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February 27, 2012

U.S. Environmental Protection Agency
Region 1
5 Post Office Square
Boston, Massachusetts 02109-3912.

Attention:
John Paul King (King.John@epa.gov)
U.S. Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

New Hampshire Department of Environmental Services
Water Division
P.O. Box 95
Concord, New Hampshire 03302-0095

NPDES Permit No. NH0001465
Merrimack Station
Bow, New Hampshire
Comments of Duke Energy

Ladies and Gentlemen:

Duke Energy Business Services LLC ("Duke Energy"), on behalf of Duke Energy Carolinas, LLC., Duke Energy Indiana, Inc., Duke Energy Ohio, Inc., and Duke Energy Kentucky, Inc., submits the following comments on the proposed NPDES Permit No. NH0001465 for the Merrimack Station in Bow, New Hampshire. Duke Energy, headquartered in Charlotte, North Carolina, supplies and delivers electricity to approximately four million U.S. customers. We have approximately 35,000 net megawatts (MW) of electric generating capacity in the Carolinas and the Midwest.

Duke Energy has a particular interest in the Merrimack permit because the proposed limits stated in the Memorandum from Ronald Jordan and Cuc Schroeder, EPA, to Sharon DeMeo, EPA Region 1, dated August 11, 2011 were based on EPA's analysis of data from two of Duke Energy's power plants, the Allen Steam Station and the Belews Creek Steam Station[1].

[1] Memorandum from Ronald Jordan and Cuc Schroeder, EPA, to Sharon DeMeo, EPA Region 1, dated August 11, 2011 Table 26.

The Allen Steam Station is a five-unit 1140-MW coal-fired plant in Gaston County, North Carolina. The Belews Creek Steam Station is a two-unit 2240-MW coal-fired plant in Stokes County, North Carolina.

These two stations are similar to each other in many ways. The flue-gas desulfurization (FGD) or scrubber systems and wastewater treatment systems at both are operated full time by employees of the vendor, Siemens, and an experienced chemical engineer provides full-time additional oversight. In short, both the design and the operation of these stations have been fine-tuned to an exceptional degree since start-up, which was February 2008 for Belews Creek and March 2009 for Allen Steam Station.

As communicated to the EPA, all of the data from Belews Creek and Allen Steam Station that EPA uses to determine the proposed limits for Merrimack Station were process data points, and were not collected for the purpose of compliance monitoring. Process data normally are not subject to the types of quality assurance/quality control (QA/QC) mechanisms that are applied to compliance monitoring data. The purpose of process data is to work toward system adjustments based on preliminary data, and less rigorous QA/QC, therefore, is applied to process data. Duke Energy, therefore, cautions EPA to rely on process data for the purpose of setting permit limitations.

I. Effluent Concentrations Depend in Part on the Oxidation-Reduction Potential in the Scrubber

The quality of effluent from a biological treatment system, like those at Allen and Belews Creek, depends on the oxidation-reduction potential (ORP) in the scrubber. When the ORP in the scrubber is high, a higher fraction of the metals, including mercury, are in the dissolved phase.[2] The more highly oxidizing the system, the greater the concentrations of dissolved mercury and other dissolved metals are present in the wastewater matrix.

Many factors affect ORP, including the use of selective catalytic reduction (SCR) equipment, the generating load, the amount of sulfur in the coal, the pH, and the quality of makeup water for the scrubber. Because ORP in a scrubber routinely fluctuates and cannot be well controlled, the metal, including mercury, phase in the wastewater exiting the scrubber varies too. The level of treatment, therefore, possible with an FGD wastewater treatment system, also, can vary over time.

In fact, this variability with ORP was recently observed at Allen Steam Station. In December 2011, a 30-day test burn of a high sulfur blend Illinois River Basin coal was attempted. During the test burn, increased ORP values within the influent to the FGD wastewater treatment system and within the FGD scrubber were observed. With the increased oxidizing environment within the scrubber, a noticeable chorine smell was observed and an increase in free available oxidant (FAO) was detected within the influent to the FGD wastewater treatment system. To prevent damage to the microbes within the bioreactors, the test burn was stopped immediately and flow to the bioreactors was interrupted for several days, as reported to

[2] Allen, Jonathan O., Eggert, Derek, and Tyree, Corey A. *Effect of FGD Chemistry on Wastewater Composition*, presented at Air Quality VII Conference, Arlington VA, October 25, 2011.

the North Carolina Department of Environment and Natural Resources (NCDENR) Mooresville Regional Office. Within this higher oxidizing environment, the concentrations of selenium and mercury in the physical / chemical effluent increased. This implies an increase in the dissolved fraction of these constituents. Furthermore, the concentration of selenium was elevated in the bioreactor effluent. As a result, the effectiveness of both the physical/chemical and biological treatment systems was reduced, though no NPDES permit limits were exceeded. If the test burn had been allowed to continue, and elevated ORP values continued, there was a concern that the increased oxidizing environment would cause substantial harm to the organisms in the bioreactors. Upon investigating this incident, it has become apparently clear that the wastewater matrix generated during this test burn was completely different than any previously observed FGD wastewater matrix at Allen or Belews Creek. Due to the shift, Duke Energy is questioning the validity of all the data previously collected at these two stations to evaluate the effectiveness of FGD wastewater treatment systems.

As noted above, it is not just changes in fuel that may cause changes in ORP. There are many factors that could lead to similar changes in ORP, and ORP changes affect the composition of the FGD purge stream and the performance level, therefore, of the FGD wastewater treatment systems.

II. EPA Inappropriately Excluded Some Data That Should Have Been Considered and Included Some Data that Were Flawed

In deriving the proposed Merrimack limits from the Allen and Belews Creek data, EPA excluded data that reflected normal operation and yet, used other data that was flawed. Specific problems with EPA's selection of data for the analysis are as follows.

A. Belews Creek

1. All parameters

Results from January 17, 2011, were excluded due to the Method Detection Limits (MDL) being abnormal. The arsenic, chromium, copper, and selenium MDLs were 25 ppb, and zinc was 50 ppb. The MDL was higher due to the sample requiring a higher dilution. The higher dilution could have been caused by the TDS in the sample, the chloride or bromide concentration, running several different samples on the same day, or for other reasons, not necessarily difficulty experienced by the laboratory or mishandling of the samples as speculated by EPA. We would expect the MDL on this particular date (January 17, 2011) to be indicative of the typical MDLs that would be achieved by a commercial lab running the same sample. Duke Energy's results were obtained by an in-house, certified analytical laboratory with considerable experience in these analyses.

2. Mercury

After reviewing the analytical reports, Duke Energy believes the following mercury data may be suspect, due to quality control issues. It is suspected that the matrix spike / matrix spike duplicate (MS/MSD) for some of the samples listed below were not conducted using the FGD wastewater matrix and for other samples the MS/MSD indicate inadequate recoveries. This information was reported to EPA in an email dated 12/22/2011.

Belews Creek Questionable Mercury Data due to QA/QC Issues

Sample Date	BDL	Hg (ppb)
06/16/08	< →	0.001
06/23/08		0.0026
06/30/08		0.014
07/07/08		0.0065
07/14/08		0.0084
08/04/08		0.0024
08/11/08		0.0027
08/18/08		0.0053
08/25/08		0.0064
09/02/08		0.0021
09/08/08		0.0041
09/15/08	< →	0.001

Sample Date	BDL	Hg (ppb)
09/22/08	< →	0.001
09/29/08		0.0037
12/03/08		0.0036
12/10/08		0.002
12/17/08		0.0029
12/22/08		0.0014
12/29/08		0.0024
01/07/09		0.0028
01/14/09		0.0023
01/22/09		0.0039
01/28/09		0.0026

EPA excluded mercury results for samples collected on 10/5/09, 5/26/10, 6/9/10, 8/11/10, 9/8/10, and 10/7/10, apparently considering them to be extreme observations due to a system upset. But there were no known upset conditions before or during the days these samples were collected. During this timeframe, a blend of Northern Appalachian with the Central Appalachian coal was being burned. Duke Energy believes this is indicative of normal and potential future operations and simply highlights the variability inherent in the operation of many coal-fired electric generating facilities.

In addition, EPA concluded that the "results for mercury in the bioreactor effluent were higher than the levels in the bioreactor influent (i.e., physical-chemical sample location). Such results are inconsistent with the pollutant removal efficacy for the bioreactor, based on EPA's expertise evaluating treatment technologies for FGD wastewater from power plants and treatment technologies for wastewaters from other industry sectors, and it is also contrary to the long-term performance for the bioreactor at Belews Creek and bioreactors of similar design at other power plants" Memorandum from Ronald Jordan and Cuc Schroeder, EPA, to Sharon DeMeo, EPA Region 1, dated August 11, 2011.

Since the time of the EPA memo, Duke Energy notified EPA that the physical/chemical effluent results for 6/9/10, 7/14/10, and 8/11/10 were data entry errors. The corrected results in the table below show that the physical/chemical effluent results are higher in concentration than the bioreactor effluent of the same day. In addition, the results of the physical/chemical effluent of 9/8/10 possibly could be an error, due to the mercury results from the bioreactor stage 1 effluent on the same day. These high observations are not extreme outliers due to an upset condition. Instead, they indicate a change in the chemistry of the scrubber due to high ORP conditions which carried over to the FGD wastewater treatment system during this period of time. Also, the EPA results during the June 7-10, 2010 sampling episode show comparable total recoverable mercury in the physical/chemical effluent and bioreactor effluent.

EPA Excluded Total Recoverable Mercury Data from Belews Creek Self-Monitoring

Sampling Date	FGD Influent (ppb)	Physical/ Chemical Effluent (ppb)	Bioreactor Stage 1 Effluent (ppb)	Bioreactor Stage 2 Effluent (ppb)
05/26/10[(1)]	237	0.0869	0.0357	0.136
06/09/10	114	**59.3** [(2)]	1.650	0.333
07/14/10	228	**49.9** [(2)]	0.668	- No analysis [(3)]
08/11/10	378	**47.7** [(2)]	0.999	0.423
09/08/10	197	0.150	0.865	0.746
10/07/10	213	0.892	0.556	0.442

(1) The sample was collected on 5/12/10, but mistakenly recorded in the spreadsheet as being collected on 5/26/10.

(2) Corrected values for physical/chemical effluent. Original data provided to EPA were in error due to data entry.

(3) The sampling bottle broke during shipment.

The EPA mercury results for Belews Creek Sampling Episode 6558, collected during June 6-11, 2010 are provided in the table below. The results show that most, if not all, of the total recoverable mercury was in the dissolved phase. Again, this is an indication of high ORP conditions in the FGD scrubber. The more highly oxidizing the system, the greater the concentration of dissolved mercury. (Allen, et al., *Effect of FGD Chemistry on Wastewater Composition*, October 25, 2011).

EPA Mercury Results for Belews Creek Sampling Episode 6558 (June 6-11, 2010)

Sampling	FGD Influent SP-1 (ppb)		Physical/Chemical Effluent SP-2 (ppb)		Bioreactor Effluent SP-3 (ppb)	
	Total	Dissolved	Total	Dissolved	Total	Dissolved
06/07/10	248	49.3	46.6	47.0	0.230	0.0231
06/08/10	257	0.119	43.0	49.3	0.247	0.0213
06/09/10	291	0.142	47.3	44.0	0.346	0.0282
06/10/10	224	NA	53.3	44.4	0.406	0.0361

Within the memo from Ron Jordan and Cuc Schroeder to Sharon DeMeo, it is stated that if organosulfide was being added to the treatment system, the treatment system would have effectively reduced the mercury concentration[3]. However, EPA provided no data to support this conclusion. Furthermore, EPA did not consider that mercury may have been in the dissolved phase during this period. The effectiveness of organosulfide to treat mercury in the waste stream can vary based on the mercury phase.

For all of the reasons presented above, it is clear that EPA should not have excluded the self-monitoring results for 10/5/09, 5/26/10, 6/9/10, 8/11/10, 9/8/10, and 10/7/10. EPA's basis for eliminating three data points (6/9/10, 7/14/10, and 8/11/10) is no longer accurate, based on Duke Energy's identification of data entry errors. Results for the other dates are within the range of variability to be expected due to changes in ORP conditions within the scrubber and other factors.

3. Selenium

EPA also excluded the selenium result of 299 ppb from July 14, 2010 as an extreme observation. But this July 14 result is valid. The increase in selenium on this day can be directly attributed to the increased selenate (Se VI) concentration, 2,360 ppb, in the FGD influent.

Belews Creek Self-Monitoring Data Selenium from April 28 to October 7, 2010

Sampling Date	FGD Influent (ppb)				Physical / Chemical Effluent (ppb)				Bioreactor Effluent (ppb)		
	Total	Diss.	Se(IV)	Se(VI)	Total	Diss.	Se(IV)	Se(VI)	Total	Se(IV)	Se(VI)
04/28/10	5480	160	90.7	73.5	111	104	10.6	82.6	4.4	0.96	<0.35
05/12/10	5060	210	111	86.3	169	7.5	23.2	117	4.2	<0.23	<0.40
05/26/10	4970	-	69.5	91.0	121	113	12	87.6	<2	<0.75	<0.42
06/09/10	5830	269	76.2	227	941	961	10.2	982	7.7	<0.63	4.73
06/23/10	4270	1100	21	1000	1130	1060	16.4	959	4.3	0.87	1.09
07/14/10	6810	2760	14.6	2360	2940	2740	10.4	2330	**299**	<3.7	217
07/28/10	10700	2870	87.2	2470	2400	2150	18.3	2060	12	6.38	0.95
08/11/10	6680	1940	28.2	2130	-	1900	4.8	1660	3.9	1.46	2.6
08/25/10	5500	183	81.4	104	178	168	46.2	126	3.7	<0.23	<0.63
09/08/10	6300	563	40.6	652	757	673	20.7	632	<2	<0.45	<0.28
09/22/10	6980	148	54.8	42.5	116	90.3	23.2	54.2	5.7	<2.2	<1.8
10/07/10	-	120	39.5	76.1	121	105	15.3	76.7	<5	<0.63	<0.42

[3] Memorandum from Ronald Jordan and Cuc Schroeder, EPA, to Sharon DeMeo, EPA Region 1, dated August 11, 2011

The increase in dissolved selenium and selenate (VI) species in the FGD influent and bioreactor influent during this period of time is more than likely due to a change in FGD chemistry of the system and not an upset condition. Just as the mercury results in section II.A.2 above were affected by high oxidizing conditions, it is very likely that the increase in dissolved selenium and selenate (VI) is also due to high oxidizing conditions in the scrubber. This is particularly likely since both the mercury and selenium results show the same pattern of increased dissolved phases at about the same time.

B. Allen-Mercury

Upon reviewing the analytical reports, we believe the following mercury data are suspect due to quality control issues. The MS/MSD were too high for the 12/29/09 sample (MS: 134%; MSD: 120%) and too low for the 1/11/10 sample (MS: 40%, MSD: 3.8%).

As with the suspect Belews Creek mercury data, this was reported to EPA in an email dated 12/22/2011:

Allen Steam Station Questionable Mercury Data due to QA/QC Issues

Sample Date	BDL	Hg (ppb)
12/29/09		0.01100
1/11/10		0.00203

III. Even Belews Creek and Allen Could Not Meet EPA's Proposed Limits for the Merrimack Station

Even through EPA references nine stations that use bioreactors; four sites with single batch reactors, two sites with settling ponds followed by bioreactors and three sites with physical/ chemical followed by bioreactors, EPA only used data to determine the proposed Merrimack limits from the two Duke Energy Stations[4]. EPA, therefore, must assume the performance of these two systems is indicative of best available technology (BAT). These two stations, however, could not meet the proposed Merrimack limits based on the historical process data and the data collected by the EPA during the four-day sampling event. Duke Energy's analysis of the potential achievability of the proposed Merrimack limits is as follows.

A. Belews Creek Historic Self-Monitoring Data

Based on Duke Energy's self-monitoring process data, Belews Creek would have exceeded the proposed Merrimack limits on the occasions listed below.

[4] EPA - Region 1. *Determination of Technology-Based Effluent Limits for the Flue Gas Desulfurization Wastewater at Merrimack Station in Bow, New Hampshire*. September 23, 2011.

1. Selenium

Belews Creek would have exceeded the proposed Merrimack *selenium monthly average* limit of 10 ppb for four months:

Date	Total Recoverable Selenium Monthly Avg. (ppb)*
Aug 2008	15.88
Sept. 2008	16.84
Oct. 2008	11.58
July 2010	155.5

* Only covers the time period of EPA's analysis, August 1, 2008, to May 31, 2011. The monthly average is based on a minimum of two samples collected and analyzed per month.

In addition, only one sample was collected in December 2010, with a result of 26.6 ppb. It is not known if Belews Creek would have exceeded the proposed monthly average selenium limit in December 2010.

Samples from Belews Creek would have exceeded the proposed Merrimack *selenium daily maximum* limit of 19 ppb on five occasions:

Date	Total Recoverable Selenium Results (ppb) *
8/25/08	19.6
9/8/08	21.3
9/15/08	22.4
7/14/10	299
12/8/10	26.7

*Only covers the time period of EPA's analysis, August 1, 2008 to May 31, 2011.

2. Copper

Belews Creek would have exceeded the proposed Merrimack *copper monthly average* limit of 8 ppb in August 2010:

Date	Total Recoverable Copper Monthly Avg. (ppb)*
Aug. 2010	11.85

*Only covers the time period of EPA's analysis, August 1, 2008 to May 31, 2011. Monthly average is based on a minimum of two samples collected and analyzed per month.

The analytical lab was not able to obtain an MDL below 10 ppb until September 2009. It is not known if samples collected earlier than September 2009 would have exceeded the proposed monthly average limit for copper.

3. Mercury

Samples from Belews Creek exceeded the proposed Merrimack *mercury daily maximum* limit of 0.055 ppb on eight days:

Date	Total Recoverable Mercury (ppb) *
10/5/09	0.256
11/2/09	0.096
2/10/10	0.060
5/26/10	0.136
6/9/10	0.333
8/11/10	0.423
9/8/10	0.746
10/7/10	0.442

*Covers only the time period of EPA's analysis, August 1, 2008 to May 31, 2011.

Generally, analysis for low-level mercury is conducted only once a month. For that reason an analysis of which months Belews Creek could have met the proposed Merrimack mercury monthly average limit of 0.022 ppb cannot be made. However, it would be expected that Belews Creek would not have met the proposed monthly average limit during the months in which the proposed mercury *daily* maximum limit was exceeded, as listed above. In addition, the Belews Creek Station may not have been able to meet the proposed monthly average limit in April 2011, judging from the mercury result of 0.025 ppb for the sample collected on 4/13/11.

B. Allen Historic Self-Monitoring Data

Based on the self-monitoring data, Allen would have exceeded the proposed limits for the Merrimack Station for the following dates.

1. Arsenic

Samples from Allen that exceeded the proposed Merrimack *arsenic daily maximum* limit of 15 ppb on five dates:

Date	Total Recoverable Arsenic (ppb)*
03/22/10	22.5
05/10/10	63.1
05/25/10	63.9
06/29/10	20.1

*Covers only the time period of EPA's analysis, September 9, 2009 to May 31, 2011.

Allen would have exceeded the proposed Merrimack *arsenic monthly average* limit of 8 ppb for three months:

Date	Monthly Average Total Recoverable Arsenic (ppb)*
March 2010	14.75
May 2010	63.5
June 2010	17.6

*Covers only the time period of EPA's analysis, September 9, 2009 to May 31, 2011. The monthly average is based on a minimum of two samples collected and analyzed per month.

In addition, only one sample was collected in July 2010, with a result of 12.1 ppb. It is not known if Allen would have exceeded the proposed monthly average limit for arsenic in July 2010.

2. Copper

Samples from Allen exceeded the proposed Merrimack *copper daily maximum* limit of 16 ppb on August 19, 2010:

Date	Total Recoverable Copper (ppb)*
8/19/10	22.5

*Covers only the time period of EPA's analysis, September 9, 2009 to May 31, 2011.

Allen would have exceeded the proposed Merrimack *copper monthly average* limit of 8 ppb for August 2010:

Date	Total Recoverable Copper Monthly Avg. (ppb)*
Aug. 2010	15.9

*Covers only the time period of EPA's analysis, September 9, 2009 to May 31, 2011. Monthly average is based on a minimum of two samples collected and analyzed per month.

3. Mercury

Allen would have exceeded the proposed Merrimack *mercury monthly average* limit of 0.022 ppb in December 2010:

Date	Total Recoverable Mercury Monthly Avg. (ppb)*
Dec. 2010	0.033

*Only covers the time period of EPA's analysis, September 9, 2009 to May 31, 2011. Monthly average is based on a minimum of two samples collected and analyzed per month.

In addition, only one sample was collected in April 2010, with a result of 0.0224 ppb. It is not known if Allen would have exceeded the proposed monthly average limit for mercury in April 2010.

C. EPA Four-Day Sampling Event

During the four-day sampling event conducted by EPA from June 6 to June 10, 2010, Belews Creek would not have met the *daily maximum mercury* limit proposed for the Merrimack Station for *any* of the samples collected and analyzed by EPA.

Moreover, Belews Creek would not have met the proposed Merrimack *mercury monthly average* limit on these dates.

Date	Total Recoverable Mercury (ppb)
6/8/2010	0.230
6/9/2010	0.247
6/10/2010	0.346
6/11/2010	0.406
average	**0.307**

Furthermore, Belews Creek would have exceeded the proposed Merrimack *selenium daily maximum* limit on June 7 and June 9, 2010, and would have exceeded the proposed Merrimack *selenium monthly average* limit as well on the following dates:

Date	Total Recoverable Selenium (ppb)
6/8/2010	7.3
6/9/2010	26
6/10/2010	5.1
6/11/2010	25
average	**15.85**

IV. Commercial Laboratories Will Not Be Able to Measure Down Reliably to the Merrimack Limits

EPA has set the proposed Merrimack limits so low that they will not be measurable by the laboratories used by many power plants. EPA needs to consider the practical difficulties of analyzing FGD waste water, which is an unusually complex matrix. First, EPA should not take Duke Energy's data as typical, or as achievable by most commercial labs. How low a concentration a laboratory can measure is characterized by the "detection limit," such as EPA's "method detection limit" or MDL. See 40 C.F.R. Part 136 App. B. As stated by EPA in the June 7, 2010 memo from James Hanlon, EPA, to the Water Divisions Director, Regions 1-10, the experience of the analysts, as well as, the advancement of the instrumentation allows lower detection levels to be achieved. Duke Energy's in-house lab was able to achieve extraordinarily low MDLs, for several reasons.

- Duke Energy's analysis of metals, except mercury, was conducted by the in-house lab, which specializes in measuring the effluents from Duke Energy's power plants, unlike the typical commercial labs that many permittees use.

- The Duke Energy in-house lab uses an ICP-MS with collision reaction cell (CRC) with a high solids matrix introduction system to achieve lower MDLs. Many commercial labs do not use this type or similar equipment; and, therefore, will not be able to achieve similar MDLs as Duke Energy and as demanded by the proposed Merrimack permit limits.

- The Duke Energy in-house lab was running samples from only two or three sites at the time of the self-monitoring data, which allowed the chemists to become thoroughly familiar with the wastewater matrices. With this familiarity, the chemist can customize the dilution factor to obtain lower MDLs. Permittees that use commercial labs will not have this advantage and probably will never be able to measure reliably as low as the MDLs that Duke Energy achieved.

- The Duke Energy in-house lab would re-run a sample several times, if necessary, to obtain appropriate QC results. By contrast, a commercial lab would "flag" the result, but generally, would not re-run the analysis. Furthermore, a commercial lab will generally run a batch of samples probably from several different locations and the MS/MSD analyses may not be run on a sample from the utility or even with an FGD wastewater matrix sample. It may, therefore, be difficult for other utilities to obtain quality results. This was demonstrated with the suspected low-level mercury analyses from several samples collected from Allen and Belews Creek documented in section II.A.2 and II.B above.

- The dilution factor, which dictates the MDL, is affected by the number of samples that need to be run on a given day. The performance of the analytical instrument is impacted by the solids within the sample. As solids accumulated on the instrumentation, the effectiveness of the instrument to analyze the sample and meet QA/QC requirements is compromised. Once the performance of the analytical instrument is compromised, the instrument must be cleaned, parts replaced and re-calibrated. To avoid this, commercial labs will set the dilution factor high enough to run all the samples for that day. This is not an issue for the Duke Energy in-house lab, since sample would only be collected from two to three sites.

Furthermore, certain constituents in the waste water sample can prevent a laboratory from measuring down to the very stringent limits proposed for the Merrimack permit. For example, MDL and Quantitation Limits (QL) are dictated by the amount of dilution necessary to lower the total dissolved solids (TDS) level to the recommended level (0.2% w/v) required by ICP-MS analysis (EPA Method 200.8 rev 5.4, Section 4.1.4). Therefore, MDLs and QLs are sample-specific for FGD wastewaters. The TDS concentration for Belews Creek averages approximately 18,000 ppm and for Allen the TDS concentration averages approximately 10,500 ppm. Samples with higher TDS levels, such as Merrimack, would require more dilution and would, therefore, have higher MDLs and QLs making it difficult, if not impossible, to accurately measure down to the proposed limits for Merrimack.

In addition, chlorides interfere with the arsenic analysis and bromides interfere with the selenium analysis. The scrubbers at Allen and Belews Creek are designed to keep chlorides below 12,000 ppm, and Duke Energy typically operates scrubbers at even lower chloride concentrations. But other power plants have scrubbers that are designed to operate at much higher chloride levels, and this type of design allows for recirculation of the scrubber wastewater. The FGD wastewater characteristics of plants that cycle up their chlorides above 12,000 ppm will be very different from the characteristics of the FGD wastewater at Allen and Belews Creek. The interference, therefore, to certain constituents analyses would be greatly affected by the type and design of the scrubber and the make-up of the FGD wastewater matrix.

Conclusion

As the provider of the data on which EPA relied to set the proposed limits for Merrimack Station, Duke Energy feels obliged to inform EPA that the process data does not support the proposed permit limits for the Merrimack Station. Duke Energy's self-monitoring data were collected to assess the performance of the system, not to demonstrate compliance with permit limits or to develop permit limits. Furthermore, *the very power plants that are characterized by the data EPA used would not be able to meet the Merrimack limits consistently*. We urge EPA Region 1 to start fresh and re-propose permit limits that reflect accurately what the intended treatment technologies would actually accomplish at the Merrimack Station.

Any questions regarding these comments may be directed to Mr. Nathan Craig at (704) 382-9622 or nathan.craig@duke-energy.com.

Thank you for your consideration of this request.

Sincerely,

David Mitchell
Duke Energy
Managing Director, Environmental

cc: John Velte, Duke Energy
Allen Stow, Duke Energy
Richard Baker, Duke Energy
Nathan Craig, Duke Energy