Message

From: Danesh, Paymon [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=1010A5493AF64EDEB6F840141CE1271A-PDANESH]
Sent: 3/20/2019 2:17:46 PM
To: Langman, Michael [langman.michael@epa.gov]
Subject: RE: T147-39554-00065 Riverview Energy edit to responses

Ex. 5 Deliberative Process (DP)

From: Langman, Michael
Sent: Tuesday, March 19, 2019 1:38 PM
To: Danesh, Paymon <Danesh.Paymon@epa.gov>
Subject: FW: T147-39554-00065 Riverview Energy edit to responses

FYI

From: Jones, Cody C <CCJones@idem.IN.gov>
Sent: Tuesday, March 19, 2019 1:29 PM
To: Langman, Michael <langman.michael@epa.gov>
Subject: RE: T147-39554-00065 Riverview Energy edit to responses

Hi Michael,

Thank you for bringing this to our attention. After discussing with Doug Logan, it seems that the current table listed on page 21 of Appendix A is an updated table. The values for each of the SRUs in the modeling match the previous version of the table found in Appendix A.

Despite this error, the modeling is likely still conservative as the capacity of each SRU is bottlenecked by the amount of coal these units can process. The modeled values for each of these units is 19.05 lb/hr. Together, these units are therefore modeled at 38 lbs/hr which is greater than the rate imposed by the bottleneck for these units together at 36.7 lb/hr. It is possible that the modeling underrepresents one of the units which could operate up by the permit condition up to 26.3 lbs /hr (modeled at 19.05 lb/hr). However, EU-3001 and EU-3002 are physically close to one another so that under modeled emissions (~7 tpy) from one of units is partially accounted for by nearby emissions from the opposite unit well in excess of the 7 tpy shortage.

I'd be happy to explain via a phone conversation. I will be here today through 6p.m. EDT.

Thanks!

Cody C. Jones
Environmental Manager
Technical Support and Modeling
Office of Air Quality
Indiana Department of Environmental Management
317-233-2725
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From: Langman, Michael [mailto:langman.michael@epa.gov]
Sent: Tuesday, March 19, 2019 1:18 PM
To: Jones, Cody C <CCJones@idem.IN.gov>
Subject: FW: T147-39554-00065 Riverview Energy edit to responses

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Hi Cody,

To follow up on the message I left with you earlier this afternoon, I was asking about the modeled emission rate for the SRUs as a follow-up to the response to our comments in the draft ATSD. I'm forwarding the email chain to you.

For completeness, here's IDEM's proposed response explaining how the 19.05 lb/hr emission limit was determined:

IDEM Response to EPA Modeling Comment 6:

> IDEM received a comment about emission units EU-3001 and EU-3002 as being modeled at a lower emission rate than the permitted limit of 26.3 lb of SO_2 /hr. Each of these units were modeled at 19.05 lb of SO_2 /hr in the modeling for the normal operation of the facility. The value used in the modeling of 19.05 lb of SO_2 /hr represents approximately 72% of the permitted limit for each unit. This represents the maximum sulfur load one of the two tail gas treatment units can handle. When the Block 2000 VCC Units are operating at 100% capacity, both Sulfur Recovery Units (EU-3001 and EU-3002) will each handle approximately 50% of the incoming sulfur load when operating together. However, when either of the tail gas treatment units are not operating, the sulfur loading capacity from the VCC units is capped at 70%. Thus, modeling each unit together at 70% accounts for 140% of VCC operation under normal conditions as a conservative estimate for modeling purposes. The table below shows the operating scenarios and sulfur loading potentials at for each unit.

Scenario No.	Operating Mode	Sulfur Loading from VCC	Number of SRP's Operating	% Sulfur Loading for Operating SRP(s)
1	100% VCC Operation (Normal Operations)	100%	2	Both SRP's operating, each handling ~50% of the incoming load from VCC Unit
2	70% VCC Operation (During VCC Unit Turndown, Start-up, Shutdown)	≤ 70%	1	The operating SRP handles the incoming load from VCC Unit
3	70% VCC Operation (During VCC Unit Turndown, Start-up, Shutdown)	≤ 70%	2	The total sulfur loading is limited to ≤ 70% to both SRP's. The two SRP's could split the incoming load in a 50-50, 60-40 or 70-30 ratio, i.e., within SPR capacity & turndown limits.
4	70% VCC Operation (One SRP is not available or shutdown)	≤ 70%	1	The operating SRP handles the incoming load from VCC Unit

> Annual emissions of NOx, VOC, and SO_2 used in the Section F secondary analysis for $PM_{2.5}$ and ozone were updated. Updated emissions values remain below the values for Indiana provided in U.S. EPA MERPS Guidance.
>
> See Appendix C to the ATSD for the revised modeling analysis in its entirety.

Looking forward to talking about this with you when you get the chance.

Thanks,
Michael Langman
Environmental Scientist
Air Permits Section, US EPA Region 5
Email: langman.michael@epa.gov
Phone: 312-886-6867

From: Logan, Doug <DLogan@idem.IN.gov>
Sent: Tuesday, March 19, 2019 11:51 AM
To: Langman, Michael <langman.michael@epa.gov>
Subject: RE: T147-39554-00065 Riverview Energy edit to responses

The maximum hourly SO2 limit for each TGTU is 26.30 lb/hr. This is determined from the maximum BACT concentration of 167 ppmv and the maximum exhaust flow rate for either TGTU of 41.01 lb-mole/min @0% O2. That maximum flow rate, as you noted in the 3/15 email, is what a single sulfur recovery train can achieve, 70% of the full production rate of the VCC process. 26.30 lb SO2/hr was modeled as the "70% sulfur loading from VCC" condition as the highest rate for either TGTU, there was not another application of a 70% multiplier.

Doug Logan
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From: Langman, Michael [mailto:langman.michael@epa.gov]
Sent: Friday, March 15, 2019 4:04 PM
To: Logan, Doug <DLogan@idem.IN.gov>
Cc: Danesh, Paymon <Danesh.Paymon@epa.gov>
Subject: RE: T147-39554-00065 Riverview Energy edit to responses

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Hi Doug,

Thanks for sending me the updated response.

Can you clarify how EU-3001 and EU-3002's SO2 emission limits were calculated? Draft permit condition D.4.1(e) limits each TGTU to 26.30 lb/hr SO2, each. Draft TSD Appendix A pages 19-21 appears to show that the maximum SRU emission limitation is based on the exhaust molar flow rate (dry) at 70% of VCC capacity (i.e., 41.01 lb-mol/min). With respect to the response for modeling comment #6, does this mean that the modeled emission rate for EU-3001 and EU-3002 is 70% of the SO2 emission rate calculated at 70% of VCC capacity?

The other revisions to the ATSD don't appear to substantially change the responses. Similarly, the revision to the H2S emission rate in the modeling report wouldn't change what's required in the air quality analysis. With the exception of the above, I don't have any further comments on the rest of EPA's portion of the ATSD or the revised modeling report.

Hope you have a good weekend. We can talk about this more next week.

Thanks,
Michael Langman
Environmental Scientist

Air Permits Section, US EPA Region 5
Email: langman.michael@epa.gov
Phone: 312-886-6867

From: Logan, Doug <DLogan@idem.IN.gov>
Sent: Friday, March 15, 2019 7:13 AM
To: Langman, Michael <langman.michael@epa.gov>
Subject: T147-39554-00065 Riverview Energy edit to responses

Good morning,

When we talked a few days ago, I think I mentioned that the modeling section had sent me some edits to the responses they provided.

It turns out that much of what they sent me last week was simply edits to the language, with no substantive changes. At any rate, the attached file "response edits 3-12" shows the changes in highlighted bold and strikethrough text.

The modeling group also decided to edit the significant emission rates table in the air quality analysis, changing the source emission rate entry for hydrogen sulfide to 5.11 tons/yr. This is the bottlenecked potential to emit at the BACT limit of 10 ppmv. This change does not affect any of the modeling results because the hydrogen sulfide emission rate remains below the significant emission rate of 10 tpy that would trigger modeling. This edit is shown in the attached clip from the air quality analysis, "appC clip 3-14-19"

We have also talked over your concern about the sulfur recovery unit capacities and modeling. We feel that the calculations and air quality analysis describe the capacities and modeled scenarios thoroughly. From our point of view, it is inappropriate to add a limit in the permit when the limit is the physical capacity of the equipment. We are clarifying the unit description, as follows:

(e) Sulfur recovery operations, identified as Block 3000, **with a maximum design capacity of 218 long tons per day (LTD) and a bottlenecked capacity of 156 LTD,** consisting of:

(1) ...

(3) Sulfur Recovery System, consisting of:

(A) One (1) sulfur recovery unit, identified as Sulfur Recovery Unit A, approved in 2019 for construction, **with a maximum design capacity of 109 LTD,** with emergency and pressure relief streams vented to the Block 4000 sulfur flare.

(i) ...
(v) One (1) sulfur product pit, identified as Sulfur Product Pit A, with a maximum throughput capacity of ~~44,611 tons of sulfur per year (70% of VCC capacity) and a nominal capacity 31,865 tons per year (50% of VCC capacity)~~ **109 LTD**, discharging purge air to the TGTU incinerator and molten sulfur to Block 4000.
(vi) ...

(B) One (1) sulfur recovery unit, identified as Sulfur Recovery Unit B, approved in 2019 for construction, **with a maximum design capacity of 109 LTD,** with emergency and pressure relief streams vented to the Block 4000 sulfur flare.

(i) ...
(v) One (1) sulfur product pit, identified as Sulfur Product Pit B, with a maximum throughput capacity of ~~44,611 tons of sulfur per year (70% of VCC capacity) and a nominal capacity 31,865 tons per year (50% of VCC capacity)~~ **109 LTD**, discharging purge air to the TGTU incinerator and molten sulfur to Block 4000.
(vi) ...

You will see also that the sulfur recovery capacity is now expressed in long tons per day. That is because some requirements in 40 CFR 60, Subpart Ja are expressed with thresholds in LTD.

Doug Logan
Environmental Engineer
Office of Air Quality

Indiana Department of Environmental Management

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