
Nearest Downstream Public Water Supply Intake	PA American Water Company - Becks Run Facility		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.7	Distance from Outfall (mi)	11.8

Changes Since Last Permit Issuance: The exact coordinates of this outfall location were tweaked based on the client's renewal submittal update of December 2022. The Design Flow was also changed based on this update.

Other Comments: The Q<sub>7-10</sub> flow was calculated based on the yield of a downstream watershed that conformed to the USGS StreamStats statistical modeling parameters.



Figure 6: Drainage Area at Holcim Quarries NY Outfall 001

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>002 &amp; 003</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 37"; 40° 21' 30.8"</u>	Longitude	<u>-79° 54' 39"; -79° 55' 8"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Thompson Run (WWF)</u>	Stream Code	<u>37449</u>
NHD Com ID	<u>99408130</u>	RMI	<u></u>
Drainage Area	<u></u>	Yield (cfs/mi <sup>2</sup> )	<u></u>
Q <sub>7-10</sub> Flow (cfs)	<u></u>	Q <sub>7-10</sub> Basis	<u></u>
Elevation (ft)	<u></u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>METALS</u>		
Source(s) of Impairment	<u>ACID MINE DRAINAGE</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Becks Run Facility</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1,230</u>
PWS RMI	<u>4.7</u>	Distance from Outfall (mi)	<u>&gt; 12</u>

Changes Since Last Permit Issuance: None. These outfalls mark the outlets of sedimentation basins that have not yet been constructed. These basins would be associated with onsite slag mining, or the close out activities associated with Holcim's mining permit termination.

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>005</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 34.6"</u>	Longitude	<u>-79° 54' 33.6"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Thompson Run (WWF)</u>	Stream Code	<u>37449</u>
NHD Com ID	<u>99408130</u>	RMI	<u>4.18</u>
Drainage Area		Yield (cfs/mi <sup>2</sup> )	
Q7-10 Flow (cfs)		Q7-10 Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>Aquatic Life</u>	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>METALS</u>		
Source(s) of Impairment	<u>ACID MINE DRAINAGE</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Becks Run Facility</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1,230</u>
PWS RMI	<u>4.7</u>	Distance from Outfall (mi)	<u>11.9</u>

Changes Since Last Permit Issuance: This newly identified outfall is located at an existing stormwater inlet along the gravel access road just north of the railroad trestle which is roughly the origination point in the 1930's of slag processing at this site. This outfall is also relatively close to the planned GTC temporary concrete batch plant and might receive any washout from this area during construction or operation should one occur.

Other Comments: Stormwater entering the roadway inlet is conveyed via pipeline to Thompson Run just after its' exiting the viaduct. This outfall location, marked with a yellow "x", the treatment ponds and the prior course of the stream, now relocated in the wooded area just to the south, are all shown in Figure 8, below:

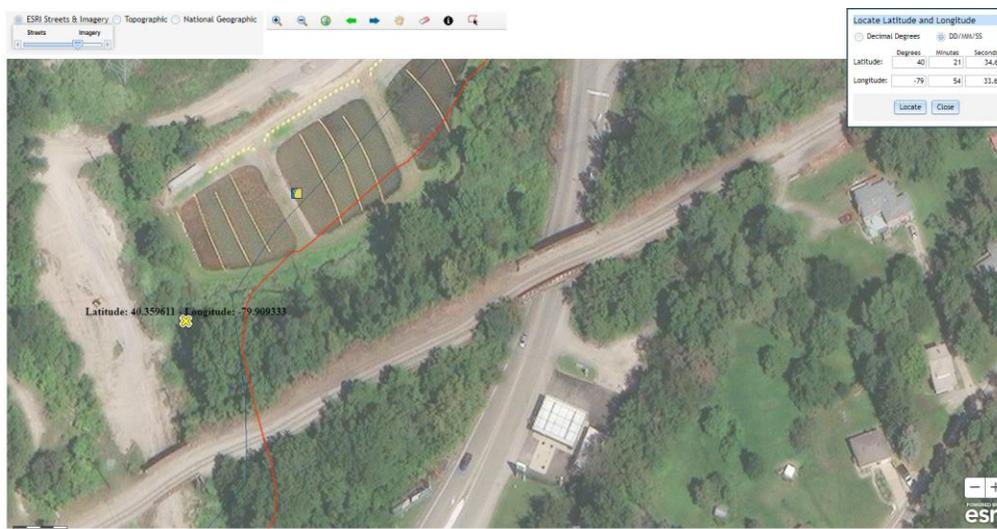
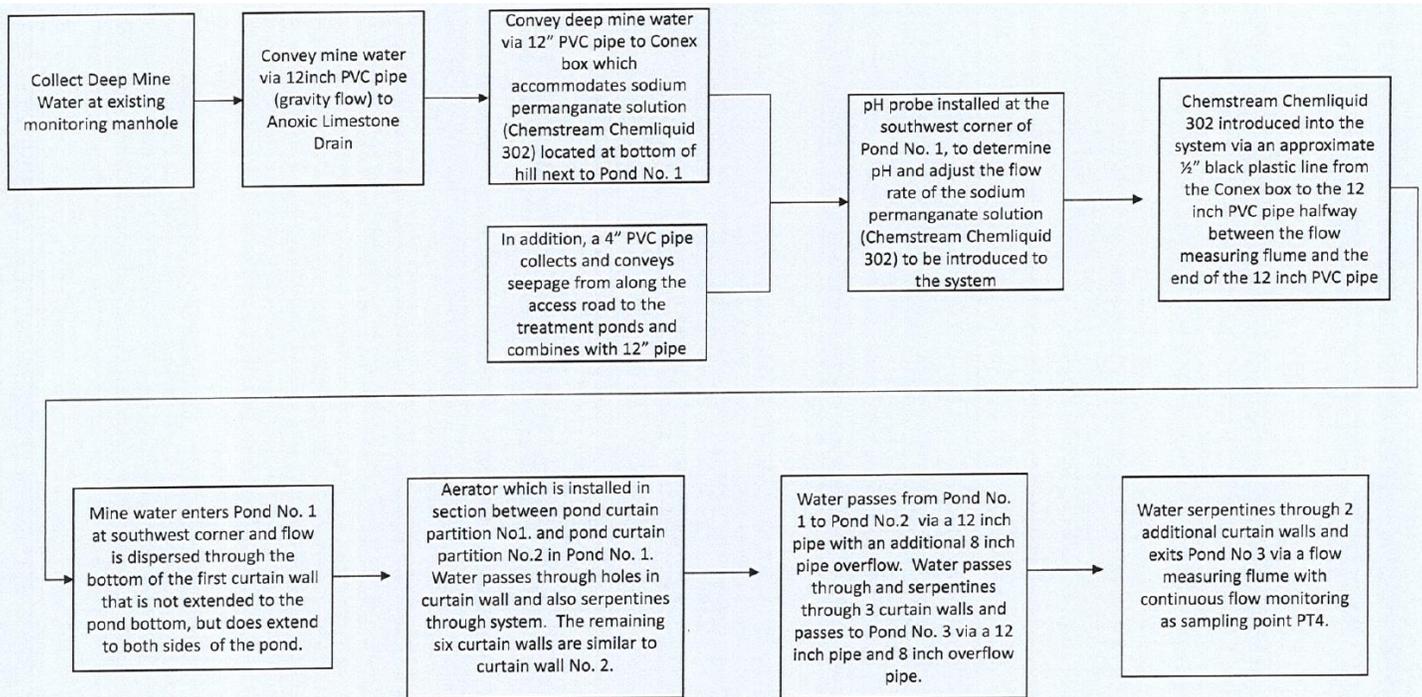


Figure 8: Satellite Image Showing the Location ("x") of Holcim, Duquesne Site Outfall 005

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Duquesne Slag				
<b>WQM Permit No.</b>		<b>Issuance Date</b>		
0280301		November 9, 1981		
0208201		August 11, 2008		
0208201-A1		September 12, 2017		
0208201-A2		September 7, 2022		
<b>Waste Type</b>	<b>Degree of Treatment</b>	<b>Process Type</b>	<b>Disinfection</b>	<b>Avg Annual Flow (MGD)</b>
Industrial	Advanced	Chem./Mechanical oxidation, pH adj. then sedimentation	No Disinfection	0.46
<b>Hydraulic Capacity (MGD)</b>	<b>Organic Capacity (lbs/day)</b>	<b>Load Status</b>	<b>Biosolids Treatment</b>	<b>Biosolids Use/Disposal</b>
0.65	N/A	Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance: As noted above, Holcim’s WQM Part II amendment A2 was approved in September 2022 with a new active process. The process steps are outlined in the excerpt from the December 2022 application update submittal, below:



**Figure 9: Active Treatment Process Flow Diagram Used at Holcim’s Duquesne Site Since 2022**

Other Comments: In the new, active process, mine water is conveyed by a 12-inch pipe to the location of the ALD where it then flows towards the conex box housing the treatment controllers located near the treatment ponds. There Chemstream Chemliiquid 302 (sodium hydroxide and sodium permanganate) is added to the inflow of the mine drainage as the mixture enters the first of three treatment ponds. Mechanical aeration has been added downstream of the first, full-length, partial depth pond curtain with subsequent, part-length, full-depth curtains added to each of the three ponds. This is shown in Figure 10 below, with an overview of the system area shown in Figure 11.



Figure 10: AMD with Treatment Additive Discharged into Holcim's Duquesne Site Lead Pond (#1 of 3).



Figure 11: AMD Collection and Treatment System Overview

Shown in Figure 10 above is the combined discharge of the AMD with the chemical additive as it enters treatment pond 1. In the foreground is the suspended pH probe positioned in the discharge. Mechanical aeration can be seen behind the first pond curtain with two partial length curtains beyond. An overview of the AMD collection and treatment systems are shown in Figure 11 above. The various chemical additives used during the recent permit's term, shown in Table 1 and those contemplated as alternates for the future are shown in Table 2 below:

**Table 1: Chemical Additives in Use at Holcim's Duquesne Site**

<b>Chemical Name</b>	<b>Purpose</b>	<b>Max. Usage Rate</b>	<b>Comment</b>
Hydrogen Peroxide	Pilot test to reduce iron	91 mL/min. @ 600 GPM raw water	Discontinued
Univar Blend AMD 302	Lower iron in the effluent	72 GPD @ 200 GPM raw water	Discontinued
Chemstream Chemliquid 252	Lower manganese	72 GPD @ 200 GPM raw water	Discontinued, but possible use in the future as an alternate
Chemstream Chemliquid 302	Treatment of Deep Mine Water	Approx. 72 GPD @ 200 GPM raw water	Currently in use.

**Table 2: Chemical Additives Planned for Possible Use at Holcim's Duquesne Site**

<b>Chemical Name</b>	<b>Purpose</b>	<b>Max. Usage Rate</b>	<b>Comment</b>
Chemstream Chemliquid 250	Treatment of Deep Mine Water	Approx. 72 GPD @ 200 GPM raw water	Possible alternate treatment chemical
Chemstream Chemliquid 500	Treatment of Deep Mine Water	Approx. 72 GPD @ 200 GPM raw water	Possible alternate treatment chemical
Chemstream Chemliquid 502	Treatment of Deep Mine Water	Approx. 72 GPD @ 200 GPM raw water	Possible alternate treatment chemical
Chemstream Chemliquid 350	Treatment of Deep Mine Water	Approx. 72 GPD @ 200 GPM raw water	Possible alternate treatment chemical

<b>Compliance History</b>	
<b>Summary of DMRs:</b>	<b>The Department has received and retained electronic DMR records since August 2018. Recent records show improving compliance with no effluent limit violations since approval of the new, active treatment system.</b>
<b>Summary of Inspections:</b>	<p><b>Since the last permit renewal on December 1, 2016, there have been five onsite inspections. Of these, violations were noted twice, in 2017 and 2019, as well as, in an administrative file review documented in July 2021. The most recent inspection of this facility occurred on September 30, 2022 which resulted in no violations and no recommendations. As noted, the permittee has struggled to meet effluent limitations, but has been working closely with the Department under COAs and COA amendments while adjusting active treatment approaches, recently approved under WQM Part II permit 0208201-A2, on September 7, 2022. In the year after this approval, the facility was generally in compliance with their permit as shown in Table 3 below.</b></p> <p><b>All outstanding enforcement actions were resolved under the most recent COA amendment which was signed and executed on January 10, 2023. Twice has Holcim recently submitted non-compliance reports, in July 2022 and in January 2024. With their corrective actions, enforcement issues are considered resolved via compliance with the current COA.</b></p>

Compliance History

Table 3: eDMR Data for Holcim's Duquesne Site, Outfall 001 (from November 1, 2021 to October 31, 2022)

Parameter	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21
Flow (MGD) Average Monthly	0.42148	0.445	0.46650	0.4881	0.44	0.55	0.49488	0.4938	0.4495	0.3116	0.2616	0.2810
Flow (MGD) Daily Maximum	0.46878	0.458	0.54942	0.5476	0.49	0.64	0.54419	0.5547	0.6537	0.3475	0.4332	0.4781
pH (S.U.) Instantaneous Minimum	7.46	7.39	7.5	7.98	7.68	7.58	7.58	7.76	7.63	7.68	7.22	7.34
pH (S.U.) Instantaneous Maximum	8.13	7.87	8.25	<b>9.11</b>	8.85	8.12	8.19	8.35	8.13	7.76	8.02	7.69
TSS (mg/L) Average Monthly	7.725	5.75	5.92	5.16	< 5.0	< 5	< 5.0	4.53	5.5	5	5.25	< 5.0
TSS (mg/L) Daily Maximum	15.9	8	9.6	5.66	< 5.0	< 5	< 5.0	7.6	7.0	5	6.0	< 5.0
Total Aluminum (mg/L) Average Monthly	< 0.05	< 0.07	< 0.05	< 0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05
Total Aluminum (mg/L) Daily Maximum	0.06	0.14	0.06	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	0.05	< 0.05
Total Iron (mg/L) Average Monthly	0.30	0.30	< 0.10	0.20	0.20	0.10	0.20	0.40	0.80	1.30	0.90	0.70
Total Iron (mg/L) Daily Maximum	0.40	0.54	0.27	0.21	0.28	0.11	0.29	0.69	1.49	1.95	1.15	0.85
Total Manganese (mg/L) Average Monthly	0.60	0.6	0.40	0.20	0.80	0.50	1.20	1.60	<b>2.06</b>	1.8	1.9	1.80
Total Manganese (mg/L) Daily Maximum	0.84	0.92	0.92	0.22	1.18	0.71	1.55	2.00	2.39	2.29	2.08	2.03
Total Nickel (mg/L) Average Monthly	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.020	0.020	0.030	0.080	0.030	0.030
Total Nickel (mg/L) Daily Maximum	0.010	0.010	< 0.010	< 0.010	0.020	< 0.010	0.020	0.020	0.030	0.030	0.030	0.030

NOTE: Values shown in **bold** exceeded the permitted effluent limitation at the time of data acquisition.

**Development of Effluent Limitations**

<b>Outfall No.</b>	<u>001</u>	<b>Design Flow (MGD)</b>	<u>0.65</u>
<b>Latitude</b>	<u>40° 21' 37.8"</u>	<b>Longitude</b>	<u>-79° 54' 29.3"</u>
<b>Wastewater Description:</b> <u>Treated AMD with ELG and Stormwater</u>			

**Technology-Based Limitations**

Federal involvement in the regulation of discharges of industrial wastes significantly advanced with the enactment of the 1965 amendments to the Federal Water Pollution Control Act (PL 84-660). These amendments required states to initiate water quality standards for interstate waters and gave states additional authority to require control/treatment of wastes from sewage and industrial dischargers.

The primary objective of such technology-based effluent limitations (TBELs) is to decrease the total pollution load to all streams, while dealing equitably with discharges in a given class or category.

TBELs should not be considered from the viewpoint of whether they will or will not protect water quality; rather they should be considered as the baseline for decreasing pollution with stricter requirements being imposed as needed to protect the water quality of a receiving stream.

Holcim's Duquesne site has been previously held as subject to Federal Effluent Limitation Guidelines (ELGs), applying coal mine drainage effluent limitations listed under 40 CFR part 434.

Federal Effluent Limitation Guidelines (ELGs)

As noted previously, prior permit renewals applied Federal ELGs. The most applicable of these is under 40 CFR 434.32 (Subpart C - Acid or Ferruginous Mine Drainage). This category was established by EPA for active coal mines as the ELGs representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). The resultant values are shown in Table 4 below.

**Table 4: Federal ELGs under 40 CFR 434.32**

Parameter	Limitations in Federal ELGs	
	Monthly Average	Maximum Daily
Total Suspended Solids (TSS)	35.0	70.0
Iron, total	3.5	7.0
Manganese, total	2.0	4.0
pH	Within the range of 6.0 to 9.0	

Since the mine water treated at Holcim's Duquesne site is not from an active coal mine; this ELG is not strictly applicable. However, the EPA developed this ELG from survey data of mine drainage sites that are also representative of this site. Therefore, application of this ELG can be considered using Best Professional Judgement (BPJ).

Other Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all IW process and non-process discharges pursuant of 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 1 below.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1); effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1). These limits are displayed in Table # below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table # below.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based Total Residual Chlorine (TRC) limits for facilities that use chlorinated sources and that are not already subject to TRC limits based on applicable

federal ELGs or a facility-specific Best Professional Judgment (BPJ) evaluation which is displayed in Table 5 below. As Outfall 001 treatments have not documented the use to chlorine, no TRC limitations will be applied.

**Table 5. Applicable Pennsylvania Regulatory Effluent Standards**

Parameter	Monthly Avg.	Daily Max	IMAX
Flow (MGD)	Monitor	Monitor	----
Iron, Dissolved	----	----	7.0 mg/L
pH (S.U.)	6.0 – 9.0 at all times		

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharges, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. The facility is neither new nor expanding its waste loading of TDS, therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements.

Best Professional Judgment (BPJ) Effluent Limitations – Outfall 001

To the extent that Federal ELGs are not directly applicable to Outfall 001’s discharges, TBELs, if warranted, are developed based on BPJ. Applicable regulatory effluent standards and monitoring requirements may also be imposed.

Where Federal ELGs do not apply, 40 CFR § 125.3 requires a BPJ determination. This determination evaluates the treatability of pollutants and performance of available treatment technologies. For imposition of effluent limitations based on best practicable control technology currently available (BPT) requirements, the statute requires consideration of the following factors:

- (i) The age of equipment and facilities involved;
- (ii) The process employed;
- (iii) The engineering aspects of the application of various types of control techniques;
- (iv) Process changes;
- (v) The cost of application of technology in relation to the benefits of achieving such effluent reduction; and
- (vi) Non-water quality environmental impact (including energy requirements).

In addition, Technology-based treatment requirements may be imposed in an NPDES permit “on a case-by-case basis under Section 402(a)(1) of the Clean Water Act; to the extent that EPA-promulgated effluent limitations are inapplicable. As when, among other circumstances, effluent guidelines are available for the industry category but are not applicable to the NPDES permit applicant (e.g., facilities that do not perform the industrial operation triggering applicability of the effluent guidelines). Such is the case here, where Holcim is treating AMD, but is not operating an active coal mine.

In considering the application of BPJ, the Department reviewed both the basis of EPA’s initial rule in the 1975 Development Document for the Coal Mining Point Source Category and the later rule, established April 26, 1977 and finalized by July 1, 1977; as well as, the amendment of 1979, the 1982 *Development Document for Effluent Limitations Guidelines and Standards for the Coal Mining Point Source Category*, and the later, updated and amended regulations promulgated in 1982, 1985 and 2008. The Department also reviewed the historical records and prior Fact Sheets and COAs and COA amendments associated with this permit.

Much of the EPA documentation, studies and development documents related to 40 CFR § 434 are focused on determining the constituents of mine pool drainage and the treatment and efficacy of treatments of mine drainage. Observations in this literature notes that there is essentially no appreciable difference between discharges from active mine pools and that from mines after closure and termination of the associated bonding requirements. Therefore, from a technical consideration of the point source discharges from underground mine pools, as at Holcim’s Duquesne site, the ELG promulgated under 40 CFR § 434.32 under Subpart C – Acid or Ferruginous Mine Drainage appears to be a very good fit. Note that Subpart C was selected because the discharges from this site clearly would predate any of the Federal regulations promulgated under the Clean Water Act or later updates, amendments, etc.

### BPJ Analysis – [TSS, Iron, Manganese and pH]

This site has been monitoring treated AMD discharges for decades. As stated above, although the prior passive treatment system (circa 2008) was initially effective, it became less so in cold weather months and its effectiveness also diminished over time. After the implementation of the modifications approved in September 2022, further effluent limitation exceedances have been curtailed. The focus of this analysis will be confined to consideration of application of the ELGs from 40 CFR § 434.32. Ample industry experience under this regulation is available in the Commonwealth and beyond which is directly applicable to this case. In the introduction of the EPA document, *Coal Mining Detailed Study*, August 2008, the technology basis for this ELG is summarized as chemical precipitation and settling.

There are now no applicable ELGs for discharges from ACBFS processing and/or mining, as occurs at Holcim's Duquesne site. However, this site is not actually discharging such process related effluent, but rather effluent primarily from a long closed, coal mine pool. This type of discharge has an applicable ELG, but one that is not applicable to the activities on this site. In the absence of any ELG's, technology limitations are developed based on BPJ. In establishing effluent limitations on a case-by-case basis, the appropriate technology for the applicant is considered. When evaluating appropriate BPJ limits for a permittee, the Department considers six factors as required by 40 CFR § 125.3. These six factors are: (1) the age of the equipment and facility, (2) the process employed, (3) the engineering aspects of the application of various types of control technique, (4) process changes, (5) the cost of achieving such effluent reduction and, (6) non-water quality environmental impact (including energy requirements). Factors specific to each level of control technology include costs, pollutant reduction benefits and economic achievability. Each of these factors are discussed below as they relate to Holcim's Duquesne site.

1. Equipment and Facility Age – The sequence of three sedimentation ponds in use at this site have been recently cleaned and an active treatment system with modern process controls recently implemented and should therefore now be in good working order. The site is in continuing operation and has ample full-time staff. The site has limited access to installed electrical power supply in the immediate vicinity of the treatment ponds, but does currently have generators, solar power panels, chemical addition facilities, sampling and monitoring installed. It appears unlikely that Holcim will need to invest resources into additional specialized pollution control equipment. The site has been recently able to meet its effluent limits and is expected to be successful in the future using its new treatment system.
2. The Process Employed – As mentioned previously, the Department anticipates compliance with the proposed effluent limitations through use of the new, active chemical additives, in use as controlled by modern process controls based, primarily on pH, and the sequence of three sedimentation ponds with flow and discharge monitoring. The process now employed onsite can be described succinctly as chemical precipitation, oxidation and settling. The process is consistent with the stated treatment basis for 40 CFR § 434.32. As such, required changes should be limited to incremental tweaking. However, until the recent modifications and sedimentation pond cleaning, this site had been challenged to meet its current effluent limits.
3. Engineering Aspects of Control Techniques – The addition of process control processors, sensors, tanks for chemical additives and infrastructure for remote electrical power supply have all been recently completed. Further modifications appear unnecessary for the facility to meet its effluent limitations. However, given the significant recent changes, if any treatment system changes are needed to meet the renewal permit's effluent limits or otherwise desired, the Department and the permittee will evaluate the engineering aspects of the project at that time.
4. Process Changes – Given the recently completed upgrades, few, if any, changes to operations at the site are expected. Therefore, sample analysis results submitted with the NPDES permit application are expected to be in compliance now and in the future. Implementation of any required additional measures should have minimal impact on the continuing treatment processes employed at the facility. As such, future process changes are not expected to significantly add to the overall cost of operating the facility. However, costs for chemical additive use must obviously add operational expenses and also increase maintenance expenses.
5. The Cost of Achieving Effluent Reductions – The ELG related TBELs for TSS, iron, manganese and pH were already included in prior permits, in accordance with prior COA and COA amendments and are presently being met. It is obvious that significant costs have been incurred to achieve compliance, but these costs have already been incurred. Ongoing expenses involve the price of required chemical additives, generator fuel and for system maintenance. The systems onsite may be modified in the future based on Holcim identifying cost reduction opportunities or for other operational benefits.

6. Non-Water Quality Environmental Impacts (Including Energy Requirements) – As no further measures are foreseen, there are no known non-water quality environmental impacts beyond electrical generator air discharges, especially to supply power for the aerator to meet the ELGs for TSS, iron, manganese and pH. The proposed effluent limits are appropriate and believed to be attainable using the installed technology.

In order to monitor the operation and maintenance of the installed active treatment for AMD, the Department proposes TBELs based upon BPJ for Outfall 001. These limits are imposed consistent with the previously imposed Federal ELGs shown in Table 4, now applied as BPJ, and the Department’s TBELs in Table 5, derived from applicable PA regulations.

Note that Best Available Technology Economically Achievable (BAT) limits under 40 CFR § 434.33 have not been explicitly imposed, however, these are identical to a subset of those for BPT and limited to iron and manganese. The factors required to be considered, in this case, may lessen the need of an explicit cost analysis, never-the less, minimal process changes are expected.

In the future, TBELs could be considered in line with the performance of the site’s newly implemented treatment. A future review of available eDMR data may consider a statistical analysis to establish appropriate effluent limitations; however, with the treatment system improvements only recently accomplished, this study is deferred until a future permit renewal cycle

These recommendations for TBELs are included in Table 6 below.

**Table 6: Recommended TBELs for Outfall 001**

Parameter	Monthly Avg.	Daily Max	IMAX	Units
Flow	Monitor/Report		----	MGD
TSS	35.0	70.0	----	mg/L
Manganese, Total	2.0	4.0	----	mg/L
pH	6.0 – 9.0 at all times			S.U.
Iron, Total	3.5	7.0	----	mg/L
Iron, Dissolved	---	7.0	----	mg/L

Note that the obvious redundancy of daily maximum limits for both total iron and dissolved iron means that the dissolved value may be neglected.

**Water Quality-Based Limitations**

Total Maximum Daily Load (TMDL)

Wastewater discharges from the facility are located within the Thompson Run Watershed for which the Department has developed a TMDL. Originally listed on the 1996 Pennsylvania Section 303(d) as impaired waters, Thompson Run was later included in an EPA, Region 3 TMDL on April 9, 2003. The Department’s TMDL supersedes and replaces that of the EPA and was finalized in January 2016. It establishes waste load allocations for the discharge of aluminum and iron within the segment associated with Holcim’s Duquesne site. The facility permit, **PA0004278**, is listed in Table 3 for Instream Point 151.

Section 303(d) of the Clean Water Act and the EPA’s Water Quality Planning and Management Regulations (codified at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state’s water resources (EPA 1991a). Stream reaches within the Thompson Run Watershed are included in the state’s 2014 PA Integrated Water Quality Monitoring and Assessment Report identified high levels of metals (primarily aluminum and iron) associated with abandoned mine drainage (AMD) as causes of the Thompson Run impairment. The TMDL includes consideration for each river segment and tributary within the watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 mg/L total recoverable aluminum, 1.5 mg/L total recoverable iron based on a 30-day average. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form of a watershed allocation. TMDLs prescribe allocations that achieve water quality criteria using a stream’s assimilative capacity.

**Aluminum:** The specific water quality criterion for aluminum is expressed as an acute risk with a maximum daily limit in 25 Pa. Code Chapter 93. Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for the Outfalls.

**Iron:** The specific water quality criterion for iron is expressed as a 30-day average of 1.5 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers. Accordingly, TMDL iron limits are proposed for the Outfalls.

All new or revised NPDES permits discharging into the Thompson Run Watershed have to be consistent with the TMDL Waste Load Allocation based on 40 CFR 122.44(d)(1)(vii)(B). The Department reviewed the TMDL and this facility has an explicit Waste Load Allocation (WLA) under this permit but is shared between Outfalls 001 – 003. However, Outfall 005 also discharges to this watershed. Therefore, effluent limitations are required in order to meet the requirements of the TMDL. Refer to Table 7 below, for a summary of the TMDL Water Quality Criteria. Refer to Table 8 below, for the assigned effluent concentration limits for outfalls at Holcim's Duquesne site. Aluminum and iron are new water quality limits and will be imposed, to ensure compliance with the TMDL.

**Table 7: Summary of the TMDL Water Quality Criteria**

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Aluminum	0.75	0.75
Iron	1.5	3.0

**Table 8: Assigned WLAs for PA0004278 effluent concentrations**

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Aluminum	1.03	1.03
Iron	2.95	5.90

Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

Pursuant to consideration of the Water Quality Based Effluent Limitations (WQBELs) at Outfall 001, water quality modeling was created following DEP's procedures for evaluating reasonable potential which are as follows:

1. For IW discharges, the design flow used in the modeling is the average flow during production or operation and may be taken from the permit application.
2. All toxic pollutants with discharge concentrations reported in the permit application or on DMRs, are modeled and compared to the most stringent applicable water quality criterion as potential pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The highest reported concentration is entered into the most recent version of the Department's Toxics Management Spreadsheet (TMS) analysis (refer to Attachment A).
3. For any outfall with an applicable design flow, perform TMS modeling for all pollutants reported in the discharge. Use the maximum reported value from the application form or from DMRs as the input concentration for the TMS model.
4. Compare the actual WQBEL from TMS with the maximum concentration reported on DMRs or the permit application. Use WQN data or another source to establish the existing or background concentration for naturally occurring pollutants, but generally assume zero background concentration for non-naturally occurring pollutants

- Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. In some cases, establish an IMAX limit at 2.5 times the average monthly limit.
- For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the results presentation from TMS spreadsheet (refer to Attachment A).

Water Quality Modeling Programs

TMS, Version 1.3 is a single discharge, mass-balance water quality modeling program that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number and discharge flow rate are entered into TMS to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. The modeling approach outlined above is used to determine if any pollutants are present or likely to be present in a discharge at levels that may cause, have the reasonable potential to cause, or contribute to excursions above state water quality standards (i.e., a reasonable potential analysis). Discharge concentrations for the selected pollutants are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). TMS evaluates each pollutant by computing a Waste Load Allocation (WLA) for each applicable criterion and associated WQ objective, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for the Holcim’s Duquesne site discharge at Outfall 001

Discharges from Outfall 001 were evaluated based on concentrations reported on the application. The TMS model was run for Outfall 001 using the modeled discharge and receiving stream characteristics shown in Table 9

**Table 9: TMS Inputs**

Parameter	Value
River Mile Index	4.086
Discharge Flow (MGD)	0.318
Basin/Stream Characteristics	
Parameter	Value
Area (mi <sup>2</sup> )	1.14
Q <sub>7-10</sub> (cfs)	0.011
Low-flow yield (cfs/mi <sup>2</sup> )	0.00965
Elevation (ft.)	1000
Slope	0.011

WQBELs are calculated by TMS by allocating the established Water Quality (WQ) criteria for the receiving surface water from 25 PA Code § 93. The criteria are then converted to a WQ objective. For metals with criteria established for its dissolved form, a translator is used to determine the criteria for the total metal which is then used as the WQ objective.

From this calculated objective for each pollutant concentration the discharge allocation is then reduced by available data of existing pollutant loads in the receiving waters using actual concentration data from instream monitoring. In this case, no upstream water quality data was available, so none was entered. The assumption of zero background concentration is therefore used for non-naturally occurring pollutants or where background data is insufficient to determine the background concentration.

The TMS model calculates and applies partial mixing factors for CFC, THH and CRL. The most limiting criteria is selected and, finally, WLAs are calculated for the IW discharger and compared to its reported discharge concentrations.

Note that the downstream public water intake on the Monongahela River at Becks Run is greater than 11 miles downstream from this Holcim site discharge. This

PWS is both drawing from a much larger river and at a distance from the Holcim site which is considered sufficient for PWS related pollutants (e.g. phenolics) to dissipate. Therefore, PWS data was not explicitly incorporated into the model.

The TMS model results are included as Attachment A. These results include recommended effluent limits and/or reporting requirements for the parameters shown in Table 10. Note that some undetected parameters’ input values were set to the reported testing laboratory MDL. Also included in Table 10 for reference are the Department’s target Quantitation Limits

(QLs) as specified in DEP’s most recent *Application for Permit to Discharge Industrial Wastewater*. The target QLs are the means by which DEP is implementing EPA’s September 18, 2014 revisions to 40 CFR Parts 122 and 136 requiring applicants and permittees to use “sufficiently sensitive” EPA-approved analytical methods that are capable of detecting and measuring the pollutants at, or below, the applicable water quality criteria or permit limits.

**Table 10: Outfall 001 WQBELs (with Governing Criteria and Target QLs)**

Parameter	Concentration (µg/L)		Governing WQBEL (µg/L)	Target QL (µg/L)
	Monthly Avg	Maximum Daily		
<b>Cadmium, Total</b>	<b>0.3</b>	<b>0.46</b>	0.3	<b>0.2</b>
<b>Hexavalent Chromium</b>	<b>10.6</b>	<b>16.6</b>	10.6	<b>1.0</b>
Copper, Total	10.3	15.6	10.3	1.0
Iron, Total	1,534	2,393	1,534	20
Manganese, Total	1,022	1,595	1,022	2.0
Nickel, Total	57.7	90.0	57.7	4.0
Aluminum, Total	Monitor	Monitor	750	10
Boron, Total	Monitor	Monitor	1.636	200
Chromium, Total	Monitor	Monitor	95.1	4.0
Cobalt, Total	Monitor	Monitor	19.4	1.0
<b>Dissolved Iron</b>	Monitor	Monitor	307	<b>20</b>
Selenium, Total	Monitor	Monitor	5.1	5.0
<b>Silver, Total</b>	Monitor	Monitor	4.44	<b>0.4</b>
Zinc, Total	Monitor	Monitor	130	5.0

The approach taken was to use the reported laboratory MDL values if supplied data indicated the pollutant was not detected. If the data indicated that the parameter was detected, then the highest reported value was used in the TMS analysis spreadsheet. Shown in Table 10 are the model’s recommended limits or monitoring. Some pollutants are included based solely on the September 30, 2021 renewal application sample data, analysis laboratory MDL not meeting the Department’s target QLs. In these cases, the pollutant, target QL and, if applicable, limits are shown in **bold** in Table 10.

As can be seen in Table 10, for some pollutants establishing WQBELs is required. In other cases, only monitoring is required as the results did not exceed 50% of the most stringent WQBEL value, but the reported results were too high to rule out the possibility that discharges will result in excursions above Pennsylvania’s water quality standards

Note that the permittee and their consultant were informed via electronic communications of the need for WQBELs in October 2022. More recently, they were also informed that some of the limitations will be promulgated based solely on the supplied data not meeting the Department’s target QLs. Given the significant reduction in the permit limitations for certain metals, especially iron and manganese, a Pre-Draft Survey (included as Attachment B) was sent prior to draft publication to allow the permittee time to consider both resampling and/or their ability to meet these limits. On April 10, 2023, the permittee responded with their completed survey (included as Attachment C).

WQM 7.0 Model

The computer model WQM 7.0 is run to determine wasteload allocations and effluent limitations for CBOD<sub>5</sub>, NH<sub>3</sub>-N and Dissolved Oxygen for single and multiple point source discharge scenarios. In general, WQM 7.0 is run if the maximum BOD<sub>5</sub>/CBOD<sub>5</sub> concentrations exceeds 30/25 mg/L respectively in the permit application or the DMRs. The permit application reports a peak BOD<sub>5</sub> concentration as being undetectable at an MDL of 2 mg/L, and a peak COD concentration as undetectable at an MDL of 20 mg/L. As this industrial discharger does not approach the criteria requiring the use of the WQM 7.0 Model, no run was made, and no related effluent limitations imposed.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard or water quality standard. Previous limits can be used pursuant to EPA’s anti-backsliding regulation 40 CFR § 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations,

standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. The facility has not sought to revise the previously permitted effluent limits. These limits are included in Table 11 below.

**Table 11: Prior NPDES Permit Outfall 001 Effluent Limitations\***

Parameter	Mass / Loading (lb./day)		Concentration / Quality (mg/L)				Units
	Monthly Average	Daily Maximum	Minimum	Monthly Average	Daily Maximum	Instant Max*	
Flow	Monitor & Report		---	---	---	---	MGD
Total Suspended Solids	---	---	---	35	70	88	mg/L
Aluminum, total	---	---	---	0.5	0.75	1.25	mg/L
Iron, total	---	---	---	1.5	3.0	3.9	mg/L
Manganese, total	---	---	---	2.0	4.0	5.0	mg/L
Nickel, total	---	---	---	0.054	0.108	0.135	mg/L
pH	---	---	6.0	---	---	9.0	S.U.

\* Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee is not required to monitor for the instantaneous maximum limitations. However, if grab samples are collected by the permittee, the results must be reported.

**Effluent Limitations and Monitoring Requirements for Outfall 001 – Pre-Draft Survey**

Effluent limits applicable at Outfall 001 are the more stringent of those currently enforced in the prior permit, TBELs, WQBELs, and other regulatory effluent standards. Prior to publishing this draft permit, the Department provided a Pre-Draft Survey (Attachment B) to the permittee to initiate their review of the proposed new effluent limits. The proposed renewal effluent limitations for Outfall 001 which are the basis for the values in the Pre-Draft Survey are shown in Table 12 below:

**Table 12: Effluent Limitations and Bases for Outfall 001**

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Suspended Solids	—	—	35.0	70.0	88*	40 CFR §§ 125.3 & 122.44(I)
Iron, Total	—	—	1.5	<b>2.393</b>	<b>3.834*</b>	WQBELs, Reasonable Pot.
Aluminum, Total	—	—	0.50	0.75	1.25*	40 CFR § 122.44(I)
Boron, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
<i>Cadmium, Total</i>	—	—	<b>0.0003</b>	<b>0.00046</b>	—	WQBELs, Reasonable Pot.
Chromium (III), Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
<i>Hexavalent Chromium</i>	—	—	<b>0.0106</b>	<b>0.0166</b>	—	WQBELs, Reasonable Pot.
Cobalt, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Copper, Total	—	—	<b>0.0103</b>	<b>0.0156</b>	—	WQBELs, Reasonable Pot.
<i>Dissolved Iron</i>	—	—	<i>Report</i>	<i>Report</i>	—	WQBELs, Reasonable Pot.
Manganese, Total	—	—	<b>1.022</b>	<b>1.595</b>	<b>2.556*</b>	WQBELs, Reasonable Pot.
Nickel, Total	—	—	0.054	<b>0.090</b>	0.135*	40 CFR § 122.44(I), WQBEL
Selenium, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
<i>Silver, Total</i>	—	—	<i>Report</i>	<i>Report</i>	—	WQBELs, Reasonable Pot.
Zinc, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 95.2

\* Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee is not required to monitor for the instantaneous maximum limitations. However, if grab samples are collected by the permittee, the results must be reported.

In Table 12 above, items in *italics* were included based solely on the fact that the previously provided sample analysis MDL was greater than the Department's target QLs. Items displayed in **bold** in Table 12 were new or more restrictive than effluent limits enforced in Holcim's previous permit as shown in Table 11.

As noted above, based on the Table 12 values, a Pre-Draft Survey was sent to determine if the permittee believes current controls are sufficient to meet these new limits. A copy of the Pre-Draft Survey is included as Attachment B and the permittee's response was included as Attachment C.

In their response, dated April 10, 2023, Holcim indicated that they intend to collect new samples for some pollutants, especially those that did not meet the Department's target QLs. On May 5, 2023, Holcim's consultant sent a letter with an update on the sampling status. Also, in their May email, Holcim's consultant made observations and assertions regarding the data previously supplied by Holcim in their application, especially for total iron, total manganese and nickel. In addition, the consultant requested not to have WQBELs for copper, but if unavoidable, to have the opportunity to use the biotic ligand model or water effect ratio approach applied to the development of any copper effluent limitations. In an attachment to the consultant's subsequent email, dated June 5, 2023, they supplied the additional sample data lab results forecast earlier, for cadmium, chromium, hexavalent chromium, cobalt and silver. Excerpts of these results are included as Attachment D.

In additional interactions with Holcim and their consultants, following their submission of the GTC concrete batch plant amendment, Holcim's consultant supplied a spreadsheet with more granular data for iron, manganese and nickel, via email attachment on March 13, 2024. This raw data is included as Attachment E.

In this same timeframe, regarding copper, the Department explained in an email that, historically, the Department had permittees conduct water effect ratio (WER) tests which often resulted in relaxed copper limits. However, in the last triannual review, EPA directed the Department to discontinue the use of WER tests in favor of the use of the biotic ligand model (BLM). Implementation of this BLM is considered a site-specific study, and the permittee may opt to conduct the study on their own initiative. Alternately, if in the future, Holcim is unable to meet promulgated effluent limitations for copper (or any pollutant), the Department may require a Toxics Reduction Evaluation (TRE). This would require permittee action(s) with one possible option being to conduct a site-specific study, such as a BLM.

In consultation with Holcim's consultant, a subset of the March 13, 2024 data, focusing on the period after Holcim's active treatment system was fine-tuned and functioning, was used, in accordance with the Department's "Standard Operating Procedure (SOP) for Clean Water Program, Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers", to populate the Department's TOXCONC spreadsheet, version 2.0.

TOXCONC is a Microsoft Excel spreadsheet that can be used to calculate site-specific effluent characteristics, such as discharge coefficient of variation (CV) and Average Monthly Effluent Concentration (AMEC) from discharge data. The statistical methodologies used in this spreadsheet are taken directly from the EPA Technical Support Document (TSD) for Water Quality-based Toxics Control, Appendix E and are consistent with guidance provided in the Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics DEP-ID 391-2000-024. The TOXCONC inputs are included as Attachment F and TOXCONC outputs as Attachment G.

These TOXCONC outputs were used to update the TMS model, along with inputs from other more recent data, compared with Attachment A. The new TMS run, now version 1.4, documentation is included as Attachment H. Note, however, that with such a mixed set of input data being used for this latest TMS run, the default values were used for the pH and hardness inputs.

### **Effluent Limitations and Monitoring Requirements for Outfall 001 – Update**

Effluent limits applicable at Outfall 001 are the more stringent of those currently enforced in the prior permit, TBELs, WQBELs, and other regulatory effluent standards. After receipt of updated discharge sample laboratory results on June 5, 2023, for cadmium, chromium, hexavalent chromium, cobalt and silver (see Attachment D) and the compiled, laboratory result data for iron, manganese and nickel received on March 13, 2024 (see Attachment E), a new reasonable potential analysis was performed, results in Attachment H. These are incorporated into the updated, proposed renewal effluent limitations for Outfall 001 shown in Table 13 below:

Table 13: Updated Effluent Limitations and Bases for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Suspended Solids	—	—	35.0	70.0	88*	40 CFR §§ 125.3 & 122.44(I)
Aluminum, Total	—	—	0.50	0.75	1.25*	40 CFR § 122.44(I)
Boron, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Chromium (III), Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Cobalt, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Copper, Total	—	—	<b>0.01</b>	<b>0.014</b>	<b>0.014*</b>	WQBELs, Reasonable Pot.
Iron, Total	—	—	1.5	<b>2.836</b>	<b>3.834*</b>	WQBELs, Reasonable Pot.
Dissolved Iron	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Manganese, Total	—	—	<b>1.022</b>	<b>1.887</b>	<b>2.556*</b>	WQBELs, Reasonable Pot.
Nickel, Total	—	—	0.054	0.108	0.135*	40 CFR § 122.44(I)
Selenium, Total	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Zinc, Total	—	—	<b>0.12</b>	<b>0.12</b>	<b>0.12*</b>	WQBELs, Reasonable Pot.
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 95.2

\* Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee is not required to monitor for the instantaneous maximum limitations. However, if grab samples are collected by the permittee, the results must be reported.

In Table 13 above, items displayed in **bold** were new or more restrictive than effluent limits enforced in Holcim’s previous permit. Monitoring requirements for the remaining parameters of interest are based on the previous permit monitoring requirements for the facility are displayed in Table 14 below. The newly added parameters have been set at a matching frequency and monitoring type.

Table 14: Monitoring Requirements for Outfall 001

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Recorded	Continuous
Total Suspended Solids	24-Hour Composite	1/Week
Aluminum, Total	24-Hour Composite	1/Week
Boron, Total	24-Hour Composite	1/Week
Chromium (III), Total	24-Hour Composite	1/Week
Cobalt, Total	24-Hour Composite	1/Week
Copper, Total	24-Hour Composite	1/Week
Iron, Total	24-Hour Composite	1/Week
Dissolved Iron	24-Hour Composite	1/Week
Manganese, Total	24-Hour Composite	1/Week
Nickel, Total	24-Hour Composite	1/Week
Selenium, Total	24-Hour Composite	1/Week
Zinc, Total	24-Hour Composite	1/Week
pH (S.U.)	Grab	1/Week

**PFAS Monitoring**

Per- and poly-fluoroalkyl substances (PFAS) have attracted widespread attention recently because of their characteristic bioaccumulation, toxicity, and wide dispersion in the environment. PFAS are a group of compounds used in a variety of industrial and consumer products such as surfactants for soil/stain resistance, textiles, paper and metals, firefighting foam, and pesticides. Humans are exposed to PFAS through contaminated drinking water, food, outdoor air, indoor dust, and soil.

On February 5, 2024, the Department updated their standard procedures to include a requirement for monitoring of selected PFAS related compounds. These include:

PFOA – perfluorooctanoic acid  
PFOS – perfluorooctanesulfonic acid  
PBFS – perfluorobutane sulfonate  
HFPO-DA – hexafluoropropylene oxide – dimer acid

For permittees like MarkWest at their Imperial and Cibus Ranch Compressor Station where no history of use of these chemicals has been indicated, once per annum monitoring will be added to the required monitoring. No effluent limitations have been promulgated at this time. Further, if 4 consecutive samples result in no detections of these substances, further monitoring may be discontinued.

### **Effluent Limitation Compliance Schedule**

Whenever the Department proposes the imposition of WQBELs on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. Any compliance schedule contained in an NPDES permit must be an “enforceable sequence of actions or operations leading to compliance with the water quality-based effluent limitations (“WQBELs”). In accordance with 40 CFR 122.47(a)(3) and PA Code, Chapter 92a.51, compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet, that a compliance schedule is “appropriate” and that compliance with the final WQBEL is required “as soon as possible”.

In this case, based on the new or reduced effluent limitations for certain metals, especially copper, iron, manganese, and zinc, there appears to be a need for a compliance schedule for those limitations that are new and/or more stringent than in the prior permit. These limits will be established after a 3-year interim period. In addition, the permittee’s Pre-Draft Survey response in Attachment C indicates that they are uncertain about their ability to meet these new effluent limitations. This serves to further reinforce the need for this compliance schedule.

**Development of Effluent Limitations**

<b>Outfall No.</b>	<u>002 &amp; 003</u>	<b>Design Flow (MGD)</b>	<u>0</u>
<b>Latitude</b>	<u>40° 21' 37"; 40° 21' 30.8"</u>	<b>Longitude</b>	<u>-79° 54' 39"; -79° 55' 8"</u>
<b>Wastewater Description:</b>	<u>Stormwater</u>		

These outfalls mark the outlets of sedimentation basins that have not yet been constructed. These basins, if constructed, would be associated with onsite slag mining, or the close out activities associated with Holcim's mining permit termination. A permit condition will be added to require 90 days' notice if Holcim decides to construct these basins. As these outfalls have never discharged, the previously determined effluent limitations from the prior permit will be used again and are shown in Table 10 below:

**Anti-Backsliding**

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard or water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR § 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility has not sought to revise the previously permitted effluent limits. These limits are included in Table 14 below.

**Table 14: Proposed and Prior Permitted Outfall 002 & 003 Effluent Limitations\***

Parameter	Mass / Loading (lb./day)		Concentration / Quality (mg/L)			Units	
	Monthly Average	Daily Maximum	Minimum	Monthly Average	Daily Maximum		Instant Max
Flow	Monitor & Report		---	---	---	---	MGD
Total Suspended Solids	---	---	---	35	70	---	mg/L
Aluminum, total	---	---	---	0.75	0.75	---	mg/L
Iron, total	---	---	---	1.5	3.0	---	mg/L
Manganese, total	---	---	---	2.0	4.0	---	mg/L
Nickel, total	---	---	---	Report	Report	---	mg/L
pH	---	---	6.0	---	---	9.0	S.U.

\* Effective Upon commencement of slag mining/reprocessing activities.

**Note that Outfall 004 was eliminated in the previous permit renewal.**

**Development of Effluent Limitations**

<b>Outfall No.</b> <u>005</u>	<b>Design Flow (MGD)</b> <u>0</u>
<b>Latitude</b> <u>40° 21' 34.6"</u>	<b>Longitude</b> <u>-79° 54' 33.6"</u>
<b>Wastewater Description:</b> <u>Stormwater</u>	

**Storm Water Outfalls**

The Department's policy for stormwater discharges is to either (1) require that the stormwater is uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

Stormwater effluent data reported in the application are compared to stream criteria, EPA's Multi-Sector General Permit "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. Otherwise, the storm water outfalls are simply listed as discharge points. In either case, a special condition is added to the permit to include some of the key components of the Department's General Permit (PAG-03) for Discharges of Stormwater Associated with Industrial Activities.

To the extent that monitoring would be necessary to ensure that storm water BMPs are adequately implemented, DEP's Permit Writers' Manual recommends that monitoring of stormwater runoff be established if there is evidence of that the stormwater may be contaminated with pollutants of interest to observe the impact of the facility's BMPs on storm water effluent quality.

Since this outfall was only determined to exist in the last site inspection, no stormwater data was contained in the NPDES renewal application submittal.

**Water Quality-Based Limitations**

No mathematical modeling was performed for toxic pollutants at Outfall 005 since storm water is only discharged intermittently and generally not at times when the receiving stream is flowing at the Q<sub>7-10</sub> design flow conditions required for modeling. Since no specific WLA is included in the Thomson Run Watershed TMDL for this outfall, the stormwater discharged at this outfall is required to be uncontaminated. Typically, the facility's SIC code is used to indicate which parameters of concern will be monitored based on the guidance for the NPDES General Permit (GP) for Discharges of Stormwater Associated with Industrial Activity (PAG-03). However, Holcim's Duquesne site's SIC code is 1481 and is not listed as corresponding with any of the appendices in the GP. In such cases, the default is to use "Appendix J, Additional Facilities." This appendix suggests monitoring for TSS and Oil and Grease. Therefore, semiannual monitoring will be initiated.

**Monitoring Requirements for Outfall 005**

Since there was no sampling at this outfall to indicate that the discharge is uncontaminated, a minimal level of monitoring will be initiated to support a determination in the next permit term, for the pollutants of concern in the Thomson Run TMDL. The TMDL target pollutants will be monitored, along with other parameters from the GP established to monitor the effectiveness of BMPs implemented. These are shown in Table 15 below:

**Table 15: Permit Monitoring Requirements for Outfall 005**

Parameter	Mass (pounds)		Concentration (mg/L)			Monitoring Requirements
	Average Monthly	Daily Maximum	Average Annual	Daily Maximum	Instant Maximum	
Total Suspended Solids	—	—	Report	Report	—	Grab sample; 1/6 months
Oil and Grease	—	—	Report	Report	—	Grab sample; 1/6 months
Iron (total)	—	—	Report	Report	—	Grab sample; 1/6 months
Aluminum (total)	—	—	Report	Report	—	Grab sample; 1/6 months
pH (S.U.)	Report					Grab sample; 1/6 months

In Table 15 above, since semiannual monitoring has been imposed, no averaging over a month will occur unless extra samples are taken. Therefore, the reported values for average will be annual averages along with that of the daily maximum values.

**Effluent Limitation Compliance Schedule**

Whenever the Department proposes the imposition of WQBELs on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. Any compliance schedule contained in an NPDES permit must be an “enforceable sequence of actions or operations leading to compliance with the water quality-based effluent limitations (“WQBELs”). In accordance with 40 CFR 122.47(a)(3) and PA Code, Chapter 92a.51, compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet, that a compliance schedule is “appropriate” and that compliance with the final WQBEL is required “as soon as possible”.

In this case, no new WQBELs were imposed and no compliance schedule is required.

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachments A and H)
<input type="checkbox"/>	TRC Model Spreadsheet
<input type="checkbox"/>	Temperature Model Spreadsheet
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: SOP for Clean Water Program, New and Reissuance IW and Industrial Stormwater, Individual NPDES Permit Applications, BPBPSM-PMT-001; SOP for Clean Water Program, Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, SOP No. BCW-PMT-037, Revised May20, 2021, Version 1.5.
<input checked="" type="checkbox"/>	Other: Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, DEP-ID 391-2000-024

**ATTACHMENTS**

ATTACHMENT A: TOXICS MANAGEMENT SPREADSHEET, VERSION 1.3

ATTACHMENT B: PRE-DRAFT SURVEY LETTER AND ATTACHMENTS

ATTACHMENT C: HOLCIM PRE-DRAFT SURVEY RESPONSE

ATTACHMENT D: EXCERPTS FROM THE JUNE 2023 HOLCIM LETTER –  
“...RESAMPLING RESULTS...”

ATTACHMENT E: HOLCIM SUPPLIED EXPANDED eDMR DATA SET FOR TOTAL IRON,  
TOTAL MANGANESE AND TOTAL NICKEL

ATTACHMENT F: PA DEP TOXCONC\_VER2.0 SPREADSHEET – INPUTS

ATTACHMENT G: PA DEP TOXCONC\_VER2.0 SPREADSHEET – OUTPUTS

ATTACHMENT A: TOXICS MANAGEMENT SPREADSHEET, VERSION 1.4

**ATTACHMENT A**

**TOXICS MANAGEMENT SPREADSHEET, VERSION 1.3**



## Discharge Information

Instructions **Discharge** Stream

CLEAR PROJECT

CLEAR FORM

CALCULATE

Facility: **Redlands Quarries NY, Duquesne Slag** NPDES Permit No.: **PA0004278** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Slag pile leachate and stormwater**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
0.318	110	7						

Discharge Pollutant	Units	Max Discharge Conc	<i>0 if left blank</i>		<i>0.5 if left blank</i>		<i>0 if left blank</i>			<i>1 if left blank</i>	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
<b>Group 1</b>											
Total Dissolved Solids (PWS)	mg/L	1562									
Chloride (PWS)	mg/L	235									
Bromide	mg/L	1.4									
Sulfate (PWS)	mg/L	608									
Fluoride (PWS)	mg/L	< 0.4									
<b>Group 2</b>											
Total Aluminum	µg/L	330									
Total Antimony	µg/L	< 1									
Total Arsenic	µg/L	< 1									
Total Barium	µg/L	53.1									
Total Beryllium	µg/L	< 1									
Total Boron	µg/L	172									
Total Cadmium	µg/L	< 1									
Total Chromium (III)	µg/L	34									
Hexavalent Chromium	µg/L	< 10									
Total Cobalt	µg/L	9.1									
Total Copper	µg/L	8.1									
Free Cyanide	µg/L										
Total Cyanide	µg/L	< 10									
Dissolved Iron	µg/L	< 50									
Total Iron	µg/L	1600									
Total Lead	µg/L	< 1									
Total Manganese	µg/L	3180									
Total Mercury	µg/L	< 0.2									
Total Nickel	µg/L	200									
Total Phenols (Phenolics) (PWS)	µg/L	< 10									
Total Selenium	µg/L	2.1									
Total Silver	µg/L	< 1									
Total Thallium	µg/L	< 1									
Total Zinc	µg/L	28.3									
Total Molybdenum	µg/L	1.8									



## Stream / Surface Water Information

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions Discharge **Stream**

CLEAR FORM

CALCULATE

Receiving Surface Water Name: Thompson Run

No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi <sup>2</sup> )*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037449	4.09	1000	1.14			Yes
End of Reach 1	037449	3.206	950	2.28			Yes

**Q<sub>7-10</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	4.09	0.1	0.011									100	7		
End of Reach 1	3.206	0.1	0.022			4.4	1								

**Q<sub>h</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	4.09														
End of Reach 1	3.206		0.465												



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All  Inputs  Results  Limits

No. Samples/Month:

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Boron	Report	Report	Report	Report	Report	µg/L	1,636	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.0008	0.001	0.3	0.46	0.74	µg/L	0.3	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Chromium (III)	Report	Report	Report	Report	Report	µg/L	95.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Hexavalent Chromium	0.028	0.044	10.6	16.6	26.6	µg/L	10.6	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Cobalt	Report	Report	Report	Report	Report	µg/L	19.4	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.027	0.041	10.3	15.6	15.6	µg/L	10.3	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	307	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	4.07	6.35	1,534	2,393	3,834	µg/L	1,534	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	2.71	4.23	1,022	1,595	2,556	µg/L	1,022	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	0.15	0.24	57.7	90.0	144	µg/L	57.7	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	5.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	4.44	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	130	AFC	Discharge Conc > 10% WQBEL (no RP)



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions

Results

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All

Inputs

Results

Limits

**Other Pollutants without Limits or Monitoring**

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g.,  $\leq$  Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,454	µg/L	Discharge Conc $\leq$ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cyanide	N/A	N/A	No WQS
Total Lead	3.66	µg/L	Discharge Conc < TQL
Total Mercury	0.051	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Thallium	0.25	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions

Results

RETURN TO INPUTS

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All  Inputs  Results  Limits

Hydrodynamics

$Q_{7-10}$

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
4.09	0.01		0.01	0.492	0.011	0.452	7.515	16.617	0.148	0.365	0.001
3.206	0.02		0.022								

$Q_h$

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
4.09	0.14		0.14	0.492	0.011	0.502	7.515	14.984	0.169	0.32	0.108
3.206	0.465		0.47								



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions

Results

RETURN TO INPUTS

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All  Inputs  Results  Limits

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	767	
Total Antimony	0	0		0	1,100	1,100	1,125	
Total Arsenic	0	0		0	340	340	348	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,470	
Total Boron	0	0		0	8,100	8,100	8,281	
Total Cadmium	0	0		0	2.205	2.35	2.4	Chem Translator of 0.94 applied
Total Chromium (III)	0	0		0	615.017	1,946	1,990	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	97.1	
Total Copper	0	0		0	14.674	15.3	15.6	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	71.477	91.9	94.0	Chem Translator of 0.777 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.68	Chem Translator of 0.85 applied
Total Nickel	0	0		0	506.701	508	519	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.777	4.44	4.54	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	66.5	
Total Zinc	0	0		0	126.822	130	133	Chem Translator of 0.978 applied



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions

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All  Inputs  Results  Limits

CFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	225	
Total Arsenic	0	0		0	150	150	153	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,192	
Total Boron	0	0		0	1,600	1,600	1,636	
Total Cadmium	0	0		0	0.262	0.29	0.3	Chem Translator of 0.905 applied
Total Chromium (III)	0	0		0	80.001	93.0	95.1	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.6	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.4	
Total Copper	0	0		0	9.699	10.1	10.3	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,534	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.785	3.58	3.66	Chem Translator of 0.777 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.93	Chem Translator of 0.85 applied
Total Nickel	0	0		0	56.279	56.4	57.7	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.1	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	13.3	
Total Zinc	0	0		0	127.859	130	133	Chem Translator of 0.986 applied



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

All
  Inputs
  Results
  Limits

THH
 CCT (min): 
 PMF: 
 Analysis Hardness (mg/l): 
 Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.73	
Total Arsenic	0	0		0	10	10.0	10.2	
Total Barium	0	0		0	2,400	2,400	2,454	
Total Boron	0	0		0	3,100	3,100	3,169	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	307	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,022	
Total Mercury	0	0		0	0.050	0.05	0.051	
Total Nickel	0	0		0	610	610	624	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.25	
Total Zinc	0	0		0	N/A	N/A	N/A	



## Model Results

Redlands Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

All
  Inputs
  Results
  Limits

CRL
 CCT (min): 
 PMF: 
 Analysis Hardness (mg/l): 
 Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

**ATTACHMENT B**  
**PRE-DRAFT SURVEY LETTER**  
**AND ATTACHMENTS**



VIA ELECTRONIC MAIL

**March 16, 2023**

James Carroll  
Director, Environmental & Land Development  
Aggregates Industries Management  
6401 Golden Triangle Drive, #440  
Greenbelt, MD 20770

Re: Pre-Draft Survey NPDES Permit- Industrial Waste  
Holcim Quarries NY, Inc.  
Duquesne Slag Site  
Application No. PA0004278  
Authorization ID No. 1371411  
West Mifflin Borough, Allegheny County

Dear Mr. Carroll:

The Department of Environmental Protection (DEP) has reviewed your NPDES permit application and has reached a preliminary finding that new or more stringent water quality-based effluent limitations (WQBELs) for toxic pollutant(s) should be established in the permit. This finding is largely based on DEP's assessment that Thompson Run has very limited assimilative capacity in the area of the site's discharge at Outfall 001. This limited capacity impacted Department modeling results indicating that new WQBELs are required at Outfall 001 to support aquatic life downstream of the plant. These new or more stringent WQBELs are detailed in the proposed effluent limits as follows:

Outfall No.	Pollutant	Monthly Average (mg/L)	Maximum Daily (mg/L)	IMAX (mg/L)
001	Cadmium, Total *	0.0003	0.00046	—
001	Hexavalent Chromium *	0.0106	0.0166	—
001	Copper, Total	0.0103	0.0156	—
001	Iron, Total	1.5	2.393	3.834**
001	Manganese, Total	1.022	1.595	2.556**
001	Nickel, Total	0.054	0.090	0.135**

Please note that the pollutants marked with an Asterisk (\*) were included although reported as "none detected" on the basis of chemical analyses MDLs that exceeded the Department's target Quantitation Limits. In addition, IMAX limits will only be evaluated by Department inspectors, if and when they collect grab samples of this effluent. This fact is designated in the table above with a double Asterisk (\*\*).

Attached are separate surveys for each of the pollutants of concern noted in the tables above. The Department requests that you complete and return these surveys to DEP within 30 days. Completion of these surveys will help DEP to progress toward issuing the final NPDES permit and allow DEP to understand your current capabilities or plans to treat or control these pollutant(s). If you decide not to complete and return the survey, DEP will proceed with developing the final NPDES permit based on all available information and certain assumptions.

James Carroll

- 2 -

Your response to this notice does not constitute an official comment on the DEP draft permit but your response will be taken under consideration. When the draft NPDES permit is formally noticed in the *Pennsylvania Bulletin*, you may make official comments for DEP's further consideration and response.

Please contact me at 412.442.4183 if you have any questions about this information or the attached survey.

Sincerely,

A handwritten signature in blue ink that reads "John L. Duryea, Jr." in a cursive style.

John L. Duryea, Jr., P.E.  
Environmental Engineer  
Clean Water Program

Enclosures

cc:

Mark Phillian, RAR engineering



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: Holcim Quarries NY, Inc. (Holcim), Duquesne Slag Site (Duquesne), Allegheny County Permit No.: PA0004278

Pollutant(s) identified by DEP that may require WQBELs: Outfall 001 - Total Iron

Is the permittee aware of the source(s) of the pollutant(s)?  Yes  No  Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)?  Yes  No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now?  Yes  No  Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs:   Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application?  Yes  No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: <input type="text"/>

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: Holcim Duquesne, Allegheny County Permit No.: PA0004278

Pollutant(s) identified by DEP that may require QWBELs: Outfall 001 - Total Manganese

Is the permittee aware of the source(s) of the pollutant(s)?  Yes  No  Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)?  Yes  No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed QWBELs now?  Yes  No  Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the QWBELs, if known.

Estimated date by which the permittee could achieve the proposed QWBELs:   Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application?  Yes  No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: <input type="checkbox"/>

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: <u>Holcim Duquesne, Allegheny County</u>	Permit No.: <u>PA0004278</u>
Pollutant(s) identified by DEP that may require WQBELs: <u>Outfall 001 - Total Cadmium</u>	
Is the permittee aware of the source(s) of the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Suspected	
If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent. <input type="checkbox"/>	
Has the permittee completed any studies in the past to control or treat the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, describe prior studies and results: <input type="checkbox"/>	
Does the permittee believe it can achieve the proposed WQBELs now? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Uncertain	
If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known. <input type="checkbox"/>	
Estimated date by which the permittee could achieve the proposed WQBELs: <input type="checkbox"/> <u>                    </u> <input type="checkbox"/> Uncertain	
Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.	
<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: <input type="checkbox"/>

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: Holcim Duquesne, Allegheny County Permit No.: PA0004278

Pollutant(s) identified by DEP that may require WQBELs: Outfall 001 - Total Copper

Is the permittee aware of the source(s) of the pollutant(s)?  Yes  No  Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)?  Yes  No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now?  Yes  No  Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs:   Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application?  Yes  No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied: <input type="checkbox"/>
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: <input type="checkbox"/>

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: Holcim Duquesne, Allegheny County Permit No.: PA0004278

Pollutant(s) identified by DEP that may require WQBELs: Outfall 001 - Total Nickel

Is the permittee aware of the source(s) of the pollutant(s)?  Yes  No  Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)?  Yes  No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now?  Yes  No  Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs:   Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application?  Yes  No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied: <input type="text"/>
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: <input type="text"/>

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**ATTACHMENT C**

**HOLCIM PRE-DRAFT SURVEY RESPONSE LETTER**



April 10, 2023

Environment, Land & Government Affairs

Mr. John Duryea  
Department of Environmental Protection  
Clean Water Program  
Southwest Regional Office  
400 Waterfront Drive  
Pittsburgh, Pennsylvania 15222

James R. Carroll  
Phone: (301) 837-5667  
Mobile: (240) 564-3877  
[James.Carroll@Holcim.com](mailto:James.Carroll@Holcim.com)

**RE: Duquesne Slag Plant, Pre-Draft Permit Survey, PA0004278**

Dear Ms. Dean:

Holcim Redland Quarries NY, Inc. is submitting the Pre-Draft Permit Survey for Toxic Pollutants for the Duquesne Slag Site (Duquesne) for the pending National Pollutant Discharge Elimination System (NPDES) Permit Number PA0004278.

Please be advised that Holcim is contracting with Microbac Laboratories, Inc. to analyze water discharge samples for hexavalent chromium, cadmium, and nickel. Samples will be collected and analyzed according to the PADEP quantitation limits and presented to the PADEP upon receipt. We want to advise PADEP that Holcim has encountered delays in finding analytical laboratories capable of analyzing water samples that conform to PADEP's quantitation limits.

Additionally, an analysis of total iron and manganese data trends in association with the water treatment system is underway. Official comments will be provided to the PADEP by April 28, 2023.

Please let me know if you have any questions regarding the responses in this laboratory.

Sincerely,

James R. Carroll, Director

Environment & Land – Mid-Atlantic Region

cc: Michael Fifth, PADEP  
Kevin Dietrick, Holcim – MAR, Inc.  
Sean Marshall, Holcim – MAR, Inc.  
Paul Thomas, Holcim – MAR, Inc.  
Timothy Bevard, Holcim – MAR, Inc.

Attachment



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: Holcim Quarries NY, Inc. (Holcim), Duquesne Slag Site (Duquesne), Allegheny County Permit No.: PA0004278

Pollutant(s) identified by DEP that may require WQBELs: Outfall 001 - Total Iron

Is the permittee aware of the source(s) of the pollutant(s)?  Yes  No  Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.  
Abandoned underground coal mine known as Richer Mine.

Has the permittee completed any studies in the past to control or treat the pollutant(s)?  Yes  No

If Yes, describe prior studies and results:  
Series of studies between 2015 and 2019 to determine improvements to passive treatment system, which ultimately resulted in permitting and installation of active treatment system to address acid mine drainage.

Does the permittee believe it can achieve the proposed WQBELs now?  Yes  No  Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: \_\_\_\_\_  Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application?  Yes  No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied:
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied:
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: <u>Holcim Duquesne, Allegheny County</u>	Permit No.: <u>PA0004278</u>
Pollutant(s) identified by DEP that may require WQBELs: <u>Outfall 001 - Total Manganese</u>	
Is the permittee aware of the source(s) of the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Suspected	
If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent. Abandoned underground coal mine known as Richer Mine.	
Has the permittee completed any studies in the past to control or treat the pollutant(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, describe prior studies and results: Series of studies between 2015 and 2019 to determine improvements to passive treatment system, which ultimately resulted in permitting and installation of active treatment system to address acid mine drainage.	
Does the permittee believe it can achieve the proposed WQBELs now? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Uncertain	
If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.	
Estimated date by which the permittee could achieve the proposed WQBELs: _____ <input checked="" type="checkbox"/> Uncertain	
Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.	
<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied:
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied:
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: <u>Holcim Duquesne, Allegheny County</u>	Permit No.: <u>PA0004278</u>
Pollutant(s) identified by DEP that may require WQBELs: <u>Outfall 001 - Total Cadmium</u>	
Is the permittee aware of the source(s) of the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Suspected	
If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent. <u>Abandoned underground coal mine known as Richer Mine.</u>	
Has the permittee completed any studies in the past to control or treat the pollutant(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
If Yes, describe prior studies and results:	
Does the permittee believe it can achieve the proposed WQBELs now? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Uncertain	
If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.	
Estimated date by which the permittee could achieve the proposed WQBELs: _____ <input checked="" type="checkbox"/> Uncertain	
Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.	
<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied:
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied:
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: <u>Holcim Duquesne, Allegheny County</u>	Permit No.: <u>PA0004278</u>
Pollutant(s) identified by DEP that may require WQBELs: <u>Outfall 001 – Hexavalent Chromium</u>	
Is the permittee aware of the source(s) of the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Suspected	
If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent. Potentially associated with acid mine drainage from abandoned underground coal mine.	
Has the permittee completed any studies in the past to control or treat the pollutant(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
If Yes, describe prior studies and results:	
Does the permittee believe it can achieve the proposed WQBELs now? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Uncertain	
If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.	
Estimated date by which the permittee could achieve the proposed WQBELs: _____ <input checked="" type="checkbox"/> Uncertain	
Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.	
<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied:
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied:
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: <u>Holcim Duquesne, Allegheny County</u>	Permit No.: <u>PA0004278</u>
Pollutant(s) identified by DEP that may require WQBELs: <u>Outfall 001 - Total Copper</u>	
Is the permittee aware of the source(s) of the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Suspected	
If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent. <u>Potentially associated with acid mine drainage from abandoned underground coal mine.</u>	
Has the permittee completed any studies in the past to control or treat the pollutant(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, describe prior studies and results: <u>Series of studies between 2015 and 2019 to determine improvements to passive treatment system, which ultimately resulted in permitting and installation of active treatment system to address acid mine drainage.</u>	
Does the permittee believe it can achieve the proposed WQBELs now? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Uncertain	
If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.	
Estimated date by which the permittee could achieve the proposed WQBELs: _____ <input checked="" type="checkbox"/> Uncertain	
Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.	
<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied:
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied:
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS**

Permittee Name: <u>Holcim Duquesne, Allegheny County</u>	Permit No.: <u>PA0004278</u>
Pollutant(s) identified by DEP that may require WQBELs: <u>Outfall 001 - Total Nickel</u>	
Is the permittee aware of the source(s) of the pollutant(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Suspected	
If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent. <u>Abandoned underground coal mine known as Richer Mine.</u>	
Has the permittee completed any studies in the past to control or treat the pollutant(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, describe prior studies and results: <u>Series of studies between 2015 and 2019 to determine improvements to passive treatment system, which ultimately resulted in permitting and installation of active treatment system to address acid mine drainage.</u>	
Does the permittee believe it can achieve the proposed WQBELs now? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Uncertain	
If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.	
Estimated date by which the permittee could achieve the proposed WQBELs: _____ <input checked="" type="checkbox"/> Uncertain	
Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.	
<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
<input type="checkbox"/> Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s) (metals)	Year(s) Studied:
<input type="checkbox"/> Slope and width of receiving waters	Year(s) Studied:
<input type="checkbox"/> Velocity of receiving waters at design conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
<input type="checkbox"/> Volatilization rates (highly volatile organics)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

**ATTACHMENT D**

**EXCERPTS FROM THE HOLCIM LETTER – “RE: HOLCIM QUARRIES NY PERMIT PA0004278 FOLLOW-UP LETTER OF RESAMPLING RESULTS FOR THE DRAFT PERMIT FOR DUQUESNE SLAG”**



June 2, 2023

Environment, Land & Government Affairs

Mr. Michael Fifth, P.E., Environmental Engineer Manager  
Mr. John Duryea, Jr., P.E.  
Clean Water Program  
400 Waterfront Dr.  
Pittsburgh, PA 15222

James R. Carroll  
Phone: (301) 837-5667  
Mobile: (240) 564-3877  
[James.Carroll@Holcim.com](mailto:James.Carroll@Holcim.com)

**RE: Holcim Quarries NY Permit PA 0004278 Follow-up Letter of Resampling Results for the Draft Permit for Duquesne Slag**

Dear Messrs. Fifth and Duryea:

On behalf of Holcim Redland Quarries NY, Inc. ("Redland Quarries"), EA Engineering, Science, and Technology Inc., PBC was contracted to evaluate and comment on the draft NPDES permit effluent limitations set forth by the Pennsylvania Department of Environmental Protection (PADEP). This letter serves as the follow-up documentation for the resampling conducted in accordance to the letter sent on May 5, 2023.

The original sample collection for the permit reapplication cadmium, chromium (III and VI), cobalt and silver did not meet the PADEP quantitation limit (QL) requirements; thus, those metals were resampled on April 26<sup>th</sup>, May 2<sup>nd</sup>, May 8<sup>th</sup>, and May 19<sup>th</sup> as described in our letter dated May 5, 2023. Enclosed please find the results of the resampling. The attached data meets the states QL requirements and should be utilized for permit evaluation in place of previously submitted data.

If you have any questions, please contact me at (240) 564-3877 or [James.Carroll@holcim.com](mailto:James.Carroll@holcim.com).

Sincerely,

A handwritten signature in blue ink that reads 'James R. Carroll'.

James R. Carroll, Director  
Environment & Land, MAR

cc: Kevin Dietrick, Holcim – MAR, Inc.  
Paul Thomas, Holcim – MAR, Inc.  
Sean Marshall, Holcim – MAR, Inc.  
Tim Bevard, Holcim – MAR, Inc.  
Ashton Alban, EA Engineering

Attachments



Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

A3D2933

Analytical Testing Parameters

Client Sample ID:	PT#-4	Collected By:	Sean Marshall
Sample Matrix:	Aqueous	Collection Date:	04/26/2023 6:00
Lab Sample ID:	A3D2933-01		

Analyses Performed by: Microbac Laboratories Inc., Pittsburgh Division

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Cadmium	<0.077	0.077	0.800	ug/L	1		04/27/23 1042	04/30/23 1630	SEV
Chromium	<1.33	1.33	4.00	ug/L	1		04/27/23 1042	04/30/23 1630	SEV
Cobalt	0.358	0.084	0.800	ug/L	1	J	04/27/23 1042	04/30/23 1630	SEV

Analyses Performed by: M.J. Reider Associates, Inc.

Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8 Rev 5.4									
Silver	<0.0003	0.0003	0.0010	mg/l	1		04/28/23 0552	05/01/23 2311	MPB

Definitions

- J: Analyte concentration is estimated.
- MDL: Minimum Detection Limit
- mg/L: Milligrams per Liter
- RL: Reporting Limit
- ug/L: Micrograms per Liter

Cooler Receipt Log

Cooler ID: Default Cooler      Temp: 9.4°C

Cooler Inspection Checklist

Ice Present or not required?	No	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not read.?	Yes	pH<2 (Metals, COD, NH3, P, TKn) or not read?	Yes
pH>10 (NPW) >12 (DW) Cyanide, or not read?	Yes		

Project Requested Certification(s)

M.J. Reider Associates, Inc.  
06-00003

PA Department of Environmental Protection



Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

A3E1248

Analytical Testing Parameters

Client Sample ID: PT#-4	Collected By: Sean Marshall
Sample Matrix: Aqueous	Collection Date: 05/02/2023 12:00
Lab Sample ID: A3E1248-01	

Analyses Performed by: Microbac Laboratories Inc., Pittsburgh Division

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Cadmium	<0.077	0.077	0.800	ug/L	1		05/05/23 0741	05/05/23 1340	SEV
Chromium	<1.33	1.33	4.00	ug/L	1		05/05/23 0741	05/05/23 1340	SEV
Cobalt	0.387	0.084	0.800	ug/L	1	J	05/05/23 0741	05/05/23 1340	SEV

Analyses Performed by: M.J. Reider Associates, Inc.

General Chemistry	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 218.6 Rev 3.3									
Chromium VI	<0.00025	0.00004	0.00025	mg/l	1			05/04/23 1508	MPB

Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8 Rev 5.4									
Silver	<0.0003	0.0003	0.0010	mg/l	1		05/04/23 0542	05/04/23 2008	MPB

Definitions

- J: Analyte concentration is estimated.
- MDL: Minimum Detection Limit
- mg/L: Milligrams per Liter
- RL: Reporting Limit
- ug/L: Micrograms per Liter

Cooler Receipt Log

Cooler ID: Default Cooler      Temp: 2.3°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not read.?	Yes	pH<2 (Metals, COD, NH3, P, TKn) or not read?	Yes
pH>10 (NPW) >12 (DW) Cyanide, or not read?	Yes		



Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

A3E2003

Analytical Testing Parameters

Client Sample ID:	PT#-4	Collected By:	Sean Marshall
Sample Matrix:	Aqueous	Collection Date:	05/08/2023 12:00
Lab Sample ID:	A3E2003-01		

Analyses Performed by: Microbac Laboratories Inc., Pittsburgh Division

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Cadmium	<0.077	0.077	0.800	ug/L	1		05/11/23 1505	05/12/23 1231	SEV
Chromium	<1.33	1.33	4.00	ug/L	1		05/11/23 1505	05/12/23 1231	SEV
Cobalt	0.333	0.084	0.800	ug/L	1	J	05/11/23 1505	05/12/23 1231	SEV

Analyses Performed by: M.J. Reider Associates, Inc.

General Chemistry	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 218.6 Rev 3.3									
Chromium VI	<0.00025	0.00004	0.00025	mg/l	1			05/10/23 1830	MPB

Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8 Rev 5.4									
Silver	<0.0003	0.0003	0.0010	mg/l	1		05/10/23 0544	05/10/23 2034	MPB

Definitions

- J: Analyte concentration is estimated.
- MDL: Minimum Detection Limit
- mg/L: Milligrams per Liter
- RL: Reporting Limit
- ug/L: Micrograms per Liter

Cooler Receipt Log

Cooler ID: Default Cooler      Temp: 11.2°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not read.?	Yes	pH<2 (Metals, COD, NH3, P, TKn) or not read?	Yes
pH>10 (NPW) >12 (DW) Cyanide, or not read?	Yes		





Microbac Laboratories Inc., Pittsburgh Division  
CERTIFICATE OF ANALYSIS  
A3E3488

Analytical Testing Parameters

Client Sample ID: PT#-4	Collected By: Sean Marshall
Sample Matrix: Aqueous	Collection Date: 05/19/2023 11:00
Lab Sample ID: A3E3488-01	

Analyses Performed by: M.J. Reider Associates, Inc.

General Chemistry	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 218.6 Rev 3.3									
Chromium VI	<0.00025	0.00004	0.00025	mg/l	1	G-24		05/25/23 1948	MPB

Definitions

G-24:	The sample was preserved in the laboratory and outside of the 15-minute hold time.
mg/L:	Milligrams per Liter
RL:	Reporting Limit

Cooler Receipt Log

Cooler ID: Default Cooler	Temp: 11.0°C
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Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not read.?	Yes	pH<2 (Metals, COD, NH3, P, TKn) or not read?	Yes
pH>10 (NPW) >12 (DW) Cyanide, or not read?	Yes		

Project Requested Certification(s)

M.J. Reider Associates, Inc.  
08-00003

PA Department of Environmental Protection

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at: <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Rachel McCoy  
Client Relations Specialist  
Reported: 05/30/2023 09:10

**ATTACHMENT E**

**HOLCIM SUPPLIED EXPANDED EDMR DATA SET FOR TOTAL IRON, TOTAL MANGANESE AND TOTAL NICKEL**

Date	Total Iron		Total Manganese		Total Nickel	
	Q	mg/L	Q	mg/L	Q	mg/L
2/1/2021		1.45		1.83 <		0.01
2/10/2021		1.22		1.95		0.01
2/18/2021		1.8		1.68 <		0.01
2/25/2021		1.21		1.69		0.01
3/4/2021		1.14		2.31 <		0.01
3/11/2021		1.56		2.43		0.01
3/18/2021		1.89		2.54		0.01
3/25/2021		4.85		3.18		0.03
4/1/2021		1.1		2.28		0.02
4/8/2021		1.84		1.66		0.01
4/15/2021		0.92		2.37		0.01
4/21/2021		0.71		1.47		0.01
4/28/2021		0.81		1.54		0.01
5/5/2021		1.21		1.74		0.02
5/12/2021		2.1		1.92		0.02
5/17/2021		2.14		1.49		0.02
5/27/2021		4.08		2.27		0.03
6/3/2021		5.31		2.31		0.03
6/9/2021		6.1		2.84		0.04
6/17/2021		2.08		2.23		0.03
6/23/2021		1.8		2.14		0.03
7/1/2021		1.03		2.11		0.02
7/21/2021		0.843		1.729		0.023
7/28/2021		0.578		1.841		0.023
8/4/2021		0.68		1.65		0.02
8/8/2021		1.03		2.11		0.02
8/11/2021		0.27		1.08		0.01
8/18/2021		0.48		1.3		0.01
8/25/2021		0.22		1.01		0.01
9/1/2021		0.42		0.98 <		0.01
9/7/2021		0.99		1.67		0.03
9/15/2021		0.98		1.49		0.05
9/22/2021		0.67		1.71		0.02
9/28/2021		0.22		0.6 <		0.01
10/6/2021		0.24		0.37 <		0.01
10/13/2021		0.23		1.12		0.02
10/20/2021		0.31		1.44		0.02
10/27/2021		0.95		1.34		0.02
11/3/2021		0.44		1.62		0.03
11/11/2021		0.7		2.03		0.03
11/17/2021		0.85		1.92		0.03
11/23/2021		0.62		1.76		0.03
11/30/2021		0.67		1.86		0.03
12/7/2021		0.78		1.76		0.03
12/15/2021		1.15		1.84		0.03
12/21/2021		0.85		1.82		0.03
12/28/2021		0.75		2.08		0.03
1/5/2022		1.11		1.56		0.03
1/12/2022		0.66		1.79		0.03
1/19/2022		1.95		1.6		0.03
1/25/2022		1.33		2.29		0.03
2/2/2022		1.49		2.39		0.03
2/8/2022		0.72		2.03		0.03
2/16/2022		0.7		2.13		0.03
2/23/2022		0.42		1.7		0.02
3/2/2022		0.26		1.35		0.02
3/9/2022		0.69		2		0.02
3/16/2022		0.43		1.61		0.02
3/23/2022		0.29		1.55		0.02
3/30/2022		0.27		1.52		0.02
4/6/2022		0.29		1.55		0.02
4/14/2022		0.12		1.19		0.02
4/19/2022		0.28		1.14		0.01
4/27/2022		0.11		0.87		0.01
5/4/2022		0.11		0.71 <		0.01
5/11/2022		0.06		0.45 <		0.01
5/17/2022		0.09		0.53		0.01
5/24/2022		0.06		0.44		0.01
6/1/2022		0.08		0.42 <		0.01
6/7/2022		0.24		0.88		0.01
6/15/2022		0.2		0.81 <		0.01
6/21/2022		0.25		1.18		0.02
6/28/2022		0.28		0.76		0.01
7/6/2022		0.21		0.2 <		0.01
7/12/2022		0.15		0.22 <		0.01

Date	Total Iron		Total Manganese		Total Nickel	
	Q	mg/L	Q	mg/L	Q	mg/L
7/19/2022		0.14		0.16 <		0.01
7/28/2022		0.21		0.18 <		0.01
8/4/2022		0.07		0.13 <		0.01
8/9/2022		0.07		0.17 <		0.01
8/16/2022 <		0.05		0.09 <		0.01
8/25/2022		0.12		0.92		0.01
8/30/2022		0.27		0.55 <		0.01
9/7/2022		0.24		0.31		<0.01
9/13/2022		0.28		0.67		0.01
9/20/2022		0.18		0.31		<0.01
9/27/2022		0.54		0.92		0.01
10/4/2022		0.24		0.62		0.01
10/11/2022		0.4		0.49		0.01
10/18/2022		0.36		0.41		0.01
10/27/2022		0.26		0.84		0.01
11/2/2022		0.24		0.52		0.01
11/10/2022		0.23		0.19		<0.01
11/16/2022		0.23		0.35		0.01
11/22/2022		0.21		0.45		<0.01
11/29/2022		0.18		0.48		0.01
12/7/2022		0.18		0.74		<0.01
12/14/2022		0.17		0.21		<0.01
12/22/2022		0.23		0.08		<0.01
12/27/2022		<.05		0.09		<0.01
1/4/2023		0.16		1.06		0.01
1/10/2023		0.14		0.18		0.01
1/18/2023		0.15		0.39		0.01
1/27/2023		0.13		0.62		0.01
2/3/2023		0.1		0.49		0.01
2/9/2023		0.12		0.46		0.01
2/14/2023		0.14		0.24		0.01
2/21/2023		0.07		0.05		0.01
3/2/2023		0.08		0.05		0.05
3/9/2023		0.06		0.05		0.01
3/16/2023		0.08		0.05		0.01
3/23/2023		0.06		0.53		0.02
3/30/2023		0.05		0.13		0.02
4/7/2023		0.05		0.07		0.02
4/14/2023		0.05		0.12		0.01
4/20/2023		0.05		0.05		0.01
4/27/2023		0.05		0.05		0.01
5/4/2023		0.05		0.05		0.01
5/11/2023		0.05		0.05		0.01
5/18/2023		0.05		0.05		0.01
5/24/2023		0.05		0.05		0.01
6/2/2023		0.05		0.05		0.01
6/9/2023		0.05		0.05		0.01
6/23/2023		0.05		0.28		0.01
6/29/2023		0.05		0.28		0.01
6/30/2023		0.06		0.4		0.01
7/6/2023		0.09		0.43		0.01
7/13/2023		0.1		0.6		0.01
7/21/2023		0.14		0.08		0.01
7/26/2023		0.05		0.21		0.01
8/3/2023		0.18		0.05		0.01
8/10/2023		0.25		0.06		0.01
8/16/2023		0.24		0.13		0.01
8/23/2023		0.21		0.14		0.01
8/30/2023		0.29		0.23		0.01
9/6/2023		0.36		0.29		0.01
9/14/2023		0.44		0.24		0.01
9/20/2023		0.48		0.27		0.01
9/27/2023		0.36		0.77		0.01
10/4/2023		0.3		0.65		0.01
10/12/2023		0.38		0.31		0.01
10/19/2023		0.64		0.64		0.01
10/25/2023		0.6		0.46		0.01
11/1/2023		0.76		0.69		0.01
11/8/2023		0.53		0.37		0.01
11/16/2023		0.63		0.38		0.01
11/21/2023		0.68		0.68		0.01
12/7/2023		0.61		0.71		0.01
12/13/2023		0.61		0.45		0.01
12/20/2023		0.58		0.75		0.01
12/29/2023		0.47		0.21		0.01

**ATTACHMENT F**

**PA DEP TOXCONC\_VER2.0 SPREADSHEET – INPUTS**

Facility:		Holcim Quarries NY		
NPDES #:		PA0004278		
Outfall No.:		001		
n (Samples/Month):		4		
Reviewer/Permit Engineer:		John Duryea		
Parameter Name	Total Iron	Total Manganese	Total Nickel	
Units	mg/L	mg/L	mg/L	
Detection Limit	0.05	0.05	0.01	
Sample Date	<i>When entering values below the detection limit, enter "ND" or use the &lt; notation (eg. &lt;0.02)</i>			
12/27/2022	< 0.05	0.09	<0.01	
1/4/2023	0.16	1.06	0.01	
1/10/2023	0.14	0.18	0.01	
1/18/2023	0.15	0.39	0.01	
1/27/2023	0.13	0.62	0.01	
2/3/2023	0.1	0.49	0.01	
2/9/2023	0.12	0.46	0.01	
2/14/2023	0.14	0.24	0.01	
2/21/2023	0.07	0.05	0.01	
3/2/2023	0.08	0.05	0.05	
3/9/2023	0.06	0.05	0.01	
3/15/2023	0.08	0.05	0.01	
3/23/2023	0.06	0.53	0.02	
3/30/2023	0.05	0.13	0.02	
4/7/2023	0.05	0.07	0.02	
4/14/2023	0.05	0.12	0.01	
4/20/2023	0.05	0.05	0.01	
4/27/2023	0.05	0.05	0.01	
5/4/2023	0.05	0.05	0.01	
5/11/2023	0.05	0.05	0.01	
5/18/2023	0.05	0.05	0.01	
5/24/2023	0.05	0.05	0.01	
6/2/2023	0.05	0.05	0.01	
6/9/2023	0.05	0.05	0.01	
6/23/2023	0.05	0.28	0.01	
6/29/2023	0.05	0.28	0.01	
6/30/2023	0.06	0.4	0.01	
7/6/2023	0.09	0.43	0.01	
7/13/2023	0.1	0.6	0.01	
7/21/2023	0.14	0.08	0.01	
7/26/2023	0.06	0.21	0.01	
8/3/2023	0.18	0.05	0.01	
8/10/2023	0.25	0.06	0.01	
8/16/2023	0.24	0.13	0.01	
8/23/2023	0.21	0.14	0.01	
8/30/2023	0.29	0.23	0.01	
9/6/2023	0.36	0.29	0.01	
9/14/2023	0.44	0.24	0.01	
9/20/2023	0.48	0.27	0.01	
9/27/2023	0.36	0.77	0.01	
10/4/2023	0.3	0.65	0.01	
10/12/2023	0.38	0.31	0.01	
10/19/2023	0.64	0.64	0.01	
10/25/2023	0.6	0.46	0.01	
11/1/2023	0.76	0.69	0.01	
11/8/2023	0.53	0.37	0.01	
11/16/2023	0.63	0.38	0.01	
11/21/2023	0.68	0.68	0.01	
12/7/2023	0.61	0.71	0.01	
12/13/2023	0.61	0.45	0.01	
12/20/2023	0.58	0.75	0.01	
12/29/2023	0.47	0.21	0.01	

**ATTACHMENT G**

**PA DEP TOXCONC\_VER2.0 SPREADSHEET – OUTPUTS**



**SUMMARY STATISTICS** – TOXCONC Sheet where results of statistical calculations i.e. mean and variance are displayed. Information is displayed ONLY under the applicable distribution based on the input data. It is important that input data be entered correctly to ensure that the proper calculations are applied.

	<b>Facility:</b>	Holcim Quarries NY		
	<b>NPDES #:</b>	PA0004278		
	<b>Outfall No:</b>	001		
	<b>n (Samples/Month):</b>	4		
<b>Parameter Name</b>	<b>Total Iron</b>	<b>Total Manganese</b>	<b>Total Nickel</b>	
Number of Samples	52	52	52	
Samples Nondetected	1	0	1	
<b>LOGNORMAL</b>				
Log MEAN	NA	-1.6300275	NA	
Log VAR.		1.0354891		
(LTA) [E(x)]		0.3288074		
Variance [V(x)]		0.1963879		
CV (raw)		1.3477698		
CV (n)		0.6738849		
Monthly Avg. (99%, n-day)		1.1317413		
<b>DELTA-LOGNORMAL</b>				
Delta-Log MEAN	-1.9018010	NA	-4.5328392	
Delta-Log VAR.	0.9516414		0.0752966	
(LTA) [E(x)]	0.2366137		0.0111402	
Variance [V(x)]	0.0907075		0.0000096	
CV (raw)	1.2728631		0.2778732	
Delta-Log VAR. (n)	0.3400693		0.0191194	
A, Table E-2, TSD	0.4050452		0.0193034	
B, Table E-2, TSD	0.0000000		-0.0000001	
C, Table E-2, TSD	0.0000001		0.0000002	
Delta-Log MEAN (n)	-1.6113609		-4.5067555	
phi (Φ)	0.9898039		0.9898039	
Z*	2.3200000		2.3200000	
Monthly Avg. (99%, n-day)	0.7722537		0.0152076	
<b>NORMAL</b>				
MEAN	NA	NA	NA	
VAR.				
(LTA) [E(x)]				
Variance [V(x)]				
CV (raw)				
CV (n)				
Monthly Avg. (99%, n-day)				

**ATTACHMENT H**

**TOXICS MANAGEMENT SPREADSHEET, VERSION 1.4**



## Discharge Information

Instructions Discharge Stream
CLEAR PROJECT CLEAR FORM CALCULATE

Facility: Holcim Quarries NY, Duquesne Slag NPDES Permit No.: PA0004278 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Slag pile SW & AMD

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
0.318	100	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
<b>Group 1</b>											
Total Dissolved Solids (PWS)	mg/L	1562									
Chloride (PWS)	mg/L	235									
Bromide	mg/L	1.4									
Sulfate (PWS)	mg/L	608									
Fluoride (PWS)	mg/L	< 0.4									
<b>Group 2</b>											
Total Aluminum	µg/L	330									
Total Antimony	µg/L	< 1									
Total Arsenic	µg/L	< 1									
Total Barium	µg/L	53.1									
Total Beryllium	µg/L	< 1									
Total Boron	µg/L	172									
Total Cadmium	µg/L	< 0.077									
Total Chromium (III)	µg/L	34									
Hexavalent Chromium	µg/L	< 0.25									
Total Cobalt	µg/L	9.1									
Total Copper	mg/L	8.1									
Free Cyanide	µg/L										
Total Cyanide	µg/L	< 10									
Dissolved Iron	µg/L	< 50									
Total Iron	µg/L	772.2537			1.2729						
Total Lead	µg/L	< 1									
Total Manganese	µg/L	1131.7413			1.3478						
Total Mercury	µg/L	< 0.2									
Total Nickel	µg/L	15.2076			0.2779						
Total Phenols (Phenolics) (PWS)	µg/L	< 10									
Total Selenium	µg/L	2.1									
Total Silver	µg/L	< 0.3									
Total Thallium	µg/L	< 1									
Total Zinc	mg/L	28.3									
Total Molybdenum	µg/L	1.8									



## Stream / Surface Water Information

Holcim Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

Instructions Discharge **Stream**

CLEAR FORM

CALCULATE

Receiving Surface Water Name:

No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi <sup>2</sup> )*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037449	4.09	1000	1.14			Yes
End of Reach 1	037449	3.206	950	2.28			Yes

**Q<sub>7-10</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	4.09	0.1	0.011									100	7		
End of Reach 1	3.206	0.1	0.022			4.4	1								

**Q<sub>n</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	4.09														
End of Reach 1	3.206		0.465												



## Model Results

Holcim Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

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All  Inputs  Results  Limits

Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Boron	Report	Report	Report	Report	Report	µg/L	1,636	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Chromium (III)	Report	Report	Report	Report	Report	µg/L	88.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Cobalt	Report	Report	Report	Report	Report	µg/L	19.4	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.025	0.038	0.01	0.014	0.014	mg/L	0.01	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	307	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	4.07	7.52	1,534	2,836	3,834	µg/L	1,534	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	2.71	5.01	1,022	1,887	2,556	µg/L	1,022	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	53.3	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	5.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	0.32	0.32	0.12	0.12	0.12	mg/L	0.12	AFC	Discharge Conc ≥ 50% WQBEL (RP)



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**Other Pollutants without Limits or Monitoring**

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,454	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	0.28	µg/L	Discharge Conc < TQL
Hexavalent Chromium	10.6	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Total Lead	3.25	µg/L	Discharge Conc < TQL
Total Mercury	0.051	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	3.78	µg/L	Discharge Conc < TQL
Total Thallium	0.25	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS



## Model Results

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Hydrodynamics

**Q<sub>7-10</sub>**

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
4.09	0.01		0.01	0.492	0.011	0.452	7.515	16.617	0.148	0.365	0.001
3.206	0.02		0.022								

**Q<sub>n</sub>**

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
4.09	0.14		0.14	0.492	0.011	0.502	7.515	14.984	0.169	0.32	0.108
3.206	0.465		0.47								



## Model Results

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**Wasteload Allocations**

**AFC**

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	767	
Total Antimony	0	0		0	1,100	1,100	1,125	
Total Arsenic	0	0		0	340	340	348	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,470	
Total Boron	0	0		0	8,100	8,100	8,281	
Total Cadmium	0	0		0	2.014	2.13	2.18	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	1,843	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	97.1	
Total Copper	0	0		0	13.439	14.0	14.3	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	83.5	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.68	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	480	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	3.87	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	66.5	
Total Zinc	0	0		0	117.180	120	122	Chem Translator of 0.978 applied



## Model Results

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CFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	225	
Total Arsenic	0	0		0	150	150	153	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,192	
Total Boron	0	0		0	1,600	1,600	1,636	
Total Cadmium	0	0		0	0.246	0.27	0.28	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	88.1	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.6	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.4	
Total Copper	0	0		0	8.956	9.33	9.54	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,534	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	3.25	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.93	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	53.3	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.1	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	13.3	
Total Zinc	0	0		0	118.139	120	122	Chem Translator of 0.986 applied



## Model Results

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All  Inputs  Results  Limits

THH

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.73	
Total Arsenic	0	0		0	10	10.0	10.2	
Total Barium	0	0		0	2,400	2,400	2,454	
Total Boron	0	0		0	3,100	3,100	3,169	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	307	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,022	
Total Mercury	0	0		0	0.050	0.05	0.051	
Total Nickel	0	0		0	610	610	624	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.25	
Total Zinc	0	0		0	N/A	N/A	N/A	



## Model Results

Holcim Quarries NY, Duquesne Slag, NPDES Permit No. PA0004278, Outfall 001

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CRL

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	