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STATE OF CALIFORNIA

STATE ENERGY RESOURCES

Conservation and Development Commission

In the Matter of:	Docket No.: 06-AFC-6
APPLICATION FOR CERTIFICATION FOR THE EASTSHORE ENERGY CENTER	GROUP INTERVENORS OPENING BRIEF ON CONTESTED ISSUES

Without waiving any entitlement to supplement or amend this statement, including joining in with any other party's position, Group intervenors California Pilots Association ("Calpilots"), San Lorenzo Village Homes Association and Hayward Area Planning Association ("Hapa")[1], set forth the following contested issues and identify the following exhibits and testimony.

Group intervenors point out that the burden is on the applicant to establish conformance with federal, state and local laws which it has failed to do with respect to land use, transportation, public health and air. Assuming that the applicant's position is that the noise mitigations suggested by CEC Staff and objected to by the applicant are technologically infeasible, the application then results in that additional non-conformance.

If the CEC intends to entertain the applicant's request to override certain non-conformities, group intervenors point out that the CEC as a matter of law may not override the non-conformities with federal law and further argues that certain matters, such as the creation of airport hazards, the Legislature also has determined may not be overridden by authorizing local authorities, such as the County and city, to remove such hazards to airports. (See legal authorities cited in December 4, 2007 declaration of Jay White, Exhibit 711 and October 24, 2007 declaration of Mr. White, Exhibit 712.)

Group intervenors further contest that the facility is "required for public convenience and necessity" and contest that "there are not more prudent and feasible means of achieving that public convenience and necessity." (Public Resource Code, sec. 25525.)

Objections To The Hearing Officer's Improper Treatment And Apparent Exclusion Of Group Intervenor Exhibits: In the last circulation of the exhibit list, without inviting any briefing, Exhibits 729, declaration of Gary Cathey of California Transportation Aeronautics; Exhibit 716, declaration of Sherman Lewis of Hapa; Exhibit 730, declaration of Terry Preston of the San Francisco Bay Chapter of the Sierra Club; and Exhibit 731, declaration of Bill Dunn of the

[1] Throughout the record, group intervenors also have been referred to as Group petitioners.

Airports Division of the Aircraft Owners and Pilots Association were prejudicially excluded. All of these declarations were submitted under penalty of perjury and it would constitute prejudicial error to exclude relevant information that would support a determination of the CEC.

Group intervenors' objections to and motion to strike "statements" of Scott Galati: Group intervenors object to and move to strike from the record the "statements" of Scott Galati, an attorney for PG&E who appeared at the hearing on January 14, 2008, without being called as a witness by any party. (Jan. 14, 2008.R.T. 344-365.) Insofar the CEC seeks to learn the position of PG&E, Mr. Galati confirmed that the May 9, 2007 letter docketed with the CEC continues to represent PG&E's position on this matter. Mr. Galati was not under oath and disclosed that PG&E entered into a contractual relationship with the applicant's predecessor which remains confidential and upon which the applicant earlier represented at the prehearing conference it did not rely on in support of its application.

1. The project violates federal aviation law, and state and local land use and transportation laws by creating a hazardous condition for the Hayward Airport jeopardizing the public's health and safety which may not be mitigated by, among other things, interfering with airspace regulated by federal law.

The evidence is substantial: Exhibits 200, 203. 294, 208 & 209: FSA, sections 4.10, Traffic & Transportation and section 4.5, Land Use.; Exhibits 203. Letter from Gary Cathey; 204, 208 & 209; Exhibits 416: letter from George Aiken Manager of Safety & Standards; Exhibit 727: letter from Andy Richards, District Manager of San Francisco Air Traffic Control District dated December 18, 2007; Exhibits 711 and 712: declarations of Jay White dated October 24, 2007 and December 4, 2007; Exhibits 713 and 714, declarations of Carol Ford dated December 6, 2007 and November 6, 2007; Exhibit 715, Federal Aviation Administration Grant Agreement dated September 16, 2002, Exhibit 731

Dec. 18, 2007 testimony of James Adams, Shaelyn Stratten, Eric Knight R.T. 80: 18 -82: 17; 85:11-89:19, 289:4-290:24; William Walters 82:19-84: 4 & 89:21 – 109:16; Gary Cathey, R.T. 112:4 – 9. 116: 2-125:10; David Butterfield, R.T. 112:21- 193:6-195:10, 279:12-282:24, . 114:24 – 115:25, 292:10-294:6; Andy Richards, R.T. 173: 14- 179:3, 269:5 – 14, 283: 4 - 24 Robert Bauman R.T. 126:16-132:21, 133:20-136:8, 137:6 – 139:4, 142:6-144:25, David Needle: 146:5 - 159:13- Jay White, R.T. 196:14-199:14; 200:24-203:17. 306: 5-307:1, Carol Ford, Dec. 18, 2007 R.T. 204:13-214:13.

2. Group petitioners contest that the facility is "required for public convenience and necessity and contest that "there are not more prudent and feasible means of achieving that public convenience and necessity." (Public Resource Code, sec. 25525.)

Declaration of Sherman Lewis prepared for December 18, 2007 and distributed on January 14, 2008. January 14, 2008 R.T. 56:13- 67:9 and portions of the CEC's 2007 Integrated Energy Policy Report – IEPR Committee Final. Group intervenors also refer to the email communications submitted by Stephen Schneider of Stanford University directed to counsel for Group intervenors.

Not adequately explored are the alternatives to achieve public convenience and necessity as required by section 25525 of the Public Resource Code. Further, the analysis needs to address and incorporate the approval of the 300 megawatt plant in San Francisco. Still unexplained is why repowering existing sites will not satisfy that necessity, such as could be explored for the Pittsburg power plant, Delta Energy Center, Moss Landing, and Contra Costa power plants.

Based on the present record, Group intervenors dispute that this project would "decrease fossil fuel use, water use, or air emissions" as set forth on pages 1-9 to 1-10.

3. Impacts on Aviation And Compliance With Hayward Airport's Noises Abatement Procedures Regarding Width Of Thermal Plume And Cumulative Impact Combined With The Impact Of The RCEC 1,000 Foot High Thermal Plume Remain Undisclosed And Not Subject To Mitigations.

Not stated in the FSA nor disclosed at the evidentiary hearing is the anticipated "width" of

the EEC thermal plume in relation to the "width" of the RCEC thermal plume. Group intervenors recognize that these thermal emissions will differ between plants in velocity, however, this information is necessary in order to analyze any effectiveness of any proposed mitigations given pilots would be expected to avoid these plumes, which according to the FSA are "at times" invisible. This important question necessary to calculate and determine the impacts, including cumulatively with RCEC, and particularly how pilots are expected to address wind shear or vortices warnings when aircraft departs Hayward's runway 28-L caused by incoming commercial and cargo carriers approaching Oakland runway 29. Dec. 18, 2007 R.T., testimony of Larry Berlin, 158:16-159:13.

Also not included is the impact on the ability of pilots to comply with noise abatement procedures and to follow traffic patterns. According to Mr. Richards' testimony of the FAA, this proposal would require an "alteration to the national airspace system" which would require "a complete safety and risk analysis" applying current federal standards, none of which has been done. Dec. 18, 2007 R.T. 177:12-22.

4. The Failure To Address The Socio-Economic Impacts By The Violation Of City And FAA Grant Assurance Agreements Incorporating Federal Regulatory And Statutory Law.

Under Land Use, pages 4.5 -28. the FSA states the following:

> **Public Comment**
> Staff has been advised by the California Association of Pilots that they are concerned about the Eastshore project site being within one mile of the Hayward Airport (staff believes its just outside a mile) and it would limit airspace use. They are also concerned that the project would violate the city of Hayward's agreement to keep the airport free of hazards as noted in two grant assurances with the FAA. These involve hazard removal, mitigation and compatible land uses. These issues were discussed in the Alameda County LUPP and Hayward General Plan sections of this analysis.
> ==========

Comment:

> There is no consequence listed here i.e. losing or having to refund money to the FAA or not being eligible for funding future project. **No studies have been done to reflect net financial loss of funds to affect safety of airport**.

(Emphasis added.)

Group petitioners contend that required information to complete the FSA is a study to reflect the net financial loss and overall safety of the airport in light that construction and operation of this plant and the RCEC plant constitute the creation and approval of hazardous conditions. Without such an analysis, there is no adequate socio-economic impact disclosure. Nevertheless, based on the evidence before the CEC presented at the evidentiary hearing, such a project would have a very adverse socio-economic impact to both the City and East Bay region as a whole. Declaration of Carol Ford & Exhibit 407.

5. The Non-conformance With Air Quality and Public Health State And Federal Requirements.

Group intervenors contest that the acute and chronic non-cancer health risks posed by the resulting concentrations of Toxic Air Contaminants or TACs at the impacted receptors fall under the level of significance as established by OEHHA as utilized by the applicant or CEC staff applying

the CATEF emission factor database to predict the Toxic Air Contaminant ("TAC") emissions.

Group intervenors contest that Applicant and Staff's analyses was based on sufficient data and assert that those analyses did not conform to CARB or EPA guidelines, and is thus incomplete and inconclusive. As a result, neither applicant nor CEC staff has effectively made a supportable determination under applicable LORS that the health risk posed by the Eastshore plant is less than significant.

Evidence: General statements by Staff:

Summary of conclusions (FSA p4.7-1): "emissions from Eastshore would not contribute significantly to morbidity or mortality in any age or ethnic group residing in the project area."

FSA p4.7-10, last paragraph: "staff uses emission factors from similar engines tested and reported on the California Air Resources Board's data base called CATEF (California Toxic Emission Factors)."

FSA p4.7-11, first paragraph: "Staff also uses the CATEF data base in its health risk assessment. A more detailed discussion of the CATEF data base and a comparison with U.S. EPA emission factors (referred to as AP-42 emission factors) can be found in Public Health Appendix B."

FSA p4.7.12, first paragraph under "Impacts" heading, FSA p4.7-12, public health table 3: indicating that at the point of maximum impact, the "acute noncancer hazard index" is 0.66 and the "chronic noncancer hazard index" is 0.23, and that "both acute and chronic hazard indices are under the significance level of 1.0, indicating that no short- or long-term adverse health effects are expected."

In contrast with applicant's and CEC staff's statements and methods, Group intervenors evidence establishes the following facts which remains unrebutted:

1. The Eastshore engines have not been sufficiently tested or inadequate data has been provided with regards to emission prediction necessary for use in urban areas requiring to such that the need to gain predictive data from other kinds of engines is important:

Ex. 707: CATEF- Detail Report for Acrolein, SCC 20200202 Stationary Natural Gas Reciprocating Internal Combustion Engines, 4-stroke, lean burn >650hp: Indicates only 2 sources for data, and has the *lowest* population rating. By comparison the equivalent report for SCC 20200203 (Natural Gas Turbines) lists 6 sources, and the highest population rating.

FSA p4.7-10, last paragraph: "In this case, stack emissions from the 14 Wartsila engines have not been measured by a "source test" and thus staff uses emission factors from similar engines tested and reported on the California Air Resources Board's data base called CATEF (California Toxic Emission Factors)."

FSA p4.1-35: Although **only one percent of the total installed capacity in the state is provided by reciprocating internal combustion engines** (CEC 2005), and **this particular model of engine would be new in California**, many smaller facilities that exist can provide a useful basis from which regulators can draw performance experience (ARB 2002).

2. Current CARB and EPA policies recommend the use of the EPA's AP-42 instead of the CATEF database to provide the acrolein emission factor for Stationary Natural Gas Fueled Reciprocating Internal Combustion Engines, 4-stroke, lean burn, greater than 650bhp in this situation. Two factors, a low test population and a decertified sampling method, also contribute to the insufficiency of the CATEF database.

> Ex. 706- CATEF front page: **Users should be aware that the sampling method puts the acrolein emission factors in doubt and until we resolve this issue, the ARB does not recommend using these emission factors.**
>
> Ex. 707: CATEF- Detail Report for Acrolein, SCC 20200202 Stationary Natural Gas Reciprocating Internal Combustion Engines, 4-stroke, lean burn >650hp: Indicates only 2 sources for data, and has the lowest population rating.
>
> Ex. 705: AP-42 Background Document for Natural Gas Fired Reciprocating Engines p3.10: The EPA has identified that **for lean-burn engines**, the California Air Resource Board **(CARB) 430 measurement method for quantifying aldehyde emissions may have interference problems** with the 2, 4-dinitrophenylhydrazine (DNPH) solution. This is due to the expected high concentrations of N2 and O2 percent in the engine exhaust stream. In such cases, the **reported aldehyde measurements may be biased low**. Emission factors based only on FTIR are presented in the AP-42 section for lean burn engines. Separate factors for FTIR and CARB 430 are presented in this document. However, the **EPA recommends aldehyde emission factors that are based on FTIR measurements for lean-burn engines**. The FTIR is a real-time measurement method approved by the EPA and is capable of monitoring aldehyde emissions
>
> R.T. Dec. 17, 2007, 201: 13-24, testimony of Dr. Greenberg:
>
> 13 Now I would caution you about using an
> 14 emission factor for acrolein from another source
> 15 such as the US EPA AP-42 tables. The reason I
> 16 would caution you is two-fold. I spoke with the
> 17 Air Resources Board staffer who is basically in
> 18 charge of the California database. And it is his
> 19 opinion that the emission factors for acrolein
> 20 from US EPA or California are based on the same
> 21 methodology. And that the methodology, both have
> 22 both of them. Therefore the numbers are as good
> 23 as the other and does not recommend that I use
> 24 another number from another agency.

Dr. Greenberg's testimony is contradicted by the above evidence. Group intervenors object to any reliance on an unnamed unknown undisclosed CARB "staffer" who Dr. Greenberg relies on to support his refusal to apply the EPA AP-42 database. Group intervenors contest Dr. Greenberg's claims that the two databases are based on the same methodology, The CATEF database acrolein emission factors, according to state CARB recommendations, are based on an "in-doubt" sampling method, and the EPA's AP-42 database acrolein emission factors are based on the EPA certified FTIR emission factor. The result leads to the databases to differ by a large multiple and therefore an unreliable analysis.

R.T. Dec. 17, 2007 201: 25 – 202: 21: testimony of Dr. Greenberg:

25 The second reason is, and I don't mean
1 to disparage anybody who makes the suggestion, but
2 in a way a sort of cherry picking data. **If you**
3 want to use US EPA data then you should use all US
4 EPA data, not just for one substance. You should
5 also use their toxicity values.
6 Well, there would not be any ability to
7 conduct an analysis of the acute, the short-term
8 impacts of acrolein using EPA data because they
9 don't have an acute reference exposure limit.
10 California EPA does. So basically what has been
11 suggested is, let's take some data from US EPA,
12 let's take some data from Cal-EPA. Maybe we'll
13 take some data from the state of Massachusetts or
14 from Sweden. I am aware of toxicity factors that
15 differ around the world.
16 We are here in California and quite
17 frankly **I am required to use California values**
18 unless the agency that I rely on in Cal-EPA, the
19 Air Resources Board or the Office of Environmental
20 Health Hazard Assessment tells me that their
21 values are no good, use somebody else's.

(Emphasis added.) Group intervenors submit that CARB's express recommendations against use of acrolein emission factors from the CATEF database as reflected in Exhibit 706 are sufficient instructions to agencies such as the CEC. Additionally,

Group intervenors submit that the CEC staff already utilizes other non-California resources and that generally such databases such as US-EPA AP-42 database set the minimum floor.

R.T. 281:17-25:

17 Q Dr. Greenberg, you were asked about
18 start-up emissions. Do you believe that your
19 analysis is conservative, even with the
20 variability in emissions during start-up?

21 A Yes I do, particularly in light of the
22 recent information provided by Mr. Sarvey that
23 came from the Bay Air Quality Management District
24 **on the actual emissions of a sister engine in**
25 **Nevada.**

(Emphasis added.)

Additionally, as reflected by the FSA p4.1-35, "limited source test data for these engines was provided as confidential *information by Wartsila*; although the exact results cannot be released, staff can assure the public that the emission levels of the contaminants tested are less than or equal to the emissions used in the HRA." As a result, here the US EPA-42 emission factor database is rejected, but CEC staff readily agrees to "confidential data" not subject to disclosure provided by the *Finnish engine manufacturer*. In light of this inconsistency, Group petitioners contest that adequate information has been disclosed for this Commission to make the affirmative findings sought by the applicant.

3. The emission factors in the EPA AP-42 database for acrolein are statistically more representative of the Eastshore engine than the factors in the CATEF database used by applicant and Staff. The AP-42 database lists ***thirty-two*** ***tests for acrolein as a basis for its emission factor***. The CATEF database, however, relied on by the applicant and CEC staff, ***lists only two as a basis for its emission factor***.

Ex. 707: CATEF- Detail Report for Acrolein, SCC 20200202 Stationary Natural Gas Reciprocating Internal Combustion Engines, 4-stroke, lean burn >650hp: Indicates only **2** sources for data, and has the lowest population rating.

Ex. 705: AP-42 Background Document for Natural Gas Fired Reciprocating Engines, p3.20: Acrolein, measured by FTIR lists **32** tests.

4. The EPA's AP-42 database indicates that engines similar to those proposed for Eastshore emit acrolein at a mean rate approximately *89 times higher* than the rate used by Applicant and Staff for the computation of health risk.

Ex. 707: CATEF- Detail Report for Acrolein, SCC 20200202 Stationary Natural Gas Reciprocating Internal Combustion Engines, 4-stroke, lean burn >650hp: Lists a **mean** emission factor for Acrolein of **5.90E-02 lbs/MMcf**

Ex. 705: AP-42 Background Document for Natural Gas Fired Reciprocating Engines, p3.20: Lists a **mean** emission factor for Acrolein for 4 stroke, lean burn engines of **5.24 E+00 lbs/MMcf**

Mathematically the difference between the two measurements, in absolute terms is **5.181 lbs/MMcf.** In relative terms, the AP-42 emission factor is 5.24 / .059 = **88.81** times the CATEF emission factor.

5: Group intervenors contest CEC staff's public health risk analysis and contend both the applicant and CEC staff's analyses are inconclusive and do not support a finding of "no significant risk."

The concentrations of acrolein resulting from the operation of the Eastshore plant as predicted by the emission factors in EPA's AP-42 database and applied to applicant's and Staff's health risk screening analysis with all other variables unchanged would result in an acute non-cancer hazard index greater than 1, which would mandate further analysis under ARB regulation 2, rule 5, before a conclusion of "no significant risk" could be reached.

BAAQMD PDOC for EEC Appendix B- Tables, p3: Based on the CATEF emission factor for acrolein of 5.90 E-02 lbs/MMcf and incorporating reduction due to emission control systems, the BAAQMD computed a **maximum hourly acrolein concentration for the nearest worker receptor of 0.077 ug/m3**. Given the existing OEHHA Reference Exposure Level ("REL") of 0.19ug/m3, the acute hazard quotient for acrolein is computed to be 0.40, which represents the largest component out of the sum of the hazard quotient for all TACs of 0.47. Ie. all other TACs combined contribute an acute hazard quotient of 0.07. *Note: The BAAQMD PDOC version of the HRSA is used because they are the only party to provide evidence of the health risk computation.*

The difference between the AP-42 emission factor of 5.24 E+00 lbs/MMcf and the CATEF emission factor 5.90 E-02 lbs/MMcf is a multiple of 88.81. All other variables being the same, using the AP-42 emission factor results in a maximum hourly concentration for the nearest worker receptor of 0.077 x 88.81 = 6.838 ug/m3. When compared to the existing OEHHA REL of 0.19ug/m3, **acrolein alone presents an acute hazard quotient of** 6.838 / 0.19 = ***35.99***, where a value of 1.00 indicates a potentially significant impact that should trigger a Level 2 analysis under AB-2588.

6. Even under the pending re-evaluation by OEHHA of the Reference Exposure Level ("REL") for acrolein raised by CEC staff at the evidentiary hearing, the acrolein concentrations predicted using the emission factors in EPA's AP-42 database would exceed the higher newly proposed and not yet enacted acute and 8-hour RELs, establishing that applicant's and Staff's public health risk analysis still is inconclusive **under both** current regulations and anticipated future regulations.

Proposed OEHHA Profile for Acrolein- Public Review Draft: 11/2/2007 (http://www.oehha.org/air/hot_spots/pdf/AcroleinPR.pdf), page 1, section 1.1-1.3: Proposes an acute REL of 2.3ug/m3, an 8-hour REL of 1.6ug/m3 and a chronic REL of .1ug/m3.

R.T. Dec. 17, 2007 203: 2-21, testimony of Dr. Greenberg:

2 Interestingly, since writing the PSA
3 and since publishing the FSA the Office of
4 **Environmental Health Hazard Assessment has decided**
5 **that the toxicity value for acrolein, which is**
6 **0.19 micrograms per cubic meter of air, that's the**
7 **reference exposure level below which no impact is**
8 **predicted, has put out for public comment a**
9 **revision up to 2.3 micrograms per cubic meter.**

10 Now I have not included that difference
11 which would make the hazard index drop even
12 further. What they are saying is that it is more
13 than ten times less toxic to humans. **I've kept in**
14 the .19 number and my air dispersion modeling and
15 risk assessment calculations show that the maximum
16 one hour concentration of acrolein at the point of
17 maximum impact would be .05 micrograms per cubic
18 meter. So if you compare that to the Cal-EPA new
19 number of 2.3 micrograms you can see how much less
20 .05 micrograms per cubic meter is. And it is
21 still less than .19 micrograms per cubic meter.

(Emphasis added.) However, mathematically, the calculated one hour maximum acrolein concentration (see fact 5) of **6.838ug/m3** using the EPA AP-42 emission **factor exceeds the newly proposed but not yet enacted acute REL of 2.3ug/m3.**

7. Staff's and Applicant's use of solely the mean emission factor published in the CATEF database for prediction of the emissions of a single source is considered inappropriate and is not recommended by the EPA. In order to account for the variability of the measurements in emission factor databases, EPA guidelines strongly recommend the use *of both* the mean emission factor and statistical methods to account fot variation in a manner appropriate for the application of the data. The application of at least a 95% confidence interval to the mean emission factor published in the EPA AP-42 database for acrolein for Eastshore would result in an even greater exceedance of current and proposed OEHHA RELs using the methodology of applicant and staff.

FSA p4.7-14, public health table 6: Using the CATEF max emission factor, staff calculates an acute hazard index of 0.93.

FSA p4.7-13, public health table 4: Using the CATEF mean emission factor, staff calculates an acute hazard index of 0.32.

Note: These statements by Staff admit that there is wide variability in the data.

Ex. 707: CATEF- Detail Report for Acrolein: Indicates only 2 sources for data, and an RSD % of 88. *Note: Normally, and RSD of 88 indicates that 1 standard deviation higher (68% confidence interval) is 88% higher than mean and that 2 standard*

deviations higher (95% confidence interval) is 176% higher than the mean. Since there are only 2 data points, however, there is insufficient data to quantify the variability.

EPA AP-42 Vol. 1, Introduction (http://www.epa.gov/ttn/chief/ap42/c00s00.pdf) pp. 2 states the following:

"Emissions factors published **in this database and in most other such compilations** typically 1) are arithmetic averages of available source test data, 2) are based on limited numbers of emissions tests, 3) represent only a few hours of process operating time per test, 4) represent limited ranges of process operating conditions, and 5) represent a limited sample of operating units within any source category. As a result, site-specific emissions estimates based on emissions factors will include significant data uncertainty. Such uncertainties can easily range over more than one order of magnitude in determining emissions from any one specific facility. **Use of emissions factors should be restricted to broad area-wide and multiple source emissions cataloging applications that will tend to mitigate the uncertainty associated with quantifying site-specific emissions.**"
"Emission factors in AP-42 are neither EPA-recommended emission limits (e. g., best available control technology or BACT, or lowest achievable emission rate or LAER) nor standards (e. g., National Emission Standard for Hazardous Air Pollutants or NESHAP, or New Source Performance Standards or NSPS). **Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA.** Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. As such, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance."

EPA WebFire Database Documentation on applicability of emission factors (http://cfpub.epa.gov/oarweb/fire/view/Applicability.html) states the following:

"We recognize that emissions factors are often used in many applications including site-specific applicability determinations, establishing operating permit fees, and establishing applicable emissions limits even though **such use is inappropriate**. If you must apply emissions factors for site-specific applications, **we strongly recommend due consideration of the uncertainty inherent in the data**. *Applying emissions factors without accounting for uncertainty will result in doubtful applicability determinations, ineffective emissions reductions requirements, and poorly supported compliance determinations or enforcement actions."*

(Emphasis and italics added.)

"Approaches to accounting for uncertainty include adjustments based on statistical assessments addressing bias and imprecision for both pollutant emissions control and process operations or activities variability. Under such options, we believe it appropriate to consider the quality and quantity of the source test data underlying the emissions factors and to consider the variations of emissions control and process operations between sources within the same category. With this information, we think

it prudent to **apply standard statistical adjustments in the use of emissions factors consistent with the goals of your specific application** (e.g., upper confidence level in determining site-specific thresholds for applicability and fees, lower confidence level in setting emissions limits). We are developing detailed procedures and more explicit policies for site-specific and regulatory development applications of emissions factors along with recommended alternatives to emissions factors and will provide those procedures in the near future."

Applicable computation: Application of the US-EPA RSD% of 58.7% to the calculated acrolein concentration to achieve a 95% confidence (2 standard deviations) interval yields a resulting 1-hour maximum concentration of existing concentration + (variance * existing concentration) = 6.838ug/m3 + (6.838ug/m3 * ((58.7% * 2) / 100)) = **14.87ug/m3. This concentration exceeds the current acute REL of 0.19mg/u3, as well as the newly proposed REL of 2.3ug/m3.**

Here, applying the AP-42 database which Group intervenors contend better characterizes the plant emissions, an upper bound concentration of 14.87ug/m3, represents an acute hazard index of 78.26, where a value of 1.00 represents a potentially significant level, and would exceed much of the safety margin built into the REL. Applying this more reliable and applicable federal analysis, running even a single engine out of the 14 at Eastshore would yield an acute hazard index that triggers a Level 2 stochastic analysis under AB-2588.

Additionally left unexplained is the variability between Staff and Applicant's acute and chronic non-cancer hazard index calculations. This by itself calls into question the accuracy of the computation. For instance, CEC staff's calculation results in a hazard index that is 50% lower than applicant's, suggesting a wide range of variation that could not be explained by CEC Staff. As two data points are insufficient to establish a statistical confidence interval, and staff was unable to explain the cause of the variation, the validity of both computations has not been established, and do not, by CEC's staff's own admission, support a conclusion of "no significant risk".

FSA p4.7-13, public health table 4: Staff calculates an acute hazard index of 0.32, AFC states hazard index of 0.66

FSA p4.7-13, 2nd paragraph: "Staff cannot explain the difference in the estimates of cancer risk calculated by the applicant and by staff."

R.T. Dec. 17, 2007 215:16-23:

16 Q The applicant has stated that the acute
17 hazard index of .66 out of 1.0 -- And this is
18 referring to public health section 4.7-12 again
19 and if you continue to 4.7-13.
20 (Coughed) My PM2.5 exposure here.
21 And staff has indicated an acute hazard
22 index of .32. **Can you explain the difference**?

23 A **No, I cannot**.

3. Group intervenors contend that CEC staff's cumulative public health risk analysis does not take into account higher startup and shutdown Toxic Air Contaminant (TAC) emissions for either plant. Russell City, as a load following facility, will spend, per turbine, 9 hours daily starting up and 1 hour shutting down. This violates AB-2588 Hot Spots program, and thus as a matter of law may not support a finding of an "insignificant risk to public health" for the neighboring Eastshore plant

R.T. Dec. 17, 2007 282: 13-21: Dr. Greenberg's testimony about testing for TAC emissions during startup conditions of both plants.

13 Q Just to follow up on the start-up. I
14 just want to clarify. ***You stated that you did not***
15 *include the start-up emissions*. And that would --
16 we had -- my question was earlier compact [compound]. That
17 would **include Russell I would gather, right**?
18 A ***That is correct***.
19 Q Okay. **As well as the proposed**
20 Eastshore project?
21 A **Correct**.

(Emphasis and italics added.)

Ex 702, AB-2588 Appendix F, Criteria For Inputs for Risk Assessment Using Screening Air Dispersion Modeling, page 1, paragraph A: **The emissions must represent all listed substances emitted from the facility. Emission estimates must be health-protective** and approved by the district, and the assessment must take into account both the **highest actual emissions and the facility's potential to emit**, including use of the highest levels enforceable under the facility's permit(s), if the process(es) are subject to permits.

RCEC FSA, p4.1-6, Air Quality Table 2 notes: "**Daily emissions include 2 start-ups** (480 pounds NOx per cold start-up, 240 pounds NOx per hot start-up), **2 shut downs** (80
pounds of NOx per each), and approximate 14 hours (16.17 pounds NOx/hr) of normal operation for the turbine/HRSG and duct firing."

RCEC FSA, p4.1-68, Staff Estimates: "1. Facility's operational profile
According to the project owner, each turbine can go through one cold, one hot, two shut down events, and the rest are normal operation. Thus **for every 24 hour period, each turbine can experience 9 hours of start up (6 hours for cold and 3 hours for hot)**
and 1 hour of shut down (0.5 hour each). The normal hours of operation would be 14
hours.
On the annual basis, each turbine can go through **52 cold, 260 hot start-ups and 312 shutdown**. Thus each year, the start up and shut down hours for each turbine are:
= 52(6hr) + 260(3hr) + 312(0.5hr) = 1,248 hours

EEC FSA p4.1-36: Staff justifies the use of reciprocating internal combustion engines as opposed to gas turbines for load following and peaking operation asserting that "...the **high levels of start-up emissions** that normally occur with a combustion turbine ***are mostly avoided in the Eastshore design."***

(Emphasis and italics added.)

4. Group intervenors also contest the basis of applicant's objection to condition Public Health-1 requiring testing for acrolein is inconsistent with AB 2588 regulations. According to AB 2588 rulemaking effective September 26, 2007, acrolein is listed as a substance that must be quantified with a degree of accuracy of 0.05lbs/yr. Applicant has not proposed an alternative means of quantification in lieu of source testing, and at this time the US EPA recommends FTIR as an EPA certified, commercially available test method to test for aldehydes.

R.T. Dec. 17, 2007 191: 5-10:

5 A One more -- I'm sorry, one more concern
6 with the testing requirement for acrolein. The
7 District does not have a appropriate method for
8 acrolein at this time and therefore we would
9 propose the acrolein testing not be required under
10 Public Health-1 consistent with District policy.

EPA method 320 promulgated to legal standard in EPA reg. 40 cfr 63, appendix A (http://www.epa.gov/ttn/emc/promgate/m-320.pdf).:

Ex. 723, 724: Brochures from Gasmet and GE Energy advertising commercially available in-situ FTIR Continuous Emissions Monitoring ("CEM") device / service.

Ex. 705: AP-42 Background Document for Natural Gas Fired Reciprocating Engines p3.10: The EPA has identified that **for lean-burn engines**, the California Air Resource Board **(CARB) 430 measurement method for quantifying aldehyde emissions may have interference problems** with the 2, 4-dinitrophenylhydrazine (DNPH) solution. This is due to the expected high concentrations of N2 and O2 percent in the engine exhaust stream. In such cases, the **reported aldehyde measurements may be biased low**.... The FTIR is a real-time measurement method approved by the EPA and is capable of monitoring aldehyde emissions

5 Group intervenors also contest applicant's objection to condition Public Health-1 which requires a test protocol involving multiple engines, an objection based on claims by applicant's witness of little variability between engines. This is inconsistent with EPA AP-42 test results for stationary reciprocating internal combustion engines.

EPA AP-42 document for Stationary Natural Gas Reciprocating Internal Combustion Engines (http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s02.pdf) p.3.2-3, paragraph 2:

"It should be emphasized that the actual emissions may vary considerably from the published emission factors due to variations in the engine operating conditions. This variation is due to engines operating at different conditions, including air-to-fuel ratio, ignition timing, torque, speed, ambient temperature, humidity, and other factors. **It is not unusual to test emissions from two identical engines in the same plant, operated by the same personnel, using the same fuel, and have the test results show significantly different emissions**. This variability in the test data is evidenced in the high relative standard deviation reported in the data set."

Air Quality, Public Health and Environmental Justice- Analysis of Eye Irritation

On page 4.7-21, the FSA states that the Reference Exposure Level (REL) for acrolein is based on a study that reported eye irritation experienced over a 5-minute exposure, and that such an effect is not "serious". Group intervenors contend that CEC staff has discounted the significance of concentrations of acrolein in exceedance of the Reference Exposure Level (REL) which is attributable to eye irritation. In Group petitioners' prehearing conference statement, group intervenors sought the following documentation and information, which is critical to determine the project health risk if acrolein emissions are higher than initially predicted and its impact on a community which should have been subject to an environmental justice analysis but prejudicially was not.

* The acrolein concentration which staff considers "significant", if the concentration is maintained over a 24 hour period.

* The acrolein concentration which staff considers "serious", if the concentration is maintained over a 24 hour period.

* Staff's opinion on whether eye irritation is a public nuisance, if such irritation persists for several hours.

* Staff's opinion on whether eye irritation is detrimental to quality of life, if such irritation persists for several hours.

* An analysis of the Environmental Justice impacts of acrolein related eye irritation over a sustained exposure period of hours or days.

* An analysis of the effects of eye irritation on the ability of school children, college students and the general public, including persons working at a computer (such as those employees employed by nearby businesses) to perform everyday tasks such as reading and operating computers.

* An analysis of the effects of eye irritation on the ability of pilots to safely operate aircraft.

* How the CEC will ensure that the public will not be burdened with eye irritation caused by the Eastshore project, should it be determined that acrolein emissions are higher than predicted.

Based on CEC staff's assertion that there will be no eye irritation, this information was not produced or disclosed. Group intervenors contest such an assertion and contend that there is insufficient evidence before the CEC to find there is no significant health risk.

Air Quality, Public Health and Environmental Justice- Missing Background Toxic Air Contaminant (TAC) Analysis

In Group intervenors prehearing conference statement, group intervenors pointed out that CEC staff provided an analysis of cumulative and individual effects of the plant in relation to background levels of criteria pollutants. However, presently excluded from the FSA was the necessary analysis of TACs. Still missing is the summary of the background levels of TACs regulated by the AB 2588 "Hot Spots" program at the project's points of maximum impact, the hazard index for each TAC due to background levels, and the relative increase of each TAC over the background levels as a result of the project, particularly with respect to acrolein.

The testimony of CEC staff admitted that they do not include background TAC, such as those contributed by the nearby 880 and 92 highways and interchange.

R.T. Dec. 17, 2007 273: 17- 274: 15, testimony of Dr. Greenberg:

17 Q Following up on if you could -- Well
18 **how do you account then for the background of the**
19 **local toxic air contaminant levels then in your**
20 **health risk assessment also**?
21 ***A We don't***, and I'll explain why. The
22 reason we don't account for background cancer
23 risks is because, once again, the methodology
24 requires us to look at the incremental
25 contribution of this particular project. Very

1 much the same as if it were a hazardous waste site
2 and one was looking at what the incremental
3 contribution caused by hazardous waste might be.
4 ***The reason for that is because the***
5 ***background cancer risk in the Bay Area is already***
6 ***above the level of significance.*** As I stated in
7 my Final Staff Assessment it is around 165 in a
8 million. **If we were to add background basically**
9 you couldn't build anything, you couldn't drive
10 your automobile, you couldn't take the bus because
11 they all emit toxic air contaminants and
12 everything would come to a standstill. **What we**
13 are looking at for CEQA purposes is the

14 incremental increase in cancer and is that below a
15 level of significance.

Dec. 17, 2007 274:16-25, recross of Dr. Greenberg:

16 Now when it comes to non-cancer health
17 risk we would consider the non-cancer hazard index
18 and background if the Air District said, you know,
19 this hazard index is very close to one, we'd like
20 you to add in background. It is not close to one,
21 it is -- excuse me while I get the precise number
22 out. It is .32, as I calculated it. And the Air
23 District has not asked me to look at background.
24 So that is the reason why background wasn't
25 included.

Dec. 17, 2007 R.T. 276 : 1-11, recross of Dr. Greenberg:

1 Q But then you also have the background
2 in addition to the project. And what if the
3 background was close to one?
4 A **I don't know what the background is for**
5 non-cancer health effects in the immediate area.
6 I would know what it would be in the Bay Area in
7 general and that's what I would look at. But no,
8 I would not add the background unless the project
9 as defined had an incremental non-cancer hazard
10 index close to 1.0 or if the Air District asked me
11 to do so.

Group intervenors contest that this is proper CEQA analysis and assert that this completely ignores the real cumulative impact of a project. Without considering the background of the immediate area, the CEC is deciding significant issues in a void or vacuum. See FSA p. 4.1-31: Air quality" "Cumulative impacts at the closest residences, Ochoa Middle School, and Eden Gardens Elementary School would also be similar to those from Eastshore alone, meaning that impacts from Eastshore dominate the localized cumulative impacts." Compare, FSA 4.1-34: "staff assessment concludes **that Eastshore would contribute to existing violations of the ozone and PM 2.5 NAAQS [National Ambient Air Quality Standards**]." (Emphasis added.)

Given the failure of the public health analysis to consider the background inventory of TAC, group intervenors contest that the proposed conditions of certification for air or public health are adequate mitigations nor can they be adequate without this necessary reexamination of TAC as applied to public health.

Dated: February 11, 2008

Respectfully Submitted,

Jewell J. Hargleroad, Attorney for
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Pilots Association, San Lorenzo Village
Homes Association, and Hayward Area
Planning Association

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION
OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE EASTSHORE ENERGY CENTER IN CITY OF HAYWARD BY TIERRA ENERGY	Docket No. 06-AFC-6 PROOF OF SERVICE (Revised 1/18/2008)

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:

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DECLARATION OF SERVICE

I, Jewell J. Hargleroad , declare that on February 11, 2008 I transmitted electronic copies of the attached Group Intervenors Opening Brief addressed to those identified on the Proof of Service list above consistent with the requirements of the 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. Executed on February 11, 2008 in Hayward, California.

Jewell J. Hargleroad