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March 10, 2009

Docket Office
California Energy Commission
Attn: Docket No. 07-AFC-8
1516 Ninth Street
Sacramento, CA 95814

DOCKET
07-AFC-8
DATE MAR 10 2009
RECD. MAR 11 2009

Re: Docket No. 07-AFC-8

Dear Docket Office Clerk:

Enclosed are three copies (one copy contains the original POS) of Gulesserian letter to Larry R. Allen re: Carrizo Energy Solar Farm – Manufacturing Building. Please docket, conform a copy and return the copy in the envelope provided.

Thank you.

Sincerely,

Bonnie Heeley

:bh
Enclosures

2118-045a

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March 10, 2009

By Facsimile and Overnight Mail

Larry R. Allen
Air Pollution Control Officer
San Luis Obispo County Air Pollution Control District
3433 Roberto Court
San Luis Obispo, CA 93401
Fax: (805) 781-1002

Re: Carrizo Energy Solar Farm – Manufacturing Building

Dear Mr. Allen:

We are writing on behalf of California Unions for Reliable Energy regarding the Carrizo Energy solar manufacturing and generation project. The project, proposed by Ausra CA II, LLC, is a 177-megawatt solar power plant and manufacturing operation on 1,020 acres on State Route 58 in the Carrizo Plains in unincorporated San Luis Obispo County. The project site is located approximately 1,400 feet from the Carrisa Plains Elementary School and 400 feet from the nearest resident.

Under California's Warren Alquist Act, the California Energy Commission is evaluating whether the project conforms to San Luis Obispo County Air Pollution Control District's ("SLOAPCD") rules and other laws, ordinances, regulations, and standards.[1] Based on our review of SLOAPCD rules, the project's manufacturing building would require a permit from the Air District.[2] However, SLOAPCD has not required a permit or otherwise evaluated or required mitigation for emissions from the project's proposed manufacturing building. As set forth below, the proposed manufacturing building would emit particulate matter of 10 microns or less ("PM10"), volatile organic compounds ("VOC"), and hazardous air pollutants

[1] Pub. Res. Code § 25500 *et seq.*
[2] SLOAPCD Rule 202(A). Since the project is a proposed power plant over 50 megawatts, SLOAPCD must, at a minimum, conduct a determination of compliance ("DOC") review for the equipment in the manufacturing building. (SLOAPCD Rule 223.)

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("HAP"). Therefore, we request that SLOAPCD require Ausra to submit all appropriate information to the Air District in order to ensure legally adequate review of air quality and public health impacts associated with permitting construction, operation, and demolition of the manufacturing building, pursuant to SLOAPCD rules, the California Environmental Quality Act, and other applicable local, state, and federal laws.

According to Ausra's Supplement to its Application to Certification ("AFC") submitted to the California Energy Commission, Ausra proposes on-site manufacturing of solar panels during the construction phase of the project. This will require a 40,000-square foot manufacturing building, including evaporative cooling and utility services. Ausra states that the manufacturing building would rest on a foundation comprised of 6-inch reinforced concrete flooring.[3] Construction and dismantling of the manufacturing building are estimated to take approximately four months each.[4] However, air quality and public health impacts associated with construction and demolition of this building have not been evaluated by the Air District.

The Air District also has not evaluated air pollutant emissions from the manufacturing process itself. The on-site manufacturing process involves a proprietary automated production cell to weld reflector frames for the solar panels and affix mirrors with polyurethane adhesive to the reflector frames.[5] According to the Supplement to the AFC, polyurethane was selected because it meets California VOC and HAP regulations for use in well-ventilated buildings.[6] Despite Ausra's acknowledgement of these emissions, air quality and public health impacts associated with the manufacturing process have not been evaluated by SLOAPCD.

Ausra incorrectly claims that the manufacturing facility is exempt from permitting according to SLOCAPCD Rule 201.[7] However, SLOCAPCD Rule 201

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[3] Supplement to AFC, p. 1-3. Elsewhere, the Applicant indicates that hydraulic or pneumatic pile drivers would be required for construction of the temporary manufacturing building. (Supplement to AFC, Appendix F "Noise Data," Tables F-2 through F-20.) However, the Applicant responded to a data request that no pile driving will be used for the manufacturing building. (Attachment A: Carrizo Energy, LLC, Responses to CURE Data Requests Set Three, Application for Certification (07-AFC-8), January 2009.)

[4] Supplement to AFC, pp. 1-3-6.

[5] *Id.* at pp. 1-3-5.

[6] *Id.* at p. 1-5.

[7] Attachment A: Responses to CURE Data Requests, p. AIR-2.

only exempts processes, articles, machines, equipment, or other contrivances from obtaining a permit "if it is listed in Sections B - N or if uncontrolled emissions never exceed two pounds per day."[8] While Rule 201 Section N.2 contains an exemption for "brazing, soldering, or welding equipment and control equipment venting exclusively such equipment," this definition may not extend to fully-automated robotic welding cells. Regardless, Ausra's proposed manufacturing also involves affixing mirrors with adhesive for industrial purposes, which is not covered by any of the exemptions listed in Sections B through N of Rule 201. In addition, Ausra's uncontrolled emissions exceed two pounds per day, thereby disqualifying the facility from falling within the de minimis exemption. Specifically, Ausra estimates uncontrolled emissions from on-site manufacturing of solar panels at 34.28 lb/day of PM10, and 37.46 lb/day of VOC/ HAP. Therefore, the Applicant's claim that its proposed manufacturing facility is exempt from permitting pursuant to SLOAPCD Rule 201 is incorrect.

We evaluated the project's potential emissions with the technical assistance of Dr. Petra Pless, an environmental engineer trained in air quality and public health. According to Dr. Pless, Ausra's permit for its manufacturing plant in Las Vegas, Nevada, shows that PM10, VOC and HAP emissions from the robotics welding line and adhesive use can be substantial if not properly controlled.[9] For the proposed plant in Carrizo, Ausra estimates that controlled PM10 emissions from the welding cell would amount to 3.43 lb/day.[10] However, San Luis Obispo County is currently in non-attainment of the state PM10 ambient air quality standards. Therefore, the project would contribute to further exceedances of PM10 ambient air quality standards and must be mitigated.

At a minimum, SLOAPCD should require Ausra to install best available control technology ("BACT") at the manufacturing plant to reduce impacts from PM10 emissions. The U.S. EPA's RACT/BACT/LAER Clearinghouse ("RBLC") lists typical control efficiencies of baghouses to control particulate emissions at greater than 99.0 percent. Control efficiencies of 99.5 percent to 99.9 percent are feasible. However, Ausra proposes to install a baghouse with a 90 percent control efficiency

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[8] SLOAPCD, Rule 201.A.1.

[9] Attachment B: Nevada Department of Air Quality and Environmental Management, Authority to Construct/Operating Permit for a Nonmajor Surface Coating and Welding Operation, Ausra Manufacturing NV, LLC, March 28, 2008.

[10] Attachment A: Carrizo Energy, LLC, Responses to CURE Data Requests Set Three, Application for Certification (07-AFC-8), January 2009, p. AIR-6.

to control particulate emissions from the welding cell.[11] This is not BACT. Nor does such control efficiency constitute all feasible measures to reduce significant impacts. Thus, Ausra should be required to install bag filters with a particulate control efficiency of 99.5 percent or higher.

Further, Ausra estimates uncontrolled emissions from on-site manufacturing of solar panels at 34.28 lb/day of PM10, and 37.46 lb/day of VOC/ HAP, mostly xylenes. These uncontrolled emissions are not de minimis. The proposed manufacturing building falls squarely within Rule 202's requirement that "[a]ny person building, erecting, altering or replacing any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, shall first obtain authorization for such construction from the Air Pollution Control Officer."[12] In fact, these emissions trigger permit requirements for projects that may otherwise be exempt. SLOCAPCD Rule 201 explicitly states that a permit shall be required for otherwise exempt equipment if the "process, article, machine, equipment, or other contrivance emits, in quantities determined to be appropriate for review by the APCO [air pollution control officer], substances identified as toxic air contaminants..."[13] Uncontrolled emissions of 37.46 lb/day of HAPs, which are also designated as toxic air contaminants[14] and which will be emitted approximately 1400 feet from a school and 400 feet from the nearest resident, are high enough to warrant review by the APCO.

Uncontrolled emissions may be even higher than estimated by Ausra. Based on information contained in the operating permit for Ausra's manufacturing plant in Nevada, it appears that Ausra considerably underestimated the daily and annual VOC/HAP emissions from the proposed welding cell for the Carrizo facility. Specifically, Ausra incorrectly calculated daily and annual emissions for the proposed Carrizo manufacturing facility based on "linearly ratioing [sic] the 80 kg/hour of adhesive" used at Ausra's Nevada facility and the respective operating schedules of both facilities.[15] Ausra's methodology resulted in a severe underestimate of daily and annual emissions of VOCs and HAPs.

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[11] *Id.* at p. AIR-5.
[12] SLOAPCD Rule 202.A.1.
[13] *Id.* at 201.A.1.b.
[14] Health and Safety Code Section 39657.
[15] Attachment A: Carrizo Energy, LLC, Responses to CURE Data Requests Set Three, Application for Certification (07-AFC-8), January 2009, p. AIR-9.

Adhesive use is not dependent on the operating schedule, but rather on the square footage of solar panels and the quantity of adhesive necessary to adhere the mirror glass; it is irrelevant how many hours Ausra would take to accomplish this. From the daily and annual adhesive use at the Nevada facility, it can be deduced that Ausra's Nevada facility is bottle-necked by the front-end electroplating step, indicating that the welding cell at that facility would not operate continuously 24 hours per day for 365 days per year.[16] The Carrizo facility, on the other hand, has no such front-end restrictions as long as sufficient components are transported to the site, and can therefore operate the welding cell continuously for 12 hours per day and five days per week, as proposed, until the 79 MW per year of solar panels are produced. Therefore, using a ratio method for determining annual adhesive use that relies on operating schedules rather than MW of panels produced severely underestimates actual adhesive use that would occur for producing 79 MW worth of solar panels. Thus, calculation of adhesive use for the Carrizo facility must be based on the adhesive use at the Nevada facility and the ratio of MW of solar panels produced per year at both facilities.

Furthermore, the 80 kilogram per hour adhesive use at the Nevada facility, cited by Ausra in its response to a request for information in the Energy Commission proceeding, is inconsistent with the adhesive use specified in the operating permit for Ausra's Nevada facility. According to its operating permit, Ausra's Nevada plant would use 5,083 pounds of adhesive per day. Based on an operating schedule of 24 hours per day, this translates to an adhesive use of 96.1 kilograms per hour,[17] not 80 kilograms per hour.

The permit to operate for the Nevada facility indicates the adhesive use of 5,083 pounds per day and 773 tons per year to manufacture 700 MW worth of solar panels per year. Based on a HAP content of 0.065 pounds per pound of adhesive, or 6.5 percent by weight, this results in uncontrolled HAP emissions of 330.4 pounds per day and 50.2 tons per year. Based on a 99 percent control efficiency for the

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[16] Attachment B: Nevada Department of Air Quality and Environmental Management, Authority to Construct/Operating Permit for a Nonmajor Surface Coating and Welding Operation, Ausra Manufacturing NV, LLC, March 28, 2008, Table III-A-5: Adhesive throughput 5,083 lb/day and 773.0 ton/year. If welding cell were operating 24-hours per day, 365 days per year, annual adhesive use would be: (5,083 lb/day) x (365 days per year) / (2,000 lb/ton) = 917.6 ton/year.
[17] (5,083 lb/day) / (24 hours/day) * (0.4536 kg/lb) = 96.07 kg/hour

carbon adsorption system, controlled HAP emissions at the Nevada facility are estimated at 3.3 pounds per day and 0.5 tons per year.[18]

Maximum daily and annual emissions from adhesive use for annual production of 79 MW of solar panels at the Carrizo facility can be calculated based on information from Ausra's Nevada facility, as demonstrated in the inset table below. For the Carrizo facility, Ausra proposes to use an adhesive with a lower HAP content of one to five percent by weight to comply with California regulations.[19] Based on a HAP content in the adhesive of 5 percent and the proposed operating schedule of 12 hours per day, uncontrolled HAP emissions can be estimated at 80.3 lbs/day, or 12.2 tons per year, as summarized in the inset table below. Based on a 99 percent control efficiency for the carbon adsorption system, controlled HAP emissions at the Carrizo facility are estimated at 0.8 pounds per day and 0.12 tons per year, as summarized in the inset table below.

[18] Attachment B: Nevada Department of Air Quality and Environmental Management, Authority to Construct/Operating Permit for a Nonmajor Surface Coating and Welding Operation, Ausra Manufacturing NV, LLC, March 28, 2008, Table III-A-5.
[19] Attachment A: Carrizo Energy, LLC, Responses to CURE Data Requests Set Three, Application for Certification (07-AFC-8), January 2009, p. AIR-8.

Facility	Annual Operating Hours	Solar Panel Manufacturing		Adhesive Throughput		Uncontrolled HAP Emissions		Controlled HAP Emissions	
	(hr/year)	(MW/year)	(MW/hr)	(lb/day)	(ton/year)	(lb/day)	(ton/year)	(lb/day)	(ton/year)
Las Vegas, NV	8,760[a]	700	0.080[c]	5,083[d]	773.0[d]	330.4[f]	50.2[f]	3.30	0.50
Carrizo, CA	3,129[b]	79	0.025[c]	1,606[e]	87.2[e]	80.3[g]	12.2[g]	0.80	0.12

a 365 days/year x 24 hrs/day = 8,760 hours/year

b 8,760 hrs/year x 12/24 hrs/day x 5/7 days/week = 3,129 hrs/year

c (annual solar panel manufacturing in MW/year) / (annual operating hours in hrs/year) = (hourly solar panel manufacturing in MW/hr)

d Clark County, Department of Air Quality and Environmental Management, Authority to Construct/Operating Permit, Ausra Manufacturing NV I, LLC, March 28, 2008, Table III-A-5

e (Las Vegas, NV, facility adhesive throughput in lbs/day) x (Carrizo, CA, facility annual solar panel manufacturing in MW/year or tons/year) / (Las Vegas, NV, annual solar panel manufacturing in MW/year or tons/year) = (Carrizo, CA, facility adhesive throughput in lbs/day or tons/year)

f (Las Vegas, NV, facility adhesive throughput in lbs/day or tons/year) x (HAP content of 6.5% by weight) = (uncontrolled HAP emissions in lbs/day or tons/year)

g (Carrizo, CA, facility adhesive throughput in lbs/day or tons/year) x (HAP content of 5% by weight) = (uncontrolled HAP emissions in lbs/day or tons/year)

h (uncontrolled HAP emissions in lb/day or tons/year) x (control efficiency of carbon adsorption system of 99%)

Finally, the potential emissions associated with the project's proposed manufacturing plant also require a revised health risk assessment ("HRA"). The revised HRA must evaluate VOC emissions, in addition to PM10 and HAPs. The revised HRA is necessary to demonstrate that the plant will not pose a health hazard to workers, residents, and children in the immediate and surrounding community.

Thank you for your attention to this matter.

Sincerely,

Tanya A. Gulesserian

Tanya A. Gulesserian

TAG:bh
Attachments
cc: Via email and U.S. Mail
Raymond A. Biering, Esq., SLOAPCD Counsel
Aeron Arlin Genet, Supervising A.Q. Specialist
James Patterson, Supervisor 5th District
John McKenzie, Senior Planner, SLO County Planning
CEC Docket 07-AFC-8
CEC Service List 07-AFC-8

RESPONSES TO CURE DATA REQUESTS SET THREE

APPLICATION FOR CERTIFICATION (07-AFC-8)
Carrizo Energy Solar Farm
Carrizo Energy, LLC

Submitted to:
California Energy Commission

Submitted by:
Carrizo Energy, LLC

With Support from:

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108

January 2009

URS

January 19, 2009

Mr. John Kessler
Project Manager
Attn: Docket No. 07-AFC-8
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814-5512

Subject: Carrizo Energy Solar Farm (07-AFC-8)
Applicant's Responses to CURE Data Requests Set 3 (#96-107)
URS Project No. 27658060.01800

Dear Mr. Kessler:

On behalf of Ausra CA II, LLC (dba Carrizo Energy, LLC), URS Corporation Americas (URS) hereby submits the Applicant's Responses to CURE Data Requests Set 3 (#96-107) (Carrizo Energy Solar Farm 07-AFC-8).

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit the Applicant's Responses to CURE Data Requests Set 3 (#96-107) on behalf of Carrizo Energy, LLC.

Sincerely,

URS CORPORATION

Angela Leiba
Project Manager

AL:ml

Enclosure

URS Corporation
1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108
Tel: 619.294.9400
Fax: 619.293.7920

Data Request Response Guide

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AIR-106	AIR-11
AIR-107	AIR-12

TECHNICAL AREA: AIR QUALITY

Background: On-Site Temporary Manufacturing Building

Data Request 96: Please advise whether the Applicant intends to obtain a Conditional Use Permit for the temporary manufacturing building from the County of San Luis Obispo.

Response: Per Applicant's responses to CEC Data Requests 102 and 103:

Per telephone communication between John McKenzie (San Luis Obispo) and Seth Hopkins (URS) on August 4, 2008, Mr. McKenzie has confirmed that the County would consider the onsite manufacturing to be an activity related to the construction of CESF apparatus. According to section 22.06.030 of the Land Use Ordinance (LUO), electrical generation is an allowable use in the Agriculture district subject to a Conditional Use Permit (CUP) required by the specific use standards stated in section 22.32.020 of the LUO. According to the County, all construction related activities would be subject to the same CUP for the CESF Project, and therefore consistent with the General Plan and LUO.

Per telephone communication between John McKenzie (San Luis Obispo County) and Seth Hopkins (URS) on August 4, 2008, Mr. McKenzie has confirmed that the County would not require an additional CUP or MUP for the onsite manufacturing building. Assembly activities would be allowed as a construction related activity as part of the CESF Project CUP.

TECHNICAL AREA: AIR QUALITY

Background: On-Site Temporary Manufacturing Building

Data Request 97: Please advise whether the Applicant intends to apply for an Authority to Construct and Permit to Operate for the temporary manufacturing building including evaporative cooling and utility services from the San Luis Obispo County Air Pollution Control District ("District"). If the Applicant does not intend to obtain permits from the District, please discuss why it deems these permits not necessary.

Response: The Applicant does not intend to apply for an Authority to Construct and Permit to Operate for the temporary manufacturing building. The activities and equipment operating within this building are exempt from permitting according to SLOAPCD Rules (SLOAPCD Rule 201).

TECHNICAL AREA: AIR QUALITY

Background: On-Site Temporary Manufacturing Building

Data Request 98: Please clarify whether dismantling of the temporary manufacturing building would add an additional four months to the 35-month construction schedule or whether the 35-months are inclusive of dismantling the structure.

Response: Per Section 1.4.7.3 of the Supplement to the CESF AFC, dismantling of the onsite manufacturing building will occur during the last four months of the 35-month construction schedule.

TECHNICAL AREA: AIR QUALITY

Background: On-Site Temporary Manufacturing Building

Data Request 99: Please clarify whether the foundation for the on-site manufacturing building would require piles as support or whether it would rest on a 6-inch reinforced spread footing. In case pile support would be required for the manufacturing building, please:

a. Specify which type of piles would be required, e.g., timber, precast concrete, steel, etc., and which types of pile-driver would be used, i.e., hydraulic or vibratory.
b. Specify the maximum rated energy in ft-lbs for the pile driver that would be used.
c. Specify the emissions rates for the pile driver that would be used and quantify emissions from pile driving.
d. Confirm that the piles for the temporary manufacturing building would be removed from the site after dismantling of the building.
e. Indicate whether the Applicant would be willing to accept a Condition of Certification stipulating implementation of the responses to above data requests 99.a) through 99.d).

Response: The foundation for the onsite manufacturing building would rest on spread footing. No pile driving will be used for the temporary manufacturing building, therefore, requests a., b., c., d., and e., above, are not applicable.

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 100: Please specify the control efficiency for the bag filters that would be used for controlling particulate matter emissions from the welding cell and identify how compliance with the specified control efficiency would be determined.

Response: Particulate emissions associated with the proposed welding operation will occur due to welding rod usage and vaporization of galvanized zinc on the reflector frames. The welding cell will be completely enclosed and will vent to a fabric filter baghouse. The estimated particulate control efficiency of the fabric baghouse is 90%. Continuing attainment of this efficiency will be ensured by the use of filters designed for 90% control and by following manufacturer recommendations regarding proper operation and maintenance of this equipment, including but not limited to visual inspection, cleaning, and repair of the bag filters.

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 101: Please quantify daily and annual uncontrolled and controlled particulate matter emissions from zinc vaporization and total PM10 and PM2.5 emissions from the welding cell.

Response: PM_{10} emissions would be generated during the welding operations from both the weld rod usage and vaporization of the zinc coating on the reflector frames. To a first approximation, it is assumed that all particulate emissions from both processes will have an aerodynamic diameter of 2.5 microns or less and would thus be considered to be both PM_{10} and $PM_{2.5}$. As described in the previous response, emissions of these particulates are expected to be reduced by at least 90 percent by the fabric filter baghouse system that will be provided for the welding cell. The estimated maximum daily and annual uncontrolled and controlled particulate emissions associated with the welding unit are summarized in Table 101, below. These estimates were obtained by linear scaling of the corresponding permitted numbers for the Las Vegas manufacturing facility on the basis of the relative production rate estimates of the two facilities (700 MW of panels per year at Las Vegas and 79 MW of panels per year at CESF).

TABLE 101
ESTIMATED MAXIMUM CESF PM EMISSIONS DUE TO WELDING IN TEMPORARY MANUFACTURING FACILITY

Activity	PM Emissions Uncontrolled		PM Emissions Controlled	
	(lb/day)	(tpy)	(lb/day)	(tpy)
Weld Rod	33.43	6.10	3.34	0.61
Zinc Vapor	0.82	0.15	0.08	0.01
TOTAL	34.26	6.25	3.43	0.62

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 102: Please indicate whether the on-site manufacturing building would control adhesive volatilization with a carbon adsorption system, and, if yes, please specify the VOC/HAP control efficiency and identify how compliance with the specified control efficiency would be determined.

Response: An adhesive will be applied to the mirrors in an enclosed system and associated vapors will be captured in a vacuum duct that will vent to a carbon adsorption system of the same design used for Ausra's Las Vegas manufacturing facility. The minimum control efficiency for removal of VOC and HAP emissions generated during the application of the adhesive is 99%. Continuing achievement of this control efficiency will be realized by the use of a carbon adsorption system designed to achieve at least 99% control, and by adhering to the manufacturer's recommended operating and maintenance procedures, including changeout of used carbon beds on a timely basis.

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 103: Please identify the individual VOCs and HAPs and specify their content in the polyurethane adhesive used to affix mirrors to the reflector frames.

Response: Polyurethane adhesive will be used to affix mirrors to the reflector frames. The adhesive was selected because it meets California Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAP) regulations for use in well ventilated buildings. The Applicant anticipates using an adhesive such as Sikaflex® 252 or similar. The Material Safety Data Sheet (MSDS) for the Sikaflex® 252 adhesive is categorized as polyurethane that consists primarily of polyisocyanate pre-polymer, which is a proprietary compound. The only federal HAP listed on the MSDS is xlyene (mixed isomers), which is expected to constitute 1% to 5% by weight of the adhesive. The total VOC content of the selected adhesive is 5.3% by weight.

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 104: Please quantify daily and annual uncontrolled and controlled HAP and VOC emissions (individual and total) from the polyurethane adhesive used to affix mirrors to the reflector frames.

Response: The Applicant anticipates using an adhesive such as Sikaflex® 252 or similar. As an example of emissions associated with a polyurethane adhesive, calculations for Applicant's response to Data Request 104 were made using the data provided on the Sikaflex® 252 MSDS.

Emissions of VOC and xylenes (the only federal HAP contained in the Sikaflex® 252 adhesive) were calculated based on the conservative assumption that all VOCs contained in this compound would occur in the form of xylenes (see Response to Data Request 103, above). The daily mass usage rate of the adhesive was assumed to 253 kg/hour. This value was estimated to be the usage rate that would result in the production of 79 MW worth of solar panels per year on a schedule of 12 hours per day, 5 days per week, and was derived by linearly ratioing the 80 kg/hour of adhesive that would be used at the Ausra Las Vegas manufacturing facility to produce 700 MW of panels operating on a schedule of 24-hour per day, 7 days per week. Full volatilization of the VOC and xylenes was conservatively assumed to occur during application of the adhesive, and 99% control efficiency for both VOC and xylenes was assumed to be achieved by the carbon adsorption system (see Response to Data Request 102, above). Table 104 shows the predicted maximum daily and annual emissions for both the controlled and uncontrolled cases.

TABLE 104
ESTIMATED MAXIMUM UNCONTROLLED AND CONTROLLED EMISSIONS OF VOC AND HAPS DUE TO APPLICATION OF ADHESIVE

Pollutant	Uncontrolled Emissions		Controlled Emissions	
	lb/day	tons/year	lb/day	tons/year
VOC	37.46	4.88	0.37	0.05
HAP (Xylenes)	37.46	4.88	0.37	0.05

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 105: Please quantify the waste materials generated during manufacturing of the solar panels including baghouse filter wastes, discarded mirror glass, and empty adhesive drums.

Response: Per Applicant's response to CEC Data Request 131:

Summary of On-Site Manufacturing Waste Streams and Management Methods[1]

Waste Stream and Classification	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	On-site Treatment	Waste Management Method
Waste Adhesive - Hazardous	Adhesive	30 liters	Per day	Store for <90 days	Dispose to hazardous waste disposal facility
Waste Adhesive Prep (polyurethane) - Hazardous	Adhesive preparation	2 liters	Per day	Store for <90 days	Dispose to hazardous waste disposal facility
Empty Adhesive Drums - Hazardous	Adhesive use	5 empty drums	Per day	Store for <90 days	Dispose to hazardous waste disposal facility
Mirror Glass – Non-hazardous	Mirror manufacturing	100 kg	Per week	None	Recycle or dispose of to non-hazardous waste disposal facility
Waste Filters Containing Copper, Manganese, and Zinc Oxide	Air cleaning system filters	Copper = 160 ug Manganese = 5 ug Zinc oxide = 1024 ug	Per day	Store for <90 days	Recycle

Note:
[1] All numbers are estimates.

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 106: Please quantify the waste materials generated from dismantling of the temporary manufacturing building.

Response: Per Applicant's response to CEC Data Request 129, the onsite manufacturing building will be constructed of reinforced concrete flooring with a modular panel system for walls and roofing. The modular panel systems will be dismantled and removed from the Project site after manufacturing operations are complete for reuse at another location. Wastes from dismantling of the manufacturing building will include concrete and rebar as summarized below.

Summary of Demolition of On-Site Manufacturing Building Waste Streams and Management Methods[1]

Waste Stream and Classification	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	On-site Treatment	Waste Management Method
Demolition waste -Non-hazardous	Concrete and rebar	65 ksf at 6" slab	Generated during demolition of onsite manufacturing building	None	Dispose to recycling facility (70-90%) or dispose to a non-hazardous waste landfill

Note:
[1] All numbers are estimates.

TECHNICAL AREA: AIR QUALITY

Background: Emissions from On-Site Manufacturing of Solar Panels

Data Request 107: Please quantify the number of truck trips associated with off-site disposal of waste materials from on-site manufacturing.

Response: Per Applicant's response to CEC Data Request 126, truck trips associated with offsite disposal of waste materials from onsite manufacturing would be included within the trips identified in the line labeled "Onsite Manufacturing."

Table 2.11-1
Peak Construction Trip Generation

	Peak Daily Trips	Average	AM Peak Hour Trips			PM Peak Hour Trips	
		Daily Trips	In	Out		In	Out
Peak CESF Construction (Workers) Buses	84	52	21	21		21	21
Equipment Deliveries	14	6	4	4		0	3
Construction Trucks	75	36	5	5		0	5
Onsite Manufacturing	15	12	2	2		1	2
Total Trips Per Peak Hour	**188**	**106**	**32**	**32**		**22**	**31**

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 *CARRIZO ENERGY SOLAR FARM PROJECT*	**Docket No. 07-AFC-8** **PROOF OF SERVICE** **(Revised 11/25/2008)**

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-8
1516 Ninth Street, MS-15
Sacramento, CA 95814-5512
docket@energy.state.ca.us

APPLICANT

Perry H. Fontana, QEP
Vice President-Projects
Ausra, Inc.
2585 East Bayshore Road
Palo Alto, California 94303
perry@ausra.com

APPLICANT CONSULTANT

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COUNSEL FOR APPLICANT

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INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

*indicates change

INTERVENORS

California Unions for Reliable Energy (CURE)
c/o Tanya Gulesserian
Adams Broadwell Joseph & Cardozo
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John Burch
Traditional Council Lead
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salinantribe@aol.com

*** Environmental Center of San Luis Obispo (ECOSLO)**
c/o Babak Naficy
P.O. Box 13728
San Luis Obispo, California 93406

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DECLARATION OF SERVICE

I, Kristen E. Walker, declare that on January 19, 2009, I deposited copies of the attached Applicant's Responses to CURE Data Requests Set 3 (#96-107) in the United States mail (FedEx) with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Department of
Air Quality & Environmental Management

500 S Grand Central Parkway 1st Fl • Box 555210 • Las Vegas NV 89155-5210
(702) 455-5942 • Fax (702) 383-9994

Lewis Wallenmeyer, Director • Alan Pinkerton, Assistant Director • Tina Gingras, Assistant Director

March 28, 2008

Emailed

Mr. Robert Morgan
Ausra Manufacturing NV I LLC
2585 E. Bayshore Rd.
Palo Alto, CA 84303

RE: Permit Facility #16232, Modification #0, Revision #0
Invoice #20081209

Dear Mr. Morgan:

Attached is the Permit for the above-referenced business. Please read, sign, and return the entire Permit, by **April 27, 2008**, after making a copy for your files. In the event the due date falls on a weekend or holiday, *the permit must be received on the last business day preceding the weekend or holiday.*

We will be enforcing Regulation 12.8.3 as stated below:

12.8.3 The AUTHORITY TO CONSTRUCT CERTIFICATE shall become enforceable and effective if the applicant signs and returns such ATC to the CONTROL OFFICER within thirty (30) days from the issuance date.

(a) If the AUTHORITY TO CONSTRUCT CERTIFICATE is not signed by the applicant and returned to the CONTROL OFFICER within the thirty (30) day period, then such ATC shall be deemed invalid.

(b) Revalidation of such ATC shall require reapplication for a new AUTHORITY TO CONSTRUCT CERTIFICATE which may be subject to additional fees.

If you have any questions please contact Will Johnson (702) 455-5942.

Thank you,

Marilee Kitchen

Permitting Division

Attachments

BOARD OF COUNTY COMMISSIONERS
RORY REID, Chairman • CHIP MAXFIELD, Vice-Chairman
SUSAN BRAGER • TOM COLLINS • CHRIS GIUNCHIGLIANI • LAWRENCE WEEKLY • BRUCE L. WOODBURY
VIRGINIA VALENTINE, P.E., County Manager

Department of
Air Quality & Environmental Management

500 S Grand Central Parkway 1st Fl • Box 555210 • Las Vegas NV 89155-5210
(702) 455-5942 • Fax (702) 383-9994

Lewis Wallenmeyer, Director • Alan Pinkerton, Assistant Director • Tina Gingras, Assistant Director

AUTHORITY TO CONSTRUCT/OPERATING PERMIT FOR A NONMAJOR SURFACE COATING AND WELDING OPERATION

Source: 16232
Modification: 0
Revision: 0
Permitting Action: Initial ATC/OP (DAQEM Official Use Only)

Company Name:	Ausra Manufacturing NV I LLC
Company Address:	2585 East Bayshore Road Palo Alto, California 94303
Source Name:	Ausra Manufacturing NV I LLC
Source Address:	6405 Ensworth Street Las Vegas, Nevada 89119
Airshed Name:	Las Vegas Valley (LV)
Hydrographic Area:	212
Township, Range, Section:	T 21S, R 61E, Section 32
Telephone Number:	(650) 353-9764 / Sohier Dane
SIC Code:	3471: Electroplating, Plating, Polishing, Anodizing, and Coloring
NAICS Code:	332813: Electroplating, Plating, Polishing, Anodizing, and Coloring
Description:	Initial ATC/OP for a surface coating and welding operation.
Issuance Date:	**March 28, 2008**

2008 MAR 31 A 9:51
RECEIVED
CC-DAQM

BOARD OF COUNTY COMMISSIONERS
RORY REID, Chairman • CHIP MAXFIELD, Vice-Chairman
SUSAN BRAGER • TOM COLLINS • CHRIS GIUNCHIGLIANI • LAWRENCE WEEKLY • BRUCE L. WOODBURY
VIRGINIA VALENTINE, P.E., County Manager

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I ACRONYMS

Acronym	Term
AQR	Clark County Air Quality Regulations
ATC/OP	Authority to Construct/Operating Permit
BACT	Best Available Control Technology
CAO	Corrective Action Order
CE	Control Efficiency
CF	Control Factor
CFR	United States Code of Federal Regulations
CO	Carbon Monoxide
CPI	Urban Consumer Price Index
DAQEM	Clark County Department of Air Quality & Environmental Management
EF	Emission Factor
EPA	United States Environmental Protection Agency
ESP	Electrostatic Precipitator
EU	Emission Unit
HAP	Hazardous Air Pollutant
HVLP	High Volume, Low Pressure
LAER	Lowest Achievable Emission Rate
NAICS	North American Industry Classification System
NEI	Net Emission Increase
NO_X	Nitrogen Oxides
NOV	Notice of Violation
PM_{10}	Particulate Matter less than 10 microns
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER/Clearinghouse
RTO	Regenerative Thermal Oxidizer
SCC	Source Classification Codes
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_X	Sulfur Oxides
TCS	Toxic Chemical Substance
TSD	Technical Support Document
VOC	Volatile Organic Compound

II ADMINISTRATIVE

1. Pursuant to the AQR, the Control Officer issues this ATC/OP with conditions to: Ausra Manufacturing NV I LLC, located at 6405 Ensworth Street, Las Vegas, Nevada 89119.
2. This permit modifies, consolidates, supersedes, and replaces any ATC/OP certificates previously issued for this source.
3. This ATC/OP, or a copy thereof, shall be kept on-site.
4. This ATC/OP does not replace, supersede, or circumvent permitting requirements of any other regulatory agency. This ATC/OP and the requirements herein are based upon the Clark County regulations in place at the time of issuance. To the extent that there may be differences in the requirements of Clark County's regulations in place at the time of permit issuance and the federally-enforceable SIP requirements, DAQEM has attempted to ensure that this ATC/OP satisfies both sets of requirements.
5. Pursuant to AQR Section 4, the Control Officer or his representative may enter into the property, with or without prior notice, at any reasonable time, for the purpose of establishing compliance with the AQR or this permit.
6. The conditions of this permit are severable. If any condition is found to be invalid, then such invalidity shall not affect any other conditions that can be given effect without the invalid condition(s).
7. Pursuant to AQR Sections 12 and 55, any physical change, or any change in operation, which causes, or has the potential to cause a net emissions increase shall obtain an ATC prior to such change.
8. Any increase in a throughput rate or production rate or emission limit in this ATC/OP may require a new performance test.
9. No emission unit, other than those listed in the summary of emission units of this ATC/OP, shall be installed, modified, or operated without an approved ATC issued by the DAQEM.
10. Any changes in control or ownership of the source shall require a transfer of the ATC/OP by the owner/operator to the new owner/operator upon approval by the Control Officer and payment of the required fees.
11. The previous owner/operator shall provide to the new owner/operator all records required to be kept pursuant to this ATC/OP.
12. A partial calendar year annual report and annual actual emissions report shall be sent to DAQEM by the previous owner prior to, or in conjunction with, requesting the transfer of control or ownership. Previous owner/operator shall be primarily liable for fees and obligations incurred prior to the request for transfer of ownership. The new owner/operator may be liable for fees and obligations incurred by the previous owner prior to the transfer of ownership if the previous owner/operator fails to remit. The new owner/operator shall be liable for fees and obligations after the transfer of ownership.
13. If the owner/operator closes the business or an individual source, then a final annual report and annual actual emissions report shall be sent to DAQEM not less than 30 days prior to closure in addition to requesting that the permit be archived. Owner/operator shall be held liable for fees and obligations incurred prior to the request to archive.

14. Pursuant to AQR Section 43, this source shall be operated in a manner such that odors will not cause a nuisance.
15. Violation of any conditions of this ATC/OP may subject the owner/operator to enforcement action that may include, but is not limited to, a CAO, NOV, Compliance Schedule, Stop Order, or federal enforcement action.
16. The Control Officer reserves the right, upon reasonable cause, to modify existing conditions and impose additional new compliance, monitoring and control requirements.

III EMISSION UNITS

A LIST OF EMISSION UNITS

TABLE III-A-1: Billing Codes, Criteria Pollutants, and PTE for Main Coatings Application Line

EU	Description	Throughput		PM_{10} EF (lbs/gal)	CF[2] PM_{10}	HAP EF (lbs/gal)	CF[2] HAP	PM_{10}		HAP		Type[1]
		gal/day	gal/yr					lbs/day	tons/yr	lbs/day	tons/yr	
A01	Station 11 – Nickel Strike (vented to a wet scrubber)	6.35	1,931	0.50	0.01	2.35	0.05	0.03	0.01	0.75	0.11	DM[N]
A02	Station 14 – Nickel Plate (vented to a wet scrubber)	8.56	2,604	3.75	0.01	3.75	0.05	0.32	0.05	1.61	0.24	
A03	Station 15 – Nickel Plate (vented to a wet scrubber)	8.56	2,604	3.75	0.01	3.75	0.05	0.32	0.05	1.61	0.24	
A04	Station 16 – Nickel Plate (vented to a wet scrubber)	10.96	3,332	3.75	0.01	3.75	0.05	0.41	0.06	2.06	0.31	
A05	Station 17 – Nickel Plate (vented to a wet scrubber)	10.96	3,332	3.75	0.01	3.75	0.05	0.41	0.06	2.06	0.31	
A06	Station 18 – Nickel Plate (vented to a wet scrubber)	10.96	3,332	3.75	0.01	3.75	0.05	0.41	0.06	2.06	0.31	
A07	Station 24 – Black Crystal (vented to a wet scrubber)	10.96	3,332	3.56	0.01	2.85	0.05	0.39	0.06	1.56	0.24	
Total								**2.29**	**0.35**	**11.71**	**1.76**	

[N] New emission unit.
[1] Type codes for billing: DM= deminimus (source has negligible emissions or is not subject to an annual fee). Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.01 is equivalent to 99.0 percent control efficiency, and a control factor of 0.05 is equivalent to 95.0 percent control efficiency.

Table III-A-2: Billing Codes, Criteria Pollutants, and PTE for Clear Coat Spray Booth Application

EU	Description	Throughput		EF (lbs/gal)	CF[2]	PM_{10}		VOC		Type[1]
		gal/day	gal/yr			lbs/day	tons/yr	lbs/day	tons/yr	

EU	Description	Throughput		EF (lbs/gal)	CF[2]	PM_{10}		VOC		Type[1]
		gal/day	gal/yr			lbs/day	tons/yr	lbs/day	tons/yr	
A08	Station 27 – Clear Coat (vented to a fabric filter and carbon adsorber)	7.64	2,325	7.84	0.01	0.60	0.09	0.60	0.09	DM^N
A09	Station 27 – Solvent (vented to a fabric filter and carbon adsorber)	54.0	16,425	6.58	0.01	0.00	0.00	3.55	0.54	
Total						**0.60**	**0.09**	**4.15**	**0.63**	

[1]Type codes for billing: DM= deminimus (source has negligible emissions or is not subject to an annual fee). Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.01 is equivalent to 99.0 percent control efficiency for both PM_{10} and VOC emissions.

Table III-A-3: Billing Codes, Criteria Pollutants, and PTE for Robotics Welding Line (Zinc Vaporization)

EU	Description	Throughput		EF (lbs/gal)	CF[2]	PM_{10}		Type[1]
		lbs/day	tons/year			lbs/day	tons/year	
A10	Zinc Vaporization from Welding (vented to a baghouse)	8.72	1.33	1.00	0.10	0.87	0.13	DM^N
Total						**0.87**	**0.13**	

[1]Type is a billing code: DM = deminimus. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.10 is equivalent to 90.0 percent control efficiency.

Table III-A-4: Billing Codes, Criteria Pollutants, and PTE for Robotics Line Weld Rod Usage

EU	Description	Throughput		Density (lbs/rod)	EF (lb/1000 lbs)	CF[2]	PM_{10}		Type[1]
		rods/day	rods/year				lbs/day	tons/year	
A11	Weld Rod Usage (vented to a baghouse)	720,000	219,000,000	0.247	2.0	0.10	35.57	5.41	$P1^N$
Total							**35.57**	**5.41**	

[1]Type is a billing code: P1 = process equipment. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.

[2] A control factor of 0.10 is equivalent to 90.0 percent control efficiency.

Table III-A-5: Billing Codes, Criteria Pollutants, and PTE for Robotics Line Adhesive Volatilization

EU	Description	Throughput		EF	CF[2]	VOC		HAP		Type[1]
		lbs/day	tons/year			lbs/day	tons/yr	lbs/day	tons/yr	
A12	Adhesive Volatilization (vented to a carbon adsorber)	5,083	773.0	0.065	0.01	3.30	0.50	3.30	0.50	DM[N]
Total						**3.30**	**0.50**	**3.30**	**0.50**	

[1] Type is a billing code: DM = deminimus. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.01 is equivalent to 99.0 percent control efficiency.

B EMISSION LIMITATIONS

Neither the actual nor the allowable emissions from the individual emission units nor the entire source shall exceed the calculated PTE as listed in Table III-B-1.

TABLE III-B-1: Source PTE

Emission Rates	PM_{10}	NO_x	CO	SO_x	VOC	HAP
lbs/day	39.33	0.00	0.00	0.00	7.45	15.01
tons/year	5.98	0.00	0.00	0.00	1.13	2.26

IV CONDITIONS

A PRODUCTION LIMITATIONS

1. All emissions units at this source shall be allowed to operate up to 24 hours per day and 8,760 hours per year.
2. The consumption of Nickel Strike shall not exceed either 6.35 gallons per day or 1,931 gallons per year.
3. The consumption of Nickel Plate shall not exceed either 50.0 gallons per day or 15,204 gallons per year.
4. The consumption of Black Crystal shall not exceed either 10.96 gallons per day or 3,332 gallons per year.
5. The consumption of Clear Coat at Station 27 shall not exceed either 7.64 gallons per day or 2,325 gallons per year.
6. The consumption of Solvent at Station 27 shall not exceed either 54.0 gallons per day nor 16,425 gallons per year.
7. The weld rod usage in the robotics line shall not exceed either 720,000 rods per day or 219,000,000 rods per year.

B CONTROL REQUIREMENTS

1. The Main Coat Application Line (EUs: A01 through A07 inclusive) must be enclosed and shall not be operated unless all exhaust air passes through a wet scrubber having a PM_{10} control efficiency of at least 99.0 percent and HAP control efficiency of at least 95.0 percent.
2. The Clear Coat Spray Booth (EUs: A08 and A09) must be enclosed and shall not operate unless all exhaust air passes through a fabric filter and carbon adsorber, both having PM_{10} or VOC control efficiencies of at least 99.0 percent.
3. All surface coating must be applied by automated methods, except for touch-up applications.
4. Pursuant to AQR Section 26, emissions from the main coat application line and the clear coat spray booth shall not exceed 20.0 percent opacity for a period or periods aggregating more than 3 minutes in any 60-minute period.
5. Open containers shall not be used for storage or disposal of solvent-containing cloth or paper (excluding masking tape) used for surface preparation and cleanup.

6. Pursuant to AQR Sections 40 and 43, no person shall cause, suffer or allow the discharge from any source whatsoever such quantities of air contaminants or other material which cause a nuisance, such as over spray or excessive odors from the spray painting operation or associated operations.
7. All control equipment shall follow manufacturer's specifications for use and operation.
8. Surface coating application equipment shall be cleaned in an enclosed container to minimize VOC volatilization into the ambient air.
9. All solvent containers shall remain securely closed, except during product transfer. Containers shall be inspected regularly for leakage, and the contents of any leaking container must be immediately transferred to an appropriately labeled container that has been specifically designed for storage of the compound.
10. The Robotics Welding Line and associated zinc vaporization must take place in an enclosed booth equipped with a baghouse with a PM_{10} control efficiency of at least 90.0 percent.
11. The Robotics Line Adhesive Application shall be conducted in a booth vented to a carbon adsorber with a VOC/HAP control efficiency of at least 99.0 percent.
12. The Main Coat Application Line, the Clear Coat Spray Booth, the Robotics Welding Line, Robotics Line Adhesive Application booth, and all ancillary equipment and control equipment shall be inspected for leaks, malfunctions, proper operation of gauges, pressure drops, etc., for each day the process is operated. A log must be kept of such inspections as well as any corrective actions taken to repair the equipment.
13. The owner/operator must comply with the control requirements contained in this section. If there is inconsistency between standards or requirements, the most stringent standard or requirement shall apply.
14. Failure to comply with the conditions contained in this section may result in revocation of this ATC/OP.

C MITIGATION

There are no federal offset requirements.

D ON-SITE, AMBIENT AIR MONITORING

On-site, ambient air monitoring is not required by this ATC/OP.

E COMPLIANCE DEMONSTRATION

1. Records demonstrating the VOC and HAP content of each VOC containing compound shall be kept on-site by the owner/operator and made available to DAQEM upon request.
2. Compliance with the VOC and HAP emissions from carbon adsorption system(s) (EUs: A08, A09 and A12) shall be demonstrated by monitoring the VOC concentration at the inlet and outlet of the carbon adsorption system(s) using a PID. Tests shall be performed on active carbon adsorption system(s) at the outlet monthly until a positive reading for VOC is recorded. A positive reading requires that the inlet and the outlet of the carbon adsorption system be tested bi-weekly

(i.e., every two weeks). The owner/operator shall replace the activated carbon bed before the outlet VOC concentration exceeds 1.0 percent of the inlet concentration.

3. Compliance with the AQR Section 26 opacity standards contained within the ATC/OP shall be demonstrated, when required by the Control Officer, in accordance with one of the following, as applicable:
   a. When an emission unit operates or activity continues for more than 1 consecutive hour for any given period, then 40 CFR 60 Appendix A, Method 9 (Standards for Opacity), the test therein shall be applied to determine compliance.
   b. When an emission unit operates or activity occurs intermittently during a 1-hour period, then AQR Subsection 94.12.3, Intermittent Emissions Method, the test therein shall be applied to determine compliance.

4. Pursuant to AQR Section 25, any upset/breakdown or malfunction that cause emissions of regulated air pollutants to exceed any limits set by the AQR or by this permit, shall be reported to the Control Officer within 1 hour of the onset of such event.
5. Records and data required by this permit and maintained by the owner/operator and maybe audited, at the owner/operator's expense, at any time by a third party selected by the Control Officer.

F PERFORMANCE TESTING

The owner/operator shall conduct performance testing on the wet scrubber and carbon adsorption systems according to the following conditions (EUs: A01 through A07, inclusive, and A08, A09 and A12):

1. Performance testing is subject to 40 CFR 60, (as amended), and DAQEM Guideline on Performance Testing, (as revised). Performance testing shall be the initial instrument for determining compliance with emission limitations set forth in Section III, Tables III-A-1, III-A-2, III-A-3, III-A-4, and III-A-5 of this ATC/OP.
2. Initial performance tests shall be conducted within 60 days after achieving the maximum production rate at which the source will be operated but no later than 180 days after initial startup.
3. The owner/operator shall submit for approval a performance testing protocol which contains test, reporting, and notification schedules, test protocols, and anticipated test dates to the DAQEM Compliance Stationary Sources Supervisor and to the Enforcement Office of the US EPA, Region IX, at least 45 days prior to the anticipated test date but not more than 90 days prior to the anticipated test date.
4. A report describing the results of the performance test shall be submitted to the DAQEM Compliance Stationary Sources Supervisor and to the Enforcement Office of the US EPA, Region IX, within 60 days from the end of the performance test.
5. An initial performance test shall be conducted on the wet scrubber, which is the method of control for the Main Coating Application Line (EUs: A01 through A07, inclusive). The initial performance test shall ensure that a control efficiency of at least 95.0 percent is achieved for the emissions of HAP and a control efficiency of at least 99.0 percent is achieved for the emissions of PM_{10}.

6. An initial performance test shall be conducted on the carbon adsorption systems, which is a method of control for VOC and HAP emitting activities (EUs: A08, A09 and A12). The initial performance test shall ensure that a control efficiency of at least 99.0 percent is achieved for the emissions of VOC and HAP.
7. Pursuant to Section 10 (as revised), the owner/operator of any stationary source or emissions unit that fails to demonstrate compliance with the emissions standards or limitations during any subsequent performance test, shall submit a compliance plan to DAQEM Compliance Stationary Sources Supervisor, within 90 days from the end of the performance test.
8. Design specifications for the wet scrubber and carbon adsorption systems will be accepted in place of an initial performance test.
9. Pursuant to AQR Subsection 4.5 (as revised), additional performance testing may be required by the Control Officer.

TABLE III-F-1: Performance Testing Protocol Requirements

Test Point	Pollutant	Method
Baghouses	PM_{10}	Method 5 or Method 17
Wet Scrubber	PM_{10}	Method 5 or Method 17
Carbon Adsorber	VOC and HAP	Method 18 or Method 25a
Nickel	HAP	Method 29
Stack Gas Parameters	-	EPA Methods 1, 2, 3A, and 4

G RECORD KEEPING

1. All records, logs, etc. shall be made available to DAQEM during regular business hours.
2. All records, logs, etc., or a copy thereof, shall be kept on site for a minimum of 5 years from the date the measurement, or data was entered.
3. Various records, logs, etc., shall contain, at minimum, the following information:
   a. records of the total daily and annual consumption (in gallons) of each compound specified in the production limits shall be made available to DAQEM upon request;
   b. records of the total daily and annual weld rods used shall be made available to DAQEM upon request;
   c. MSDS or records demonstrating the VOC and HAP content for each compound; and
   d. a log book of the Main Coat Application Line, Clear Coat Spray Booth, Robotics Line Welding usage, and Robotics Line Adhesive Application equipment inspections (as specified in Section IV-B-12), maintenance, and repair;
   e. records of initial and subsequent performance testing on the wet scrubber and carbon adsorption systems (EUs: A01 through A07 inclusive and A08, A09, and A12);
   f. records of compliance with the VOC and HAP emissions from carbon adsorption systems (EUs: A08, A09, and A12).

H REPORTS AND REPORTING

1. Each annual report shall be:

a. based on the preceding calendar year;
b. submitted on or before March 31 each year, even if there was no activity; and
c. addressed to the attention of the Compliance Stationary Sources Supervisor, DAQEM.

2. Each annual report shall contain, at a minimum;
   a. as the first page of text, a signed certification containing the sentence "I certify that, based on information and belief formed after reasonable inquiry, the statements contained in this document are true, accurate and complete." This statement shall be signed and dated by a responsible official of the company. (a sample form is available from DAQEM);
   b. a summary of the items in Section IV-G-3-a through f; and
   c. the calculated actual annual emissions from each emission unit, even if there was no activity, and the total calculated actual annual emissions for the source.

I INCREMENT

Increment analysis is not required for this ATC/OP.

J FEES

1. Annual fees on all equipment and emissions are subject to AQR Section 18.
2. Annual emission unit fees will be based on the AQR Section 18.
3. AQR Section 18 is adjusted annually based on the CPI.
4. For the purposes of billing (invoicing) Application Review Fees and New Emission Units Fees resulting from this permitting action, the following AQR Section 18 fees have been assessed:

Table IV-J-1: One-Time Application Review Fee

Quantity	Description
1	E1 = Emission Units
8.87	E2 = Tons of Emissions
1	OP1 = Operating Permit Issuance

Table IV-J-2: New Emission Unit (Equipment) Fee

Number of EUs	Emission Unit Description
4	DM = Deminimus Emission Unit
1	P1 = Process Equipment
_____	Full Fee **(or)** ____x_____ Prorated Fee

K OTHER REQUIREMENTS

The owner/operator shall substitute compatible products of lower VOC content when they become available.

SIGNATURES

This Authority to Construct/Operating Permit Issued by:

Signature: Richard Beckstead
Permitting Manager
Clark County
Department of Air Quality and Environmental Management

March 28, 2008

Issuance Date

Signature: Theodore A. Lendis
Permitting Supervisor
Clark County
Department of Air Quality and Environmental Management

March 28, 2008

Date

The requirements of this ATC/OP with its conditions are accepted and agreed to by the company as evidenced by the signature of an authorized company representative.

Signature: Robert Morgan
Responsible Official for:
Ausra Manufacturing NV I LLC

March 28, 2008

Date

Technical Support Document

Preparer:	William Johnson
Date:	March 20, 2008
Company:	Ausra Manufacturing NV I LLC
Submitter:	CH2M Hill Incorporated
Source:	16232
Modification:	0
Revision:	0
Location:	6405 Ensworth Street Las Vegas, Nevada 89119 T 21S, R 61E, Section 32
Hydrographic Area:	212 (Las Vegas Valley)
Subject:	Initial ATC/OP

Source Description

Ausra develops and deploys utility-scale solar thermal power technology to serve global electricity needs. The company designs, manufactures, and deploys solar electric power stations using their core technology, the Compact Linear Fresnel Reflector (CLFR) solar collector and steam generating system.

In order to support this activity, Ausra plans to construct a coatings and robotics source in Las Vegas, Nevada. At this source, piping associated with Ausra's CLFR system will be coated with nickel solutions. The process utilizes a series of process baths and water rinsing steps with a final clear coat application. A closed process waste water treatment plant will be installed to handle the coatings line waste water. Additionally, this source will assemble galvanized reflector frames to be used in the solar fields. Reflector frame components, including decking sheets and mirror glass, are robotically assembled to produce a finished reflector frame assembly.

The processes are expected to result in the emission of regulated air pollutants, including PM_{10}, VOC, and HAP. The waste water treatment plant will be enclosed and the emissions negligible. The primary coatings application stations will be enclosed and will vent to a scrubber system. The clear coat will be applied within a spray booth that vents to a filter and carbon adsorption system. The welding activities will be conducted within a weld cell and vented to a baghouse and the adhesive application will be conducted within an enclosed environment and vented adsorption system.

Permitting Action

The permitting action for this source is an initial ATC/OP. The initial ATC/OP will consist of permitting the source for their surface coating operations and permitting the source for their PM_{10} emissions, which are generated during the welding operations from the weld rod usage and the vaporization of the zinc coating on the frames.

ACRONYMS

Acronym	Term
AQR	Clark County Air Quality Regulations
ATC/OP	Authority to Construct/Operating Permit
BACT	Best Available Control Technology
CAO	Corrective Action Order
CE	Control Efficiency
CF	Control Factor
CFR	United States Code of Federal Regulations
CO	Carbon Monoxide
CPI	Urban Consumer Price Index
DAQEM	Clark County Department of Air Quality & Environmental Management
EF	Emission Factor
EPA	United States Environmental Protection Agency
ESP	Electrostatic Precipitator
EU	Emission Unit
HAP	Hazardous Air Pollutant
HVLP	High Volume, Low Pressure
LAER	Lowest Achievable Emission Rate
NAICS	North American Industry Classification System
NEI	Net Emission Increase
NO_X	Nitrogen Oxides
NOV	Notice of Violation
PM_{10}	Particulate Matter less than 10 microns
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER/Clearinghouse
RTO	Regenerative Thermal Oxidizer
SCC	Source Classification Codes
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_X	Sulfur Oxides
TCS	Toxic Chemical Substance
TSD	Technical Support Document
VOC	Volatile Organic Compound

Calculation of PTE and NEI

Table 1: Billing Codes, Criteria Pollutants, and PTE for Main Coatings Application Line

EU	Description	Throughput		PM_{10} EF (lbs/gal)	CF[2] PM_{10}	HAP EF (lbs/gal)	CF[2] HAP	PM_{10}		HAP		Type[1]
		gal/day	gal/yr					lbs/day	tons/yr	lbs/day	tons/yr	
A01	Station 11 – Nickel Strike (vented to a wet scrubber)	6.35	1,931	0.50	0.01	2.35	0.05	0.03	0.01	0.75	0.11	
A02	Station 14 – Nickel Plate (vented to a wet scrubber)	8.56	2,604	3.75	0.01	3.75	0.05	0.32	0.05	1.61	0.24	
A03	Station 15 – Nickel Plate (vented to a wet scrubber)	8.56	2,604	3.75	0.01	3.75	0.05	0.32	0.05	1.61	0.24	
A04	Station 16 – Nickel Plate (vented to a wet scrubber)	10.96	3,332	3.75	0.01	3.75	0.05	0.41	0.06	2.06	0.31	DM^N
A05	Station 17 – Nickel Plate (vented to a wet scrubber)	10.96	3,332	3.75	0.01	3.75	0.05	0.41	0.06	2.06	0.31	
A06	Station 18 – Nickel Plate (vented to a wet scrubber)	10.96	3,332	3.75	0.01	3.75	0.05	0.41	0.06	2.06	0.31	
A07	Station 24 – Black Crystal (vented to a wet scrubber)	10.96	3,332	3.56	0.01	2.85	0.05	0.39	0.06	1.56	0.24	
Total								**2.29**	**0.35**	**11.71**	**1.76**	

[1] Type is a billing code: DM = deminimus. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.01 is equivalent to 99.0 percent control efficiency, and a control factor of 0.05 is equivalent to 95.0 percent control efficiency.

Table 2: Billing Codes, Criteria Pollutants, and PTE for the Clear Coat Spray Booth Application

EU	Description	Throughput		EF (lbs/gal)	CF[2]	PM_{10}		VOC		Type[1]
		gal/day	gal/yr			lbs/day	tons/yr	lbs/day	tons/yr	
A08	Station 27 – Clear Coat (vented to a fabric filter and carbon adsorber)	7.64	2,325	7.84	0.01	0.60	0.09	0.60	0.09	DM^N

EU	Description	Throughput		EF (lbs/gal)	CF[2]	PM_{10}		VOC		Type[1]
		gal/day	gal/yr			lbs/day	tons/yr	lbs/day	tons/yr	
A09	Station 27 – Solvent (vented to a fabric filter and carbon adsorber)	54.0	16,425	6.58	0.01	0.00	0.00	3.55	0.54	
Total						**0.60**	**0.09**	**4.15**	**0.63**	

[1]Type is a billing code: DM = deminimus. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.01 is equivalent to 99.0 percent control efficiency for both PM_{10} and VOC emissions .

Table 3: Billing Codes, Criteria Pollutants, and PTE for Robotics Welding Line (Zinc Vaporization)

EU	Description	Throughput		EF (lbs/gal)	CF[2]	PM_{10}		Type[1]
		lbs/day	tons/year			lbs/day	tons/year	
A10	Zinc Vaporization from Welding (vented to a baghouse)	8.72	1.33	1.00	0.10	0.87	0.13	DM^N
Total						**0.87**	**0.13**	

[1]Type is a billing code: P1 = process equipment. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.10 is equivalent to 90.0 percent control efficiency.

Table 4: Billing Codes, Criteria Pollutants, and PTE for Robotics Line Weld Rod Usage

EU	Description	Throughput		Density (lbs/rod)	EF (lb/1000 lbs)	CF[2]	PM_{10}		Type[1]
		rods/day	rods/year				lbs/day	tons/year	
A11	Weld Rod Usage (vented to a baghouse)	720,000	219,000,000	0.247	2.0	0.10	35.57	5.41	$P1^N$
Total							**35.57**	**5.41**	

[1]Type is a billing code: P1 = process equipment. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.10 is equivalent to 90.0 percent control efficiency.

Table 5: Billing Codes, Criteria Pollutants, and PTE for Robotics Line Adhesive Volatilization

EU	Description	Throughput		EF	CF[2]	VOC		HAP		Type[1]
		lbs/day	tons/year			lbs/day	tons/yr	lbs/day	tons/yr	
A12	Adhesive Volatilization (vented to a carbon adsorber)	5,083	773.0	0.065	0.01	3.30	0.50	3.30	0.50	DM^N
Total						**3.30**	**0.50**	**3.30**	**0.50**	

[1]Type is a billing code: DM = deminimus. Fees are listed in AQR Section 18. The superscripts N and M refer to new or modified units for the purposes of review and issuance fees for this permitting action.
[2] A control factor of 0.01 is equivalent to 99.0 percent control efficiency.

Table 6: Summary of PTE for the Entire Source

Emission Rates	PM_{10}	NO_x	CO	SO_x	VOC	HAP
lbs/day	39.33	0.00	0.00	0.00	7.45	15.01
tons/year	5.98	0.00	0.00	0.00	1.13	2.26

Production Limits

1. All emissions units at this source shall be allowed to operate up to 24 hours per day and 8,760 hours per year.
2. The consumption of Nickel Strike shall not exceed either 6.35 gallons per day or 1,931 gallons per year.
3. The consumption of Nickel Plate shall not exceed either 50.0 gallons per day or 15,204 gallons per year.
4. The consumption of Black Crystal shall not exceed either 10.96 gallons per day or 3,332 gallons per year.
5. The consumption of Clear Coat at Station 27 shall not exceed either 7.64 gallons per day or 2,325 gallons per year.
6. The consumption of Solvent at Station 27 shall not exceed either 54.0 gallons per day nor 16,425 gallons per year.
7.. The weld rod usage in the robotics line shall not exceed either 720,000 rods per day or 219,000,000 rods per year.

Review of AQR Sections 12 and 55

Table 7 identifies the source's regulatory obligation (action) based on the source's PTE in tons per year. NEI is not applicable as this is a new source.

Table 7: AQR Section 12 and 55 Requirements

	PM_{10}	NO_X	CO	SO_2	VOC	HAP
Source PTE (tpy)	5.98	0.00	0.00	0.00	1.13	2.26
NEI From AQR Sections 12 and 55 (tpy)	N/A	N/A	N/A	N/A	N/A	N/A
Nonmajor Source	< 70 tpy	< 50 tpy[1]	< 70 tpy	< 100 tpy	< 50 tpy[1]	If single HAP ≤ 10 tpy and all HAP ≤ 25 tpy
Control Technology	BACT	BACT	BACT	BACT	BACT	BACT
Area Classification	Non-attainment	Non-attainment	Non-attainment	Non-attainment	Non-attainment	Non-attainment
Notice of Proposed Action	If PTE or NEI ≥ 15 tpy	If PTE or NEI ≥ 40 tpy	If PTE or NEI ≥ 10 tpy	If PTE or NEI ≥ 40 tpy	If PTE or NEI ≥ 40 tpy	If PTE or NEI ≥ 10 tpy for all HAP
Air Quality Modeling	If PTE or NEI ≥ 25 tpy	If PTE ≥ 100 tpy or NEI ≥ 40 tpy	If PTE ≥ 100 tpy or NEI ≥ 100 tpy	If PTE ≥ 100 tpy or NEI ≥ 40 tpy	N/A	N/A
Preconstruction Ambient Air Monitoring	N/A	14 $\mu g/m^3$ (Annual)	N/A	13 $\mu g/m^3$ (24 hour)	If PTE ≥ 100 tpy or NEI ≥ 100 tpy[2]	N/A

	PM_{10}	NO_X	CO	SO_2	VOC	HAP
Source PTE (tpy)	5.98	0.00	0.00	0.00	1.13	2.26
NEI From AQR Sections 12 and 55 (tpy)	N/A	N/A	N/A	N/A	N/A	N/A
Postconstruction Ambient Air Monitoring	10 $\mu g/m^3$ (24 hour)	14 $\mu g/m^3$ (Annual)	N/A	50 $\mu g/m^3$ (24 hour)	If PTE ≥ 100 tpy or NEI ≥ 100 tpy[2]	N/A
Additional Impact Analysis	N/A	If PTE ≥ 100 tpy or NEI ≥ 40 tpy	N/A	If PTE ≥ 100 tpy or NEI ≥ 40 tpy	If PTE ≥ 100 tpy or NEI ≥ 100 tpy	N/A

Control Technology

The coating and rinsing processes that will take place at this source are expected to result in the emission of regulated pollutants, which include PM_{10}, HAP, and VOC.

The coatings process will have two main components requiring control systems. The first component is the main coatings application line, consisting of various nickel compound process baths in series. Each process bath in this system will vent to one control system, to reduce the expected HAP and PM_{10} emissions. The second component of the coatings source is the silicone-based coat and solvent spray booth, which will have its own dedicated control system in place, to reduce emissions of PM_{10} and VOC pollutants.

BACT for the Main Process Bath Line

PM_{10}

Particulate emissions are expected to be generated during the coatings process from the nickel compound coating agents. A review of the EPA RBLC database for coatings facilities was completed to determine the best available control technologies for PM_{10}. The RBLC database search indicated that the following technologies were available for control of PM_{10}:

1. Fabric Filter / Baghouse
2. Electrostatic Precipitators (ESP)
3. Coating Application Procedures
4. Wet Scrubber

Fabric Filter / Baghouse

Commonly known as baghouses, fabric collectors use filtration to separate particulate from exhaust streams. They can achieve a collection efficiency of more than 99.0 percent for very fine particulates. Particulate-laden gases enter the baghouses and

pass through fabric bags that act as filters. The bags can be woven or felted cotton, synthetic, or glass-fiber material in either a tube or envelope shape. The high efficiency of these collectors is due to the particulate cake formed on the surfaces of the bags. The fabric primarily provides a surface on which particulates collect through the following four mechanisms:

- Intertial Collection – Dust particles strike the fibers placed perpendicular to the gas-flow direction instead of changing direction with the gas stream.
- Interception – Particles that do not cross the fluid streamlines come in contact with fibers because of the fiber size.
- Brownian Movement – Sub micrometer particles are diffused, increasing the probability of contact between the particles and collecting surfaces.
- Electrostatic Forces – The presence of an electrostatic charge on the particles and the filter can increase particle capture.

The use of a baghouse to control particulate emissions from the coating operations is considered technically feasible. The control efficiency of baghouses for PM_{10} is typically greater than 99.0 percent as found in the RBLC database.

Electrostatic Precipitators (ESP)

Electrostatic Precipitators use electrostatic forces to separate particles from exhaust gases. A number of high-voltage, direct-current discharge electrodes are placed between ground collecting electrodes. The contaminated exhaust stream flows through the passage formed by the discharge and collecting electrodes. The airborne particles receive a negative charge as they pass through the ionized field between the electrodes. These charge particles are then attracted to a grounded or positively charged electrode and adhere to it. The collected material on the electrode is removed by rapping or vibrating the collecting electrodes either continuously or at a predetermined interval.

The use of an electrostatic precipitator to control particulate emissions from the coatings operations is considered technically feasible. The control efficiency of an ESP for PM_{10} is typically 99.0 percent as found in the RBLC database.

Coating Application Procedures

Application methods which ensure high transfer efficiency of the coating material onto the surface of the piping are ideal in reducing the amount of PM_{10} emissions in the exhaust stream. Such methods include using an atomized spray, electrostatic spray, roller coating, knife coating, dip coating, and flow coating.

EPA AP-42 indicates that by using high-transfer efficiency application methods, emissions removal efficiencies can range from 50.0 to 95.0 percent.

Coating application procedures are technically feasible for the main process bath line at the Ausra source. The coatings line is designed to minimize PM_{10} emissions by utilizing dip coating and flow coating application procedures.

Wet Scrubber

A wet scrubber is a form of PM_{10} pollution control technology. In a wet scrubber, the polluted gas stream is brought into contact with the scrubbing liquid, by spraying it with the liquid, by forcing it through a pool of liquid, or by some other contact method, so as to remove the pollutants.

Scrubbers can be designed to collect particulate matter and / or gaseous pollutants. Wet scrubbers remove particulate by capturing them in liquid drops, while scrubbers remove pollutant gases by dissolving or absorbing them into the liquid. If the gas stream contains both particulate matter and gases, wet scrubbers are generally the only single air pollution control device that can remove both pollutants.

A typical wet scrubber process can be described as follows:

- Exhaust enters a venture scrubber where approximately half of the gases are removed.
- The gas flows through a second scrubber, a packed bed absorber, where the rest of the gases (and particulate matter) are collected.
- An entrainment separator or mist eliminator removes any liquid droplets that may have become entrained in the exhaust gas.
- A recirculation pump moves some of the spent scrubbing liquid back to the venture scrubber where it is recycled and the remainder is sent to a treatment system.
- Treated scrubbing liquid is recycled back to the saturator and the packed bed absorber.
- Fans and ductwork move to the exhaust gas stream through the system and eventually out the stack.

This control technology is technically feasible for PM_{10} emissions control at the Ausra Incorporated source. A wet scrubber is capable of controlling PM_{10} emissions to greater than 99.0 percent efficiency as found in the RBLC database.

The implementation of a baghouse, and ESP, application procedures, and a wet scrubber are all technically feasible control technologies for the control of PM_{10} in the coatings source. All four control technologies were ranked as follows:

1. Wet Scrubber System – PM_{10} control efficiency of >99.0 percent
2. Baghouse – PM_{10} control efficiency of >99.0 percent
3. Electrostatic Precipitator – PM_{10} control efficiency of 99.0 percent
4. Coating Application Procedures – PM_{10} control efficiency of 50.0 – 95.0 percent

Ausra will elect to implement the technically feasible control with one of the highest control efficiencies for $PM_{10,}$ the wet scrubber system. Additionally, Ausra will utilize coating application procedures that will further reduce potential emissions. As a result, further review of economic, environmental, and energy impacts are unnecessary. Based on the above analysis, Ausra proposes BACT for PM_{10} emissions from the main process bath line to be the use of a combination of implementing high transfer efficiency application procedures and the installation of a wet scrubber system.

HAPs

Clark Count Air Regulation 12.2.18 for HAPs is limited to stationary sources not subject to $PM_{10,}$ VOC, TCS requirements within the Regulations. Since Ausra is subject to PM_{10} requirements, no additional requirements are applicable for HAP emissions generated from the nickel compound coatings process. However, by default, HAP emissions will be reduced by the application of the wet scrubber for PM_{10} emissions. A review of the EPA RBLC database for similar coatings sources was completed and HAP control by a wet scrubber was determined to be best available control technology with 95.0 percent removal efficiency.

BACT for the Final Clear Coat Spray Booth

VOCs

As stated in Table 55.5(b)(1) of the Clark County Air Quality Regulations emission control required for a new nonmajor stationary source in the 8-hour ozone nonattainment areas must meet BACT design criteria for the atmospheric release of volatile organic compounds. VOCs will be generated from the ethanol solvent proposed for the use during the clear coat spray booth application step.

A review of the EPA RBLC database for similar coating sources was completed to determine available control technologies for VOCs. The RBLC database search indicated that the following technologies were available for control of VOCs:

1. Thermal Oxidation
2. Carbon Adsorption
3. Coating Formulations
4. Coating Application Procedures

Regenerative Thermal Oxidation

A RTO, sometimes referred to as an incinerator, converts HAPs and VOCs to carbon dioxide and water vapor through thermal oxidation. RTOs use regenerative heat transfer to achieve very high thermal efficiencies, which results in very low fuel cost. Through flow reversal, process gas is alternately heated then cooled in the thermal energy recovery chambers prior to being exhausted to the atmosphere.

Exhaust gas containing HAP and VOC is directed past the inlet isolation valve, into the exhaust fan and discharged into the inlet manifold where the gas is directed into one or two thermal energy recovery chambers that are on the inlet at that time. Valves designed alternate flow form one chamber to the next ensure the exhaust gas is directed to the proper chamber. As the gas passes thought the thermal energy recovery media, it gradually increases in temperature until it is very close to the combustion temperature (usually 1,500 °F). During this period, HAP and VOC are heated above the respective ignition temperature and thermal oxidation begins. After the gas exits the heat recovery media, it passes through the combustion chamber to ensure total conversion of the contaminants have occurred. At this point, a burner will add heat, if required, to maintain set point temperature.

The newly purified exhaust gas exits the oxidation chamber and enters a heat recovery chamber, which is on outlet at that time. Similar to the inlet, the exhaust gas passes through the heat recovery media, but this time, gradually decreasing in temperature until it is very close to the inlet temperature (within 100 °F on a 95.0 percent thermal energy recovery system). The cleaned exhaust gas is collected in the exhaust manifold, directed to the exhaust stack, and discharged to atmosphere.

Exhaust gas will continue to flow in an alternating pattern from one chamber to the next, exiting from the opposing chamber. The sequence is then reversed every 2 to 5 minutes to provide equal heating and cooling within each heat recovery chamber.

There are three essential components that must be present in order for effective oxidation to take place:

- Temperature – to achieve the correct temperature required to break the molecular bones of the individual chemical species in the waste stream into their basic elements to allow oxidation to take place.
- Turbulence – to ensure that all the chemical species in the waste stream are brought to the correct temperature by thorough mixing with the products of combustion in a turbulent environment. Thorough mixing is critical when the concentration of the chemical species is diluted and / or the waste stream is inert.
- Time – to maintain the temperature required for oxidation for sufficient length of time to ensure mixing and oxidation is fully completed.

EPA AP-42 indicates that thermal oxidation (incineration) is capable of 90.0 percent emissions reduction. The RBLC search indicates that removal efficiencies of 95.0 percent can be expected. A review of industry literature indicates that thermal oxidizes are capable of 99.0 efficiency for HAP and VOC. Higher temperatures, longer residence time, and substantial turbulence will further increase the efficiency level.

The use of a regenerative thermal oxidizer to control VOC from the spray booth operation is considered technically feasible. Controlling VOC with an RTO can produce removal efficiencies as high as 99.0 percent.

Carbon Adsorption

Carbon adsorption is a technological approach for treating industrial off-gases containing HAP and VOC. In carbon adsorption, the contaminants are removed from a vapor stream by physical adsorption onto the surfaces of “activated” carbon pellets, beads, granules, or powder.

The vapor emissions of an industrial process are blown or sucked by blowers and vacuum pumps through the activated carbon. The vapor-phase contaminants flow through a packed bed or vessel containing activated carbon and are absorbed onto the surface of the carbon until the concentration of HAP and VOC in the effluent from the carbon bed exceeds acceptable levels. Most adsorption systems consist of one or more vessels connected in series or parallel.

EPA AP-42 indicates that carbon adsorption is capable of 99.3 percent emissions reduction. The RBLC search indicates that removal efficiencies of 99.3 percent can be achieved. A review of industry literature indicates that well-designed adsorber systems should achieve 95.0 to 98.0 percent efficiency in pollutant removal.

The use of a carbon adsorption system to control VOC from the spray booth operation is considered technically feasible. Control efficiency for a carbon adsorption system for VOC can be as high as 99.3 percent.

Coating Formulations

By limiting the concentration of HAP and VOC in the coating material applied to the piping, HAP and VOC emissions in the exhaust stream will be minimized. By using the lowest concentration of HAP and VOC materials possible, while still achieving desired product specifications, emissions of HAP and VOC can be controlled and reduced to below significant levels.

EPA AP-42 indicates that by using low HAP and low VOC containing coatings, emissions removal efficiencies can range from 60.0 to 98.0 percent.

Ausra Incorporated has identified the properties for the silicone based coating to be integral to the expected performance of the piping in its intended use. This process is a new proprietary process and alternative formulations are not yet available. Ausra Incorporated will consider this control technology as mush as feasible, but alternative coating formulations are not currently technically feasible control technology for the final clear coat spray booth within the source.

Coating Applications Procedures

Application methods which ensure high transfer efficiency of the coatings material onto the surface of the piping are ideal in reducing the amount of HAP and VOC emissions in

the exhaust stream. Such methods include using an atomized spray, electrostatic spray, roller coating, knife coating, dip coating, and flow coating.

EP AP-42 indicates that by utilizing high-transfer efficiency application methods, emissions removal efficiencies can range from 50.0 to 95.0 percent.

Ausra Incorporated has identified the properties of the spray painting procedures to be integral to the application of the final coat and the expected performance of the piping for its intended use. Therefore, this control technology is not technically feasible for the final clear coat spray booth within this source.

The following four control technologies were determined to be technically feasible for the control of VOC:

1. Carbon Adsorption – HAP and VOC control efficiency of 99.3 percent
2. RTO – HAP and VOC control efficiency of 99.0 percent
3. Coating Reformulation – HAP and VOC control efficiency of 60.0 to 98.0 percent
4. Coating Application Procedures – HAP and VOC control efficiency of 50.0 to 95.0 percent

Steps 3, 4, and 5 of the BACT process consist of an evaluation of economics, energy, and environmental impacts. Though an RTO and carbon adsorption have essentially the same control efficiency, Ausra has concerns regarding the use of the RTO. A review of EPA AP-42 literature indicates that the RTO technology has a very high cost associated with having to heat the incoming exhaust stream. The cost of auxiliary fuel (utility costs) can often exceed the cost of carbon replacement, making RTO cost-prohibitive with little to no control benefit over carbon adsorption.

There are also environmental regulatory concerns about using RTO technology. Although RTOs are capable of treating waste streams containing virtually all VOC concentrations, incomplete combustions will occur if sufficient oxygen is not present or if the “three T’s” are not adequately addressed (temperature, time, and turbulence). Other potential limitations include community acceptance and ability to obtain the necessary permits for operation.

The oxidation process can result in treated vapor streams that contain undesirable byproducts including:

- Carbon dioxide
- Water
- Products of Incomplete Combustion
- Untreated VOC
- Carbon Monoxide
- Toxic Compounds

Finally, RTOs are generally more complex to start up and operate than carbon treatment systems and require more maintenance. More operator training is required than for adsorption systems to address safety considerations, management of auxiliary fuel, and other system issues.

Ausra Incorporated will elect to implement the technically feasible control technology with the highest and most reliable control efficiency for VOC, the carbon adsorption system. Thus, further review of economic, environmental, and energy impacts are unnecessary. Base on the above analysis, Ausra proposes BACT for VOC emissions form the new clear coat spray booth to be the use of a carbon adsorption collection system. The carbon adsorption system is proposed to be the Camsorb Riga-Carb manufactured by Camfil Farr.

PM_{10}

Clark County Air Quality Regulation 12.2.1.2 states that any new nonmajor source in the serious nonattainment area shall incorporate emission controls for PM_{10} emissions which are designed for the BACT. Particulate emissions are expected to be generated during the silica based clear coat spray booth operations.

A review of the EPA RBLC database for similar coating sources was completed to determine available control technologies for PM_{10}. The RBLC database search indicated that the following technologies were available for control of PM_{10}.

1. Fabric Filter / Baghouse
2. Coating Application Procedures

Fabric Filter / Baghouse

Commonly known as baghouses, fabric collectors use filtration to separate particulate from exhaust streams. They can achieve a collection efficiency of more than 99.0 percent for very fine particulates. Particulate-laden gases enter the baghouses and pass through fabric bags that act as filters. The bags can be woven or felted cotton, synthetic, or glass-fiber material in either a tube or envelope shape. The high efficiency of these collectors is due to the particulate cake formed on the surfaces of the bags. The fabric primarily provides a surface on which particulates collect through the following four mechanisms:

- Intertial Collection – Dust particles strike the fibers placed perpendicular to the gas-flow direction instead of changing direction with the gas stream.
- Interception – Particles that do not cross the fluid streamlines come in contact with fibers because of the fiber size.
- Brownian Movement – Sub micrometer particles are diffused, increasing the probability of contact between the particles and collecting surfaces.
- Electrostatic Forces – The presence of an electrostatic charge on the particles and the filter can increase particle capture.

The use of a baghouse to control particulate emissions from the coating operations is considered technically feasible. The control efficiency of baghouses for PM_{10} is typically greater than 99.0 percent as found in the RBLC database.

Coating Application Procedures

Application methods which ensure high transfer efficiency of the coating material onto the surface of the piping are ideal in reducing the amount of PM_{10} emissions in the exhaust stream. Such methods include using an atomized spray, electrostatic spray, roller coating, knife coating, dip coating, and flow coating.

EPA AP-42 indicates that by using high-transfer efficiency application methods, emissions removal efficiencies can range from 50.0 to 95.0 percent.

Ausra has identified the properties of the spray painting procedures to be integral to the application of the final coat and the expected performance of the piping for its intended use. Therefore, this control technology is not technically feasible for the final clear coat spray booth within the coatings source.

The following are the two feasible PM_{10} control technologies for the final clear coat spray booth:

1. Fabric Filter – PM_{10} control efficiency of 99.0 percent
2. Coating Application Procedures – PM_{10} control efficiency of 50.0 to 95.0 percent

Ausra will elect to implement the fabric filter control technology, which has the highest control efficiency. Thus, further review of economic, environmental, and energy impacts are unnecessary. Based on the above analysis, Ausra proposes BACT for PM_{10} emissions from the final clear coat spray booth to be the use of a combination of implementing high transfer efficiency application procedures and the installation of a baghouse / fabric filter. In particular, Ausra proposes to use a Gold Series GS-Mini single cartridge dust collector manufactured by Farr Air Pollution Control.

BACT for Ausra Robotics Source

The robotics source will assemble galvanized reflector frames to be used in the solar fields. Reflector frame components, including decking sheets and mirror glass, are robotically welded and assembled to produce a finished reflector frame assembly.

The main processes that will take place in this assembly are welding of the galvanized reflector frames within an enclosed robot weld cell, and the application of the adhesive to the mirror glass.

The cold metal transfer welding will be conducted via robotic machinery, using welding rods composed of copper and silicon. Additionally, during the welding process, the

galvanized zinc layer in the area being welded will vaporize. PM_{10} emissions are expected to result from both the welding rod usage and from the vaporization of the galvanized zinc layer.

The welding cell will be completely enclosed and will vent to one main control system. The BACT analysis below illustrates the selection process of the control system that Ausra is proposing to implement at their robotics source.

The adhesive will be applied to the mirrors in an enclosed system and captured in a vacuum duct that will vent to a carbon adsorption system. VOC and HAP are expected to be generated during the application of the adhesive.

Welding Cell – PM_{10}

Clark County Air Quality Regulation 12.2.1.2 states that any new non-major source in the serious nonattainment area shall incorporate emission controls for PM_{10} emissions which are designed for the BACT. Particulate emissions are expected to be generated during the welding process from the vaporization of the zinc layer and the weld rod use.

A review of the EPA RBLC database for similar coating sources was completed to determine available control technologies for PM_{10}. The RBLC database search indicated that the following technologies were available for control of PM_{10}:

1. Welding Rod Usage Limit
2. Good Operating Practices

Welding Rod Usage Limit

This control technology consists of limiting the amount of welding rods utilized within a certain time frame, to minimize emissions such that no PM_{10} emissions limits or thresholds are exceeded. This would limit the amount of PM_{10} emissions resulting from the copper / silicon welding rod usage. This technology would be technically feasible for reduction of PM_{10} emissions at the Ausra robotics source.

Good Operating Practices

This control technology consists of implementing good operating practice in order to minimize emissions, such that no PM_{10} emissions limits or thresholds are exceeded. This would limit the amount of PM_{10} emissions resulting from the copper / silicon welding rod usage, as well as PM_{10} resulting from the vaporization of the zinc layer. This technology would be technically feasible for reduction of PM_{10} emissions at the Ausra robotics source.

BACT for the Robotics Line (Welding Cell)

Since both the implementation of good operating practices and limiting welding rod usage is technically feasible, Ausra will elect to implement both of these technologies to control the PM_{10} emissions expected to result from the robotics line activities. Thus, further review of economic, environmental, and energy impacts are unnecessary.

In addition, Ausra will elect to implement an add-on control technology with an even-higher percent emissions reduction efficiency. Ausra plans to install a fabric filter / baghouse on the exhaust stack at the robotics source. All emissions resulting from welding operations within the welding cell will vent to the baghouse before being emitted to the atmosphere. Below is a description of a typical baghouse technology.

Fabric Filter / Baghouse

Commonly known as baghouses, fabric collectors use filtration to separate particulate from exhaust streams. They can achieve a collection efficiency of more than 99.0 percent for very fine particulates. Particulate-laden gases enter the baghouses and pass through fabric bags that act as filters. The bags can be woven or felted cotton, synthetic, or glass-fiber material in either a tube or envelope shape. The high efficiency of these collectors is due to the particulate cake formed on the surfaces of the bags. The fabric primarily provides a surface on which particulates collect through the following four mechanisms:

- Intertial Collection – Dust particles strike the fibers placed perpendicular to the gas-flow direction instead of changing direction with the gas stream.
- Interception – Particles that do not cross the fluid streamlines come in contact with fibers because of the fiber size.
- Brownian Movement – Sub micrometer particles are diffused, increasing the probability of contact between the particles and collecting surfaces.
- Electrostatic Forces – The presence of an electrostatic charge on the particles and the filter can increase particle capture.

Even thought the baghouse technology did not show up during the RBLC search for welding operations, this control technology would be technically feasible for controlling unexpected PM_{10} emissions at the Ausra robotics source. Therefore, Ausra proposes BACT for PM_{10} emissions from the robotics source (welding cell) to be the use of a combination of implementing good operating practices, limiting welding rod usage, and installing a baghouse filter system with a minimum control of 90.0 percent.

BACT for the Robotics Source (Adhesive Application)

VOCs

As stated in Table 55.5(b)(1) of the Clark County Air Quality Regulations emission control required for a new non-major station source in the 8-hour ozone nonattainment areas must meet BACT design criteria for the atmospheric release of volatile organic

compounds. VOCs will be generated from the application of the adhesive to the mirror glass.

A review of the EPA RBLC database for similar coating sources was completed to determine available control technologies for VOCs. The RBLC database search indicated that the following technologies were available for control of VOCs:

1. Thermal Oxidation
2. Carbon Adsorption
3. Adhesive Formulations
4. Adhesive Application Procedures

Regenerative Thermal Oxidation

A RTO, sometimes referred to as an incinerator, converts HAPs and VOCs to carbon dioxide and water vapor through thermal oxidation. RTOs use regenerative heat transfer to achieve very high thermal efficiencies, which results in very low fuel cost. Through flow reversal, process gas is alternately heated then cooled in the thermal energy recovery chambers prior to being exhausted to the atmosphere.

Exhaust gas containing HAP and VOC is directed past the inlet isolation valve, into the exhaust fan and discharged into the inlet manifold where the gas is directed into one or two thermal energy recovery chambers that are on the inlet at that time. Valves designed alternate flow form one chamber to the next ensure the exhaust gas is directed to the proper chamber. As the gas passes thought the thermal energy recovery media, it gradually increases in temperature until it is very close to the combustion temperature (usually 1,500 °F). During this period, HAP and VOC are heated above the respective ignition temperature and thermal oxidation begins. After the gas exits the heat recovery media, it passes through the combustion chamber to ensure total conversion of the contaminants have occurred. At this point, a burner will add heat, if required, to maintain set point temperature.

The newly purified exhaust gas exits the oxidation chamber and enters a heat recovery chamber, which is on outlet at that time. Similar to the inlet, the exhaust gas passes through the heat recovery media, but this time, gradually decreasing in temperature until it is very close to the inlet temperature (within 100 °F on a 95.0 percent thermal energy recovery system). The cleaned exhaust gas is collected in the exhaust manifold, directed to the exhaust stack, and discharged to atmosphere.

Exhaust gas will continue to flow in an alternating pattern from one chamber to the next, exiting from the opposing chamber. The sequence is then reversed every 2 to 5 minutes to provide equal heating and cooling within each heat recovery chamber.

There are three essential components that must be present in order for effective oxidation to take place:

- Temperature – to achieve the correct temperature required to break the molecular bones of the individual chemical species in the waste stream into their basic elements to allow oxidation to take place.
- Turbulence – to ensure that all the chemical species in the waste stream are brought to the correct temperature by thorough mixing with the products of combustion in a turbulent environment. Thorough mixing is critical when the concentration of the chemical species is diluted and / or the waste stream is inert.
- Time – to maintain the temperature required for oxidation for sufficient length of time to ensure mixing and oxidation is fully completed.

EPA AP-42 indicates that thermal oxidation (incineration) is capable of 90.0 percent emissions reduction. The RBLC search indicates that removal efficiencies of 95.0 percent can be expected. A review of industry literature indicates that thermal oxidizes are capable of 99.0 efficiency for HAP and VOC. Higher temperatures, longer residence time, and substantial turbulence will further increase the efficiency level.

The use of a regenerative thermal oxidizer to control VOC from the spray booth operation is considered technically feasible. Controlling VOC with an RTO can produce removal efficiencies as high as 99.0 percent.

Carbon Adsorption

Carbon adsorption is a technological approach for treating industrial off-gases containing HAP and VOC. In carbon adsorption, the contaminants are removed from a vapor stream by physical adsorption onto the surfaces of “activated” carbon pellets, beads, granules, or powder.

The vapor emissions of an industrial process are blown or sucked by blowers and vacuum pumps through the activated carbon. The vapor-phase contaminants flow through a packed bed or vessel containing activated carbon and are absorbed onto the surface of the carbon until the concentration of HAP and VOC in the effluent from the carbon bed exceeds acceptable levels. Most adsorption systems consist of one or more vessels connected in series or parallel.

EPA AP-42 indicates that carbon adsorption is capable of 99.3 percent emissions reduction. The RBLC search indicates that removal efficiencies of 99.3 percent can be achieved. A review of industry literature indicates that well-designed adsorber systems should achieve 95.0 to 98.0 percent efficiency in pollutant removal.

The use of a carbon adsorption system to control VOC from the spray booth operation is considered technically feasible. Control efficiency for a carbon adsorption system for VOC can be as high as 99.3 percent.

Adhesive Formulations

By limiting the concentration of HAP and VOC in the adhesive material applied to the piping, HAP and VOC emissions in the exhaust stream will be minimized. By using the lowest concentration of HAP and VOC materials possible, while still achieving desired product specifications, emissions of HAP and VOC can be controlled and reduced to below significant levels.

EPA AP-42 indicates that by using low HAP and low VOC containing coatings, emissions removal efficiencies can range from 60.0 to 98.0 percent.

Ausra has identified the properties for the adhesive material to be integral to the expected performance of the adhesive in its intended use. Therefore, this control technology is not technically feasible for the adhesive application process within the robotics source.

Adhesive Application Procedures

Application methods which ensure high transfer efficiency of the adhesive material onto the mirror glass are ideal in reducing the amount of HAP and VOC emissions in the exhaust stream. Such methods include using an atomized spray, electrostatic spray, roller coating, knife coating, dip coating, and flow coating.

EP AP-42 indicates that by utilizing high-transfer efficiency application methods, emissions removal efficiencies can range from 50.0 to 95.0 percent.

Ausra has identified the properties of the adhesive application procedure to be integral to the expected performance of the mirror glass for its intended use. Therefore, this control technology is not technically feasible for the adhesive application process within the robotics source.

The following two control technologies were determined to be technically feasible for the control of VOC:

1. Carbon adsorption – HAP and VOC control efficiency of 99.3 percent
2. RTO – HAP and VOC control efficiency of 99.0 percent

Steps 3, 4, and 5 of the BACT process consist of an evaluation of economics, energy, and environmental impacts. Though an RTO and carbon adsorption have essentially the same control efficiency, Ausra has concerns regarding the use of the RTO. A review of EPA AP-42 literature indicates that the RTO technology has a very high cost associated with having to heat the incoming exhaust stream. The cost of auxiliary fuel (utility costs) can often exceed the cost of carbon replacement, making RTO cost-prohibitive with little to no control benefit over carbon adsorption.

There are also environmental regulatory concerns about using RTO technology. Although RTOs are capable of treating waste streams containing virtually all VOC concentrations, incomplete combustions will occur if sufficient oxygen is not present or if

the “three T’s” are not adequately addressed (temperature, time, and turbulence). Other potential limitations include community acceptance and ability to obtain the necessary permits for operation.

The oxidation process can result in treated vapor streams that contain undesirable byproducts including:

- Carbon dioxide
- Water
- Products of Incomplete Combustion
- Untreated VOC
- Carbon Monoxide
- Toxic Compounds

Finally, RTOs are generally more complex to start up and operate than carbon treatment systems and require more maintenance. More operator training is required than for adsorption systems to address safety considerations, management of auxiliary fuel, and other system issues.

Ausra Incorporated will elect to implement the technically feasible control technology with the highest and most reliable control efficiency for VOC, the carbon adsorption system. Thus, further review of economic, environmental, and energy impacts are unnecessary. Base on the above analysis, Ausra proposes BACT for VOC emissions from the adhesive application process to be the use of a carbon adsorption system.

HAP

Clark Count Air Regulation 12.2.18 for HAPs is limited to stationary sources not subject to $PM_{10,}$ VOC, TCS requirements within the Regulations. Since Ausra is subject to PM_{10} requirements, no additional requirements are applicable for HAP emissions generated from the nickel compound coatings process. However, by default, HAP emissions will be reduced by the application of the wet scrubber for PM_{10} emissions. A review of the EPA RBLC database for similar coatings sources was completed and HAP control by a carbon adsorption system was determined to be best available control technology.

Other Applicable Regulations

Pursuant to AQR Section 40 and 43, this source shall be operated in a manner such that odors will not cause a nuisance. 40 CFR 63, Subpart HHHHHH is not applicable to the clear coating line because the coating is applied in an enclosed, automated booth. 40 CFR 63, Subpart HHHHHH is not applicable to adhesive application.

Compliance Demonstration

Standard compliance demonstrations shall be observed by maintaining records that report the VOC and HAP content of each VOC containing compound utilized by the source.

Such records shall be kept on-site at all times and made available to the DAQEM upon request.

Compliance with the VOC and HAP emissions from carbon adsorption system(s) (EUs: A08, A09 and A12) shall be demonstrated by monitoring the VOC concentration at the inlet and outlet of the carbon adsorption system(s) using a PID. Tests shall be performed on active carbon adsorption system(s) outlet monthly until a positive reading for VOC is recorded. A positive reading requires that the inlet and the outlet of the carbon adsorption system be tested bi-weekly (i.e., every two weeks). The owner/operator shall replace the activated carbon bed before the outlet VOC concentration exceeds 1.0 percent of the inlet concentration.

Compliance with the AQR Section 26 opacity standards contained within the ATC/OP shall be demonstrated, when required by the Control Officer, in accordance with one of the following, as applicable:

a. When an emission unit operates or activity continues for more than 1 consecutive hour for any given period, then 40 CFR 60 Appendix A, Method 9 (Standards for Opacity), the test therein shall be applied to determine compliance.
b. When an emission unit operates or activity occurs intermittently during a 1-hour period, then AQR Subsection 94.12.3, Intermittent Emissions Method, the test therein shall be applied to determine compliance.

Pursuant to AQR Section 25, any upset/breakdown or malfunction that cause emissions of regulated air pollutants to exceed any limits set by the AQR or by this permit, shall be reported to the Control Officer within 1 hour of the onset of such event.

Performance Testing

The owner/operator shall conduct performance testing on the wet scrubber and carbon adsorption systems according to the following conditions (EUs: A01 through A07, inclusive, and A08, A09 and A12):

1. Performance testing is subject to 40 CFR 60, (as amended), and DAQEM Guideline on Performance Testing, (as revised). Performance testing shall be the initial instrument for determining compliance with emission limitations set forth in Tables 1-6 of this document.
2. Initial performance tests shall be conducted within 60 days after achieving the maximum production rate at which the source will be operated but no later than 180 days after initial startup.
3. The owner/operator shall submit for approval a performance testing protocol which contains test, reporting, and notification schedules, test protocols, and anticipated test dates to the DAQEM Compliance Stationary Sources Supervisor and to the Enforcement Office of the US EPA, Region IX, at least 45 days prior to the anticipated test date but not more than 90 days prior to the anticipated test date.

4. A report describing the results of the performance test shall be submitted to the DAQEM Compliance Stationary Sources Supervisor and to the Enforcement Office of the US EPA, Region IX, within 60 days from the end of the performance test.
5. An initial performance test shall be conducted on the wet scrubber, which is the method of control for the Main Coating Application Line (EUs: A01 through A07, inclusive). The initial performance test shall ensure that a control efficiency of at least 95.0 percent is achieved for the emissions of HAP and a control efficiency of 99.0 percent is achieved for the emissions of PM_{10}.
6. An initial performance test shall be conducted on the carbon adsorption systems, which is a method of control for VOC and HAP emitting activities (EUs: A08, A09 and A12). The initial performance test shall ensure that a control efficiency of at least 99.0 percent is achieved for the emissions of VOC and HAP.
7. Pursuant to Section 10 (as revised), the owner/operator of any stationary source or emissions unit that fails to demonstrate compliance with the emissions standards or limitations during any subsequent performance test, shall submit a compliance plan to DAQEM Compliance Stationary Sources Supervisor, within 90 days from the end of the performance test.
8. Design specifications for the wet scrubber and carbon adsorption systems will be accepted in place of an initial performance test.
9. Pursuant to AQR Subsection 4.5 (as revised), additional performance testing may be required by the Control Officer.

TABLE III-F-1: Performance Testing Protocol Requirements

Test Point	Pollutant	Method
Baghouses	PM_{10}	Method 5 or Method 17
Wet Scrubber	PM_{10}	Method 5 or Method 17
Carbon Adsorber	VOC and HAP	Method 18 or Method 25a
Nickel	HAP	Method 29
Stack Gas Parameters	-	EPA Methods 1, 2, 3A, and 4

Mitigation

There are no federal offset requirements.

Increment

Increment analysis is not required for this ATC/OP.

Public Notice

Public notice is not required for this ATC/OP.

Permitting History

1. An application for an ATC/OP was submitted on December 14, 2007.
2. A TSD and ATC/OP were drafted and submitted for review on March 20, 2008.

PROOF OF SERVICE

I, Bonnie Heeley, declare that on March 10, 2009, I served and filed copies of the attached **Gulesserian Letter to Larry R. Allen, re: Carrizo Energy Solar Farm – Manufacturing Building.** The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list. 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:

The documents was also sent electronically to all email addresses on the Proof of Service list and by U.S. Mail at South San Francisco, California, with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." An original paper copy and one electronic copy were mailed and emailed respectively to the Docket Office of the California Energy Commission.

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I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA this 10th day of March, 2009.

_____/s/_____
Bonnie Heeley