pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0012505**
Facility Type	**Industrial**	APS ID	**635732**
Major / Minor	**Minor**	Authorization ID	**1264047**

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

Applicant and Facility Information

Applicant Name	**Holcim (US), Inc.**	Facility Name	**Holcim (US), Inc. Whitehall Cement Plant**
Applicant Address	5160 Main Street Whitehall, PA 18052-1827	Facility Address	5160 Main Street Whitehall, PA 18052-1827
Applicant Contact	Andrew Horrell	Facility Contact	Andrew Horrell
Applicant Phone	(573) 702-4260	Facility Phone	(573) 702-4260
Client ID	26797	Site ID	260809
SIC Code	3241	Municipality	Whitehall Township
SIC Description	Manufacturing - Cement, Hydraulic	County	Lehigh
Date Application Received	March 1, 2019	EPA Waived?	Yes
Date Application Accepted	March 6, 2019	If No, Reason	-

Purpose of Application: Renewal of existing NPDES permit.

Summary of Review

The applicant is requesting renewal of their NPDES permit to discharge up to 2.41 MGD of non-contact cooling water (NCCW) and stormwater from Outfall 001 and 0.80 MGD of NCCW and stormwater from Outfall 002 into the Lehigh River, a TSF/MF designated receiving stream in state water plan basin 02-C (Lower Lehigh River). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. Internal monitoring point (IMP) 102 discharges site stormwater from the coal storage area detention basin to Outfall 002. IMP 102 rarely discharges.

The following information was taken from the previous fact sheet and will be applied to this renewal:

"The facility falls under the Non-Leaching Cement Manufacturing Point Source Category 411. The pH limits are based on BPT from Subpart A, Non-Leaching Subcategory. The temperature limits are required as per Subpart A, but are based on a 316(a) Thermal effects Study. The study showed that in-river temperatures downstream of Outfall 001 are not changed by more than 2 degrees F per hour. Monitoring for the 2 degree change is not required in the permit.

The discharge consists only of non-contact cooling water and stormwater. The facility is very old. The non-contact cooling wastewater and stormwater piping is entirely comingled to Outfalls 001 and 002. No chemical additives are used. The oil and grease limits on Outfall 001, 002 are based on Title 25. Chapter 95.2.2(ii). The TSS mass limit in the previous permits was based on a production rate provided in the previous application. The Department consulted with EPA Region 3 and EPA Headquarters ELG Development Section on the applicability of the ELG requirements for non-contact cooling water. EPA advised that the production rate based TSS limit in the ELG doesn't apply to non-contact cooling water. This information resulted in the removal of the TSS mass limits on Outfall 001 and 002. The ELG requires TSS limit of 50 mg/l on discharges resulting from the runoff of rainfall which derives from the storage of materials including raw materials, intermediate products, finished products and waste materials which are used in or derived from the manufacture of cement

Approve	Deny	Signatures	Date
X		Brian Burden Brian Burden, E.I.T. / Project Manager	July 10, 2020
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Environmental Engineer Manager	7-16-20

Summary of Review

under either Subcategory—A or B. This TSS concentration limit was applied to both Outfalls 001 and 002. The TSS concentration limit for MP102 was moved to Outfall 002."

The latest DRBC docket (Docket D-1975-115-3, approved March 14, 2018) requires limitations for pH, TSS, Δ Temperature (Discharge Temperature subtracted by Intake Temperature), and TDS. Monthly monitoring/reporting for influent TSS is a new DRBC requirement added to the permit for both outfalls. Sampling is to be paired when effluent TSS sampling is conducted. A monthly average reporting requirement is included for these parameters in the event more than one sample is taken during any given month. A daily maximum reporting requirement is added for influent TSS to help DMR reviewers determine if more than one sample was taken during the month.

Monitoring requirements for $CBOD_5$, Ammonia-Nitrogen, Nitrate-Nitrite as N, Total Nitrogen, Dissolved Oxygen and Total Phosphorus (all were to be monitored 1/year with one sample taken in the month of June) were included in the previously approved DRBC docket (Docket D-1975-115-2), but were not included in the latest docket. As a result, they will be removed from the NPDES permit during this renewal. DMR review confirms none of these pollutants are of concern with regards to water quality standards.

Data from stream gage 01453000 (Lehigh River at Bethlehem, PA) was used to develop the low flow yield (LFY) value of 0.36 cfs/mi^2. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA as well as the "measure" tool. Drainage areas were delineated using USGS's StreamStats Interactive Map and elevations were obtained using the elevation profile feature of StreamStats (see Watershed Information attachment). LCA Allentown's surface water withdrawal location is approximately 6.5 miles downstream from Outfalls 001 and 002. Water allocation permit WA39-204C (issued July 8, 1985) allows for 28 MGD to be withdrawn from the Lehigh River. This location and withdrawal allocation are included in the final node in PENTOX modeling.

Pollutant Groups 1 & 2 sampling results submitted with the permit application were modeled with PENTOX (see attached). The design flows for each outfall were combined for a total discharge of 3.21 MGD. The pollutant concentrations used in modeling were obtained by taking the maximum concentrations reported for each outfall, assuming those concentrations in the design flow for each outfall and then calculating the pollutant concentrations that would result by combining the design flows. Note that over the past 2 years, the highest reported monthly average flow values for Outfall 001 and 002 were 1.06 MGD and 0.57 MGD, respectively.

Modeling results suggested establishing limitations for Total Phenols (Phenolics). The maximum flow-weighted Phenolics concentration was calculated to be 229.5 µg/L and the most stringent WQBEL was calculated to be 378.3 µg/L. Due to the very conservative nature of the modeling (described above), limitations will not be included during this renewal for Phenolics. Also, Phenolics is not expected to be a pollutant of concern in NCCW or stormwater. Quarterly monitoring/reporting requirements are added to the permit to monitor this pollutant of concern. Data gathered during this permit cycle will help to determine if future monitoring requirements/limitations are needed in subsequent permit renewals.

Monitoring requirements for Total Iron and TKN were added to the previous permit as stormwater parameters to be monitored and are carried over for this renewal. The special condition requiring two stormwater sampling events at 001 and 002 in accordance with sample collection requirements of the standard Part C Stormwater condition is also carried over from the previous permit. Samples for the monitoring requirements of IMP 102 can be taken at Outfall 002 when IMP 102 is discharging due to safety concerns for the sample collector.

To reduce impingement and entrainment of fish and other aquatic organisms at cooling water intake structures (CWIS), requirements under section 316(b) of the Clean Water Act (CWA) for existing power generating facilities and existing manufacturing and industrial facilities that are designed to withdraw more than 2 MGD of water from waters of the United States and use at least 25% of the water they withdraw exclusively for cooling purposes were promulgated. Facilities that don't meet those thresholds are subject to permit conditions implementing CWA section 316(b) developed by the NPDES Permit Director on a case-by-case basis using BPJ. This facility does not meet the 2 MGD withdrawal threshold, but the following basic CWIS Part C conditions are included in this renewal (see Part C.III):

- Nothing in this permit authorizes a take of endangered or threatened species under the Endangered Species Act.

- Technology and operational measures currently employed at the cooling water intake structures must be operated in a way that minimizes impingement mortality and entrainment to the fullest extent possible.

Summary of Review

- The permittee shall not alter the location, design, construction or capacity of the intake structure(s) without prior approval of DEP.

The conditions requiring the submittal of information specified in 40 CFR 122.21(r) with their subsequent permit application is not included in this renewal for the following reasons (in addition to not meeting the 2 MGD threshold):

- Flow rate through the CWIS was previously measured to be 0.12 fps. Assuming the perforated plate was not installed during that measurement, that flow would increase to approximately 0.24 fps when the plate is installed since the plate is 52% open area. This velocity is well below the EPA's through-screen velocity threshold of 0.5 fps established for larger facilities under the CWA 316(b) Final Rule. The facility would still meet the threshold if 50% of the open screen area was obstructed with sediment. The 0.24 fps estimate based on measurements is more conservative than the value obtained using maximum intake rates and CWIS dimensions:

  1.78 MGD (maximum intake) x (1.55 cfs / 1 MGD) ÷ (30 ft^2 CWIS opening x 52% open area) = 0.176 fps

  The plate is not typically installed and is only deployed when there are issues with animal (beaver) ingress into the cooling water supply tunnel.

- There are no endangered or threatened species expected to be present near the CWIS.

- The ends of the intake pipes have a permanent screening device to help prevent entrainment (see Intake Pipe Picture attachment).

- As discussed with Andrew Horrell, Holcim's Environmental & Public Affairs Manager, during a site visit on March 12, 2020, there are no internal screening devices inside the plant or anywhere else where entrained animals accumulate.

Page 18 of Module 5 indicates up to 3% of water intake is used for process uses. Andrew Horrell provided the following explanation via email, dated January 24, 2020: "Approximately 3% of the intake water is consumed. This water is used in our preheater tower for gas conditioning and our raw and finish mills for water sprays to aid in grinding. All of these result in a total loss of the water injected to evaporation, thus there is no discharge of this 3%."

Part C special conditions I.E., I.F., I.G., and I.H are carried over from the previous permit:

- **C.I.E.:** The temperature of the intake water shall be measured at the intake reservoir tank known as the Raw Water Powerhouse Reservoir located in the Raw Water Powerhouse Building. This intake temperature sampling point shall be free of thermal influence from other process water flows entering the reservoir that could affect the delta T.

- **C.I.F.:** The change in temperature (delta T or ΔT) between the intake and the effluent at the outfall must not exceed 13.9°C as a maximum daily limit (MDL). Compliance with the MDL is determined by collecting 24 hourly delta temperature values during a calendar day, beginning at midnight. The ΔT values reflect the temperature difference between the intake and outfall, with each temperature reading to be collected at the top of each hour. The 24 ΔT values are then averaged over the 24-hour period to arrive at a daily average. The daily average for each day must not exceed the 13.9°C MDL.

- **C.I.G.:** The change in temperature between the intake and the effluent must not exceed 9.2°C on a monthly average basis. Compliance with the 9.2°C limit is determined by calculating the sum of the daily average ΔT values for the reporting month and dividing that sum by the number of days in the reporting month. The monthly average ΔT must not exceed the 9.2°C monthly average limit.

- **C.I.F.:** Any untreated overflow from facilities designed, constructed and operated to treat the volume of runoff from materials storage piles which is associated with a 10-year, 24-hour rainfall event shall not be subject to the pH and TSS limitations stipulated in Part A.I.C. for Monitoring Point 002.

Summary of Review

DMR review over the past 2 years revealed the following exceedances:

- 11/2019 **Outfall 001 pH**: 5.83 S.U. (minimum was 6.0 S.U.)

- 4/2019 **Outfall 002 TSS**: 55.5 mg/L daily maximum (limitation was 50.0 mg/L)

There are no open WPC NDPES violations for the permittee, but there are 10 open violations under the Department's Air Quality Program:

11/08/2016: Construction, Modification, Reactivation and Operation of Sources, Operating Permit Requirements, Compliance requirements. A person may not cause or permit the operation of a source subject to this article unless the source and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the application and conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

06/20/2018: Construction, Modification, Reactivation and Operation of Sources, Operating Permit Requirements, Compliance requirements. A person may not cause or permit the operation of a source subject to this article unless the source and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the application and conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

09/05/2018: Standards for Contaminants, Odor Emissions, Limitations. Failure to control malodorous air contaminants

06/27/2019: Standards for Contaminants, Fugitive Emissions, Prohibition of certain fugitive emissions. Failure to take reasonable actions to prevent particulate matter from becoming airborne.

07/25/2019: Standards for Contaminants, Fugitive Emissions, Prohibition of certain fugitive emissions. Failure to take reasonable actions to prevent particulate matter from becoming airborne.

07/25/2019: Standards for Contaminants, Fugitive Emissions, Prohibition of certain fugitive emissions. Failure to take reasonable actions to prevent particulate matter from becoming airborne.

03/15/2019: Construction, Modification, Reactivation and Operation of Sources, Operating Permit Requirements, Compliance requirements. A person may not cause or permit the operation of a source subject to this article unless the source and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the application and conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

11/18/2019: Standards for Contaminants, Fugitive Emissions, Prohibition of certain fugitive emissions. Failure to take reasonable actions to prevent particulate matter from becoming airborne.

02/06/2019: Construction, Modification, Reactivation and Operation of Sources, Operating Permit Requirements, Compliance requirements. A person may not cause or permit the operation of a source subject to this article unless the source and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the application and conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

02/14/2020: Standards for Contaminants, Fugitive Emissions, Prohibition of certain fugitive emissions. Failure to take reasonable actions to prevent particulate matter from becoming airborne.

Note: The permittee's name has been updated to "Holcim (US), Inc." as per January 24, 2020 email from the permittee.

Summary of Review

Watershed Information.pdf

Toxics Screening Analysis.pdf

PENTOX Modeling.pdf

PENTOX Modeling2.pdf

PENTOX Modeling3.pdf

PENTOX Modeling4.pdf

DRBC Docket.pdf

Intake Pipe Picture.pdf

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, 002	Design Flow (MGD)	2.41 (001), 0.8 (002)
Latitude	40º 41' 20"	Longitude	-75º 30' 12"
Quad Name	40º 41' 16" Cementon	Quad Code	-75º 30' 13" 1341
Wastewater Description:	Noncontact Cooling Water (NCCW) and Stormwater		

Receiving Waters	Lehigh River (TSF/MF)	Stream Code	3335
NHD Com ID	26297489	RMI	23.6
Drainage Area	942	Yield (cfs/mi^2)	0.36
Q_{7-10} Flow (cfs)	339	Q_{7-10} Basis	Gage 01453000
Elevation (ft)	280	Slope (ft/ft)	0.0013
Watershed No.	2-C	Chapter 93 Class.	TSF/MF
Existing Use	-	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	-	Name	-

Background/Ambient Data		Data Source
pH (SU)	-	-
Temperature (°F)	-	-
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake		LCA Allentown	
PWS Waters	Lehigh River	Flow at Intake (cfs)	370
PWS RMI	17.1	Distance from Outfall (mi)	6.5