GROUP AGAINST SMOG & POLLUTION
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June 21, 2013

Via Email
Jerry Williams, P.E.
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
jerry.williams@wv.gov

Re: GASP Comments on Appalachia Midstream Services, LLC – Buffalo Compressor Station, Permit to Construct R13-3048

Dear Mr. Williams,

On behalf of Group Against Smog and Pollution (GASP), please accept the following comments regarding the Buffalo Compressor Station construction permit R13-3048.

If you have any questions or concerns, please do not hesitate to contact us. Thank you for providing this opportunity to comment.

Sincerely,

Zach Wall
GASP Legal Intern
Group Against Smog & Pollution
5135 Penn Ave.
Pittsburgh, PA 15224
412-924-0604

GROUP AGAINST SMOG AND POLLUTION (GASP) COMMENTS RE: APPALACHIAN MIDSTREAM SERVICES – BUFFALO COMPRESSOR STATION (R13-3048)

I. DAQ has failed to account for all VOC emissions. When properly calculated, the facility-wide VOC PTE exceeds the Title V major source threshold.

Appalachian Midstream Services (AMS) and the West Virginia Division of Air Quality (DAQ) have failed to account for all volatile organic compound (VOC) emissions from the G3516B engines. AMS's permit application lists a controlled VOC potential to emit (PTE) for each Caterpillar G3516B engine of 0.84 lbs/hr and 3.69 tons per year (TPY).[1] DAQ has incorporated these PTE figures into the draft permit.[2]

AMS's VOC PTE is derived from the VOC and formaldehyde (HCHO) emission rates listed on the Caterpillar G3516B engine specification sheet and the emissions reduction efficiency provided by the catalyst vendor.[3] However, the engine specification sheet VOC limit excludes *all* aldehydes.[4] Thus, in addition to HCHO, the VOC PTE for the Caterpillar G3516B engines must also include emissions of the VOCs acetaldehyde, acrolein, and butyr/isobutyraldehyde.[5] The additional VOC emissions attributable to these compounds, based on the AP-42 emission factors for 4-stroke lean-burn engines,[6] are listed in the table below.

	lbs/hr	TPY per engine	TPY, 12 engines
Acrolein	0.057	0.250	3.000
Acetaldehyde	0.094	0.410	4.920
Butyr/Isobutyraldehyde	0.001	0.005	0.059
Total	0.152	0.665	7.979

The PTE calculations for acrolein and acetaldehyde match those provided by AMS.[7] AMS did not provide a PTE calculation for butyr/isobutyraldehyde, but did include the AP-42 table containing the relevant AP-42 butyr/isobutyraldehyde emission factor in its application.[8] These three compounds contribute nearly eight additional TPY

[1] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Attachment N, Table 1a.
[2] WVDAQ, Engineering Evaluation/Fact Sheet for AMS Buffalo Facility , R13-3048 at 6; WVDAQ, Draft Permit to Construct AMS Buffalo Facility, R13-3048 at 17, Condition 5.1.2.
[3] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix A, G3516B Specification Sheet at 1, Oxidation Catalyst Specification Sheet at 1.
[4] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix A, G3516B Specification Sheet at 3, footnote 9.
[5] 40 C.F.R. § 51.100(s).
[6] U.S. EPA, AP-42, Chapter 3, Table 3.2-2 – Uncontrolled emission factors for 4-stroke lean-burn engines, *available at* http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s02.pdf.
[7] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Attachment N, Table 2b(1).
[8] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix A, AP-42 - Table 3.2-2 – Uncontrolled emission factors for 4-stroke lean-burn engines.

to the facility's VOC PTE, resulting in a facility-wide VOC PTE of 103.32 TPY.[9] The facility-wide VOC PTE exceeds the 100 TPY Title V major source threshold.[10] Thus, VOC emissions from the Buffalo facility must be reduced or AMS must apply for a Title V operating permit.

II. DAQ has failed to account for all CO emissions. When properly calculated, the facility-wide CO PTE exceeds the Title V major source threshold.

AMS and DAQ have failed to account for all carbon monoxide (CO) emissions from the G3516B engines. AMS's permit application lists a controlled CO potential to emit for each Caterpillar G3516B engine of 1.56 lbs/hr and 6.82 tons per year.[11] WVDAQ has incorporated these PTE figures into the draft permit.[12] However, the applicant's calculated CO PTE is based on an assumed catalyst control efficiency of 85%.[13] The catalyst specification sheet only provides for an 80% CO control efficiency.[14]

Applying the 80% CO control efficiency provided by the catalyst vendor results in CO emissions of 1.89 lbs/hr and 8.26 TPY for each engine, and a facility-wide CO PTE of 106.1 TPY,[15] which exceeds the 100 TPY Title V major source threshold.[16] Thus, CO emissions from the Buffalo facility must be reduced or AMS must apply for a Title V operating permit.

III. Comparable facilities in West Virginia demonstrate that lower VOC and CO emission rates are technically and economically feasible.

As described above, AMS's properly calculated VOC and CO PTE both exceed the Title V major source threshold. AMS must therefore implement more stringent controls to avoid major source status. Lower emissions for these pollutants are technically and economically feasible, as evidenced by the performance of at least two other similar compression facilities permitted by WVDAQ.

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[9] If the same 10% safety factor AMS has applied to criteria pollutants (see AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Attachment N, Table 2a(1), note 1) is applied to HCHO, acrolein, acetaldehyde, and butyr/isobutyraldehyde, the result is 9.64 additional TPY of VOCs and a facility-wide total VOC PTE of 104.98 TPY.

[10] 45 CSR 2.26.c.l; 42 U.S.C. § 7602(j).

[11] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Attachment N, Table 1a.

[12] WVDAQ, Engineering Evaluation/Fact Sheet for AMS Buffalo Facility, R13-3048 at 6; WVDAQ, Draft Permit to Construct AMS Buffalo Facility, R13-3048 at 17, Condition 5.1.2.

[13] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Attachment N, Table 2b(1).

[14] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix A, Oxidation Catalyst Specification Sheet at 1.

[15] Applying the 10% safety factor that AMS has applied to criteria pollutants to the corrected CO emission rate for the G3516B engines results in a CO PTE of 9.36 TPY per engine and a facility-wide CO PTE of 119.3 TPY.

[16] 45 CSR 2.26.c.l; 42 U.S.C. § 7602(j).

DAQ recently issued permits for two compressor stations[17]with specifications similar to the Buffalo Station. These facilities—the Lost River Compressor Station and Rockport Compressor Station—demonstrate that lower VOC and CO emission levels are feasible. Like Buffalo, Lost River and Rockport also run lean-burn compressor engines controlled by oxidation catalysts, but emit VOC and CO, respectively, at lower levels.

Columbia Gas Transmission, LLC, which operates the Lost River Compressor Station, installed one Caterpillar G3616 4,735hp compressor engine in 2009 with an oxidation catalyst that controls for VOC, CO and formaldehyde. That unit has a maximum potential VOC emission rate of 0.16 g/bhp-hr[18]—lower than AMS's projected rate of 0.27 g/bhp-hr (0.84 lbs/hr). After adjusting for the excluded aldehydes, Buffalo's maximum hourly VOC rate will actually be even higher.

DAQ also recently approved Columbia Gas Transmission's permit to construct the Rockport Compressor Station. The proposed facility will operate two Caterpillar G3606 LE 1,775 HP compressor engines with oxidation catalysts to control for CO, VOC and HCHO. [19] Rockport's projected CO maximum hourly emission rate is 0.19 g/bhp-hr (0.75 lbs/hr).[20] Buffalo's properly calculated[21] CO rate is much higher at 0.62 g/bhp-hr (1.89 lbs/hr). Thus, CO and VOC emission rates at the Rockport and Lost River facilities demonstrate that it is technically and economically feasible to further reduce these emissions at the Buffalo facility.

IV. DAQ must perform a complete source aggregation analysis, taking all relevant nearby sources into account.

DAQ did not conduct a thorough, independent source aggregation analysis for the Buffalo Compressor Station and surrounding sources.[22] Instead, DAQ evidently relied solely on the incomplete and inadequate aggregation analysis contained in AMS's permit application.[23] Most importantly, DAQ did not consider all relevant sources, including the Fred Jones Well, which is approximately one half-mile away.[24] At the very least, DAQ must reevaluate aggregation with this source in mind. Moreover, DAQ must provide a complete, fact-specific justification for it's aggregation decision in *all* cases. Far from being an empty exercise, adequately documenting individual aggregation analyses provides a record of past agency decisions that:

[17] WVDAQ, Draft Permit to Modify CGT Lost River Compressor Station, R14-0013D (Issued May 31, 2013); WVDAQ, Draft Permit to Construct CGT Rockport Compressor Station, R13-3032 (Issued May 29, 2013).
[18]WVDAQ, Draft Permit to Modify CGT Lost River Compressor Station, R14-0013D at 16.
[19] WVDAQ, Draft Permit to Construct CGT Rockport Compressor Station, R13-3032 at 16.
[20] *Id.*
[21] *See* Section II, above.
[22] WVDAQ, Engineering Evaluation/Fact Sheet for AMS Buffalo Facility, R13-3048 at 15-16.
[23]AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix B, Aggregation Analysis.
[24]AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix B, Aggregation Analysis, at 1.

- DAQ may reference to ensure uniform application of aggregation requirements;
- permit applicants may reference to reduce uncertainty or unpredictability regarding DAQ's aggregation policy; and
- allows interested citizens to readily ascertain the rationale behind a particularly DAQ aggregation analysis.

AMS's permit application identifies the basic three-prong standard[25] for aggregation—common control, contiguousness or adjacency, and same industrial classification—but applies it too narrowly. AMS correctly concluded that the Fred Jones Well and Buffalo Compressor Station "share the same two-digit major SIC code 13 for oil and gas exploration and production."[26] However, AMS totally discounts the possibility that the Fred Jones Well and Buffalo Compressor Station are under common control, or that they are contiguous or adjacent. AMS describes this source as a "third-party well"[27] and summarily concludes that these sources should not be aggregated.[28]

Similarly, DAQ's aggregation analysis is incomplete because it did not consider whether the Fred Jones Well is "contiguous or adjacent" to the Buffalo facility.[29] Because DAQ did not recognize the Fred Jones Well as a potential the source for aggregation, it failed to apply this prong of the aggregation test to the well altogether. Furthermore, AMS and DAQ oversimplified the "contiguous or adjacent" analysis with respect to other sources, including the AMS-owned Battle Run compression facility. AMS focuses exclusively on the proximity between sources, without considering other important factors, like the operational relationship or interdependency between facilities.

A. Common control exists between the Fred Jones Well and the Buffalo facility.

First, until recently, parent company Chesapeake Energy Corporation owned both AMS and Chesapeake Appalachia, LLC, which owns the Fred Jones Well, as subsidiaries.[30] Chesapeake Energy's most recent Form 10-K SEC filing indicates that the parent company sold AMS to Access Midstream Partners, LP (formerly Chesapeake Midstream Partners, LP) in December 2011.[31] Although Chesapeake Energy no longer *directly* owns Access Midstream/AMS, the companies maintain a profitable continuing relationship that is both: (a) a service relationship; and (b) a "support/dependency" relationship, both of which support an inference of common control.

[25] *Id.*; 45 CSR 14-2.13; 40 C.F.R. §52.21(b)(5), § 51.166(b)(5).
[26] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix B, Aggregation Analysis at 1.
[27] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix B, Aggregation Analysis at 3.
[28] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix B, Aggregation Analysis at 4.
[29] WVDAQ, Engineering Evaluation/Fact Sheet for AMS Buffalo Facility, R13-3048 at 16.
[30] Chesapeake Energy Corp., Annual Report to SEC/Form10-K (March, 2013), *available at* http://www.sec.gov/Archives/edgar/data/895126/000089512613000076/0000895126-13-000076-index.htm. Exhibit 21 lists Chesapeake Appalachia, LLC as a current subsidiary.
[31] Chesapeake Energy Corp., Annual Report to SEC/Form10-K at 114 (March, 2013).

U.S. EPA expressly follows SEC's definition of common control: "the possession, direct or *indirect*, of the power to direct or cause the direction of the management and policies of a person, whether through ownership of voting shares, *by contract, or otherwise*."[32] Direct ownership is not the only way to establish common control for source aggregation purposes. For example, common control also potentially exists where "there is a contract for service relationship between the two companies or if a support/dependency relationship exists between the two companies."[33] Chesapeake Energy and Access Midstream/AMS maintain a contract for services relationship as well as a "support/dependency relationship."

Access Midstream "provides gathering, treating and compression services to Chesapeake Energy Corporation . . . and other producers under long-term, fixed-fee contracts."[34] Access Midstream's contract with Chesapeake is its major source of revenue; between January and March 2013, Chesapeake "account[ed] for approximately 85%" of Access Midstream's revenues.[35] Moreover, under the existing services arrangement, Chesapeake provides "certain general and administrative services and any additional services [e.g. operating and routine maintenance] [Access] may request."[36] Finally, AMS "receive[s] substantially all of the compression capacity for [their] existing gathering systems from MidCon Compression, L.L.C. ("MidCon Compression"), a wholly owned subsidiary of Chesapeake, under long-term contracts."[37]

The "support/dependency" relationship between the two companies is readily apparent. Because Chesapeake sold off the entirety of its Marcellus Shale midstream (treating and compressing) assets in 2011,[38] Chesapeake depends on Access Midstream to prepare its natural gas for pipeline transmission. Access Midstream, in turn, relies on MidCon Compression, a Chesapeake subsidiary, to provide compression equipment. This relationship also suggests that the Fred Jones Well, for instance, would depend on nearest available compressor facility: the Buffalo facility, located just under 3,000 feet away.

B. <u>Fred Jones Well and other identified AMS facilities may be contiguous or adjacent to the Buffalo facility.</u>

[32] 45 Fed. Reg. 59874, 59878; 17 C.F.R. § 210.1-02(g) (*emphasis added*).
[33] Letter from Richard R. Long, EPA Region 8 to Julie Wrend, Colo. Dep't of Pub. Health and Env't, Single Source Determination for Coors/Trigen (Nov. 12, 1998), *available at* http://www.epa.gov/region07/air/nsr/nsrmemos/coorstri.pdf.
[34] Access Midstream Partners, LP, Quarterly Report to SEC/Form 10-Q (May 2013), at p5, *available at* http://www.sec.gov/Archives/edgar/data/1483096/000119312513197639/d507113d10q.htm.
[35] Access Midstream Partners, LP, Quarterly Report to SEC/Form 10-Q (May 2013), at 25.
[36] Access Midstream Partners, LP, Quarterly Report to SEC/Form 10-Q (May 2013), at 24.
[37] Access Midstream Partners, LP, Annual Report to SEC/Form 10-K (Feb. 2013) at 21, *available at:* http://www.sec.gov/Archives/edgar/data/1483096/000119312513074304/d446381d10k.htm.
[38]Chesapeake Energy Corp., Annual Report to SEC/Form10-K (March 2013), at 148.

U.S. EPA has stated that the "contiguous or adjacent" analysis is a "highly fact-specific," case-by-case determination.[39] Moreover, the proximity between two sources is just one instructive, but not necessarily dispositive, factor in that determination.[40] The determination must consider all the facts available about the physical and operational relationship between facilities. DAQ must apply a more robust, fact-intensive approach to the Fred Jones Well, as well as to the other identified AMS sources. AMS must in turn provide additional information about the Fred Jones Well, the Battle Run compression facility and the Wilson Central Discharge Point, in order for DAQ to make a fully-informed determination.

Contrary to EPA's guidance, AMS asserts that "only sources that are in close proximity should be considered contiguous or adjacent properties."[41] AMS then relies on a quarter-mile "rule of the thumb" and concludes that the Fred Jones Well—just over one half-mile away—is too distant to be considered contiguous or adjacent. DAQ also relied on this simplistic approach, noting that "these determinations are proximity based ."[42] Again, proximity is *not* necessarily the determining factor in whether facilities are considered contiguous or adjacent. In fact, EPA has rejected a "bright line" proximity rule, noting that it "is unable to precisely at this point how far apart activities must be to be treated separately."[43] The one quarter-mile rule of thumb is not binding on DAQ, nor are AMS's source aggregation conclusions.

V. Miscellaneous

Finally, DAQ's Engineering Evaluation/Fact Sheet (under the subheading "Estimate of Emissions by Reviewing Engineer") contains one paragraph that incorrectly lists Buffalo Compressor Station's various emission points.[44] For example, the Fact Sheet indicates that there will be five compressor engines, rather than 12 engines. DAQ must correct this error so the emission points described in the Fact Sheet and the final permit match.

[39] *See* Memorandum from Gina McCarthy, U.S. EPA Assistant Administrator, to EPA Regional Administrators, Withdrawal of Source Determinations for Oil and Gas Industries (Sept. 22, 2009), *available at* www.epa.gov/region7/air/nsr/nsrmemos/oilgaswithdrawal.pdf.
[40] U.S. EPA Region III, Comments on PADEP Technical Guidance on Air Aggregation in Oil and Gas Industries (Nov. 21, 2011), at 4, *available at* http://www.cleanair.org/sites/default/files/EPA%20Aggregation%20Comments.pdf.
[41] AMS, NSR Construction Permit Application, Buffalo Compressor Station (Feb. 2013), Appendix B, Aggregation Analysis, at 3.
[42] WVDAQ, Engineering Evaluation/Fact Sheet for AMS Buffalo Facility, R13-3048, at 15.
[43] U.S. EPA Region III, Comments on PADEP Technical Guidance on Air Aggregation in Oil and Gas Industries (Nov. 21, 2011), at 5.
[44] WVDAQ, Engineering Evaluation/Fact Sheet for AMS Buffalo Facility, R13-3048, at 4.