



PO Box 6868, San Carlos, CA 94070-6868

July 25, 2010

Mr. Craig Hoffman  
Project Manager  
Siting, Transmission and Environmental Protection Division  
California Energy Commission, MS-15  
1516 Ninth Street  
Sacramento, CA 95814-5512 Phone: 916-654-4781  
E-mail: [CHoffman@energy.state.ca.us](mailto:CHoffman@energy.state.ca.us)

Transmittal by Electronic and U.S. Mail

Subject: Mariposa Energy Project CEC 09-AFC-03 (FAA AIM Page, Attached)

Dear Mr. Craig Hoffman,

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

On June 30, 2010 CALPILOTS presented an FAA Draft of the proposed FAA AIM (Aeronautical Information Manual) addressing Plumes and their effect on Pilots Passengers and Aircraft. I have included a copy which is attached. As I stated the electronic copy would be available for downloading directly from the FAA in July and the paper copy available in August.

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On Friday July 16, 2010 CALPILOTS was notified by the FAA that the AIM now includes Visible and Invisible Thermal Plumes and how they affect aircraft, pilots and passengers and confirms there is an on-going FAA Plume Study.

FAA AIM Link is below, Click on Link  
Top of Page, Click On, AIM Change 1 8/26/10

Plume information is in Section 0. 7-5-15 or type in PDF page 213,214  
[http://www.faa.gov/air\\_traffic/publications](http://www.faa.gov/air_traffic/publications)

Also, Mr. Hoffman, you asked for examples of accidents or incidents. Attached please find four (4) reports from Blythe and one from Morgantown, WVA

Respectfully submitted,

/s/ Carol Ford

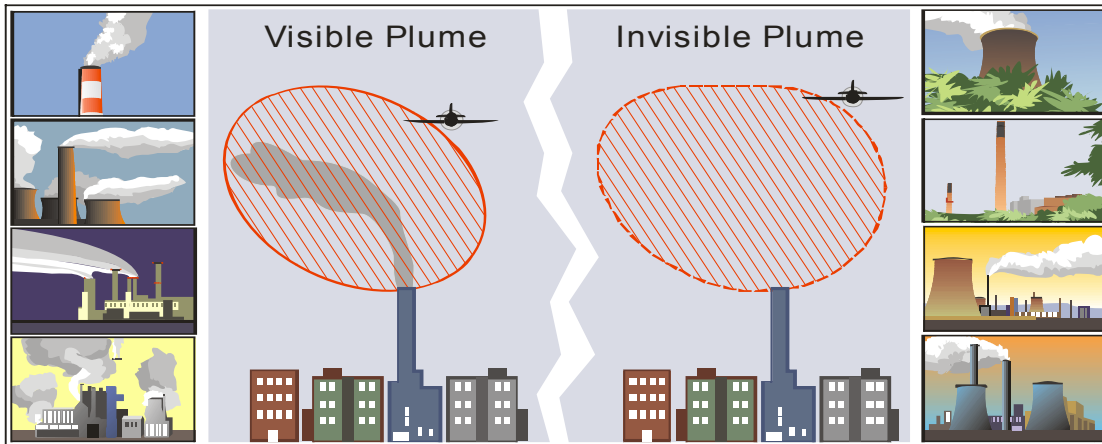
Carol Ford  
Vice-President - California Pilots Association  
[carol\\_ford@sbcglobal.net](mailto:carol_ford@sbcglobal.net)  
650 591 8308

### 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



**CALIFORNIA ENERGY COMMISSION**  
**REPORT OF CONVERSATION Page 1 of 1**



**Energy Facilities Siting and  
 Environmental Protection  
 Division**

**FILE:**

**PROJECT TITLE: Blythe Power Plant**

<input checked="" type="checkbox"/> <b>Telephone</b>	316-946-2416	<input type="checkbox"/> <b>Meeting Location:</b>	
<b>NAME:</b>	Eric Nordberg	<b>DATE:</b>	8/2/04
		<b>TIME:</b>	9 AM
<b>WITH:</b>			
<b>SUBJECT:</b> 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 4<sup>th</sup> flight and send me an e-mail with any other pertinent information or suggestions.

<b>CC:</b>	<b>Signed:</b>
	<b>Name:</b> James S. Adams 8/3/04



**Energy Facilities Siting and  
 Environmental Protection  
 Division**

**FILE:**

**PROJECT TITLE: Blythe Power Plant**

<input checked="" type="checkbox"/> <b>Telephone</b>	702-263-4314	<input type="checkbox"/> <b>Meeting Location:</b> E-mail on June 21, 2004
<b>NAME:</b> Luis Magana	<b>DATE:</b> 6/9/04	<b>TIME:</b> 3:30PM
<b>WITH:</b> Sheble Aviation		
<b>SUBJECT:</b> 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 mitigation 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.

<b>CC:</b>	<b>Signed:</b>
	<b>Name:</b> James S. Adams 6/25/04



**Energy Facilities Siting and  
 Environmental Protection  
 Division**

**FILE:**

**PROJECT TITLE: Blythe Power Plant**

<input checked="" type="checkbox"/> <b>Telephone</b>	928-681-8318	<input type="checkbox"/> <b>Meeting Location:</b>	
<b>NAME:</b>	Joe Sheble	<b>DATE:</b>	2/19/04
<b>WITH:</b>	Sheble's Flight Service		
<b>SUBJECT:</b>	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.

<b>CC:</b>	<b>Signed:</b>
	<b>Name:</b> James S. Adams 2/20/04 Ken Peterson

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**REPORT OF CONVERSATION Page 1 of 1**



**Energy Facilities Siting and  
 Environmental Protection  
 Division**

**FILE:**

**PROJECT TITLE: Blythe 1**

<input checked="" type="checkbox"/> <b>Telephone</b>	760-921-2869	<input type="checkbox"/> <b>Meeting Location:</b>	
<b>NAME:</b>	Rory Watkins	<b>DATE:</b>	8/6/03
<b>TIME:</b>	9:45 AM		
<b>WITH:</b>	Blythe resident and pilot		
<b>SUBJECT:</b>	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.

<b>CC:</b>	<b>Signed:</b>
	<b>Name:</b> James S. Adams 3/4/04



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

<b>DOCKET</b> <b>09-AFC-3</b>
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DATE	JUL 25 2010
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