State of California
State Energy Resources Conservation and Development Commission

In the Matter of:	)	Docket # 09-AFC-03
	)	
Mariposa Energy Project	)	
	)	Robert Sarvey's Rebuttal Testimony
	)	Worker Safety and Fire Protection
_____	)	Exhibit 407

Worker Safety and Fire Protection Rebuttal Testimony of Robert Sarvey

On February 7, 2010 the Kleen energy power plant in Middletown Connecticut was the site of a large natural gas explosion which killed six people and injured many others. The investigation conducted by the U.S. Chemical Safety board concluded that the blast was an intentional, planned release of natural gas as the power plant. The explosion at Kleen Energy occurred during what has been termed by the industry a "natural gas blow." This is a procedure to clean out debris from large, newly constructed natural gas piping that provides fuel to the plant's electricity-generating gas turbines.

A natural gas blow is not prohibited by federal workplace safety standards. It is a frequent practice. This tragedy is not an isolated incident. On June 9, 2009, a similar accident occurred at the ConAgra Slim Jim meat processing plant in Garner, North Carolina. That explosion during what is known as "gas purging" of a process pipe killed four workers and injured 67 others. It destroyed the facility, and lead to a permanent shutdown that cost more than 600 jobs in the region.

This practice has also led to an explosion at a CEC certified power plant and yet the practice has not been prohibited by the Federal Government or the by the conditions of certification for this project. On January 26, 2003, a similar explosion occurred at the Calpine Wolfskill Energy Center in Fairfield, California. This blast also happened during a gas blow to clean piping, using high-pressure (630 psig) natural gas. The explosion was powerful enough to be heard 10 miles away. Fortunately no one was injured in the blast because workers were 100 to 150 feet away the location of the vent and were spared injury.

Figure 4. Previous explosion during a natural gas blow on January 26, 2003, at a Calpine natural gas power plant in Fairfield, California. The explosion was heard 10 miles away.

This is a practice which obviously is a significant impact to the safety of the workers who will construct this plant. As John S. Bresland board member of the Chemical Safety Board testified before the US House of Representatives, "*I would submit to you that the present patchwork of inadequate codes and voluntary practices does not*

protect America's workers from the kind of explosions that killed six at Kleen Energy, killed four at ConAgra, and threatened many others with death or injury." To mitigate this impact I propose Worker Safety and Fire Protection condition number 6 or a similar condition drafted by staff which prohibits any natural gas blows at the MEP. I further recommend that this condition be included in all CEC certified power plants.

> **WORKER SAFETY-5 The project owner is prohibited from any intentional, planned releases of natural gas into workplace. The applicant is required to have the CBO present during any cleaning out of debris from the natural gas piping before placing the pipeline in service or at any time during the lifetime of the facility when such activities are planned.**

While the conditions of certification require a safety program during the construction period and a plan for operations personnel there appears to be no requirement for a written safety plan for contractors who may perform maintenance on the power plant after it becomes operational. Many of the accidents that occur at industrial sites occur to contractors performing maintenance operations. For example On May 12, 2003 at Calpine's Geysers facility, in Sonoma County, Gregory McVay, 43, a maintenance worker for X-Cell-Marley Construction of Overland Park, KS, died of multiple blunt force injuries after a 30 foot diameter fan inside a cooling tower in which he was working began revolving at up to 150 rpm. Contractors tend to be unfamiliar with the project site and do not have the safety training of the normal operations staff. The conditions of certification should include a specific plan to protect maintenance workers at the power plant.

> **WORKER SAFETY-6 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety plan for contractors. The plan must require that any contractor must review and sign off on the plans requirements.**

The National Safety Council reports that slip and fall accidents are the leading cause of death and account for over 20% of all workplace injuries. Over one million claims for these injures are filed each year in the U.S., with nearly a third of them being disabling injuries. These accidents can be life threatening or debilitating for the worker and costly to the employer. The majority of these accidents can be avoided by ensuring

that workers wear appropriate slip resistant footwear. Not all footwear that claims to be slip resistant actually is and different conditions require different slip resistant footwear. The safety plan should include a slip resistant footwear program requirement for all operations, construction, and contracted maintenance workers.

> **WORKER SAFETY-7 The project owner shall submit to the Compliance Project Manager (CPM) as a part of the safety plan a copy of the Project Construction and Operations and Maintenance slip resistant shoe program.**

Staff's testimony concludes, "*that incidents at power plants that require fire or EMS response are infrequent."* Staff does not provide an incident rate that it considers significant or an analysis which provides the information for their conclusion. There is not any publicly available information on accident rates and deaths at CEC power plants. In 2003 the CPUC conducted a study of power plant performance entitled, "Electricity Generation Power Plant Performance Program Progress Report to the Legislature on the Implementation of Senate Bill SB 39 of the 2001-02 Second Extraordinary Session."[1] The study said that. "*Reliable information on accidents at generation plants is not yet available*." The CPUC staff analyzed data from the federal Occupational Safety and Health Administration (OSHA) on accidents involving personal injury or death in the power production industry. The information revealed that 5 deaths and 18 injuries occurred in the electrical power industry is 2003. Of those five deaths 3 occurred at CEC certified power plants. As the study says, The Commission has noted a number of incidents reported in the press involving damage by and deaths of contractors working at California power plants, including the following:

> 1) On May 12, 2003 at Calpine's Geysers facility, in Sonoma County, Gregory McVay, 43, a maintenance worker for X-Cell-Marley Construction of Overland Park, KS, died of multiple blunt force injuries after a 30 foot diameter fan inside a cooling tower in which he was

[1] http://docs.cpuc.ca.gov/word_pdf/REPORT/31910.pdf Page Electricity Generation Power Plant Performance Program Progress Report to the Legislature on the Implementation of Senate Bill SB 39 of the 2001-02 Second Extraordinary Session

working began revolving at up to 150 rpm. A colleague immediately detected the accident and turned off the fan. There are questions regarding how the fan could have been accidentally started.

2) On July 8, at Duke's Moss Landing power plant, contactors removing an unused storage tank accidentally ignited more than a million gallons of oil, sending a heavy smoke plume across the surrounding area.

3) July 1, 2003 at PG&E National Energy Group's La Paloma Power Plant in Kern County, Francisco Escobar-Serrano, 28, of Mexico, died when he fell into a live generator breaker. A second unidentified man was injured in the incident. There are questions about why the breaker was live.

4). On July 19, 2003 at The Geysers, Sonoma County (Calpine) Barry Carpenter, 44, of Farmington, NM, an "air jammer" for drilling company Air Comp, died of blunt force injuries after an air compressor exploded while he was cleaning a well shaft to prepare for conversion from extraction to reinjection of wastewater as part of a large artificial recharge project.[]

These incidents do not include incidents that were not reported or the aforementioned explosion at the Wolfskill Energy Center in Fairfield noted earlier in this testimony which also occurred in 2003. Staff's conclusion that "*that incidents at power plants that require fire or EMS response are infrequent."* is not supported by the CPUC study or any publicly available information. There may have been many more incidents that occurred in 2003 that went unreported in the media.

According to staff the, "Alameda County Fire Department (ACFD) Station #8 in Livermore would provide first response to the MEP . The response time to the facility would be approximately 30 minutes."[2] According to Alameda County Fire, "*Station #8 has one Type I engine, one Type III engine and a patrol. Station #8's response area is the largest in the ACFD, encompassing 280 square miles of the Department's total service area which encompasses approximately 506 square miles over 50% of the departments total service area. The service area is dominated by open range land and freeways. Responses of* ***30 minutes or more*** *are not uncommon because of the vast unincorporated area that the station responds to. Station #8 provides Automatic Aid into*

[2] The project does not comply with ECAP Policy 246: "The County shall limit development to very low densities in areas where police, fire, and emergency medical **response times** will average more than 15 minutes."

the City of Livermore. The Alameda County Fire Patrol, Station #8 is entirely surrounded by the City of Livermore."[3] Station 8's duties have increased because of the closure of Livermore fire station #10 due to severe budget cuts. According to the city of Livermore, "*The past two years in a row have been the most challenging financial years for California Cities in recent memory. The 2009 economic recession tremendously impacted both national state and local economies. The trickle down effect of the recession cut deeply into Livermore's and ability to fund its myriads of services. Revenues form property and sales taxes account of half of Livermore's General Fund."*

ACFD has two other stations located in the East County Area. ACFD Station 21 is Located at Site 300, 15999 W. Corral Hollow Road, Tracy. The station is located in Building 890 at Site 300 on the Lawrence Livermore National Laboratory property. The former Fire Station #2 of the Lawrence Livermore Laboratory Fire Department houses one crew comprised of 4 firefighters, one Type I engine, one Type III engine, one Type IV patrol and an ambulance. Fire Station #21 was replaced in 2000 with a 7,200-square foot facility. Site 300 is an explosives testing facility for the federal government. Site 300 has over 100,000 pounds of high grade research explosives including RDX.

ACFD Station 20 Is located in building 323 on the Lawrence Livermore National Laboratory site. The former Station #1 of the Livermore Laboratory Fire Department, this hazardous materials team station houses two crews comprised of 8 firefighters, one Type III engine, two Type IV apparatus (patrols), a hazardous materials unit and an ambulance. Fire Station #20 was expanded in 1990 by the addition of a two-story 10,200-square foot addition. A renovation of the existing portion of Station 20 was completed in November of 1993. The station is dedicated to the protection of Lawrence Livermore lab which houses over 1,000 pounds of weapons grade plutonium, tritium, depleted uranium and other radioactive substances.

Staff also states that, "The facility may also be serviced by the Tracy Fire Department through a mutual aid agreement." The Tracy Rural fire district has three stations which cover 139 square miles. The Tracy Fire Department budget for fiscal year 2009-2010 (FY 09-10) was adopted by the City Council in June 2009 and was scheduled to be

[3] http://www.acgov.org/fire/about/station08.htm

adopted by the South County Fire Authority in July 2009. However, in the interim period of time, information was received which indicated that the Tracy Rural Fire Protection District (Tracy Rural) would not have enough funds to cover its share of this budget. As such, Tracy Rural has subsequently acted to reduce the cost of services it will obtain from the Authority in FY 09-10.

Obviously both Alameda County fire department and the Tracy Rural fire department are stretched thin as ACFD Station 8 covers 280 square miles and the Tracy Rural Fire Department covers over 139 miles. The MEP is at the extreme corner of both agencies coverage areas. From the history of incidents discussed above it is reasonably foreseeable that over the 30 year life of the MEP one or more incidents will occur that will impact both Tracy Rural and Alameda County Fire Departments. With the cumulative effect of the East Altamont Energy Center and the MEP these under funded departments both should be given special consideration and the MEP should fund their fair share of the significant impacts caused by the two proposed power plants in Eastern Alameda County. Obviously current fees do not cover the department's budgets. The citizens of Tracy recently passed a half cent sales tax increase to fund emergency services and budget cuts have forced the Livermore Fire department to close Station 10 and required ACFD to reduce service in some areas. Proposed Worker safety and fire protection condition number 8 requires MEP to finance its fair share of the impacts that are created by the siting of the East Altamont Energy Center and the MEP. This is not unusual as in the East Altamont Energy Center proceeding the Committee inserted the following two conditions into the revised PMPD.[4]

> ***WORKER SAFETY–3 The project owner shall enter into an agreement with Alameda County for enhanced fire protection services. This agreement shall provide for the project owner to pay $2,500,000 for the relocation of Fire Station 8 and $500,000 for enhanced emergency response services.***

[4] Revised PMPD East Altamont energy Center Page 210 http://www.energy.ca.gov/sitingcases/eastaltamont/documents/2003-05-15_REVISED_PMPD.PDF

Verification: At least thirty (30) days prior to the start of site preparation activities the project owner shall submit to the CPM a copy of the final executed Agreement between Alameda County and the Project Owner.

WORKER SAFETY–4 Applicant will enter into an agreement with Tracy Fire Department for the purpose of ensuring that TFD will provide supplemental first response to EAEC emergency incidents (including fire, EMT and hazardous material), personnel, training and equipment purchase. The value of this agreement will be an initial $250,000 payment and ten annual payments of $25,000 each. The initial payment shall be rendered to TFD upon operational startup of the EAEC facility. The annual payment shall be rendered to TFD on the first business day of January each year after commercial operation commences.
Verification: At least thirty (30) days prior to the start of site preparation activities, the project owner shall submit to the CPM a copy of the final executed Agreement between Tracy and the Project Owner. Project Owner shall present evidence to the CPM of the initial $250,000 payment in its first report. Subsequent reports will document the annual payments to the TFD.[5]

The reasoning behind the two conditions was clearly elaborated in the Final Commission Decision on the East Altamont Energy Center:

The Committee is troubled by the rigor of the analysis performed on this topic and by certain assertions by individuals.

Staff argues that "power plants, in general, rarely require off-site fire fighting response as a result of the lack of burnable materials at a power plant." This statement is perplexing, since this plant is a natural gas fired plant and as such, consumes 5,000- 7,200 million Btu/hr of natural gas (AFC 2-8) at 600-800 psig through a dedicated pipeline (AFC 2-8). The

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[5] Worker Safety and Fire Protection 4 was removed in the final decision and replaced with:
WORKER SAFETY–4 Applicant will meet and confer with the ACFD, and the local Mountain House community (including TFD) to develop a plan for the Emergency Response Enhancement Agreement as set forth in Article 6 of the EAEC Cooperation Agreement. Before payment is disbursed to Alameda County, Applicant will submit the plan document for approval to the CPM.
Verification: At least thirty (30) days prior to the start of site preparation activities, the project owner shall submit to the CPM for approval a copy of the foregoing plan. The project owner shall present evidence to the satisfaction of the CPM that the required disbursement under Article 6 of the Cooperation Agreement has occurred.
East Altamont Final Decision Page 203,204

plant contains several lubricating oil tanks, which would contain 30,000 gallons of flammable lubricating oil during normal operations. The plant is also equipped with a number of electrical transformers and oil contact breakers (OCB's) that are filled with (combined total 100,000 gallons) insulating and combustible (under certain conditions) oil. (AFC 8.12-3) These amounts of combustible materials are significant and the associated risk should not be so lightly dismissed.

The record also indicates that Staff relies on a survey of Applicant's 13 power plants as the basis for concluding that "the need for EMS response is also minimal."

The Committee feels it is important to recognize the difference between risk and response. Risk is the probability of an event occurring times the magnitude of the event; response is the actions that would be taken given that the event (regardless of probability) has occurred. In our conclusion, Applicant and Staff, in their analysis, have both emphasized the former (low risk) at the expense of the latter (response).

The Committee feels that risks associated with the construction and operation of EAEC need to be acknowledged, managed, and properly mitigated. Power plants are inherently hazardous places. When these hazards are acknowledged and mitigated through measures, equipment and training, risk can be reduced to an acceptable level. Ignoring or inappropriately minimizing the risks, sows the seeds for accidents, injuries or even fatalities. It can also lead to complacency and under-preparedness for a response, which is unacceptable to this Committee and a potential disservice to the community at large.

Recent experience at the Southern California Edison (SCE) Vincent Substation and the Calpine Wolfskill peaker are current examples that in spite of an operator's best intentions and maintenance practices, errors do occur and equipment does fail, sometimes disastrously and with significant consequences. Catastrophic events can and do occur over the life of a power plant. The Committee is not persuaded by either Applicant's survey or Staff's assessment of the risk.

Applicant, ACFD, and Staff agree on the estimate of response times. While we could agree that the response times are comparable for a rural area, the region is quickly becoming urbanized and is already impacted by urban traffic patterns. Hence, we believe that the agreed upon response times are optimistic. As an example, it may not always be the case that a hazardous material response coming from San Leandro could be made in 35 minutes during the height of rush hour traffic as claimed by ACFD. As a result, the Committee concludes that ACFD may, from time to time, have to rely on other entities such as TFD to provide emergency response to EAEC and /or be the first responder under mutual aid arrangements.

During the June 3, 2003 RMPD Conference, Applicant submitted into evidence the EAEC Cooperative Agreement, an agreement between EAEC

and Alameda County (Cooperative Agreement). Under Article 6 of the Agreement, Applicant would make contributions for (a) improved emergency services response (Emergency Response) in the County's Mountain House Area….(Exhibit 4A-1, pp. 9-10.)"

However, little detail is provided in the Cooperative Agreement indicating what these improvements would actually be. Article 6.2 indicates that the EAEC shall make a $500,000 contribution to the County for Emergency Response Improvements, with the County being required to develop a plan and budget to be submitted to EAEC for approval. Article 6.2 goes on to state that "such plan will expend approximately half of the budget on improving services through the County and half of the budget on improving services either through other agencies or to provide a direct benefit to other agencies who respond to the Mountain House Area." (Ibid.)

The Cooperative Agreement is silent on how the foregoing plan would expend approximately half of the budget on improving services either through other agencies or to provide a direct benefit to other agencies who respond to the Mountain House Area.

Under questioning at the June 3 RPMPD Conference as to what is envisioned for Emergency Response Improvements, Chief McCammon indicated that ACFD is considering proposing a helicopter service that would be used for wild fire response and for emergency evacuation. The helicopter services would be shared with several other counties. The Committee is concerned that this would not best serve EAEC or the community (Mountain House) in the vicinity of EAEC.

The Committee is pleased to note the Cooperative Agreement signatories' "desire to further the mutual benefit of the Emergency Response Improvements …." and EAEC's provision of funds for these purposes. The Committee concludes that the Cooperative Agreement can be the vehicle for addressing the resource and response issues to EAEC and the Mountain House community area.

*Accordingly, the Committee urges Applicant, ACFD, and the local Mountain House Community (including TFD, its fire services provider) to work together to develop and implement an acceptable plan as called for in the Cooperation Agreement. To encourage the parties, Applicant is required to obtain CPM approval of plan content before making payment under Article 6 of the Cooperation Agreement. (**Condition WORKER SAFETY–4**.)*[6]

Staff's Worker Safety and fire Protection Analysis for the MEP is almost identical to the one it performed in the East Altamont Energy Center that resulted in the

[6] East Altamont Energy Center Final Commission Decision Pages 198-201

committee's statement above. That was in 2003 before the current recession which has been the worst since the great depression. Both the Alameda County Fire Department and the Tracy Rural Fire Department are struggling with budget cuts and the individual impact of the MEP and the Cumulative impact of the MEP and the EAEC require mitigation for both departments. Worker Safety and Fire Protection Condition Number 8 provides the necessary mitigation to mitigate this significant impact.

WORKER SAFETY–8 Applicant will meet and confer with the ACFD, and the local Mountain House community (including TFD) to develop a plan for an Emergency Response Enhancement Agreement and fund such agreement.

Verification: At least thirty (30) days prior to the start of site preparation activities, the project owner shall submit to the CPM for approval a copy of the foregoing plan. The project owner shall present evidence to the satisfaction of the CPM that the required disbursement under Article 6 of the Cooperation Agreement has occurred.