

Mr. C. S. Haugh, P.E.
Chief, Source Surveillance
New York State Department of Environmental Conservation
Division of Water
Bureau of Watershed Programs
625 Broadway, 4th Floor
Albany, New York 12233-3506

AC-EA
WR:2012:0082
January 9, 2013

SUBJECT: REISSUE of the State Pollutant Discharge Elimination System (SPDES) Mercury Minimization Program (MMP) Report – Outfalls 001, 01B, 007 and SW Group 3 (S09 & S12), SPDES Permit No. NY-0000973, West Valley Demonstration Project (WVDP)

REFERENCE: Letter WR: 2012:0034, J. D. Rendall to C. S. Haugh, entitled, “State Pollutant Discharge Elimination System (SPDES) Mercury Minimization Program (MMP) Report – Outfalls 001, 01B, 007 and SW Group 3 (S09 & S12), SPDES Permit No. NY-0000973, West Valley Demonstration Project (WVDP)”, dated June 27, 2012

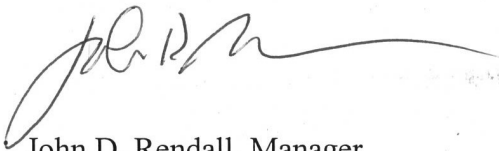
Dear Mr. Haugh:

In reviewing our records, it appears that in the original transmittal letter to your office, Attachment #4, “WWTF Mercury Results Data Table,” may have been inadvertently omitted. As such, the referenced Mercury Minimization Program Report is being re-issued to your office in its entirety as an attachment to this letter.

Please accept our apology for any confusion this may have caused.

If you have any questions, please contact or David Klenk of my staff at 716-942-4061 or me at (716) 942-4602.

Very truly yours,



John D. Rendall, Manager
Regulatory Strategy

Attachment: Reissue Letter WR: 2012:0034, J. D. Rendall to C. S. Haugh, entitled, “State Pollutant Discharge Elimination System (SPDES) Mercury Minimization Program (MMP) Report – Outfalls 001, 01B, 007 and SW Group 3 (S09 & S12), SPDES Permit No. NY-0000973, West Valley Demonstration Project (WVDP)”, dated June 27, 2012

JDR:DPK:bnj

cc: M. A. Jackson, NYSDEC-Region 9 - DOW
J. M. Weidman, NYSDEC, Central Office - DOW
E. W. Wohlers, Cattaraugus County Health Department
J. M. Dundas, DOE-WVDP, AC-DOE
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Letter Log (B. Jeffery), CHBWV, AC-BUS

REISSUE

Mr. C. S. Haugh, P.E.
Chief, Source Surveillance
New York State Department of Environmental Conservation
Division of Water
Bureau of Watershed Programs
625 Broadway, 4th Floor
Albany, New York 12233-3506

AC-EA
WR:2012:0034
December 27, 2012

SUBJECT: State Pollutant Discharge Elimination System (SPDES) Mercury Minimization Program (MMP) Report – Outfalls 001, 01B, 007 and SW Group 3 (S09 & S12), SPDES Permit No. NY-0000973, West Valley Demonstration Project (WVDP)

REFERENCE: Letter WR: 2012:0034, J. D. Rendall to C. S. Haugh, entitled, “State Pollutant Discharge Elimination System (SPDES) Mercury Minimization Program (MMP) Report – Outfalls 001, 01B, 007 and SW Group 3 (S09 & S12), SPDES Permit No. NY-0000973, West Valley Demonstration Project (WVDP)”, dated June 27, 2012

Dear Mr. Haugh:

The West Valley Demonstration Project (WVDP) site has completed the Mercury Minimization Program (MMP) for each of the outfalls (effluent and storm water) that have been identified as a requirement in the Schedule of Compliance contained on page 30 of 32 of the site’s SPDES permit (NY0000973). This report documents the results of our MMP for 2012.

The ultimate goal of the MMP is to achieve effluent water quality at or below the Water Quality Based Effluent Limit (WQBEL) of 0.70 ng/L. The WVDP MMP goal is to reduce and maintain mercury discharges to the General Level Currently Achievable (GLCA) of 50 ng/L or less. During the past year, the WVDP has implemented a Best Management Practices (BMP) approach to fully understand mercury concentrations associated with each individual outfall and the influent sources that may be contributing to the mercury concentrations. Developing this understanding was an important step in developing a comprehensive plan that would have an immediate effect on the mercury concentrations at the outfalls.

Based on this knowledge, the WVDP has implemented several actions that have either significantly reduced the mercury discharges at each of its effluent discharge points already, or are in the process of doing so. The actions taken for the specific outfalls are discussed in the following pages. Further enhancements to reduce the mercury concentrations at the outfalls are in the planning stages and will be implemented during this next year.

Outfall 01B

The first outfall of concern is the WVDP internal monitoring point listed on the site’s SPDES permit as Outfall 01B. This outfall was installed as part of the Liquid Waste Treatment System (LWTS) for the removal of mercury from evaporator condensate. This condensate was generated from the liquid

processing associated with the now deactivated high-level waste (vitrification) and supernatant treatment system, equipment and process cell decontamination and analytical lab testing.

Effluent from the LWTS flowed through a mercury abatement ion exchange column, followed by an internal process discharge from outfall 01B, followed by final treatment and discharge at Outfall 001. The LWTS is currently out of service and discharges from this internal outfall have not occurred since August 2006, and likely will not occur in the future as this outfall is currently scheduled to be closed as

part of the Main Plant Process Building (MPPB) decommissioning and demolition in accordance with the SPDES closure requirements contained in 6 NYCRR Subpart §750-1.

Outfalls S-09 and S-12

The second outfall of concern is storm water outfall group 3 as listed in the site's SPDES permit, containing individual Outfalls S-09 and S-12. Mercury sampling performed in 2006 during the completion of the New York State (NYS) form 2F storm water characterization was completed at outfall S-12 via method 245.1. The mercury analysis that was completed on a first flush grab sample collected on September 28, 2006 was reported at 380 ng/L.

Due to the semi-annual nature of collecting storm water samples, the WVDP has relatively few sample results for the analysis of mercury via method 1631. The sampling results that the site has collected and analyzed to date via method 1631 are contained in the table below.

Outfall	Units	Sample Date	Result
S-12	ng/L	11/13/08	2.66
S-09 (original)	ng/L	03/18/09	20.3
S-09 (proposed)	ng/L	11/14/11	28.3
S-12	ng/L	05/08/12	45.7

The original outfall S-09 was eliminated during the installation of the Permeable Treatment Wall (PTW) that was completed in 2010. An additional full suite of analysis was completed at a proposed replacement outfall for S-09 and the mercury result of 28.3 ng/L was obtained on a sample collected on November 14, 2011.

Semi-annual sampling will continue on an alternating basis between the proposed replacement Outfall S-09 and Outfall S-12 as outlined in the site's SPDES permit and results from this sampling will be updated with each annual MMP report.

Outfall 001

The third outfall of concern is the process wastewater that is discharged from Lagoon-3 at Outfall 001. Mercury results have averaged 5.90 ng/L since 2007 with a minimum of 1.98 ng/L and a maximum of 41.5 ng/L. The analytical result for mercury of 41.5 ng/L that was reported in the February 2012 Discharge Monitoring Report (DMR) was for a sample collected at outfall 001 on February 1, 2012. A second Lagoon 3 discharge was sampled on March 21, 2012 with a result of 24.6 ng/L. Due to the fact that the sample collected in February 2012 was close to the permit limit of 50 ng/L, and that this result was significantly higher than historical results for Outfall 001, an intense sampling plan was initiated. Sampling efforts focused on each of the lagoons within the system, effluents from each of the ion-exchange skids, the interceptors, the Nuclear Regulatory Commission Licensed Disposal Area (NRC-NDA) Manhole 4, and the North Plateau Groundwater Recovery System (NPGRS). Please refer to the

attached diagram that illustrates the Low Level Wastewater Treatment Facility (LLWTF) Flow Path (Attachment 1) and a table containing the results of this sampling (Attachment 2).

Based on the results from these sampling efforts, additional testing was completed on the Laundry sump pit, the Lagoon-2 sump, the original interceptor and the neutralization pit. The WVDP is still quantifying the results for each of these locations and additional sampling of these locations continues.

Since February 2012, the WVDP has been sampling each interceptor and Lagoons 4 and 5 as they are filled. Lagoon 2 has been sampled every two weeks. The NDA Manhole 4 sampling was discontinued since the results that were received were non-detected at <0.5 ng/L. The NPGRS sample results of 0.57 ng/L have also shown that the effluent from the NPGRS is not a contributor of mercury to the lagoon system.

The interceptors, Lagoon 2, and Lagoons 4 and 5 have reported results that have been variable. As such, these results cannot be used as a reliable indicator of future results within the system.

Based on this information, the WVDP has initiated bench top testing on two resins that can be used in the removal of mercury from wastewater. The first resin was SR-4, manufactured by Sybron Chemical, that was initially used in the 01B system with mercury effluent results that ranged between 2.71 ng/L to 27.0 ng/L. The degree of mercury absorption during initial column testing was significantly lower than what was expected. A second resin material, Lewatit Monoplus TP 214, was identified and a small amount was acquired from the manufacturer for use in a test column. The initial results using this material have shown a reduction in mercury based on influent and effluent samples that have been collected. Additional analysis of the results is on-going at this time. It is expected that this new resin material will likely be used in an ion exchange column located in the LLWTF in the near future. Skid A will contain a suitable mercury removal media determined through testing and will then be discharged to either Lagoon 4 or 5.

The results of this additional mercury treatment will be tracked closely, as part of the MMP for the WVDP site. The interceptors appear to be an area of concern, and the WVDP will continue efforts to determine where the source water that generates elevated mercury concentrations for each interceptor is originating.

Outfall 007

The last outfall of concern is the Wastewater Treatment Facility (WWTF), Outfall 007 that discharges sanitary wastewater, non-contact cooling water and water production wastewater.

At the outset of sampling initiated in accordance with the current SPDES Permit that was effective on July 1, 2011, mercury concentrations were averaging less than 78.1 ng/L until a permit exceedance occurred in October 2011. The SPDES permit limit of 200 ng/L was exceeded with a result of 346 ng/L and immediate notifications were made to NYSDEC. Mercury results that have been reported since the WWTF was restarted on February 14, 2012 have shown a steady downward trend from 74.4 ng/L for a sample collected on February 16, 2012 to 7.75 ng/L for a sample collected on May 1, 2012.

With the permit limit exception in October 2011, the outfall discharge was immediately terminated and waste water was sent to the site's equalization basin. This basin can hold approximately 240,000

gallons of wastewater. With the discharge terminated, and the wastewaters from other sources identified and controlled, the search for a mercury source was initiated. Sampling was conducted at the individual grinder stations and throughout the WWTF to determine incoming mercury concentrations as well as the concentrations throughout the plant.

It was determined by this sampling that the mercury concentrations within the grinder stations, that are influent points to the WWTF, were non-detected via analytical method 245.1. Results were reported as <66.0 ng/L which was the detection limit for this method.

These samples were analyzed by method 245.1 and not by method 1631 due to the uncertainty of the mercury concentration in these samples. The method 1631 laboratory instrumentation can become contaminated with samples containing mercury in excess of 150 ng/L.

It was determined that the aeration tank sludge samples contained mercury in the 30,000 to 60,000 ng/L range. Through the analysis of decanted sludge samples it was determined that the vast majority of mercury was associated with the sludge material. Mercury results throughout the non-sludge portions of the system were generally less than the permitted limit of 200 ng/L, but at times above 50 ng/L.

See Attachment 3 for the WWTF flow path and sample points and Attachment 4 for mercury sample results.

During a review of operations in the WWTF laboratory, it was determined that a reagent used in the analysis of ammonia contained mercury at a concentration of 44,000 mg/L (44 E+9 ng/L). The ammonia sample waste was being disposed of in a Satellite Accumulation Area (SAA) drum per the procedure governing this analysis but the rinseate of the sample vials was being discharged into the WWTF laboratory sink instead of also being disposed of in the SAA drum.

The procedure was changed to direct the WWTF operators to dispose of the sample waste vials and all rinse water of the sample vials to the SAA. A replacement reagent was identified that does not contain any mercury and the procedure was again modified to use this new reagent in the completion of all future ammonia analysis.

Additionally, all of the tanks within the WWTF were pumped out and rinsed with pressurized water. With everything cleaned, the decision was made to go from a 25,000 gallon per day system to a 10,000 gallon per day configuration, and influent from the grinder stations was allowed to flow into the surge tank and then into the two 5,000 gallon aeration tanks (34-D-3 & 34-D-4). A suitable seed material was located and acquired from the City of Salamanca Sewage Treatment Plant to initiate biological activity in aeration tanks 34-D-3 and 34-D-4. The discharge was re-started on February 14, 2012 once process control samples indicated compliance with the site's SPDES permit limits and New York State Department of Environmental Conservation (NYSDEC) was notified.

Monitoring of the influent into the system (34-D-10) and effluent from the clarifier (34-D-6) and the de-chlorination tank (34-D-9) will continue as process control sampling, with results reported in the annual MMP.

It is expected that mercury discharges from this facility will be maintained well below the interim mercury limit in the SPDES permit of 200 ng/L, and ultimately below the 50 ng/L as required by July 1, 2013. This expectation is supported by the WVDP actions already completed and those on-going

including the change in the reagent used in the WWTF, the complete cleanout of all tanks within the system, and continued vigilance with periodic monitoring.

Conclusion

Based on the results obtained to date, the actions taken by the WVDP have had a significant impact on reducing the overall discharges of mercury contained within WVDP effluents. The WVDP continues to make progress toward the goal of achieving and maintaining effluent water quality discharges below 50 ng/L with process modifications or with additional treatment media as is determined through periodic monitoring of each of the outfalls identified within the SPDES Permit Schedule of Compliance.

If you have any questions, please contact Moira Maloney of the U.S. Department of Energy at (716) 942-4255 or David Klenk of my staff at 716-942-4061.

Very truly yours,

Signature on File

John D. Rendall, Manager
Regulatory Strategy

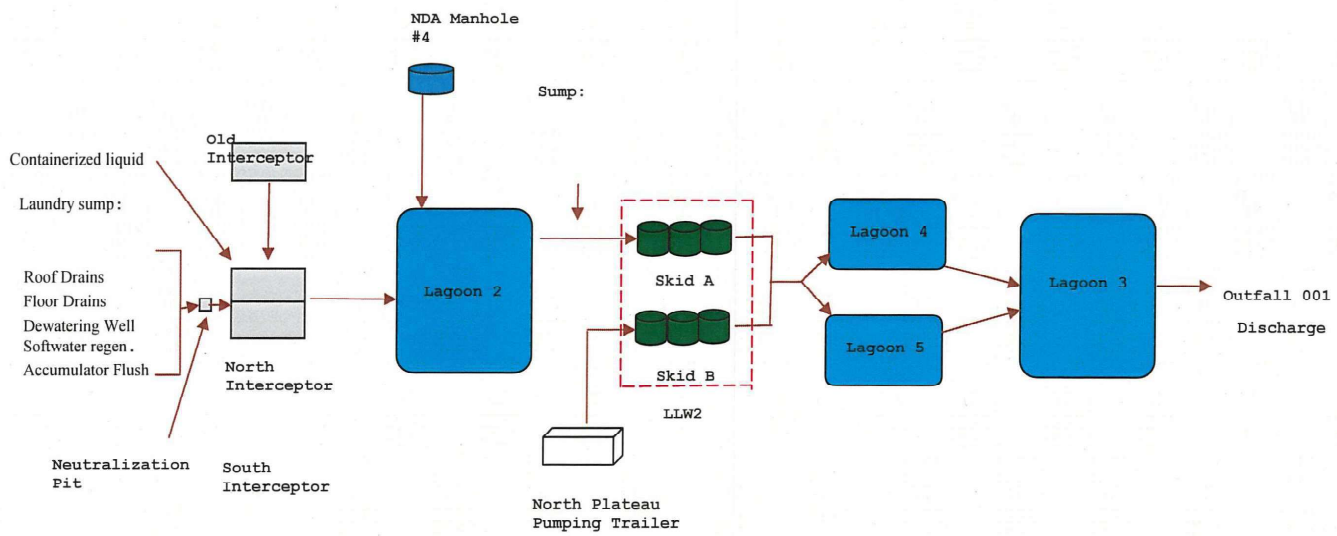
JDR:DPK:bnj

Attachments: 1) Low Level Waste Treatment Facility (LLWTF) Flow Path
2) LLWTF Mercury Results Data Table
3) Wastewater Treatment Facility (WWTF) Flow Path
4) WWTF Mercury Results Data Table

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Letter Log (B. Jeffery), CHBWV, AC-BUS

Attachment 1

Low Level Waste Treatment Facility Flow Path

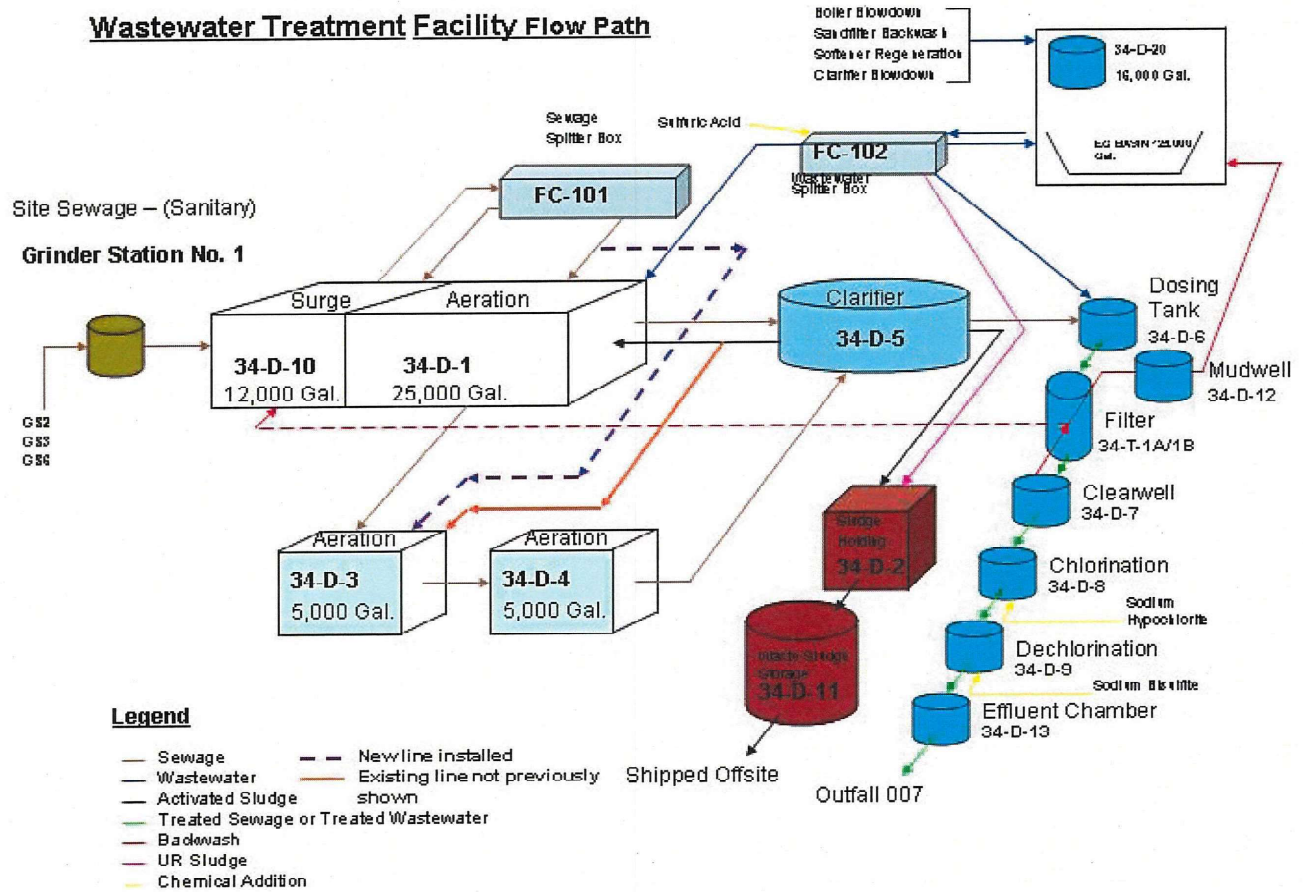


Attachment 2

Mercury Results (ng/L) for Samples Collected from Select Points Within the WWD's Low Level Waste Treatment Facility (LLWTF)

Date	Interceptor's (North/South) (ng/L)	Lagoon 2 (ng/L)	Lagoon 4/5 (ng/L)	Lagoon 3 (ng/L)	Manhole # 4 (ng/L)	Outfall 001 (ng/L)
07/01/11						4.3
09/15/11						9.4
12/07/11						10.6
02/01/12						41.5
02/09/12			4 - 7.46			
02/20/12			4 - 78.3			
02/27/12		98.7		31.4		
02/28/12			4 - 65.0			
03/07/12			5 - 14.0			
03/08/12	N - 9.11					
03/12/12	S - 9.23	83.4	5 - 9.56		<0.5	
03/16/12	N - 75.6					
03/20/12			4 - 41.3			
03/21/12						24.6
03/22/12	S - 113					
03/26/12		267			0.848	
03/29/12	N - 29.1					
04/02/12			5 - 19.7			
04/11/12		47.0				
04/12/12	S - 94.6					
04/19/12		54.6	4 - 19.5			
04/23/12	N - 60.4				<0.5	
04/25/12		46.9				
04/30/12	S - 123		5 - 20.1			
05/02/12				11.2		
05/03/12		31.4				
05/07/12			4 - 19.7			
05/08/12		31.2				
05/09/12	N - 91.4		5 - 18.8	10.7		
05/16/12						9.08
05/22/12		27.9	4 - 12.6			
05/23/12	S - 121					

Attachment 3



Attachment 4

Mercury Results (ng/L) for Samples Collected from Select Points Within the WVDP's Wastewater Treatment Facility (WWTF)

Date	GS # 1	GS # 2	GS # 3	GS # 6	D-20	D-14	FC- 102	D-10	D-1	D-1 decant	D-6	D-7	D-9	007
07/20/11														88.3
08/18/11														93.0
09/15/11														53.0
10/06/11														346
10/17/11													4,960	
10/24/11	223					<66.0					112			
10/26/11	<66.0	<66.0	<66.0	<66.0					39,200					
10/27/11							85.0				725			
11/02/11								274					75.0	
11/03/11								215	58,400			174		113
11/10/11							118	466						
11/28/11							1000			<66.0				
12/01/11							718							
12/05/11									34,300	<120				
12/06/11					130	340								
12/14/11	<66.0							<66.0						
01/03/12									<66.0					
01/12/12							178	<66.0						
01/19/12	<66.0						256					<66.0		
02/07/12												23.5		
02/16/12														74.4
02/22/12	<66.0					<66.0								
02/27/12													150	
02/29/12									137					
03/05/12								18.8			3.72		10.2	
03/08/12											25.7	44.5		
03/12/12								7.65			13.2		23.7	
03/13/12									166					
03/15/12														13.6
03/26/12								9.24			3.80		21.3	
03/28/12									302					

Attachment 4

Mercury Results (ng/L) for Samples Collected from Select Points Within the WVDP's Wastewater Treatment Facility (WWTF)

Date	GS # 1	GS # 2	GS # 3	GS # 6	D-20	D-14	FC- 102	D-10	D-1	D-1 decant	D-6	D-7	D-9	007
04/02/12						243								
04/04/12														9.71
04/09/12						297								
04/11/12								2.68	343		3.63		10.1	
04/18/12									234					
04/23/12									203					
04/25/12								15.1			2.66		8.68	
05/01/12									117					7.75
05/16/12								7.23			3.68		15.3	
05/21/12					53.4									

D1 samples collected on 2/28 and 3/13 were transfers from EQ to D20 to D14

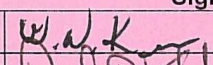
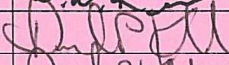
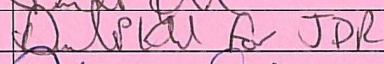
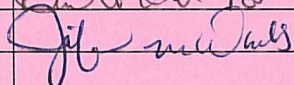

D10 samples collected in March as influent, same as GS1.


Sand filter Backwash = 228 ng/L collected 3/8/12.

All Results are in ng/L

CORRESPONDENCE CONTROL SHEET

(Printed on Pink Paper)

Correspondence Code WR : 2012: 0082	Author's Name & Extension D. P. Klenk/4061	Date Review Submitted 12/26/12	Date Review Due 12/31/12	Record Series Code	
Subject REISSUE State Pollutant Discharge Elimination System (SPDES) Mercury Minimization Program (MMP) – Outfalls 001, 01B, 007 and SW Group 3 (S09 & S12), SPDES Permit No. NY-0000973, West Valley Demonstration Project (WVDP) Due to missing attachment #4 from original					
Does this Correspondence Respond to any DOE or Regulator Correspondence? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – If yes, then identify the following: Correspondence Code: _____ Action Number: _____					
Administratively Confidential or Proprietary Information Does this correspondence/attachments contain administratively confidential OR proprietary information? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - If yes, then ensure documentation is properly marked as administratively confidential OR proprietary AND as OOU per requirements of WVDP-402.					
Export Controlled Information (ECI) Does or could this correspondence/attachments contain ECI (OUO, FOIA Exemption 3)? <i>[i.e., technical information that would be restricted by statute; refer to WVDP-402 for guidance on this determination.]</i> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - If yes, then obtain export control review from the Export & Technology Control Officer (E&TCO) (or designee) AND ensure documentation is properly marked as ECI with E&TCO signature & date AND properly marked as OOU per requirements of WVDP-402.					
Official Use Only (OUO) Information Does or could this correspondence/attachments meet the definition of Official Use Only (OUO)? <i>[i.e., information is certain unclassified information that may be exempt from public release under the Freedom of Information Act (FOIA), (Exemptions 3-9) and has the potential to damage governmental, commercial, or private interests if disseminated to persons who do not need to know the information to perform their jobs or other DOE authorized activities; refer to WVDP-402 for additional guidance on this determination.]</i> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - If yes, then ensure OOU information is properly marked per requirements of WVDP-402.					
Action/Funding Commitment Does this correspondence/attachments commit CHBWV to an action or commit funds? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - If yes, then obtain CHBWV Project Manager, Deputy Project Manager, or Business Services Manager review AND approval by a cognizant President's Direct Reports team member.					
Additional Instructions or Comments					
REVIEWER APPROVALS (only used for hard copy process)					
MS/Printed Name	Signature	Date	Concur	Concur W/Comments	Nonconcur
AC-URS/ W. N. Kean		12/26/12	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AC-EA/ D. P. Klenk		12/26/12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC-EA/ J. D. Rendall		12/26/12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC-DOE/ J. M. Dundas		1/8/13	<input type="checkbox"/>	<input checked="" type="checkbox"/> 	<input type="checkbox"/>
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			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reviewer initial & date indicating satisfactory resolution of nonconcur (only used for hard copy process):					

 Minor chnts. to cover letter The Law 1/8/13