

**Environmental
Protection Agency**

Timothy J. McGonigle, Governor
Paul R. Raab, Lt. Governor
John P. McManus, Director

August 4, 2010

RE: CRISTAL GLOBAL – MILLENNIUM
INORGANIC CHEMICALS, PLANT No. 1
NPDES PERMIT NO. 3IE00013*1D
ASHTABULA TWP, ASHTABULA COUNTY
COMPLIANCE INSPECTION EVALUATION

Mr. Richard D. Hughes, Environmental Superintendent
Cristal Global - Millennium Inorganic Chemicals
2900 Middle Road
Ashtabula, Ohio 44004

Dear Mr. Hughes:

On May 27, 2010, a site inspection was conducted at the above referenced facility at 2900 Middle Road, Ashtabula Township, Ashtabula County. The facility also includes the adjacent Millennium Landfill. The inspection was conducted by John Schmidt, Erm Gomes, and Allison Giancola of Ohio EPA's Division of Surface Water (DSW), Michael Horn represented Aquater, Millennium's consultant, and Mark Galloway and you represented Cristal Global, Millennium Inorganic Chemicals (Millennium). The purpose of the inspection was to evaluate the facility's compliance status with respect to the terms and conditions of the facility's National Pollutant Discharge Elimination System (NPDES) permit. The last compliance inspection was conducted on June 4, 2008.

The plant primarily produces titanium dioxide in both a slurry and powder form. Plant 1 produces about 105,000 metric tons annually. The waste water system consists of the following industrial processes and discharges (see attached figure):

Industrial Waste Water Treatment

Process waste water is generated from the following: $TiCl_4$ gas scrubbers, oxidation process, flue pond cooling, finishing, $TiCl_4$ cooling tower, oxide cooling tower, and landfill contact water (see attached figure). Finishing waste waters are collected to a settling tank prior to neutralization, and scrubber wastes (Train A, Train B, and $TiCl_4$ scrubbers) are sent to the neutralization plant. Neutralization is accomplished through four tanks where lime is added to raise the pH to 8.8 for metals precipitation and polymer is added to aid settling. Solids are separated in a large clarifier and sent to a settling pond (Middle Pond). All other plant wastes discharge to a junction chamber between the south settling pond and the middle settling pond. Water then flows through a series of additional settling ponds (Middle and North Ponds) and a pump station prior to discharge. Treated waste water joins the treated industrial storm water to a pump station flow monitoring and discharge to the FirstEnergy channel. Total flow is about 4.0 MGD. Sludge dewatering from the neutralization process is accomplished through a filter press, with sludge disposed of in a captive industrial landfill. The outfall of all discharges from Plant 1 is Outfall 003.

Sanitary Waste Water Treatment Plants (TiCl₄ Sanitary WWTP and Oxidation Sanitary WWTP)

There are two sanitary waste water treatment plants (WWTPs), one treating sanitary and laboratory wastes from the filter press building and the other from the administration building. Waste water from sanitary and laboratory wastes are treated through an extended aeration facility adjacent to the administration building prior to discharge to a junction chamber between the South Pond and the Middle Pond. Treatment consists of a trash trap, extended aeration, surface sand filters, chlorination and dechlorination prior to surcharge to the industrial WWTP. The outfall for the sanitary WWTP is Outfall 601, and the WWTP serving the filter building discharges to a Wisconsin-type mound system, which does not require an NPDES permit.

Storm Water Treatment

All storm water within the facility is collected via a series of yard drains and drainage channels and conveyed to the various settling ponds (South Pond, Middle Pond, North Pond). The storm water pond discharges to the outfall weir, pump station, and the FirstEnergy discharge channel. The emergency storm water overflow outfall is Outfall 004.

Observations

Following are observations made during the inspection.

1. Outfalls 003 (Plant 1 Total Final Effluent) and 601 (Administration Sanitary WWTP Effluent) were all observed to be producing a clear effluent.
2. The general operation and maintenance of the chemical neutralization waste water treatment system appeared to be satisfactory.
3. The sanitary waste water plant adjacent to the administration building was observed in good order and provided with alarms. Sludge was observed in good color and sufficiently aerated. Containers should be provided for screenings and materials raked from sand filters (see attached pictures).
4. An outbreak was noted on the Wisconsin mound system from burrowing animals (see attached pictures).
5. Final outfall composite samplers were collecting composites based upon a time-interval and not flow proportional as specified in your NPDES permit Part II-K.
6. An examination of the adjacent landfill operations indicates that the landfill operates without any daily or intermediate cover pursuant to their solid waste permits. Therefore all precipitation that falls within the current landfill footprint is collected in a holding pond and pumped to the industrial waste water treatment plant at Plant No. 1.

NPDES Permit Compliance Review

A review of the electronic discharge monitoring reports (eDMRs) received by Ohio EPA for the period June 1, 2008 through May 1, 2010 indicates apparent noncompliance of the terms and conditions of your NPDES permit. Specific instances of noncompliance are as follows:

Limit Violations

No limit violations were noted for the period reviewed.

Reporting Violations

No reporting code violations were noted for the period reviewed, however the following reporting frequency violations were noted for the period reviewed:

Station	Reporting Code	Parameter	Sample Frequency	Expected	Reported	Violation Date
003	00530	Total Suspended Solids	1/Week	1	0	10/22/2008
003	01074	Nickel, Total Recoverable	1/Week	1	0	10/22/2008
003	01094	Zinc, Total Recoverable	1/Week	1	0	10/22/2008
003	01118	Chromium, Total Recoverable	1/Week	1	0	10/22/2008
003	01119	Copper, Total Recoverable	1/Week	1	0	10/22/2008
003	70300	Residue, Total Filterable	1/Week	1	0	10/22/2008
003	00530	Total Suspended Solids	1/Week	1	0	01/15/2009
003	01074	Nickel, Total Recoverable	1/Week	1	0	01/15/2009
003	01094	Zinc, Total Recoverable	1/Week	1	0	01/15/2009
003	01118	Chromium, Total Recoverable	1/Week	1	0	01/15/2009
003	01119	Copper, Total Recoverable	1/Week	1	0	01/15/2009
003	70300	Residue, Total Filterable	1/Week	1	0	01/15/2009

Please provide a rationale as to why parameters were not reported for the sample period.

Compliance Schedule Violations

No compliance schedule violations were noted for the period reviewed.

Other Violations

1. Failure to Collect Proper Composite Samples [OAC 3745-7-09, Permit Part II, Item K]: Millennium collects composite samples on a time-basis instead of flow proportional basis as specified by its permit. Millennium must ensure that composite samples are collected on a flow proportional basis.

Comments

Ohio EPA offers the following comments:

1. Proposed Increase in Waste Water Loadings and Flow: Prior to conducting the compliance evaluation inspection (CEI), Ohio EPA and Millennium discussed Millennium's plans to increase the capacity of the facility by up to 25% over the next four years. Millennium is exploring changes to its waste water treatment processes to remove some of the loading to the current clarifier/thickener. Ohio EPA responded that such changes would require a modification to the current NPDES permit for changes in flow and loading; an anti-degradation addendum; and an industrial permit-to-install for changes to waste water treatment processes or adding additional treatment capacity. These issues may take a considerable amount of time and Millennium is encouraged to commence discussions sooner rather than later.
2. Proposed Changes to TDS Water Quality Standards: Ohio EPA discussed that the current total dissolved solids water quality standards which the current permit is based may be decreasing, and that a final determination has yet to be made. Dan Dudley of Ohio EPA's Division of Surface Water may be a good contact for the current status of any proposed changes to the total dissolved solids status.
3. Possible Combination of NPDES Permits 3IE00013 and 3IE00017: Ohio EPA and Millennium discussed the flexibility of modifying the wastewater treatment systems for both Plant Nos. 1 and 2 to accept waste water flows from either plant. This could take some of the hydraulic loading from Plant No. 2 and shift it to additional capacity at Plant No. 1. Per Ohio EPA, this could be accomplished by combining both NPDES Permits 3IE00013 and 3IE00017 into a single permit with all outfalls. This could be explored closer to the renewal cycle for the NPDES permits, but additional time would be needed for processing.
4. Evaluation of Existing Diffuser: Millennium discussed that, during the fall of 2010, they will be retaining the services of Michael Corn of Aquater to evaluate the existing diffuser at the Millennium discharge in the FirstEnergy channel to Lake Erie. Ohio EPA requested that Millennium coordinate field activities with John Schmidt at least 30 days prior to conducting work so that Ohio EPA's water quality personnel, Scott Winkler and Paul Anderson, can observe this activity and coordinate their field activities.
5. Minimization of Amount of Waste Water to Treat: An observation by Ohio EPA is that there is a large area of the landfill that contains no cover, and that any precipitation that falls within the landfill must be collected, managed and disposed of at the Plant No. 1 WWTP. It is recommended that areas of the landfill, or portions of it, should be capped as soon as practicable so that precipitation may be managed as storm water, diverting the hydraulic burden on the Plant No. 1 WWTP.

Mr. Richard D. Hughes
Cristal Global - Millennium Inorganic Chemicals
August 4, 2010
Page 5

Based upon the inspection findings and the overall compliance record of the facility, the facility is considered to be in substantial compliance; however the above limit violations should be explained, along with a resolution.

Please inform this office, in writing, within 30 days of the date of this letter as to the actions we discussed that have been or will be taken to correct the above noncompliance or explanations if you believe the noncompliance issues noted are in error. Your response to this letter should include the dates that the actions have been or will be completed. Please be advised that past or present issues of noncompliance can continue as subjects of future enforcement actions by Ohio EPA.

If you have any questions or comments regarding this notification, please feel free to contact me at (330) 963-1175.

Respectively,



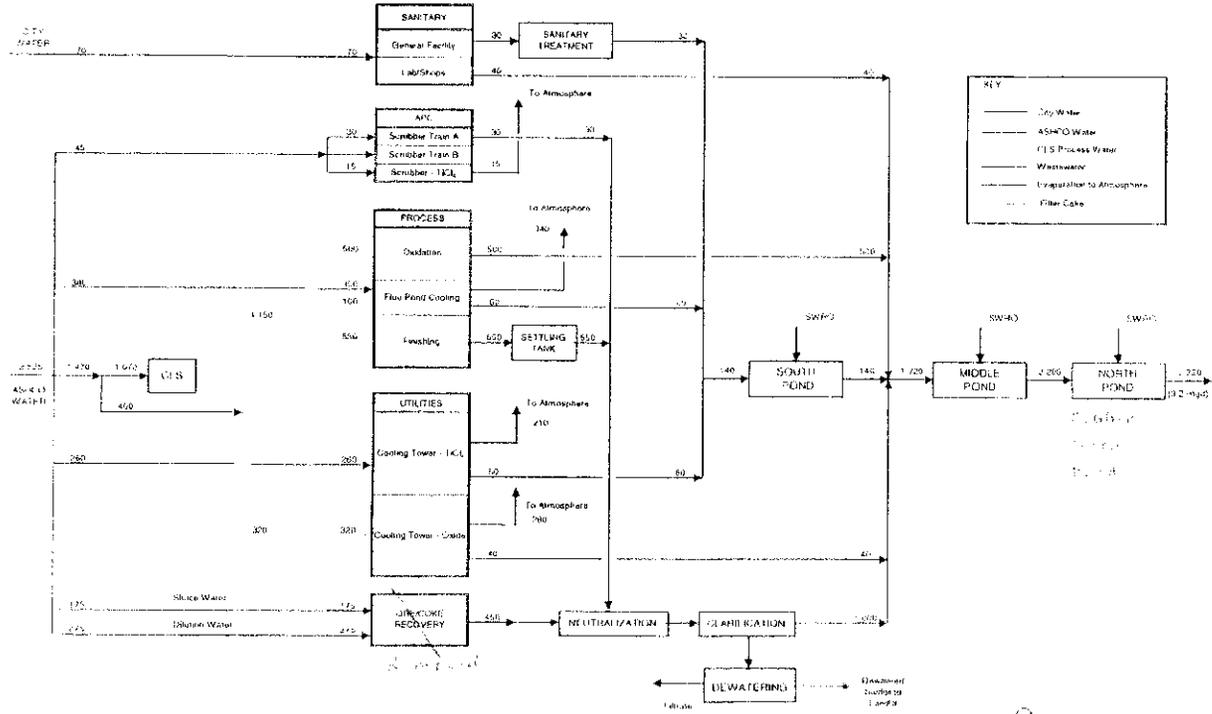
John M. Schmidt P.E., R.S.
Environmental Engineer
Division of Surface Water

JMS/mt

att: Process flow Diagram, Permit 3IE00013

File: Industrial P/C: Millennium Plant 1

Millennium Chemicals Incorporated
Ashtabula, Ohio



ICIA	ASHFO	TOTAL
2385	2576	4961

WASTE WATER TO ATMOSPHERE	TO SEWER	TOTAL
1780	865	2645

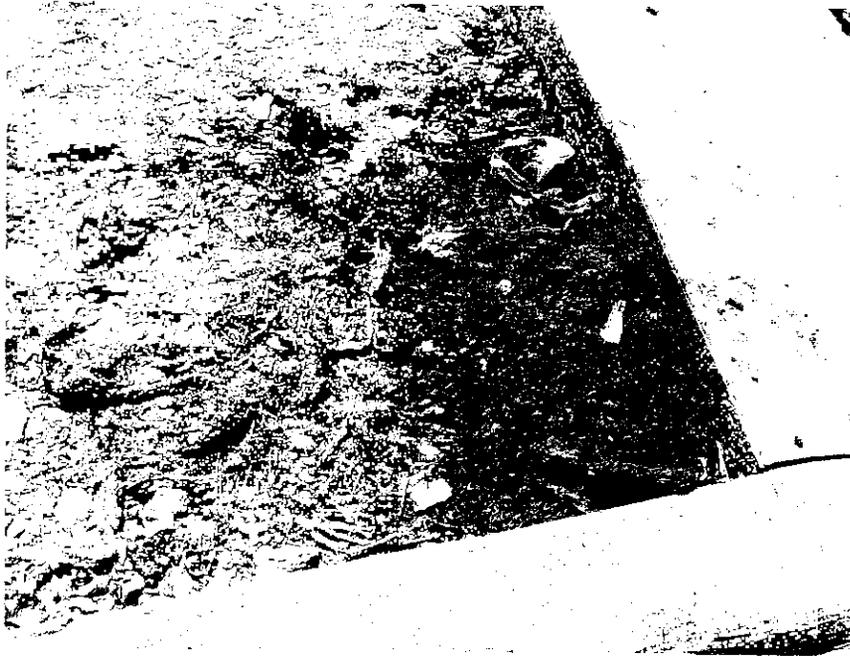
KEY

- City Water
- ASHFO Water
- CIS Process Water
- Wastewater
- Transported to Atmosphere
- Filter Cake

ONDEO
Industrial Solutions



Figure 1.1 Water Balance Diagram



Screenings Cleanout Discharged to the Ground



Sand Filter Cleanouts Deposited on the Ground



Outbreak on Wisconsin Mound System – Picture 1



Outbreak on Wisconsin Mound System – Picture 2