Shana Lazerow
COMMUNITIES FOR A BETTER ENVIRONMENT
1440 Broadway, Suite 701
Oakland, California 94612
T: (510) 302-0430 x 18
F: (510) 302-0438
slazerow@cbecal.org

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STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of: Application for Certification for the CPV SENTINEL ENERGY PROJECT	**Docket No. 07-AFC-03** EXPERT DECLARATION OF JULIA MAY REGARDING EMISSION REDUCTION CREDITS DOCUMENTATION OFFERED BY SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

I Julia May, hereby declare as follows:

1. I am a Senior Scientist at Communities for a Better Environment (CBE). I am authorized to give the following testimony concerning documentation offered by the South Coast Air Quality Management District (AQMD) purporting to document reductions in emissions. The facts set forth herein are based on my personal knowledge, unless indicated as being based on information and belief. The opinions set forth herein are based on my experience and upon my review of the documents presented. Should additional relevant or pertinent information become available, I reserve the right to supplement the discussion and findings in this report. If called upon, I could and would testify truthfully to these matters.

EXPERTISE AND QUALIFICATIONS

2. A true and correct copy of my curriculum vitae was filed with this Commission on June 1, 2010, and is filed concurrently with this declaration. I hold a Bachelor's degree in Electrical Engineering (1981), and have performed engineering analysis on environmental issues and industrial air pollution since 1989. My work has included for the last 20 years identification and quantification of industrial air pollution sources including criteria pollutants, toxics, and greenhouse gases, and identification of pollution prevention methods and engineering solutions for communities facing continuous and episodic chemical releases. In addition I have researched best and worst industrial practices, and chemical phase-out methods during regulatory

proceedings and in other contexts, and compiled available health and environmental impacts data, and air monitoring and permitting data as needed.

3. I am frequently called upon to evaluate the technical basis of regulatory compliance with environmental laws, and have also spent the last two decades reading and interacting in the environmental regulatory arena. During this period it has been necessary for me to work through the practical technical issues of regulation, and to negotiate with industry and government agencies during crafting of most health-protective policy and regulatory language.

4. It is also my job to translate inaccessible technical information into lay language and create educational materials for community members. I have provided technical assistance for communities of color facing severe pollution burdens with cumulative impacts analysis, and industrial workers and neighbors regarding environmental health protection regulation, permitting, and policy. In this context, I was hired as a consultant by AQMD to provide such technical assistance to community members during a refinery regulatory process.

SCOPE AND LIMITATIONS OF TESTIMONY

5. On May 26, 2010, I was asked to review the materials provided by AQMD, with a deadline for written testimony by June 15, 2010.

6. I downloaded well over 600 separate files (unnamed in the electronic download except as filename 1, 2, 3, etc.) from an electronic link provided by AQMD in response to a Public Records Act request by California Communities Against Toxics. I opened and renamed each file to identify the company and to identify very broadly the types of data in each file. I was informed on June 3, 2010 that AQMD had updated its response to include 34 additional documents, which I also downloaded for analysis. I identified the files for the facilities providing the larger sources of emissions credits as calculated by AQMD and began reviewing these first, due to the difficulty of reviewing all the files in the short time available. Where necessary I supplemented the review with my own research, as indicated by citations below. Documents I reviewed are cited and generally attached.

7. In preparing this testimony, first, I characterized the data provided by AQMD in its initial response, as well as its updated June 3, 2010 response. I evaluated the extent to which the data was based on contemporaneously maintained records. I identified obvious data gaps. To the extent it was based on reconstructed records, I attempted independently to verify AQMD's assumptions and calculations. Where feasible, I identified lack of clarity and missing records, for example, concerning AQMD's records regarding facility shutdown dates. I identified the emissions factors AQMD used in the credits calculations. I attempted (within the timeframe available) to identify whether the emission levels calculated represented Best Available Control Technology (BACT) by today's standards.

8. **Data provided by AQMD included** a list of credits and the emission sources from which it derived the credits in its *SCAQMD Addendum to DOC and POC, Appendix N*

which included *Table A - PM10 Reductions from Source Which Ceased Operation,* and *Table B – SOx Reductions from Sources Which Ceased Operation*.[1] Shortly thereafter, AQMD substantially modified this list by providing a new list with many numbers drastically reduced. In the revised version (May 12, 2010, which I will refer to as the "Revised Addendum"),[2] both PM10 and SOx credit totals and credits for individual emissions sources changed.

9. In addition to the tables indicating credits and sources, the District provided electronic files beginning with "Offset Source Calculation / Verification Forms", which were very recently completed (May 2010). I will refer to these sheets as "Offset Verification" forms for each individual company. Offset Verification forms provide reconstructions by AQMD staff of old permit files, recalculations, and filling in gaps in data with AQMD engineers' estimations in order to form the basis of the numbers in the Revised Addendum. (Other miscellaneous permits and tracking forms were included in the records.)

10. **Offset Verification forms indicate that a considerable amount of work was done by AQMD engineers to complete them.** The dates indicate AQMD staff have spent previous months inspecting old facilities (some of which no longer physically exist), reconstructing missing permit information, modifying emission factors when those previously used as the basis of the permits were different from new default emission factors, trying to provide an estimate of facility shutdown dates, filling in data gaps with outside data, and providing new handwritten notes on existing permit and emissions inventory printouts. These offset calculation forms are signed by Professional Engineers at the District, and the calculations themselves are accurate and careful within the context of the assumptions used. However, the assumptions included many uncertainties about old records, data gaps, reliance on records not maintained concurrently, and about permissible credit accounting. In addition, there are many instances where District staff had to estimate or guess about missing information, as stated in the handwritten notes.

[1] Electronic filename: *TN 55739 03-02-10 SCAQMD Addendum to DOC and POC,* March 2, 2010 letter from SCAQMD to Mr. Kessler, CEC, Revision to the Addendum to the Determination of Compliance (DOC) for CPV, Sentinel (CPV) Proposed Power Plant Project (07-AFC-3, Facility ID No. rc27A7)

[2] Electronic filename: *TN 55739 05-13-10 SCAQMD Addendum to DOC and POC,* May 12, 2010 letter from SCAQMD to Mr. Kessler, CEC, Revision to the Addendum to the Determination of Compliance (DOC) for CPV, Sentinel (CPV) Proposed Power Plant Project (07-AFC-3, Facility ID No. rc27A7).

Generalizations used for most facilities can introduce overestimates

11. In general, AQMD made certain simple assumptions applied to most facility credit calculations, for example, that PM10 equals 50% of total PM for non-combustion sources. Such assumptions are designed to standardize reporting to emissions inventories. Assuming that a high estimate of the percentage of total particulate matter is PM10, is health-protective when permitting a source, but such a simplification is the opposite of health-protective and conservative when crediting the shutdown of a source. A more refined case-by-case approach to the PM10 fraction in total particulate matter would likely reduce the number of PM10 credits. A wide range of emissions data are available and in the possession of the AQMD quantifying the specific fraction of PM10 compared to PM total. For many industries the fraction of PM10 is much less than 50%, and this analysis should have been done if the AQMD were to identify realistic estimations of PM10 compared to total PM reported in the AER. This is especially important when trading credits between non-combustion sources and a power plant, because the small particle size of particulate matter emissions from a power plant are very dangerous to human health, compared to the larger PM particle size for other sources (like rock crushing operations).

12. Other accuracy problems inclu.de the importing of Heat Input data from a decade ago, which can introduce discrepancies between different inventory and measurement methodologies which may apply to the Heat Input data from past inventories. For example, the following quote from a memo provided by an EPA webpage[3] identifies unknown discrepancies in Heat Input data during certain key years, in the U.S. Energy Information Administration (EIA) databases. This may also apply to the Acid Rain Heat Input data used by the District for power plant calculations such as Etiwanda and Mountainview Generating. (Also see the example of use of different Heat Input data below, where Mountainview Power was allowed to drastically increase its rated Heat Input for two large boilers.) This document finds:

> *II. EIA Annual Heat Input Data*
> *The EIA annual fossil fuel heat inputs in the spreadsheet tables were calculated on a plant-level basis using fuel use and heat content information provided in various EIA databases and the Federal Energy Regulatory Commission (FERC) 423 database (see Table 2). Heat input was calculated at the plant level for plants having a generator with a nameplate capacity greater than 25 MW - fossil energy source. Plant-level calculations were performed because the EIA data format prevented unit-level calculations for combustion turbines in all years, and for non-utility boilers prior to 2001.* ***Changes in EIA data reporting in 2001, which will be explained in more detail, resulted in different calculation methodologies for 1999 and 2000 heat input compared to 2001 and 2002 heat input. There is a drop-off in EIA heat input from 1999-2000 levels to 2001-2002 levels that may be because of the different methodologies.***

[3] *Revised State Acid Rain and EIA Heat Input Totals - 48 States and the District of Columbia*, page 3, Perrin Quarles Associates, Inc., April 19, 2004, , memo provided by EPA at http://www.epa.gov/interstateairquality/pdfs/memocair.pdf , attached as electronic filename: JMay Attachment 01 memocair

Largest Sources of Credits Listed by AQMD

13. In Table 1 below I compiled data on the largest sources listed in the SCAQMD Addendum and Revised Addendum.

TABLE 1

Largest Credits Sources from Updated AQMD list	**Credits listed in Updated AQMD letter** (5/12/10)		**Credits listed in Original District list**	
	PM10 (lbs/yr)	**SOx** (lbs/yr)	**PM10** (lbs/yr)	**SOx** (lbs/yr)
RRI Energy Etiwanda				
Boiler 1 Nat Gas	16,558	1,307	33,079.30	2611.3
Boiler 2 Nat Gas	21,183	1,673	33,079.30	2611.3
Turbine Nat gas/oil	896	78	1959.1	169.1
"	896	78	1959.1	169.1
"	896	78	1959.1	169.1
"	896	78	1959.1	169.1
Mountainview Generating Station - Boiler 1	4,170	329	3365.5	265.5
- Boiler 2	3026	238	3365.5	265.5
Diamond Pacific Products -1 Grain Cleaning	6,429	-		-
- 2 Livetock Feed Steam Flakng	3,482	-	-	-
- 3 Bulk Loadout	96	-	-	-
- 4 Boiler – Nat Gas	93	-	92.8	-
KMC Wheel -1 Alum Furnace	4,120	12	2940.8	-
- 2 Alum Furnace	3,860	11	-	-
- 3 Heat treating furn	65	7	-	-
- 4 Heat treating furn	33	4	-	-
- 5 Oven	10	1	-	-
Matthews International Corp. - Sand Baghouse	2,497	-	9,461	
- Sand Baghouse	2,497	-	-	-
- Sand Baghouse	2,497	-	-	-
Clean Steel - Auto Metal Shredding	4,113	-	4112.5	-
O'Brien Calif Cogen (Added)	11,644	932	-	-
Seagull Sanitation (Added)	8,030	13,870	-	-
Total Above (>70% of PM10 & SOx credits)	**97,987**	**18,673**	**94,392**	**6,430**
Total in AQMD list (total includes additional facilities not listed above)	**137,799**	**25,438**	**148,582.70**	**18,540.60**

14. The total PM10 in these two lists was reduced from 148,583 to 137,799 lbs/year, but total SOx was increased from 18,541 to 25,438 lbs/year.

Seagull Sanitation

15. **The main reason for the SOx increase in the Revised Addendum was the addition of credits from Seagull Sanitation, located in Avalon, California, which was not present in the original list.** Seagull Sanitation added 13,870 lbs/year to the SOx total, and 8,030 lbs/year of PM10 to the totals not present in the previous list. (Offset Verification form, attached[4])

16. Without Seagull Sanitation credits, the Revised Addendum list total for SOx would be reduced to 11,568 lbs/year, and PM10 levels would be reduced to 129,769 lbs/year.

17. The AQMD inventory years for these credits were fiscal years 1999-2000, and 2000-2001 for incineration operations. AQMD Facility Equipment List Report (page 4 of Offset Verification electronic file set) identifies an application date of 1992 for incineration operations. The 1992 application date was apparently based on a change of ownership, as this "pit burner" was permitted to the previous owner in 1989.

18. The Offset Verification form for Seagull Sanitation states as assumptions: *"The AER[5] reported emissions are not used to calculate the 2-year average reductions in this case because this company had applied for and received ERCs. However, the amount of ERCs issued were reduced by AQMD in the amounts of 22 lbs/day of PM10 (or 22 x 365 = 8,030 lbs/yr) and 38 lbs/day of SOx (or 38 x 365 = 13,870 lbs/yr), which were credited back to the AQMD's federal offset tracking accounts due to the facility's positive NSR account balance. The NSR account positive balance offset paybacks returned to AQMD are now utilized as offsets for this project."* (Offset Verification form for Seagull Sanitation, attached, page 1.)

19. These assumptions vary significantly from AQMD overall statement in its March 2, 2010 Addendum to Determination of Compliance, where AQMD stated that the credits were:

> based on actual emissions reported to AQMD for equipment that has been shutdown and that has had the permits inactivated by AQMD. The actual emissions were reported to AQMD under AQMD's Annual Emissions Reporting program in the most recent one or two year(s) prior to shutdown of the equipment. The emission reductions for both PM10 and SOx have occurred during the calendar years 1999 through 2008.[6]

20. For Seagull Sanitation, AQMD credited some of the emission reductions that purportedly occurred upon shut down to its own offset account because Seagull Sanitation had a

[4] Attached as JMay Attachment 02 Seagull Sanitation AQMD Offset Calcs.pdf
[5] Annual Emission Inventory.
[6] Electronic filename: *TN 55739 03-02-10 SCAQMD Addendum to DOC and POC,* March 2, 2010 letter from SCAQMD to Mr. Kessler, CEC, Revision to the Addendum to the Determination of Compliance (DOC) for CPV, Sentinel (CPV) Proposed Power Plant Project (07-AFC-3, Facility ID No. rc27A7), to be located, at 62575 Power Line Rd., Desert Hot Springs, CA 92440, Appendix N, p. 7.

"positive NSR account balance." According to AQMD documents, a facility's NSR balance was the running total of emissions increases and decreases prior to 1990. Specifically, "[p]rior to 1990, AQMD kept a running 'NSR balance' for each facility with permitted sources. The NSR balance included an entry for every increase and every decrease in emissions at the facility that resulted from a permit action." A positive balance indicated emissions increases, a negative balance indicated emissions decreases.[7]

21. **In addition, Seagull Sanitation operations could not represent current BACT** standards. Given that the Offset Verification form states that Seagull Sanitation received its permit to operate in 1992 based on a change of ownership, also that this "pit burner" was permitted to the previous owner in 1989, and further upon the description by AQMD identifying a lack of even basic equipment for this burner,[8] the source was clearly not operating at a BACT level.

22. **The Permit Application excerpt below identifies substandard operations, and states:** *"The speed of the forced air blowers is not adjustable, there are no air dampers, and burner is not equipped with an auxiliary fuel source. A small amount of waste, used cooking oil and matches are used to ignite the waste in the pit burner. The pit burner is lined with refractory brick and exhaust is equipped with screens. The pit burner is not equipped with any water walls, boiler tubes or any other type of heat recovery."* AQMD permit application comments (cited above):

> **PROCESS DESCRIPTION**:
>
> The MSW pit burner has a rated capacity of 10 tons/hr (Permit to Operate D 49940, A/N 264307 has a throughput limit of 4 tons/hr, not to exceed 25 tons/day). It is equipped with a 40 HP air blower that feeds air at 45 degree angle to form an air curtain above the burner pit. There is also a 5 HP air blower that supplies air to vents at the bottom of the burner pit. The speed of the forced air blowers is not adjustable, there are no air dampers, and burner is not equipped with any auxiliary fuel source. A small amount of waste, used cooking oil and matches are used to ignite the waste in the pit burner. Once the fire is lit, additional waste is added to the pit burner for incineration. The pit burner is lined with refractory brick and exhaust is equipped with screens. The pit burner is not equipped with any water walls, boiler tubes or any other type of heat recovery.

23. **EPA's AP42 provides emission factors for municipal incinerators[9] show far lower pounds of emissions compared to Seagull Sanitation.** Even the AP42 numbers are old (1996), so these don't represent even a modern average number, and certainly not a current BACT level, but still demonstrate meeting a much lower level of emissions compared to Seagull Sanitation.

24. For example, in the AP42 chart below, the best level met for mass burn incinerators with an A rating for the emission factor, gives 2.77E-1 (0.277) kg/MG

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[7] Rule 1315 Staff Report, p. 4; III-8.
[8] Offset Verification Permit Application Evaluation excerpt below (68th page.)
[9] AP42 Chapter 2.1 Refuse Combustion, http://www.epa.gov/ttnchie1/ap42/ch02/final/c02s01.pdf attached as JMay Attachment 03 AP42 MunicWaste Incin.pdf

(kilograms/metric tonne) SOx and 3.11E-2 (0.0311) kg/Mg for mass burners units with spray dryers and fabric filters. These are equivalent to 0.55 lbs SOx /ton waste burned and 0.062 lbs PM10/ton waste burned, far lower levels than the levels of Seagull Sanitation (2.5 lbs SOx /ton and 18.1 lbs PM /ton of waste burned are used in the AER according to the Offset Verification files). (Even the worst levels below for Uncontrolled emissions are much lower than Seagull Sanitation's emission factors.) The controlled levels in AP42 below do not represent BACT, but they clearly illustrate that Seagull Sanitation emission factors used to generate credits, were based on long outdated, highly polluting technology.

Table 2.1-1 (Metric Units). PARTICULATE MATTER, METALS, AND ACID GAS EMISSION FACTORS FOR MASS BURN AND MODULAR EXCESS AIR COMBUSTORS[a,b]

	Uncontrolled		ESP[c]		DSI/ESP[d]		SD/ESP[e]		DSI/FF[f]		SD/FF[g]	
Pollutant	kg/Mg	EMISSION FACTOR RATING	kg/Mg	EMISSION FACTOR RATING	kg/Mg	EMISSION FACTOR RATING	kg/Mg	EMISSION FACTOR RATING	kg/Mg	EMISSION FACTOR RATING	kg/Mg	EMISSION FACTOR RATING
PM[h]	1.26 E+01	A	1.05 E-01	A	2.95 E-02	E	3.52 E-02	A	8.95 E-02	A	3.11 E-02	A
As[j]	2.14 E-03	A	1.09 E-05	A	ND[k]	E	6.85 E-06	A	5.15 E-06	C	2.12 E-05	A
Cd	5.45 E-03	A	3.23 E-04	B	4.44 E-05	E	3.76 E-06	A	1.17 E-05	C	1.36 E-05	A
Cr[j]	4.49 E-03	A	5.65 E-05	B	1.55 E-05	E	1.30 E-04	A	1.00 E-04	C	1.50 E-05	A
Hg[j]	2.8 E-03	A	2.8 E-03	A	1.98 E-03	E	1.63 E-03	A	1.10 E-03	C	1.10 E-03	A
Ni[j]	3.93 E-03	A	5.60 E-05	B	1.61 E-03	E	1.35 E-04	A	7.15 E-05	C	2.58 E-05	A
Pb[j]	1.07 E-01	A	1.30 E-03	A	1.45 E-03	E	4.58 E-04	A	1.49 E-04	C	1.31 E-04	A
SO_2	1.73 E+00	A	ND	NA	4.76 E-01	C	3.27 E-01[m]	A	7.15 E-01	C	2.77 E-01[m]	A
HCl[j]	3.20 E+00	A	ND	NA	1.39 E-01	C	7.90 E-02[m]	A	3.19 E-01	C	1.06 E-01[m]	A

[a] All factors in kg/Mg refuse combusted. Emission factors were calculated from concentrations using an F-factor of 0.26 dscm/joule (J) and a heating value of 10,466 J/g. Other heating values can be substituted by multiplying the emission factor by the new heating value and dividing by 10,466 J/g. Source Classification Codes 5-01-001-04, 5-01-001-05, 5-01-001-06, 5-01-001-07, 5-03-001-11, 5-03-001-12, 5-03-001-13, 5-03-001-15. ND = no data. NA = not applicable.

[b] Emission factors should be used for estimating long-term, not short-term, emission levels. This particularly applies to pollutants measured with a continuous emission monitoring system (e. g., SO_2).

[c] ESP = Electrostatic Precipitator

[d] DSI/ESP – Duct Sorbent Injection/Electrostatic Precipitator

[e] SD/ESP = Spray Dryer/Electrostatic Precipitator

[f] DSI/FF = Duct Sorbent Injection/Fabric Filter

[g] SD/FF = Spray Dryer/Fabric Filter

[h] PM = Filterable particulate matter, as measured with EPA Reference Method 5.

[j] Hazardous air pollutants listed in the *Clean Air Act*.

[k] No data available at levels greater than detection limits.

[m] Acid gas emissions from SD/ESP- and SD/FF-equipped MWCs are essentially the same. Any differences are due to scatter in the data.

RRI Energy Etiwanda (formerly Reliant)

25. Another example of a change between the two lists is for the RRI Energy Etiwanda (formerly Reliant) power plant, which provided almost 74,000 PM10 credits, and almost 5,900 SOx credits in the original AQMD list. The numbers from the Revised Addendum total have been reduced to about 41,325 PM10 credits and 3,292 SOx credits. The Offset Verification[10] forming the basis of the Revised Addendum imported EPA's Acid Rain Heat Input data (fuel use, assuming natural gas) for each unit in order to provide more detail in assessing the emissions. I found this data online at an EPA website.[11] The AQMD took the percentage of the Heat Input from the Acid Rain data for each boiler, and multiplied this fraction times the reported AER total for both boilers at the facility, as reported in the AQMD inventory. The reported AER total for boilers used default emissions factors for PM10 and SOx (respectively 7.6 lbs/mmcf (million cubic feet) and 0.6 lbs/mmcf). (Offset Verification Form for RRI Energy Etiwanda, attached). This was done for each of two fiscal years (mid-year to mid-year) including 2000 to 2001 and 2001 to 2002, and the results averaged to get the emissions for each boiler.

26. For the four turbines, the District took the AER total reported emissions and divided this by four to distribute the emissions equally.

27. It appears that the District Engineers took pains to correct the original much larger credits numbers, to provide better estimates for the largest emissions sources. However, even for sources like RRI Energy Etiwanda where the Offset Verification set provided more data than for other sets, there were indications of difficulties in pulling together enough data from old files to be able to interpret them after so many years, rather than having a system of concurrent records with such credits calculations. For example, the 19th page of the Offset Verification form for Etiwanda shows use of a different emissions factor in the AER data sheet – 6.93 instead of 7.6 for SOx. This is circled by hand, presumably by the District staff who recently reviewed and signed off on these calculations. Hand-written notes ask: *"Should be 7.6 -- Source Test?"*

28. The 25th page of this document has hand calculations that at first tries to correct the emission factor (EF) used which do not comport with the current default value for particulate matter (6.93 used vs. the default 7.6 EF). The notes at first state *"Use standard emission factor – don't have a copy of source test."* However, these notes are then crossed off, and new handwritten notes are added which use the data from this AER form as-is, and divides the emissions from the row for the turbine by four to estimate emissions for each turbine.

29. These notes indicate that after the fact, the reviewer of this data sheet could not determine why a lower emission factor was used as the basis of the AER for this turbine. Apparently there was a lack of available records on this long-defunct source. The District properly used the lower instead of the higher number, but this process identifies the presence of data gaps due to evaluating files that are decades old.

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[10] Attached as JMay Attachment 04 RRI Energy Etiwanda AQMD Offset Calcs.pdf
[11] http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=prepackaged.results

30. The same page lists additional different EFs used for the boilers, some very high, some much lower. The lowest EF listed for one of the boilers on this page[12] is 1.43 (lbs PM emitted per mmcf) for a boiler.

31. **These emissions factors, which are lower than the default 7.6 lbs/mmcf factor used by the AQMD in the Offset Verification forms for combustion of natural gas, call into question whether the EF of 7.6 represents BACT (Best Available Control Technology).** If a facility like RRI Energy Etiwanda which shut down in 2002 was using lower EFs in certain cases, then current BACT levels are lower, and credits then overestimated. If all sources estimated at 7.6 lbs/mmcf instead used 6.93, then all such source credits would be reduced by almost 9%. If the 1.43 lbs/mmcf figure were used, then the credits from all such sources would be reduced by 81%. In general, a current top down BACT analysis would be needed if the sheets were to verify whether all the sources in the forms are calculated to meet current BACT standards. (See BACT discussion later in this report.)

Mountainview Power

32. **Another company listed in both the original and revised list was Mountainview Power Company LLC.** This facility was bought from a company identified as "SCE" (Facility ID 1026) by "Mountainview Power Company" (Facility ID 115778) in 1998. Next this company became a different, limited liability corporation "Mountainview Power Company LLC" (Facility ID 121737). (Date not provided) In 2000, Mountainview applied for and received a change of ownership and also applied for and received a re-rating for Boilers 1&2, originally permitted in "the late 50's and early 60's." The previous owner SCE received the permits in 1976 from California Electric Power Company. Before the re-rating in 2000, both were rated at 540 mmbtu/hr, after re-rating, both were 680 mmbtu/hr based on old logs and source tests, and new logs, tests, CEMs, and meters (not provided as part of the public record). (Offset Verification form, attached.) [13]

33. The re-rating was based on the idea that for decades, the old gas metering equipment had been wrong and had underestimated the heat input used by both boilers. The permit was changed (with no NSR review, no public notice, no other new requirements according to a statement on this application by the District) to reflect a new rating of 680MMBTU/hr without a change to rated power output (63MW each). The two units were considered to be identical in design and operation, and the explanation for the different readings on the separate fuel meters was that not only did both meters underestimate fuel use, but that one meter also "slipped," allowing unmetered fuel to pass by. Mountainview determined 11% and 21% underestimation for Boiler's 1 and 2 respectively.

34. According to handwritten notes on this application (apparently made after the fact), these issues did not affect the 2000-2001 AER (Annual Emission Report), for reasons not

[12] Entitled 2002-2003 AER -32 Form – E1 , 25th page
[13] Attached as JMay Attachment 05 Mountainview Gen Stat AQMD Offset Calcs.pdf

provided. It would be more conservative to use the original rating for this facility (in addition to further discounting to meet current BACT standards). **For example, if a maximum 540 MMBTU/hr assumed used instead of a maximum 680 MMBtu/hr, emissions for this facility would be reduced by about 20% or by about 1642 lbs PM10/yr.**[14]

Matthews International Corporation

35. Mathews International Corporation was a foundry sand reclamation facility that at first received 9,461 lbs/year of PM10 credits in the earlier AQMD list. This was reduced in the Revised Addendum to a total of 7,491 lbs/year, distributed evenly across three sources estimated at 2,497 lbs. PM10 each. This Offset Verification file had less detail than the analyses done for the very largest sources, where the District appeared to spend considerable time reconstructing files.

36. The Offset Verification Form for Matthews Intl.[15] states the basis of these emissions as: *"Emissions from the 3 sand handling systems were controlled by baghouses. The AER calculated emissions from the baghouses venting the 3 sand handling systems."*

37. The last page of this Offset Verification set had the following undated form which appears to be concurrent with the recent 2010 Offset Verification calculations of the first page (dated 5/7/10), from "WT" (presumably William Thompson, P.E., Senior Manager, AQMD who signed the first sheet of this file set). It states *"Matthews Intl Corp – All emissions for sand handling were accounted for on three permits and reported on line 2 on AER form B4. So, this number divided by three is PM and 50% of that number is PM10."*

ENGINEERING DIVISION····MEMORANDUM

TO File	FROM WCT	DATE
REFERENCE		PERMIT APPL. NO.
SUBJECT Matthews Intl Corp		
All emissions for sand handling were accounted for on three permits and reported on line 2 on AER form B4. So, this number divided by three is PM and 50% of that number is PM_{10}.		

38. The inactivation year on the first page of the Verification forms was listed as 2006, shutdown year was blank (which may indicate it is the same as the shutdown year, but may

[14] 680 – 540 / 680 = 20.6%, and (4120 + 3860) x 20.6% = 1642 lbs/yr PM10, assuming 680MMBTU/hr was the actual maximum Heat Input. A brief look at the Acid Rain data indicates that this company may have been operating above even this level, and may have been violating its permit maximum Heat Input of 680 MMBtu/hr when dividing daily Heat Input by 24 hours.

[15] Attached as JMay Attachment 06 Mathews Intl AQMD Offset Calcs.pdf

indicate this information is not available). Notes from an AQMD inspector state: *"Report: On 10-3-08 at 08:32 hours I arrived at the former location of Matthews International Corporation at 28251 Highway 74 in the City of Romoland. The facility is out of business. The building is now occupied by Ace Hardware / Ahern Rentals (FID 155180)"* (8th page of Offset Verification file) The 9th page of this document provides a form entitled "Inspection of Facilities with Inactive Permits:, showing that an inspection was also made 2/25/2010 to confirm that the permit was inactive. The notes by an inspector state: *"The facility is now an Ahern Rentals. The Equipment has been removed from the facility."*

39. The Permit to Operate for this facility is signed in 1992, and another permit copy is dated as 1978. A copy of a *"Permit Administration and Activation Tracking System"* computer form lists permit activation as 1978, and Inspection Date "12/31/9999," which may or may not refer to 1999. The Comments field on this form states: "O/Business / Inactv Ltr 12/7/06 MH." Other similar forms for this company identify the same Comment field and Inspection Date, but identify a permit activation date of 1992. There is also a computer tracking list with "Diary" dates from 1990 through 1993, then skipping to inactivation in 2006. AER data sheets are provided for two fiscal years – 2004-2005 and 2005-2006.

40. The only other information in the Matthew International file is a list of permitted sources and list of permit conditions which are very general. No updated permits dated beyond 1992 are provided. Given the sparse information in this file set and the long time since the activation of the permit for this facility (1992), it is extremely unlikely that the emissions reported in the AER represent BACT for PM10 control. This facility was apparently last modified according to the computerized tracking Diary in1993**.** More modernized and very well maintained baghouses are capable of high levels of PM10 control. However, there is no basis provided in the public records and furthermore it is extremely improbable that this facility met a BACT standard of PM10 control given the age and nature of the equipment.

KMC Wheel Co. Incorporated

41. KMC Wheel Co. Incorporated operated at about 60% above its permitted throughput limit for two aluminum furnaces, and separately used an emission factor that was far too low, resulting in drastic under-reporting of PM emissions, according to the AQMD Offset Verification form file,[16] for at least the year 2001-2002. According to the District, the emission factor used in the AER was 1.9 lbs/ton, when it should have been using 4.3 lbs/ton. The District however held the credits calculation down to level of the low emissions factor, and the District also took credit for only about 60% of the reported AER emissions, to reflect that the facility should have been limited to the lower level of throughput by the permit. Thus the District did not take credit for the unpermitted throughput level. However, significant credits were generated for this facility, despite the fact that it was operating drastically above its permit level for at least a year.

[16]Attached as JMay Attachment 07 KMC Wheel Comp AQMD Offset Calcs.pdf

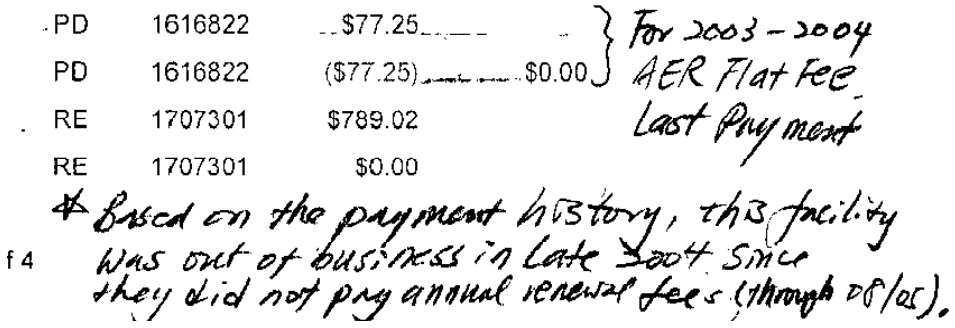
42. The Offset Verification Form states: *"This facility reported 7,900 tons per year of annual throughput and 15,010 lbs/year of PM emissions in their AER 2001-2002. The total throughput limit for two aluminum melting furnaces is 4,983 tons/yr (830,500 lbs/month). As a result, the reported PM emissions for AER 2001-2002 is adjusted to 9,467.70 (15,010 x 4,983 / 7,900). Even though this facility under-reported PM emissions in AER 2001-2002 by using a lower emission factor of 1.9 lbs/ton (instead of 4.3 lbs/ton), the reported PM emissions are not adjusted by using a correct emission factor of 4.3 lbs/ton. "*

43. Thus the annual unpermitted, extra PM10 emissions coming from this facility that occurred for at least 2001-2002, was 12,543 lbs.

[(7,900 tons unpermitted throughput per year minus 4,983 tons permitted throughput per year) = 2,917 tons extra throughput x 4.3 lbs PM10 emitted /ton of throughput (the Emission Factor the AQMD stated should have been used).]

Despite these large extra emissions that occurred according to District engineers, over 8,000 lbs/year in PM10 credits were still generated for the shutdown of this facility from the two aluminum furnaces plus 3 smaller sources (4,120 + 3,860 + 65 + 33 +10). Rather than allowing KMC Wheel's permitted emissions to retire to compensate for its large exceedences, AQMD is using its permitted emissions to allow new pollution to be emitted.

44. **Shutdown dates used in different facility data frequently had to be estimated due to data gaps in the old files. For example:**



Diamond Pacific Products Co.

45. Diamond Pacific Products Co. (Perris) had only a small credit from a boiler in the initial AQMD credits list (about 93 lbs PM10). The Revised Addendum and Offset Verification[17] included two additional large sources and one smaller one. One large source added was Steam Flaking (3,482 lbs/yr PM10) for the average of '04-'05 and '03-'04. (livestock feed rolling and steam flaking). This source was averaged over the most recent two years identified in the AER.

[17]Attached as JMay Attachment 08 Diamond Pacific Products AQMD Offsets Calcs.pdf

46. However, the second large source added was Diamond Pacific Product's Grain Cleaning (6,429 lbs/yr PM10), which was **not** averaged over the most recent two years**,** but instead averaged over a larger emissions set from previous years (for grains size reduction and cleaning).

(14,193 ('03-'04) + 11,522.52 ('02-'03))/2 = 12,857.8 average PM, x 50% PM10
= **6,429** lbs/yr

47. If Grain Cleaning at Diamond Pacific instead used the most recent two years of the reported AER, much lower credits would be calculated (3,932 lbs/yr, which is 2, 497 lbs/year less than was calculated).

(1,536.15 ('04-'05) + 14,193 ('03-'04)/2 = 7,864.6 PM average x 50% PM10
= **3,932** lbs/yr

(From 16th page of this Diamond Pacific Offset Verification electronic file. Additional pages also showed the individual AER reporting years for these numbers.)

PM emissions from Form B4 - Diamond Pacific Products Co #94642

	AER 04-05	AER 03-04	AER 02-03	AER 01-02	AER 00-01
grain receiving	348.19	3,217.08	2,611.77	426.67	420.82
bin vents	348.19	3,217.08	3,840.84	3,413.38	3,366.56
grain cleaning	1,536.15	14,193.00	11,522.52	3,208.58	3,164.57
hammer mill	252.26	2,789.41	2,264.56	1,259.06	1,537.62
steam flaking	**1,155.00**	**12,773.70**	**10,370.27**	**5,753.25**	**4,018.50**
cracking	135.60	1,498.78	1,216.78	676.51	826.19
micro room bag dump ventilation	20.64	227.09	184.37	102.40	161.59
pelleting	275.18	3,043.20	4,680.00	2,730.00	2,524.95
bulk loadout	**72.20**	**310.54**	**403.47**	**150.95**	**152.34**
	4,143.41	41,269.88	37,094.58	17,720.80	16,173.14 lbs/yr

Gateway Sandblasting

48. The status of Gateway Sandblasting, with 2,428 lbs/year PM10 credits (and 9 lbs/yr SOx), could not be verified according to the inspection report in the Offset Verification file:[18]

> *Prior to my visit I tried unsuccessfully to contact Mr. Leroy Gage, the facility contact person by telephone . . . After my attempts failed, I decided to visit the facility's mailing address . . . This address is a residential address and I was unable to conduct inspection .* ***Therefore I was unable to verify the status of the facility's inactive permits.*** (3rd page of Offset Verification)

[18]Attached as JMay Attachment 09 Gateway Sandblasting AQMD Offset Calcs.pdf

49. Verification that equipment is no longer in use is essential to determine that credits are real, because facilities move and get purchased by other companies and transfer equipment and operations, sometimes without change of ownership and without permits.

Additional BACT-related problems

50. **Many additional sources are highly unlikely to meet modern BACT standards.** The table below provides a list of examples of sources where facilities or equipment were shut down many years ago, frequently permitted decades ago, but credits were still calculated using the emissions factors reported in the AQMD AER inventory. In contrast with these, AQMD used a different approach for combustion of natural gas in boilers and turbines (e.g. at power plants), where the District usually updated the Emissions Factors, to reflect the current AQMD default values (7.6 lbs PM10 and 0.6 lbs SOx per mmcf natural gas combusted), except where a lower EF was reported in the AER. Even these updated natural gas EFs are not as low as reported BACT for such sources (as discussed below), but the District did not do this for all sources.

51. **Even for power plants, AQMD's updated EF may be producing more credits than current BACT supports.** According to the CPV Sentinel Final Staff Assessment,[19] much lower PM10 and SOx emissions factors are being used to calculate emissions for the CPV Sentinel project (2.99 lbs/mmcf and 0.12 lbs/mmcf respectively) for gas fired turbines, yet the Verification Form credits calculations generally use the AQMD default PM10 and SOx emissions factors (7.6 lbs/mmcf and 0.6 lbs/mmcf):

> AQ-1 The project owner shall limit the emissions from each gas fired combustion turbine train exhaust stack as follows:
> The project owner shall calculate the commissioning emissions for VOC, SOx and PM10) for the commissioning month (beginning of the month to the last day of commissioning) using the equation below and the following emission factors: VOC: 2.06 lb/mmcf; **PM10: 2.99 lb/mmcf; and SOx: 0.12 lb/mmcf.**

52. This means that the CPV Sentinel project is being assessed at a low level of lbs. pollutant per volume of natural gas combusted, but the credits used to offset CPV Sentinel are being assessed at a higher emission factor, effectively inflating the credits used compared to the actual pollution emitted.

53. **In the case of other types of operations EFs were not updated.** The types of industrial operations generating the pollution credits vary greatly (from abrasive blasting to animal feed cleaning and flaking). It is not feasible in the time allotted for producing this report for me to perform separate BACT analyses for the many dozens of facilities providing the credits (each which might have more than one type of operation). The AQMD would need to do so if the agency is to identify credits meeting the current standards of these industries and to discount the AER emissions accordingly.

[19] October 2008, page 4.1-75, http://www.energy.ca.gov/2008publications/CEC-700-2008-005/CEC-700-2008-005-FSA.PDF.

Table 2 – Example list of facilities very unlikely to meet BACT (not a complete list)

Sources	Credits	NOTES Type of Operation, Emission Factors, original Permit date, etc.
Clean Steel, Long Beach	**4113** lbs/yr **PM10**	**Automobile Metal Shredding Operations original permit issue date in public records supplied 1975**[20] **--** 0.16 lbs/ton of PM, with actual fraction of PM10 from this operation unknown, one reported at 0.12lbs/ton, one at 0.05 lbs/ton, basis of these emission factors unknown.
Statewide Sandblasting, listed as "various locations in AQMD"	Two units calculated Each at **1874** lbs/yr **PM10** Total **3748**	**Abrasive Blasting** – One unit is listed as Open Blasting, with a higher Emission Factor of 33.5 lbs PM/ton throughput, another with an EF of 16.5 lbs/ton for apparently enclosed unit ("Cabinet/Machine Room"). **Original permit date 1981.**[21] Offset Verification basis (p. 1) states: *"Total abrasive blasting emissions from AER form B4 are divided by two as there are two blasters. Then the PM emissions are divided by two to reflect PM10 to PM ratio of 50%."* Given that this equipment is apparently 30 years old and even within the facility one unit puts out about half the emissions/ton compared to the other, the emissions levels used in the calculation cannot represent BACT levels.
Elsinore Ready-Mix Co. Inc., Lake Elsinore	**1290** lbs/yr + **27** lbs/yr PM10	**Concrete and Asphalt Batch Processing and Aggregate Size Reduction–** This equipment was **originally permitted in 1987** according to the permit, shutdown in 2003.[22] (EF listed as 10 lbs/mton).
Chandler Aggregates, Corona	**2907 lbs/yr PM10**	**Aggregate Processing System – Originally permitted 1996.** [23] Within the Offset Verification electronic file is an excerpt from AP42 emissions factors (which is a guidance for average emissions factors, is stated by EPA as not to be used when better data is available, and because it is meant to represent averages, is by definition not BACT). It is unclear what basis was actually used for the EFs for this facility, but due to the age, this equipment cannot represent current BACT levels.

54. **The list above does not include an evaluation of BACT for the other sources not listed.** It also does not include the BACT analysis problems for the large sources discussed earlier in this declaration, which have other problems regarding the credits generated. Based on the records provided, however, I do not believe that AQMD applied BACT to the sources on which it relied for credits.

[20] Clean Steel Offset Verification form 8th page, attached as JMay Attachment 10 Clean Steel Inc AQMD Offset Calc.pdf
[21] Attached.as JMay Attachment 11 Statewide Sandblasting AQMD Offset Calcs.pdf
[22] Attached.as JMay Attachment 12 Elinsore Ready Mix AQMD Offset Calcs.pdf
[23] Attached as JMay Attachment 13 Chandler Aggregates AQMD Offset Calc.pdf

55. **Because a BACT analysis has not been provided in the record by the AQMD, the quantity of credits that should be discounted to account for current BACT standards is unknown,** but if even only 10% of the total credits were discounted to meet BACT, almost 14,000 lbs/year additional PM10 credits would be removed. It is highly likely that for many or most sources, especially those permitted decades ago, much higher percentages of reductions would be reached if BACT levels were met and credits would have to be further discounted. For example, in the case of Seagull Sanitation discussed earlier, just meeting the AP42 average factors for improved controls identified in 1996 would have removed over 99% of the PM and over 75% of the SOx emissions, and these do not represent BACT. In the case of Seagull Sanitation and likely many others, most of the emissions credits would disappear if discounted to meet current BACT standards.

56. **A top-down BACT analysis process as identified by the U.S. EPA would be needed** for each separate facility to determine the current level of emissions representing a BACT level for each credits source. This by its nature is a case by case process, involving evaluating the levels met by other such facilities across the U.S.

57. **EPA describes a top-down BACT analysis process as follows:** Although the AQMD is very familiar with this process, in order to illustrate it, a helpful summary of BACT requirements is provided in the USEPA New Source Review Workshop Manual ("NSR Manual") at B-6, as follows:[24]

> ***TABLE B-1. - KEY STEPS IN THE "TOP-DOWN" BACT PROCESS***
> ***STEP 1: IDENTIFY ALL CONTROL TECHNOLOGIES.***
> - *LIST is comprehensive (LAER included).*
>
> ***STEP 2: ELIMINATE TECHNICALLY INFEASIBLE OPTIONS.***
> - *A demonstration of technical infeasibility should be clearly documented and should show, based on physical, chemical, and engineering principles, that technical difficulties would preclude the successful use of the control option on the emissions unit under review.*
>
> ***STEP 3: RANK REMAINING CONTROL TECHNOLOGIES BY CONTROL EFFECTIVENESS.***
> *Should include:*
> - *control effectiveness (percent pollutant removed);*
> - *expected emission rate (tons per year);*
> - *expected emission reduction (tons per year);*
> - *energy impacts (BTU, kWh);*
> - *environmental impacts (other media and the emissions of toxic and hazardous air emissions); and*
> - *economic impacts (total cost effectiveness, incremental cost effectiveness).*
>
> ***STEP 4: EVALUATE MOST EFFECTIVE CONTROLS AND DOCUMENT RESULTS.***
> - *Case-by-case consideration of energy, environmental, and economic impacts.*

[24] NSR Manual, available at http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf.

- *If top option is not selected as BACT, evaluate next most effective control option.*

STEP 5: SELECT BACT

- Most effective option not rejected is BACT.

58. Many resources and databases are available for finding the Best Available Controls: including the RACT/BACT/LAER Clearinghouse ("RBLC") maintained by the U.S. EPA (although this is a voluntary system and not complete), draft air permits and applications for similar facilities, the Institute of Clean Air Companies, major vendors for air pollution controls, technical libraries and papers, trade journals, discussions with regulatory agency staff familiar with particular operations, and more. The California Air Resources Board also has its own website BACT Clearinghouse developed by the California Air Pollution Control Officers Association (CAPCOA) in 1983.[25]

59. No such current top-down BACT analysis performance was included in the public records the District provided. It cannot be assumed that default emissions factors represent BACT for individual sources.

60. **Instead of performing such a specific case-by-case BACT analysis on complete records, it appears that the AQMD attempted to be conservative in estimating what conditions might have been in place in the past when data gaps were present.** This is not a replacement for a BACT analysis even if very intelligent staff people do their best to guess what conditions might have been in place. Even good engineering judgment cannot replace missing records. It is necessary to have both good records, and a current BACT analysis in order to know that credits generated are accurate reflections of actual emissions discounted for current BACT levels.

61. For example, sometimes the AQMD could not determine how many sources of a type of equipment was present. In at least one case (Clean Steel), since AQMD could not tell, the staff person noted that it would be conservative to assume that there was only one, although the credits verifier thought there might be two units of such equipment. The Offset Verification sheet calculation for Clean Steel then only provided credits for one unit. It states *"Two shredders? To be conservative ,assume 2, take credits for one. Entire facility shutdown"*[26] Although this was a thoughtful attempt to be conservative, it does not necessarily result in a conservative amount of emissions credits being produced.

[25] http://www.arb.ca.gov/bact/bactsearch-old.php
[26] 9th page of Offset Verification file, Clean Steel, previously attached

Report: On 03/19/04 at 0740 hours I arrived at Clean Steel (ID# 24199) located at 2061 E. 220th St., Long Beach, 90810, to conduct an equipment list inspection. I met with Javier Ortega, General Manager, (310) 830-6010. The facility shreds automobiles and separates the scrap metal.

All equipment from the facility has been removed and the company is in the process of tearing down all offices and structures on the property. According to Mr. Ortega the shredder has been sold to Pacific Rail. The equipment is currently being stored in Rialto however once permits have been secured the shredder will be installed in Colton.

alteration

The facility is out of business. I departed at 0815 hours.

	BCAT		Installed	Removed
318036	299750	Misc. .. Size Reduc.	1996	Aug 04
Also 54030 (subseq.)				
A77053				Aug 04
A86477 (subseq.)				
C43224	000298	Auto Body Shredding		90's ?

Two shredders? To be conservative, assume 2, take credit for one, w.r.t. Entire facility shutdown.

62. The typed notes by the Inspector of 2004 conflict with the handwritten notes of the credits verifier of 2010, because they indicate only one shredder identified as shutdown (at an indeterminate date), not two units.[27] The inspector's 2004 notes below state: *"According to Mr. Ortega the shredder has been sold to Pacific Rail. The equipment is currently being stored in Rialto, however, once permits have been secured, the shredder will be installed in Colton."* The inspector notes in 2004 were already occurring after the fact for equipment shutdown and removed at some point in the past, so that even at that time the inspector needed to interview people to reconstruct the events. Later in 2010, the credits verifier had to further reconstruct dates, events, and even the number of units shutdown. No confirmation is provided regarding whether one or two units of this equipment was re-started by the new owner, nor whether it was re-permitted. Such attempts to be conservative about past incomplete records are inherently not conservative.

63. The AER form for 2002-2003 in this Offset Verification file for Clean Steel (3rd page) shows two units of equipment, but one has a much lower emission factor than the other, and the two have different throughputs, so the credits calculations which averages the two don't provide a conservative estimate of how the smaller emissions generator may have operated. The District cannot identify exactly when each was shutdown, and the inspection report only identifies one unit removed.

64. This is just one example of many times in the Offset Verification records where such uncertainties and gaps were explicitly identified by the verifier about where equipment was, when it shutdown, where it went, whether it was still operating or going to be operated, and whether or not it received a new permit at a new location. There were also many times where such information was simply not addressed or discussed, and no records provided further information.

65. Both concurrently kept records and a BACT analysis are need in order to know that emissions reductions were real, and to discount these to meet current standards. In cases where the AQMD cannot determine even how many pieces of equipment were present at a facility or where they went (were they sold? moved? still used elsewhere? operating without a permit? new permit?), then it is not conservative to guess. In such cases, it would be conservative to provide no credits. The attempt to fill in records gaps with best estimates of what might have occurred years ago is not equivalent to both having records showing definitively specific equipment operation and shutdown dates (not facility-wide permit inactivation dates estimated later), and through a top-down BACT analysis for each facility.

Subtractions from Credits to reflect problems listed above

66. Table of subtractions: The following table summarizes problems with credit generation as discussed above, and adds them together. This is listed as an example table because it is unlikely to be a complete list, since the same methods and assumptions were likely applied to other sources in the District calculations. Time does not allow reviewing every Offset Verification package for every company.

[27] This one shredder might have been the source of the large emissions of over 8000 lbs. of PM10 in the AER, in which case, it is even more likely it did not represent BACT levels.

Table 3 – Examples of Problematic Credits (Not a complete list)

	PM10 (lbs/yr)	**SOx** (lbs/yr)
Total in AQMD Revised Addendum	**137,799**	**25,438**
Seagull Sanitation (credit returns)	8,030	13,870
Mountainview Generating (Permitted increased Heat Input without NSR)	1,642	
KMC Wheel (Operated above permit level)	8,088	5.9
Diamond Pacific (not most recent 2 yrs)	2,497	
Gateway Sandblasting (inspection not verified)	2,428	9
Additional reductions because of overestimation of PM10 fraction of PM total as 50% for all non-combustion sources	?	?
Additional BACT-related reductions unknown total	?	?
Sum of example bad credits (not complete)	**At least 22,678**	**At least 13,885**
Total without any of the above "bad credits"	Less than 115,121	Less than 11,553

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Executed this 15th day of June at Berkeley, California.

_____[Original signed]_____
Julia May

Julia E. May

Senior Scientist / Environmental Consultant
510/658-2591

jmay@sbcglobal.net

Experience

1989-present **Industrial Air Pollution & Pollution Prevention Technical Evaluation / Science team manager** Identification and quantification of industrial air pollution sources including criteria pollutants, toxics, and greenhouse gases. Identification of pollution prevention methods and engineering solutions for communities facing continuous and episodic chemical releases. Research of best and worst industrial practices, and chemical phase-out methods. Analyzing permitting, emissions and air monitoring data; compiling available health and environmental impacts data. Evaluation of technical basis of regulatory compliance with environmental laws. Working through practical technical issues of regulation, negotiating with industry and government agencies to craft most health-protective policy and regulatory language. Translating inaccessible technical information into lay language and educational materials. Providing technical assistance and cumulative impacts analyses to communities of color that face severe pollution burdens. Assisting communities and workers in developing proposals for environmental health protection regulation, permitting, and policy. Managed four-person science department for statewide environmental organization. Hired by regulatory agency as technical advisor to identify feasible air pollution control methods not previously adopted, and to assist communities submitting comments during regulatory proceedings.

Project examples:

- **Evaluation of air emission and other impacts from proposed permits for individual fossil fuel industry expansions including refineries, oil drilling, pipelines, and coal gasification:** Evaluation of refinery emissions and solutions regarding permitting of feedstock switches to Canadian tar sands crude oil at ConocoPhilips Wood River, BP Whiting, Detroit Marathon, and proposed new MHA Nation, North Dakota, refineries, as well as dozens of refinery expansions in Northern and Southern California. Evaluation of oil drilling operations, air impacts, public safety hazards, earthquake and subsidence hazards, public nuisance hazards and solutions in residential neighborhood. Evaluation of pipeline transport impacts of crude oil, hydrogen, and other oil industry feedstocks in California and Midwest. Evaluation of coal gasification plant emissions. (1990s to present)
- **Development of model California oil industry criteria pollutant regulation, and proposed greenhouse gas regulation and alternatives analysis:** Developed multiple proposals ultimately adopted for addition to ozone attainment plans in Northern and Southern California of model oil refinery regulations for flares, pressure relief devices, tanks, leakless fugitives standards, petroleum product marine loading, and others. Technical working group member in State of California regulation of greenhouse gas and co-pollutants. Developed recommendations for regulation of oil industry

greenhouse emissions, sources, alternatives, and reporting; the State found these feasible and recommended regulation. (1990s to present)

- **Evaluation of emissions and phaseout opportunities for smaller industrial sources including metal finishing, foam manufacturing, wood finishing, electronics, consumer products, etc**.: Evaluation of air emissions and unnecessary use of ozone depletors, carcinogens, and reproductive toxins, direct negotiation with individual companies to identify specific chemical elimination options in lieu of penalties for environmental violations. For example, metal degreasing was replaced with benign alternatives (soap and water) or grease use eliminated, by talking through use with manufacturers. Phaseout of chemicals was over a million pounds of various substances from many sources. (1990s)

Education

1981 **B.S. Electrical Engineering**, University of Michigan, Ann Arbor

Engineering principles, mathematics, thermodynamics, physics, materials science, chemistry, electronic circuit design, solid-state physics, and others.

Positions

2004- present **Independent Environmental Consultant (2004 - ongoing) and Senior Scientist, Communities for Better Environment (2006 – present) --** Industrial pollution quantification, including analysis of proposed and existing industrial permits. Analysis of impacts and solutions to environmental problems including trends in oil industry crude feedstocks, associated equipment changes, emissions of criteria pollutants, toxic emissions, and greenhouse gases. Technical consultant and strategist in community campaigns on industrial regulation and pollution prevention. Geographic areas include Southern California, Northern California, and multiple U.S. states.

2001-2003 **Statewide CBE Lead Scientist, CBE,** Oakland, CA

Responsible for accuracy and strategic value of CBE's technical evaluations within community and environmental law enforcement campaigns, also led statewide technical staffing. Identified underestimations in electrical power plant expansion air emissions in a community of color which had very high asthma rates; identified alternatives option including sufficient conservation, clean energy generation, and transmission available to prevent need for fossil fuel expansion, documented facts in California Energy Commission proceedings. Analysis of and recommendations on adding regulation to Bay Area Ozone Attainment Plan (concerning flares, pressure relief devices, wastewater ponds, storage tanks, and others) which were ultimately adopted. Evaluated Environmental Impact Reports and Title V permits for refineries and chemical plants; identified emissions, potential community impacts and alternatives. Successfully assisted negotiating Good Neighbor Agreements by identifying technical solutions to environmental violations to bring facilities into compliance.

1990-2001 **Clean Air Program Director, Northern California Region, CBE**

Analysis of permits, regulation, air pollution inventories and other emissions information for oil refinery, power plant, cement kiln, smelter, dry cleaner, consumer product, lawn mower, mobile source, and other air pollution sources, neighbor and worker health impacts, with pollution prevention policy development. Successfully advocated for national models of oil refinery regulation. Evaluated and documented root causes of industrial chemical accidents as part of community campaigns for industrial safety. Technical assistance to community members negotiating Good Neighbor Agreements with refineries. Successful advocacy for adoption of policies eliminating ozone depletors in favor of benign alternatives.

1987-1990 **Research Associate, CBE**

Led successful campaign working closely with maritime workers and refinery neighbors for adoption of strict oil refinery marine loading vapor recovery regulation, which became statewide and national model. Member of technical working group at BAAQMD evaluating emissions, controls, safety, and costs. Also analyzed school pesticide use and won policy for integrated pest management on school grounds.

1986 **Assistant Editor of appropriate technology publication, Rain Magazine**, Portland, OR

Production of publication on innovative environmental success models around the U.S. and the world. Compiled, co-edited, wrote, and provided production for non-profit publication.

1981-1985 **Integrated Circuits Design Engineer, National Semiconductor Corp., Santa Clara, CA**
Electronics engineering design team member for analog-to-digital automotive engine controls for reducing air emissions. Troubleshooting hardware and evaluating fault-analysis software efficacy.

A few special activities

2002-2003 **Roundtable on Bay Area Ozone Attainment Progress**

Invited member of problem-solving group of decision makers including BAAQMD board members, City Council members, industry CEOs and trade group directors, California Air Resources Board (CARB) and US EPA officials, and others, for reviewing progress and proposing action to control San Francisco Bay Area regional smog.

1995-2003 **Negotiator for Optical Sensing Air Pollution Monitoring Equipment on oil refinery fenceline**

CBE signatory to enforceable Good Neighbor Agreement with Rodeo, California oil refinery, providing technical analysis for community negotiators, resulting in permanent installation of a state-of-the art air pollution monitoring system on the refinery fenceline, using optical sensing to continuously measure air pollution and broadcast data to a community computer screen. Researched and reviewed manufacturer specifications, developed Land Use Permit language, and worked with refinery and manufacturer for better Quality Assurance/Quality Control. Worked with US EPA, Contra Costa County, and community groups evaluating the system and publishing report evaluating monitoring of emissions.

1998-2002 **Program Administrator for Bucket Brigade air pollution monitoring**. Coordinated community groups of Contra Costa County Bucket Brigade project (funded by US EPA) who carried out training events in several communities surrounding major Bay Area refineries and chemical plants. The Bucket Brigade used low-tech air pollution monitors community members can build and operate, based on a standard air pollution sampling tedlar bags analyzed at certified laboratories. Provided community information on laboratory results, administered complex federal grant including quality assurance plan.

1997 **Installation of Photovoltaic Panels,** Solar Energy International, Colorado. Completed practical training on solar energy system design and installation for general electrical energy uses including water pumping, house cooling, etc, and applying energy conservation principles.

1993 **Chemistry of Hazardous Materials** course, U.C. Berkeley Extension, for environmental professionals

Publications and written comments (examples)

1. ***California statewide Oil Refinery Sector GHG emissions and recommendations,*** technical comments submitted to the State of California on refinery greenhouse gases statewide, entitled: *Recommendations on AB 32 Scoping Plan on Corn Ethanol Refineries, Electricity Generation, and Oil Refineries from Environmental Justice Organizations,* by Communities for a Better Environment (CBE), the Environmental Health Coalition (EHC), the Association of Irritated Residents (AIR), and the Center on Race Poverty and the Environment (CRPE), May 2008.
2. ***Evaluations of major oil refinery expansions and crude switch modifications at various U.S. refineries****: Comments on ConocoPhillips Wood River CORE Project (Coker and Refinery Expansion), New Source Review Permit Application,* Comments on BP Whiting *Significant Source Modification No.: 089-25484-00453 and Significant Permit Modification No.: 089-25488-00453*, *Comments on DEIS for Mandan, Hidatsa and Arikara Nation's Proposed Clean Fuels Refinery Project,* providing detailed evaluation of a new refinery proposed to be sited without air permits on MHA Nation reservation, among others. *CBE's Comments on Chevron Refinery Draft Title V Permit*, September 27, 2002, Julia May and Will Rostov, (documenting extensive inadequacies in voluminous Chevron operating permits under Title V of the Clean Air Act).

3. ***Reports on California refinery sources:*** *The Increasing Burden of Oil Refineries and Fossil Fuels in Wilmington, California and How to Clean them Up,* a report including information on oil industry concentration in Southern California, trends in heavy crude oil use, and local oil drilling issues, April 2009. *Refinery Flaring in the Neighborhood,* Report on Refinery flaring in the San Francisco Bay Area, the need for new regulation and better law enforcement, and the community campaign to get there, CBE, Julia May, February 2004

4. ***Optical Open Path Monitors at the Tosco San Francisco Refinery at the Rodeo Fenceline***, May 2001, coauthors Julia May (CBE), Elinor Blake, Jim Gallagher, Randy Sawyer (Contra Costa County Health Services), Andy Mechling, Kasha Kessler, and Sandra Dare, (Shoreline Environmental Alliance, SEA), with assistance from US EPA Region IX, and advisory committee made up of the BAAQMD, Cal/EPA, California Dept. of Health Services, Occupational Health and Environmental Health Branches, and the Tosco Rodeo Refinery (now Phillips)

5. ***Evaluation of Ozone Attainment Plans:*** *For example: These Readily-Available Stationary Control Measures should be included in the Bay Area Clean Air Plan,* 5/14/2001, to Celia Bloomfield, Planning Office, [AIR-2], Air Division, U.S. Environmental Protection Agency, Region IX, CBE, Julia May, and *CBE Comments on the BAAQMD/ MTC/ABAG Proposed Final 2001 Ozone Attainment Plan (June 2001 version,* July 16, 2001, to Chairperson Randy Attaway and Members of the Board, Bay Area Air Quality Management District (BAAQMD), Richard Toshiyuki Drury, Julia May

INTERVENOR CBE'S TENTATIVE EXHIBIT AND DECLARATION LIST
Docket No. 07-AFC-03
As of 06/15/10

Exhibit No.	CEC Log No.	Document Date	Document Title	Sponsoring Party	Pages
400	N/A	various	Attachments of J. May to expert testimony: • Analysis by Perrin Quarrles Assoc. re: EPA Acid Rain data; • EPA AP42 Chapter 2.1 Refuse Combustion; • Documents produced by AQMD in response to CCAT PRA (individually identifying the facility at issue).	J. May	651
401	N/A	6/15/2010	EXPERT DECLARATION OF JULIA MAY REGARDING EMISSION REDUCTION CREDITS DOCUMENTATION OFFERED BY SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	J. May	26

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *CPV SENTINEL ENERGY PROJECT* BY THE *CPV SENTINEL, L.L.C*

DOCKET NO. 07-AFC-3

PROOF OF SERVICE
(Revised 3/24/2010)

APPLICANT

CPV Sentinel, LLC
Mark O. Turner, Director
Competitive Power Ventures, Inc.
55 2nd Street, Suite 525
San Francisco, CA 94105
mturner@cpv.com

APPLICANT'S CONSULTANT

Dale Shileikis - URS Corporation
221 Main Street, Suite 600
San Francisco, CA 94105-1916
dale_shileikis@urscorp.com

COUNSEL FOR APPLICANT

Michael J. Carroll
LATHAM & WATKINS LLP
650 Town Center Drive, 20th Floor
Costa Mesa, CA 92626-1925
michael.carroll@lw.com

INTERESTED AGENCIES

California ISO
E-mail preferred
e-recipient@caiso.com

Mohsen Nazemi, PE
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765-4178
mnazemi@aqmd.gov

INTERVENORS

Angela Johnson Meszaros
CA Communities Against Toxics
1107 Fair Oaks Avenue, #246
South Pasadena, CA 91030
Angela@CleanAirMatters.net

*Communities for a Better Environment
c/o Shana Lazerow
1440 Broadway, Suite 701
Oakland, California 94612
slazerow@cbecal.org

ENERGY COMMISSION

JAMES D. BOYD
Vice Chair and Presiding Member
jboyd@energy.state.ca.us

Kenneth Celli, Hearing Officer
kcelli@energy.state.ca.us

John Kessler, Project Manager
jkessler@energy.state.ca.us

Caryn Holmes, Staff Counsel
cholmes@energy.state.ca.us

Jennifer Jennings
Public Adviser
publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, Shana Lazerow declare that on June 15, 2010, I served and filed copies of the document entitled

EXPERT DECLARATION OF JULIA MAY REGARDING EMISSION REDUCTION CREDITS DOCUMENTATION OFFERED BY SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

LINK TO ATTACHMENT OF J. MAY TO EXPERT TESTIMONY (electronic service only. Service of CD is completed by counsel for Intervenor CCAT.)

INTERVENOR CBE'S TENTATIVE EXHIBIT AND DECLARATION LIST

The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/sentinel/index.html]

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

For service to all other parties:
__XX__sent electronically to all email addresses on the Proof of Service list;
__XX__by personal delivery or by depositing in the United States mail at Oakland, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND
For filing with the Energy Commission:
__XX__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

OR

_____depositing in the mail an original and 12 paper copies, as follows:
CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-3
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on June 15, 2010 at Oakland, California.

___[Original signed]_____
Shana Lazerow