DOCKET
01-AFC-7C
DATE AUG 09 2010
RECD. AUG 10 2010

August 9, 2010

Electronic Email and First Class U. S. Mail

California Pilots Association (CALPILOTS)
P.O. Box 6868
San Carlos, CA 94070-6868

Mary Dyas
Project Compliance Manager
Siting, Transmission and Environmental Protection (STEP) Division
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814
Phone: 916- 651-8891
E-mail: mdyas@energy.state.ca.us

Attention Ms. Mary Dyas

Subject: Aviation Issues

Reference: Commissioners Business Meeting August 11, 2010
Agenda Item No. 5 Russell City Energy Center (01-AFC-7C).

Attachment 1:
CALPILOTS FAA Petition For Discretionary Review Dated August 6, 2010

Attachment 2:
CALPILOTS Appeal to BAAQMD (EPA) RCEC PSD Permit dated March 18, 2010.

Attachment 3:
Airmen's Information Manual (AIM) 7-5-15 Avoid Flight in the Vicinity of Thermal Plumes (Smoke Stacks and Cooling Towers)
8/9/10, http://www.faa.gov/air_traffic/publicatioins/, AIM Change 1, 08/26/2010. par. 7-5-15.

CALPILOTS requests Attachments 1, 2 and 3 herein be made part of the Administrative Record.

CALPILOTS requests a continuance on these matters and requests an Evidentiary Hearing on these matters.

CALPILOTS requests that you take Administrative notice of the Administrative proceedings in the CEC Eastshore Energy Power Project (06- AFC- 06).

Regards,

/s / Andy Wilson
Andy Wilson
CALPILOTS Director-at-Large
(C) 510-303- 9027

LAW OFFICES
OF
RONALD J. COZAD

MCCLELLAN-PALOMAR AIRPORT, PREMIER JET BLD.
2100 PALOMAR AIRPORT ROAD, SUITE 214
CARLSBAD, CA 92011

TELEPHONE: (760) 431-8200
FAX: (760) 454-1705
EMAIL: RONCOZAD@GMAIL.COM

August 6, 2010

Ellen Crum, Air Traffic Systems
Operations, Airspace and Rules Group, AJR–33
FEDERAL AVIATION ADMINISTRATION
800 Independence Ave., SW., Room 423
Washington, DC, 20591

By FAX and US MAIL
Facsimile: (202) 267-9328.

Re: California Pilots Association's Petition for Discretionary Review Per 14 C.F.R. 77.37 of Case No. 2010-AWP-2565-OE and 2010-AWP-2566-OE, "Stack RCEC HRSG Exhaust Stack, Hayward, CA"

Enclosed please find three copies of California Pilots Association's Petition for Discretionary Review per 14 C.F.R. 77.37 in the case of 2010-AWP-2565-OE and 2010-AWP-2566-OE, "Stack RCEC HRSG Exhaust Stack, Hayward, CA." I certify that I have mailed a copy of this letter and the attached petition with exhibits to Barbara McBride, whose address appears below.

Sincerely,

Ronald J. Cozad

Enclosures.

Copies:
E. Rosiak, Pres. California Pilots Assn.

Barbara McBride
RUSSELL CITY ENERGY COMPANY
4160 Dublin Blvd.
Dublin, CA 94568

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIR TRAFFIC AIRSPACE BRANCH

California Pilots Association's PETITION FOR DISCRETIONARY REVIEW Per 14 C.F.R. 77.37 of Case No. 2010-AWP-2565-OE and 2010-AWP-2566-OE "Stack RCEC HRSG Exhaust Stack, Hayward, CA" Issued July 7, 2010

August 6, 2010

Ronald J. Cozad, Esq.
LAW OFFICES OF RONALD J. COZAD
2100 Palomar Airport Road, Ste 214
Carlsbad, CA 92011
Telephone: (760) 431-8200
Facsimile: (760) 454-1705
roncozad@gmail.com

Counsel to
CALIFORNIA PILOTS ASSOCIATION

I.
INTRODUCTION

A. Description of Petitioner

The California Pilots Association is a non-profit public benefit California Corporation formed in 1949. Its mission is to promote, preserve and protect the state's general aviation airports and to advocate for safe and responsible development in areas that materially affect the operation of aircraft utilizing such airports. California Pilots Assn. has appeared before local ALUC's, governing boards, CalTrans-Department of Aeronautics, the California Energy Commission and the FAA in response to a recent proliferation of proposed thermal plume generating power plant developments in Blyth, Carlsbad, Hayward, Byron, Tracy, Modesto and Temecula/French Valley, California; all dangerously encroaching onto the airspace surrounding active general aviation airports.

B. Description of Most Effected Airport and Surrounding Airspace

The Hayward Executive Airport (HWD) is located on the South/Eastern bank of the San Francisco Bay at an elevation of approximately 52 feet. It is operated by the City of Hayward which is two miles to the east. HWD is a public use facility included in the Federal Aviation Administration's National Plan of Integrated Airport Systems (NPIAS) and is designated by the FAA as a reliever for Oakland International Airport (OAK) 5 miles to the North/West. HWD accommodates 486 based aircraft and supports more than 132,000 operations per year. Its main runway (10R/28L) is equipped with precision approaches and measures 5,694x150 feet. Its secondary non-precision runway (10L/28R) measures 3,107x75. Published charts for the main runway reflect a left handed traffic pattern at 650 feet MSL / 600 feet AGL. (Exhibits "A" & "B").

C. Description of Project

Project proponent Russell City Energy Company (RCEC) seeks to build and operate a 600 megawatt natural gas-fired, combined-cycle electric generating facility in the industrial corridor of the City of Hayward. (Exhibit "C," pp. 10, 179). The proposed 14.7-acre project site is located at 10 feet MSL, just 1.5 miles South/West of HWD's main runway, beneath the airport's extended approach, 45 degree radial, circle-to-land patterns. It consists of two "F-Class" combustion turbine-generators, two multi-pressure, supplementary-fired heat recovery steam generators, a single 3-pressure, reheat, condensing steam turbine-generator, and two hybrid, wet/dry mechanical draft cooling towers reaching a proposed elevation of 145 AGL / 155 MSL that generate vertical velocities of an estimated 14 feet per second 1,000' above the outlet. (Exhibit "D").

II.
BASIS FOR PETITION

1. **The Determination**. This Petition is brought pursuant to Sec.77.37(a) because Petitioner offers a substantive aeronautical comment on the proposal but was not given an opportunity to state it. On July 7, 2010, the FAA's Obstruction Evaluation Service (OES) issued its Determination of No Hazard to Air Navigation, Aeronautical Study, No. 2010-AWP-2566-OE (Exhibit "E"), conditioned only on the construction of a marking and lighting system per FAA Advisory circular 70/7460-1 K Change 2, "Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12."

2. **OES' Failure to Evaluate Effect of Plant Operations**. Significantly, no consideration was given to the unpredictable clear-air turbulence and super-heated exhaust gasses that will, by definition and design, penetrate well beyond Part 77 surfaces vertically and laterally into heavily used navigable airspace. This is presumably because the recent proliferation of power plant developments near airports represents a new type of hazard not fully anticipated but which *is currently under study by the FAA with recommendations expected in approximately September 2010*.

3. **Policy Mandates Compel Consideration of Effects Beyond Physical Structure**. Established policies and rational behind Part 77 regulations compel a considered approach that gives due deference to the current FAA study, the expected amendments to the regulations and to a policy that places public safety and the integrity of the national aviation system above commercial expediency. The manifest purpose of the Part 77 process is to *avoid* construction of any structures that would conflict with the safe and efficient use of the national airspace. 49 U.S.C. § 44718(a) (agency's mandate is the "*preservation*" of the navigable airspace) (emphasis added). To limit the reach of Part 77 regulations to the physical structure itself and ignore the atmospheric effects generated by it would turn the policy behind Part 77 on its head. Because the national airspace is a limited resource, FAA itself recognizes that its first consideration must be to protect the safe use of that resource:

> The national airspace is a limited national resource that Congress has charged the [FAA] to administer in the public interest as necessary to ensure . . . its efficient use. . . . [W]hile a sincere effort shall be made to negotiate equitable solutions to conflicts over the use of airspace for non aviation purposes, *preservation of the navigable airspace for aviation shall be the primary emphasis.*

Order 7400.2G at Ph. 1-2-1 (emphasis added). This duty is so important that it is expressed as a presumption that a proposed construction will be altered to accommodate existing flight patterns:

> There are many conflicting demands being placed on the use of the navigable airspace. However, when conflicts arise concerning a structure being studied, the FAA emphasizes the need for conserving the navigable airspace for aircraft; preserving the integrity of the national airspace system; and protecting air navigation facilities from . . . encroachments that would preclude normal operation.
>
> *In the case of . . . a conflicting demand for the airspace by a proposed construction or alteration, the first consideration should be given to altering the proposal.*

Order 7400.2G at 16-3-1 (emphasis added).

Therefore, under both FAA's statutory mandate and its own binding Order, OES must give first priority to protection of the airspace. A proposed structure that would interfere with the current use of the airspace must be modified and/or found to be a hazard. Accordingly, OES must engage in *sufficient review* before a project is built to ensure that the proposed structure will not create an irreversible conflict with current or future planned uses of the national airspace. This is a sufficient basis to withhold approval until the findings of the current FAA plume study is issued. As the U.S. Court of Appeals for the Fifth Circuit has previously noted:

> To wait until after the [structures] are built to evaluate the FAA's decision making process on the problem would, of course, be sheer foolishness. It is the [structures] in the first instance that raises the threat to air safety, and it is those [structures] that create the necessity to modify the operational procedures.
>
> Certainly, the regulatory purpose of the safety provisions administered by the FAA contemplates that administrative evaluation of the effect of a proposed structure on air navigation come before, not after, the structure has been built. Any other construction of the Administrator's power to determine the hazardous effects of a proposed structure would undermine the prophylactic design of the administrator's regulatory scheme.
>
> Thus, from the standpoint of effectuating Congressional intent, it is the Administrator's approval of the project in the first instance that becomes the al important step in the process. *Air Line Pilots' Ass 'n Int 7 v. FAA*, 446 F.2d 236, 242 (5th Cir. 1971).

4. **A Proper Consideration of the Mitigation Measures and Plume Effects Would Result in a Finding of Hazard to Air Navigation**. Pursuant to FAA's procedures and standards under 49 U.S.C. § 44718 and Title 14, Part 77 of the Code of Federal Regulations (Part 77 Regulations), the OES should have found that the RCEC Project is a hazard to air navigation because the evidence before OES demonstrates convincingly that it would have a substantial adverse effect by: (1) forcing a significant volume of aeronautical operations to change their regular course and/or altitude; (2) requiring changes to existing VFR and IFR routes for HWD as well as OAK and SFO; and, (3) limiting the capacity and efficiency of HWD and other airports near the Project.

Particularly troublesome is a state agency's final approval of the RCEC project by dismissing safety concerns from aviation experts, pilots, the governing ALUC, and even its own staff - while impugning the FAA's competence and commitment to regulating thermal plume effects on general aviation. In its Final Commission Decision, dated October 2, 2007, (Exhibit "C") the California Energy Commission (CEC) expressly conditioned its approval of the project by seeking to *restrict* air navigation above the plant (p. 185,186,187,191), and *prohibiting use of navigable airspace for circle-to-land procedures* (p. 190).

Contrary to the CEC's assertion that the FAA takes no position on thermal plume hazards, the FAA has recently acknowledged this hazard in the August Aeronautical Information Manual where it makes it clear that flight hazards do indeed exist around thermal plumes. It recognizes that such hazards are most critical during low altitude flight, especially during takeoff and landing. It adds that exhaust stacks without visible plumes may still be in full operation and airspace in the vicinity and should be treated with caution and concludes that FAA studies are underway.

Also troubling is the CEC's reliance on an untested and self-serving Australian study paid for by the Project's proponent and not subject to rigorous review and examination. While relying on the biased private study, the CEC acknowledged that the FAA's database search capabilities do not efficiently retrieve incidents involving power plant plumes, yet it apparently failed to conduct its own investigation of such incidents. It also criticized a 2006 FAA study because it searched only commercial flight records and not incidents involving general aviation aircraft. If the CEC had inquired more deeply into available but not efficiently indexed incident data, it may have found an NTSB report of a helicopter crash occurring August 9, 1989 (NTSB LAX89LA270, Exhibit "F") that was attributed in part due to the "…*invisible nature of the exhaust gases which made the detection of their presence unlikely*." The NTSB summarized the incident as follows:

> A helicopter crew was filming a cogeneration plant. The helicopter orbited the plant three times. During the third orbit, the helicopter passed over the exhaust chimney of the plant which was operating at the time. *There was no visible indication of the exhaust gases were emanating from them*. Gases were reported to be 350°F with a 3.6 percent oxygen content. The helicopter turboshaft engine lost power over the center of the chimney. The pilot entered auto rotation towards an open area of a parking lot. During the flare, the helicopters struck his vehicle and landed hard, severed tail who ruled on to its. The certification standard for the engine was 120° Fahrenheit. (Emphasis added).

California Pilots Assn. respectfully submits that without the results of the current FAA plume study and without due consideration to the recent increase in such developments, no one knows how many incidents were caused in whole or in part by flying into such plumes and there is insufficient data to predict the likelihood of future events.

Petitioner also urges that restriction of navigable airspace near proposed power plants is a federal issue for regulation by the FAA - not a state energy land-use agency. Had the OES known of the CEC's efforts to restrict the HWG airspace in a way that may also impact arrivals into OAK and SFO, the Determination of No Hazard would not have been issued.

5. Substantial Adverse Effect on Flight Operations

To meet its statutory and regulatory obligations`, OES is required to perform an aeronautical study to ensure that a proposed structure does not pose a hazard to current aeronautical activities. Pursuant to 49 U.S.C. § 44718(b)(1), the aeronautical study must consider, inter alia: (1) the impact on arrival, departure and en route procedures for aircraft operating under either VFR or IFR; (2) the impact on existing public-use airports and aeronautical facilities; (3) interference with existing or proposed air navigation facilities; and (4) the effect on airport capacity.

Under FAA's standards, a proposed structure will have an "adverse aeronautical effect" if it is found to have physical effect on the operation of air navigation facilities or if it would:

> (a) Require a change to an existing or planned IFR minimum flight altitude, a published or special instrument procedure, or an IFR departure procedure for a public-use procedure.
>
> (b) Require a VFR operation to change its regular course or altitude....
>
> (d) Derogate airport capacity/efficiency.
>
> (e) Affect future VFR and/or IFR operations as indicated by plans on file.

Order 7400.2G at f 6-3-3.

Further, a proposed structure would have a *substantial* adverse effect if it causes interference to the operation of an air facility used by aircraft or if there would be a combination of adverse effect and a significant volume of aeronautical operations. Order 7400.2G at U 6-3-5. If the evidence demonstrates that a structure would have a substantial adverse effect, OES has no discretion: it must issue a Determination of Hazard. Order 7400.2G at 1 7-1 -3(e).

As shown on published approach charts this circling maneuver can be accomplished as low as 493 feet above the ground. The width of the circle and distance from the airport is determined by the maneuvering speed of the aircraft. The pilot must keep the airport in sight at all times during the circling approach so as to align the aircraft with the designated runway. This is a precise maneuver that demands the pilot's full attention and concentration. It is frequently made more difficult when visibility is restricted by fog or rain on the windshield. Any distraction during this maneuver would jeopardize safety of the flight. A circling approach is usually accomplished using a left circling flight pattern to enable a pilot in the left seat to keep the

airport in sight while maneuvering for a landing. The pilot must also observe airspace above reserved for OAK bound traffic.

Lest there be any doubt that the effect of thermal plumes on general aviation is a federal issue that the FAA must aggressively address, consideration should be given to the comments and questions raised by US Congressman Pete Stark in his letter of September 22, 2009 to the FAA Administrator (Exhibit "G"):

> I am writing to express the safety concerns a significant number of my constituents have brought to my attention to a possible approval of [a] proposed 600 MW natural gas power plant [that] would be built within 1.5 miles of the Hayward Executive Airport in my Congressional District…
>
> During consideration by the California Energy Commission, staff expressed concerns regarding the impact of thermal plumes from the plant cooling towers and exhaust stacks on aircraft using the Hayward Executive Airport. Eventually, the CEC concluded the potential dangers of the terminal plumes could be mitigated. Partly this conclusion was based on the CEC's reading of a 2006 FAA study entitled Safety Risk Analysis of Aircraft Overflight of Industrial Plumes. The CEC decided that the FAA report supported their contention that a "Notice to Airmen" not to fly in a portion of the airspace close to the proposed plant would be sufficient to mitigate any potential safety risk…
>
> … in light of these concerns and the concerns raised by the CEC staff during permit consideration, as well as ECC's reliance on the 2006 FAA report, I would like your agency to address the following issues:
>
> 1. Has the FAA thoroughly examined the potential safety risks that the Russell City Energy Center may pose for the Hayward Executive Airport?
>
> 2. Has the FAA analyzed whether "Notice to Airmen" to avoid thermal plumes has been sufficient to avoid potential dangers at airports within a 3-5 mile radius of power plants that have come online in the last five years?
>
> 3. Does the FAA plan to study the effect that a "Notice to Airmen" concerning the Russell City Energy Center would have on the Hayward Executive Airport as well as the three larger commercial airports in the Bay Area?

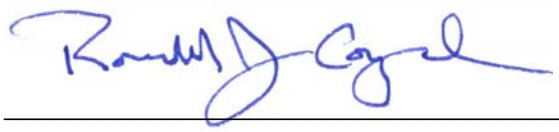
California Pilots Assn. is informed and believes that the current FAA study is in part responsive to Rep. Stark's request and is intended to address, in the context of Part 77 regulations, the exact conditions the proposed plant will generate.

///

CONCLUSION

Ongoing FAA analysis of thermal plume-induced clear air turbulence models are needed to develop criteria critical for the safe aviation operations. Chemical composition, temperature ranges, engine oxygen starvation, velocity gradients and wind drifting of plumes all need to be studied and considered. Likewise, data needs to be developed addressing the potential of wing stalls, changes in attitude and bank and wing loading effects on light general aviation aircraft traversing through an unseen plume. To approve this project at this time, on the eve of the FAA's completion of its important study, would ignore the clear expressions of public policy behind Part 77 and would invite the potential for a catastrophic event. Petitioner California Pilots Association respectfully urges that the express policies behind Part 77 regulations be given due priority over commercial expediency and that the determination of July 7, 2010 be reconsidered in light of criteria developed by the FAA's plume study, due in just 60 days.

Respectfully Submitted,



Ronald J. Cozad, Esq.
On behalf of Petitioner, California Pilots Association

AIRNAV.COM

FBO Logistics Inc. Life Raft Rentals & Sales 1-888-578-6611

KHWD Hayward Executive Airport

Hayward, California, USA

GOING TO HAYWARD?

Reserve a Hotel Room

Rent a Car

Enterprise rent-a-car Reserve Online

AVIS Reserve Online

FAA INFORMATION EFFECTIVE 29 JULY 2010

Loc | Ops | Rwys | IFR | FBO | Links
Com | Nav | Svcs | Stats | Notes

Radio Problems? Call Peninsula Avionics 650-858-2000

Location

FAA Identifier: HWD
Lat/Long: 37-39-32.1000N / 122-07-18.3000W
37-39.535000N / 122-07.305000W
37.6589167 / -122.1217500
(estimated)
Elevation: 52 ft. / 15.8 m (surveyed)
Variation: 15E (2005)
From city: 2 miles W of HAYWARD, CA
Time zone: UTC -7 (UTC -8 during Standard Time)
Zip code: 94545

Road maps at: MapQuest MapPoint Yahoo! Maps Google Rand McNally
Satellite photo at: TerraServer Virtual Earth

Airport Operations

Airport use: Open to the public
Activation date: 05/1947
Sectional chart: SAN FRANCISCO
Control tower: yes
ARTCC: OAKLAND CENTER
FSS: OAKLAND FLIGHT SERVICE STATION
NOTAMs facility: HWD (NOTAM-D service available)
Attendance: 0800-1700
Pattern altitude: TPA: 600'AGL EXCEPT RWY 10L-28R 800'AGL.
Wind indicator: lighted
Segmented circle: yes
Lights: DUSK-DAWN WHEN ATCT CLSD MIRL RY 10R/28L PRESET LOW INTST TO INCREASE INTST ACTVT - CTAF. WHEN ATCT CLSD VASI RY 10R & RY 28L OPER DUSK-DAWN, PAPI RY 10L & RY 28R AND REIL RY 10R & 28L UNAVBL.
Beacon: white-green (lighted land airport)

Aerial photo

WARNING: Photo may not be current or correct

Photo by Ms. Anne Sallot (Bill Isham piloting)
Photo taken 03-Mar-2007
from the right seat of N8276E
The city of San Francisco is in the background, while on final approach for 28L or 28R

Do you have a better or more recent aerial photo of Hayward Executive Airport that you would like to share? If so, please **send us your photo**.

Airport Communications

Sectional chart

EXHIBIT A

CTAF:	120.2
UNICOM:	122.95
ATIS:	126.7(510-786-3988)
WX ASOS:	PHONE 510-786-3052
HAYWARD GROUND:	121.4 [0700-2100]
HAYWARD TOWER:	120.2 257.8 118.9 [0700-2100]
NORCAL APPROACH:	124.4 125.35 134.5
NORCAL DEPARTURE:	124.4
CLEARANCE DELIVERY:	128.05
EMERG:	121.5 243.0
WX ASOS at OAK (6 nm NW):	PHONE 510-383-9514
WX AWOS-3 at SQL (11 nm SW):	125.9 (650-593-0613)
WX ASOS at SFO (12 nm W):	PHONE 650-872-0246
WX ASOS at LVK (14 nm E):	PHONE 925-606-5412
WX ASOS at NUQ (15 nm S):	124.175 or 283.0 (650-604-1529)

- FOR IFR CLEARANCES OR CLASS C AIRSPACE INFO CTC OAKLAND ATCT FREQ 127.2.

Nearby radio navigation aids

VOR radial/distance	VOR name	Freq	Var
OAKr113/6.3	OAKLAND VORTAC	116.80	17E
SFOr062/12.2	SAN FRANCISCO VOR/DME	115.80	17E
OSIr008/17.7	WOODSIDE VORTAC	113.90	17E
SJCr318/19.0	SAN JOSE VOR/DME	114.10	16E
SAUr105/22.4	SAUSALITO VORTAC	116.20	17E
CCRr172/23.4	CONCORD VOR/DME	117.00	17E
SGDr142/33.4	SCAGGS ISLAND VORTAC	112.10	17E

NDB name	Hdg/Dist	Freq	Var	ID
TRACY	251/32.2	203	15E	TCY - - . - . . - . - -

Airport Services

Fuel available:	100LL JET-A
Parking:	tiedowns
Airframe service:	MAJOR
Powerplant service:	MAJOR
Bottled oxygen:	HIGH
Bulk oxygen:	HIGH

Runway Information

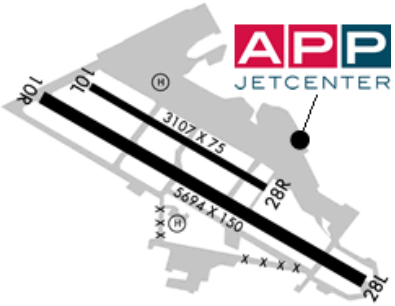
Runway 10R/28L

Dimensions:	5694 x 150 ft. / 1736 x 46 m
Surface:	asphalt, in good condition
Weight bearing capacity: Single wheel:	30.0, STRENGTH LIMITED BY STRENGTH OF CONNECTING TAXIWAYS.
Double wheel:	75.0
Runway edge lights:	medium intensity

	RUNWAY 10R	RUNWAY 28L
Latitude:	37-39.722672N	37-

Airport diagram

CAUTION: Diagram may not be current



Download PDF
of official airport diagram from the FAA

Airport distance calculator

Flying to Hayward Executive Airport? Find the distance to fly.

From ____ to KHWD

CALCULATE DISTANCE

Sunrise and sunset

Times for 05-Aug-2010

	Local (UTC-7)	Zulu (UTC)
Morning civil twilight	05:48	12:48
Sunrise	06:17	13:17
Sunset	20:12	03:12
Evening civil twilight	20:41	03:41

Current date and time

Zulu (UTC)	05-Aug-2010 18:04:46
Local (UTC-7)	05-Aug-2010 11:04:46

METAR

KHWD	051754Z 29004KT 10SM OVC014 15/10 A2993 RMK AO2 SLP146 T01500100 10156 20128 50001
KOAK 5nm NW	051753Z 26012KT 10SM OVC012 16/11 A2995 RMK AO2 SLP141 60000 T01560106 10156 20128 50001
KSQL 10nm SW	051655Z 31005KT 20SM BKN019 15/10 A2994
KPAO 12nm S	051647Z 01006KT 13SM BKN018 A2993
KSFO 12nm W	051656Z 26012KT 10SM FEW008 OVC014 15/10 A2994 RMK AO2 SLP139 T01500100
KLVK 15nm E	051755Z 29009KT 10SM CLR 17/10 A2991 RMK AO2
KNUQ 15nm S	051752Z 03004KT 10SM SCT019 17/11 A2994 RMK AO2

TAF

KOAK	051738Z 0518/0624 25008KT

EXHIBIT A

Latitude:	37-39.7220[illegible]N	39.255600N
Longitude:	122-07.787447W	122-06.764025W
Elevation:	27.7 ft.	52.1 ft.
Gradient:	0.4%	0.4%
Traffic pattern:	left	left
Runway heading:	104 magnetic, 119 true	284 magnetic, 299 true
Displaced threshold:	816 ft.	676 ft.
Markings:	precision, in good condition	precision
Visual slope indicator:	4-box VASI on right (3.00 degrees glide path)	4-box VASI on left (4.00 degrees glide path)
Runway end identifier lights:	yes	yes
Touchdown point:	yes, no lights	yes, no lights
Instrument approach:		LOC/DME
Obstructions:	40 ft. tree, 1000 ft. from runway, 250 ft. left of centerline, 20:1 slope to clear APCH RATIO 45:1 FM DSPLCD THR.	none

Runway 10L/28R

Dimensions:	3107 x 75 ft. / 947 x 23 m	
Surface:	asphalt, in good condition	
Weight bearing capacity:	Single wheel: 13.0	
Runway edge lights:	medium intensity	
	RUNWAY 10L	**RUNWAY 28R**
Latitude:	37-39.748527N	37-39.493612N
Longitude:	122-07.635693W	122-07.077203W
Elevation:	27.9 ft.	37.1 ft.
Gradient:	0.3% UP	0.2%
Traffic pattern:	left	right
Runway heading:	104 magnetic, 119 true	284 magnetic, 299 true
Markings:	nonprecision	nonprecision
Visual slope indicator:	4-light PAPI on left (3.00 degrees glide path)	4-light PAPI on left (3.00 degrees glide path)
Runway end identifier lights:	no	no
Touchdown point:	yes, no lights	yes, no lights
Obstructions:	60 ft. tree, 1085 ft. from runway, 143 ft. left of centerline, 14:1 slope to clear	none

Helipad H1

Dimensions:	110 x 110 ft. / 34 x 34 m	
Surface:	asphalt, in fair condition	
Runway edge lights:	medium intensity	
Traffic pattern:	left	left

5nm NW	P6SM OVC012 FM051930 29012KT P6SM FEW012 FM052100 29017KT P6SM FEW020 FM060300 28009KT P6SM BKN010 FM060500 25004KT P6SM OVC007 FM061900 28011KT P6SM SCT015 FM062100 29017KT P6SM FEW018
KSFO 12nm W	051738Z 0518/0624 26012KT P6SM FEW008 OVC014 FM051900 28012KT P6SM FEW005 SCT015 FM052100 29014G20KT P6SM FEW015 FM060300 29011KT P6SM FEW012 FM060500 29007KT P6SM OVC009 FM061830 30012KT P6SM SCT015 FM062100 29015G21KT P6SM FEW015

NOTAMs

Click for the latest **NOTAMs**

NOTAMs are issued by the DoD/FAA and will open in a separate window not controlled by AirNav.

EXHIBIT A

Airport Ownership and Management from official FAA records

Ownership: Publicly-owned
Owner: CITY OF HAYWARD
777 B ST
HAYWARD, CA 94541
Phone 510-583-4310
CITY MANAGER
Manager: LLOYD A. PARTIN
20301 SKYWEST DR
HAYWARD, CA 94541
Phone 510-293-8678
OPS MGR - BRENDAN O'REILLY - (510) 293-5462.

Airport Operational Statistics

Aircraft based on the field: 374
Single engine airplanes: 306
Multi engine airplanes: 40
Jet airplanes: 16
Helicopters: 12

- INCLUDES 4 AMPHIBIANS.

Aircraft operations: avg 363/day *
50% local general aviation
49% transient general aviation
1% air taxi
<1% military
* for 12-month period ending 02 September 2009

Additional Remarks

- CITY OF HAYWARD FIRE DEPT-3 TRUCK WITH 4-30 & 2-25 LB DRY CHEMICAL, 500 GAL WATER,130 GAL FOAM.
- WHEN ATCT CLSD RWY 10L/28R CLSD.

- RY 10R HAS LANDING DISTANCE REMAINING SIGNS (LGTD) NORTH SIDE OF RY.
- RY 28L HAS LANDING DISTANCE REMAINING SIGNS (LGTD) SOUTH SIDE OF RY.
- FLOCKS OF BIRDS FEEDING ALONG THE SHORELINE, CREEK AREAS AND AT THE GOLF COURSE TO THE NORTH, ON OCCASION MAY FLY ACROSS VARIOUS PARTS OF THE ARPT.
- NOISE ABATEMENT PROCEDURES IN EFFECT CTC ARPT FOR NOISE RULES ON 510-293-8678.

Instrument Procedures

NOTE: All procedures below are presented as PDF files. If you need a reader for these files, you should download the free Adobe Reader.

NOT FOR NAVIGATION. Please procure official charts for flight.
FAA instrument procedures published for use between 29 July 2010 at 0901Z and 26 August 2010 at 0900Z.

STARs - Standard Terminal Arrivals

MADWIN FOUR	download (327KB)
MARVN ONE	download (252KB)
PANOCHE TWO	download (203KB)
RAIDR TWO (RNAV)	download (179KB)

IAPs - Instrument Approach Procedures

EXHIBIT A

RNAV (GPS) Y RWY 28L	download (285KB)
RNAV (GPS) Z RWY 28L	download (266KB)
LOC/DME RWY 28L	download (246KB)
VOR/DME OR GPS-B	download (243KB)
VOR OR GPS-A	download (252KB)
NOTE: Special Alternate Minimums apply	download (18KB)
NOTE: Special Take-Off Minimums/Departure Procedures apply	download (40KB)

Other nearby airports with instrument procedures:

KOAK - Metropolitan Oakland International Airport (6 nm NW)
KSQL - San Carlos Airport (11 nm SW)
KPAO - Palo Alto Airport of Santa Clara County (12 nm S)
KSFO - San Francisco International Airport (12 nm W)
KLVK - Livermore Municipal Airport (14 nm E)
KNUQ - Moffett Federal Airfield (15 nm S)
KSJC - Norman Y. Mineta San Jose International Airport (20 nm SE)

FBO, Fuel Providers, and Aircraft Ground Support

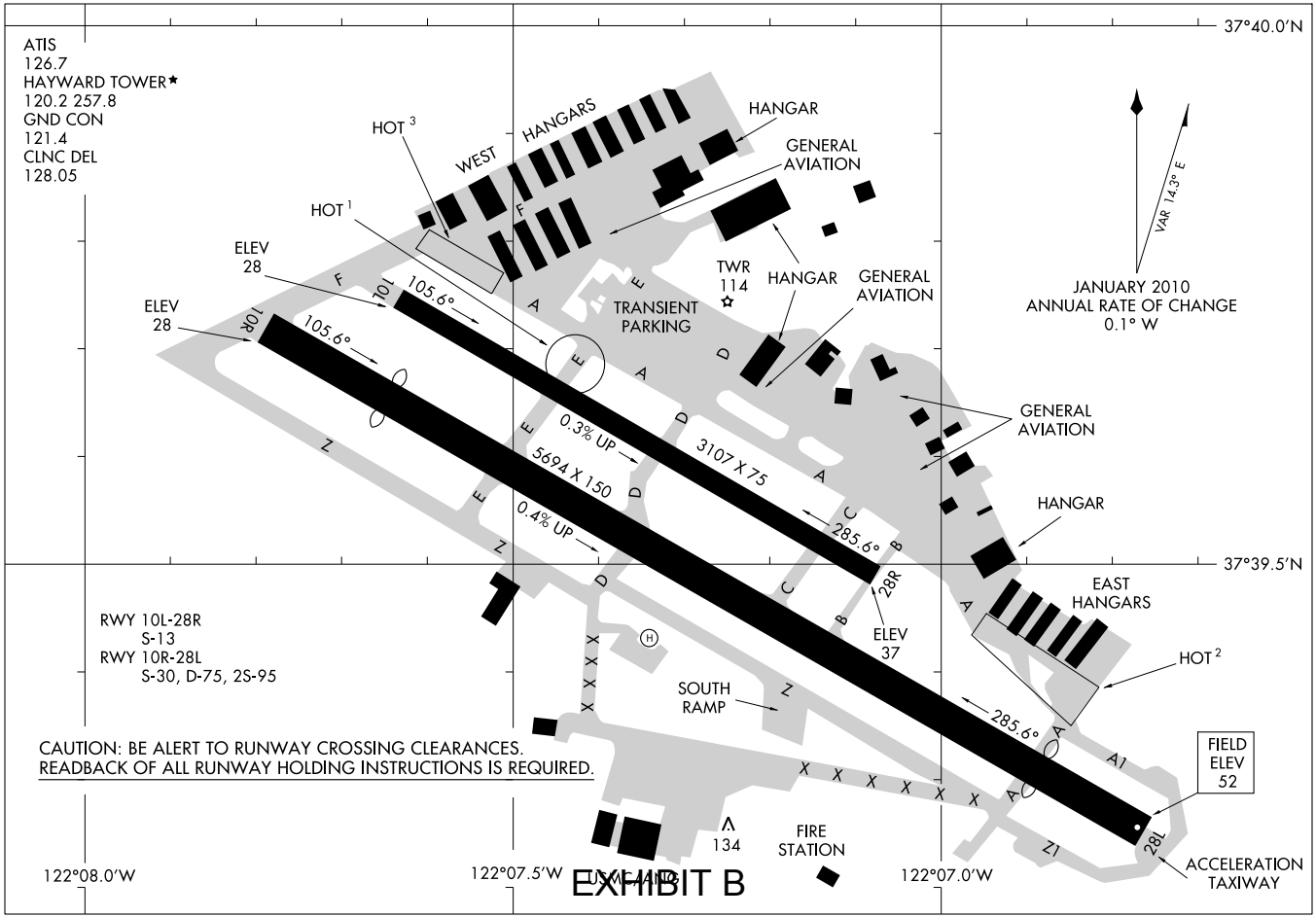
Business Name	Contact	Services / Description	Fuel Prices	Comments
APP JETCENTER	**ASRI 129.725** 510-259-1347 [web site] [email]	Welcome to APP Jet Center Hayward. BIG NEWS - The brand new crew car is here! Stop by and take it for a spin. - SELF SERVE 100LL - Easiest ramp access - Largest ramp on the field. Perfect for jet traffic - Excellent customer service - Low fuel prices - Convenient location to all Bay Area attractions Please compare our prices and feedback More info and **photos** of App Jet Center Hayward	Shell Aviation 100LL Jet A FS $5.31 $4.63 SS $4.57 --- Updated 03-Aug-2010	23 read write
Atlantic Aviation	510-264-5555 [web site] [email]	Aviation fuel, Aircraft parking (ramp or tiedown), Hangars, Passenger terminal and lounge, Aerial tours / aerial sightseeing, Aircraft charters, Aircraft maintenance, ... More info about Atlantic Aviation	airbp 100LL Jet A FS $5.98 $5.98 Updated 05-Aug-2010 FS=Full service SS=Self service UPDATE PRICES	write

Aviation Businesses, Services, and Facilities

Business Name	Contact	Services / Description	Comments
Golden Gate Helicopters	408-805-5910 toll-free 1-888-732-2924 [web site] [email]	Hangars, Passenger terminal and lounge, Pilot school (FAR Part 141), Flight training, Aircraft rental, Aerial tours / aerial sightseeing, Aircraft charters, ... More info about Golden Gate Helicopters	write
Suburban Air Corporation	510-780-0428 [web site] [email]	Aircraft maintenance, Aircraft modifications, Aircraft interiors, Aircraft parts More info about Suburban Air Corporation	1 read write
West Valley Flying Club	510-781-0101 [web site]	Flight training, Aircraft rental, Pilot supplies, Flying club, Computerized weather, Internet access More info about West Valley Flying Club	write

Where to Eat: Catering, Restaurants, Food shops

EXHIBIT A


37°40.0'N
37°39.5'N
122°08.0'W
122°07.5'W
122°07.0'W
ATIS
126.7
HAYWARD TOWER★
120.2 257.8
GND CON
121.4
CLNC DEL
128.05
HOT 3
WEST HANGARS
HANGAR
GENERAL AVIATION
HOT 1
ELEV 28
ELEV 28
10L
10R
105.6°
105.6°
TRANSIENT PARKING
TWR 114
HANGAR
GENERAL AVIATION
VAR 14.3° E
JANUARY 2010
ANNUAL RATE OF CHANGE
0.1° W
GENERAL AVIATION
0.3% UP
3107 X 75
5694 X 150
0.4% UP
285.6°
28R
ELEV 37
HANGAR
EAST HANGARS
HOT 2
RWY 10L-28R
S-13
RWY 10R-28L
S-30, D-75, 2S-95
SOUTH RAMP
285.6°
FIELD ELEV 52
CAUTION: BE ALERT TO RUNWAY CROSSING CLEARANCES.
READBACK OF ALL RUNWAY HOLDING INSTRUCTIONS IS REQUIRED.
134
FIRE STATION
28L
ACCELERATION TAXIWAY
EXHIBIT B

DOCKET
01-AFC-7C
DATE OCT 02 2007
RECD. OCT 02 2007

CALIFORNIA
ENERGY
COMMISSION

RUSSELL CITY ENERGY CENTER

Amendment No. 1 (01-AFC-7C)
Alameda County

FINAL COMMISSION DECISION

OCTOBER 2007
(01-AFC-7C)
CEC-800-2007-003-CMF

EXHIBIT C

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

IN THE MATTER OF:

PETITION TO AMEND THE COMMISSION DECISION APPROVING THE APPLICATION FOR CERTIFICATION FOR THE *RUSSELL CITY ENERGY CENTER*

DOCKET NO. 01-AFC-7C

Order No. 07-0926-04

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the ***RUSSELL CITY ENERGY CENTER Amendment No. 1***. The Commission Decision is based upon the evidentiary record of these proceedings (Docket No. 01-AFC-7C) and considers the comments received at the September 12, 2007, business meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and Conditions imposed.

This **ORDER** adopts by reference the text, Conditions of Certification, Compliance Verifications, and Appendices contained in the Commission Decision, which is compiled from the Presiding Member's Proposed Decision, modified by the Errata and Revisions to the Presiding Member's Proposed Decision dated and including the further modifications to Condition of Certification **TRANS-10** proposed by the September 25, 2007 letter from William C. Withycombe, FAA Regional Administrator, to James Adams (Exhibit 110). It also adopts specific requirements contained in the Commission Decision which ensure that the proposed facility will be designed, sited, and operated in a manner to protect environmental quality, to assure public health and safety, and to operate in a safe and reliable manner.

FINDINGS

The Commission hereby adopts the following findings in addition to those contained in the accompanying text:

1. The petition meets all the filing criteria of Title 20, California Code of Regulations, section 1769(a), concerning post-certification project modifications;

EXHIBIT C

2. The project will remain in compliance with all applicable laws, ordinances, regulations, and standards; and

3. There will be no unmitigated significant environmental impacts associated with the proposed modification. Pursuant to the Global Warming Solutions Act of 2006 (AB32), the adoption of measures to mitigate greenhouse gas emissions from the project is within the responsibility and jurisdiction of the California Air Resources Board; the ARB can and should adopt appropriate standards and requirements for greenhouse gas emissions.

ORDER

Therefore, the Commission **ORDERS** the following:

1. The Petition to Amend the ***RUSSELL CITY ENERGY CENTER*** project as described in this Decision, including the two alternative transmission lines connecting the project site to the PG&E Eastshore Substation, is hereby approved and an amended certificate to construct and operate the project is hereby granted.

2. The amended certificate is subject to the timely performance of the Conditions of Certification and Compliance Verifications enumerated in the accompanying text and Appendices. The Conditions and Compliance Verifications are integrated with this Decision and are not severable therefrom. While the project owner may delegate the performance of a Condition or Verification, the duty to ensure adequate performance of a Condition or Verification may not be delegated.

3. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures as part of this Decision in order to implement the compliance monitoring program required by Public Resources Code section 25532. All conditions in this Decision take effect immediately upon adoption and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

4. This Decision is adopted, issued, effective, and final on September 26, 2007.

5. Reconsideration of this Decision is governed by Public Resources Code, section 25530.

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EXHIBIT C

6. Judicial review of this Decision is governed by Public Resources Code, section 25531.

Dated September 26, 2007, at Sacramento, California.

JACKALYNE PFANNENSTIEL
Chairman

-absent-
JAMES D. BOYD
Vice Chair

JOHN L. GEESMAN
Commissioner

ARTHUR H. ROSENFELD
Commissioner

JEFFREY D. BYRON
Commissioner

EXHIBIT C

INTRODUCTION

A. SUMMARY OF THE PROPOSED DECISION

This Decision contains the Commission's determinations regarding the Petition for Amendment of the September 11, 2002, Commission Decision (2002 Decision) approving the Application for Certification (AFC) for the Russell City Energy Center (RCEC) and includes the findings and conclusions required by law.[1] We **approve** the amendment, for the reasons and subject to the Conditions of Certification set forth in the remainder of this Decision.

The Petition was filed by Russell City Energy Company, LLC (Applicant or Project Owner), a successor in interest to Russell City Energy Company, LLC, the original licensee.[2] This Decision is based exclusively on the evidentiary record established at the hearings on the petition.[3] We have independently evaluated this evidence, presented the Commission's reasons supporting its Decision, and provided references to portions of the record, which support the Commission's findings and conclusions.[4] The Conditions of Certification, which

[1] The requirements for an amendment of an Energy Commission Decision are set forth in the Commission's regulations, Title 20, California Code of Regulations, section 1769. They are summarized in subsection B, below.

[2] Between the September 11, 2002 Commission Decision and the present, we understand that Russell City Energy Center, LLC, transferred its assets related to the RCEC, including the license approved by the Decision, to Russell City Energy Company, LLC, of which it owns 65% and Aircraft Services Corporation, an indirect subsidiary of General Electric Company, owns 35%. Following that transfer, Russell City Energy Center, LLC changed its name to Calpine Russell City, LLC. The transfer of ownership of the RCEC license was approved by the Energy Commission at its August 1, 2007, Business Meeting.

[3] We also take administrative notice of the September 11, 2002, Commission Decision and the evidence admitted in that proceeding.

[4] References to the evidentiary record, which appear in parentheses, may include an exhibit number and/or a reference to the page number of the reporter's transcript. All transcript references are to the evidentiary hearing transcript of 7/19/07, unless otherwise noted. *e.g.*, (Ex. 2, p. 55; RT 123.)

follow each topic section, will ensure that the Russell City Energy Center is designed, constructed, and operated in the manner necessary to protect public health and safety, provide needed electrical generation, and preserve environmental quality.

Russell City Energy Center LLC, originally proposed to build a 600 megawatt (MW) natural gas-fired, combined-cycle electric generating facility located at the intersection of Enterprise and Whitesell Streets in the Industrial Corridor of the City of Hayward in Alameda County, California. That proposal was approved by the Energy Commission on September 11, 2002. For various reasons, the licensee was not able to construct the facility on the approved site. Its successor, Russell City Energy Company, LLC, now proposes to build the same facility, with minor modifications in layout and associated equipment on a nearby site located on Depot Road to the southwest of the intersection of Depot Road and Cabot Boulevard. That proposal is described in the Amendment Petition No. 1, dated November, 2006 (Ex. 1), which is the subject of the proceedings leading to this Decision.

The changes to the original project proposed by the amendment are described in detail in the **PROJECT DESCRIPTION** section of this Decision.

During the original decision process and again in the amendment review process, Energy Commission staff (Staff) and the Applicant carried out extensive coordination with numerous local, state, and federal agencies. These included the Bay Area Air Quality Management District (BAAQMD or District), City of Hayward, and other regulatory agencies with an interest in this project. Through these efforts, the various parties and agencies have reached mutual agreement on almost all aspects of the proposed project and upon the necessary Conditions of Certification.

At the time of the evidentiary hearing one dispute remained between the Applicant and Staff. In the areas of land use and traffic and transportation, the Staff recommended that the Amendment Petition be denied due to the potential effects of thermal plumes from the exhaust stacks and cooling towers on aircraft flying near the Hayward Executive Airport. The Commission has decided that those concerns do not merit denial of the petition and can be mitigated, as recommended by the Federal Aviation Administration (FAA), with appropriate notifications to pilots. Public comments at the evidentiary hearing expressed concerns about the health effects of operation of the proposed facility on nearby residents. As is discussed in the Air Quality and Public Health sections below, the evidence shows that there will not be significant health impacts and that the project will comply with all health related requirements.

The remaining sections of this Decision describe the changes to the originally approved project, the environmental effects of the amended project and conformance of the amended project with applicable laws, ordinances, regulations and standards (LORS).

B. AMENDMENT PROCESS

The Russell City Energy Center and its related facilities fall within Energy Commission licensing jurisdiction. (Pub. Resources Code, §§ 25500 et seq.). During its licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, §§ 25519(c), 21000 et seq.), and the Commission's siting process and associated documents are functionally equivalent to the preparation of the traditional Environmental Impact Report. (Pub. Resources Code, § 21080.5.) A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough and timely review and analysis of all aspects of this proposed project. During the process, we

conduct a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

Significantly, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally, or on a more formal level as an Intervenor with the same legal rights and duties as the project developers. Public participation is encouraged at every stage of the process.

After a license is approved, it may be amended on the petition of the Applicant. Title 20, California Code of Regulations, section 1769. Depending on the complexity and expected level of public interest, an amendment may be analyzed by Staff and referred directly to the Energy Commission for decision. Alternatively, as is the case in this proceeding, the amendment may be referred to a committee of two Commissioners who take evidence and submit a proposed decision to the Energy Commission. In either event, the Commission must make the following findings before approving an amendment:

- That the amended project will not have significant,[5] unmitigated, environmental effects or that specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the proceeding and that the benefits of the project outweigh the unavoidable significant environmental effects of the project;

- That the amended project will remain in compliance with all applicable laws, ordinances, regulations and standards or that the facility is required for the public convenience and necessity and that there are not more prudent and feasible means of achieving the public convenience and necessity;

[5] The Commission's regulations use the term "significant adverse environmental effect." See, e.g., 20 Cal. Code of Regs., §1755. "Adverse" is redundant, however, in that by definition in the CEQA Guidelines (14 Cal. Code of Regs., § 15382) an effect must be "adverse" in order to be "significant;" positive or beneficial effects can not be significant. Therefore, when we use the terms "significant effect" or "significant impact" in this Decision, the reader may assume that those effects and impacts are adverse.

- That the change in the project will be beneficial to the public, Applicant, or Intervenors; and

- That there has been a substantial change in circumstances since the original approval justifying the change or that the change is based on information which was not known and could not have been known with the exercise of reasonable diligence prior to the original approval.[6]

C. PROCEDURAL HISTORY

On November 17, 2006, the Applicant filed the Amendment Petition No. 1 (Ex. 1), the subject of this amendment proceeding and Decision. The matter was taken up by the Energy Commission's Siting Committee, consisting of Commissioners John L. Geesman and Jeffrey D. Byron. The Committee conducted a Public Informational Hearing and Site Visit on December 15, 2006, during which the Committee and public toured the proposed new project site and the Applicant and Commission staff described the proposed amendment and the process for considering the amendment application. Staff originally proposed, and the Committee issued, a schedule in which Staff would file its Staff Assessment on February 19, 2007.

Delays in obtaining some of the information necessary to prepare the Staff Assessment, resulted in the publication of portions of the Staff Assessment on April 3, 2007. On June 6, 2007, the Committee conducted a status conference to review the progress of the proceeding and issued a revised schedule calling for the publication of a complete Staff Assessment on June 29, 2007. The complete Staff Assessment (Ex. 100) was published on June 29, 2007.

On June 20, 2007, Paul N. Haavik, an interested resident, petitioned to intervene in the proceeding; his petition was granted on July 2, 2007.

[6] Title 20, California Code of Regulations, subsections 1769(a)(3), 1755(d).

On July 19, 2007, a prehearing conference was held, at which it was determined that all issues were ready for hearing. An evidentiary hearing was then conducted, at which evidence from the parties and public comment were taken. With exceptions noted in the topic discussions below, the evidentiary record was closed.

On August 23, 2007, the Committee issued its Presiding Member's Proposed Decision (PMPD). Public and party comments on the PMPD were accepted during a 15-day comment period ending on September 7, 2007 and at a public hearing conducted in Hayward by the Committee, on September 5, 2007. On September 5, 2007, the evidentiary record was reopened and several additional exhibits received into the record. An Errata and Revisions to the PMPD were issued on September 10, 2007.

Response to Comments

Public and party comments on the PMPD ranged from concerns about public health and safety to the details of implementing the fireplace/woodstove replacement and pilot notification programs.

Several people, including Carol Ford of the California Pilots Association and Andy Wilson, disagreed with the conclusion that the restriction of the airspace above the RCEC will not significantly affect pilots operating out of the Hayward Airport. Ms. Ford spoke to the local FAA office and Mr. Wilson to FAA headquarters in Washington, D.C., about the FAA letter in the record as part of Exhibit 103. They are trying to get the FAA to revisit its conclusions. Mr. Wilson requested that the September 12, 2007 Commission Business Meeting consideration of final adoption of the proposed decision be postponed in order to

allow time for the FAA to review its position.[7] The Committee indicated that it would not do so, finding it unlikely that the FAA would be able to conduct such a review in a timely manner. Mr. Wilson provided helpful suggestions about the methods of making pilots aware of the power plant, most of which are incorporated, along with suggestions from the Applicant, Staff, and FAA in Condition **TRANS-10**, below.

Mr. Wilson also suggested that hazardous material response plans include appropriate warnings to pilots via the local control towers at the Hayward and Oakland airports. The mechanisms for doing so are best left to the Risk Management and Hazardous Materials Business Plans required under Condition **HAZ-2**.

Regarding the fireplace/woodstove replacement program, several commenters questioned the value of replacing fireplaces and woodstoves that are not frequently used as well as why the emphasis is on winter time reductions in particulate matter emissions. Staff Air Quality witness Mathew Layton testified that Staff took into account the possibility that some fireplaces that are infrequently used would be replaced. He concluded that it would be unlikely that many fireplace owners would pay the significant unrebated costs to replace a fireplace they weren't using and in the rare instance that they did, the protection against future emissions would be of value. (RT, 75.) Mr. Layton also testified that there is a "strong nexus" between wood smoke and wintertime particulate matter exceedances. (RT, 40.)

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[7] On the morning of the September 12, 2007 Business Meeting, the FAA requested a continuance to allow it to further consider the project's effects. The Commission continued its hearing until September 26, 2007. The FAA provided additional comments in letters dated September 18, 2007 (Ex. 109) and September 25, 2007 (Ex. 110). At the September 26 Business Meeting, the evidentiary record was reopened and those letters were admitted into evidence along with the oral testimony of FAA staff representative David Butterfield. The Commission has considered that additional evidence and affirms the findings regarding aviation safety set forth in the Traffic and Transportation section of this Decision.

Energy Commission review. She requests that any mention of potential cumulative impacts arising from the restriction of airspace around the two power plants be removed from the decision. Nothing in this decision is intended to affect the determination of Eastshore Energy's application. We cannot, however, ignore that the possibility of impacts—direct or cumulative—exists. We have clarified the text and finding to more clearly indicate our intention that Eastshore be judged on its own circumstances and record.

Note Regarding Format of this Decision

The remainder of this Decision is organized by topic in the same order as the 2002 Decision. The discussions focus on whether the amended project would cause any significant environmental impacts, appropriate mitigation for any such impacts, and whether the amended project will continue to comply with all applicable LORS. Where there are no changes to the findings and conclusions in the 2002 Decision, we will not repeat its analysis beyond a brief explanation of our reasons for making that determination. For the convenience of the parties and public, we will, however, reprint all of the conditions of certification for the project, whether or not they are changed from those adopted in 2002.

[8] Including Suzanne Barba, John Gilbertson, Francisco Abrantes, Marie Jackson, Wafaa Aborashed, Stephania Widger, Juanita Gutierrez, JoAnne Gross, Tom Kersten, P.L. Guernsey, and Holly Rogers.

I. PROJECT DESCRIPTION

A. Location

The key feature of the proposed amendment is the relocation of the power plant facilities 1300 feet to the northwest of the approved location (300 feet boundary to boundary). The new project site abuts and extends to the south from Depot Road and is west of the intersection of Depot Road and Cabot Boulevard in the City of Hayward in Alameda County.[9] The new site is west of the City's Water Pollution Control Facility (WPCF), the source of treated wastewater for its cooling system. The power plant's fenced area will be 16.5 acres. See **Figure 2 - PROJECT DESCRIPTION** for an aerial view of the approved and new locations along with other key project features such as the natural gas and transmission line routes. (Ex. 100, p. 3.1, Ex. 101, p. 4.)

B. Power Plant

The amended project will continue to include two Siemens Westinghouse "F-class" combustion turbine generators (CTGs) equipped with dry, low oxides of nitrogen (NOx) combustors and steam injection capability; two heat recovery steam generators (HRSG); a single condensing steam turbine-generator; a mechanical draft hybrid, (wet/dry) plume-abated cooling tower; and support equipment. Each HRSG unit will have a 145-foot exhaust stack and will be equipped with duct burners for additional steam production when increased electric power generation is necessary. The approved project was designed to operate as a base load facility. (Ex. 100, pp. 3-1-3.2.) See **Figure 1 - Project Description** for the facility and equipment configuration of the amended project.

[9] At the time the Amendment Petition was filed, the new site was partially in the City of Hayward and partially in the unincorporated area of Alameda County. On March 5, 2007, annexation proceedings were completed which brought all of the site within the City. (Ex. 100, p. 4.5-6.)

those streets. (Ex. 1, pp. 3-163 – 3-164.) Staff agreed to delete **TRANS-5** but asserts that **TRANS-4** should be retained as still potentially necessary for improving Enterprise Avenue prior to its use as the point of access to the project site during construction. (Ex. 100, pp. 4.10-3, 4.10-20.)

The Applicant agrees with the above modifications to the Conditions proposed by Staff. (Ex. 13, p. 3.)

Aviation Safety Issue

The only significant point of disagreement between the Staff and Applicant is over the potential effects of the project on aviation. This issue has overlapping **LAND USE** and **TRAFFIC and TRANSPORTATION** aspects; for convenience we discuss both aspects in this section. They can be summarized by the following questions:

1. Do the thermal plumes from the HRSGs and cooling towers create a potentially significant public safety impact (hazard) to aircraft flying over the power plant?

2. If there is a potential impact, is it mitigated by advising pilots not to fly over the power plant at elevations below 1,000 feet?

3. Does the removal of the airspace above the power plant from the navigable airspace in the vicinity of the Hayward Executive Airport create either significant public safety impacts or violate applicable LORS?

At the Evidentiary Hearing, extensive oral and written testimony was received from the Applicant (Douglas Davy, Christine Killip, Gregory Darvin, and Marshall Graves), Staff (Eric Knight, Shaelyn Strattan, James Adams, and William Walters) and Intervenor (Carol Ford) on these issues.

The amended RCEC project site is located approximately 1.5 miles to the southwest of the Hayward Executive Airport. It lies off the side of the airport's two parallel runways. Aircraft do not need to fly over the project site in order to

land at, or depart from, the airport. The prescribed traffic pattern for the airport is an oval area surrounding the airport perimeter; the project site is one-half mile outside that area. (See **FIGURE 4 - TRAFFIC AND TRANSPORTATION**.) Aircraft tracking diagrams provided by the City for April, 2007 show that, of approximately 10,000 flights in the area, only 40 aircraft flew over or within 480 feet of the project site at elevations at or below 1,000 feet. (Ex. 100, p. 4.10-10, RT, 158.) Over 80 percent of the air traffic at the airport is single engine, general aviation aircraft. (Ex. 100, p. 4.5-17.) Four existing, 228-foot-tall KFAX AM 1100 radio towers, are on the previously approved project site, approximately 1,300 feet (300 feet boundary to boundary) to the southeast of the amended project site. (2002 Decision, p. 221.)

The Applicant commissioned an analysis of vertical plume velocities from Katestone Environmental of Brisbane, Australia.[18] Ms. Killip, an atmospheric scientist and Managing Director of Katestone, explained that the analysis concluded that under calm-wind conditions, the plumes from the RCEC will have a vertical velocity below 4.3 meters per second at about 1,000 feet above ground. (RT, 146.) Taking into account actual wind measurement data for the project area, the average plume vertical velocity is below 4.3 meters per second at 305 feet for the nine cooling towers and 600 feet for the two HRSGs, 99.95 and 99.8 percent of the time, respectively. (Ex. 28, p. 18.)

Mr. Darvin testified that the 4.3 meters per second vertical velocity figure is an Australian screening standard, not an absolute standard.[19] If it appears that the

[18] The Australians appear to be among the first to consider aviation impacts from industrial plumes.

[19] And no witness was able to explain the origin of this standard. Ms. Killip said it is the guideline she has used in the over ten years her firm has been conducting plume assessments. (RT, 144.) Dennis O'Leary, a representative of the Australian Civil Aviation Safety Authority, in an email to Dr. Davy, describes it as "somewhat loss [sic] in antiquity". Mr. O'Leary also refers to it as a "4.3 m/s trigger for plume rise assessment," which is consistent with Mr. Darvin's characterization of it as a screening standard. (Ex. 28, Attachment 8.)

vertical velocity of a project's plume will not exceed that rate, no further analysis is required. If the rate will exceed it, a site specific analysis is undertaken. He faults Staff's analysis as stopping at the screening stage, using calm winds, failing to take into account site-specific wind data. A calm wind analysis is overly conservative. In the last seven years, only nine calm hours were recorded in Union City; Fremont recorded no calm wind hours in a five year period.[20] (RT 147-8.)

Mr. Graves, a former Naval pilot and instructor, licensed airline transport pilot (multi-engine rating) and helicopter pilot, testified about the effects of the predicted thermal plumes on small aircraft. He calculated the 4.3 meters per second rate to equate to 840 feet per minute. The definition for aviation weather forecasting purposes of "light turbulence" is vertical gusts and wind shears from 300 to 1200 feet per minute. "Moderate turbulence" is defined as from 1200 to 2100 feet per minute. The Federal Aviation Administration (FAA) certifies small aircraft to encounter gusts of 3000 feet per minute and helicopters for gusts of 1800 feet per minute (RT 155) and expects that any pilot at any skill level could maintain control of the aircraft under those circumstances (RT, 156). Pilots are trained to respond to unusual disruptions that are far beyond any likely to result from encountering a thermal plume. (RT, 158-9.) A pilot encountering one of the plumes in a typical small plane (Cessna 172) would find his nose tilted up by the updraft, but not to a degree that would bring the plane close to the angle at which it might stall. (RT, 154-5.)

The Applicant also offered in support of its assertion that the thermal plumes will not be a hazard to air navigation a 2006 FAA study entitled "Safety Risk Analysis of Aircraft Overflight of Industrial Exhaust Plumes" (FAA Study). (Ex. 20, Attachment DR55-1.)

[20] Several public comments and letters submitted by the public during this proceeding also note the prevalence of winds in the area.

The study's conclusions, summarized in its Executive Summary, are as follows:

> The safety risk analysis team performed their analysis of the predictive risks associated with the plumes and determined the effects of the hazards as low, or in the green section of the risk matrix. As a result of this assessment, the risk associated with plumes is deemed acceptable without restriction, limitation, or further mitigation.
>
> However, to further lower the already acceptable risk associated with the overflight of vertical plumes, the team recommended the continuance of training and awareness programs that have been successful with similar hazards of acceptable risk levels. The safety risk assessment team recommended the following:
>
> - Amend the Aeronautical Information Manual (AIM) Chapter 7, Section 5 with wording to the effect that overflight at less than 1,000 feet vertically above plume generating industrial sites should be avoided.
> - Publish (as appropriate) the position and nature of the present power plants located near public airports in the Airport/Facility Directory (A/FD) and issue a Notice to Airmen (NOTAM) when operationally necessary.
> - Where operationally feasible, make the temporary f[l]light restriction (TFR) that includes the overflight of power plants a permanent flight restriction.[21]
> - Amend FAA Order 7400.2 to consider a plume generating facility as a hazard to navigation when expected flight paths pass less than 1,000 feet above the top of the object. Flight Standards Service will be required to provide comment for any facility not meeting this criterion.
> - Amend Advisory Circular 70.7460-2K Proposed Construction of Objects that May affect the Navigable Airspace – Change Instructions for Completing FAA Form 7460-1 – Notice of Proposed Construction or Alteration Item # 21, add:
>
> > *"For structures such as power plants or any industrial facility where exhaust plume discharge could reasonably be expected and reportable under the provisions of Part 77, thoroughly explain the nature of the discharge."*
>
> These actions will serve to further enhance safety within the National Airspace System. (Ex. 20, Attachment DR55-1, pp. iv-v.)

[21] October 8, 2004 NOTAM No. FDC 4/0811: "In the interest of national security and to the extent practicable, pilots are strongly advised to avoid the airspace above, or in proximity, to such sites as power plants . . . industrial complexes, military facilities and other similar facilities." (Ex. 28, Attachment 3.)

In support of its assertion that the amended project would comply with Hayward Municipal Code Section 10-6.35,[22] the Applicant offers a June 27, 2007 letter from City Manager Jesus Armas indicating that the City currently interprets the Code Section by use of a map contained in the 2002 Airport Master Plan. In that map, which is reproduced above as **FIGURE 4 - TRAFFIC AND TRANSPORTATION** with the addition of an outline of the project site, the relevant zones are the Traffic Pattern Zone and the zones contained within in it. The project site is approximately one-half mile[23] outside of the Traffic Pattern Zone. (Ex. 28, Attachment 5.)

Ms. Strattan and Mr. Adams testified that Staff first became aware of and concerned about the effects of thermal plumes on aviation during and following the review of the Application for Certification for the Blythe Energy Power Plant Project (99-AFC-8). That project was permitted in 2001 and began commercial operation in 2003. It is located on the extended centerline of a runway of the Blythe airport, near the City of Blythe in eastern Riverside County. Several pilots reported encountering turbulence as they flew over the power plant while on landing approach. At least one of those pilots characterized the turbulence as severe turbulence. (Ex. 100, p. 4.10-9; RT 181, 189.)

Staff believes the FAA Study is flawed for failing to consider the reports of the Blythe pilots relayed to FAA staff by Mr. Adams and for relying on a database of

[22] "Sec. 10-6.35 USE RESTRICTIONS. Notwithstanding any other provisions of this Article, no use may be made of land within any airport approach zone, airport turning zone or airport transition zone in such a manner as to create harmful electrical interference with radio communications between the airport and aircraft, make it difficult for flyers to distinguish between airport lights and other lights, result in harmful glare in the eyes of the flyers using the airport, impair visibility in the vicinity of the airport or otherwise endanger the landing, take off or maneuvering of aircraft."

[23] Mr. Armas' letter describes the distance as 700 feet but, according to the map's scale, it is greater than 2000 feet from the Traffic Pattern Zone to the closest project boundary. The Applicant indicates that the cooling tower is more than 2,900 feet from the Traffic Pattern Zone boundary and the HRSG stacks are more than 3,000 feet from the boundary. (Ex. 28, p. 9 [A24].)

commercial, rather than general aviation, pilot reports. (RT, 189.)[24] It emphasizes statements in the study to the effect that vertical plumes "could" result in aircraft accidents and fatalities and the recommendations that attention be paid to plumes in the review of project notices submitted to the FAA. (Ex. 100, p. 4.5-17.) Staff also faults the FAA for considering only the height of physical structures, not the thermal plumes they generate in its review of Form 7460 filings. (RT, p. 195.)

If the amendment is approved, Staff recommends that a Condition of Certification require notice to pilots that they should not fly over the power plant. See Condition **TRANS-10**. Staff believes, however, that such a restriction will create its own impacts by reducing the navigable airspace around the Hayward airport and violate Hayward Municipal Code Section 10-6.35's prohibition against uses that would endanger aircraft maneuvering. The restriction would increase the workload of pilots and air traffic controllers who would no longer have the option of flying in the removed area. (Ex. 100, pp. 4.5-16 – 4.5-18; RT, 171 – 173.) Helicopter traffic leaving the airport is directed in a cone shaped pattern generally headed toward the RCEC site. The cone ends just before reaching the project site. (RT, 166.)

Applicant's witness Mr. Graves testified that he reviewed the published approach paths for the Hayward and Oakland airports and found no flight paths that would be affected by restricting the airspace above the RCEC. Hayward traffic control tower and FAA officials told him that the southwest area where the RCEC would be located is designated as a low traffic area. (RT, 157-158.)

Ms. Ford, President of the San Carlos Airport Pilots Association, Vice President of the California Pilots Association for Region 3, and an airport

[24] Mr. Graves disputes this assertion, pointing out that the FAA Study itself indicates that it is concerned with general aviation aircraft. See, for example, Table 1 of the Study, which tabulates flight hours and accidents for "U.S. General Aviation. (Ex. 20, Atachment 5, p. 9.)

consultant, testified that FAA grant assurances applicable to the City of Hayward prevented it from allowing hazards to aircraft in the vicinity of the airport. (RT, 203 – 204; Ex. 208.) Ms. Ford was of the opinion that further restrictions on the navigable airspace would adversely affect pilots using the Hayward airport. She characterized the airspace in the Bay Area as "one of the most complicated in the world." (RT, 204.)

The Evidentiary Record was left open following the hearing for the submission of additional agency comments, including that of the Alameda County Airport Land Use Commission (ALUC). On August 15, 2007, the ALUC adopted a resolution recommending that the project find an alternate site or, if approved at the proposed site, that a Condition like Staff's proposed **TRANS-10** be adopted. (Ex. 108.)

Commission Discussion

We recognize Staff's diligent pursuit of this aviation safety issue. It appears to be based, as was the FAA Study,[25] on a concern about the *potential* for harm. The evidence does not show that potential to be a significant risk, however. The FAA Study, finds that risk to be "extremely remote"—one in a billion[26]—at best, and well within the FAA's acceptable range of risk.[27] Pilots are trained to properly respond to expected and unexpected turbulence and to avoid potential

[25] The statement that plumes "could" negatively affect aircraft is found in the initial presumption portion of the study characterized as "brainstorming" by the Abstract. It is not borne out by the remainder of the report. The study's conclusions did not support that hypothesis.

[26] Ex. 20, DR55-1, pp. 11 - 14.

[27] We do not find Staff's criticisms of the study persuasive. The Study was based on reported accidents and incidents, of which none relating to power plants were found in its databases. Had it found one incident, the incident rate would be 1.2×10^{-9} per flight hour. Two incidents would be 2.4×10^{-9}. (Ex. 20, Attachment 5, p. 11.) Even if ten incidents had been identified, the rate would be 1.2×10^{-8}, which is still less than the FAA's target level of safety of 1×10^{-7} per flight hour.

hazards.[28] We agree with the FAA, Staff, the Applicant, and the Alameda County ALUC that an advisory warning pilots not to overfly the power plant at low altitudes provides an additional measure of safety. With or without the advisory, though, the impact is less than significant.

While the overflight restriction will have the effect of removing a portion of the navigable airspace around the Hayward Executive Airport, it does not appear to be a significant reduction. The space is one-half mile outside of the airport's defined traffic pattern and is very lightly (.4%) traversed. The radio towers 1000 feet to the south already call for caution. Sufficient unencumbered airspace will remain for the operation of the airport and its users. While Staff believes that the FAA has agreed with its position that the project should not be approved as proposed due to potential aviation hazards, all we find in the FAA's letter is agreement that pilots should be advised to avoid overflying the plumes at low altitudes. The FAA does not complain about the loss of navigable airspace; as the agency responsible for the designation of air routes and air traffic control, its lack of concern in this regard is telling.

We respectfully disagree with the recommendation of the ALUC that an alternative site be chosen for the power plant. Its resolution states that the RCEC airspace restriction would "alter the flight pattern[29]" but cites no evidence to support that conclusion.

We accept the City's interpretation of its own ordinance that the project site is outside of the zones subject to Municipal Code Section 10-6.35.

---

[28] In addition to Mr. Graves' testimony to this effect, the FAA Study speaks of "rules and regulations restricting the altitude for overflight of power plant facilities coupled with pilot training, alerting, and the common sense aviator aptitude" as factors in the scarcity of reported incidents relating to power plants. (Ex. 20, Attachment 5, p. 15.)

[29] August 16, 2007 ALUC resolution, p. 2, fourth "Whereas" clause.

If the proposed Eastshore Energy Center is approved, it is possible that the navigable airspace above that facility would be similarly restricted. That project appears to be located just outside the Traffic Pattern Zone, approximately one-half mile closer than the RCEC. On the record before us, we can only note the possibility of cumulative effects from restricting the airspace above both projects. We also note that the Eastshore project is undergoing Energy Commission review; during that review the Commission can and should consider whether there are any significant direct or cumulative effects of any airspace restrictions over that project and impose proper mitigation or, if mitigation is not feasible, deny the project or override unmitigated effects. We do not intend this Decision to determine in any way the conclusions or outcome of the Commission's review of the Eastshore Energy Center, which must be judged on its merits and the evidence presented in that proceeding.

To answer the questions we pose above, 1) the proposed location presents no aviation hazard that rises to the level of a significant environmental effect; 2) though no significant effect requiring mitigation is presented, an additional measure of pilot safety will be afforded by advising pilots not to fly over the facility as Staff, the Applicant, the FAA, and the Alameda County ALUC recommend;[30] and 3) the removal of the navigable airspace above the power plant will not cause a significant environmental effect as it is not within any established traffic pattern and sufficient navigable airspace remains after its removal.

This decision is, of necessity, specific to this proposed project location; each power plant must be evaluated in the context of its local setting and aviation environment.

[30] We have incorporated additional pilot awareness/notification methods recommended by the ALUC and FAA as the last three bullets of **TRANS-10**.

FINDINGS AND CONCLUSIONS

Based on the evidence, we find as follows:

1. The project as amended will continue to comply with all applicable LORS.
2. The revised Conditions of Certification set forth below are appropriate and will ensure that the project is designed and constructed both in accordance with applicable law and in a manner that protects environmental quality and public health and safety and to ensure compliance with all applicable LORS.
3. The Traffic and Transportation aspects of the amended project do not create significant direct or cumulative environmental effects. To the extent that a possible cumulative effect on aircraft safety exists by virtue of the restriction of navigable airspace for the proposed Eastshore Energy Center project in addition to that set aside for this project, there is insufficient information to fully evaluate the impact at this time but the Energy Commission can and should fully consider that possible cumulative impact in its consideration of the Eastshore project.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall develop a construction traffic control and transportation demand implementation program that limits construction-period truck and commute traffic to off-peak periods in coordination with the City of Hayward and Caltrans. Traffic associated with construction of the RCEC shall be mitigated by avoiding peak transportation hours associated with the area, including peak work hours for Gillig Corporation, Berkeley Farms Incorporated, and other major employers in the area. In addition, the use of the railroad spur shall not block traffic during a.m. or p.m. peak hours. Specifically, this plan shall include the following restrictions on construction traffic:

- Establish construction work hours outside of the peak traffic periods to ensure that construction workforce traffic occurs during off-peak hours, except in situations where schedule or construction activities require travel during peak hours, in which case workers will be directed to routes that will not deteriorate the peak hour level of service below the City of Hayward's LOS D standard;
- Schedule heavy vehicle equipment and building material deliveries as well as the movement of materials and equipment from laydown areas to occur during off-peak hours;

- Route all heavy vehicles and vehicles transporting hazardous materials as follows: from SR 92 exit northbound at Clawiter Road, turn left at Enterprise Avenue, and enter the Russell City Energy Center shortly after passing Whitesell Street; and
- During the construction phase (every 4 months), monitor and report the turning movements for the intersection at Enterprise Avenue and Clawiter Road during the A.M. (7:30 to 8:30 a.m.) and P.M. (4:30 to 5:30 p.m.) peak hours to confirm construction trip generation rates.
- The construction traffic control and transportation demand implementation program shall also include the following restrictions on construction traffic addressing the following issues for linear facilities:
- Timing of pipeline construction (all pipeline construction affecting local roads shall take place outside the peak traffic periods to avoid traffic flow disruptions);
- Signing, lighting, and traffic control device placement;
- Temporary travel lane closures;
- Maintaining access to adjacent residential and commercial properties; and
- Emergency access.

Verification: At least 30 days prior to start of site preparation or earth moving activities, the project owner shall provide to the City of Hayward and Caltrans for review and comment, and to the CPM for review and approval, a copy of their construction traffic control plan and transportation demand implementation program. Additionally, every 4 months during construction the project owner shall submit turning movement studies for the intersection at Enterprise Avenue and Clawiter Road during the A.M. (7:30 to 8:30 a.m.) and P.M. (4:30 to 5:30 p.m.) peak hours to confirm that construction trip generation rates identified in the AFC and used to determine less than significant impacts to City of Hayward streets and are not being exceeded.

TRANS-2 Deleted.

TRANS-3 Deleted.

TRANS-4 The project owner shall complete construction of Enterprise Avenue along the project frontage. Enterprise Avenue is to be constructed as a standard 60-foot industrial public street per City of Hayward Detail SD-102. This includes removal of the temporary asphalt curb, construction of approximately 21 feet of street pavement and a standard 6-foot sidewalk.

Verification: At least 30 days prior to operation of the RCEC plant, the project owner shall submit to the CPM, written verification from the City of Hayward that construction of Enterprise Avenue along the project frontage has been completed in accordance with the City of Hayward's standards.

TRANS-5 Deleted.

TRANS-6 The project owner shall resurface Enterprise Avenue and Clawiter Road, if damage is caused by construction traffic. The degree of rehabilitation is dependent on a condition inspection by the City Engineer after completion of the RCEC project.

Verification: At least 30 days prior to project site mobilization, the project owner shall submit to the CPM a letter agreeing to resurface Enterprise Avenue, if in the opinion of the City of Hayward City Engineer, damage to the asphalt overlay is caused by heavy equipment used in the construction of the RCEC. If required, the project owner shall resurface Enterprise Avenue and Clawiter Road in accordance with City of Hayward standards.

TRANS-7 Deleted.

TRANS-8 Deleted.

TRANS-9 The project owner or its contractor shall comply with the City of Hayward Planning Department limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from the City of Hayward Public Works Department.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that month's reporting period to the Compliance Project Manager (CPM). In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-10 The project owner shall ensure that the following mitigation measures are implemented to discourage pilots from flying over or in the proximity to the RCEC. These would include:

1. Request that a Notice to Airman (NOTAM), Category D, be issued advising pilots of the location of the RCEC and maintained in active status until all navigation charts and the Airport Facilities Directory (AFD) have been updated;

2. Request that the Hayward Executive Airport Air Traffic Control Tower (ATCT) coordinate with the Northern California Terminal Radar Approach Control to ensure that local missed approach instructions preclude the vectoring of aircraft over the RCEC;

3. Request that the FAA insert a power plant depiction symbol at the RCEC site location on the San Francisco VFR Terminal Area Chart (scale: 1:250,000);

4. Request that the Hayward ATCT add a new remark to the Automatic Terminal Information Service (ATIS) advising pilots of the location of the RCEC and to avoid overflight below 1,000 feet;

5. Deleted.

6. Request that the Hayward Executive Airport submit aerodrome remarks describing the general location of the RCEC plant and advising against direct overflight of the RCEC plant to:

   - the FAA National Aeronautical Charting Office (Airport/Facility Directory, Southwest United States);
   - Jeppesen Sanderson Inc. (JeppGuide Airport Directory, Western Region); and
   - Airguide Publications (Flight Guide, Western States);

7. Modify the Hayward Executive Airport "fly friendly" pilot guides at the project owner's expense to include: a graphical/pictorial depiction of the RCEC site, bearing and distance to the site from airport center and the OAKLAND VORTAC, latitude and longitude of the RCEC center point and the recommendation to avoid overflight of the site below 1,000 feet to avoid potentially unstable flight conditions;

8. Install obstruction lighting and marking on each RCEC exhaust stack and cooling tower. Reference FAA Advisory Circular 70/7460-I for guidance. Install lighting at each corner of the facility fence line that would be visible to an aircraft in flight, to be operated 24 hours a day, 7 days a week; and

9. Provide the Hayward Executive Airport and the Metropolitan Oakland International Airport Air Traffic Control Towers written notice at least 10 days in advance of the first test or commissioning procedure that would produce a thermal plume, provide verbal notification 2 hours in advance of any subsequent test or commissioning procedure, and 10 days written notice prior to the start of commercial operations.

Verification: At least sixty days prior to the start of construction, the project owner shall submit to the CPM for approval final design plans for the power plant that depict the required air traffic hazard lighting. The lighting shall be inspected

and declared operational by the CPM (or designate inspector) prior to the start of operations.

At least six months prior to the first test or commissioning procedure, the project owner shall demonstrate to the CPM that it has coordinated with the Hayward Executive Airport manager and changes to the San Francisco VFR Terminal Area Chart have been submitted.

At least sixty days prior to the first test or commissioning procedure, the project owner shall demonstrate to the CPM that it has coordinated with the Hayward Executive Airport manager and changes to the AFD have been submitted.

At least sixty days prior to the first test or commissioning procedure, the project owner shall provide verification to the CPM from the Hayward Executive Airport ATCT that any necessary modifications to local missed approach procedures have been coordinated with Northern California Terminal Radar Approach Control.

At least thirty days prior to the first test or commissioning procedure, the project owner shall provide verification to the CPM from the Hayward Executive Airport manager that he has an adequate supply, as determined by him, of the “fly friendly” brochure used for pilot education.

At least thirty days prior to the first test or commissioning procedure, the project owner shall provide verification to the CPM from the Hayward Executive Airport and Oakland International ATCT that the proposed language for the ATIS accurately describes the location of the RCEC and recommendation to avoid overflight below 1,000 feet.

The project owner shall provide simultaneously to the CPM copies of all advisories sent to the Hayward and Oakland Air Traffic Control Towers.

FIGURE 4 - TRAFFIC AND TRANSPORTATION
SOURCE: Exhibit 28. Attachment 5

EXHIBIT C

FIGURE 4 - TRAFFIC AND TRANSPORTATION
SOURCE: Exhibit 28. Attachment 5

EXHIBIT D

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2010-AWP-2566-OE
Prior Study No.
2007-AWP-1246-OE

Issued Date: 07/07/2010

Barbara McBride
Russell City Energy Company
4160 dublin blvd.
Dublin, CA 94568

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Stack RCEC HRSG Exhaust Stack
Location:	Hayward, CA
Latitude:	37-38-02.39N NAD 83
Longitude:	122-08-02.01W
Heights:	145 feet above ground level (AGL)
	155 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

See attachment for additional condition(s) or information.
Any height exceeding 145 feet above ground level (155 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 01/07/2012 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

EXHIBIT E

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2010-AWP-2566-OE.

Signature Control No: 694992-128033764 (DNE)
Karen McDonald
Specialist

Attachment(s)
Additional Information
Case Description
Map(s)

EXHIBIT E

Additional information for ASN 2010-AWP-2566-OE

FAA Flight Standards Division is requesting that the structures be red obstruction lighted between sunset and sunrise, to increase their conspicuity for aviation operations.

EXHIBIT E

Case Description for ASN 2010-AWP-2566-OE

The Russell City Energy Center (RCEC) is a 600-MW power plant, proposed to be constructed 1300 feet southwest of the corner of Cabot Road and Depot Road in the City of Hayward in Alameda County.

EXHIBIT E

Verified Map for ASN 2010-AWP-2566-OE

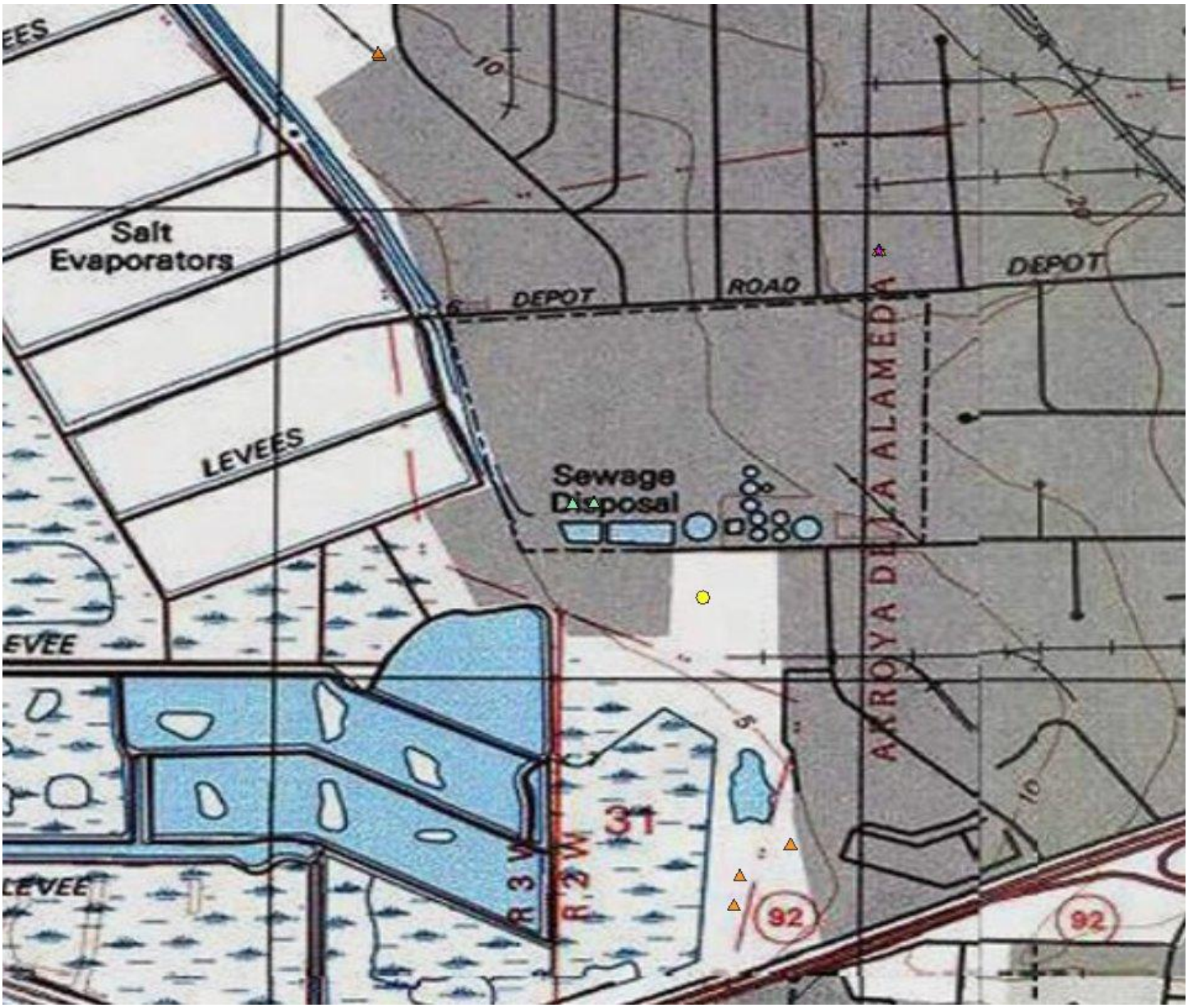


EXHIBIT E

Sectional Map for ASN 2010-AWP-2566-OE

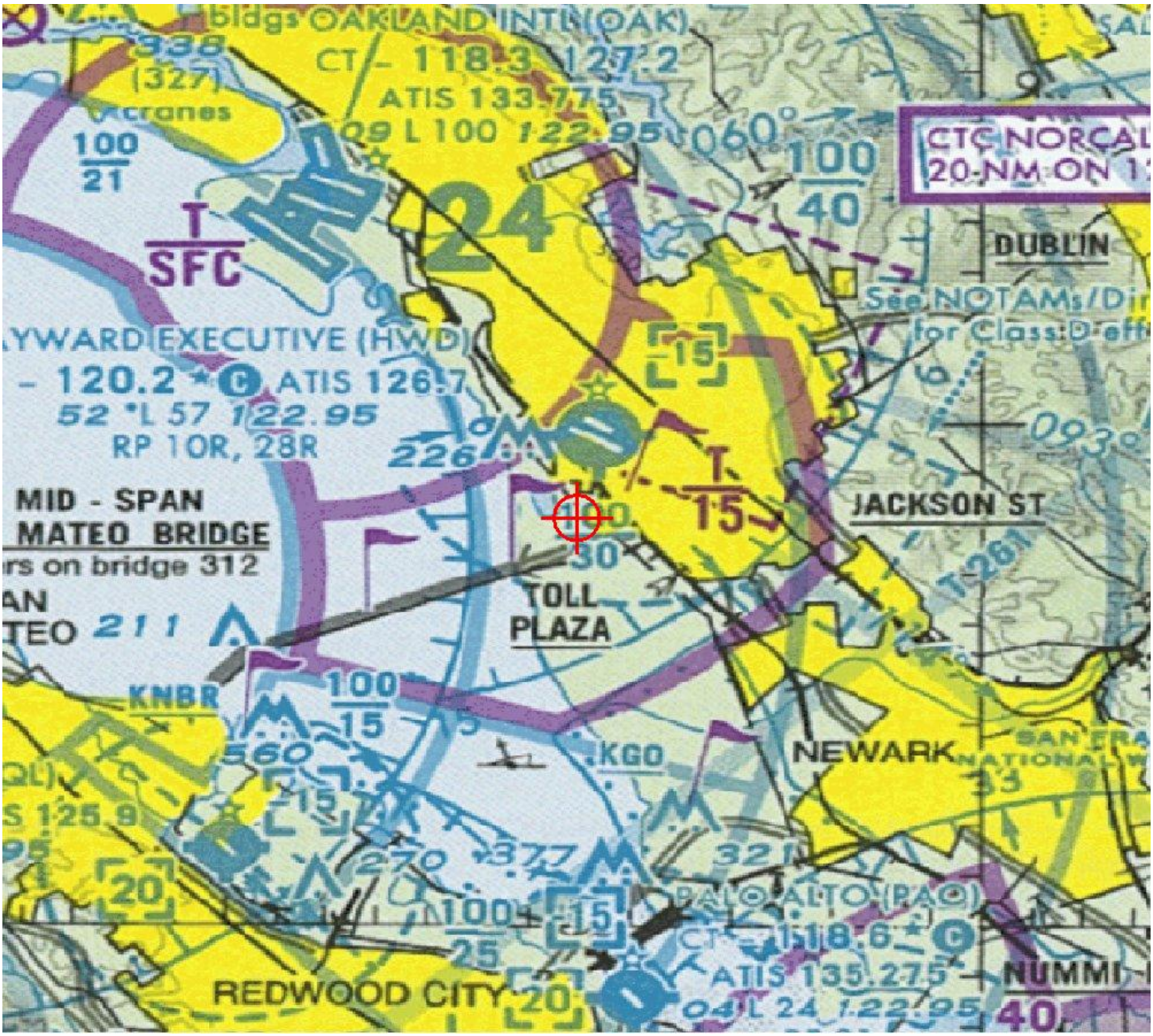


EXHIBIT E

National Transportation Safety Board
Washington, DC 20594

Printed on : 8/26/2009 9:08:56 AM

Brief of Accident

Adopted 09/09/1992

LAX89LA270
File No. 2339

08/09/1989 BAKERSFIELD, CA

Aircraft Reg No. N90296 Time (Local): 11:15 PDT

Make/Model: Bell / 206B
Engine Make/Model: Allison / 250-C20
Aircraft Damage: Destroyed
Number of Engines: 1
Operating Certificate(s): On-demand Air Taxi; Aircraft External Load
Type of Flight Operation:
Reg. Flight Conducted Under: Part 91: General Aviation

	Fatal	Serious	Minor/None
Crew	0	1	0
Pass	0	1	1

Last Depart. Point: VAN NUYS, CA
Destination: Local Flight
Airport Proximity: Off Airport/Airstrip

Condition of Light: Day
Weather Info Src: Witness
Basic Weather: Visual Conditions
Lowest Ceiling: None
Visibility: 20.00 SM
Wind Dir/Speed: Calm
Temperature (°C): 29
Precip/Obscuration:

Pilot-in-Command Age: 51

Certificate(s)/Rating(s)
Commercial; Multi-engine Land; Single-engine Land; Helicopter

Instrument Ratings
Airplane; Helicopter

Flight Time (Hours)

Total All Aircraft: 8000
Last 90 Days: 55
Total Make/Model: 5000
Total Instrument Time: UnK/Nr

THE HELICOPTER CREW WAS FILMING A COGENERATION PLANT. THE HELICOPTER ORBITED THE PLANT THREE TIMES. DURING THE THIRD ORBIT, THE HELICOPTER PASSED OVER THE EXHAUST CHIMNEY OF THE PLANT WHICH WAS OPERATING AT THE TIME. THERE WAS NO VISIBLE INDICATION THAT EXHAUST GASES WERE EMANATING FROM THE CHIMNEY. THE GASES WERE REPORTED TO BE 350 DEGREES FAHRENHEIT WITH A 3.6 PERCENT OXYGEN CONTENT. THE HELICOPTER TURBOSHAFT ENGINE LOST POWER OVER THE CENTER OF THE CHIMNEY. THE PILOT ENTERED AUTOROTATION TOWARDS AN OPEN AREA OF A PARKING LOT. DURING THE FLARE, THE HELICOPTER STRUCK A VEHICLE, AND LANDED HARD, SEVERED THE TAILBOOM, AND ROLLED ON TO ITS SIDE. THE CERTIFICATION STANDARD FOR THE ENGINE WAS 120 DEGREES FAHRENHEIT.

EXHIBIT F

LAX89LA270
File No. 2339 | 08/09/1989 | BAKERSFIELD, CA | Aircraft Reg No. N90296 | Time (Local): 11:15 PDT

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: MANEUVERING

Findings
1. (F) WEATHER CONDITION - TEMPERATURE EXTREMES
2. (C) MISCELLANEOUS - STARVATION
3. (F) VISUAL LOOKOUT - NOT POSSIBLE - PILOT IN COMMAND
4. (F) TURBOSHAFT ENGINE - FAILURE,TOTAL
5. (F) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - PILOT IN COMMAND
6. (C) INFORMATION UNAVAILABLE - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Findings
7. (F) AUTOROTATION - PERFORMED - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
8. OBJECT - VEHICLE

Occurrence #4: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
9. (F) PROPER DESCENT RATE - NOT POSSIBLE - PILOT IN COMMAND

Findings Legend: (C) = Cause, (F) = Factor

The National Transportation Safety Board determines the probable cause(s) of this accident as follows.
THE LOSS OF ENGINE POWER DUE TO THE HELICOPTER BEING FLOWN IN EXHAUST GASES EMANATING FROM A COGENERATION PLANT CHIMNEY STACK THAT EXCEEDED THE CERTIFICATION STANDARDS OF THE POWERPLANT. CONTRIBUTING TO THE ACCIDENT WAS INVISIBLE NATURE OF THE EXHAUST GASES WHICH MADE THE DETECTION OF THEIR PRESENCE UNLIKELY.

EXHIBIT F

EXHIBIT F

EXHIBIT F

FORTNEY PETE STARK
13TH DISTRICT, CALIFORNIA

COMMITTEE ON
WAYS AND MEANS

JOINT COMMITTEE
ON TAXATION

WWW.HOUSE.GOV/STARK

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

239 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5065

39300 CIVIC CENTER DRIVE, SUITE 220
FREMONT, CA 94538
(510) 494-1388

PETEMAIL@MAIL.HOUSE.GOV

September 22, 2009

Administrator Randy Babbitt
Federal Aviation Administration
U. S. Department of Transportation
800 Independence Ave., SW
Washington, D. C. 20951
(202) 267-3111

COPY

Re: Proposed Russell City Energy Center in Hayward, California

Dear Administrator Babbitt,

I am writing to express the safety concerns a significant number of my constituents have brought to my attention related to the possible approval of the Russell City Energy Center. The proposed 600-megawatt natural gas power plant would be built within 1.5 miles of the Hayward Executive Airport in my Congressional District.

During consideration by the California Energy Commission (CEC), staff expressed concerns regarding the impacts of thermal plumes from the plants cooling towers and exhaust stacks on aircraft using the Hayward Executive Airport. Eventually, the CEC concluded that the potential dangers of the thermal plumes could be mitigated. Partly this conclusion was based on the CEC's reading of a 2006 FAA study entitled "Safety Risk Analysis of Aircraft Overflight of Industrial Plumes." The CEC decided that the FAA report supported their contention that a "Notice to Airmen" to not fly in a portion of the airspace closest to the proposed plant would be sufficient to mitigate any potential safety risk.

My office has been contacted by numerous pilots that use the Hayward Executive Airport as well as by local community members who are concerned about the potential risks posed by operation of the Russell City plant in such close proximity to the airport. In light of these concerns and the concerns raised by the CEC staff during permit consideration, as well as the CEC's reliance on the 2006 FAA report, I would like your agency to address the following issues:

(1) Has the FAA thoroughly examined the potential safety risks that the Russell City Energy Center may pose for the Hayward Executive Airport?
(2) Has the FAA analyzed whether "Notice to Airmen" to avoid thermal plumes has been sufficient to avoid potential dangers at airports within a 3-5 mile radius of power plants that have come on line in the last 5 years?

EXHIBIT G

(3) Does the FAA plan to study the effect that a "Notice to Airmen" concerning the Russell City Energy Center would have on the Hayward Executive Airport as well as the three larger commercial airports in the Bay Area?

I appreciate your time and concern for these issues and look forward to your response.

Sincerely,

Pete Stark

Pete Stark
Member of Congress

EXHIBIT G

RECEIVED
U.S. E.P.A.

2010 MAR 23 PM 1:15

ENVIR. APPEALS BOARD

March 18, 2010

California Pilots Association
P.O.Box 6868
San Carlos, CA 94070-6868

U.S Environmental Protection Agency
Environmental Appeals Board
C/o Clerk of the Board, Environmental Appeals Board (MC 1103B)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001
Tel. (202) 233-0122
epa.gov/eab

Attention: Clerk of the Board

Re: EAB 08-01; PSD Permit No. 15487
Issued 2/3/10 by Bay Area Air Quality Management District; SF, CA; Russell City Energy Center

Subject: California Pilots Association (CALPILOTS) Petition for Review (Appeal)

The Bay Area Air Quality Management District (BAAQMD) has issued a Statement of Basis and permit conditions for the amended Prevention of Significant Deterioration ("PSD") Permit (application # 15487) for the Russell City Energy Center (RCEC), a natural gas-fired, combined cycle power plant with a nominal output of 600 megawatts. It is proposed by Russell City Energy Company, LLC, an affiliate of Calpine Corporation, and is to be located in Hayward, CA.

California Pilots Association (CalPilots)
The California Pilots Association mission is to promote and preserve the state's airports. As a statewide volunteer organization, we work to maintain the State's airports in the best possible condition.

We understand that comments also are being or have been submitted by Golden Gate University's Environmental Law Clinic on behalf of Citizens Against Pollution (CAP) and Chabot Las Positas Community College District. CALPILOTS also refers to and incorporates those

comments by those organizations in addition to identifying the following issues and problems with the present P_ S_ D_.

The California Pilots Association requests you do not approve the P_S_D Permit for Russell City Energy Center (RCEC) and not allow this Power Plant to be built in Hayward within 1 ½ miles of Hayward Executive Airport (Appendix A). We support the California Energy Commission (CEC) Staff Assessment recommendation not to approve the Russell City Energy Center as referenced in:

http://www.energy.ca.gov/2007publications/CEC-800-2007-003/CEC-800-2007-003-CMF.PDF

Calpilots hereby requests that based on the above, the P_S_D Permit be remanded back to the BAAQMD for further comment by the FAA and others.

Mr. Raymond Pietrorazio made his presentation to the FAA in Washington, D.C. on February 23, 2010. Senator Chris Dodd (D-CT) and Representative Christopher Murphy, (D-CT, 5th District were in attendance. Their concerns of EPA and OSHA not addressing the effects of pilots and passengers flying in power plant exhaust plumes are shared by Calpilots.

His Power Point Presentation made to the FAA can be found at: http://www.ctcombustion.com/oxc/20100223-FAA-Pietrorazio-Web.htm.

The Federal Aviation Administration (FAA) has confirmed to Mr. Pietrorazio that they are currently conducting their own plume safety study as outlined in Appendix B. This includes but not limited to a review of OSHA and EPA laws and how they apply to pilots and passengers as mobile sensitive receptors flying inside exhaust plumes and to address the adverse effects for immediate, short and long term health issues which the EPA has failed to do.

Data gathering and research would be completed in June of 2010 with a hypothesis, conclusion and recommendations be available sometime after June of 2010.

The FAA person to contact for confirmation further comment is Mr. Melvin Banks, Manager, Operational Integration, ARC-4, Regions and Center Operations, tel 202-493-5060, FAX 202-267-5193, e-mail: mel.banks@faa.gov

The Hayward Executive Airport with a Federal Aviation Administration (FAA) staffed control tower is a vital link in the National Transportation System. It is therefore eligible for Grants from the FAA. When the City of Hayward last accepted a FAA Grant for Construction in 2002, the City Manager signed Grant Assurances on behalf of the City.

The City thereby agreed to an obligation to keep Hayward Executive Airport free of hazards, and also to maintain compatible land use zoning. These are Grant Assurances numbers 20 and 21as referenced below.

http://www.faa.gov/airports_airtraffic/airports/aip/grant_assurances/media/airport_sponsor_assurances.pdf

> 20. **Hazard Removal and Mitigation.** It *(the City, acting as the sponsor)* will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards **and by preventing the establishment or creation of future airport hazards.**
>
> 21. **Compatible Land Use**. It *(the City, acting as the sponsor)* will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or

> permit any change in land use, within its jurisdiction, that will reduce its compatibility with respect to the airport, of the noise compatibility program measures upon which federal funds have been expended.

The airspace at Hayward Executive Airport is very complicated, perhaps the most complicated in the country. That is because Class B Airspace for San Francisco International Airport sits on top of the airspace over much of the Bay Area affecting the airspace at all other airports in the Bay Area. Class C Airspace for Oakland International Airport is another layer of airspace, which affects Hayward Executive Airport. Hayward Executive Airport (HWD) has its own Airspace, Class D, further complicating rules and regulations for flying at Hayward's Airport.

Each class of airspace has its own particular rules and regulations, which must be followed by a pilot at certain altitudes in certain areas in the Bay Area. One of the requirements for ALL aircraft flying in the Class D airspace is to have a radio for communication with the control tower at all times. During Hayward Airport Tower operating hours pilots are required to communicate with Hayward. When the Hayward Tower is not in operation, pilots are required to report to the Oakland Tower. This further complicates the Hayward Executive Airport Airspace, as do Hayward Airport's Noise Abatement Procedures.

The types of aircraft using a HWD vary greatly, from Very light fabric airplanes, to blimps, light corporate- style jet aircraft, single-engine and twin-engine Cessna and Piper Aircraft and twin-engine King Airs. All of these aircraft would be affected by turbulence created by this power plant. The type of turbulence experienced would be more serious at the lower altitude of 650 feet or 600'Above Ground Level [AGL] (which is the traffic pattern altitude for Hayward Airport), because there is less altitude at which to recover when the pilot encounters buffeting or sudden change in altitude. Helicopters fly even lower and both types of aircraft can fly lower still based on special VFR (Visual Flight Rules) conditions. It should be noted that planes overfly

the RCEC site for both VFR and IFR (Instrument Flight Rules) as per testimony of Group Petitioners and FAA Witnesses as per testimony:

http://www.energy.ca.gov/sitingcases/eastshore/documents/2007-12-18_TRANSCRIPT.PDF

Hayward Airport is classified as a Reliever Airport that relieves or saves Oakland Airport from having to accommodate the Air Traffic of smaller planes (commonly called General Aviation). This allows for a more efficient use of air space and air traffic control. By constructing a power plant within 1 1/2 miles of the airport, it will limit airspace use, which would have a dramatic deterioration affect on the Bay Area's air traffic management.

1. Request Risk Analysis for Mobile Sensitive Receptors (Pilots and Passengers)

Pilots and their passengers are mobile sensitive receptors flying in and through the power plant plume will receive the greatest impact exposure to emissions and contaminants especially through unfiltered cabin air vents as well as open cockpit aircraft. Appendix C. They have been omitted in this process and we hereby request that a complete study be made for short term and long term impact health analysis. Air ambulances of various types are used to transport mobile sensitive receptors (passengers) with life threatening and respiratory ailments that will be transported in and through the plume. This should also include but not be limited to what affect each of the chemical compounds as well and the total composition makeup of the plume will have on each type of mobile sensitive receptor and those receptors that will affect to maintain safe control of the aircraft. This should include no less than four data points through the plume concentration of what is emitted and through the entire span of weather conditions as well with no fewer than four weather data points for each weather condition. Weather data should be used from the weather station at the Hayward Executive Airport in Hayward, California.

This study should also include all but not limited to all phases of construction, commissioning, startups and shutdowns for each individual generator as well as maximum generator load capacity while

both generators are generating electricity at their combined load capacity. Startups and shutdowns should include but not limited to cold startups, hot startups and shutdowns through the calendar year.

Special attention should be given to the affect of the ammonia and or ammonia slip on all phases of commissioning and startups will have on mobile sensitive receptors in open cockpit and aircraft without air filtering cabin heating, ventilating and defrosting systems as shown in Appendix C and D.

1. What is the amount of time for the cabin to fill with plume emissions or Hazardous material Releases that would have an affect the pilots ability to control and fly the aircraft both in VFR and IFR conditions.

2. What method of data substitution was used and how many data points were substituted for actual measured data values for AERMOD model?

The Airframe and Engines

The study should include what affect each chemical compound will have on the physical aircraft to include but not limited to the outer skin, frame, controls, internal engine and the air filters for engines as well as air filters if installed for cabin air and heat. This includes fabric-covered aircraft and composites, aluminum and material for blimps and helicopters or rotorcraft.

The oxygen content of the plume would have a significant effect on aircraft engine performance when flying in and near the plume. This would include various types of aircraft power plants that depend on the oxygen content throughout the aircraft's transition to and from the Hayward Executive Airport. Rotorcraft is required by the tower to "hold in place" in order to maintain aircraft separation for both rotorcraft and fixed wing aircraft.

1. At what distance and altitude should aircraft remain from the plume in order to maintain engine performance based on manufacturer standards?

Hazardous Material Releases

Hazardous material releases have been omitted as part of the air analysis during this process and should be included for the above for Russell City Energy Center (RCEC) but also the Hayward Wastewater Treatment Plant which is Adjacent to RCEC.
We would also make reference to the Blythe, CA Power Plant Hazardous Material release report, Appendix D and point out that the Highway was closed but again mobile sensitive receptors were omitted from the process. The Blythe Airport was not notified and pilots and their passengers were put at risk.

Visual Plume

The visual plume will impede and distort the view of the airport by pilots and also obscures and interferes with the hand held visual light pilot commands from the control tower during an emergency if they are required? Is a man-made vapor plume a cloud?

FAA Clear of Clouds\074608A2FA18B48A86256EEB006704EF.htm

1. At what point does the visual plume become opaque during the day, evening and nighttime airport operations?

2. What method of data substitution was used and how many data points were substituted for actual measured data values for both the VSCREEN and Calpuff models?

Thermal Plume

Thermal plumes can have an effect on aircraft as both demonstrated from California Energy Commission and FAA pilot reports as in Appendix E.

1. How far should aircraft remain from the thermal part of the thermal plume and what affect would this have on the overall operation of the Hayward Executive Airport?

Hayward Executive Airport Economic

CalPilots requests that the FAA make a complete economic impact study on the Hayward Executive Airport over the entire estimated 30-40 year life of RCEC. This should include but not limited to impacts on Oakland international Airport, San Francisco International Airport air space and flight procedures as well the financial and economic affects on the City of Hayward.

40CFR Part 52.21 (12)

Our comments are based on but not limited to 40CFR Part 52.21 (12)

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div8&view=text&node=40:3.0.1.1.1.1.1.19&idno=40

(12) *Best available control technology* means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Respectfully submitted,

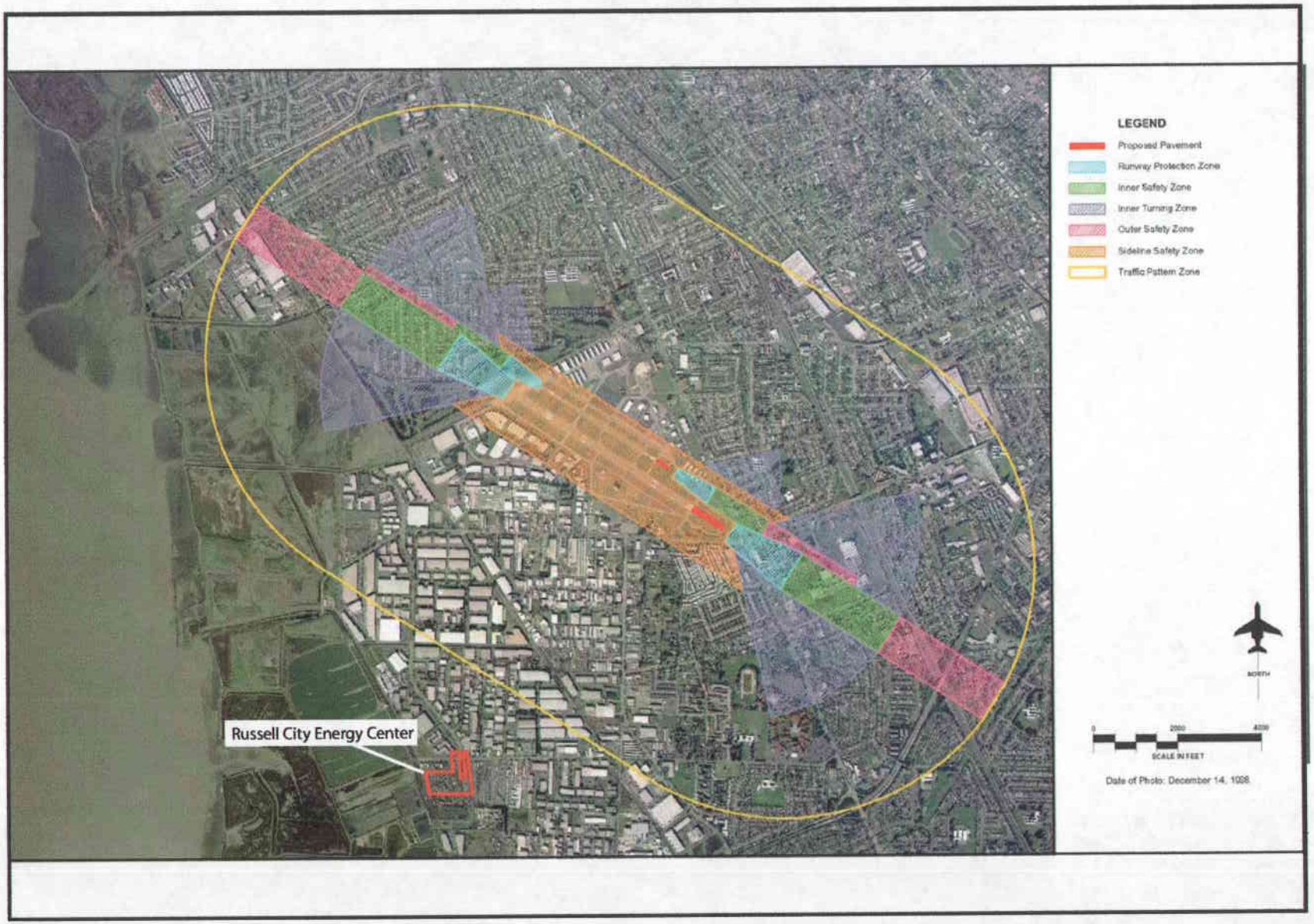
Andy Wilson
CALPILOTS Director-at-Large
andy_psi@sbcgloal.net
(510) 303-9027

Carol Ford
CALPILOTS Vice-President Region 3
carol_ford@sbcglobal.net
(650) 591-8308

Ed Rosiak
Calpilots President
Erosiak@comcast.net
(408) 255-1333

Appendix A

FIGURE 4 - TRAFFIC AND TRANSPORTATION
SOURCE: Exhibit 28. Attachment 5



Appendix B

AOSC Exhaust Plumes Initiative

From: AOSC

To: Mr. Pietrorazio

Date: February 23, 2010

Background

- September 2008 – Aviation Safety (AVS-1) asked to have this issue assigned to the Airport Obstruction Standards Committee (AOSC) to be evaluated.
- Initiated action to have a thorough evaluation of the science around exhaust plumes as it relates to aviation safety with a performance time of up to 18-months
- Incremental data to be provided as research is conducted over performance period
- Expect results from evaluation to be completed by Fall 2010 and submitted to the AOSC for review.

AOSC Specific Tasks Requested

MERGING PLUMES

1. Determine the impact of plume induced turbulence in different atmospheric conditions and winds.
2. Identify and review analysis of plume issues (e.g. EPA, OSHA,..)
3. Examine the potential impact to both aircraft and aircrew of repeated exposure of flying through plume effluent.
   - Evaluate the chemical content of a smoke plume effluents allowed by the EPA and OSHA regulation
   - Evaluate the aircrew risk level consistent with the EPA and OSHA norms for allowed repeated exposures to chemical contaminants.
   - Evaluate the potential effect on an airframe and engine performance consistent with aircraft manufacture's specifications.
4. Examine the obscuration effect of plume-induced clouds.
   - Ash and soot particles in exhaust plumes may act as obscuration or may induce condensation.
5. Draft a report of the impact of vertical plumes and exhaust effluent on aviation safety.

Possible Next Steps

- AOSC conduct an initial review of findings provided and suggest next steps.
- AOSC to coordinate finding with appropriate FAA Organizations and stakeholders as appropriate.
- AOSC to assess if additional studies are necessary
- Mitigations (if appropriate) will be determined by the results of the study

Appendix C

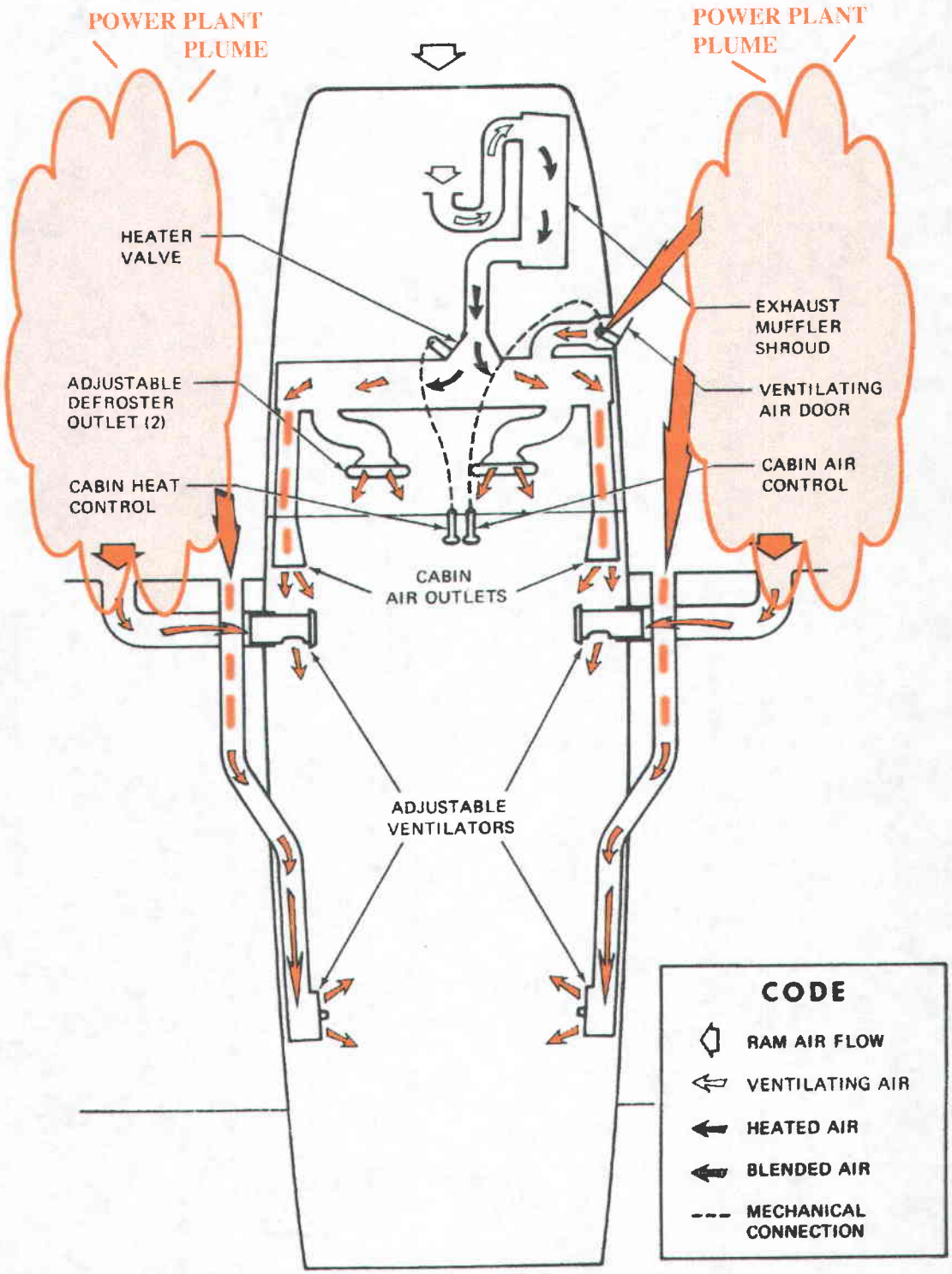


Figure 7-9. Cabin Heating, Ventilating, and Defrosting System

Appendix D

COUNTY OF RIVERSIDE-HEALTH SERVICES AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS MANAGEMENT DIVISION
EMERGENCY RESPONSE, COMPLAINT, INVESTIGATION REPORT

OFFICE RECEIVING ERCI	INITIAL REPORT TAKEN BY:	DATE REPORTED:	TIME REPORTED: (USE MILITARY TIME)	SPECIALIST ASSIGNED:	CODE NUMBER:	CONTROL NUMBER:
Indio	ECC	9-25-04	0400	Bobby Riggs	5520	20950

LOCATION OF INCIDENT:	THOMAS BROS. MAP:	TYPE OF PLACE:	DATE OCCURRED:	TIME OCCURRED: (USE MILITARY TIME)
15560 W. Hobsonway Blythe	392B-10	Power Plant	9-25-04	0400

NATURE OF COMPLAINT OR INCIDENT: Anhydrous ammonia release.

OFFICE USE ONLY

HAZMAT FILE	HAZMAT INVOICE	CDF INVOICE	MPDES INVOICE	FORM 33 COMPLETED	INVESTIGATIONS SECTION

CODES: RP=RESPONSIBLE PARTY C=COMPLAINTANT V=VICTIM W=WITNESS O=OTHER

CODE:	NAME (FIRST, MIDDLE, LAST):	DOB:	RACE:	SEX:
RP	Blythe Energy			

ADDRESS: (HOME)	PHONE: (H)	HT:	WT:	HAIR COLOR:	EYES:

ADDRESS: (WORK)	PHONE: (W)	IDENTIFICATION NUMBER: (CDL)
15560 W. Hobsonway Blythe	760-922-9950	

CODES: RP=RESPONSIBLE PARTY C=COMPLAINTANT V=VICTIM W=WITNESS O=OTHER

CODE:	NAME (FIRST, MIDDLE, LAST):	DOB:	RACE:	SEX:

ADDRESS: (HOME)	PHONE: (H)	HT:	WT:	HAIR COLOR:	EYES:

ADDRESS: (WORK)	PHONE: (W)	IDENTIFICATION NUMBER: (CDL)

FURTHER ACTION / FOLLOWUP REQUIRED?	IS IT POSSIBLE TO LOCATE OR IDENTIFY A RESPONSIBLE PARTY FOR THE INCIDENT?	IS A PROPOSITION 65 REPORT TO BE COMPLETED?
YES: NO: x	YES: x NO:	YES: x NO:

DISPOSITION OR ACTION:

0400 Hours 9-25-04 I received a tone from the ECC to respond to an anhydrous ammonia release at Blythe Energy, 15560 W. Hobsonway in Blythe.

0600 Hours I arrived on scene at the Quik Chek West gas station at 14021 W. Hobsonway, the command center. I met with the following: CDF Battalion Chief Bill Zimmerman, CHP Officer Michael King, CDF Hazmat Capt. Reeves and Operations Manager Gary McIntire. CHP Officer King and CDF Battalion Chief Zimmerman made the decision to close the freeway at Desert Center to Blythe. Capt. Reeves reported that there was a release of anhydrous ammonia in the chiller room while employees were changing a filter; the scrubber had come on when the ammonia alarm came on. Capt. Reeves stated we would need to make entry to see what would need to be done to shut off the release. I informed Capt. Reeves I was familiar with the facility because I had recently done an inspected the facility.

I went to Gary McIntire and asked what had happened and what it would take to stop the release. Gary reported that two employees were changing a filter on one of the compressors, they had gone thru the safety procedures paper work and had performed the lock out procedure and had bled the filter of ammonia into a water can before starting the work. One of the employee's took five to six bolts off of the flange and caused the ammonia release. All three employees working in the compressor room evacuated the area. The ammonia alarm went off and the scrubber automatically came on. To stop the leak a valve would need to be closed and the flange bolts replaced. I asked if they had personnel trained to make an entry; Gary stated that they all had the training to make entry. Capt. Reeves and I made the decision to stage on the northwest side of the chiller room to don suits so we could have visual contact with the entry team. Hazmat personnel gave Rick Deabenderfer, plant employee, a lesson on the hazmat unit SCBA to make entry. At approximately 0700

041220

Hours the wind changed and we moved to the southwest corner of the chiller room and entry would be made from the south doors. Hazmat personnel and plant personnel suited out in modified level "B" with two hazmat personnel suited out in modified "B" as back up. The entry team entered the chiller room and closed the valve to the filter and put the bolts back in the flange. They opened all the doors to help vet the chiller room. When the entry team exited the building they reported that the wrong flange had been opened and the line was hot. We used an ammonia meter from the power plant and made another entry fifteen minutes later. The monitor read 90 PPM of ammonia. We waited another fifteen minutes and took another reading of 15 PPM of ammonia. At 0915 I called CHP Officer Michael King to reopen the freeway. Plant personnel will monitor the ammonia and wear proper equipment to pick up the oil on the floor for proper disposal. We rehydrated the hazmat team and packed up all the equipment, hazmat team off scene at 1115 hours.
I gathered information for my report and made sure that plant employees were monitoring the area properly while absorbing the spilled oil. 1215 Hours I left the scene arriving home at 1430 Hours.
1330 Hours 9-27-04 I met with the City of Blythe and Blythe Energy to discuss the incident. Chris Allen, Blythe Energy Plant General Manager, informed the group that 405 pounds of ammonia was released from the system and that the scrubber had caught 400 pounds of ammonia back into the system, losing five pounds of ammonia into the air, they had also lost 70 to 100 gallons of oil onto the floor. The chiller system holds 55,000 pounds of anhydrous ammonia. The City of Blythe, Blythe Energy and Riverside County Hazmat will have meetings in the future to coordinate emergency plans.

DRUG LAB NOTIFICATION DATE:			
OTHER AGENCIES NOTIFIED:	ADDITIONAL HAZMAT SPECIALISTS:	TOTAL INCIDENT TIME (ALL STAFF):	
None	None	10.5 hours	
SPECIALIST PREPARING REPORT:	DATE:	REVIEWED / APPROVED BY:	DATE:
Bobby Riggs	12-3-04		12/6/04

DEH-HER-001 (REV 1/2000)

Appendix E

Energy Facilities Siting and
Environmental Protection Division

FILE:	
PROJECT TITLE: Blythe Power Plant	

☒ **Telephone**	316-946-2416	☐ **Meeting Location:**	
NAME:	Eric Nordberg	**DATE:** 8/2/04	**TIME:** 9 AM
WITH:			
SUBJECT:	Blythe turbulence		

COMMENTS:
I talked to Mr. Nordberg about his experience with turbulence from the Blythe power plant cooling towers. He and a co-pilot were flying a Lear jet (1800 lb. airplane) on an Instrument Landing System approach to Blythe airport's Runway 26 early (6:30 – 7) morning on May 4, 2004. They did not see any plumes and were about 550 feet above ground level with an airspeed of 124 knots (142 mph) when they passed over the plant. The wind was calm with good visibility. They experienced moderate to severe turbulence which caused the plane to veer from side to side with considerable shaking. They were surprised but able to regain control of the plane. It was not an emergency situation but it was an uncomfortable experience.

I advised him that we had reports from several other pilots who have experienced the same thing and we were investigating the situation. I faxed him Terry O' Brien's letter of April 5, 2004 and asked him to review the mitigation discussed within. He said he would check his flight charts for that May 4th flight and send me an e-mail with any other pertinent information or suggestions.

cc:	**Signed:**
	Name: James S. Adams 8/3/04

Energy Facilities Siting and
Environmental Protection Division

FILE:	
PROJECT TITLE: Blythe Power Plant	

☒ **Telephone**	928-681-8318	☐ **Meeting Location:**			
NAME:	Joe Sheble	**DATE:**	2/19/04	**TIME:**	10:45 AM
WITH:	Sheble's Flight Service				
SUBJECT:	Blythe turbulence				

COMMENTS:
As a pilot who performs check rides for the FAA on student and commercial pilots on Instrument Landing System (ILS) approaches to various airports, he has experienced turbulence three times when flying over the Blythe plant while utilizing the ILS approach. He was flying either a Cessna 172 or a Beachcraft Traveler. He was about 300 feet above ground level (AGL) when flying over the plant. Some pilots fly 200 feet AGL over the plant, and Mr. Sheble believes the turbulence is enough to cause pilot trainees to do something "stupid". A couple of pilots have told him that they have experienced turbulence as well. He believes that two thirds of the flights to Blythe Airport are done using visual flight rules (VFR) and many pilots do not see the power plant. He has also experienced even greater turbulence when flying downwind over a coal-fired power plant located about one mile from the Loflin Bullhead Airport in Arizona. The plant has one stack which is over 200 feet tall. His elevation when passing over the facility was 800 to 1000 feet AGL. There is an airport advisory about this power plant.

In response to a question about the visibility of the power plant and why pilots would fly over it, he said a lot of pilots flying VFR are from out of the area and aren't paying attention to what is on the ground (his remarks were considerably more derogatory and off-color). Instead, they are focused on the runway. The warning about the power plant in a Notice to Airmen is probably ignored by most pilots. He believes that once the plant is running at full capacity, there is a possibility that aircraft will be blown around or tipped over by heated plumes and somebody is going to get killed. I, James Adams, don't believe his characterizations about pilots are necessarily accurate but he does use the airport frequently.

Mr. Sheble told us that the ILS at Blythe Airport has been in operation for 30 years. The ILS was brought to Blythe by the former Pacific Southwest Airlines, who acquired it from Lindberg Airfield in San Diego. They used it train their pilots. Blythe Airport later acquired it and uses it for training purposes. The reason that the ILS has not been certified by the FAA relates to the absence of a technical service order, which is now required prior to certification. This order would cost millions of dollars and require a considerable amount of time and effort. He doesn't think it will ever happen.

cc:	Signed:
	Name: James S. Adams 2/20/04 Ken Peterson

Energy Facilities Siting and
Environmental Protection Division

FILE:	
PROJECT TITLE: Blythe Power Plant	

☒ **Telephone**	702-263-4314	☐ **Meeting Location:** E-mail on June 21, 2004	
NAME:	Luis Magana	**DATE:** 6/9/04	**TIME:** 3:30PM
WITH:	Sheble Aviation		
SUBJECT:	Blythe turbulence		

COMMENTS:

Mr. Magana is a pilot and flying instructor who has been using Blythe Airport for several years. On the morning of May 4, 2004, he was aboard a two-engine Beechcraft airplane piloted by a student. They were on final approach to Runway 26 and saw the Blythe power plant in front of them. No plume was visible. Their elevation was approximately 550 feet above ground level and the airspeed was 110 miles per hour. As they flew over the cooling towers, they encountered significant turbulence which knocked the plane on its side or about 50 to 60 degrees off center. The student pilot was startled but was able to level the plane and proceed with the approach. After they landed, Luis discussed the incident with the student pilot and he considers it a good example of being prepared for the unexpected.

He is very worried about new and inexperienced pilots in smaller planes such as a single engine Cessna 150 or 172 encountering similar turbulence. The smaller plane could be inverted and sent into a downward spiral, possibly crashing into or near the power plant. He also told me that a high percentage of the pilots that use the Blythe Airport are student pilots. I asked his opinion about potential mitigatior measures such as moving the ILS to Runway 17, and creating a new NOTAM that advises pilots to avoid flying over the power plant by turning base and final within one mile of the landing threshold of the Runway 26. He thought these measures would probably remove the existing hazard. He sent me an e-mail describing the turbulence encounter and his concern about aviation safety.

cc:	Signed:
	Name: James S. Adams 6/25/04

`Energy Facilities Siting and
Environmental Protection Division

FILE:	
PROJECT TITLE: Blythe 1	

☒ **Telephone**	760-921-2869	☐ **Meeting Location:**	
NAME:	Rory Watkins	**DATE:** 8/6/03	**TIME:** 9:45 AM
WITH:	Blythe resident and pilot		
SUBJECT:	Blythe HRSG plumes		

COMMENTS: I (James Adams) called Mr. Watkins in response to a suggestion by Butch Hull who is the Assistant City Manager for the City of Blythe, and is also the Blythe Airport Manager. Mr. Watkins told me that he is a relatively new pilot and he flew over the power plant while on final approach to Runway 26 sometime in December 2002, although he is probably mistaken about the date of the incident since the power plant did not start up for testing until early 2003. His elevation when passing over the plant's HRSGs was approximately 1000 feet, and his airspeed was about 75 knots. The invisible plume pushed his plane up between 300 to 500 feet and scared him to the point that he broke off his approach. He has not flown over the plant since and has advised other pilots to refrain as well. In his opinion, the power plant should not have been sited in its current location.

cc:	Signed:
	Name: James S. Adams 3/4/04

COLGAN AIR

December 18, 2008

Attention: Ms. Johnson

Aviation Safety Hotline Program Office

Reference: MGW ILS Rwy 18/Severe Turbulence

Dear Ms. Johnson,

On 18 December 2008, United Express flight 6922 operated by Colgan Air from CKB-MGW-IAD experienced severe turbulence during approach into MGW. The flight was on the ILS approach to runway 18, inside the Final Approach Fix, when the flight entered severe turbulence.
The flight immediately executed a missed approach and diverted to the final destination, IAD, landing without any further incidence. The airplane was grounded for a severe turbulence inspection. During the approach the airplane was in IMC conditions winds calm 100' overcast temperature 1 Celsius and surface visibility 2 miles.

This was the second identical incident within the last two months. After reviewing the ILS 18 Rwy MGW approach plate we focused on the obstacle between the FAF and the runway. The obstacle stands at 1577' MSL. We called the MGW control tower to investigate the obstacle and we were told it is the smokestack from a power plant. We were also told by the tower that when the temperature is just right and the surface winds are calm the smoke creates turbulence during the final approach in to MGW. The tower also told us that FAA check flight "was not happy" during the checking events for the approach.

According to my information this condition is not being reported to the flight crews. Our crews in this event reported uncontrolled flight, left engine ignition lights were activated, engine oil pressure lights illuminated, and all 3 axis trim circuit breakers tripped.

We would like to suggest that the FAA takes immediate action on the following:

1. A thorough investigation on the meteorological and atmospheric conditions that create turbulence over the smokestack.
2. A NOTAM should be issued to all flights operating over and in the MGW airport, about the possible severe turbulence during the ILS approach to Rwy 18.
3. Notes should be added in the airport diagram, about the possible conditions during the ILS approach to Rwy 18.

Please contact me if you have any questions or if you'd like to discuss our recommendations further.

Sincerely,

Dean Bandavanis
Director Operations

7-5-5 Avoid Flight in the Vicinity of Thermal Plumes (Smoke Stacks and Cooling Towers)

a. Flight Hazards Exist Around Thermal Plumes. Thermal plumes are defined as visible or invisible emissions from thermal and smoke stacks of power plants, industrial production facilities, or other industrial systems that release large amounts of vertically directed unstable gases. It is presumed that high velocity and/or high temperature exhaust plumes may cause significant air disturbances such as turbulence and vertical shear. Other identified potential hazards include but are not necessarily limited to reduced visibility, oxygen depletion, engine particulate contamination, exposure to gaseous oxides and/or icing. Results of encountering a plume may include airframe damage, aircraft upset, and/or possible adverse effects of high levels of gaseous oxides, low levels of oxygen, engine particulate contamination, icing and restricted visibility. These hazards are most critical during low altitude flight, especially during takeoff and landing.

b. When able, a pilot should fly upwind of possible thermal plumes. When a plume is visible via smoke or a condensation cloud, remain clear and realize a plume may have both visible and invisible characteristics. Exhaust stacks without visible plumes may still be in full operation and airspace in the vicinity should be treated with caution. As with mountain wave turbulence or clear air turbulence an invisible plume may be encountered unexpectedly. Cooling towers, power plant stacks, exhaust fans, and other similar structures are depicted in FIGURE 7-5-5. Whether plumes are visible or invisible, the total extent of their unstable air is difficult to ascertain. FAA studies are underway to further characterize the effects of thermal plumes and exhaust effluents. Until the results of these studies are known and possible changes to rules and policy are identified and/or published, pilots are encouraged to exercise caution when flying in the vicinity of thermal plumes. Pilots are also encouraged to reference the Airport/ Facility Directory where amplifying notes may caution pilots of an exhaust emitting structure's existence and location.

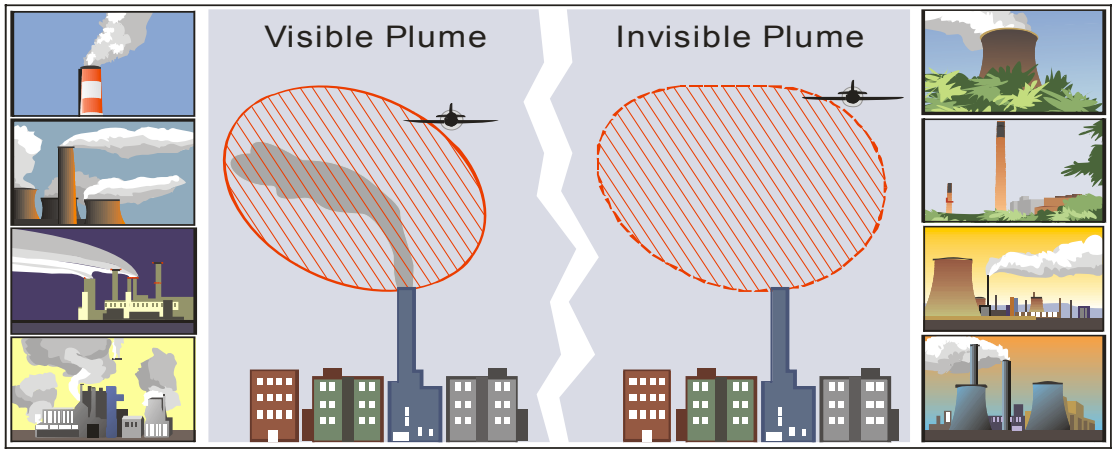



FIG 7-5-5
Plumes