

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
PLANNING, RULE DEVELOPMENT & AREA SOURCES**

**Draft Staff Report
SO_x RECLAIM
Part IV**

Comments & Responses

June 23, 2009

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TABLE OF CONTENTS

RESPONSES TO WSPA’S COMMENTS RECEIVED ON JULY 2, 2008	2
RESPONSES TO BP’S COMMENTS RECEIVED JULY 1 ST , 2008	7
RESPONSES TO VALERO’S COMMENTS RECEIVED JULY 1 ST , 2008	12
RESPONSES TO RHODIA’S COMMENTS RECEIVED APRIL 29 TH , 2008.....	14
RESPONSES TO RHODIA’S COMMENTS RECEIVED NOVEMBER 25 TH , 2008.....	14
RESPONSES TO WSPA’S COMMENTS RECEIVED APRIL 29 TH , 2008	18

Responses to WSPA’s Comments Received on July 2, 2008



Western States Petroleum Association

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Jodie Muller

Manager, External Affairs and South Coast Region

July 2, 2008

Via E-Mail and First-Class Mail

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South Coast Air Quality Management District
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WSPA Comments on the Preliminary Draft Part I Staff Report - RECLAIM SOx

WSPA appreciates the opportunity to comment on the "Preliminary Draft Staff Report Sox RECLAIM Part I Allocations, Emissions & Control Technologies" (the "Report"), and we appreciate your patience while we were addressing the other priorities that you had established (e.g., the RFP for the contractor project, FCCU SOx reduction catalyst additives, etc.). WSPA’s detailed comments are attached to this transmittal email, in the form of comments and suggested edits provided directly on the draft Staff Report.

WSPA's attached detailed comments speak for themselves, and we need not summarize them in this transmittal. However, there are a few overarching issues that we would like to specifically call to your attention:

1. The draft Report references 2007 AQMP Control Measure CMB-02 as being the impetus for the BARCT reassessment, but the Report does not accurately describe the legal basis for this rulemaking effort, nor does it address the process by which the BARCT reassessment will be conducted. While the Report provides an overview of existing control technologies and suggests new, potentially feasible emission rates or limits, it does not provide detail regarding the process the District will use to identify new 2010 facility annual allocations, does not indicate how the District will determine the feasible reductions to be achieved by the "shave", and does not address the need for a reasonable compliance margin.

An understanding of, and agreement with, the methodology for developing BARCT levels, and the resultant potential shave, needs to precede most of the other work. The facilities that will be subject to any SOx shave need to know exactly how proposed revised allocations and the proposed shave will be calculated. Only once the process has been agreed to should the District move ahead with reassessing the BARCT levels.

Comment #1

Comment # 2

2. The report alludes to the possibility of incorporating both the reassessment of the BARCT levels under the SOx RECLAIM program (as proposed in 2007 AQMP CM CMB-02) and the concept of facility modernization (from 2007 AQMP CM MCS-01) into a combined overall effort to reduce SOx emissions. However, the Report does not explain the process for doing so or why it might be appropriate to include a facility modernization analysis with this effort. WSPA is concerned about the potential for blurring the distinction between a BARCT reassessment and the possibly similar assessment of facility modernization. Since there will likely be overlapping issues, it is very important that the District independently develop, and reach consensus on, the process for implementing each control measure. If both measures are to be considered simultaneously, then the Report must clearly show how each measure will work in tandem with the other (and the feasibility of such an approach) before allocation levels are established.

Comment #3

3. The Report attempts to tie the potential reduction of RECLAIM SOx allocations (i.e., a reduction of SOx emissions) to PM air quality but does not establish the necessary basis for a linkage between the two. The Report cannot be based on an assumed relationship between SOx emissions and ambient PM₁₀ or PM_{2.5} levels; rather, it must describe and provide evidence for how SOx emissions contribute to ambient particulate matter concentrations and how the anticipated SOx emission reductions will affect ambient air quality.

Comment #4

4. The "Proposed BARCT Levels and Emission Reductions" section of chapters three through nine includes detailed conclusions with respect to the applicability of various emission control technologies and the resultant BARCT levels for the various source categories in the SOx RECLAIM program. These conclusions are premature and unsubstantiated, and their inclusion in the report is not appropriate given that the District is planning to hire one or more expert third-party contractor(s) to conduct thorough engineering evaluations and cost estimates of potential SOx emission reduction technologies. WSPA is very concerned that the Report's preliminary, and largely unsubstantiated, conclusions will become benchmarks against which the contractors' work products might be evaluated and effectively prejudice the expected conclusions rather than foster an independent analysis.

Comment #5

5. Due to the significance of this SOx BARCT reassessment program and the issues that we have identified with the draft Report, WSPA believes that the Report must be substantially rewritten. The issues WSPA raises here and in the attached detailed comments cannot (and should not) be handled through responses to comments or preparation of a supplement Report, either of which would require the reader to read and understand two or more separate and likely conflicting documents. WSPA has tried to present its detailed comments in a way that can serve as a useful guide for rewriting the draft Part I Report, and hopes that District staff take advantage of our suggestions in that manner.

Again, WSPA appreciates the opportunity to submit these comments on this important effort. We ask that our detailed comments and this transmittal letter be included in the record for this rulemaking. WSPA looks forward to working with the District as this effort progresses, and we look forward to commenting on future drafts of the Part I and Part II Staff Reports for this rulemaking, as well as on any proposed rule amendments and other related regulatory materials.

Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Jodie Muller". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Jodie Muller

Enclosure -- WSPA Comments

cc: Gary Quinn, P.E.
Laki Tisopulos, Ph.D., P.E.
Minh Pham, M.S., P.E.

Staff's Responses to WSPA's Comments

Response #1

Staff appreciates WSPA's comments and suggested edits on Part I of the Preliminary Draft Staff Report. Staff will respond to all WSPA's comments, review WSPA's edits, and if appropriate, will revise the Draft Staff Report.

Regarding WSPA's detailed comments, staff will respond to the key issues and retain the detailed comments in the Administrative Records of this amended rule. This approach is taken to reduce the bulk of the detailed comments/responses portion of the Draft Staff Report.

First, staff would like to direct WSPA to the legal basis of this rule making effort described in Section 1.1 of the Draft Staff Report – Legislative Authority. Secondly, with all due respect, staff disagrees with the sequence of approaches recommended by WSPA for this rule amendment. Staff's seven-step approach for this rule amendment is described below, in sequence:

1. Conduct an assessment of allocations and emission baselines;
2. Conduct a review of control technologies;
3. Identify areas of potential emission reductions, focusing on these areas with greatest potential reductions;
4. Conduct site-specific evaluation of control technology feasibility and costs
5. Assess BARCT
6. Re-examine the potential emission reductions in Step 3, taking into consideration the final emission reductions, and the amount of allocation shave while maintaining the integrity, equity, and operational characteristics of the SOx RECLAIM program; and
7. Amend appropriate rules in Regulation XX.

The first three steps were presented in Part I of the Preliminary Draft Staff Report and several of staff's presentations at the SOx RECLAIM Working Group Meetings. The last four steps are presented in Part II of the Draft Staff Report, and will be developed in parallel with the contractors' work on the proposals

Response #2

For this rule amendment, BARCT reassessment will be the basis that used to assess the emission reductions and the allocation shave. The concept of facility modernization, if used, may only influence the timing of the allocation shave. However, at this stage, staff expects that the facility modernization concept will not play a significant role in this rule amendment effort.

Response #3

Please refer to Appendix 5 of the 2007 AQMP for the evidence of how SOx emissions contribute to ambient particulate matter concentrations, and how the anticipated SOx emission reductions will affect ambient air quality.

Response #4

Staff’s seven-step approach for this rule amendment is described in Response #1. The first three steps were presented in Part I of the Preliminary Draft Staff Report and several staff’s presentations at the SOx RECLAIM Working Group Meetings. To assist staff in the BARCT assessment, expert third-party contractor(s) conduct a thorough, independent, site-specific engineering evaluations and cost estimates of potential control technologies in Step 4. The results of the contractors’ analysis will be used in Step 5 and Step 6. Staff will develop Part III of the Draft Staff Report Staff to cover the information in the last four steps in parallel with the contractors’ work in Step 4.

Response #5

Staff will respond to all comments received and revise the Draft Staff Report appropriately. Regarding WSPA’s detailed comments, staff will response to the key issues and retain the detailed comments in the Administrative Records of this amended rule. This approach was selected to reduce the bulk of the detailed comments/responses portion of the Draft Staff Report.

Responses to BP’s Comments Received July 1st, 2008



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Telephone: +1 (714) 670-5493

VIA E-Mail

July 1st, 2008
INFORMATION

CONFIDENTIAL BUSINESS

Ms. Minh Pham
 Air Quality Specialist
 Planning, Rule Development and Area Sources
 South Coast Air Quality Management District
 21865 E. Copley Drive
 Diamond Bar, CA 91765

Subject: 2nd Round of Comments on RECLAIM SOx Shave Staff Report Part 1

Dear Ms. Pham

BP appreciates the opportunity to comment on the draft Part 1 of the staff report for the RECLAIM SOx shave. I provided some initial comments on this report back on April 29th. Below are some additional company specific comments for these facilities that are not appropriate to share with WSPA. Please note that some of this information is to be treated as business confidential.

Refinery

Comment #1



- I suggest removing the sentences related to the CanSolv scrubbing system installed at the Cherry Point SRU mentioned in Section 5.3.3.2 of the report. It is true that the unit was started in July of 2006, but it only operated for about 4 months due to equipment problems outside of the CanSolv system. It is still not operating. It was also not designed to achieve 10 ppm as stated. In fact, the unit is designed to meet what the state regulatory agency determined to be **BACT** – 250 ppm SO₂ 12-hour rolling average (same as NSPS Subpart J/Ja) and it has a 135 tpy mass limit annually which I believe translates to 150 ppm. The following is an excerpt from the from the Marsulex Agreement for the design of the unit:

SO₂ Removal. The concentration of SO₂ in the treated gas (stack gas) shall be less than 250 ppmv, oxygen fee, dry basis, (no nitrogen adjustment).

Calciner

- Similar to the request above, we respectfully ask that you eliminate the brief discussion about the BP Cherry Point Calciner control system in section 8.3.2 of the report. There are two reasons for this request. First, much of the basic information is inaccurate such as the permit chronology and statements suggesting that SO2 was reduced as a result of the installation of a wet ESP (specifically designed for particulate and acid mist removal, not SO2). Any apparent SO2 reduction was likely coincident with this change but due to something else. The likely cause of inaccuracies in the chronology is the result of having multiple calciners undergoing modifications at different times, but none of the dates mentioned line-up correctly with the specified modifications. To clarify all the permit history would require an expansive discussion without any real value added to the report. There is also ‘test’ data presented that the unit met 10-12 ppm SO2 in the stack. I did not see any such test data when I reviewed source test results.

Comment #2



Secondly, the data from the Cherry Point calciner does not necessarily support the conclusion that the Wilmington calciner emission performance could be improved. While it is true that the stack concentration is consistently lower at Cherry Point, the removal efficiency is not any better. You list an inlet concentration range at Cherry Point of between 1125 and 1425 ppm. This information appears accurate based on some tests and translates into an inlet mass of 1200 – 1500 lbs/hr. However, as provided in our survey to SCAQMD, our analyzer data for 2007 shows inlet mass ranging at about 5200 lb/hr (2700 ppm) at Wilmington. I am not sure why the different levels of sulfur in the inlet exist, but this explains the slightly higher removal efficiency reported at Wilmington mentioned previously in my comments.

None of this information suggests that wet scrubbing, as an option to the existing dry scrubbing system at Wilmington, should not be explored in the 3rd-party engineering analysis in Part II of the staff report or discussed generically in this section. I also do not have a concern if it is mentioned that such a system is installed and operating at the BP Cherry Point refinery. However, to avoid having to rewrite the complex permit history and trying to explain why Cherry Point has a consistently lower stack concentration while Wilmington has higher removal efficiency, I suggest removing the discussion of the Cherry Point performance in its entirety.

If you have any questions regarding these comments, do not hesitate to call me at (714) 670-5493 or reply to this e-mail.

Sincerely,
 Miles Heller
 Air Issues Specialist

Staff's Responses

Note that the commentor did not specifically identify or justify which information was confidential, therefore the comments will be treated as non-confidential.

Response #1

Staff does not agree with BP's suggestion to remove Section 5.3.3.2 of the Preliminary Draft Staff Report related to the Cansolv scrubbing system installed at Cherry Point Refinery's Sulfur Recovery Units.

Staff acknowledges the information provided by BP that 1) the Cansolv scrubber has been designed to a level *less than* 250 ppmv, 0% O₂, currently required by NSPA Subpart J/Ja or MACT II, and 2) is subject to a mass annual limit of 135 tons per year, translated to 150 ppmv SO_x, as BP. However, staff believes that it is not uncommon for a system to achieve levels below the designed levels. This fact is supported by the following examples:

- Two Cansolv scrubbers were designed for a FCCU and a FCU at Valero's Delaware City Refinery. The designed outlet SO_x concentration is 25 ppmv. These scrubbers have been in operation for more than a year, and have actually achieved levels of 2 ppmv SO_x outlet concentration on a continuous basis.
- Two DynaWave scrubbers were installed at Sinclair oil refineries in Wyoming and designed to meet less than 250 ppmv limit of MACT II and NSPS Subpart Ja. These scrubbers have been in operation more than a year and actually achieved a level below 1 ppmv (e.g., 0.3 ppmv which represents the lower detection limit of stack testing.)

Staff has provided accurate information in Section 5.3.3.2 related to the Cansolv system in the Preliminary Draft Staff Report, and as such, will not remove this section. However, staff will add a footnote to reflect the current non-operational status of the system as indicated by BP.

Response #2

Staff does not agree with BP's suggestion to eliminate Section 8.3.2 of the Preliminary Draft Staff Report related to the Cansolv scrubbing system at Cherry Point Refinery's coke calciners. Staff's responses to several issues stated in Comment #2 are as follows:

- **Permit Chronology**

Following BP's suggestion, staff will not discuss the operational history and permit chronology of the calciners at BP Cherry Point Refinery. As such, staff removed the dates (e.g. 1984, 1994, 2001) mentioned in this section.

- **Accuracy of Emissions and Performance Information**

Staff believes that it is important to state relevant public information related to the performance of the wet scrubbers/wet ESPs for the calciners at Cherry Point Refinery accurately. The information provided in the Preliminary Draft Staff Report was all correct and accurate, and will be repeated below with specific references provided:

<u>Information</u>	<u>Reference</u>
The inlet SOx concentration from the calciners at Cherry Point Refinery ranges from 1125 ppmv – 1425 ppmv	November 1, 1977 PSD Applicability Determination – ARCO Petroleum
Permit limit concentration of 160 ppmv and 90% control efficiency previously given to the wet scrubber	Northwest Clean Air Agency, Notice of Construction Worksheet for BP Cherry Point Refinery (NOC #985), dated December 2006
Permit limit concentration of 35 ppmv	Northwest Clean Air Agency, Air Operating Permit of BP Cherry Point Refinery
Control efficiency of the control system including wet scrubber and wet ESP	Estimated from inlet and permitted levels: $(1 - (35 \text{ ppmv} / 1125 \text{ ppmv})) * 100 = 96.9\%$ $(1 - (35 \text{ ppmv} / 1425 \text{ ppmv})) * 100 = 97.5\%$
Test results showing 10 – 12 ppmv	From a paper titled “Eliminating a Sulfuric Acid Mist Plume from a Wet Scrubber on a Petroleum Coke Calciner”, Brown & Hohne. This paper indicated an average annual SOx concentration of 18 ppmv and a SO2 removal efficiency of 99%.

Staff acknowledges that the main function of the wet ESP is to further control sulfuric acid mist emissions and eliminate visible plume. This fact was already mentioned in Section 8.3.2 of the Preliminary Draft Staff Report. However, the permit limit for SOx was reduced from 160 ppmv to 35 ppmv, and this fact speaks for itself about the concurrent effect on SOx removal efficiency.

- **Stack Concentration (ppmv), Removal Efficiency (%), and Emission Rate (lbs/ton)**

The control efficiencies (98% - 99%) for Wilmington’s coke calciners was based on actual outlet concentrations (27 – 52 ppmv) and inlet concentration (2700 ppmv). The control efficiencies (96.9% - 97.5%) for Cherry Point Refinery’s coke calciners were based on *permitted* outlet concentration (35 ppmv) and inlet concentrations. When the actual outlet concentrations are used (10-12 ppmv), the control efficiency for Cherry Point Refinery’s coke calciners will approach 99% or more.

The emission rate of Cherry Point Refinery’s coke calciner (0.14 lbs/ton) is lower than those at BP Wilmington (0.56 lbs/ton – 0.89 lbs/ton). The Tier I emission rate for BP Wilmington calciner was set high at 2.47 lbs/ton. In addition, the current reported production rate of Wilmington’s coke calciner is approximately 22% higher than the past production rate reported by BP and used in Tier I allocation calculation. To balance the

increase in production rate and to meet a potential lower BARCT level, staff strongly believes that BP should improve the performance of its control system at Wilmington's coke calciner.

Responses to Valero's Comments Received July 1st, 2008

-----Original Message-----

From: Gonzales, Susan [mailto:Susan.Gonzales@valero.com]

Sent: Tuesday, July 01, 2008 1:26 PM

To: Minh Pham

Subject: FW: Valero Del City

Importance: High

Hi Minh -listed below are the comments on the preliminary draft report. The comments are from our Valero Delaware City environmental department.

I've attached the document portion that I had them review. Thanks. Sue

Valero Delaware City Refinery Comments:

On page 1, in addition to Valero DE City, Motiva DE City is listed. The Motiva entry is a duplicate. We are the old Motiva DCR. The Valero DCR entry contains two footnotes (#2, #5). #5 footnoted below the table has an (a) and a (b). The (b) references a scrubber on an HF Alkylolation Unit...and I don't know what this is referring to (some other Premcor refinery?) because we do not have an HF Alkylolation Unit. I'm also not sure what the 65% reduction is referring to. The two regenerative WGS units on the FCCU and FCU here in DE City were designed to reduce emissions by 99% at the FCU and 97% from the FCCU.

Page 3 mentions inlet flow volume to the WGS. The design inlet volumes from the final permit applications are 258,200 scfm for the FCU and 442,400 scfm for the FCCU. These values are not on a moisture corrected (dry) basis. I also have no knowledge of the statement in the last sentence about the FCCU being "twice bigger than the largest refinery in the District."

Staff's Responses to Valero's Comments

Staff contacted Delaware Department of Natural Resources and Environmental Control (DNREC)'s Division of Air Waste Management to clarify about the name of the refinery and the status of operation. DNREC's staff confirmed that Valero had recently bought Delaware City Refinery from Motiva. DNREC's staff also indicated that there have been several ownership changes for this Delaware City Refinery, however this refinery is still referred to as "Premcor Refinery" on various documents such as permits.

Based on the information provided by Valero and DNREC, staff has: 1) deleted the duplicate entry for Motiva in Table 3-3; 2) made a clarification in footnote #5 that Premcor Delaware City Refinery is now owned by Valero; 3) deleted several wordings in footnote #5 which referred to HF alkylolation unit and 65% reduction (which was the estimated overall facility emission reduction from DNREC;) 4) included the two flow rates for FCCU and FCU in

Paragraph 3.3.2.3 of the Staff Report; and 5) included additional information provided by DNREC that the two scrubbers have indeed achieved SO_x levels of 1 ppm - 2 ppmv, corrected to 0% O₂, on a continuous basis. The scrubber system for the FCCU is in operation for about 1.5 years, and the scrubber system for FCU is on line for more than 2 years. Based on a comparison on the exhaust flow rates from the FCCUs and feed rates, Delaware Refinery's FCCU is about twice larger than the largest FCCU in the District.

Responses to Rhodia's Comments Received April 29th, 2008

Rhodia Inc. provided comments and edits on Chapter 6 of the Preliminary Draft Staff Reports – Sulfuric Acid Manufacturing Process on April 20, 2008. Staff appreciates the comments and has incorporated many of Rhodia's edits in the newly revised version of the Draft Staff Report.

Responses to Rhodia's Comments Received November 25th, 2008

Comment #1

State law prohibits the District from setting BARCT levels without considering the relative environmental and economic impacts on each affected source category. The Draft Report fails to make any findings at all concerning (1) the relative cost-effectiveness of requiring the proposed SO₂ controls at a sulfuric acid plant like Rhodia instead of requiring more reductions from sectors responsible for greater PM_{2.5} and/or SO₂ contributions; (2) relative PM_{2.5} reductions available from tighter controls on sulfuric acid plants versus other sectors/sources; (3) relative costs and environmental benefits of imposing more aggressive controls directly on PM_{2.5} sources rather than on sources of SO₂ (which is only a precursor to PM_{2.5}); or (4) whether imposing stricter PM_{2.5} and/or SO₂ controls on other sectors may cause less overall adverse economic impact than imposing those controls on Rhodia. For example, requiring additional reductions from highly emissive direct sources of PM_{2.5} very well could result in a greater and more cost-effective reduction of PM_{2.5} than driving down BARCT levels for sulfuric acid regenerators, who are a very small source of PM_{2.5} in the South Coast Air Basin. In any event, reciting control costs and cost-per-ton figures in a vacuum tells the District nothing about whether tighter regulation of other sources may be less economically burdensome and/or more effective at producing PM_{2.5} attainment by 2015. Accordingly, the Draft Report fails to provide a complete BARCT analysis.

Response #1

Staff recognizes that for a BARCT assessment to be made state law requires an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of sources. (H&S Code §40406) However, it should be noted that the results provided in the subject report is not the BARCT assessment but rather input for the staff to generate a recommended BARCT for the various equipment subject to SO_x RECLAIM.

Comment #2

Since the District began its effort to investigate and redefine BARCT for SO_x from sulfuric acid plants and other sources, both the credit markets and the broader economy have suffered major downturns. Financing for major projects is extremely difficult to secure, and most economic analysts predict that these credit issues will extend into 2009 and potentially 2010. The Draft Report makes no mention of these changed economic circumstances, and fails to discuss the potential impacts of tightening BARCT levels at a time when sources could find it difficult or impossible to complete the required capital projects by 2015.

Response #2

Addressing the current economic situation's impact on financing major projects is outside the scope of this report. Such dialogue has transpired as part of the SOx Working Group. Staff will try to schedule implementation of these projects with the lowest possible financial impacts while maintaining the 2015 emission reduction goals as presented in the 2007 AQMP.

Comment #3

AQMP Control Measure CMB-02 is a measure designed to secure appropriate SOx reductions pursuant to RECLAIM, primarily (as the AQMP describes) from refineries. It is not a control measure designed to achieve PM2.5 reductions required for District wide attainment. While the District certainly has an interest in achieving PM2.5 attainment in the South Coast Air Basin, Control Measure CMB-02 makes no mention of requiring SOx reductions as a PM2.5 reduction strategy. If the District's aim is to secure sufficient PM2.5 reductions to achieve PM2.5 attainment by 2014, it must fairly compare the costs and benefits of securing PM2.5 reductions from the universe of PM2.5 sources throughout the Basin, not disproportionately from a handful of SOx RECLAIM sources.

Response #3

The staff report will address the relationship between SOx and PM2.5. However, the commenter is referred to such documents as Appendix V of the 2007 AQMP for a much more detailed discussion of this relationship.

Comment #4

The capital cost estimates in the Draft Report (summarized in Table 3 on page 8 and in Table R-2 in Section V.L. of the confidential appendices) appear to be inaccurate, and vary from each other by over \$6 million. Rhodia has been unable to verify the sources of these equipment cost estimates, both of which are well below the likely installed equipment costs of installing a caustic scrubber. Recent experience within our company and throughout the market suggests to us that the installed cost of a scrubber is approximately \$15 million. For these reasons, the cost effectiveness values in Table 4 on page 9 are also too low, and do not reflect real world costs. Moreover, in Section V.M., Table R-3., the operating cost estimates for caustic makeup also appear to be too low, given that current market value for caustic is approximately \$1,000 per ton (100% NaOH). These data errors undermine the Draft Report's cost effectiveness conclusions on page 10, and suggest that actual capital and operational costs may be significantly higher than the numbers cited. Because California law mandates that the District make proper cost-effectiveness findings before setting or changing BARCT, Rhodia strongly recommends that the District take the PDSR off the December calendar, ask its vendors to document the sources for all of the cited cost data, and work with Rhodia to resolve the data discrepancies before moving forward.

Response #4

The consultant has conducted a very thorough analysis with respect to the cost analysis of the subject equipment. However, given the very low cost effectiveness derived by the consultant the costs would have to be several-fold greater than assessed in order for the cost-effectiveness to no longer being attractive.

Comment #5

The Draft Report assumes that Rhodia could install a new caustic scrubber as soon as 2011. Rhodia estimates that, if it were required to install a new scrubber, it would not be ready for operation for at least 2 to 3 years after initial funding of the project. Even in a best-case scenario, emissions reductions from any new scrubber installed at Rhodia may not be available to help PM2.5 attainment until 2012 or later, depending on when the District approves the BARCT revision. The Draft Report fails to address the relative costs and benefits of requiring SO₂ emissions reductions that would not yield PM2.5 reductions until those years, nor does it address whether reductions in other sectors may be more timely and cost-effective.

Response #5

The SO_x emission reduction goal of at least 2.9 tons per day needs to be made prior to 2015. Staff will assess the feasibility of achieving this emission reduction in the indicated timeframe as part of the rulemaking process, taking into consideration the time needed to install control equipment.

Comment #6

In the first paragraph of page 4 of the Draft Report, we would recommend adding the following underlined language: “Historically double absorption plants have needed no further SO₂ reduction before the tail gas is emitted to the atmosphere, because their emissions are typically well below the New Source Performance Standard of 99.7% conversion or 4 lbs. per ton.”

In the second paragraph on page 4, we would recommend deleting the word “pentoxide” from the catalyst description. Extensive research conducted by Rhodia’s catalyst supplier indicates that the vanadium is in a form of complex salts rather than vanadium pentoxide.

Response #6

The consultant opted not to include the language in the subject report. If appropriate staff may include such language in the staff report.

Comment #7

In Figure 1 on page 6, “Facility 1, 2, 3”, should be changed to “Facility A, B, C,” respectively, to be consistent with the rest of the Draft Report. In the confidential section of the Draft Report

Response #7

The consultant corrected the facility identification as indicated by the commenter.

Comment #8

Finally, though Rhodia provided extensive comments and edits to the last draft of the PDSR, none of those comments appear to have been incorporated into the version that was posted on the District’s website. Rhodia also provided comments to an earlier version of the PDSR, but only a fraction of those comments appears to have been incorporated into the current version. Indeed, the District has failed to provide any response at all to most of Rhodia’s

comments on the PDSR. Rhodia is concerned that the District may be on a path to adopting a new and stricter set of BARCT requirements without sufficiently considering or incorporating Rhodia's written comments – a concern made more acute by the District's decision to provide two business days for Rhodia to submit comments and one business day for the District to consider them.

Response #8

Staff will respond to such comments as part of the staff report development.

Responses to WSPA's Comments Received April 29th, 2008

Comment #1

Part I, as drafted, contains numerous examples of the topics that are apparently intended to be covered in Part II. In addition to being premature, the discussion of these items in Part I is largely unsubstantiated and lacking adequate detail. WSPA strongly suggests that contents of the Part I Staff Report should conform to the scope specified in the above paragraph.

The methodology by which the District will actually develop the recommended RECLAIM SOx allocations shave is a critical discussion that should be included up-front, in the Part I Staff Report. (There is currently no mention of this essential topic.)

WSPA notes that the revised draft RFP for the third-party contractor project mentions that the Part II Staff Report will include "... a discussion on the process for reassessing BARCT, appropriate BARCT levels, emission reductions (aka allocations shave) and cost effectiveness for RECLAIM program (sic)." However, we submit that an understanding of, and agreement with, the methodology for developing a recommendation for an allocations shave – along with the necessary compliance margin – needs to proceed most of the other work (e.g., the third-party contractor project). In fact, arguably, we have already gotten "ahead of ourselves".

The methodology for the NOx shave proved to be very complex. Because we would expect a similar level of complexity with regard to SOx, the discussions regarding process cannot wait for a Phase II Staff Report. We should not delay those discussions any further – they need to commence now.

Response #1

Staff appreciates the concerns raised by WSPA in having an understanding of the SOx shave methodology. In recent meetings with the refineries and as requested by the refinery task force, staff has agreed to provide an estimate of SOx RTC reductions following the methodology that was used in the January 2005 NOx RECLAIM amendment. However, as in the January 2005 NOx RECLAIM amendment, further discussions are warranted (e.g. BARCT assessment) prior to finalizing the RTC reductions.

Comment #2

The decrease in the number of RECLAIM SOx facilities warrants some discussion and analysis. In particular, there would be interest in knowing whether or not any facilities have ceased operations, and, if so, why they did.

Response #2

Please refer to the Annual RECLAIM Audit Reports presented to the AQMD Governing Board on an annual basis in March. The most recent reports were presented to the Governing Board for the 2007 compliance year. These reports provide information

pertaining to the number of RECLAIM facilities. Such a discussion would be outside of this proposed SOx RECLAIM amendment.

Comment #3

WSPA understands that BARCT reassessments for the District's RECLAIM program are required by the California Health and Safety Code rather than by the Federal Clean Air Act. The discussion should clarify that advancements in control technology may or may not have actually occurred. Further, it is the RECLAIM program itself that dictates the timing for the planned reductions in emissions – a BARCT reassessment does not, by itself, impact implementation timing.

Response #3

A BARCT reassessment and the timing for this process (e.g. as expeditiously as practicable) is required by both the federal and California Clean Air Act, namely Section 172(c)(1) of the federal CAA, and Health and Safety Code (H&SC) Section 40913, 40914 and 40920.5, 40440(b)(1), 40406, and 39616. Staff conducts a BARCT reassessment every three years which realign well with the frequency for amending the Air Quality Management Plan.

Comment #4

The relationship of the Federal Fine Particulate Implementation Rule is this current effort to reassess BARCT for source categories that emit SOx needs to be clearly explained. The District's Rule and Control Measure Forecast item that describes this RECLAIM effort refers only to AQMP Control Measure CMB-02, and CMB-02 is a measure to achieve a proposed 2.9 ton per day reduction of SOx emissions.

Response #4

SOx is a key precursor of particulate matter (PM2.5). Reducing SOx is very important since it would help the Basin to meet the annual PM2.5 standard in 2014, the 24-hour PM2.5 standard in 2010, and ready to face a potential revision of the PM2.5 standard in a near future. Other than mentioning the importance at reducing SOx because it is a key precursor to PM2.5, there is no real need to provide detailed information regarding this phenomenon. The commenter is referred to such documents as the Appendix V of the 2007 AQMP for more details on this subject.

Comment #5

The value of the target SOx reduction in the final version of CMB-02 is "2.9 tons per day" (and that was a change from the initial estimate of "3.0"). The regulated community needs to know, and fully understand, the District's goals with respect to MCS-01, and the process for potentially combining "facility modernization" with this current effort to reassess BARCT for RECLAIM sources. These issues need to be included in the Part I Staff Report.

Response #5

As stated in Control Measure CMB-02, the minimum target emission reductions are expected to be 2.9 tons per day (~ 3 tpd) from 2010 through 2014 and are expected to remain constant after 2014. Such reduction in allocations can be across-the-board shaved or source specific reductions. As stated in CM CMB-02, staff may need to explore the

feasibility to incorporate the concepts of Control Measure MCS-01 - Facility Modernization, to achieve reductions beyond 2014. If needed, staff will discuss the concepts in Part II of the Staff Report.

Comment #6

It would be appropriate to include discussion and analysis of the following topics:

- The appropriateness of using CY 2005 as a "baseline" year.
- The methodology for calculating CY 2005 emissions since RECLAIM facilities are found in both calendar year and fiscal year cycles (i.e., there are both Cycle 1 and Cycle 2 facilities).
- The 2 ton per day differential between RECLAIM SO_x allocations and actual SO_x emissions. (For example, how much was allocated to operating facilities compared to third-parties who do not operate facilities. This information goes to establishing an appropriate compliance margin, and determining how deep a hypothetical shave would cut into facility operations.

Response #6

Staff provides the following explanations:

- The development process for the amended SO_x RECLAIM rules started in late 2007. At that time, the most recent set of emission data that has been available and audited is the 2005 emission data, therefore staff used this set of data in the analysis of the Staff Report. For further information, please refer to the “Annual RECLAIM Audit Reports for 2005 Compliance Year” published in March 2, 2007.
- Staff did not “calculate” any emissions for RECLAIM facilities. Cycle 1 and Cycle 2 facilities are required to report emissions according to the same reporting protocol in Rule 2012 for SO_x (e.g. major SO_x sources must report emissions on a daily basis and process SO_x sources must report emissions on a quarterly basis.) Following are the reporting emissions group by compliance year (e.g. Emissions for compliance year 2002 means emissions reported from January 1, 2002 – December 31, 2002 for Cycle 1 facilities, and July 1, 2002 – June 31, 2003 for Cycle 2 facilities. Emissions for calendar year 2002 means emissions reported from January 1, 2002 – December 31, 2002 for both Cycle 1 and Cycle 2 facilities.)
- The 12 tons per day corresponds to allocations and also emissions reported in APEP for compliance year 2002 (from Jan – Dec 2002 for Cycle 1 facilities and from July 2002 – June 2003 for Cycle 2 facilities). The 10 tons per day emissions are the emissions reported for 2005 calendar year. The difference in 2 tpd between year 2002 & 2005 is mainly the result of shrinkage in SO_x universe from 41 facilities since the start of the RECLAIM program to 33 facilities in 2005 including 12 facility shutdowns, 8 inclusions and 4 exclusions is only about 10%.

Comment #7

The calculations above do not appear to be correct. Because the seven highest emitting source categories had CY 2005 emissions of 7.53 tons per day out of a total of 10 tons per

day, their contribution is 75 percent (10 tons per day x 95 percent x 90 percent = 8.6 tons per day [or, 86 percent] – but that does not agree with 7.53/10).

Response #7

The following values need to be part of the calculation in order to derive the correct product:
9.92 tpd x 93.95% x 80.79% = 7.53 tpd (for the top 11 facilities)
9.92 tpd x 95.46% x 81.09% = 7.68 tpd (for the top 12 facilities, where Saint Gobain Containers Inc has ceased operation).

Comment #8

WSPA believes that SOx allocations, which are held by entities other than RECLAIM facilities, need to be noted and that Table EX-1 should show possibly those allocations if they are significant.

Response #8

Staff added Table A-3 in Appendix A to provide information (RECLAIM Trading Credits) that are held by entities other than RECLAIM facilities.

Comment #9

Notwithstanding staff's efforts in this regard, WSPA believes that the discussion of potentially applicable control technologies must be a work product of the third-party contractor study that the District has proposed. The discussion and analysis of control technologies should be included in the Part II Staff Report – not in this Part I.

It is both premature and inappropriate to present this list of candidate potential control technologies as being proposed technologies. The candidate control technologies will need to be evaluated against the BARCT criteria, and that analysis needs to take place in Part II of the staff report. More appropriately, the analysis needs to occur within the scope of the potential third-party engineering contractor project, on which, WSPA would expect, Part II of the staff report will be based.

Response #9

There is nothing premature and inappropriate in presenting information in Table EX-2 based on staff's research presented in Part I of the Staff Report. Staff views most rulemaking efforts as an iterative process. Staff expects that the independent work of the third party contractors will not result in much of a difference to the information presented in Table EX-2. However, if there is a difference, staff will consider the difference in the BARCT assessment process for SOx RECLAIM.

Comment #10

It is highly speculative to propose combinations of control technologies for these various sources because, in many cases, the technologies are essentially mutually-exclusive¹. There would need to be a robust demonstration of the feasibility, the effectiveness, and the cost-effectiveness of potentially combining multiple control technologies for these source categories.

Response #10

Under certain situations, control technologies are mutually-exclusive. It is, however, not highly speculative that control technologies would be used in combination. For example, it is quite possible for a facility to combine wet scrubbers with SO_x reducing additives. Table EX-2 provides possible control technologies, not the proposed BARCT. In addition to the information provided in Part I, the BARCT analysis will be made with the results provided by the third-party contractors as well as additional input from the regulated community.

Comment #11

As noted previously, the actual target emission reduction in CMB-02 is 2.9 tons per day (not 3 tons per day). The claim that the listed control technologies "would be employed to generate at least 3 tpd" suggests that the staff has already reached important conclusions regarding the potential BARCT reassessments and the amount of the potential reduction of SO_x allocations, respectively. Given the facts that the proposed third-party engineering study has not yet begun, and that Part II of the Staff Report has not been written, all such conclusions are premature and inappropriate for inclusion in the Part I Staff Report.

Response #11

Staff conducted a first estimate of emission reductions of 2.9 tons per day shown in Control Measure BCM-02. A more refined estimate of emission reductions (4.7 tpd – 6.7 tpd from the 2005 baseline inventory) was conducted during the development of Part I of Staff Report and was provided in the April 3 and April 30 Working Group Meetings. A subsequent estimate of emission reductions (6.5 tpd from the 2005 baseline inventory) were provided by the third-party contractors.

Comment #12

WSPA submits that the definition of BARCT is critical to this current effort. BARCT is not BACT or LAER. BARCT applies on a retrofit basis, and it must consider environmental, energy and economic impacts.

Response #12

Staff agrees with the commenter. However, it should be noted that it is not unusual in which the levels of BARCT are equal to the levels for BACT (or LAER), especially for add-on control devices such as wet/dry scrubbers. In some situations (e.g. PAR 1146 and

¹ For example, it is extremely unlikely that, due to "diminishing returns", anyone would: Combine wet scrubbing of FCCU flue gas with any other SO_x-reduction technology, or, combine enhanced fuel gas treating for fuel gas combustion devices with stack scrubbing, or, combine enhanced SRU/TGU efficiency with stack scrubbing, etc.

1146.1), the BARCT level for certain categories of equipment may be more stringent than the corresponding BACT level. The primary reason for this difference was that the BACT assessment has not been conducted for 8 years, not taking into recent advancements on control technologies

control technologies. In addition, BARCT may anticipate future technological development.

Comment #13A

Although WSPA recognizes the precursor relationship between SOx emissions and ambient PM 2.5, as a practical matter, the discussion in the following section is confusing – largely because it fails to establish a clear and understandable relationship between PM and this effort regarding the RECLAIM SOx program.

Comment #13B

First, the two statements in the preceding paragraph, taken together, are not clear. Second, the statistic regarding the exposure of Southern California residents to PM 2.5 needs to be substantiated. For example, there needs to be some discussion regarding the nation-wide monitoring for PM 2.5, etc. (if PM monitoring data for the rest of the nation are sparse, then PM monitoring in a densely populated area such as Southern California would skew the result).

Comment #13C

Without establishing the basis, the discussion in the paragraph above is seemingly unrelated to SOx RECLAIM.

Response #13A-13C

Please refer to the 2007 AQMP and specifically Appendix 5, for further explanations.

Comment #14

WSPA is concerned that the discussion in the paragraph above implies that the District intends to use RACM and RACT as two barometers for evaluating potential SOx reduction technologies rather than using BARCT, as discussed earlier in the staff report.

As stated previously, the preliminary draft Part I report has not established a basis for linking SOx reductions to improvements in PM air quality. The discussion regarding the effectiveness of controlling SOx and/or NOx for PM air quality improvement needs to be substantiated.

Response #14

RACM and RACT calls out for a minimum level of control required by the U.S. EPA in their Clean Air Fine Particle Implementation Rule. The District is required to establish BARCT for this proposed SOx RECLAIM rule amendment as discussed earlier in the Staff Report. BARCT would more likely be more stringent than the levels presented in RACM/RACT.

This Staff Report incorporates other documents which establish a basis for linking SOx reductions to improvements in PM air quality as part of the rule making documents. This

linkage is well documented and substantiated in other public documents such as the 2007 AQMP, and documents that were used as the basis to develop the Clean Air Fine Particle Implementation Rule.

Comment #15

WSPA suggests that the staff report should list the SO_x facilities that have exited RECLAIM, and should indicate the reason for their leaving the program (and, if due to plant closure, did the business claim that the decision to close was in any way related environmental regulations, or, the RECLAIM program in particular).

Response #15

Please refer to the District's annual RECLAIM audit reports published annually in March for this information. Typically plant closure is the result of several factors. Staff believes that discussions on plant closures, or facilities opt-in into SO_x RECLAIM is better placed in the RECLAIM annual audit reports.

Comment #16

The first two sentences are unclear (e.g., were the decreasing allocations based on BARCT that was initially in place or, that would likely be implemented in the future?).

The statement assumes that advancements in control technology are occurring constantly but, as a practical matter, that is not the case. The sentence should read, ". capture any advancement ...".

The concept of declining emissions allocations, which were a basic design element of the RECLAIM program, already incorporate the goal of expeditious emissions reductions. The sentence could report a more accurate number – the actual reduction was 22.5 percent.

Response #16

The decreasing allocations were based on, in part, the levels of BARCT that would be implemented as expeditiously as possible in the future.

Staff did not intend to imply the control technologies are “constantly” being improved. Rather staff is alerted at technology advancements, or retrospectively leads back to ascertain if control technology improvements warranted a BARCT assessment. Either approaches recognized progress made by the regulated industry, vendors and contractors in control technology advancements.

The concept of declining emission allocations indeed incorporates expeditious emission reductions. The facility allocations since 2003 remain constant based on a BARCT assessment in 1993. A BARCT re-assessment today will in all likelihood establish further declines in SO_x emission allocations in order to reach PM_{2.5} attainment in 2015.

Since its initial rule making effort, there have been several amendments to the RECLAIM rules. In January 2005, a BARCT analysis was re-conducted for NO_x, and as a result of this analysis, the RECLAIM rules were amended and the NO_x annual allocations previously given to the NO_x RECLAIM facility were further reduced by approximately 20% to reflect BARCT.

Comment #17

WSPA recalls that the 2003 allocations included an extra "shave". Tier 1 represented BARCT at the time; Tier 2 was an additional 34 percent shave

The BARCT analysis for SO_x is being re-evaluated through the current staff effort. It would be more correct to state that an amendment is (or, will be) based on the BARCT reassessment.

Response #17

A BARCT assessment in 1993 established the declining Tier 1 and Tier 2 allocations. BARCT is undergoing a reevaluation in this Staff Report and will in all likelihood set another reductions for SO_x allocations.

Comment #18

WSPA strongly believes that, as was the case for the RECLAIM NO_x program shave, any SO_x shave must apply to the universe of RECLAIM SO_x facilities.

Although the estimated SO_x reductions in the AQMP control measure are accurately stated, the AQMP control measure did not contain any documentation regarding the basis for the numbers. Because it is not possible to verify, or even comment on, the reasonableness of the estimates, they must not become benchmarks for evaluating the potential outcome of the BARCT reassessment and SO_x-shave.

As previously stated, there needs to be an explanation of the process for evaluating the possible secondary goal of including MCS-01 with this BARCT reassessment. WSPA is concerned that potentially combining two the goals will make it difficult to conduct their respective analyses.

Response #18

The paragraph written in Section 1.4 correctly stated the information presented in the Control Measure CMB-02.

Staff first conducted an analysis for emission reductions in 2006 during the development of Control Measure CMB-02 which resulted in a minimum of 2.9 tpd (approximately 3 tpd) emission reductions. Staff conducted a follow-up analysis in April 2008, resulting in a range of emission reductions from 4.7 tpd – 6.7 tpd from the 2005 emissions baseline. This range was presented in the April 3 and April 30 Working Group Meetings. Expert contractors conduct a third independent analysis of emission reductions and cost effectiveness in September 2008 to assist staff in making its final determination of BARCT. They estimated about 6.5 tpd emission reductions from the 2005 emissions baseline. The final results of potential RTC reductions and how the reduction would be distributed to maintain the integrity, equity and characteristics of the RECLAIM program will be discussed in Part III of the Staff Report. If needed to achieve addition emission reductions for 2014, staff will incorporate the concepts of Control Measure MCS-01 as stated in CM CMB-02, and will discuss the process in Part III of the Staff Report.

Comment #19

In view of the potential review of BARCT to be conducted by an engineering contractor, the staff's recent effort can only be regarded as preliminary. Further there is an important distinction between *identifying* technologies that might be applicable to a particular source category, and making an *assessment* that any technology or combination of technologies represents BARCT.

Response #19

Staff has conducted an extensive engineering research to identify the control technologies and assess the possible potential emission reductions that can be achieved. The third party contractors will conduct their own engineering assessment on control technologies, and cost estimates to assist staff in making the final decision on BARCT and emission reductions.

Comment #20

It is premature to state that the SOx reductions technologies, which are described in the staff report are "applicable" – those determinations have not yet been made, and can only be made at the conclusion of the proposed engineering contractor study.

Reports of installed costs and resultant cost-effectiveness, as reported in the "literature", are usually for uncontrolled sources. The reports are rarely applicable to sources that are already well-controlled, as is the case for facilities in the South Coast Basin.

Generally speaking, reliance on cost or cost-effectiveness values from "the literature" would be a serious mistake. In many cases the District has access to information regarding the actual costs of installations at local refineries. In other cases, site-specific engineering estimates need to be made because this entire BARCT reassessment exercise has to focus on potential retrofit installations.

Response #20

As pointed out in previous responses, the technical feasibility and cost analysis is developed over the entire rule making process. Relying upon data from literature is acceptable in the earlier stage of the rule development process.

Comment #21

WSPA notes that, in the absence of specific documentation regarding the reason that a facility installs emissions control equipment, it cannot be assumed that such installations have been determined to be cost effective. Many installations of emission control equipment have nothing whatsoever to do with cost-effectiveness considerations – rather, they might be part of negotiated Consent Decrees, they might be based on need to provide emissions offsets, etc. Where any determinations regarding cost-effectiveness might have been made, and when those determinations are quoted in the Staff Report, they need to be documented.

It is premature to suggest any definitive conclusions with respect to the amount of SOx emission reductions that might be expected. If various control technologies are ultimately determined to be feasible and cost effective, then the resulting reductions will be used in calculating the specific amount of the allocation shave for SOx RECLAIM sources.

Response #21

In CM CMB-02, staff estimated a range cost effectiveness from \$10,000 - \$16,000 per ton SOx reduced. The third party contractors will assist staff in conducting detailed cost estimates for this rule amendment and the results will be presented in Part II of the Staff Report.

Comment #22

The discussion in the preceding paragraph should reflect the proposed engineering contractor study.

Response #22

Staff will revise the Preliminary Draft Staff report accordingly when new information surfaces. The third party contractors' analyses will be summarized and presented in Part II of the Staff Report.

Comment #23

WSPA believes that the 12 ton per day value represents SOx allocations, not actual emissions. We also note that not all of the allocations are held by RECLAIM facilities (some allocations are held by third-party investors, etc.). WSPA cautions that care needs to be taken to distinguish between SOx allocations and actual emissions.

It is also important to show the SOx allocations held by facilities compared to those held by investors for both current and future years because the amount of allocations held by investors will increase proportionally in 2012 (compared to 2008) while the amount held by facilities will decrease.

Response #23

As shown in Table 3-4 of the "Annual RECLAIM Audit Report for the 2002 Compliance Year", dated March 5, 2004, the actual emissions for compliance year 2002 was 4,374 tons (12 tpd). The total RTCs (allocations and converted ERCs) were reported to be 4,924 tons (13 tpd).

The RTCs held by investors and by facilities may change on a daily basis. As of March 11, 2009, the RTCs held by the investors were 295 tons for compliance year 2009, 207.5 tons for compliance year 2010 (a decrease compared to year 2009), and 339.9 tons for 2011 and beyond.

Comment #24

Because Table 2-1 makes a comparison between the RECLAIM NO_x and SO_x programs, respectively, it is important to note the following:

- The NO_x shave applied equally to all facilities in the RECLAIM NO_x universe.
- The NO_x shave recognized the need for, and included, a compliance margin.

These two characteristics of the NO_x shave must also apply to the present consideration of a SO_x shave.

Although the data show that, with respect to SO_x, RECLAIM facilities represent a greater portion of the emissions inventory, they do not by themselves support a claim of any unusual importance for the current BARCT reassessment exercise for SO_x. As stated above, WSPA believes that the 12 ton per day number represents allocations not emissions.

Response #24

In the NO_x universe, 87% of the total emissions (24.02 tpd out of 27.61 tpd for compliance year 2003) is generated from the top 16% (54 out of 346 facilities) of the facilities. Yet the NO_x shave is divided equally (by percentage) across the NO_x universe. Therefore, similarly in the SO_x universe, even though 95% of the total emissions (9.47 tpd out of 9.92 tpd) is generated from the top 12 facilities out of 33, the SO_x RTC reductions will probably be divided equally (by percentage) across the SO_x universe. As indicated in Control Measure CMB-02, however, the shave may be divided equally to 33 facilities, or may be restricted to specific facilities. As indicated in Part III of the Draft Staff Report, additional analyses will be conducted to provide more information on how the RTC reductions should be executed to maintain the integrity and operational of the SO_x RECLAIM program.

See Response #3 regarding the requirement of BARCT reassessment. The 12 tpd is actual emissions in compliance year 2002.

Comment #25

Projected emissions for future years 2014 and 2023 are speculative at best. The staff report should indicate whether or not future year emission projections include the effect of allocation shaves. The precursor relationship of SO_x to ambient PM should not simply be described as a "given" because there is no foundation for this claim in the staff report.

Response #25

The future estimated emissions for 2014 and 2023 (11.7 tpd and 11.8 tpd, respectively, without allocation shaves; and 8.8 tpd and 8.9 tpd, respectively, with allocation shaves) are clearly shown in CM CMB-02. The foundation and explanation for a relationship between SO_x emissions and ambient PM can be found in Appendix 5 of the 2007 AQMP.

Comment #26

WSPA is not aware of any refineries in the South Coast basin that are not in the RECLAIM program. The staff report should clarify this issue.

Response #26

For clarification, the wording “Non-RECLAIM Refineries” are changed to “Non-RECLAIM Sources”. In 2002, the refineries reported 6.9 tpd SO_x emissions for flares and upset conditions. Flares and upset conditions were not counted in “RECLAIM Sources”, which was ranked #2 in Table 2-2.

Comment #27

The language in the staff report consistently (and, perhaps, misleadingly) suggests that a 3 ton per day (the correct value is 2.9 tons per day) reduction in SO_x allocations is a virtual certainty. It is not – primarily because the origin of the 2.9 ton per day goal has not been substantiated. The purpose of the BARCT reassessment is to determine the level of the SO_x allocations reduction, if any, that is appropriate and can be justified on the basis of available retrofit technology, cost effectiveness, etc. Further, it should be noted that other source categories in Table 2-2 might be reasonable candidates for SO_x emissions reductions.

Response #27

As shown in the 2007 AQMP (Table 3-8 of Chapter 3 of the 2007 AQMP), RECLAIM sources were ranked #2 in SO_x emissions in 2002, and were expected to rank #2 in 2014 and 2023. Among other stationary sources, RECLAIM sources have the highest possibility to achieve 3 tons per day reductions in 2014 cost effectively, substantiated by staff’s analysis in CM CMB-02 and the analysis in Part I of Staff Report. The cost effectiveness ranking of all stationary source control measures in the 2007 AQMP is shown in Table 6-5.

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Comment #28

As noted previously, the staff report should address the significance of using CY 2005 as a reference:

- What is the significance of CY 2005?
- Is CY 2005 a representative year? (Some analysis and discussion is needed.)

There needs to be some discussion regarding why the analysis was cut off at twelve facilities.

There needs to be some discussion of the reason for, and implication of, including a facility that is shut down in this analysis.

Response #28

Please refer to Response #6.

Comment #29

The derivation of the claimed 80 percent value needs to be presented. (See the comments regarding Table EX-1.)

Response #29

Please refer to Response #7.

Comment #30

There needs to be some demonstration regarding the selection of 2005 as the baseline year.

Response #30

As presented in the April 3 Working Group Meeting (slide #4), the 2005 emissions were selected to be used in this rule amendment because they are within the range of emissions from other current years. The emissions from these top emitting categories of equipment were reported to be 7.5 tpd for 2005, 7.9 tpd for 2006, and 7.3 tpd for 2007. Staff also will estimate RTC reductions using other baseline year (1997) as shown in the 2005 NOx RECLAIM amendment.

Comment #31

There should be some discussion regarding the characterization of a source as "major", and it should be noted that this description has a specific meaning within the context of Regulation XX.

Response #31

The definition for major SOx source is in Rule 2011 (c).

Comment #32

It should be noted that many of the FCCUs at refineries in the South Coast basin are also equipped with expander turbines, which are used to recovery energy from the flue gas leaving the regenerator. An expander turbine, and its associated third-stage separator (used to reduce filterable PM in the FCCU flue gas stream entering the turbine) are additional elements in the flue gas train, which collectively complicate the task of maintaining the required pressure balance within the FCCU.

Response #32

Staff acknowledges this component of the FCCU operation. However, Figure 3-1 is a generic flow diagram that was never intended to show every single piece of equipment included in the FCCU at each refinery. Any components which would complicate the reductions of SOx emissions should be captured in the third party consultants' analysis.

Comment #33

An electrostatic precipitator and an SCR unit (where one is employed) occupy considerable refinery plot space, and limit the potential use of other systems such as wet gas scrubbers. The title of the Figure should be "Typical Fluid Catalytic Cracking Unit". A block representing expander turbines should be added because these are common. The block representing SCR should be deleted or labeled as "Optional", because SCRs are uncommon.

Response #33

See Responses #32.

Comment #34

RECLAIM allocations were not issued to process units or individual pieces of equipment but, rather, to the facility as a whole.

Response #34

RECLAIM allocations were issued to the facility as a whole. However, total facility allocations were estimated for each SO_x source at the facility according to the methodology described in Rule 2002.

Comment #35

The average value for the three years, 2005, 2006 and 2007 is 3.33 tons per day. There should be an explanation regarding why the highest year was used. Further, there needs to be an analysis regarding the impact of FCCU turnarounds, if any, on the mass emission estimates. (Also see comment for Table 3-2 below.)

Response #35

Staff started the development of this SO_x RECLAIM amendment in November of 2007. The most recent set of RECLAIM emissions audited at that time was the 2005 emissions (Ref: *Annual RECLAIM Audit Report for 2005 Compliance Year*, March 2, 2007). Staff will provide two sets of estimation: 1) “real” emission reductions expected from the 2005 actual emissions baseline; and 2) RTC reductions based on the 1997 and the 2005 actual emission baselines. (The RTC reductions estimated from the 1997 baseline will be conducted as suggested by the refinery task force in several meetings with the District following the methodology outlined in the analysis for the 2005 NO_x RECLAIM amendment.)

Comment #36

The statement regarding the lack of specific SO_x concentration or mass limits for FCCUs is not correct. FCCUs can be subject to Federal New Source Performance Standards, provisions of Consent Decrees, etc.

As noted above, RECLAIM SO_x allocations are provided to the facility not to a process unit (e.g., an FCCU). The amount of a facility's SO_x allocations have been steadily declining since they were first granted at the start of the RECLAIM program.

Commercial availability is only one issue that needs to be considered when evaluating BARCT – other considerations are environmental, energy and economic impacts.

WSPA is not aware of any basis for the statement implying a hypothetical increase in capacity, and a corresponding need to upgrade any control device. The statement is unsubstantiated and should be deleted.

Response #36

The statement regarding the lack of specific SO_x concentration or mass limits for FCCUs was meant for AQMD RECLAIM regulations, not EPA regulations.

The facility's SOx allocations are the summation of all allocations estimated for each SOx source/process category at the refinery. The facility's SOx allocations were steadily declining since 1993 to 2003, and remaining constant after 2003.

In the analysis of BARCT, staff will include only commercial availability technologies but not the technologies in development or at the research phase, and will evaluate BARCT considering environmental, energy and economic impacts as governed by federal/state rules.

The commenter may not be aware of any increase in FCCU capacity since it is confidential information.

Comment #37

WSPA submits that it is unlikely that each refinery had the same FCCU SOx emissions factor. That does not seem reasonable. We wonder if 13.7 lbs/1000 bbls might have been the Tier 1 shave target, not what was actually being emitted in the so-called peak years?

Response #37

The 13.7 lbs/1000 bbls is the emission factor used to calculate Tier I emissions for FCCUs.

(There are more comments to this letter and staff will continue this process in a near future.)