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WISCONSIN DEPT. OF NATURAL RESOURCES

July 3, 2012

Mr. John Perkins, CHMM
Director, Environment, Health & Safety
Tyco Safety Products
6600 Congress Avenue
Boca Raton, FL 33487

File Ref: FID # 438039470

SUBJECT: Hazardous Waste Remediation Variance – Conditional Approval
Storage and Treatment of Arsenic Contaminated Sediment
Menominee River Sediment Removal Project
Adjacent to Tyco Fire Products LP Facility
1 Stanton Street, Marinette, Wisconsin
WDNR BRRTS # 02-38-000011
EPA # WID 006 125 215

Dear Mr. Perkins:

On March 8, 2012, the Wisconsin Department of Natural Resources (Department) received the document titled, "*Hazardous Waste Remediation Variance Request*". This document, dated March 7, 2012, was prepared by CH2MHill and submitted to the Department on behalf of Tyco Safety Products (Tyco). The Department met with representatives from CH2MHill, Tyco's consultant for the sediment dredging project, on April 25, 2012 to discuss the items in the Notice of Incompleteness issued by the Department on April 23, 2012. The Department received a revised Hazardous Waste Remediation Variance Request prepared by CH2MHill on May 22, 2012 in response to the Department's Notice of Incompleteness. The Department sent a draft remediation variance conditional approval to Tyco and CH2MHill for comment on June 21, 2012. The Department received comments in a letter prepared by CH2MHill dated June 27, 2012. Department and CH2MHill representatives discussed the draft conditional approval on June 28, 2012 and July 2, 2012. CH2MHill prepared and submitted to the Department two emails containing clarifying information on July 2, 2012.

Tyco is seeking a permit from the Department's Bureau of Watershed Management to conduct wet mechanical dredging in certain areas of the Menominee River adjacent to Tyco's plant at 1 Stanton Street in Marinette, Wisconsin. The areas where dredging will take place include the main channel of the river, the turning basin, three transition areas, the 6th Street Slip and the south channel. The remediation variance is for the on-site storage and treatment of arsenic contaminated sediment removed from the Menominee River.

On March 15, 2012, the Department received a plan review fee of $3,200.00 in accordance with ch. NR 670, Wis. Adm. Code, Appendix II. This fee covers the review of the remediation variance request. On April 9, 2012, the Department received a copy of the required Class 1 Public Notice, published in the local Eagle Herald newspaper on March 29, 2012. The Department and Tyco representatives did not receive any written comments on the proposed actions within the 30 day public comment period stated in the notice.

Project Summary

From 1957 to 1977, Ansul, Inc. produced arsenic-based agricultural herbicides at the facility located at 1 Stanton Street in Marinette, Wisconsin. The herbicide manufacturing process created a waste salt that contained approximately 2 percent arsenic by weight. This waste salt was stockpiled at several locations on the property and eventually leached into surrounding site soil, groundwater, surface water and sediment. The waste arsenic salt removal was completed in the 1980's and some upland remedial actions were pursued.

In February 2009, Ansul, Inc. and the U.S. Environmental Protection Agency signed an Administrative Order on Consent (AOC) for corrective actions necessary to remediate contamination resulting from past facility operations. The AOC includes implementation of institutional controls, on-site groundwater management, soil remediation, removal of sediment from the Menominee River and monitored natural recovery. Sediment removal is to be completed by November 1, 2013.

The sediment to be removed consists of a layer of soft sediment over a layer of semi-consolidated material (SCM). Generally, soft sediment in the lower velocity areas of the river consists of highly organic silt and detritus. Soft sediment in the portions of the river with higher flow velocity also includes loosely consolidated sand and gravel. The underlying SCM unit is comprised of fine- to medium-grained sand. Approximately 97,000 cubic yards of soft sediment and 153,000 cubic yards of SCM, or a total of 250,000 cubic yards of sediment will be dredged during seasonal periods in 2012 and 2013.

Sediment sampling in 2010 indicates total arsenic concentrations in the soft sediment range from about 1 milligram per kilogram (mg/kg) to 20,000 mg/kg while total arsenic concentrations in the SCM range from about 1 mg/kg to 2,900 mg/kg. Because the sediment contains relatively high concentrations of arsenic, Tyco/CH2MHill concluded that the arsenic has the potential to leach from the sediment at concentrations greater than 5 milligrams per liter (mg/L), resulting in the sediment being classified as a hazardous waste.

Tyco is proposing to construct a temporary treatment and storage facility to manage the arsenic contaminated sediment. Soft sediment and SCM containing total arsenic concentrations greater than or equal to 50 mg/kg will be mechanically dredged in the Menominee River main channel, turning basin, three transition zones, 6th Street Slip and south channel. The dredged material will be loaded into barges and moved adjacent to a support barge along the western side of the former 8th Street Slip. Excess dredge water will be decanted and sent to the temporary wastewater treatment unit located at the 6th Street Slip. The remaining dredged material will be pumped or otherwise mechanically transferred for screening to segregate rocks and other debris from the sediment. The sediment material passing through the screen will be transported via conveyor to the pug mill unit. Debris screened from the sediment will be placed in a container for subsequent re-sizing and eventually incorporated into the pug mill waste stream. The pug mill is regulated as a miscellaneous unit under ch. NR 664 subch. X, Wis. Adm. Code.

Reagents and pozzolanic materials will be blended with the screened dredged material in the pug mill unit to treat the material to acceptable standards for disposal in a nonhazardous landfill. The reagents and pozzolanic materials which may include ash to solidify and iron sulfate and calcium or sodium hypochlorite to stabilize the arsenic, will be electronically metered into the pug mill mixing tank to ensure proper dosage. Dosage rates will be determined by the sub-contractor. Depending on the consistency of the treated material, a conveyor belt or feeder trough will be used to pump the stabilized material to a storage bin to cure.

A total of 11 open top storage bins will be constructed on the asphalt pad in the general area of the salt vault and 8th Street Slip. Each of the storage bins will be 50 feet wide by 140 feet long. Side walls will be 8.5 feet high. The storage capacity of each vault is approximately 2,203 cubic yards. The storage bins will be constructed from concrete ecology blocks or precast concrete divider blocks. A sealant will be placed along the bottom of these blocks to reduce seepage between the bins. An estimated 1,300 – 1,500 cubic yards (one day's production) of dredged material will be stored in each bin. It is anticipated that no more than 16,500 cubic yards of material will be stored on-site at one time.

Samples will be collected from the piles of treated material. Once the analysis shows the treated material is nonhazardous, the material can be managed at a nonhazardous waste landfill. It will then be transferred to a lined truck that will be tarped, weighed and decontaminated prior to transporting the waste to the Waste Management solid waste landfill in Menominee, Michigan. Treated material that fails TCLP will be re-treated a second time in the pug mill and retested. If the material cannot be treated to meet solid waste landfill standards, it will be transported to a hazardous waste facility. Due to the possibility of unsuccessful treatment of the dredged material, Tyco is seeking a variance to store the material in the storage bins until it is either successfully re-treated or shipped off-site as a D004 hazardous waste. The storage bins are regulated as waste piles under ch. NR 664 subch. L, Wis. Adm. Code.

Department Response to Comments on the Draft Remediation Variance

The June 27, 2012 letter prepared by CH2MHill included the following comments on the draft remediation variance conditional approval.

1. *Condition 4 requiring treatment to only occur in the pug mill.* Geotextile tubes (geotubes) containing sediment will be generated during the operation of the temporary water treatment system at the 6th Street Slip. The spent geotubes will likely be a D004 hazardous waste (toxicity characteristic for arsenic). The geotubes cannot be treated in the pug mill as they will foul the auger and cause delays in the remediation activities. It is estimated that about 20 cubic yards of geotube waste will be generated per week. CH2MHill proposed treating the geotubes in the storage bins. The Department expressed concern regarding this proposal, since untreated waste will be added to material that has already been treated to meet solid waste landfill standards. To ensure adequate treatment of all waste, the Department requested CH2MHill to investigate the feasibility of treating the waste either separately in an empty storage bin or in a lugger box or bin other than those used to store treated sediment. On July 2, 2012, CH2MHill stated concerns that treating the geotube waste in a separate bin may be difficult due to space limitations on the Tyco site or at the 6th Street Slip. CH2MHill suggested placing a temporary divider in the storage bin to segregate the geotube waste from the treated sediment. The Department believes Tyco should further investigate the feasibility of treating the geotube waste in a unit other than the sediment storage bins. Condition 5 requires the treatment of the spent geotubes in a separate bin. If treating the geotube waste in a separate bin is not feasible, the Department is to be notified in writing at least 10 days prior to treating the geotube waste in a segregated area within the sediment storage bins.

2. *Condition 6 requiring the storage bins to be covered at all times, except when waste is added or removed from the bins.* Due to logistical and safety concerns, CH2MHill requests that this condition be removed. The Department has considered the information presented by CH2MHill and agrees to remove the requirement to cover the bins. Condition 6 (now condition 7) has been revised to require daily inspections of the bins and immediate actions to prevent or minimize visible dust emissions and the length of time precipitation remains in the bins. The condition also allows the Department to initiate a plan modification to require the bins to be covered if releases to the air, water or soil occur. Condition 8 has been revised to require a 6-

inch asphalt berm, rather than the clay berm proposed in the remediation variance request, in front of the storage bins as a means of controlling surface water from flowing in or out of the storage bins. Condition 9 has been revised to more clearly state the requirement to apply a sealant on the base and joints of the storage bins.

3. *Condition 12 requiring the characterization of dredged material prior to treatment.* While a large number of soft sediment and SCM samples have been collected and analyzed for total arsenic (summarized in Table A1 of the January 2012 draft final design report), only 6 soft sediment samples and 1 SCM sample have been analyzed for both total and TCLP arsenic. The sample results indicated the following:

Sediment Sampled	Total Arsenic mg/kg	TCLP Arsenic mg/L
SCM[1]	167	0.34
Soft Sediment[1]	2,030	6.8
Soft Sediment[1]	817	5.17
Soft Sediment[1]	2,030	9.14
Soft Sediment[2]	204	0.253
Soft Sediment[2]	1,047	2.10
Soft Sediment[2]	115	0.116

[1]From January 2012 Final Design Report
[2]From June 27, 2012 CH2MHill letter to Gary Cygan, U.S. EPA

Based on these sample results, the Department agrees that the soft sediment in the south channel does not require treatment for arsenic leachability because all total arsenic concentrations are below 120 mg/kg total arsenic. However, the Department does not agree with the conclusion that SCM containing less than 500 mg/kg does not have to be treated for arsenic leachability. This conclusion is apparently based on the 1 composite sample of SCM containing a total arsenic concentration of 167 mg/kg and a TCLP arsenic value of 0.34 mg/L. This 1 sample result for SCM cannot be used to correlate total arsenic concentrations at the regulatory limit of 5 mg/L for determining if a waste is hazardous or nonhazardous. CH2MHill proposed during the conference call on July 2, 2012 to collect samples of untreated SCM after it has been dredged and moved to the storage bins. The sample results would then be used to determine if treatment for arsenic leachability is necessary. The Department is concerned with this approach for 2 reasons: 1) the additional handling and storage of the untreated SCM could cause delays in the dredging schedule, which is already on a tight timeframe; and 2) samples of dredged sediment collected from the storage bins will likely be nonhazardous due to dilution by mixing highly contaminated arsenic containing SCM with SCM containing lower levels of arsenic. The sample results listed in Table A1 of the January 2012 draft final design report indicate SCM contains total arsenic at concentrations greater than 167 mg/kg in Transition Areas 2 and 3 and in the Turning Basin. Total arsenic concentrations in the SCM samples collected from the Menominee River and Transition Area 1 are all below 167 mg/kg. SCM will not be dredged in the 6th Street Slip and south channel. Condition 12 (now condition 13) has been revised to allow the Menominee River and Transition Area 1 SCM, where sample results indicated 167 mg/kg total arsenic or less, to be managed as nonhazardous (not treated for arsenic) without further sampling and analysis. For the Turning Basin and Transition Areas 2 and 3, Tyco may either sample and analyze the sediment where the highest total arsenic concentrations have been found prior to dredging to determine if treatment for arsenic is warranted, or treat all of the sediment for arsenic toxicity in each of the 3 areas.

4. *Condition 32 requiring a construction report and certification statement to be submitted to the Department.* Given that dredging will begin on July 10th, condition 32 (now condition 33) requires the construction report and certification statement to be submitted to the Department by August 13, 2012, slightly more than 30 days after completion of initial construction.

With this letter, the Department is conditionally approving Tyco's remediation variance request to allow the storage and treatment of hazardous waste dredged material. This approval addresses only the waste management issues related to the dredging project. This remediation variance is granted until February 1, 2014.

The conditions in the attached *Hazardous Waste Remediation Variance Conditional Approval for Tyco Safety Products* ("the Remediation Variance") state the requirements of chs. NR 660 to 670, Wis. Adm. Code, and chs. NR 700 to 750, Wis. Adm. Code, that are necessary to protect human health and the environment during the generation, storage, treatment and disposal of hazardous waste sediment from the Menominee River; ensure compliance with the land disposal requirements (LDRs) prior to the disposal of treated hazardous waste contaminated sediment in a Subtitle D solid waste landfill; and/or clarify the requirements that apply to the proposed remedial activity. This Remediation Variance does not relieve Tyco from meeting other federal, state or local permit or approval requirements.

Please review the conditions in the attached remediation variance approval carefully. If you have any questions regarding this letter or the attached remediation variance, please contact Kristin DuFresne in Green Bay at 920-662-5443 or at kristin.dufresne@wisconsin.gov.

Sincerely,

Bruce G. Urben, Air and Waste Regional Program Manager
Northeast Region

ec: Jeff Danko, CH2MHill
Gary Cygan, U.S. EPA – Region V
Sandy Miller, DNR – Sturgeon Bay
Ed Lynch, DNR – WA/5
Mark Gordon, DNR – RR/5
Robert Rosenberger, DNR – Peshtigo
Jim Zellmer, DNR – NERH
Jennie Easterly, DNR – Oshkosh
Steve Galarneau, DNR – WT/3
Jim Killian, DNR – WT/3
Cheryl Bougie, DNR – NERH
Roxanne Chronert, DNR – NERH
Kristin DuFresne, DNR - NERH

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

HAZARDOUS WASTE REMEDIATION VARIANCE
CONDITIONAL APPROVAL
TYCO SAFETY PRODUCTS
US EPA ID # WID 006 125 215

FINDINGS OF FACT

The Department finds that:

1. Tyco International, Inc. (Tyco) is the legal owner and operator of Tyco Safety Products – Ansul, Inc. (Ansul) located at 1 Stanton Street in Marinette, Wisconsin.

2. The Tyco property is currently an active manufacturing facility that consists of approximately 63 acres, including an open paved area known as the salt vault and 8th Street Slip located between the manufacturing operations on the western part of the property and an undeveloped area to the east, referred to as the "wetlands area".

3. The Tyco property was used for the production of cattle feed, refrigerants and specialty chemicals. Arsenic-based agricultural herbicides were manufactured on the Tyco property between 1957 and 1977. A by-product of the manufacturing of these herbicides was a salt that contained approximately 2 percent arsenic by weight. This waste salt was stockpiled at several locations on the property and eventually leached into surrounding site soil, groundwater, surface water and sediment.

4. One or more releases of RCRA metals, volatile organic compounds and semi-volatiles historically took place on the Tyco property.

5. Dames and Moore, previous consultant for Ansul, conducted an interim action in the 8th Street Slip during the late 1990's. The Department issued a hazardous waste variance on May 19, 1999 to allow Ansul to dredge arsenic contaminated hazardous waste sediment from the 8th Street Slip and treat the sediment on-site. Treatment included dewatering the sediment and adding reagents to solidify the material and render the sediment nonhazardous.

6. In February 2009, Ansul and the U.S. Environmental Protection Agency signed an Administrative Order on Consent (AOC) for corrective actions necessary to remediate contamination resulting from past facility operations. The AOC includes implementation of institutional controls, on-site groundwater management, soil remediation, removal of sediment from the Menominee River and monitored natural recovery.

7. In 2010 and 2011, CH2MHill, Tyco's consultant, obtained samples of the sediment in the Menominee River adjacent to the Tyco property. Concentrations of up to 20,000 milligrams per kilogram (mg/kg) of total arsenic were found in the sediment. Because relatively high concentrations of arsenic have been found, the contaminated sediment has been classified as a D004 characteristic hazardous waste due to the potential leaching of the arsenic. Three samples of soft sediment submitted for TCLP analysis confirm that arsenic leaches from the sediment at concentrations above the regulatory limit of 5 milligrams per liter (mg/L) stated in s.

NR661.24(2), Wis. Adm. Code. Sediments that exhibit the toxicity characteristic for arsenic are defined as "characteristic hazardous waste" per s. NR 661.24(2), Wis. Adm. Code.

8. On January 23, 2012, the Department received a document titled, "*Draft Final Design Report*" that was prepared by CH2MHill and dated January 2012. This document was submitted to the Department on behalf of Tyco. The *Draft Final Design Report* included the results of the pre-design investigations of arsenic contamination in Menominee River sediments, delineates remediation areas and describes remedial approaches and technologies.

9. On March 7, 2012, CH2MHill submitted the document titled "*Hazardous Waste Remediation Variance Request*" to the Department on behalf of Tyco to treat and store hazardous waste sediment on-site. The hazardous waste will be generated when the arsenic contaminated sediment is dredged from 7 different areas of the Menominee River. The dredged material will be brought to shore in a barge, screened and mixed in a pug mill with reagents and pozzolanic materials. The treated material will then be transferred to bins where it will be stored for about 4 days before being tested to determine if the treated material meets landfill standards, including passing the paint filter test and arsenic TCLP test. The pug mill is a hazardous waste treatment unit subject to the miscellaneous unit standards in ch. NR 664 subch. X, Wis. Adm. Code. The bins are hazardous waste storage units subject to the waste pile standards in ch. NR 664 subch. L, Wis. Adm. Code.

10. On March 12, 2012, CH2MHill submitted the plan review fee of $3,200.00 in accordance with NR 670, Appendix II, Wis. Adm. Code.

11. Tyco published a notice in accordance with s. NR 670.79, Wis. Adm. Code, in the Eagle Herald newspaper on March 29, 2012. No written public comments were received by the Department or by Tyco during the 30 day public notice period.

12. On April 23, 2012, the Department issued a Notice of Incompleteness for the March 7, 2012 Remediation Variance Request.

13. On April 25, 2012, the Department met with CH2MHill representatives to discuss the April 23, 2012 Notice of Incompleteness.

14. On May 22, 2012, the Department received a revised hazardous waste remediation variance request from CH2MHill on behalf of Tyco.

15. The Department provided a draft version of the *Hazardous Waste Remediation Variance – Conditional Approval* to Tyco and CH2MHill on June 21, 2012. Written comments were received from CH2MHill on June 27, 2012.

16. On June 28, and July 2, 2012, the Department staff and CH2MHill representatives held conference calls to discuss the June 21, 2012 draft version of the *Hazardous Waste Remediation Variance – Conditional Approval*. Written information was submitted by CH2MHill on July 2, 2012. Questions and comments were incorporated into this approval, as appropriate.

CONCLUSIONS OF LAW

1. The Department promulgated chs. NR 660 to 670, Wis. Adm. Code, establishing the minimum requirements for hazardous waste management under the authority of ss. 291.001 through 291.97, Wis. Stats.

2. The Department has the authority under s. NR 670.079(1), Wis. Adm. Code, to issue a remediation variance from the requirements of s. 291.25, Wis. Stats., if it determines that the application for or compliance with the terms or conditions of any license required under chs. NR 660 to 670 would cause undue or unreasonable hardship and the remediation variance would not result in undue harm to human health or the environment. The remediation options presented in the remediation variance request, as described in Findings of Fact # 9 above, demonstrates undue and unreasonable hardship to warrant the issuance of the remediation variance.

3. The Department has the authority under s. NR 670.079(2)(d), Wis. Adm. Code, to revoke the remediation variance at any time if it is determined that revocation is appropriate to protect human health or the environment.

4. The Department has the authority under s. NR 670.079(2)(e), Wis. Adm. Code, to require compliance with the appropriate requirements of chs. NR 660 to 670 and chs. NR 700 to 750, Wis. Adm. Code, as a condition of issuance, in order to protect human health or the environment.

5. The Department has the authority under s. 291.31, Wis. Stats. and s. NR 670.079(4), Wis. Adm. Code, to issue the following conditional remediation variance.

CONDITIONS OF ISSUANCE

The Department hereby grants Tyco a remediation variance under s. NR 670.079, Wis. Adm. Code, and s. 291.31, Wis. Stats., to the requirements for obtaining a hazardous waste operating license under chs. NR 660 through 670, Wis. Adm. Code, for the treatment and storage of sediment exhibiting the toxicity characteristic for arsenic, or characteristic hazardous wastes, in a pug mill and storage bins as described in the May 22, 2012 remediation variance request and January 2012 *Draft Final Design Report*. The granting of this remediation variance is subject to the following conditions:

1. This approval is based on the information available to the Department as of the date of this approval. If additional information, project changes or other circumstances indicate a possible need to modify this approval, the Department may ask you to provide further information relating to this activity. Likewise, the Department accepts proposals to modify approvals, as provided for in state statutes and administrative codes.

2. The granting of this remediation variance does not relieve Tyco of its obligation to meet all other federal, state or local permit or approval requirements.

3. This remediation variance is issued for a term of 19 months, ending February 1, 2014. All closure activities shall be completed before this variance approval expires.

4. Treatment of hazardous waste sediments shall only occur in the pug mill. Untreated sediment shall only be stored in the barge while it is secured to shore. Sediment that has been treated, but is waiting for re-treatment, shall be stored in any of the 11 storage bins located on asphalt pavement in the former salt vault area and the 8th Street Slip.

5. Geotube waste shall only be treated in a lugger box or in some other structurally sound container or tank unit located on-site. A minimum of 1 sample per container or tank of treated

geotube waste shall be submitted for analysis to ensure the treated waste meets solid waste landfill standards. Each sample shall be composited from at least 3 locations of treated geotube waste. If geotube waste is to be treated in a segregated portion of a storage bin containing treated sediment, Tyco shall give written notification to the Department at least 10 days prior to the treatment activity. The notification shall state the problems encountered with treating the geotube waste in the lugger box or separate unit and include a description of the equipment and procedures that will be used to prevent the cross-contamination of the geotube waste with the treated sediment stored in the bin.

6. Each storage bin shall contain no more than the amount of dredge material treated in one day (1,300 – 1,500 cubic yards). The storage bins shall be operated with a minimum freeboard of 1 foot from the top of the storage bin side wall. The pile of treated dredge material in each storage bin shall be maintained below that height.

7. The uncovered piles of material in the storage bins shall be inspected daily. Remedial actions shall be taken immediately to control dust emissions. Water collected in the storage bins shall be pumped out immediately upon discovery and treated at the 6th Street Slip water treatment facility. Any material stored in the bins that is impacted by precipitation shall be retreated as appropriate to meet solid waste landfill standards (such as, paint filter test and arsenic TCLP). All inspection findings and remedial actions shall be documented in an inspection log and shall include the following:
    a. The date and time when dust emissions are discovered and corrected;
    b. The date of the rain event, the approximate amount of rainfall, and the date and time the water was pumped from the storage bins;
    c. The approximate volume of water removed from the storage bins.
    d. If waste in the storage bins is re-treated due to precipitation events, the total volume of waste treated and the reagents added.

    The Department retains the right to modify this condition if the uncovered piles cause releases to the air, soil or water.

8. A minimum 6-inch high asphalt berm shall be constructed at the end of each of the storage bins to control surface water run-on and run-off. The asphalt berms shall be constructed so they are located between the 2-foot high ecology blocks and piles of waste stored in the bins. The asphalt berms shall be inspected daily and shall be scheduled for repair immediately upon finding any defects or structural damage. Any seepage of surface water into or out of the storage bins shall be noted in the facility operating record, corrected immediately and reported to the Department. Verbal notification shall be made within 24 hours of discovery and written notification of the release, efforts undertaken to correct the release, and the cause of the release shall be made within 15 days of discovery.

9. Sealants shall be applied on the base and joints of the sections comprising the individual storage bins to minimize migration of surface water into or out of the storage bins.

10. During a rain event, the containment structure surrounding the active portions of the site shall be monitored to ensure all surface water is adequately contained. The Department shall be notified of any water overflows or if there is a breach of the containment structure. Verbal notification of the overflow or breach shall be made within 24 hours of discovery and written notification, including corrective actions, shall be made within 15 days of discovery.

11. After a rain event, sediment stabilization activities shall not be conducted until after ponded water has been removed from the work areas. The Department shall be given verbal notification if operations cannot resume within 48 hours of the rain event.

12. All material shall meet all landfill requirements before it is transported to a Subtitle D nonhazardous waste landfill.

13. All soft sediment, except for soft sediment in the south channel, shall be assumed to be hazardous and will require treatment for the arsenic toxicity characteristic. All semi-consolidated material (SCM) in the Menominee River and Transition Area 1 may be managed as nonhazardous (not require treatment for arsenic toxicity). For the SCM in the Turning Basin and in Transition Areas 2 and 3, Tyco shall either:
    a. Obtain in-situ samples of SCM from those areas where the total arsenic concentrations are the highest. The SCM samples shall be analyzed for total and TCLP arsenic. If the TCLP values are greater than 5 mg/L, the SCM shall be treated for arsenic leachability.
    b. Treat all SCM in each of these 3 areas as hazardous waste (treat for arsenic leachability).

14. At project initiation, when changing operations from treating soft sediment to SCM, or when beginning dredging operations in a different location, the following sampling and analysis of treated dredged material shall be conducted for the first 6 days of production:
    a. For each of the first 6 staging bins, 1 sample shall be collected for every 300 cubic yards of material treated, for a maximum of 5 samples per storage bin. Each of the 5 samples will be composited from 4 locations within the bin, for a maximum of 20 locations for 5 samples.
    b. The following analysis shall be conducted on each of the samples collected during the first 6 days of production:
        i. TCLP volatiles;
        ii. TCLP semi-volatiles;
        iii. TCLP 8 RCRA metals;
        iv. TCLP pesticides and herbicides; and,
        v. PCBs.
    c. If sampling demonstrates that a successful treatment rate of 100% has not been accomplished for the first 6 staging bins, samples from 3 additional staging bins shall be collected and analyzed as described in a. and b. above until analysis for the 3 additional bins demonstrates a 100% successful treatment rate.
    d. Once a 100% treatment rate is demonstrated, the rate of sampling and analysis as described in a. through c. above shall be decreased to a rate of once per month until the type of sediment (soft sediment or SCM) treated or dredging location changes.

15. Within 15 days of receiving the analytical data for the first 6 days of treatment of characteristic hazardous waste sediments, a report shall be submitted to the Department which includes the analytical results for the treated sediments and either of the following: 1) a discussion of whether additional treatment events were necessary per condition 14; or, 2) if sediments were treated to no longer exhibit a toxicity characteristic and meet the applicable LDR treatment standards in NR 668.48. If a second phase of increased sampling or treatment is required, a similar report shall also be submitted to the Department within 15 days of receiving the analytical data for the second treatment event. If the sediments still contain characteristic hazardous waste or do not meet LDR treatment standards after a second sampling or treatment, Tyco shall submit a proposal for an alternate treatment or disposal method with the analytical data. Alternate treatment methods or other changes in hazardous waste storage or

treatment activities not identified in the *Hazardous Waste Remediation Variance Request* dated May 22, 2012 shall be submitted as a Class 1 modification subject to Department review and approval in accordance with s. NR 670.042(1), Wis. Adm. Code. The submittal should include the appropriate fee stated in ch. NR 670, Wis. Adm. Code, Appendix II.

16. Each storage bin containing hazardous waste material shall be clearly marked with the words, "Hazardous Waste".

17. The sediment shall be run through the treatment process no more than 2 times. If after 2 rounds of treatment, the sediments still contain characteristic hazardous waste the sediment shall be disposed of as a hazardous waste.

18. The Department shall be notified prior to disposing of dredged sediment as a hazardous waste. Hazardous wastes generated on-site other than dredged sediment are not covered by this variance approval and shall be managed as hazardous waste in accordance with applicable hazardous waste generator requirements in ch. NR 662, Wis. Adm. Code.

19. Except as stated in condition13, all treated material shall be tested for TCLP arsenic and the required Subtitle D landfill parameters (paint filter test, etc.) prior to shipment off-site at the rate of 1 composite sample every 500 cubic yards or about 3 samples per staging pile. Each sample will be a composite of at least 4 discrete samples obtained from a minimum depth of 6-inches. If less than 3 samples are collected from a single staging pile, the operating record shall document the estimated volume of the staging pile and the number of samples collected.

20. In accordance with ch. NR 149, Wis. Adm. Code, all analyses shall be performed by Wisconsin certified or registered laboratories.

21. Prior to the installation of the water treatment equipment at the 6th Street Slip, the pavement shall receive an asphalt seal coat.

22. All structural damage to the asphalt pavement in the active areas, including the 6th Street Slip, shall be repaired immediately upon discovery. The date and time of discovery and the date and time of repair shall be clearly marked in the inspection records.

23. The Department shall be notified if the containment area for the water treatment system has been determined ineffective. A groundwater monitoring plan shall be developed after Department notification.

24. Within 7 days of the first shipment of treated nonhazardous waste sediment to the Subtitle D landfill, submit to the Department a copy of the signed LDR certification statement supplied to the landfill, as required by NR 668.07(2)(d), Wis. Adm. Code. The LDR certification shall notify the landfill of treatment of arsenic and the relevant underlying hazardous constituents, including metals (barium, cadmium, chromium, lead, mercury, nickel and zinc), organics (acetone, MEK, acetone and xylenes) and pesticides reasonably expected to be present in the soft sediment and SCM at concentrations exceeding the universal treatment standards stated in s. NR 668.48, Wis. Adm. Code.

25. The following clean closure standards shall be met for seasonal shut down and final closure:
    a. The clean-up standard of 32 milligrams per kilogram (mg/kg) arsenic will be met for all site surfaces, equipment or other materials remaining on Tyco property, such as asphalt, containment barriers and other permanent structures. One sample (wipe test or final

rinsate) shall be collected for each piece of equipment to verify the clean-up standard has been achieved. If wipe tests are used, 5 random samples shall be collected from the asphalt and an additional 5 random samples shall be collected from the containment barriers. If rinsate tests are used, 1 sample from the final rinsate shall be collected from the asphalt and 1 sample from the final rinsate shall be collected from the containment barriers.

b. The clean-up standard of 16 mg/kg arsenic shall be met for all site surfaces, equipment or other materials remaining on the 6th Street Slip, such as asphalt, containment barriers and other permanent structures. One sample (wipe test or final rinsate) shall be collected for each piece of equipment to verify the clean-up standard has been achieved. If wipe tests are used, 3 random samples shall be collected from the asphalt pad. If rinsate tests are used, 1 sample from the final rinsate shall be collected from the asphalt pad.

c. The applicable LDR treatment standard for arsenic stated in NR 668.40, Wis. Adm. Code, shall be met for all equipment, debris and other materials contaminated with hazardous waste sediment prior to its leaving the site. One sample (wipe test or final rinsate) shall be collected from each piece of equipment to verify the clean-up standard has been achieved.

26. Prior to use, the concrete catch basin integrity shall be inspected and documented by Tyco and reported to the Department. This integrity analysis shall be conducted by and submitted under the seal of a Wisconsin Registered Professional Engineer.

27. The waste storage inspection form in Attachment B shall be revised and re-submitted to the Department within 20 days of this approval. Revisions are necessary so the form addresses the inspection of site-specific items and includes, at a minimum, the time of the inspection and weekly inspections of the asphalt pad and berm, operation of the equipment used for treating the sediment and the integrity of the storage bins.

28. All inspections shall be documented in an inspection log. Problems discovered during the inspections shall be clearly documented. Repairs and/or operation changes shall be implemented immediately upon discovery of the problem, clearly documented and reported to the Department.

29. Logs that document all dredging, stabilization, and water treatment activities shall be maintained as part of the site operating record.

30. Dust control measures shall be taken to limit dust from the project to protect workers, on-site personnel and the environment, in accordance with ss. NR 670.014(2)(h)6 and NR 722.09(2)(d), Wis. Adm. Code. Releases of airborne particulate contaminants are not acceptable and shall require immediate shut down until dust control measures have been implemented.

31. Precautions that shall be taken to prevent particulate matter from becoming airborne include, but are not limited to, the following;
    a. The use, where possible, of water or chemicals for control of dust in construction operations.
    b. Application of asphalt, water, suitable chemicals or plastic covering on dirt roads, material stockpiles and other surfaces which can create airborne dust, provided such application does not create a hydrocarbon, odor or water pollution problem.
    c. Installation and the use of hoods, fans and air cleaning devices to enclose and vent the areas where dusty materials are handled.

d. Covering or securing of materials likely to become airborne while being moved on public roads or railroads.
e. The paving or maintenance of roadway areas so as to not create air pollution.

32. Adequate security to prevent entry of unauthorized personnel shall be maintained on the Tyco property and the 6th Street Slip during the treatment and storage of the characteristic hazardous waste sediment.

33. By August 13, 2012, a construction report and certification statement certifying the project was constructed in substantial compliance with this remediation variance approval shall be submitted to the Department. Detailed drawings showing the actual construction and location of the pug mill, storage bins, secondary containment structures and any other equipment, structures or devices related to the treatment process or waste handling process; the specifications and MSDS for the sealants used on the base and joints of the sections; the name of the certified or registered laboratories that will be completing the analysis; documentation that the asphalt seal coat was applied at the 6th Street Slip; and, the chemical reagents and pozzolanic materials used in the stabilization process shall be included in the report. Any deviation from the construction proposal shall be explained and justified.

34. By March 1, 2014, Tyco shall submit to the Department a final documentation report that includes the following:
    a. A certification statement that the project has been completed in accordance with the requirements of chs. NR 660 to 670, Wis. Adm. Code, chs. NR 700 to 750, Wis. Adm. Code,
    b. A certification statement that the project has been completed in accordance with the requirements of the February 2009 Administrative Order on Consent between Ansul and the U.S. Environmental Protection Agency;
    c. A detailed discussion of all closure activities, waste types and quantities generated during closure, and equipment decontamination procedures used;
    d. Detailed drawings showing the actual construction and location of the pug mill, storage bins, secondary containment structures and any other equipment, structures or devices related to the treatment process or waste handling process;
    e. The chemical reagents and pozzolanic materials used in the solidification and stabilization process;
    f. Laboratory data and sample locations;
    g. Color photographic documentation of the closure activities, properly labeled; and,
    h. A copy of all uniform hazardous waste manifests used to transport wastes off-site and land disposal restriction notifications and certifications and a copy of all records documenting the disposal of nonhazardous waste.
    i. A table summarizing daily activities including:
        i. The location from which material was dredged and the quantity of material dredged from each location.
        ii. The amount of wastewater generated in dewatering or decanting operations,
        iii. The amount of dredged material sent to the pug mill unit for treatment and the amount of reagent or pozzalanic materials used,
        iv. The amount of treated dredged material sent to the storage bins,
        v. Sediment type and locations sampled,
        vi. Sediment type and analytical results received for dredged materials.
        vii. The quantity of material shipped as nonhazardous waste,
        viii. The amount of sediment requiring a second treatment; and
        ix. The quantity of material shipped as hazardous waste.

j. Reports shall comply with the requirements of ch. NR 724.15, Wis. Adm. Code.

35. All wastes generated during site activities, including contaminated clothing, spill materials and wastes from the water treatment system, shall be characterized and properly managed as nonhazardous or hazardous waste.

36. In accordance with s. 291.91, Wis. Stats, Department employees and authorized representatives shall be allowed access to the facility and to the owner or operator's hazardous waste records, at all reasonable times, for the purposes of inspection and sample collection.

37. Semi-annual progress reports shall be submitted to the Department in accordance with s. NR. 724.13(3), Wis. Adm. Code, until all dredged sediment is properly treated and disposed. The reports shall summarize the data generated over the previous reporting period and evaluate the overall performance of the remediation system. Specifically, the reports shall contain:
    a. An analysis of treatment rate and contaminant stabilization efficiency of the treatment system;
    b. A proposal for additional monitoring, if appropriate;
    c. A description and estimate of the percentage of the cleanup completed;
    d. A summary of significant activities completed during the reporting period;
    e. Plans, specifications and reports to document the operation, maintenance and monitoring of the treatment system;
    f. A summary of current and projected activities to be conducted over the next reporting period;
    g. A summary of problems or difficulties encountered during the reporting period, and actions taken to rectify the problems;
    h. Changes and effects on the system; and,
    i. Tables that are useful to establish trends, which include data throughout the project and which consist of:
        i. Field data and flow rate measurements;
        ii. Amounts of material stabilized and stored on-site and/or transported off-site; and
        iii. Field measurements and analytical data summarized from laboratory reports.

38. All documentation required in the above conditions shall be submitted to the following:
    - One paper copy to: Jim Killian
      Department of Natural Resources
      101 South Webster Street – WT/3
      Madison, WI 53703
    - One paper copy to: Sandy Miller
      Department of Natural Resources
      110 South Neenah Avenue
      Sturgeon Bay, WI 54235
    - Two paper copies to: Kristin DuFresne
      Department of Natural Resources
      2984 Shawano Avenue
      Green Bay, WI 54313-6727

39. Pursuant to s. NR 670.079(2)(c), Wis. Adm. Code, this remediation variance may be renewed or extended only after the opportunity for a public hearing. Requests to extend or renew this

remediation variance shall be submitted to the Department 90 days prior to its expiration date, February 1, 2014.

40. The Department may, at any time, revoke this remediation variance if the Department determines that the conditions stated herein are not complied with or if revocation is necessary to protect human health or the environment.

NOTICE OF APPEAL RIGHTS

If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes and administrative codes establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, sections 227.52 and 227.53, Stats., establish criteria for filing a petition for judicial review. You have 30 days after the decision is mailed or otherwise served by the Department to file your petition with the appropriate circuit court and serve the petition on the Department. The petition shall name the Department of Natural Resources as the respondent.

Dated July 3, 2012

DEPARTMENT OF NATURAL RESOURCES

For the Secretary

Bruce G. Urben, Air & Waste Regional Program Manager
Northeast Region