"Exhibit A"

WesPac Pittsburg Infrastructure Project
Notice of Preparation of a 2nd Recirculated DEIR
July 1, 2015

2011 NOP Comment Letters Received

Letter No.	Commenter
1	Farella, Braun, Martel, LLP, August 26, 2011
2	Anguis & Terry, LLP, August 26, 2011
3	California State Lands Commission, August 26, 2011
4	Delta Diablo Sanitation District, August 26, 2011
5	Malcom & Sharon Franklin, August 25, 2011
6	Joan Repato, August 25, 2011
7	Katherine Coviello, August 25, 2011
8	Ted Leach, Contra Costa County Fire Protection District, August 25, 2011
9	William Neace, August 25, 2011
10	Jim McDonald, August 25, 2011
11	Victoria Michalski, August 25, 2011
12	California Department of Transportation, August 17, 2011
13	Contra Costa Water District, August 16, 2011
14	City of Antioch, August 15, 2011
15	Califorina Department of Fish & Game, August 11, 2011
16	Native American Heritage Commission, August 1, 2011
17	Tri Delta Transit, July 28, 2011
--	8/4/11 Scoping Meeting Comments

Letter No. 1

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August 26, 2011

Via E-mail, Facsimile and U.S. Mail

Kristin Vahl
Associate Planner
City of Pittsburg Planning Division
65 Civic Avenue
Pittsburg, CA 94565

Re: WesPac Pittsburg Energy Infrastructure Project
Scoping Comments in Response to Notice of Preparation dated July 21, 2011

Dear Ms. Vahl:

On behalf of Mariner Pittsburg Holdings LLC (MPH), we submit these written scoping comments in response to the Notice of Preparation for the proposed WesPac Pittsburg Energy Infrastructure Project ("Project"). Please consider these comments as part of the City's preparation of the Draft Environmental Impact Report (DEIR), including ensuring that the DEIR addresses these concerns in its analysis of the Project's potential adverse environmental impacts.

MPH is the developer of the Mariner Walk residential housing development immediately adjacent to the location of the proposed WesPac Project. The Mariner Walk development consists of 123 lots. Of those, 35 single-family homes are constructed, occupied and individually owned by the purchasers. The remaining 88 lots are entitled and approved for single-family housing. Those homes are designed with the construction documents completed, and MPH has been planning to begin construction in the near future. Entitlements for the 123 homes to be built at this site were approved by the City of Pittsburg in October 2005 (as amended in June 2010), and construction of the existing 35 homes was completed in Fall 2010.

The fact that the Mariner Walk residential development was approved and partially constructed while the Project site was closed and dormant, and the close proximity between the Mariner Walk development and the proposed WesPac Project, raise concerns of potential adverse and significant impacts. In addressing our scoping comments in the DEIR, please consider the fact that the site was not operating at the time the existing homes were built.

We are very concerned the proposed reuse of this site could result in a detrimental change to baseline environmental conditions, ranging from land use to hazardous materials to noise and visual character. Our concerns about the intensity and range of potential impacts are heightened by our limited knowledge of specific development details of this project, including but not limited to whether there will be a physical expansion of the terminal and storage facilities on site and if so, where, and the size and location of the proposed office building. Other than the minimal information in the Notice of Public Meeting dated July 25, 2011, MPH has not been provided any substantive information. Please send the complete project application and the Initial Study completed for the Project.

We also are wondering why a joint EIS/EIR is not being prepared, given that the Army Corps of Engineers will need to issue a permit for this Project. Doing so would be efficient for the City and facilitate the public's ability to learn of and better understand the full breadth of potential impacts and recommended mitigation measures.

In addition to those items listed in the NOP, please evaluate the potential adverse impacts upon the current and future residents and homes in the Mariner Walk development associated with the following:

- Aesthetics

    1. Major construction and operations activity at the site could result in negative visual impacts from the residences, particularly those located directly across from the Project site.

    2. Will the Project create shadow due to height increases? Will the proposed office building cause shadow or loss of light? Will there be glare from the Project from either the office building or the upgraded terminal facilities?

- Air Quality

    1. Base the analysis of air quality impacts on BAAQMD's most recent protocol for evaluating greenhouse gas emissions and offsetting of emissions from use of BACT.

    2. Use as broad an area as possible to perform a health risk assessment. Introduction of emissions from the Project will be a significant change to the baseline and should be scrupulously evaluated.

    3. Evaluate the visual impacts of air quality impacts from construction and operations, including an analysis of potential toxic air contamination (TAC) emissions from the Project.

4. In your evaluation, please consider the impacts upon the St. Peter Martyr School which is located immediately adjacent to the Mariner Walk development and to the Project.

- Geology, Mineral Resources, and Soils

  1. Evaluate emergency access in the event of an earthquake.

  2. Given the age of the existing facility, what will be required to upgrade to current seismic safety standards? Will upgrades require excessive grading or other ground disturbance activities that could result in damage to the homes?

- Hazards and Hazardous Materials

  1. In addressing the risks for exposure to explosions and fires, will the City be able to make available adequate police and fire services for this Project?

  2. Per above, in your evaluation, please consider the impacts upon the St. Peter Martyr School which is located immediately adjacent to the Mariner Walk development and to the Project.

- Land Use and Recreation

  1. Evaluate the change in character from converting a dormant facility to an active facility, with more intensified use due to the inclusion of an office building.

  2. Will reuse of the site affect access to any shoreline or other recreational activities now available to the public?

  3. If there is loss of shoreline access, please require the Project to provide for off-site recreational opportunities to compensate for the loss of shoreline access.

- Noise

  1. Ensure that the evaluation of noise impacts is as broad as possible. Given the proximity of several hundred sensitive receptors in Mariner Walk that were not present when the Project site last operated, it is essential that all existing and possible future residential developments in the vicinity of the Project site be evaluated for noise impacts.

2. Per above, in your evaluation, please consider the impacts upon the St. Peter Martyr School which is located immediately adjacent to the Mariner Walk development and to the Project.

- Population and Housing

1. Evaluate the impact on home valuation due to the renewed Project activity. CEQA requires that secondary impacts such as this be evaluated. *See* CEQA Guidelines Section 15064(d). Because it is reasonably foreseeable that the operation of the plant could result in diminution in property values in this economy and the subsequent vacation of homes, the resulting change in physical character should be considered a potential physical impact from the Project.

- Public Services, Utilities and Service Systems

1. See comment under Hazardous Materials.

2. Will the Project affect existing water service to the Mariner Walk project?

3. Because the Project will be producing a significant amount of wastewater, will the City's treatment capacity be affected and/or exceeded?

4. Given heightened concerns about terrorist activity at these types of sites, will the City be able to make available additional police resources to the Project?

- Traffic and Circulation

1. Evaluate the possibility that on-street parking demand will increase in the neighborhood in which Mariner Walk is located.

2. Evaluate the potential reduction in Level of Service (LOS) for the streets in the Mariner Walk neighborhood from project construction and operation.

3. Will there be any changes in traffic patterns due to the project operation?

- Alternatives

1. Analyze the following alternatives:

   a. Reduce the project footprint to minimize the impact on the Mariner Walk neighborhood.

b. Locate noisy, hazardous and otherwise potentially harmful activities as far away as possible from the Mariner Walk neighborhood, and perhaps consider creating a buffer.

Please add the following persons to the list of persons to receive public notice or other information relating to the WesPac Project:

Mariner Pittsburg Holdings LLC
Attn: David Gutridge
980 Garcia Avenue
Pittsburg, CA 94565

James H. Colopy, Esq.
Farella Braun + Martel LLP
Russ Building
235 Montgomery Street, 17th Floor
San Francisco, CA 94104

Feel free to contact me with any questions.

Sincerely,

James H. Colopy

cc: David Gutridge

Letter No. 2

ANGIUS & TERRY LLP

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August 26, 2011

VIA ELECTRONIC MAIL
kvahl@ci.pittsburg.ca.us

Kristin Vahl
City of Pittsburg Planning Division
65 Civic Avenue
Pittsburg CA 94565

Re: WesPac Pittsburg Energy Infrastructure Project
Our client: Mariner Walk Corporation
Our file number: 2771.2

Dear Ms. Vahl:

This law firm represents the Mariner Walk Corporation ("Association"), which is a residential homeowners association located in Pittsburg. The Association submits this letter and the attached exhibit as its formal written comments to the proposed WesPac Pittsburg Energy Infrastructure Project.

The Association is comprised of two (2) large plots of land - one parcel has been developed and contains 30 residential lots on it, as well as common area. The second parcel is presently undeveloped. Both parcels of land abut the South Tank Farm, with the undeveloped parcel located directly between the East and South Tank Farms. Attached as **Exhibit A** is a copy of the WesPac Proposed Project Layout diagram wherein we have outlined the developed and undeveloped portions of the Association's property: the developed parcel is outlined in black and the undeveloped parcel is outlined in red with red hash marks.

Due to the Association's close geographic proximity to the proposed project, my client has a myriad of justifiable and reasonable concerns. In order to present the most pressing of these concerns in an efficient manner, we submit the following:

Noxious Fumes

The nature of crude oil refining and processing is a noxious one. Although efforts may be taken to minimize this, there is no way to completely eliminate the fumes. The existence of these fumes will be constant and will likely increase during the hotter months, which can comprise a long period of time in this part of the Bay Area. The fumes will not only have a negative impact on home sales within the development, but will also negatively affect the current homeowners' ability to enjoy their front and back yards. As such, not only will such fumes affect the Association members' financial interests in home prices, but also their right to quiet enjoyment of their properties.

Pollution from Oil Tankers

The Association is concerned with the presence of oil tankers for two (2) reasons - air and noise pollution. Obviously, tankers will be required to idle for some period of time during the transporting and transfer process, which may be up to a few hours. During this time, the tankers will be spewing pollution into the air that our members come in immediate contact with due to the development's close proximity to the proposed loading platform and bay. The idling tankers will also create a constant problem of noise pollution. Because there will likely be no restrictions on what times such tankers can load and unload the products, it is possible that there will be noise pollution during the night and early morning hours disturbing the members and again, interfering with the quiet enjoyment of their homes.

Risk of Fire and/or Explosions

The Association is obviously very concerned about the safety of such an operation so close to its residential development. While pollution concerns are valid and justified, the fear of a sudden fire or an explosion is perhaps tantamount because the level of damage and destruction is so much higher. While safety regulations will be in place to limit the likelihood of such events occurring, there is no guarantee that these

incidents will not happen. Such an accident would be devastating to the development and the countless families that reside there. Such a risk cannot be simply discounted by the fact that there will be regulations in place to attempt to avoid such accidents. The City of Pittsburg should take the safety of all its citizens very carefully when approving such a highly hazardous project, especially the safety of those most likely to be directly affected by such a project, such as the Association.

If any such disaster were to occur, the Association members would not only look to the operating company, but regulating agencies and also the City of Pittsburg for redress.

Lack of Appropriate Supervision or Enforcement of Regulations

Safety regulations are only effective if enforced strictly and consistently by regulating agencies and individuals. Although we are unaware at this point of the exact regulating agency/agencies which would be overseeing and monitoring the project and the everyday operations, the Association has serious concerns that the City of Pittsburg would be unable to adequately provide the supervision necessary to ensure proper and strict compliance with the regulations. If the City of Pittsburg is not the main regulatory entity, but merely an additional supervising party, the Association still has concerns that the City will not have the resources in order to properly perform these additional duties. While the City may be *capable* of doing this, the Association's primary concern has to do with funding and budget issues.

As we all know, federal, state and local governments are faced with budget problems and there have already been significant cutbacks in services that people use on an everyday basis. The Association is legitimately concerned that budget cutbacks will continue to affect the City and as a result, supervision or close monitoring of the activities of the proposed refinery will lose its priority. Such lack of funding to ensure proper supervision and enforcement of regulations is typically what leads to environmental and safety disasters. The Association is simply unconvinced that regulations will always be enforced as strictly as they should be during tough financial conditions, such as those the federal, state and local government are now facing.

Effect on Undeveloped Parcel of Association Land

As stated above, the Association has a developed parcel of land and a presently *undeveloped* parcel of land. The developer of the Association, Discovery Builders, was planning on building 93 residential homes on the undeveloped parcel of land (outlined in red on the attached map with hash marks). However, the location of this presently undeveloped parcel of land places it directly between the two (2) sets of tank farms. If the proposed project is allowed to proceed, the developer has already expressed their intention to abandon the land and leave it undeveloped.

This decision, no doubt, is because the area would be very undesirable from a residential owner's perspective, due to the noise, odor, environmental and safety issues. In the present real estate market, such drawbacks are enough to convince a developer to abandon land, rather than invest money and have the homes be unsold. Of course, this will not only limit the number of people living in and moving to Pittsburg, but will negatively effect the value of the homes in the *developed* portion of the Association, as well.

On a related point, the City needs to be aware that when the Association was first developed in 2007, the previous GenOn Pittsburg Generation Station was non-operational and had not been used for over 15 years and was placed into "caretaker status" in 2003 (per the City of Pittsburg's Notice of Preparation). Had the Association members *known* that there were plans to begin operations at this plant again, many of the Association members likely would not have purchased their homes in an area so close to an operating refinery. The same can likely be said of the developer and its purchase of the land. Although the Association makes no representations as to the intentions of the developer, members of the Association may be inclined to seek judicial interference or determination of their rights if the plans for this project are approved.

ANGIUS & TERRY LLP

ATTORNEYS

Other Concerns

The Association also shares the concerns previously expressed at the Public Scoping Meeting of August 4, 2011 and wishes to reiterate some of those herein:

1. City funds to be used to pay for this project;
2. Construction concerns - increased noise, traffic, and pollution in the area;
3. Overall increased noise, traffic and pollution in the area after the plant is operational;
4. Environmental concerns related to WesPac's proposed construction of a new pipeline segment; and
5. Congestion in the Bay and how it would effect recreational users of those waters.

The Association understands that the opening of this plant will likely create an influx of new jobs and help bolster Pittsburg economy; however, the nature of this community will be significantly altered by the re-opening and operation of such a plant. Even though the marine terminal had been used for such purposes in the past, the overall nature of the community has benefitted from the non-operation of such a facility and has allowed Pittsburg to reclaim a less industrial, more family-friendly feel. To allow the plant to reopen would not only effect the environment of the City of Pittsburg, but would have significant and numerous detrimental effects on the members of this Association and their families.

We hope that the Association's comments on this matter will be a part of any discussion as to the eventual approval of the proposed plans. We ultimately implore the Planning Department to deny WesPac Energy's proposed plan to reactivate the oil storage and transfer facilities located at the GenOn Pittsburg Generating Station.

Please let me know if further information is sought in conjunction with this letter. The Association appreciates your time and close consideration of its concerns.

ANGIUS & TERRY LLP

ATTORNEYS

Very truly yours,
ANGIUS & TERRY LLP

Zer Iyer

Enclosure

cc: Board of Directors (c/o Carol Groshong)

developed parcel

presently undeveloped parcel

AERIAL PHOTO SOURCE: Google Earth, October 2009.

LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE LOCATION OF PROPOSED PUMP/HEATER
- EXISTING PIPELINE
- ALT 2B — PROPOSED PIPELINE CONNECTION TO KLM

N

APPROXIMATE SCALE (FEET)

0 800

WesPac Energy-Pittsburg LLC

PROPOSED PROJECT LAYOUT

WesPac Energy-Pittsburg Terminal
696 West 10th Street
Pittsburg, California

FIGURE 2

FILE NAME: N:\GIS\WesPac_Pittsburg Terminal\Conditional Use Permit_March11\Fig2_Proposed Project Layout_VER4.dwg | Layout Tab: 8x11

Letter No. 3

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

CALIFORNIA STATE LANDS COMMISSION
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August 26, 2011

File Ref: SCH# 2011070253

City of Pittsburg Planning Division
Attention: Kristin Vahl
65 Civic Center Ave
Pittsburg, CA 94565

Subject: Notice of Preparation (NOP) for an Environment Impact Report (EIR) for the WesPac Pittsburg Energy Infrastructure Project, Pittsburg, Contra Costa County

Dear Ms. Vahl:

Staff of the California State Lands Commission (CSLC) has reviewed the subject NOP for the WesPac Pittsburg Energy Infrastructure Project (Project) prepared by the city of Pittsburg (City) as the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC staff has prepared these comments as a trustee and responsible agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters.

CSLC Jurisdiction and Project Location

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court.

On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low water mark and a Public Trust

easement landward to the ordinary high water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

The proposed Project is located on approximately 125 acres onshore within the existing GenOn Delta, LLC Pittsburg Generation Station, at 696 West 10th Street, Pittsburg, CA. WesPac Energy – Pittsburg LLC (WesPac) is proposing to modernize and reactivate the existing oil storage and distribution systems at the facility, including:

- the existing Marine Terminal;
- the existing onshore storage tanks;
- the existing pipeline connection to the existing Shell San Pablo Bay Pipeline; and
- installation of a new pipeline connection to the existing Chevron KLM Pipeline and the upgrade of other existing ancillary equipment.

The CLSC leases approximately 58.74 acres of the subject site to Mirant Delta, LLC (which has recently merged with RRI Energy to form GenOn Delta, LLC); as authorized under Lease No. PRC 4444.1. As proposed, WesPac expects to purchase the land and facilities from GenOn Delta, LLC and apply for a lease from the CSLC on an additional 39 acres of State-owned ungranted sovereign land for the Marine Terminal portion of the Project. A lease application can be found on our website at http://www.slc.ca.gov/. However, if currently pending legislation (Senate Bill 551, DeSaulnier) is enacted, the proposed Project site would be within lands granted to the City and no lease would be required from the CSLC. Instead, the day to day administration of these lands would be handled by the City, with the CSLC only maintaining oversight authority.

This conclusion is without prejudice to any future assertion of State ownership or public rights, should circumstances change, or should additional information become available. This letter is not intended, nor should it be construed as a waiver or limitation of any right, title, or interest of the State of California in any lands under its jurisdiction.

Environmental Review

Project Description

A thorough Project description should be included in the EIR in order to facilitate meaningful environmental review of potential impacts, mitigation measures, and alternatives. In order to facilitate CSLC staff's determination of the extent and location of its leasing jurisdiction, make for a more robust analysis of the work that may be performed, and minimize the potential need for subsequent environmental analysis, the Project description should be as precise as possible in describing the details of all proposed activities (e.g., types of equipment or methods that may be used, maximum area of impact, seasonal work windows, locations for material disposal, etc.), as well as the details of the timing and length of activities. The description should include:

- a thorough explanation of all in-water activities, construction, and structures, including whether pile driving activities will be necessary;
- whether underwater pumps or intake structures will be installed or operated and what type of dredging equipment is expected to be used;
- a discussion of the expected operational life of the facilities; and
- a closure plan, presented in the Project description, if facility closure and removal activities are contemplated as a part of the proposed Project.

Oil Spill Modeling

The NOP did not state whether the City intends to conduct any modeling, including hydrodynamic modeling and spill trajectory modeling, to predict the path of a potential oil spill at the Terminal. Modeling is an essential tool for fully identifying and analyzing the potential for a spill-related significant impact. The National Oceanic and Atmospheric Administration (NOAA) Trajectory Analysis Planner (TAP II) spill impact model is the most commonly used model and is based on hundreds of spill trajectory models run for different volumes and materials, times of the year, and locations and the shoreline impact areas predicted. However, CSLC staff is concerned that it will not provide an adequate model for the analysis of potential impacts for the proposed Project because of the Terminal's location, which is the most inland of all of the marine terminals in California, and there are no model data in the stored data sets that allow shoreline impact predictions a significant distance to the east of the Benicia Bridge. Because a spill connected with Project implementation or operation could potentially impact areas outside of the stored data sets, CSLC staff recommends that the City independently conduct both hydrodynamic modeling and spill trajectory modeling as a means of fully identifying and analyzing the potential for a spill-related significant impact instead of relying solely on the NOAA TAP II.

The hydrodynamic modeling is needed to establish the current/water flow behavior in the area of Suisun Bay, upper Delta, and north Bay regions of the Estuary where tidal flow and seasonal fresh water flow will strongly influence the movement of any accidentally spilled oil from the Terminal. It should be able to model the entire Bay system in a 3-dimensional approach. The hydrodynamic and spill trajectory modeling needs to be conducted at a minimum for summer and winter conditions and for both incoming (flood) and outgoing (neap) tides.

The oil spill trajectory modeling should be able to predict spill movement both on the surface and midwater to capture the movement of heavier oils as well oils that have degraded and sunk below the surface of the water. Whatever modeling is conducted should use a 3-dimensional hydrographic model for input and not rely on older surface trajectory spill type models used in the 1980s, so that the analysis in the EIR can more accurately discuss and predict the mid-water movement of any oil.

It is important when assessing potential spill impact to identify what types of habitat have a better than 50 percent chance of being impacted in order to analyze what biological resources will be affected. The spill trajectory modeling scenarios must run

long enough time periods that the spill either dissipates on the water or contact with the shore occurs. The spill volumes modeled should also be realistic. CSLC staff requests that the modeling include the following spill volume scenarios:

- the average spill volume from the Terminal's spill history (if available from when it was an operating Marine Terminal) or a mean of historic Bay spills from Marine Terminals; and
- the spill volumes required by the U.S. Coast Guard (USCG) to be analyzed in the spill response plan. These include maximum worse case and reasonable worse case. For recent modeling for marine terminals CSLC has used the largest pipeline volume of the largest diameter line connected to the Terminal as maximum worse case and then 10 percent of that volume or 50 barrels (bbls), whichever is larger for the reasonable worse case.

Climate Change

1. Greenhouse Gas (GHG) Emissions: The NOP indicates that quantitative estimates of the Project's GHG emissions that include both stationary and mobile sources will be included in the draft EIR. This estimate should be derived and presented consistent with the California Global Warming Solutions Act (AB 32) and section 15064.4 of the State CEQA Guidelines.[1] This analysis should pay particular attention to identification of a threshold for significance for GHG emissions, calculate the level of GHGs that will be emitted as a result of construction, build-out, and operation of the Project, determine the significance of the impacts of those emissions, and, if impacts are significant, identify mitigation measures that would avoid or minimize them. The analysis should also provide a meaningful and robust analysis of the potential cumulative impacts of GHG emissions.

2. Sea Level Rise: The EIR should consider the effects of sea level rise on all resource categories potentially affected by the proposed Project. At its meeting on December 17, 2009, the CSLC approved the recommendations made in a previously requested staff report, "A Report on Sea Level Rise Preparedness" (Report), which assessed the degree to which the CSLC's grantees and lessees have considered the eventual effects of sea level rise on facilities located within the CSLC's jurisdiction. The Report, which can be found on the CSLC's website (http://www.slc.ca.gov) directs CSLC staff to consider the effects of sea level rise on hydrology, soils, geology, transportation, recreation, and other resource categories in all environmental determinations associated with CSLC leases. This consideration is consistent with the State CEQA Guidelines, which direct agencies to identify and, if significant, mitigate the environmental effects of proposed projects; "effects" refers not only to direct, immediate impacts, but also to "indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" (State CEQA Guidelines, § 15358, subd. (a)(2)). Because it is reasonably foreseeable that Project facilities will eventually have to

[1] The State CEQA Guidelines are found in Title 14 of the California Code of Regulations, commencing with section 15000.

operate under higher sea level conditions, the eventual effects of the facilities' operations under those conditions are also reasonably foreseeable and should be considered in the Project's CEQA analysis.

Please note that, when considering lease applications, CSLC staff is directed to (1) request information from applicants concerning the potential effects of sea level rise on their proposed projects, (2) if applicable, require applicants to indicate how they plan to address sea level rise and what adaptation strategies are planned during the projected life of their projects, and (3) where appropriate, recommend project modifications that would eliminate or reduce potentially adverse impacts from sea level rise, including adverse impacts on public access.

Cultural Resources

The NOP indicates that the City does not anticipate any impact to cultural resources because the original Terminal was built in the 1950s and the entire Project site is disturbed. However, to ensure avoidance of any potential impacts to submerged cultural resources and any unanticipated discoveries during the Project's construction, Best Management Practices (BMPs) should be described in the EIR, developed into avoidance or minimization measures and included in the Mitigation Monitoring Program (MMP).

The CSLC maintains a shipwrecks database that can assist with the analysis (see http://shipwrecks.slc.ca.gov); please contact Pam Griggs of this office (contact information below) to obtain results from a search of the shipwrecks database that may contain confidential archaeological site information. The database includes known and potential vessels located on the State's tide and submerged lands; however, the locations of many shipwrecks remain unknown. Please note that any submerged archaeological site or submerged historic resource that has remained in state waters for more than 50 years is presumed to be significant.

The EIR should also clearly state that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. The CSLC requests that City staff consult with CSLC staff, should any cultural resources be discovered during construction of the proposed Project.

Water Resources

1. Anti-fouling Paints: In addition to the potential impacts identified in the NOP, the draft EIR should include an analysis of the potential for anti-fouling paints that are used on the hulls of vessels calling at the Terminal to result in potentially significant effects on water quality. Marine anti-fouling paints are used to reduce nuisance algal and marine growth on ships. These marine growths can significantly affect the drag of the vessel through the water and thus its fuel economy. They are also used to reduce the spread of nonindigenous species that attach to or associate with the hull and other wetted surfaces of a vessel. Anti-fouling paints are biocides that

contain copper, sodium, and zinc as the active ingredients. All of these are meant to be toxic to marine life that would settle or attach to the hull of ships.

2. Other Water Quality Considerations: While the NOP indicates water quality impacts could occur from runoff, ship propellers, and dredging activities, the draft EIR should also address any other in-water construction work and its potential to mobilize pollutants from the creosote pilings (if any), disturb soils, or suspend sediment that might affect water quality. For any effects found to be potentially significant, the EIR should identify feasible mitigation measures that would avoid or lessen such effects.

Biological Resources

1. Sensitive Species: The City should conduct queries of the California Department of Fish and Game's (DFG) California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service's (USFWS) Special Status Species Database to identify any special-status plant or wildlife species that may occur in the Project area. Additionally, the City should consult early in the process with appropriate staff at DFG, USFWS, and NOAA Fisheries Service to identify species of concern. The EIR should analyze the potential for such species to occur in the Project area and, if impacts to special-status species are found to be significant, identify feasible mitigation measures to reduce or avoid those impacts.

2. Nonindigenous Species: The EIR should consider a plan with a range of alternatives for prevention programs for terrestrial and aquatic nonindigenous species (including quarantine, early detection, and early response) to slow the introduction of nonindigenous species into high-traffic and sensitive areas. In developing these alternatives, the plan should consider using current and proposed aquatic nonindigenous species prevention programs in the area as models. The analysis conducted on the potential effects of anti-fouling paints should also be carried into the Biological Resources section and discuss the impacts from these paints on marine species.

3. Construction Noise: If the Project includes any "in-water" work, including but not limited to removing old piles or installing new ones, the EIR should evaluate noise and vibration impacts on fish from Project activities. The EIR should also evaluate noise and vibration impacts on birds from all Project activities. Mitigation measures could include species-specific work windows as defined by DFG, USFWS, and the NOAA Fisheries Service. Again, staff recommends early consultation with these agencies to minimize the impacts of the Project on sensitive species.

Light

The EIR should also include analysis of potential light impacts from regular Terminal operations to the Terminal's neighbors. The Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS), the USCG, and Homeland Security all have requirements for visibility and navigational safety for Marine Terminals. Marine Terminals must be lit at night and visible from a distance. When the Terminal meets its

requirements for visibility as required by the regulatory agencies, it may become a visual nuisance to its neighbors and a potentially significant impact that must be addressed in the EIR. The City should identify all neighbors to the Project and begin early consultation with them to determine whether impacts from the Terminal lights will be significant, and if necessary, develop appropriate mitigation measures that would avoid or lessen such impacts.

Mitigation and Monitoring

To avoid the improper deferral of mitigation, mitigation measures should either be presented as specific, feasible, enforceable obligations, or should be presented as formulas containing "performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way" (State CEQA Guidelines, § 15126.4(b)). It would also be helpful to provide a summary of the mitigation measures relied upon to avoid or reduce the identified impacts to less than significant, in addition to a monitoring program of these actions to ensure compliance and enforceability through permit conditions, agreements or other measures during Project implementation.

Thank you for the opportunity to comment on the NOP. It is anticipated that the CSLC may need to rely on this CEQA document for issuance of a lease; therefore, we request that you consider our comments when preparing the draft EIR.

Please send copies of future Project-related CEQA documents or refer questions concerning environmental review to Sarah Mongano, Staff Environmental Scientist, at (916) 574-1889 or via e-mail at Sarah.Mongano@slc.ca.gov. Please contact Michelle Andersen at (916) 574-0200 (e-mail: Michelle.Andersen@slc.ca.gov) if you have questions concerning CSLC jurisdiction or leases. Please contact Senior Staff Counsel Pam Griggs at (916) 574-1854 (e-mail: Pamela.Griggs@slc.ca.gov) if you have questions concerning archaeological or historic resources under CSLC jurisdiction.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
M. Andersen, LMD, CSLC
S. Mongano, DEPM, CSLC
M. Meier, Legal, CSLC
P. Griggs, Legal, CSLC
K. Oliver, MFD, CSLC

Letter No. 4

Delta Diablo Sanitation District

OFFICE AND TREATMENT PLANT: 2500 PITTSBURG-ANTIOCH HIGHWAY, ANTIOCH, CA 94509-1373
TEL.: (925) 756-1900 ADMIN. FAX: (925) 756-1961 MAINT. FAX: (925) 756-1963 OPER. FAX: (925) 756-1962 TECH. SVCS. FAX: (925) 756-1960
www.ddsd.org

August 26, 2011

Ms. Kristin Vahl, Associate Planner
Planning and Building Department
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565-3814

SUBJECT: NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT (EIR), WESPAC PITTSBURG ENERGY INFRASTRUCTURE PROJECT, PITTSBURG, CA

Dear Ms. Vahl:

Delta Diablo Sanitation District (District) staff is in receipt of the subject notice dated July 21, 2011 for the oil storage and transport project which would reactivate, extend, and modernize existing facilities to transport and store virgin and partially refined crude oil from the existing facilities at the 125 acre GenOn Pittsburg Generating Station site located at 696 West 10th Street and adjacent to the District's Pittsburg Pump Station. Based upon the notice, we understand the project involves the refurbishment of existing storage tanks and facilities, construction of new buildings, and installation of approximately 1 mile of new parallel delivery/return crude oil pipelines from the site to an existing Chevron KLM pipeline located in the vicinity of North Parkside Drive.

The District has regional wastewater conveyance facilities located in the project area. Facilities include the Pittsburg Pump Station located on a parcel immediately east of Tank number 9; the Montezuma Interceptor which is a 27" sewer pipeline located east of tanks 2 through 6; the Rossmoor Bypass which is a 24" sewer pipeline along the "Alternative 2B proposed pipeline route"; and two 30" sewer pipelines along additional stretches of the route shown as the "proposed pipeline connection to KLM" in Figure 2. The proposed pipeline corridors are difficult to access and pipeline construction impacts, as well as accessibility for spill response should be considered in the draft EIR as part of the emergency response capabilities discussed under the Public Services and Utilities heading on page 5 of the notice of preparation.

Thank you for giving us the opportunity to comment on the environmental report scope.

Sincerely,

Patricia E. Chapman
Associate Engineer

PEC: clg

cc: Dean Eckerson, Principal Engineer, DDSD
District File No. DEV.02.DEVDOC- 679
Chron File

T:\Planning & Development\WesPac Pittsburg Energy Infrastructure NOP comments 082611.doc

Malcolm & Sharon Franklin
576 Herb White Way, Pittsburg Ca. 94565. Tel: 415-713-6689

Thursday, August 25, 2011

City of Pittsburg
Califonia

Dear Sir, Madam,
I am a four year resident of Herb White Way in Pittsburg, my house is part of the newest development in the area, and we have the misfortune to be neighbors with the gas fired power station currently operated by GenOn, 696 West 10th Street Pittsburg.

When I moved to the area I was concerned about the fuel tanks erected behind my development, there are a total of nine large tanks and seven smaller ones. I contacted the then City Manager who came to my house informing me that these tanks were no longer in use, that the power station was now gas fired and that the plan was to remove the tanks. I accepted his word and bought the current house.

Following my arrival I attempted to find the required "Emergency Planning and Community Right-to-Know Act" emergency plan for my area. I called the CalEma state agency, I called Contra Costa Fire and emergency management offices, and I called the City of Pittsburg offices, to date some four years later I have as yet to be contacted by anyone, receive a copy of the Federal EPCRA Section 301 emergency plan, or even find out who is responsible. I have no information on evacuations, routes or signals for shelter in place, nothing.

I now hear that the city is reviewing an application to allow tanker ships to unload crude oil (DOT ID UN1267) at the adjacent terminal and store this material in the very tanks that we were told would be removed.

The city has more than enough chemical facilities listed as hazardous reporting agencies we need no more. We least of all want the small of crude oil, the risks associated with shipping, leaks fires and the risk to your residents. We have new houses, a school, and a re-vitalized down town, I plead that you don't see dollars instead of people.

I have been a lifelong public servant include the State Director of Emergency Management for the State of Kentucky. I know what I am talking about, don't be taken in by local sales talk and

public relations companies, listen to your constituents, we are the ones that placed you in your positions of trust. You may contact me at any time for further discussion.

Malcolm Franklin

Letter No. 6

Joan Repato
602 Herb White Way, Pittsburg, CA 94565

Thursday, August 25, 2011

City of Pittsburg
California
kvahl@ci.pittsburg.ca.us

Dear Sir, Madam,

I bought my brand new home on Herb White Way about 3 years ago. I love my house, my neighbors and the revival of Old Town Pittsburg. I saw a lot of potential in this area.

However, I recently attended our Homeowners Association meeting and learned that the city of Pittsburg is reviewing an application to allow tanker ships to unload crude oil (DOT ID UN1267) at the adjacent terminal and store this material in the tanks near my home that I was told were not in use and would be removed.

The greatest concerns for myself, my family, my neighbors, and the local community are the unavoidable noxious fumes from crude oil and the air pollution that will result from idling tankers, as well as the increased risk of a crude oil fire that could wreak havoc on our quality of life; that is to our air quality, general living conditions, and deterioration of our homes. Additionally, we are suspicious of the political connections between the pipeline owner/operator and the City of Pittsburg, which may result in lax environmental law enforcement by the city, state, and EPA. Moreover, the prospect alone of this project will negatively affect property values and, by extension, create a negative effect on city tax revenues, resulting in the broken promise of a new and improved Old Town Pittsburg.

I urge you and every public official who have the power to decline this application to allow tanker ships to unload crude oil in our community, to please decline this application. Do not let this happen. Please listen to your constituents; we are the ones that placed you in your positions of trust.

If you have any questions or need to discuss this further, please call me on my cell: 707-386-9898.

Sincerely,

Joan Repato

Letter No. 7

Kristin Vahl

From: Katherine Coviello [cata.lina@mac.com]
Sent: Thursday, August 25, 2011 2:31 PM
To: Kristin Vahl
Subject: WesPac Pittsburg Energy Infrastructure Project

City of Pittsburg, Planning Division
65 Civic Avenue
Pittsburg, CA 94565
ATTN: Kristin Vahl, Associate Planner

Dear Ms. Vahl,

Thank you for the opportunity of accepting our comments, and hearing our voices, regarding the WesPac Pittsburg Energy Infrastructure Project EIR.

Copied below is our response to the Scoping meeting. In order to take part in any further deadlines, meetings, or public comment venues on this issue, we request notification in advance by either e-mail or snail-mail

Appreciatively,
Katherine Coviello
Paul Coviello
78 Standley Court
Pittsburg, 94565-1914
<cata.lina@mac.com>

COPY COMMENTS————>
The greatest concerns for ourselves, our neighbors, and the local community are the unavoidable noxious fumes from crude oil and the air pollution that will result from idling tankers, as well as the increased risk of a crude oil fire that could wreak havoc on our quality of life; that is, to our air quality, waterway and habitat quality, general living conditions, and deterioration of our homes. Additionally, we are suspicious of the political connections between the pipeline owner/operator and the City of Pittsburg, which may result in lax environmental law enforcement by the city, state, and EPA. Moreover, the prospect alone of this project will negatively effect property values and, by extension, create a negative effect on city tax revenues, resulting in the broken promise of a new and improved Old Town Pittsburg.
<————————END COPY

cc:
Diablo Group, Sierra Club
Delta Area Environmental Concerns
Tim Donahue

The Honorable George Miller
2205 Rayburn House Office Building
United States House of Representatives,
Washington, DC 20515

The Honorable Diane Feinstein
United States Senate
Washington DC 20510

The Honorable Barbara Boxer
United States Senate
Washington DC 20510

Letter No. 8

Kristin Vahl

From: Leach.Ted [TLeac@cccfpd.org]
Sent: Thursday, August 25, 2011 4:50 PM
To: Kristin Vahl
Subject: WesPac Energy (EIR)
Attachments: PL-696 West 10th Street.doc

Hi Kristin,

We have no additional comments other than what was stated in our planning letter for this project (attached). Let me know if there is anything else you need from our office.

Regards,

Ted Leach – Fire Inspector
Contra Costa County
Fire Protection District
2010 Geary Road
Pleasant Hill, CA 94523
(925) 941-3539

Contra Costa County ***Fire Protection District***

April 25, 2011

Ms. Kristin Vahl
City of Pittsburg – Planning Division
Civic Center – 65 Civic Avenue
Pittsburg, CA 94565

Subject: WesPac Energy – Pittsburg Terminal
696 West Tenth Street, Pittsburg
APN 085-010-012, 014, and 085-100-026
CCCFPD Project No.: P-C05-11-0454

Dear Ms. Vahl:

We have reviewed the use permit and design review application to construct a new office building and the modernization and reactivation of existing storage tanks and transfer facilities at the subject location. The following is required for Fire District approval in accordance with the 2010 California Fire Code (CFC), the 2010 California Building Code (CBC), and adopted standards:

1. Emergency apparatus access with an all-weather driving surface of not less than 20-feet unobstructed width shall be provided to within 150 feet of travel distance to all portions of the exterior walls of the new building.

2. An adequate and reliable water supply for fire protection, as set forth in the California Fire Code, shall be provided. (507.1) CFC

3. The developer shall submit three (3) copies of site improvement plans indicating all existing hydrant locations and fire apparatus access for review and approval prior to obtaining a building permit. (501.3) CFC

4. Based on the proposed square footage, the new office building may require the installation of an approved automatic fire sprinkler system complying with the 2010 Edition of NFPA 13. (903.2) CFC, Contra Costa County Ordinance 2010-15

5. **The governing codes and standards listed in Section 4.2.1 of the conditional use permit application document shall include the California Fire Code, and the California Electrical Code should be referenced in lieu of the National Electric Code and NFPA 30.**

Additionally, the governing codes and standards listed in Section 4.1.1 for the marine terminal shall include Title 24, Part 9 (California Fire Code).

6. The owner/contractor shall submit three (3) complete sets of plans and specifications of the subject project to the Fire District for review and approval ***prior to*** construction to ensure compliance with minimum requirements related to fire and life safety. Plan review and inspection fees shall be submitted at the time of plan review submittal. (107) CBC, (105.4.1), (901.2) CFC

Our preliminary review comments shall not be construed to encompass the complete project. Additional plans and specifications may be required after further review.

If you have any questions regarding this matter, please contact this office at (925) 941-3300.

Sincerely,

Ted Leach
Fire Inspector

TL/cm

c: Mr. Art Diefenbach
WesPac Energy
2355 Main Street, Suite 210
Irvine, CA 92614

File:P-C05-11-0454.ltr

Letter No. 9

Kristin Vahl

From: William Neace [wmpatsf@yahoo.com]
Sent: Thursday, August 25, 2011 6:26 PM
To: Kristin Vahl
Subject: Letter of Opposition - WesPac Pittsburg Energy Infrastructure Project
Attachments: WesPac Project Letter of Concern.pdf

Ms. Vahl,
Attached is a letter of opposition to the WesPac Pittsburg Energy Infrastructure Project. My contact information is below.

William Neace
640 Herb White Way
Pittsburg, CA 94565
925-318-4519

William Neace
640 Herb White Way
Pittsburg, CA 94565

August 25, 2011

Kristin Vahl
Project Planner
65 Civic Avenue
Pittsburg, CA 94565

RE: WesPac Pittsburg Energy Infrastructure Project

Dear Ms. Vahl,
It is with alarm I write to you today to express my deep concern regarding the impact of the proposed WesPac Pittsburg Energy Infrastructure Project. If this project is approved, I believe it will have an extremely negative impact on my family, my community, and the City of Pittsburg.

After many years of living in an apartment in San Francisco, we purchased our home in Pittsburg in the summer of 2008. We were impressed with the revitalization efforts of Old Town and believed that Pittsburg would be a nice place to live. There was a sense of community that we found very attractive. We were told by the builders that the storage tanks visible from our new home were not in use and would be dismantled eventually. We accepted this at face value.

If the WesPac Pittsburg Energy Infrastructure Project is approved, I am greatly concerned about health issue associated with living nearby. Increased air pollution will occur with this project and the population living near the project site will be negatively impacted. Even if the environmental reports advise air quality will be within acceptable ranges, those with asthma and other respiratory diseases will likely suffer.

The smell of crude oil will impact everyone near or around this area. No one knows how unpleasant that might be for all of us. Increased noise levels are a huge unknown.

I shudder to imagine what will happen if there is any kind of environmental disaster such as a fire or oil spill in the delta. Not only our neighborhood, but the entire Pittsburg Marina and/or Old Town could be affected. Is it really worth the risk? If the disaster was severe, it would put Pittsburg in the news for all the wrong reasons.

I believe the WesPac Pittsburg Energy Infrastructure Project will have an extremely negative impact on home values in the area. Our home value has fallen dramatically since purchased. Approval of this project will ensure home values never recover. It is one thing to live near visible storage tanks that will one day be removed. It is quite another to live near storage tanks filled with millions of gallons of oil. To say that we would not have bought the home had we known is a bit of an understatement. Approval of this project will further push out middle class homeowners, who are the very people I believe you are trying to attract. The impact on the revitalization efforts of Old Town will be impacted. Those people who visit Old Town for city sponsored events or dining will not be thrilled about shopping or eating their meal along with a whiff of crude oil.

As a homeowner within a stone's throw from these tanks and a taxpaying citizen of Pittsburg, I beg that you do not approve the WesPac Pittsburg Energy Infrastructure Project. I ask you, if your house was located at 640 Herb White Way, would you approve this project? The only answer is an emphatic no.

Sincerely,

William Neace
640 Herb White Way
Pittsburg, CA 94565

City of Pittsburg
Development Services-Planning Division
Attn: Kristin Vahl, Associate Planner
65 Civic Avenue, Pittsburg CA 94565

RE: EIR, NEPA and Environmental Justice Studies for WestPac Pittsburg Energy Infrastructure Project West 10th Street
(WesPac Energy-Pittsburg Terminal AP-11-761 (UP, DR))

Please include the following statements, concerns and exhibits in the administrative record OF ANY AND ALL LOCAL, STATE AND FEDERAL AGENCY INVOLVED IN REGULATION OR SITEING OF THIS PROJECT.

Comment 1: Pittsburg's future?


WESTWOOD ANETTE

Comment 2:
Pittsburg, especially the area around the project, is a low-income, minority community. Pittsburg residents are burdened with an unfair amount of pollution while having the least access to health care. Pittsburg air pollution is above State and Federal standards. Pittsburg residents' health is deserving of protection under the Federal Environmental Justice Memorandum of Understanding and Presidential Executive Order 12898 (Environmental Justice).

Comment 3:
The selection of sensitive receptors .5 miles around the project does not accurately represent the possible impact zone for this project. BAAQMD records should show complaints of very foul odors and eye and throat irritation caused by former operator Mirant's transfer of fuel several years ago; odors from tank can still be smelled at times to this day. Complaints came from residents at least one mile down-wind and very wide spread. A community meeting was held by Mirant to apologize to the community for being such a bad neighbor. Air model studies should be performed to detail total area that may be affected by the project. A minimum of 3 miles down wind should be studied.

Comment 4:
The following sites should be considered sensitive sites, including but not limited to:
Senior housing complex, Railroad Ave and 8th Street
Marina Vista Elementary School, Railroad Ave and 8th Street
St Peter Martyr School, West 4th Street
Riverview Park, River Park Dr.
Stewart Memorial Christian Methodist Episcopal Church, Linda Vista Way and Front
First Baptist Church, Odessa Dr.
St. Peter Martyr Catholic Church, Black Diamond St. and 8th St.
Greater McGluthen Memorial Temple Church, 550 Black Diamond St.
Parkside Elementary School, within 1000ft of KLM alt 1 connection.
Pittsburg High School, School St.
El Pueblo Federal Housing Project, El Pueblo
All section 8 housing within 3 miles of project

Comment 5: Elementary aged children in El Pueblo Federal housing go to Maria Vista Elementary. What steps is HUD taking to insure the health and safety of residents of the hub housing project?

Comment 6:
Were the parents of St Peter Martyr School (West 4th Street) and Parkside Elementary School, (within 1000ft of KLM alt 1 connection) notified of project EIR and Scoping meeting as per BAAQMD regulation 2, rule 1, section 412?

Comment 7:
Crude oil and partially refined crude oil are made up of many carcinogenic and organ-damaging chemicals. Please list all possible compounds that may be in crude, their percentages and known health effects on children and the elderly. Please include any compounds that cause eye, throat and skin irritation; asthma, bad smells and/or vomiting.

Comment 8:
Current health status of residents within 3 miles of project needs to be documented and monitored to determine long term effects on residents' health and whether or not residents' toxin loads are already of health concern. Tests should include but not be limited to blood tests for hydrocarbon components and heavy metal.

Comment 9:
Free health services, including but not limited to cancer screening and treatment should be offered in the exposure zone.

Comment 10:
Air pollution studies have found that ocean-going ships are a major cause of air pollution, PM 10 and PM 2.5 emissions, when in port. Applicant's project will result in more ship traffic and higher air pollution emissions in Pittsburg. PM10 and PM2.5 emissions are a major cause of asthma and asthma-related deaths. How will air pollution from ships be stopped?

Comment 11: Even if this project is approved, ships destined for Pittsburg will need to moor in the SF bay to "lighter" (transfer some of their load to other ships to reduce their draft) before entering the upper bay and Delta. There will be more ships in SF bay not fewer, increasing SF bay pollution not lowering it.

Comment 12:
Ocean-going ships are a major source of non-indigenous species of clam, plants, crabs and parasites in the Delta. This invasion has damaged the quality and economic vitality of the Delta habitat. Increased ship traffic will increase shoreline and levee erosion. Large ships in a very narrow waterway are a hazard to navigation and will have a negative impact on Pittsburg's lucrative pleasure boat industry. Increased ocean-going ship traffic will only exacerbate these problems. What agencies have been informed of this problem? How will non-indigenous species be stopped?

Comment 13:
The number of ships that would be routed away from the SF bay, compared to the overall number of ships berthed in the bay and the distance that these ships are from residents around the SF bay, would not significantly lower pollution levels in the SF bay.

Comment 14:
The project will be berthing ships and storing toxic hydrocarbons **within yards** of low income residential homes and **schools**, significantly increasing residents' and children's exposure to catastrophic explosions, toxins, and cancer-causing compounds.

Comment 15:
There is no need to speed up the delivery of crude to the refineries as stated by applicant. The current over-abundance of crude-laden ships is a result of market manipulation by oil speculators, not because of refinery demand. As the oil market corrects, normal patterns of ships' arrivals timed to refinery needs will reestablish themselves.

Comment 16:
Have current or former owners of this facility received any air pollution credits from the BAAQMD? If so, have any of these air credits been sold or expended? If so, how can this facility be allowed to open if the air credits have already been sold or are otherwise not currently owned by the applicant?

Comment 17:
In the event of an accident what agency will be notified and what will be their response?

Comment 18: Project dose not conform to Pittsburg General Plain requirements that there be a buffer zone between industry and residential.

Comment 19: How much money will applicant put toward getting, maintaining and training fire fighters per year? How much to the city of Pittsburg for fire fighters and their equipment per year?

Comment 20:
How many miles of oil containment booms will the applicant need to store on site? How many oil skimmers and tons of oil absorbent will be available on site? How many tons and what type of chemical oil dispersant will be at site?

Comment 21:
The concept of" shelter in place" implies that there is something the homeowner can do to save themselves incase of a catastrophe. Will residents be given home fire fighting equipment, gas masks and fire resistant suits so that they might have some very small hope of saving their families? Will there homes be made fire proof (remember San Bruno) or will they just be given a roll of duck tape?

Comment 22:
Have PG&E (they own the substation), Office of Homeland Security and the Independent System Operator (who will need to make up for power loss is the substation goes down) been advised of the project and their input asked for? If not the comment period should be extended another 30 days.

Comment 23:
Which Federal agency has the City of Pittsburg notified for their input on NEPA issues for this project? Which agency is expected to do a NEPA study?

Comment 24:
Which Federal agency has been notified for their input on Environmental Justice issues for this project? Which agency does the City of Pittsburg expect to do an Environment Justice study?

Comment 25:
Need to study worst-case scenario: sabotage to the facility, including the possibility of LPG, ammonia, and chlorine storage railroad cars being engulfed in flames at their storage site approximately ¼ mile south of the facility tanks are yards away from KLM connection. What effect would such a worst-case scenario have on the nearby residents and power substation just northwest of project? The electric power substation is a major supplier of power in California. It is vital to both the economic success of California and National Security that this substation remains safe from any possible threats.

Comment 26:
1980 rupture of one 100000bbl crude oil storage tank did extensive damage to four block area, damage 8.5 million. Catastrophic Tank Failures: Highlights of Past Failures along with Proactive Tank Designs: How can applicant consider dated, poorly designed tanks, which are prone to liquefaction during earthquakes, safe?

Comment 27:
There is a history of design failure, lack of testing, maintenance and repair in the tank farm industry; why should anyone think this tank farm will be any different?

Comment 28:
Has the US Fish and Game and other agency overseeing water quality in the delta been informed that at least 25% of tank content will end up in the delta in the event of a tank failure?

Comment 29:
History of tank failures: TANKS WILL FAIL! Millions in damages, businesses destroyed hundreds of lives lost. Losses of 330 million have been realized due to tank failure. Does applicant currently have or can they get insurance covering 400 million or more in damages? Will they be required to put up a bond covering the total expense of insurance coverage for 30 years or more?

Comment 30:
Tanks are old and out dated. There is a need for complete metallographic examination of existing tanks, pipes and fittings.

Comment 31:
Current containment strategy will not prevent over-topping barriers, resulting in a minimum of 25% loss of tank content to delta. Have water control agencies been notified of this possible pollution?

Comment 32:
Site is built on fill and delta marshland. Tanks are susceptible to major failure due to subsidence and liquefaction. What is the specific land fill used? How deep is the water table? How close to existing water ways are tanks? How high above sea level are the tanks?

Comment 33:
Tornados have been seen nearby. Will tanks be built strong enough to withstand a tornado? If so to what category of tornado?

Comment 34:
Project Alternatives: Consider using the old Concord Navel Weapons Station (CNWS) facilities for the project. It is my understanding that funding may be available for restoration of old closed base facilities to be renovated for commercial use. It is a substantially shorter ship route to CNWS than to Pittsburg thus significantly reducing air pollution from ships. CNWS is significantly closer to refineries thus shortening time of transport to the refineries. Both reducing pollution and shortening delivery time are the applicant's stated primary requirements and justifications for building at the Pittsburg site. There are **no residential properties** and few businesses at the CNWS site, thus there is no Environmental Justice concern. Oil pipe lines are accessible. All in all, I think the applicant would agree that the CNWS site fits their stated primary criteria far better than Pittsburg and without jeopardizing the health and welfare of citizens.

Comment 35:
Cumulative Impact – Project will lead to higher PM10 and PM2.5 concentrations, air pollution, greenhouse gases, explosions, exposure to carcinogenic compounds and poisonous chemicals, higher illness and asthma rates and deaths within Pittsburg. Higher illness rates among students and family members have been shown to be a major detriment to student learning. Most likely there will be an increase in non-indigenous species and deterioration of the delta habitat, reducing the economic prosperity of the delta. This project will have no significant impact on reducing air pollution in the SF bay. Project may become a target for terrorist attack.

There is a 98.006% chance of catastrophic tank failure within the next 50 years just due to earthquake alone. This does not include other causes of failure such as poor design and containment strategies, lightning strike, metal cracking or rusting, water in tanks, flooding, wrong construction materials used, poor welds, lack of inspection and repair, subsidence, tornados, high winds, terrorists, operator or human error.

A nearby facility failure could easily cause major tank failures. These include but are not limited to the power plant, under ground pipe lines (remember San Bruno?), a major PG&E substation and Pittsburg Power,s trans-bay terminal (both are very high energy ignition point), a rail yard full of explosive liquids, train derailment, or terrorist attack. The barbeques in the backyards of some of the homes are close enough to set off tank fumes. Maybe the applicant can pay for them to eat out?

A problem at any one of these sites would quickly spread to all the others. Everything within .5 mile(applicant's estimation zone of effect) could be destroyed, a major electrical blackout of the Bay Area, rails, pipe lines and tank cars destroyed with major release of tocsins, local industry unable to receive or ship supplies, millions of barrels of crude oil in the Delta and bay and substantial loss of life.

The age old dispute on statistical analysis has irrevocably been settled with the advent of the Fukushima Daiichi nuclear disaster. Statistical analysis for what is most likely to happen has once again been shown to be fundamentally flawed. The question is not what is most likely to happen but what can happen. Residents should not be made to put their health and the lives of their families on the line so the applicant can save a few bucks. Statistically speaking, a man with one foot in scalding hot water and the other in a pale of ice cold water is ‘comfortable’.

Considering all aspects of the project, it is in the best interests of the community, CA and the Nation that the current practice of holding ships in the bay until needed by refineries be continued or moving the project to Concord Navel Weapons Station.

Sincerely, James B. MacDonald, Secretary
CAlifornians for Renewable Energy Inc. (CARE)
jbmd56@yahoo.com

274 Pebble Beach Loop
Pittsburg, Ca94565

EXHIBIT 1:

REVIEW OF FAILURES, CAUSES & CONSEQUENCES IN THE BULK STORAGE INDUSTRY

W. Atherton[1] and J. W. Ash[2]
Liverpool John Moores University, Faculty of Technology and Environment, School of the Built Environment, The Cherie Booth Building, Byrom Street, Liverpool L3 3AF, UK

ABSTRACT

The cataclysmic events, which occurred at the Buncefield Oils Storage Depot in Hertfordshire on Sunday 11th December 2005, resulted in what is widely regarded as the largest explosion in Europe since the Second World War. This event placed the bulk storage industry in the spotlight, raising many yet unanswered questions. Accidents of this nature involving the catastrophic failure of tanks used for the storage of hazardous liquids are rare, and the risk of such incidents occurring is estimated to be low, somewhere in the region of 5 x 10^{-6} per tank year (Thyer et al 2002). In contrast to this statistical approach, Michels et al (1988) adopted the view that "a tank will fail somewhere sometime". Causalities of such events vary; the consequences however are ordinarily the same, incurring environmental, financial and infrastructure losses.

A review of the various causes of failures aims to highlight the extent of the problems, which have occurred in the bulk storage industry together with the environmental and human impact of such incidents. Through a process of spill modelling the magnitudes of such losses have been identified across a range of scenarios. Recent results have indicated that the losses incurred during less dramatic modes of failure can ultimately be significant. This gives rise to the conclusion that a suitably practicable means of mitigation has to be identified and implemented if the levels of potential risks are to be suitably controlled.

Keywords: bulk storage, catastrophic failure, environmental impact, hazardous liquids, risks.

INTRODUCTION

The failure of above ground atmospheric storage tanks, of which a variety of types are in use around the world, can be liable to failure. Types include open top tanks with or without floating roofs and closed-top tanks either with or without floating roofs. Within the European Union (EU) the specification for the design of such tanks is covered by BS EN 14015:2004.

The United States Environmental Protection Agency (USEPA) commissioned a study to investigate the common sources of failure and stated that a significant factor in tank

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farm accidents is human error. The study covering the ten-year period (1990 - 2000) highlighted that the number of accidents at long-term storage facilities had remained relatively constant. Of the 312 accidents at tank farms examined in this period it was found that operator error accounted for 22%. Additionally, 55% were attributable to tank failure, 10% to valve failure, 4% to pump failure and 3% to bolted fitting failure. Human error also accounted for 100% of accidents that resulted in fatalities, 88% involving stock loss and 87% of property damage, with the root cause attributed to overfilling/over-pressurisation (USEPA 2000).

The failure of bulk storage tanks can be attributed to a number of causes including

human error, poor maintenance, vapour ignition, differential settlement, earthquake, lightening strike, hurricane, flood damage and over-pressurisation. Such incidents have highlighted the need for the proper assessment of potential risks and the requirement for suitable methods of mitigation.

MAJOR INCIDENTS

There have been numerous storage facilities around the world damaged by earthquakes including major incidents in Alaska USA 1964, Chile in 1960, and two in Japan, Niigata in 1964 and Tokachi in 2003. The incident in 1964 at Niigata resulted in the loss of containment of several tanks due to damage sustained during the earthquake, which added to the ensuing inferno and continued to burn for 13 days. This incident highlighted several problems including that of floating roofs becoming dislodged and jamming, with the resulting fire being attributed to sparks from the damaged roof being shaken violently. More importantly, this was the first time that the phenomena of liquefaction had been observed, raising concerns over the integrity of storage tank foundations at similar coastal locations (Akatashi and kobayashi 2006).

It is estimated that lightning accounts for 61% of all accidents in storage and processing activities, where natural events are identified as the root cause of the incidents. In North America, 16 out of 20 accidents involving petroleum products storage tanks were as a result of lightning strikes. Persson and Lönnormark (2004) in a review of fires in the petroleum industry claim there have been 150 tank fires in a 52-year period as a result of lightning. Some of the more recent incidents include Brisbane, Australia 4th June 2003, where a floating roof crude tank was struck by lightning. Nigeria, 20th July 2002, 180000 bbl (one blue barrel is equal to 42 gallons) were lost when fire fighters failed to gain control of a rim fire caused by a lightning strike. Poland 5th May 2002, a 10,000m³ tank was destroyed as a result of being struck by lightning, this was compounded by the failure of the semi-fixed fire fighting system. Kansas, USA 21st August 2001, five tanks were destroyed in one incident after fire spread from a tank which had been struck by lightning.

Naples, Italy 21st December 1985

During a filling operation, fuel overflowed through the roof of a floating roof tank for almost an hour and a half. An estimated 700 tones of fuel escaped into the secondary containment. The pool of liquid covered the bund area of the tank and the adjacent pumping area, which was connected through a drain duct. The spill was followed by a vapour cloud, which rapidly formed and ignited, the source of the ignition being a pumping station. The explosion resulted in the injury of five personnel, and the destruction of the facility. Twenty-four tanks were destroyed in the fire, together with the failure of numerous pipelines, which contributed to the fire, and the loss of the main fire-fighting control centre. The fire lasted for seven days (Clark et al. 2001).

Pennsylvania, USA 16th October 1995

Five workers were killed when two tanks exploded at the Pennzoil Product Company Refinery. A welding operation was in progress on a service stairway sited between the two waste liquid storage tanks. One tank failed along its bottom seam, the shell being propelled vertically away from the base as a result of rapid over-pressurisation caused by ignition of combustible vapour. The tank contents were instantly released, igniting the contents of the second tank, this also exploded, releasing its entire contents. There was no secondary containment surrounding these tanks and the surge of burning liquid rapidly spread across the entire site, damaging another thirteen storage tanks. The contents of another five other tanks were ignited, resulting in the loss of 95,000 gallons of solvent and fuel oil (USEPA 1998).

Delaware, USA 17th July 2001

One worker was killed and eight injured, when a large sulphuric acid tank exploded. The explosion was the result of sparks from hot work on a catwalk above one of several tanks on the site, entering a tank through corrosion holes. Due to the subsequent ignition of flammable vapours, the tank shell was propelled away from its base resulting in a significant volume of sulphuric acid being released into the environment. An estimated 660,000 gallons of acid was released, with extensive environmental damage including a large quantity of the escaping material entering the Delaware River killing thousands of fish and other wildlife. The operator, Motiva, part of the Premcor refining group were ordered to pay costs of $58 million, this included a sum of $36million to the widow and family of the employee killed in the accident. An additional $24million was also deemed payable in fines for various environmental violations (US Chemical Safety & Hazard Investigation Board 2002).

Belgium, 25th October 2004

A storage tank failed catastrophically releasing its entire content of 37,000m³ of crude oil. It is estimated that only 3m³ escaped the secondary containment during this incident, this was a result of a combination of factors. The height of the containment dyke itself was in excess of 4m and this combined with the unusual nature of the incident limited the extent of the losses. The mode of failure is best described, as a jetting release and it was this directionality, which possibly prevented further losses. One month prior to the incident a leak was detected in a neighbouring tank, which was consequently drained to allow for maintenance. Of seven tanks within the dyke at the time of the failure only three where in operation, the release being preceded by a lowlevel alarm indicator, which identified a change in content level. The incident began as a minor release rapidly changing to a major failure, with total loss of containment occurring within fifteen minutes of the alarm sounding. The release from the base was powerful enough to cause displacement and resulted in the tilting of the tank due to erosion of the foundation.

Primarily, the cause was traced to the construction process with similar problems later identified with the remaining tanks on the site. The tanks had been erected on a base of sand with an outer annulus of compacted crushed rock acting as the foundation. This overlaid a layer of sand and soft clay with the tank bases designed to incorporate a ‘dome-up’ to allow run of any water. Upon initial fill, due to the soft ground conditions, all of the tanks experienced subsidence, which resulted in deformation of the bases. This allowed the formation of a ‘gutter’, which trapped and concentrated moisture away from the sump pumps. In the tank that failed this ‘gutter’ was some 35m in length and 0.2m in width and resulted in severe corrosion culminating in the breach of the primary containment (Federal Public Service – Employment, Labour and Social dialogue 2006).

Louisiana, U.S.A. 3rd September 2005

Numerous refineries closed down production prior to Hurricane Katrina striking, however in the wake of the hurricane several refineries reported spills, the worst being at the Meraux Refinery operated by Murphy Oil. A crude oil storage tank holding 65,000 bbl was damaged during the storm and an estimated 25,110 bbl of oil was released. The surrounding dyke was damaged and large quantities of oil escaped into the local environment. The cause of the damage to the dyke is uncertain; it was either as a direct result of the storm or due to the force of material escaping from a tank. At least one tank was lifted and moved 10 metres away from its foundations by the immense power of the floodwaters (Murphy Oil Corporation 2006 / USEPA 2006).

(Buncefield) Hertfordshire, U.K. 11th December 2005

A tank overfilled at an estimated rate of 550 m³ per hour for several hours overflowed into the bund generating vast quantities of vapour. This was a result of instrumentation failure, as high-level gauges failed to show that the tank was full. This was the second major catastrophe in less than 10 months, where vessels had been over-pressurised due to faulty instrumentation. In the first case the explosion and subsequent damage occurred at the BP America Refinery, Texas, where a distillation tower was over-pressurised during a start up operation and resulted in the loss of 15 lives with a further 170 injured (US Chemical Safety & Hazard Board ID=52 2006). The devastation at Buncefield has been estimated at in excess of £10,000,000 in stored materials alone, in addition to the destruction of the site itself and the effect on surrounding businesses. The nearby industrial estate housed some 630 businesses with at least 20 of these losing their premises, affecting the livelihood of some 500 people (Buncefield Investigation 2006).

Mississippi, U.S.A. 5th June 2006

Three contractors were killed and one was seriously injured in an explosion and fire at an oilfield. The contractors were stood on a gantry situated above four oil production tanks, preparing to weld piping, when it is assumed that a welding tool ignited flammable vapours from one of the tanks (U.S. Chemical Safety & Hazard Investigation Board ID=62 2006).

FAILURE MODES

Assuming the bund wall or earthen dyke remains intact in the event of a tank failure, material will inevitably be lost due to the energy of the surge wave or jet of fluid impacting against the secondary containment. Estimates made in the wake of actual incidents have calculated losses to range between at least 25% and 50% of the original contents. Research has shown that the quantity that can overflow the secondary containment can be far greater, even when considering vertical bund walls. The losses over earthen dykes or constructed embankments can be even higher, with such losses having a significant impact. The capital losses can be immense, while the impact on the environment almost immeasurable. A recent example being the damage sustained in the outlying areas of New Orleans, where in the wake of Hurricane Katrina several storage facilities experienced losses of containment. The most significant was attributed to Murphy Oil in Meraux. The environmental damage sustained due to losses from that one site, led to fines of $50,000,000 being imposed on the operator (Murphy Oil Corporation 2006/ MSN News 2006). Murphy Oil has since agreed to settle all additional claims at a recorded cost of $330,000,000 (Cicero 2006).

While there may be a degree of scepticism concerning the probability of a catastrophic failure of a storage tank and the subsequent instantaneous release of the contents, these incidents do occur, however rare. Examples such as that at Ashland 1988, Iowa 1997, Michigan 1999 and Ohio 2000, where two catastrophic failures occurred within days of each other, clearly demonstrate the possibility of sudden tank failure. Studies have shown that in the event of such failures the secondary containment can be of insufficient design to withstand the impacting surge wave and associated tank debris. This is demonstrated in the incident, which occurred at the Azotas Fertilizer Plant, Lithuania in 1989. In this case, an Ammonia storage tank failed as a result of overpressurisation,

the tank split open releasing its contents and subsequently the tank separated from its foundations and crashed through the surrounding reinforced concrete bund (Clark et al 2001).

Of possible greater significance is the structural integrity of the bund wall or earthen dyke as a result of the dynamic pressures involved, in what would possibly be

regarded the more realistic failure modes that can be encountered. Failure, which can occur as a result of a damaged pipe or valve connection or even the partial removal of a small section of a tank wall, can be particularly problematic. The issue here is the magnitude of the dynamic pressure of the fluid striking the wall, which will be much greater than any normal static pressure, combined with the duration of the impact. In the case of a concrete wall this could possibly result in the loss of integrity of the structure leading to the loss of secondary containment. In the instance of an earthen dyke, there is a high probability that the earth will be eroded away, again resulting in the total loss of secondary containment.

Modelling of asymmetric modes of failure or 'jetting failures' has been undertaken over a number of tank and bund geometries and the results to date indicate that the levels of overtopping and the magnitudes of the dynamic pressures are significantly high enough to cause concern. Correlations to predict overtopping due to such failures are currently being developed and should complement the work on axisymmetric modes of failure previously published.

MITIGATION MEASURES

Previous researchers have proposed modifications to the bund in order to reduce overtopping in the event of a catastrophic failure of the primary containment (Pettit and Waite 2003). The level of success of increasing the bund capacity is limited as substantial volumes of fluid can still be lost with bund capacities of 200% of the initial tank contents. The latest research has concentrated efforts on modification of the primary containment, which may be incorporated at the design stage or fitted retrospectively. The aim of the work being to produce a practicable method of minimising the level of overtopping and limiting the magnitudes of the dynamic pressures produced due to the high energy surge wave.

The basis for suitable comparisons was the data produced by Atherton (2005) and by using the same methodology, a series of mitigation measures were modelled across a range of suitable configurations using a range of bund capacities (110% - 200%). Initial findings were encouraging, with large reductions in overtopping obtained throughout the range of tank and bund arrangements used in the trials. The measures explored varied in terms of performance and practicality and as such a programme of optimisation was used to eliminate some of the proposed designs. The criteria for optimisation was not necessarily focused on the best performance in terms of reduced overtopping and dynamic pressures, but on the overall ease of build, cost of installation and level of intrusion on the available tank volume.

The most effective design to date has been named Mitigation of Tank Instantaneous Failure (MOTIF) and the concept has been the focus of a recent Patent application. The system performance is impressive in terms of the reduction in both the volume of fluid overtopping the bund and in the resulting dynamic pressures applied to the bund. This has proven to be the case for both the axisymmetric and the initial trial asymmetric modes of tank failure, over the range of configurations explored.

CONCLUSION

The implications of the sudden loss of primary containment are clear and the ability of existing measures to provide suitable secondary containment is in question. Research over the past 30 years has proven the limitations of existing measures to perform under certain modes of tank failure and suitable estimates of risk can now be made for various events. Attention must now be given to the possibility of such failures and the implications for both operators and the environment.

The optimisation of MOTIF and the development of correlations relating to reduced levels of overtopping, should give operators and other interested parties a means of estimating the benefits of implementing the system. This will enable a cost effective, practicable means of providing control in the event of a catastrophic failure.
One area of possible development is in the domain of simulation software, which will make the assessment of losses based on site-specific anomalies. Geographical and topographical information obtained from Global Information Systems (GIS) could be used along with site and plant details, combined with a set of algorithms to produce a suitable computer user interface. It is envisaged that such a tool would assess the level of risk associated with various sites in the event of a major incident. This will allow the extent of any spill to be modelled and permit the individual assessment of various failure scenarios as well as permitting the evaluation of any mitigation measures in terms of loss prevention.

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Exhibit 2:

Tank Failure Modes and Their Consequences

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The question of tank failure is addressed for both cryogenic (LFG) and atmospheric (Crude Oil) designs. An analysis of the consequences of an assumed axisymmetric mode of failure of a liquid storage tank is presented in an effort to answer the question.

INTRODUCTION

What are the dikes around storage tanks designed to do? Apparently, they are there to contain 110% of the contents of the largest tank in the event of a release. Fire protection considerations further require that these dike walls should not exceed five feet in height. Actual cases, such as the massive diesel spill into the Ohio river at Pittsburgh, have highlighted how these two requirements are incompatible in current designs.

Considerable interest has been aroused in recent years in the loading that would occur on the secondary protection system of a liquid fuel storage tank, if the tank were to fail. There has been much discussion on possible load time histories and the effects of such a failure. There are many possible alternative solutions to ensuring the overall integrity of the storage system should this failure occur. This paper discusses a design and a design load that can be used with confidence to cope with the consequences and determine what stresses are developed by the liquid on the secondary protection system following failure.

Economy of scale dictates that typically large tanks are constructed with a volume between, 5,000 m^3 and 50,000 m^3. In the event of an accident, the consequences of such large volumes of fuel being released and the devastating results of fire, explosion, and pollution are such that the probabilities of failure or release are required to be very low. The provision of the current design of guard and bund walls or dikes alone may not be able to provide the necessary protection, especially as plants tend to be located close to populated areas. There is clearly a need to reassess the overall integrity of such systems.

There is a diversity of views about the types of credible accident that should be considered in the design that could lead to the release of liquid from the primary containment. A scenario now accepted as a real possibility is the rapid propagation of cracks in the primary contain-

ment, leading to rapid dynamic liquid loads being applied to the secondary containment. The problem facing the designer is often how best to estimate the loading on the secondary containment in such an event and the consequences of it. Some of the numerical approaches available for solving this problem are outlined and the preliminary results shown. The use of complex numerical methods can be crucial in obtaining a true understanding of the system behavior and the design objectives to be met.

Formulation of the Failure Modes

Considerable disagreement exists as to the speeds at which cracks will actually propagate in the primary containment (steel tank). The approach adopted is to conduct a sensitivity analysis to determine a pattern of crack propagation that will result in a worst case design condition. In general, vertical crack propagation is considered in conjunction with crack propagation around the base of the steel tank. Clearly, the tank will move with the liquid in some way. From work already carried out [*1*], it is apparent that this is not a simple problem to solve and in many ways an experimental solution is intuitively the most satisfactory approach.

Numerical modeling, however, offers perhaps more flexibility and demands a mathematical representation of the physical problem. Provided that agreement can be shown between the numerical approach and experimental tests, it can be used with confidence.

The failure mode under consideration in the event of a tank rupture is a highly complex interaction between fracture propagation and the flow of a fluid with a free surface. In order to understand the physics of the complex interaction problem, two simplifying assumptions were made. The first assumption is based on the fact that the cracks will propagate at much higher velocity than that of the fluid motion, and that they propagate at the same time in the vertical and the circumferential (round the base) directions. The effects are that the steel tank loses its integrity instantaneously and from the structural containment point of view, can be considered removed. What is left hypothetically is the cylindrical column of fluid collapsing under gravity within the secondary containment. This greatly simplifies the problem, and can be considered to represent an axisymmetric mode of failure.

The second assumption is based on some evidence that the crack will propagate much faster in the vertical than in the circumferential direction. This would result in a section of the tank being removed and the liquid flowing through the gap. This would represent an asymmetric failure mode. Preliminary calculations of the consequences of such of failure mode have been reported [2] and it was concluded that this asymmetric mode may be interesting from sensitivity analysis point of view. In reality, a mixture of two failure modes is more probable. This would induce some asymmetry in loading on the secondary containment, the effects of which may be marginally more severe than from the purely axisymmetric failure mode. It was decided, therefore, to show two examples of axisymmetric failure modes only.

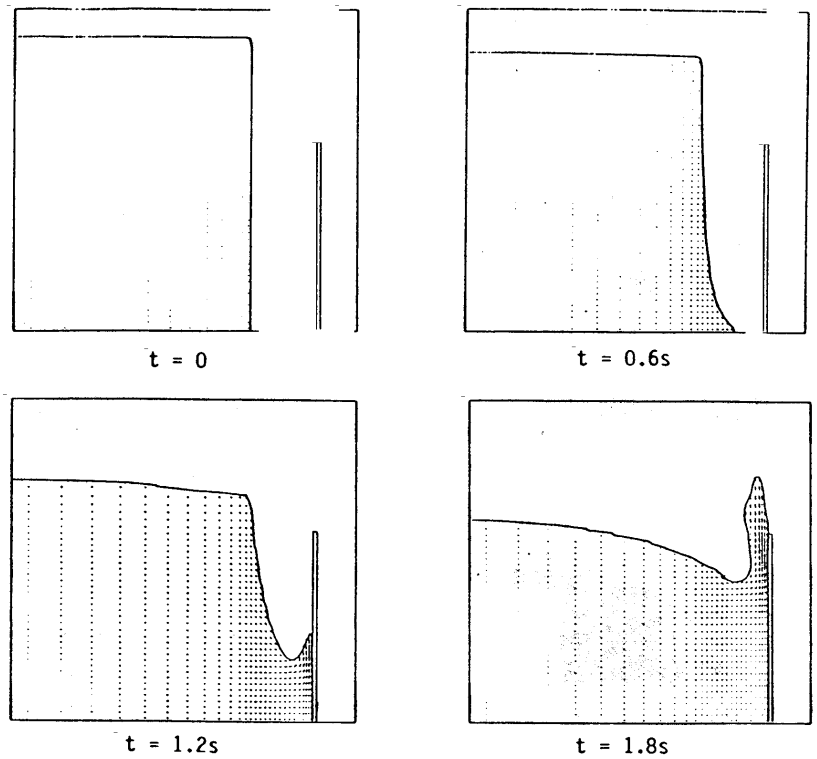

Figure 1. Tank with a secondary containment wall—fluid free surface at different times.

METHODOLOGY

The finite difference program [3] used for the fluid dynamic problem is based on an Eulerian formulation. The volume-of-fluid technique [4] is incorporated for the treatment of the boundaries. In an Eulerian representation, the computational grid remains fixed and the flow of fluid through the mesh is computed in small time intervals. Depending on the incompressibility condition (or on acoustic pressure representation) the integration of the Navier Stokes equations in time can be performed with implicit or explicit schemes. The volume of fluid techniques deals with discontinuities and the fluid boundary (free surface) can undergo large deformations. The method is therefore well suited for this type of transient problem.

APPLICATIONS

The axisymmetric failure scenario considered consists of the rapid loss of the primary containment and consequent fluid impact onto the secondary protection system for the two cases.

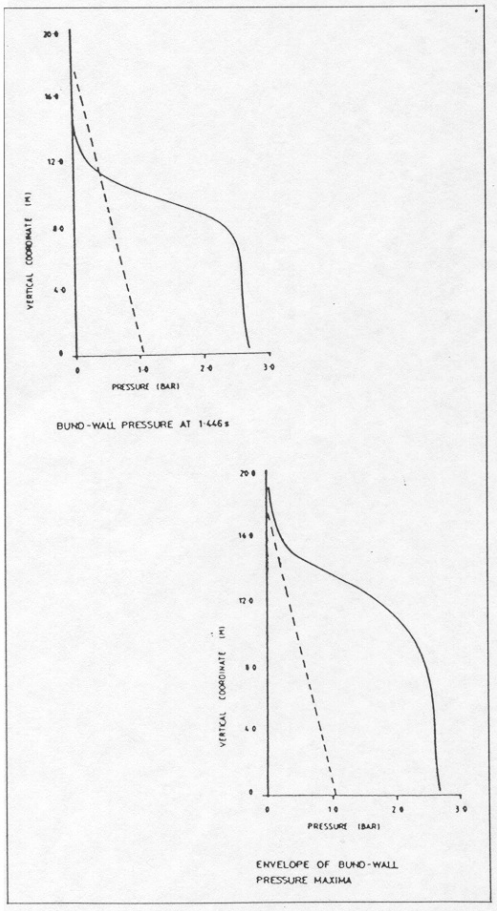

Figure 2. Containment wall pressure distribution.

LFG Tank with a Bund Wall

A typical liquefied fuel gas (LFG) tank failure was analyzed. A tank had a radius of 24 m and a volume of 50,000 m^3. The LFG density was 583 kg/m^3. The secondary protection system consisted of a reinforced concrete cylindrical bund wall, the radius of which is 30 m and the height 20 m.

The sequence of freeze frames in Figure 1 depicts the fluid-free surface positions at different time intervals. The corresponding hydrostatic (dotted line) and hydrodynamic pressure distribution are shown in Figure 2. This clearly indicates a 2.5 times increase with respect to the conventionally employed hydrostatic head calculation. In the region between 8 m and 12 m from the ground level, the maximum dynamic pressure is more than four times greater than the local hydrostatic pressure.

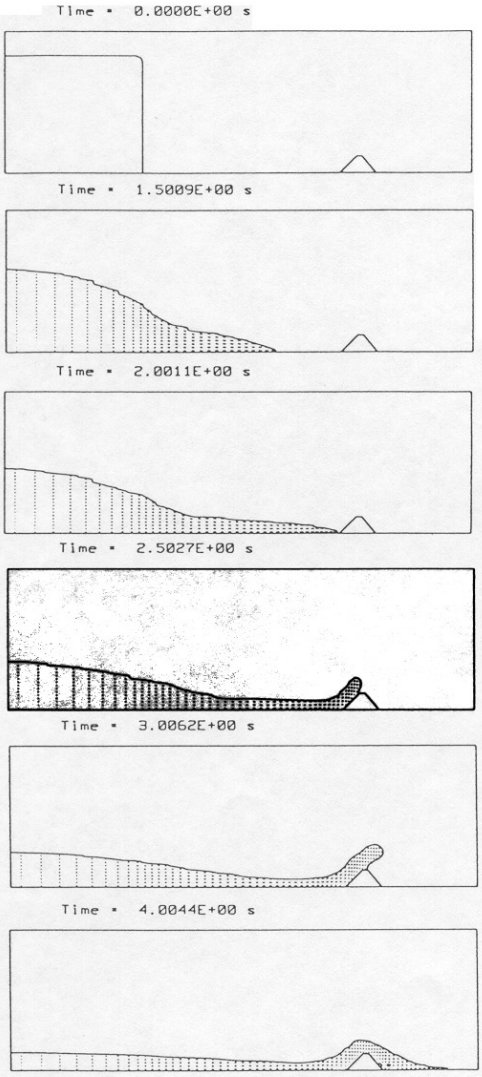

Figure 3. Tank with a dike—free surface at different times.

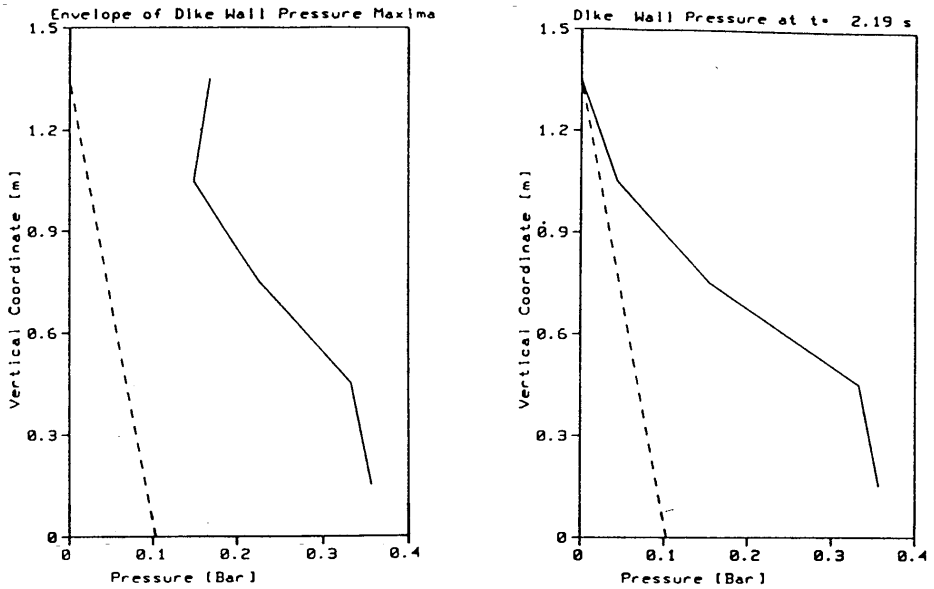

Figure 4. Pressure distribution on the side of a dike.

Diesel Fuel Tank with a Dike

For the fuels other than LFG, safety regulations require the secondary protection system in the form of a dike. The purpose of the dike is to contain any accidental spillage. It is usually constructed as an earthen embankment having a trapezoidal cross section. Our analysis examined the containment capability of such a dike in a dynamic situation as opposed to a static volumetric capacity normally considered during design. The scenario considered was that of a diesel fuel storage tank of 7,422 m^3 (2,000,000 U.S. gallons). This was surrounded by a square dike. The tank diameter was taken as 30 m and the fluid height to be 10.5 m. The dike design was of trapezoidal cross section, 3.6 m in width at the base and 1.2 m wide at the top. The height is 1.5 m which gives an inclination of the sides of approximately 51 degrees. The side length of the dike (measured from the centerline of the cross section) is then 76.6 m. This square dike can be approximated in the axisymmetric numerical model as a circular dike with the diameter of 76.6 m.

The freeze frames in Figure 3 give the position of the fluid-free surface at different times. The velocity of the fluid spill reaches 14.6 m/s in the horizontal direction, just before hitting the dike in two seconds. A substantial part of this liquid then surges over the dike, as can be seen from Figure 3. A rough estimate is that about 30% of the liquid (approximately 2,300 m) would escape over the dike under the assumption that the integrity of the dike is preserved. This fits the small-scale experimental results obtained for a similar scenario [5] very well and gives confidence in the overall correctness of the predictions.

The distribution of dynamic pressure on the dike is shown in Figure 4, where the hydrostatic pressure is denoted by a dotted line. It can be seen that the dynamic pressure is about 3.5 times the hydrostatic pressure head, which raises questions about the integrity of the dike wall itself.

CONCLUSIONS

The two analyses carried out illustrated the expected behavior of dynamic spills. They fit well with both actual (Ashland oil) and experimental results. They demonstrate that the current design of the containment dikes cannot contain spillage caused by a sudden tank rupture. The question of the mechanical integrity of the dikes and secondary containment walls is also highlighted. The amount of spillage shown in the second example probably, in many cases, would be substantially greater since it is not unusual to design dikes with sides inclined at 30 degrees to the horizontal.

The first LFG tank example shows that the pressures on the secondary containment wall will be higher than the usual design pressures employed. The pressure distribution is also quite different from the hydrostatic pressure profile used in the mechanical design of the walls.

These two applications indicate how useful this type of numerical modeling is in representing unusual or catastrophic modes of failure. Actual design configurations can be checked out on a scale that is not feasible on a full-scale experimental basis. The design changes to these protection systems can easily be incorporated and checked with the same numerical model to help the design converge to an optimal solution from the safety point of view.

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EXHIBIT 3:

Fawley Crude Oil Storage Tank

Summary Details

Failed structure:	42m diameter welded steel oil-storage tank
Date:	12 February 1952
Place:	Fawley Hampshire
Conditions:	Hydrotest with water temperature of +4°C
Failure mode:	Brittle fracture
Cause:	Small defect associated with repair weld which probably produced strain ageing embrittlement in surrounding material
Consequences:	Loss of tank

Background

Fawley crude oil storage tank failure

On 12 February 1952 a
large all-welded oil-storage tank collapsed during hydrotest at the Esso Petroleum plant at Fawley in Hampshire. Hydrotesting had commenced on 30 January following completion of the tank, but was halted when a 0.6m long vertical crack appeared in the bottom two strakes. The tank was emptied and the crack repaired. When the hydrotest was recommenced on the 11 February, the air temperature was near freezing and the water temperature +4°C. The tank split when the water reached 90% of the tank height, a continuous vertical fracture running through the parent plate of every strake. The shell was torn from the tank bottom and collapsed on the surrounding band, leaving the roof lying on the base.

The cylindrical tank was 42m in diameter and 16m high. The bottom was conical with a 0.6m fall at the centre and roof was a detached fully floating pontoon. The tank shell consisted of nine strakes made from butt welded plates measuring 1.8m x 7.2m. The strakes were progressively thinner from bottom to top, being aligned to produce a flush internal surface. The bottom strake was 28mm thick and the top 6mm.

The construction of the tank was according to API Code 12C. The material used was a BS 13 steel with specified tensile strength in the range 430 to 510MPa, equivalent to ASTM A7 or A283 steel. Plate edge preparation for welding was carried out prior to rolling the plates to the required radius.

The shell welds were full penetration double or single V welds, depending on the plate thickness. No-preheating was used except to dry the plates or remove frost. Boat shaped

samples were cut from the welds of the lower courses for inspection, leaving grooves that were repair welded. All boat samples, bar one, were satisfactory.

Causes of Failure

The 0.6m long crack which occurred during initial hydrotesting originated from a repaired boat-sample site. The brittle crack which caused the collapse of the tank also initiated at a repaired boat sample position in the circumferential weld between the lower two strakes. A very small cavity had been left at the bottom of the boat sample groove when it was repaired. This defect was found to be much smaller than others detected in the shell welds after the failure.

The weld quality was in fact quite variable although this had not been revealed by the inspection during fabrication. Tests on the plate material showed it to meet the specification. Its Charpy impact transition temperature, however, was in the approximate range 0°C to 15°C, hence the tank material did not have good toughness at the hydrotest temperature.

The existence of defects which were significantly longer than the one from which the fracture initiated perturbed the investigators. As no evidence of shock or impact loading which could have triggered the collapse was found, the investigation into the failure did not reach a conclusion regarding the cause of fracture initiation.

Approximately one month after the failure of the crude oil tank, a neighbouring gas oil tank failed during hydrotest. This tank split vertically but remained in one piece. The tank was 45.7m in diameter and 14.6m high built, like the crude oil tank, of BS 13 steel to API 12C. The water temperature was +4°C and the air temperature +9°C at the time of failure.

Examination of the fracture faces revealed that the failure initiated at a partially repaired crack in a vertical weld in the bottom shell course. The surfaces of the crack were blackened indicating that the crack had gone through a heating cycle due to a nearby welding operation.

Subsequent studies indicated that the probable cause of failure was the presence of very low toughness material in the region of the initiating defects. These regions of low toughness would have resulted from dynamic strain-ageing embrittlement at the tip of the flaws during repair welding (or subsequent heat cycling). This type of strain ageing embrittlement, which is intensified at crack tips, is a potential problem associated with repair welds, particularly in coarse grained non-aluminium treated steels.

Lessons learnt

These failures raised concern over the weld inspection method specified in the API Code which relied on taking boat samples from the welds. In the case of the crude oil tank, the failure initiated from a poorly repaired boat sample site and in the case of the gas oil tank a significant defect was missed by the inspection method. These concerns led towards the use of radiography for weld inspection in storage tanks.

The failures also highlighted the importance of material toughness for storage tanks, and the introduction of the use of materials with minimum Charpy V properties greatly improved the safety of these structures.

This is a case history taken from Report 632/1998 . For further case histories, Industrial Members may consult the full report.

Professional & WJS members and non-members of TWI can obtain further case histories by reading the following article:-

Hayes B
Six case histories of pressure vessel failures
Engineering Failure Analysis, vol 3, no 3. 1996. pp.157-170.

EXHIBIT 4:
The US EPA Fourth Biennial Freshwater Spills Symposium (FSS 2002) Sheraton Cleveland City Centre Hotel in Cleveland, Ohio, USA March 19-21, 2002.

Presentation topic category: Tanks and Standards;

Attn: Beatriz Oliveira USEPA Oil Program Center, 5203G Washington, DC 20460

Catastrophic Tank Failures: Highlights of Past Failures along with Proactive Tanks Designs

John R. Cornell and Mark A. Baker, P.E.

Introduction

Catastrophic failures of aboveground storage tanks (ASTs) can occur when explosions or flaws cause the shell-to-bottom or side seam to fail. Past tank failures have ripped tanks open releasing their entire contents and in some cases tanks have been rocketed upwards into the air. Tanks up to ~ 16 meters in diameter can be designed to fail at the shell-to-roof weld. This is called a frangible joint and is designed to limit damages to the tank and minimize the extent of a resulting fire/ spill. This sacrificial joint is primary designed to ensure integrity of the AST shell-to-bottom joint in the event of an over-pressurization of a tank to assure containment of the stored liquid. API 650 provides design criteria and tank diameter restrictions for frangible roof joints. Over-pressurization is due to the inability of pressure relief vents to handle rapid pressurization during an ignition of flammable vapors. This Paper primarily address's failures as related to ASTs designed in accordance with the American Petroleum Institute, Standard 650 which provides for a maximum operating pressure of 2.5 psig

Historical Accidents

On January 15, 1919 a United States Industrial Alcohol Company's distilling tank which recently had received a shipment of molasses in from Puerto Rico, exploded. At about 12:40 p.m. the giant tank ruptured, emptying its entire contents of about 2.5 million gallons of molasses, into Commercial Street in the space of a few seconds. The result was a flash flood consisting of millions of gallons of sweet, sticky, deadly goo. The tank, a 90'-0 diameter x 50-foot high cast iron tank was filled to the top with molasses. Upon failure, a 15-foot high wave of dark molasses moving about 35 miles per hour swallowed the streets of Boston's North End. Almost 150 people lie injured in the streets with the final death toll being 21. A Massachusetts court determined that insufficient safety inspections had played a part in the accident. In time, after 3,000 witnesses testify during 300 days of hearings, the courts found the company liable, concluding shoddy construction and overfilling of the tank was to blame, along with the apparent sudden expansion of the molasses -- the temperature had only been 2 degrees above zero the previous day. The company paid almost $1 million to settle the

Recent incidents that drove API Standard 653

Three incidents focused this country's attention on above ground storage tanks

Incident 11987, a South Dakota School was closed because of leakage from the bottom of an aboveground storage tank. The associated danger and school closure sparked, in South Dakota and Congress a desire to control aboveground storage tanks.

Incident 2January 2, 1988, a 95,000-barrel aboveground storage tank in Pennsylvania failed. The catastrophic failure spilled about 1 million gallons of oil into the Monongahela River. The spill affected the water supply of millions of people and moved control of aboveground storage tanks to the top of the congressional agenda. Incident 3Also in 1988, a floating roof drain on a storage tank in California failed and dumped about 1000,000 gallons of diesel fuel into a California waterway.

After these incidents, there were several congressional and state hearings, which cast doubts on the suitability of aboveground storage tank construction standards. The hearings also highlighted the fact that repair standards did not exist.

To respond to the need for industry standards for AST's, API elected to write 3 new standards. –API RP 651 Cathodic Protection of Aboveground Petroleum Storage Tanks –API RP 652 Lining of Aboveground Petroleum Storage Tank Bottoms–API STD 653 Tank Inspection, Repair, Alteration, and Reconstruction **Additional Recent Accidents**

In more recent times, failures have occurred in a legion of forms ranging from explosions of flammable vapors inside an atmospheric tank to brittle fracture. Often workers have been performing repairs that introduced an ignition source, as a result workers have been killed or injured and the AST's contents released into the environment. A few of the more prominent failures have been listed below

On November 31, 2001, a storage tank holding almost 100,000 gallons of crude oil ignited, throwing a nearby teenager more than 100 feet and setting off a billowing fire that could be seen for miles. Officials said the tank was in a remote area west of Lafayette and there was no danger of further explosions and no need for evacuations, although the blaze burned out of control for more than an hour and a half.

On January 8, 2000 at approximately 12:30 PM, a one million-gallon bulk storage tank owned by Southside River Rail experienced a catastrophic structural failure. The tank contained approximately 990,000 gallons of Fertilizer Solution 2800. An estimated 882,000 gallons of product entered the Ohio River. Investigators said that a faulty weld caused the problem. Four other tanks adjacent to the ruptured tank suffered damage to varying degrees. Tank welds appear to not have had 100% penetration as referenced in the American Petroleum Institute (API) Standard 650.

In a 1995 incident, during a welding operation on the outside of a tank, the vapor inside two, 30-ft.diameter by 30-ft. high, tanks exploded. One tank was thrown more than 50 feet away. The stored product was released and ignited. The resulting fire caused five deaths and several injuries.

In a 1994 incident, during a grinding operation on a tank storing petroleum-based sludge, the tank was propelled upward, injuring 17 workers and spilling its contents into a nearby river.

In a 1992 incident, while workers were welding the outside of an empty tank, the residual vapor in the storage tank exploded. The tank was thrown upward and into an adjacent river. Three workers were killed and one was injured.

EXHIBIT 5:

Failure Analysis of a Crude Oil Storage Tank

Iain Le May, President, Metallurgical Consulting Services Ltd.

From: I. Le May, Failure Analysis of a Crude Oil Storage Tank, *Metal Progress*, Vol 122 (No. 3), Aug 1982, p 35–37

Abstract: A 100,000 barrel crude oil storage tank rupture caused extensive property damage in Dec. 1980, in Moose Jaw, Saskatchewan, Canada. Failure was attributed to a brittle fracture that originated at a weld between a reinforcing pad and a manway nozzle. Factors that contributed to the brittle fracture included incomplete penetration in a single-bevel groove weld, poor impact properties of the hot rolled ASTM A283 low-carbon steel base material, and air temperature down to 27 C on the day of failure. Details of the analysis and results of impact testing are discussed.
Keywords: Crude oil; Storage tanks; Stress concentration

Material: ASTM A283 (Nonresulfurized carbon steel)

Failure types: Joining-related failures; Brittle fracture

Introduction

Early on the morning of 1 December 1980, a 100 000 bbl (15 900 m^3) storage tank containing crude oil ruptured and caught fire in the city of Moose Jaw, Saskatchewan, Canada. The tank was virtually full at the time, containing some 98 000 bbl (15 600 m^3) of oil, and the resulting fire caused extensive damage over a four block area of the industrial section of Moose Jaw. Fortunately, there were no injuries despite the severity of the explosion.

This article describes the circumstances surrounding the failure of the tank. Examination of the fracture morphology and crack growth pattern showed the origin of failure to be at a manway weld, and the various factors contributing to the initiation of the brittle fracture were identified.

Fig. 1 Moose Jaw, Sask., 1 Dec. 1980—Fire rages following the rupture of a 100 000 bbl (15 900 m^3) crude oil storage tank. No injuries were reported, but extensive damage was caused to a four block area in the city's industrial section. Estimated cost of damage and cleanup: $8.5 million. (Police Dept., City of Moose Jaw)

On-Site Inspection Reveals Area of Failure

In the initial assessment of damage and its possible causes, it was apparent that brittle fracture had taken place in the tank shell along an approximately vertical line in the region of the manway at the northwest of the tank. The entire shell had been thrown with considerable force in the opposite direction; i.e., in a roughly southeasterly direction, landing on the outside of the tank's enclosing dykes at the fractured ends and impacting on the dyke in the center. The tank roof had also moved in a similar direction, landing within the dykes, but partially on top of the shell. Thus, the region of primary concern in the tank was considered to be the northwest manway and associated fracture surfaces. These regions, both the left and right hand fracture areas, were cut into sections, marked for identification, and moved to the laboratory for detailed examination.

Surface Scrutiny

Figure 2 schematically shows the observed crack propagation around the complete fracture region of primary concern. Figure 3 is a photo of the reinforcing pad surrounding the manway. In Fig. 4 the typical chevron pattern characteristic of fast brittle fracture can be seen; crack propagation on part 1LA (see Fig. 2) occurred from the manway, down the reinforcing pad and shell, and toward the tank bottom.

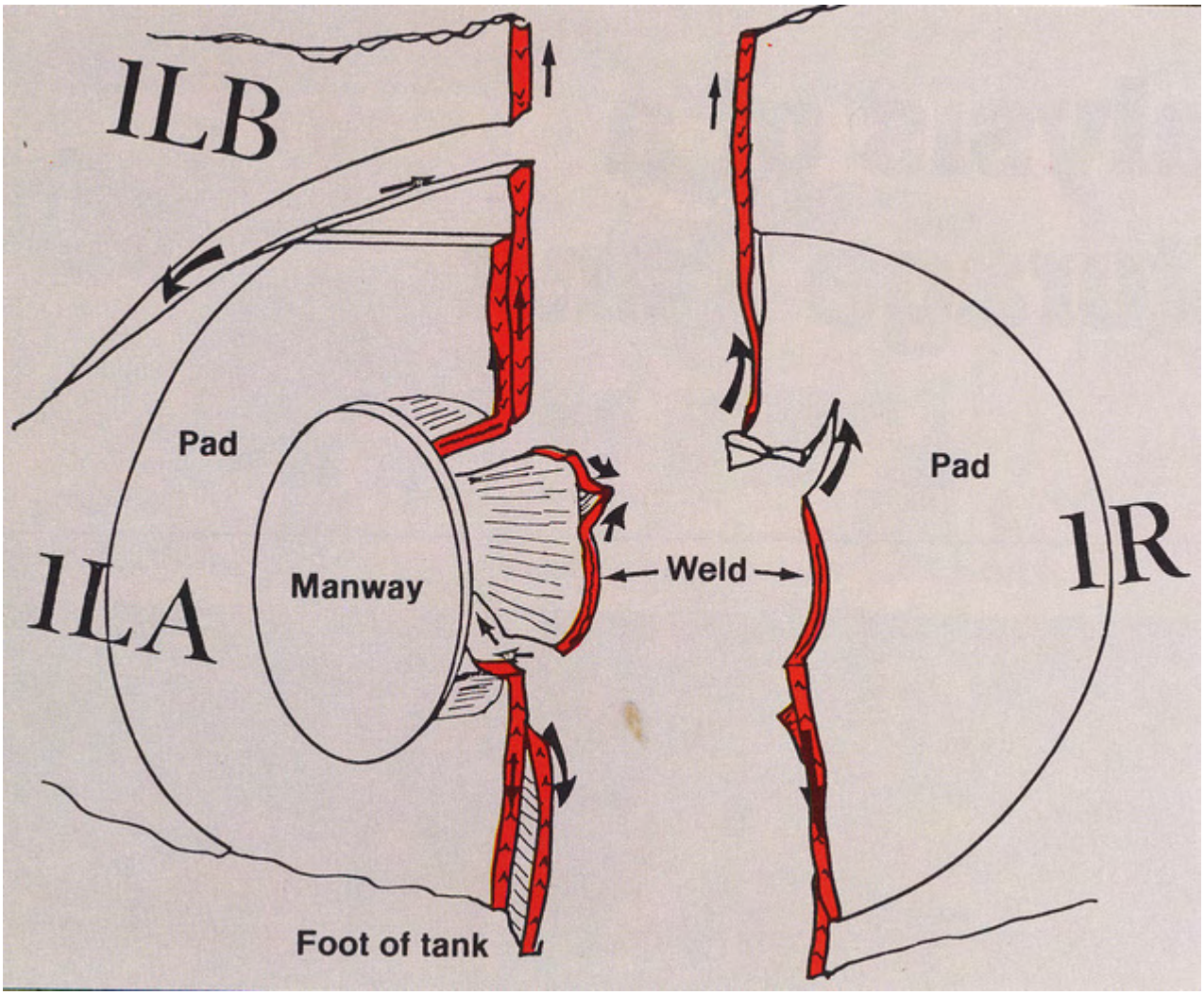


Fig. 2 Observed crack propagation directions around manway.

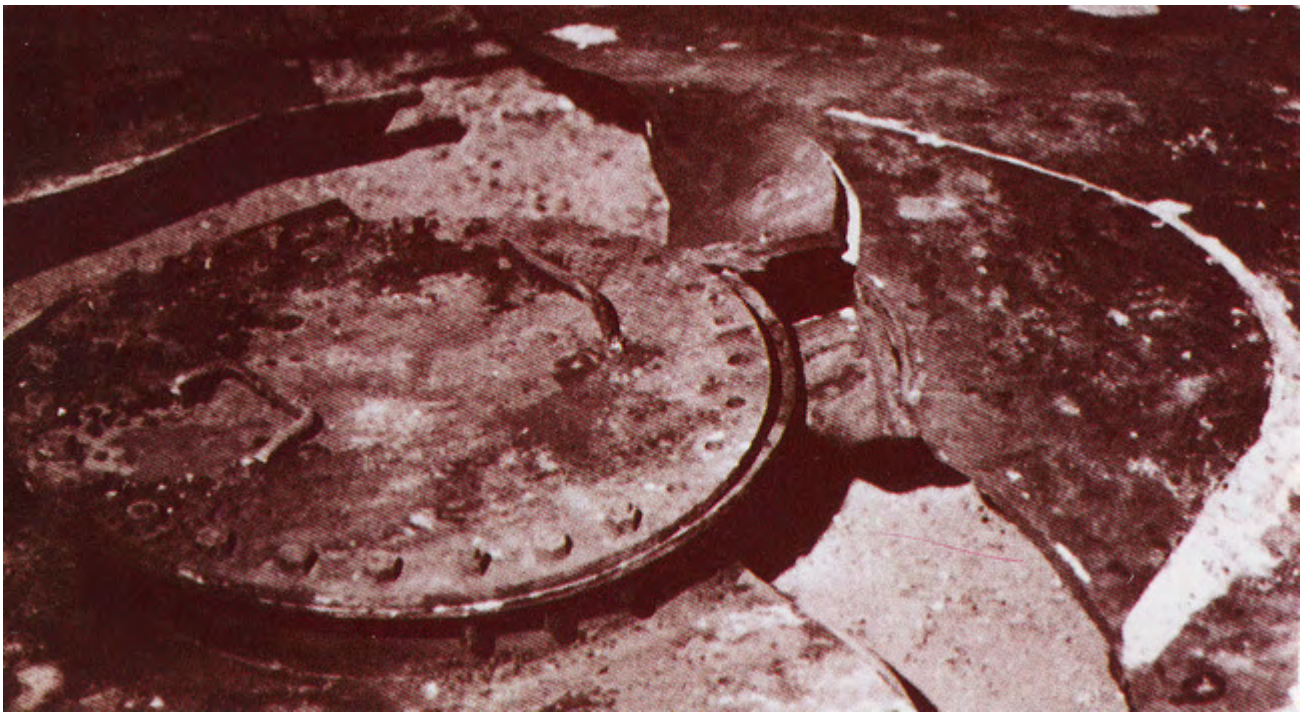


Fig. 3 Fracture region around manway. Note reinforcing pad outline at right.

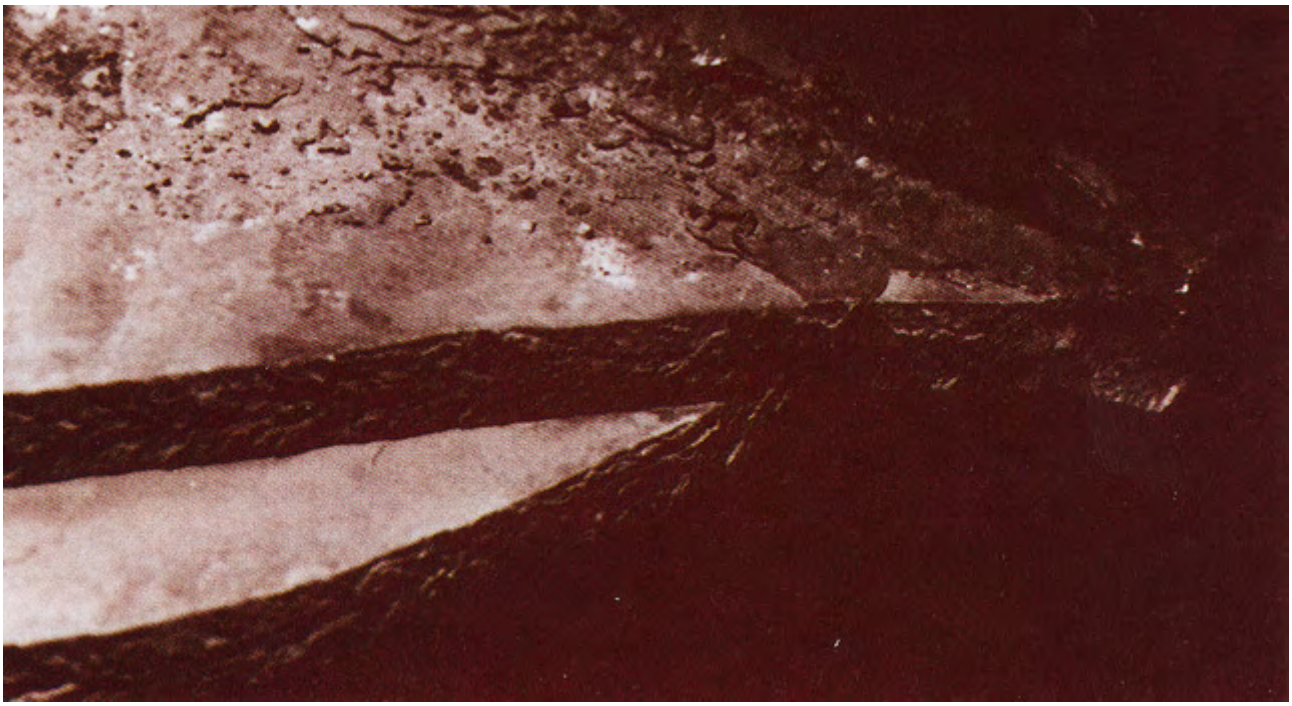


Fig. 4 Brittle fracture from manway to foot of tank (to the left).

It was clear that primary fracture initiated in the welded region joining the reinforcing pad to the manway neck. Additional fractures and rupture of some of the bolts attaching the manway cover to the flange welded to the neck can be attributed to explosion of the air-vapor mixture inside the tank after much of the oil had run out through the primary crack. This would probably occur at the same time the shell was thrown out, into and over the dykes. These secondary fractures are thought to include the incomplete crack between pieces 1LA and 1LB shown in Fig. 2.

Metallographic Examination

Metallographic specimens were cut from various regions. The structure was that of hot rolled, low carbon steel plate with a typical degree of banding. In all cases some spheroidization of the carbide within the pearlite was seen at higher magnification, indicating that the plate had been exposed to temperatures in the range of 500 to 650 C (930 to 1200 F) during the fire. No reaustenitization appeared to have occurred, nor was there evidence of ferrite grain growth. These observations suggested that the properties of the steel were changed to a minor extent because of the fire, with strength being slightly reduced and ductility increased. Also, the ductile-to-brittle impact transition temperature (DBTT) should have been reduced, owing to the partial spheroidization and reduction of any residual stresses from cold working or cold bending of the plate.

Metallographic specimens were taken from the fractured weld at the manway which had joined the pad to the neck. Incomplete penetration of the lower single bevel groove weld was clear. At higher magnification, fine cracks at internal voids and fine steplike cracking along inclusions were also apparent.

Composition and Properties

The chemical analysis of the steel falls within the range for ASTM A283 as called for in the original tank specification. However, the Mn:C ratio (0.39/0.18 = 2.17) is very low in terms of current practice, and this would contribute significantly to the material's susceptibility to brittle fracture.

Tensile properties met the original specification requirements of 30 000 psi (205 MPa) minimum yield, 55 000 to 60 000 psi (380 to 410 MPa) ultimate, and 27% minimum elongation.

The results of the impact tests using Charpy V-notch specimens are shown in Fig. 5, and it can be seen that the DBTT is very high. As the fire damage would have tended to lower this and improve toughness, it is clear that the original material had poor impact properties and a high DBTT.

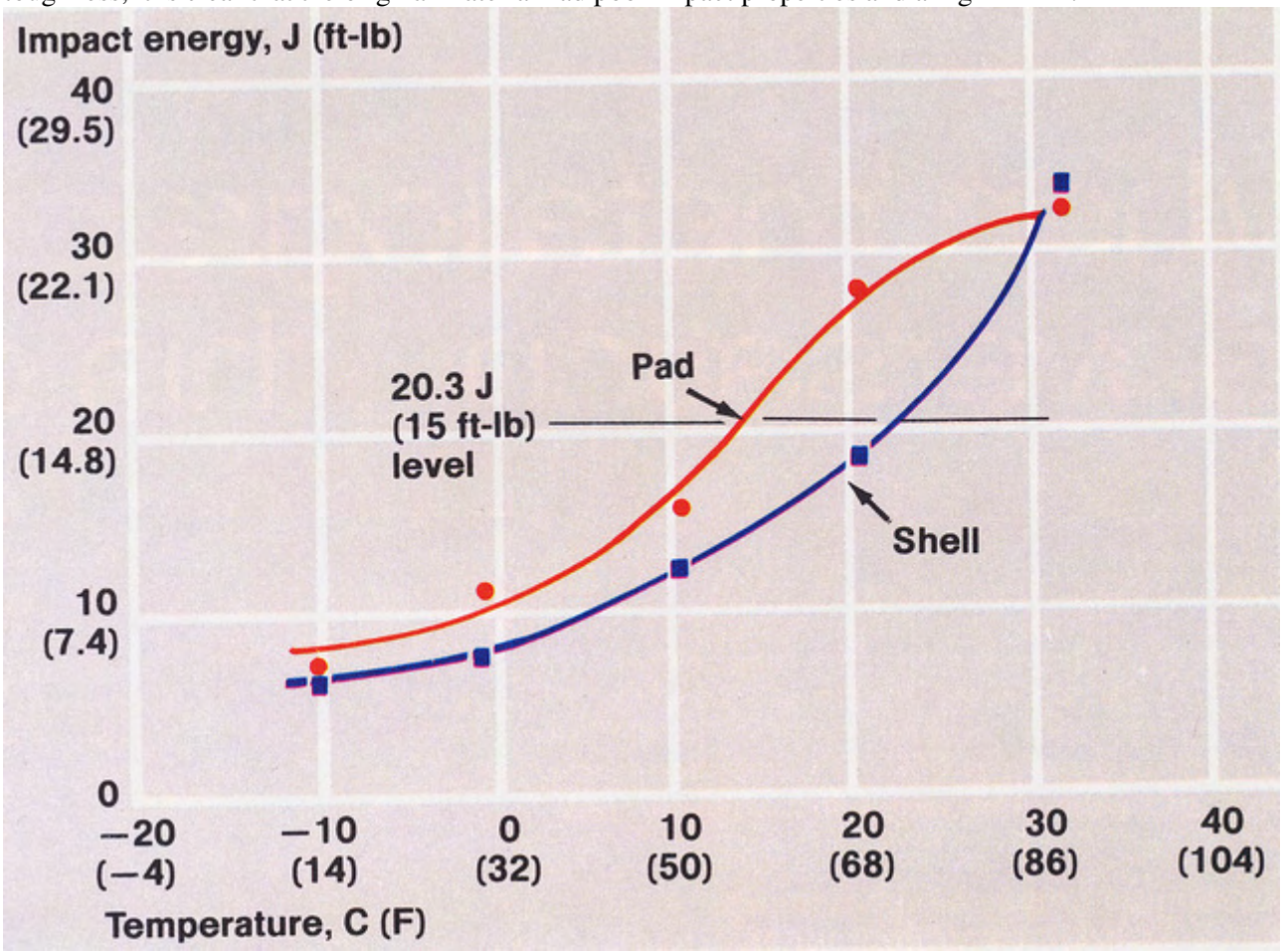


Fig. 5 Charpy V-notch impact energy data for pad and shell plate (mean values).

Stress Concentrations Cause Tank Failure

It is clear that the cause of the tank failure was brittle fracture originating at the welds connecting the manway neck to the reinforcing pad at the northwest manway cutout. The steel had a low impact energy for fracture even at 20 C (70 F), and at the time of failure the air temperature was around -27 C (-17 F) after a drop from a high of -1.8 C (29 F) the previous day. The tank walls cannot have been significantly above -27 C (-17 F) and the estimated oil temperature was in the range 2.8 to -3.5 C (37 to 26 F).

Because the ground temperature remained virtually constant and equal to the tank bulk temperature, the base of the tank would not contract significantly despite the rapid drop in air and wall temperatures. Consequently, considerable local stress due to bending developed in the region of the manways.

The incomplete penetration in the welds would provide a substantial stress concentration from which the fast brittle fracture would initiate. The welds did not meet the API specifications of the early 1950's and the fine cracking observed leads to questions regarding the quality of electrodes and procedures used in welding.

The steel employed had a low Mn:C ratio for use in low temperature conditions. Even when it was produced in 1953, it was well known that this ratio has an important effect on the DBTT. Barr and Honeyman recommended in 1947 that the ratio should not be less than 3 for structural steel used in shipbuilding. 1 It was, of course, less than this in the steel of the tank which failed.

Another factor which would have contributed to the failure is that there was a change in use of the tank from gasoline to crude oil. The first time the tank was filled up with crude oil was December 1979. This oil remained in the tank until the fire and explosion one year later. The specific gravity of gasoline is approximately 0.73, while that of crude oil is 0.91. This produces an increase in stress of approximately 25%. In addition, the temperature records show that the drop in temperature occurring just prior to failure was the most severe over the period since the tank had been filled.

Reference

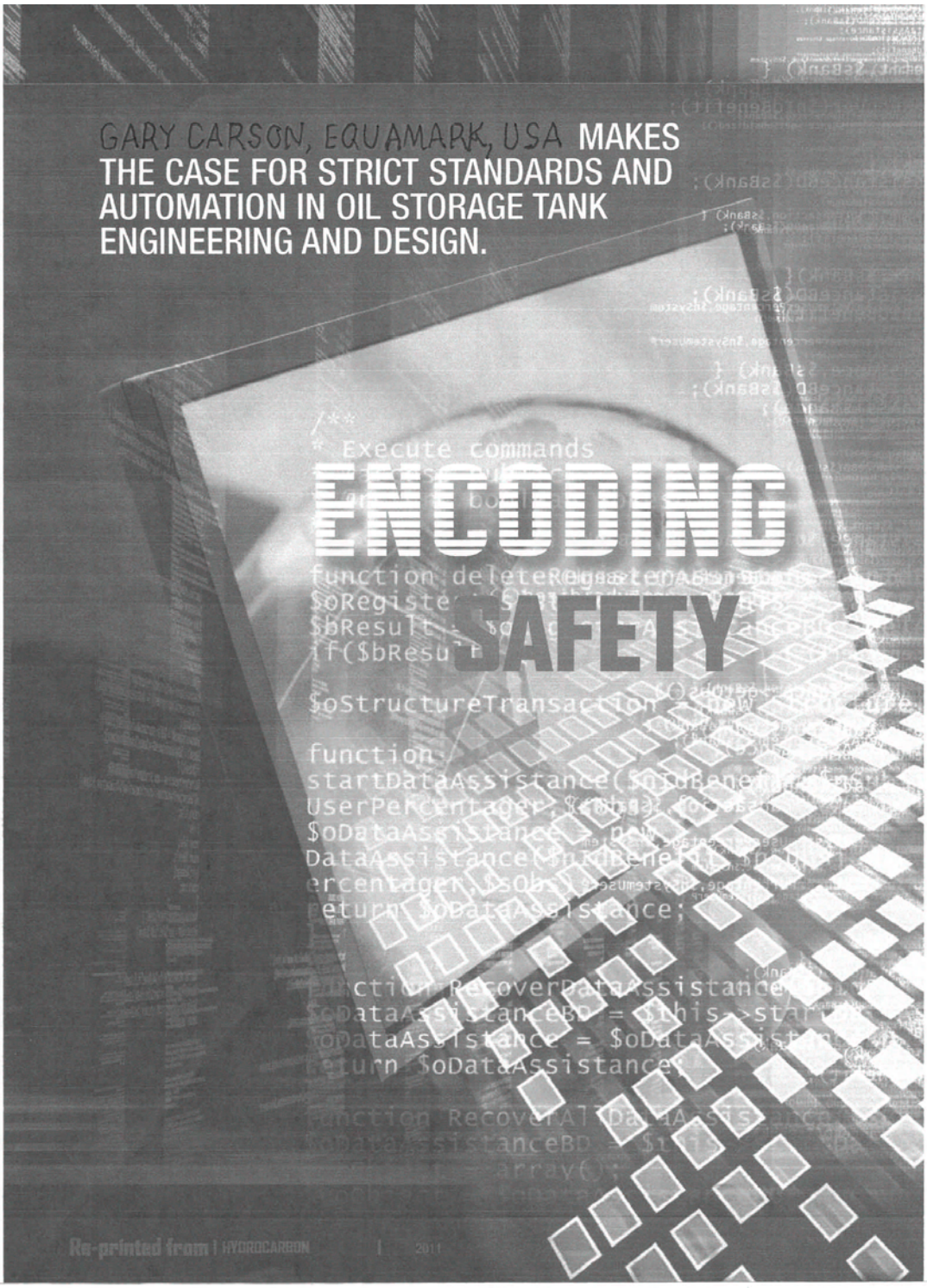
1. "Some Factors Affecting Notched-Bar Impact Properties of Mild Steel," by W. Barr and A.J.K. Honeyman: *Journal of the Iron and Steel Institute,* Vol 157, 1947, p 242–246.

Related Information

Failures Related to Welding, *Failure Analysis and Prevention*, Vol 11, *ASM Handbook*, ASM International, 2002, p 156–191

W.T. Becker and D. McGarry, Mechanisms and Appearances of Ductile and Brittle Fracture in Metals, *Failure Analysis and Prevention*, Vol 11, *ASM Handbook*, ASM International, 2002, p 587–626

EXHIBIT 6:


GARY CARSON, EQUAMARK, USA MAKES THE CASE FOR STRICT STANDARDS AND AUTOMATION IN OIL STORAGE TANK ENGINEERING AND DESIGN.
ENCODING
SAFETY
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he recent tragic earthquake in Japan brings into sharp focus the importance of enforcing engineering and building codes when constructing. Even with some of the most stringent regulations in the world, the outcome in such extreme situations can be catastrophic, but this only serves to highlight the importance of employing appropriate standards when engineering and designing buildings and industrial facilities: oil storage tanks are no exception. Storage tanks in refineries and chemical plants contain large volumes of flammable and hazardous chemicals. A small accident could lead to multi million dollar property losses, days of lost production and potentially months of investigations. Larger accidents could also spark permanent shutdowns, ongoing lawsuits, stock devaluations or company bankruptcies.

Organisations such as American Petroleum Institute (API); American Institute of Chemical Engineers (AIChE); American Society of Mechanical Engineers (ASME) and National Fire Protection Association (NFPA) publish engineering guidelines and standards for the construction, material selection, design and management of storage tanks and related facilities. These standards have been updated a number of times and even though most companies adhere to them, tank accidents and failures still occur. There is certainly room for improvement.

Most oil storage tank damage is attributable to age deterioration, corrosion or (in some locations) seismic motions. Oil storage tanks deteriorate with the passage of time due to rust, fatigue or cracks. Many tanks are subject to harsh environments because they are proximate to a saltwater environment, while the loads of continuous charging and discharging add to the wear. Damage can lead to leakage of a hazardous material, disastrous fires and environmental damage.

A study by Elsevier™ (2005 Elsevier Ltd.) reported on an analysis of storage tank accidents using information collected from various sources, including published reports from March, Mclennan, Persson and Lonnermark; books by CPC,

Pekalski, and Lees; CSB incident news; and databases from UQ, IChemE, PAJ, and USNOAO. The study analysed accidents at 242 bulk oil storage tanks located across the world over the past 40 years. These tanks stored such materials as crude oil, gasoline, fuel oil and diesel. The most common type of tank in the study was the atmospheric external floating roof tank followed by the atmospheric cone top tank.

Accident assessment

The Elsevier study examined the locations where storage tank accidents and failures were most common:

- Petroleum refineries: 47.9%.
- Terminals and pumping stations: 26.4%.
- Petrochemical plants: 12.8%.
- Oil fields: 2.5%.
- Other types of industrial facilities (e.g. power plants, gas plants and pipelines): 10.3%.

A variety of causes were cited for these incidents: lightening, human error, poor maintenance, equipment failure, sabotage, crack and rupture, leak and line rupture, static electricity and open flames. Human error was involved in 30% of the accidents: substandard operations and poor maintenance were common trends. Fire and explosion occurred in 85% of all accidents, presenting a major risk to property and lives.

Major accidents

According to the Elsevier report, the average property loss in the 10 largest storage tank damage incidents was valued at US$ 114 million by 2002 rates (approximately US$ 150 million according to 2010 rates). The largest accident in the study occurred in 1986, when sparks from a flame cutting torch ignited fuel from a tank spill in the dike of the tank facility, located in Greece. The fire spread and destroyed 10 of the 12 crude oil tanks. Another major accident occurred in 1968 in the Netherlands, when frothing in a hot oil and water emulsion reacted with volatile material, causing a fire that destroyed a hydrocarbon and sulfur plant, as well as 80 storage tanks. In the US in 1978, a tank failure at a complex in Texas City, Texas, USA caused a leak that ignited, destroying 11 tanks. Many accidents could have been avoided through good engineering practices.

Figure 1. In 1990, a tank foundation collapse at an Amerada Hess facility in Perth Amboy, New Jersey, USA led to tank failure that created a 6 million gal. lake of oil around the damaged unit.

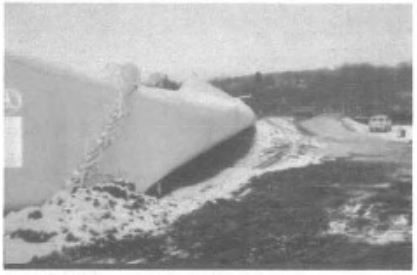

Figure 2. In 1988, a catastrophic tank failure occurred without warning at an Ashland facility in Floreffe, Pennsylvania, USA discharging 3.7 million gal. of diesel, with 500 000 gal. ending up in a nearby river. The failure was due to an undetected flaw in the base metal of the tank.

Failing tank roofs

Among the equipment failure accidents in the report, 11 cases involved a sunken roof. The typical external floating roof tank has an open topped cylindrical steel shell with a roof that floats on the surface of the stored liquid. A seal system around the floating roof's perimeter reduces evaporation of the stored liquid. As the liquid level in the tank is raised or lowered, the roof floats with the changing level and the seal system slides against the tank wall. If the roof is out of balance or if the tank body is distorted, it may not function properly. Floating roofs can also sink after a heavy storm due to inadequate drainage, allowing flammable vapours to be ignited by lightning or static charge.

When designing a tank with a simple cone roof, the calculations to be made are very simple. However, large span roofs require a supporting structure, otherwise they would collapse under their own weight. This presents a clear structural problem: to calculate the type of structure that would support the roof, an engineer would have to make several time consuming trial calculations. A conventional structure is comprised of ring girders and rafters supported by columns. When designing a roof today, many designers and engineers believe that a computer and appropriate software is required. A common example of software for tank design and engineering analysis is Intergraph® TANK™, which can deliver accurate and quick results on complicated issues such as roof design and tank structure.

Avoiding collapse

Another problem that could potentially lead to the destruction of a storage tank is internal pressure. API 650 allows a maximum pressure of 2.5 psi, but even this amount of pressure multiplied by the cross section of the tank can produce enough force to lift the

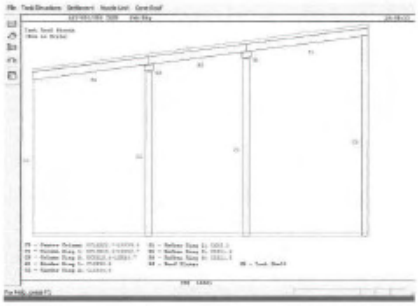

Figure 3. Software output for supported cone roof tank design shows results for column, girder, rafter rings and roof plates, ensuring the integrity of the tank by using the latest industry code.

design force is 30 lbs/ft^2 on a flat projected surface at 100 mph, becoming 67.5 lbs/ft^2 at 150 mph. Yet, many engineering consultants in the hurricane prone south eastern part of the country recommend designing for 150 mph winds. However, neither standard addresses uplift forces on the roof, despite the fact that hurricane force winds can cause an uplift force exceeding the weight of the roof plate.

The Standard Building Code (SBCCI) used in Florida states that structures with pitched roofs must apply a pressure coefficient that causes an uplift force on the roof, a point that would include cone roofs on tanks. According to a published report from TEAM Consultants, the winds of Hurricane Andrew in 1992 tested some of these standards when two large oil storage tanks 200 ft in diameter by 48 ft high with flat bottoms and cone roofs experienced a direct hit from the storm. Uplift forces broke the roof to shell weld in several areas around the perimeter. However, this weld is designed to be intentionally weak so that if there is an explosion, it will fail and the roof dislodge before the sidewalls fail. The perimeter top angle failed in many areas, causing buckling and flat spots in the upper tank shell. Rafters went into compression, with some breaking loose, while some of the support columns were also twisted. Despite the considerable damage, the roofs did not blow off and no product was lost.

In high winds, an empty tank is vulnerable to shell collapse. Wind girders in the form of rings are sometimes required to enforce the shell in its true cylindrical shape. Wind can also overturn an empty or near empty tank, especially if the height to diameter ratio is high. In this case, the tank must be bolted to the foundation and the required number and size of the bolts must be calculated. Using the proper tank design software is a sensible and easy solution for addressing these issues.

Earthquakes

While factors affecting tank corrosion and failures are complicated, protecting against earthquake damage requires the consideration of a different set of factors. These include seismic waveforms and intensity level; the tank's base and ground conditions of an installation; the tank structure; and the quantity of the tank contents. Thus, tank safety in areas of seismic activity is contingent upon the state of age deterioration and the tank's structural resistance to an earthquake:

- A 1964 earthquake in Japan caused large amplitude oil sloshing in storage tanks. Several tanks near the sea overflowed and caught fire. Then, a tsunami spread blazing oil over the water, igniting 149 neighboring tanks and a number of residential houses.
- A 1978 earthquake in Japan cracked two heavy oil storage tanks, causing a large quantity of oil to be released into the sea.
- A 2003 earthquake damaged 29 tanks and ignited one tank at a Hokkaido, Japan refinery.
- The 2010 Haiti earthquake caused oil storage tank failures and spills that escaped the containment area and spread into the sea.
- During the 1964 Alaska earthquake, approximately 45 seconds of violent shaking caused an oil storage tank to fail as its bottom moved away.
- At Seward, an oil storage tank caught fire and leaked its contents, spreading flaming petroleum over the waterfront. The fire burned the rolling stock, the electrical generation plant and several homes.
- The 2003 Tokachi-oki earthquake in Japan produced a long period of strong ground motions that caused major liquid sloshing in oil storage tanks, which in turn caused severe damage.

The Tokachi-oki earthquake resulted in formulation of stronger regulations to address the sloshing problem. The natural period of sloshing depends on the tank diameter and the liquid height, but is generally between 3 – 15 secs. The power of the ground motion during this time determines the excitation of sloshing. Excitation of liquid sloshing rarely correlates with the seismic intensity because of the difference of frequency. An undetectable earthquake with a long period of ground motion might produce a delayed emergency response even though it can cause liquid sloshing and fire. If the floating roof sinks, the situation is very serious and could lead to a full surface tank fire.

Engineering for seismic zones

Normal building codes such as ASCE-7 (American Society of Civil Engineers) provide procedures for analysing structures in the event of seismic activity. These codes are not entirely applicable to storage tank design, as storage tanks contain liquid, thus complicating their response to a seismic event. During a seismic disturbance, the liquid is mobile and sloshing independently of the tank structure, with a tendency to climb up one side of the tank. This causes a local hoop stress in the wall of the tank, which could cause a rupture and spill if ignored, as has occurred in many earthquakes. The seismic calculation is complicated and tedious to implement manually, but the Intergraph TANK software program assesses automatically in accordance with specific seismic codes of proven reliability, ensuring accuracy.

Subsidence and failure of foundations

Often, tanks are not mounted on solid foundations (e.g. concrete) because foundations of this nature are expensive. Examples of possible substitutes include tamped down sand or sand mixed with diesel oil and/or bitumen. In time, the dynamic influences on the tank can cause it to sink into the foundation, causing the floor and shell of the tank to buckle.

A tank farm should be surveyed periodically to ascertain the current state of the tanks. If distortion is detected, the engineer must make a potentially highly expensive decision on whether the tank is to remain in service, be relevelled/repaired or scrapped altogether.

The API 653 standard procedure takes this decision out of the hands of the engineer. Tanks are surveyed using an instrument that can measure the subsidence at various points around the tank. The engineer must then input the data and use the API 653 procedure to determine the extent of subsidence. However, this calculation is very tedious and prone to human error. A tank software program with this application will do it quickly and automatically.

Deciding when to scrap a tank

A software program can be utilised to determine whether to continue a tank in service or repair it. The software analyses and offers a solution for whether to proceed with use in continuous service or to take steps to correct the amount of distortion. This can be an important undertaking when considering the various types of tank failures and accidents that might occur, especially given that any potential for wind and/or seismic occurrences increases the risk of continuing to use a worn out tank.

As refineries continue to spring up all over the world, both in increasingly hostile environments and closer to residential centres, the use of software that increases the likelihood of detailed, accurate and fast information pertaining to tank design is quickly becoming an invaluable asset to engineers. With this in mind, the days of manual tank design truly appear to be gone. HE

design force is 30 lbs/ft^2 on a flat projected surface at 100 mph, becoming 67.5 lbs/ft^2 at 150 mph. Yet, many engineering consultants in the hurricane prone south eastern part of the country recommend designing for 150 mph winds. However, neither standard addresses uplift forces on the roof, despite the fact that hurricane force winds can cause an uplift force exceeding the weight of the roof plate.

The Standard Building Code (SBCCI) used in Florida states that structures with pitched roofs must apply a pressure coefficient that causes an uplift force on the roof, a point that would include cone roofs on tanks. According to a published report from TEAM Consultants, the winds of Hurricane Andrew in 1992 tested some of these standards when two large oil storage tanks 200 ft in diameter by 48 ft high with flat bottoms and cone roofs experienced a direct hit from the storm. Uplift forces broke the roof to shell weld in several areas around the perimeter. However, this weld is designed to be intentionally weak so that if there is an explosion, it will fail and the roof dislodge before the sidewalls fail. The perimeter top angle failed in many areas, causing buckling and flat spots in the upper tank shell. Rafters went into compression, with some breaking loose, while some of the support columns were also twisted. Despite the considerable damage, the roofs did not blow off and no product was lost.

In high winds, an empty tank is vulnerable to shell collapse. Wind girders in the form of rings are sometimes required to enforce the shell in its true cylindrical shape. Wind can also overturn an empty or near empty tank, especially if the height to diameter ratio is high. In this case, the tank must be bolted to the foundation and the required number and size of the bolts must be calculated. Using the proper tank design software is a sensible and easy solution for addressing these issues.

Earthquakes

While factors affecting tank corrosion and failures are complicated, protecting against earthquake damage requires the consideration of a different set of factors. These include seismic waveforms and intensity level; the tank's base and ground conditions of an installation; the tank structure; and the quantity of the tank contents. Thus, tank safety in areas of seismic activity is contingent upon the state of age deterioration and the tank's structural resistance to an earthquake:

- A 1964 earthquake in Japan caused large amplitude oil sloshing in storage tanks. Several tanks near the sea overflowed and caught fire. Then, a tsunami spread blazing oil over the water, igniting 149 neighboring tanks and a number of residential houses.
- A 1978 earthquake in Japan cracked two heavy oil storage tanks, causing a large quantity of oil to be released into the sea.
- A 2003 earthquake damaged 29 tanks and ignited one tank at a Hokkaido, Japan refinery.
- The 2010 Haiti earthquake caused oil storage tank failures and spills that escaped the containment area and spread into the sea.
- During the 1964 Alaska earthquake, approximately 45 seconds of violent shaking caused an oil storage tank to fail as its bottom moved away.
- At Seward, an oil storage tank caught fire and leaked its contents, spreading flaming petroleum over the waterfront. The fire burned the rolling stock, the electrical generation plant and several homes.
- The 2003 Tokachi-oki earthquake in Japan produced a long period of strong ground motions that caused major liquid sloshing in oil storage tanks, which in turn caused severe damage.

The Tokachi-oki earthquake resulted in formulation of stronger regulations to address the sloshing problem. The natural period of sloshing depends on the tank diameter and the liquid height, but is generally between 3 – 15 secs. The power of the ground motion during this time determines the excitation of sloshing. Excitation of liquid sloshing rarely correlates with the seismic intensity because of the difference of frequency. An undetectable earthquake with a long period of ground motion might produce a delayed emergency response even though it can cause liquid sloshing and fire. If the floating roof sinks, the situation is very serious and could lead to a full surface tank fire.

Engineering for seismic zones

Normal building codes such as ASCE-7 (American Society of Civil Engineers) provide procedures for analysing structures in the event of seismic activity. These codes are not entirely applicable to storage tank design, as storage tanks contain liquid, thus complicating their response to a seismic event. During a seismic disturbance, the liquid is mobile and sloshing independently of the tank structure, with a tendency to climb up one side of the tank. This causes a local hoop stress in the wall of the tank, which could cause a rupture and spill if ignored, as has occurred in many earthquakes. The seismic calculation is complicated and tedious to implement manually, but the Intergraph TANK software program assesses automatically in accordance with specific seismic codes of proven reliability, ensuring accuracy.

Subsidence and failure of foundations

Often, tanks are not mounted on solid foundations (e.g. concrete) because foundations of this nature are expensive. Examples of possible substitutes include tamped down sand or sand mixed with diesel oil and/or bitumen. In time, the dynamic influences on the tank can cause it to sink into the foundation, causing the floor and shell of the tank to buckle.

A tank farm should be surveyed periodically to ascertain the current state of the tanks. If distortion is detected, the engineer must make a potentially highly expensive decision on whether the tank is to remain in service, be relevelled/repaired or scrapped altogether.

The API 653 standard procedure takes this decision out of the hands of the engineer. Tanks are surveyed using an instrument that can measure the subsidence at various points around the tank. The engineer must then input the data and use the API 653 procedure to determine the extent of subsidence. However, this calculation is very tedious and prone to human error. A tank software program with this application will do it quickly and automatically.

Deciding when to scrap a tank

A software program can be utilised to determine whether to continue a tank in service or repair it. The software analyses and offers a solution for whether to proceed with use in continuous service or to take steps to correct the amount of distortion. This can be an important undertaking when considering the various types of tank failures and accidents that might occur, especially given that any potential for wind and/or seismic occurrences increases the risk of continuing to use a worn out tank.

As refineries continue to spring up all over the world, both in increasingly hostile environments and closer to residential centres, the use of software that increases the likelihood of detailed, accurate and fast information pertaining to tank design is quickly becoming an invaluable asset to engineers. With this in mind, the days of manual tank design truly appear to be gone.

shell and annular plate off the foundation. In conjunction with wind, installation of holding down bolts is a necessity.

It is also conceivable that a partial vacuum can exist in the tank; the tank wall and roof must be able to accommodate this partial vacuum. Rapid emptying of any tank can produce a partial vacuum sufficient to collapse the shell and rupture the roof to shell joint. As such, it is always wise to fit a properly functioning vacuum breaker. A vacuum collapse is a serious occurrence: thus, calculating for pressures from a vacuum in tank design can involve a fairly lengthy, detailed analysis. Employing the appropriate software is one method to expedite the task.

Preventing hazards

A number of major incidents have been caused by cracks and ruptures: tank cracks, body ruptures, roof holes and flange cracks, which in turn caused spillages of such hazardous materials as crude oil, hydrochloric acid, sulfuric acid, molten sulfur and sodium cyanide solution. Cracks usually occur at the bottom or at the welding edges of tanks, while spills that occurred at seashores and riverbanks have released large quantities of hazardous contents into the water. The study cites a number of examples:

- A crack at the bottom of a crude oil storage tank at a Taiwan refinery in 1970 was caused by the slow subsidence of the foundation.

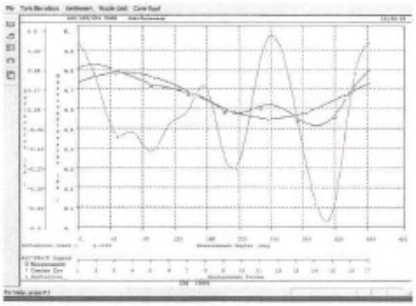

Figure 4. Shell settlement diagrams plot the measured settlement around the tank against the planar cosine curve, as shown in this image from Intergraph® TANK™.

Figure 5. In Aug 2005, Hurricane Katrina caused millions of gallons of oil to spill from storage tanks. In Chalmette, 1700 homes were polluted by 7.6 million ltrs of mixed crude that escaped from a nearby tank farm.

- Crude oil spills from storage tanks at refineries in Taiwan and the UK were caused by the corrosion of the tank bottom.
- At another UK facility, the corrosion of a defective tank weld caused 12 t of sodium cyanide solution to spill into the ground and a nearby river.
- In 1993, a worker at a Taiwan refinery fell into a tank through a rust hole on the roof.
- A flange crack of an oil tank at a Texas oil and chemical company allowed oil to escape, leading to a fire.
- The bottom portion of a newly fabricated tank containing hydrochloric acid failed at an Illinois lighting plant, allegedly due to fabrication error.
- A crack in a storage tank at a Pennsylvania terminal released 92 400 bbls of diesel oil into the river.
- In Japan, a crack at the bottom plate of a tank at a refinery's port released 7.5 million ltrs of heavy oil into the sea.

Tank shell integrity

Computing the required thickness of the storage tank shell courses is a fairly simple process that is nevertheless important to preventing failure of the shell. Tanks over 200 ft in diameter are more complicated. The variable point method of calculation for these tanks is long and requires the use of technology. In the design of storage tanks, the pressure proportionally increases with depth of the liquid. As a result, the shell thicknesses in lower sections of the tank are designed to be thicker than in higher shell courses. The designer must therefore calculate for each shell course in order to arrive at an economical structure. Tank software can address the task faster and easier, offering the capability for the design to be modified and quickly analysed.

Hurricanes and typhoons

The extreme weather that arrives with hurricanes/typhoons can cause huge damage to oil storage tanks:

- In 1989, Hurricane Hugo destroyed 14 storage tanks in a tank farm in St. Croix, Virgin Islands.
- In 1970, Hurricane Celia with its 150 mph winds damaged 30 storage tanks in Corpus Christi, Texas.
- When Hurricane Ike struck near Houston, Texas in 2008, damage to facilities caused a reported half million gal. of crude oil to spill into the Gulf of Mexico, bayous and marshes.
- The storm surge flooded a facility on Goat Island, causing 266 000 gal. of oil to vanish into the bay and gulf.

Hurricane Katrina

Although the events surrounding Hurricane Katrina in August 2005 were unusually severe (the storm is now ranked among the worst environmental disasters in US history), they exemplified the rule that tanks must be designed with the ability to withstand strong winds. The storm made landfall near New Orleans with winds of 112 -x130 mph and a storm surge of 8 - 12 ft. The Mississippi River's levee system failed, and the storm surge inundated many oil refineries, lifting and dislodging oil storage tanks, many of which released oil into the river, bay and sea. One oil tank at a refinery in Meraux spilled more than 1 million gal. of oil into the surrounding neighborhoods and canals. The storm caused approximately 44 oil spills, totalling 9 million gal.

Designing for high winds

The AWWA D100 and API-650 standards for tank design used in the US provide for 100 mph winds. Both standards increase wind force in proportion to the square of the wind speed. The standard

EXHIBIT 7:

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Geospatial Settlement Monitoring of Above Oil Storage Tank

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Abstract

Tanks used for storing crude oil in tank farms are usually cylindrical and made up of concrete foundation As a result of age, loading and off loading of crude oil from the tanks, geological condition of the site and other environmental factors, the foundation upon which these tanks are constructed are subjected to movement particularly settlement at the tank foundation. The safety of the tanks becomes of paramount importance as any catastrophic failure will adversely affect the environment. At the Forcados Tank Farm, there are ten tanks currently used for crude oil storage. In this study, only tank 209 was used as case study scenario for the Subsidence monitoring of the tanks foundation under loading. In order to monitor these tanks, studs were attached to the base of the tank at equal intervals. Measurement for subsidence was carried out on the studs position from primary Geodetic controls located within the tank farm in 2000, 2003 and 2004 respectively. The result of the study revealed that maximum subsidence of 20.39mm occurred at stud 12 and minimum of 5.49mm occurred in stud 1 for tank 209. A conclusion that the tank foundation is not stable.

Keywords: tank farm, bundwall, subsidence geodetic monitoring

INTRODUCTION

The area features meandering Creeks and mangrove swamp Fig. I. The annual rainfall in this area ranges from 3,000mm to 3,900mm. Temperature ranges from 23^{0}c around July to between 35^{0}c around February and March. Tanks at the Forcados farm were constructed between 1967 and 1970. There are ten crude oil tanks each 21m high and diameter 76.2m (Ehigiator, 2005). Others are two emulsion tanks, and continuous hydration tanks. Storage tanks used by most oil companies in Nigeria are cylindrical in shape, Oil production from Delta, Edo and Bayelsa State are delivered at the terminal and processed before being exported.

Figure. 1: Map showing location of Forcados terminal by the Bight of Benin, Nigeria

Forcados Tank Farm

The aim of any monitoring project is to determine if there is any movement taking place in the structure. There are ten storage tanks at the Forcados terminal whose normal diameter is each 76.2m and height 21m with storage capacity of 500,000 bbl. (Ehigiator, 2005)

As a result of age, geological formation of the tank farm site, non uniform settlement of tank foundation, loading and off loading, temperature of the crude leading to stress and strain on tanks membrane, primary and secondary settlement of sediments, the tanks tend to undergo radial deformation or out of roundness.

In addition shell out of roundness may result in gaps between the tanks shell and subsequent hydrocarbon emission into the environment. As a safety measure, each tank is surrounded by a bund wall which measures 150m and at a height of about 12m.

The aim of this large space is for the wall to accommodate oil spill in case of any displacement resulting from earth movements or spill from the tank.

It is to be noted that certain terrain types are not at rest, but are slowly moving due to primary formation of sediment at the AKATA Formation (the marine environment where oil and gas are formed) and secondary settlement of sediment at the AGBADA formation (High temperature environment where oil and gas are trapped). As a result of the imperceptible but

existent movements, the relative locations of points that are in such areas also change (Ehigiator, 2005)
Monitoring of the tanks foundation will help in identifying and quantifying deterioration which may be caused by applied load, from various sources such as physical, chemical, climatic condition, soil types and proximity to the sea where the ground water level is very low (Ehigiator, 2010). The determination of settlement around the foundation is of importance especially when the rate of settlement is excessive or uneven (Ehigiator, 2010). For the subsidence monitoring precise levelling method is used (Ehiorobo, 2000) have shown that precise levelling method is much more accurate for evaluating vertical movement than for instance GPS method.

Structural Monitoring Of Crude Oil Storage Tank
Measurement of vertical movements was carried out by Periodic levelling using Geodetic levelling instrument with telescopic staves by 3 wires method at three different oil levels, that is, at 3m, 10m and 19m respectively. The tanks under study were monitored for year 200, 2003 and 2004. The Geodetic monitoring system consisted of a primary geodetic control network established in 1990 by an indigenous Survey company, Geodetic Positioning Services limited.
In 2002 a more dense control network was established around the tanks for monitoring for subsidence under hydrostatic pressure within the tank farm, tank verticality, ovality and roof gap measurements were also based on the control points. For the monitoring purposes, studs were attached to the base of the tanks at equal interval.

Additionally, three monitoring points were established around each tank in addition to the other bench marks within the bond walls. This arrangement is to allow for the detection of any movement of points within the bond wall and at a reasonable distance from the tank. Levelling to the studs were carried out in the mornings and evening periods of the day. This is to allow for the elimination of midday heat effects of the sun which is likely to cause uneven expansion of the tanks. Using the established geodetic control points, repeated levels and other measurements were carried out in 2000, 2003 and 2004 for the tanks.

RESULT ANALYSIS

LEVEL NET Software was used in the processing of the level network for each of the tanks monitored from epoch to epoch. The results for tank settlement monitoring for tanks 209 for year 2000, 2003 and 2004 at three-oil level are presented in the figures below.

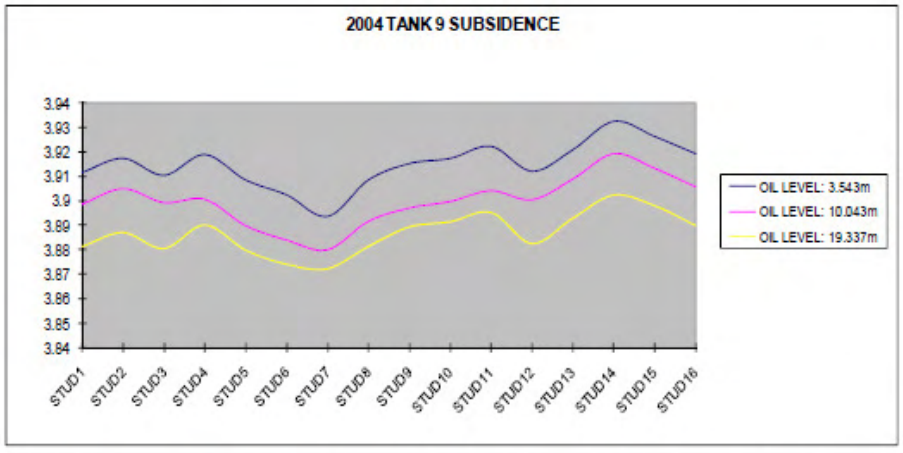

Figure 1. The results for tank settlement monitoring for tanks 209 for year 2004 at three-oil level

	OIL LEVEL: 3.0	LEVEL: 10.	EVEL: 18.331m
STUD1	3.91075	3.89875	3.88725
STUD2	3.91627	3.90509	3.89261
STUD3	3.91025	3.89938	3.88759
STUD4	3.92152	3.90071	3.89822
STUD5	3.91038	3.88991	3.88741
STUD6	3.90413	3.88397	3.88109
STUD7	3.89827	3.88001	3.87749
STUD8	3.91063	3.89168	3.88664
STUD9	3.91827	3.89715	3.89488
STUD10	3.92010	3.89085	3.89363
STUD11	3.92532	3.90425	3.89911
STUD12	3.91513	3.90055	3.89695
STUD13	3.92365	3.90911	3.89726
STUD14	3.93365	3.91944	3.90591
STUD15	3.92635	3.91342	3.90210
STUD16	3.91846	3.90583	3.89388
STUD1	3.91075	3.89875	3.88725

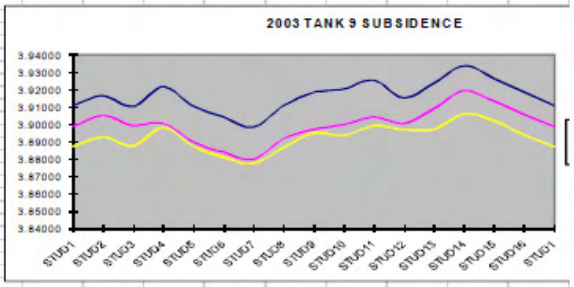

Figure 2. The results for tank settlement monitoring for tanks 209 for year 2003 at three-oil level

	STUD1	STUD2	STUD3	STUD4	STUD5	STUD6	STUD7	STUD8	STUD9	STUD10	STUD11	STUD12	STUD13
O/L:3.086(	3917.6	3922.85	3916.57	3930.55	3919.96	3913.07	3907.36	3922.05	3926.21	3927.25	3931.38	3919.77	3927.33
O/L:11.56(	3903.81	3906.9	3903.9	3916.66	3905.69	3895.6	3894.29	3910.59	3915.42	3916.7	3920.17	3907.7	3916.69
O/L:20.22(	3887.56	3891.75	3886.91	3901.01	3890.53	3884.09	3882.37	3890.55	3896.25	3896.02	3903.56	3888.22	3897.89

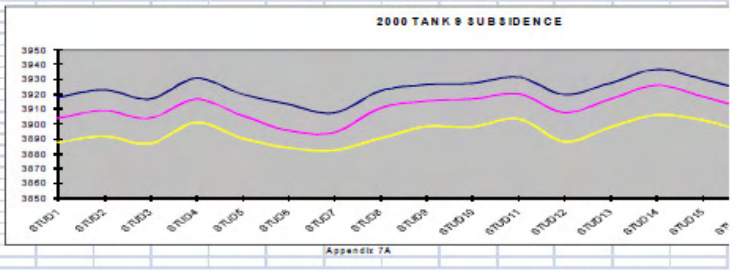

Figure. 3 The results for tank settlement monitoring for tanks 209 for year 2000 at three-oil level

DISCUSSIONS AND RESULTS

The results from subsidence monitoring for Tank 209 in 2000, 2003 and 2004 show that the largest settlement occurred at stud 12 between the period with a value of 14.57mm between 2000 and 2003 and 16.43mm between 2003 and 2004. The lowest subsidence occurred at Stud 1 between 2003 and 2004 with a value of 5.39mm. In all areas the rate of subsidence was fairly evenly spread around the tank for the period of investigations.

There appear to be an uneven movement of the ground below this tank. The results are however within an acceptable limit hence the tank cannot be said to be at risk. Further investigations are however ongoing to access the stability of the ground below this tank.

CONCLUSIONS

Monitoring of tanks and tanks foundation helps in identifying and quantifying deteriorations which may lead to tank failure. The history of tank disaster throughout the world reveals that problems often arise undetected due to inaccurate evaluation of foundation defects. For any tank monitoring programme to be effective, the equipment used for the monitoring must be precise and of the highest quality. The monitoring personnel must be experienced in not only data capture but also the analysis of the acquired data.

In carrying out monitoring for subsidence at the tank base at the forcado tank farm, any noticeable difference or settlement in excess of 5cm means that such a tank should be put out of use. Measurements carried out for

tank 209 however reveal no abnormal ground subsidence at the base of the tanks.

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EXHIBIT 8:

Probability of earthquakes within the next 50 years

Within 31 Miles / 50km above magnitude

Magnitude	Probability
5.0	98.006%
5.1	96.917%
5.2	95.570%
5.3	94.012%
5.4	92.306%
5.5	90.522%
5.6	88.726%
5.7	86.976%
5.8	85.316%
5.9	83.775%
6.0	82.370%
6.1	81.026%
6.2	79.579%
6.3	78.073%
6.4	75.337%
6.5	69.951%
6.6	61.613%
6.7	52.262%
6.8	41.400%
6.9	29.634%
7.0	17.993%
7.1	9.698%
7.2	4.488%
7.3	1.475%
7.4	0.377%
7.5	0.087%

Pittsburg Earthquake Risk Grade

The USGS database shows that there is a 98.006% chance of a major earthquake within 50 kilometers of Pittsburg, California within the next 50 years. The largest earthquake within 100 miles of Pittsburg, California was a 6.9 Magnitude in 1989.

Exhibits 9:

Tornadoes Cause Damage in Northern California

Tornado Touching Down near Chico (Photo courtesy Trenton Workman)

EXHIBIT 10:

CATASTROPHIC FAILURE OF STORAGE TANKS

Chemical Emergency Preparedness and Prevention Office
p71022-b
The Environmental Protection Agency (EPA) is issuing this Alert as part of its ongoing effort to protect human health and the environment by preventing chemical accidents. Under CERCLA, section 104(e) and Clean Air Act (CAA), EPA has authority to conduct chemical accident investigations. Additionally, in January 1995, the Administration asked the Occupational Safety and Health Administration (OSHA) and EPA to jointly undertake investigations to determine the root cause(s) of chemical accidents and to issue public reports containing recommendations to prevent similar accidents. EPA has created a chemical accident investigation team to work jointly with OSHA in these efforts. Prior to the release of a full report, EPA intends to publish Alerts as promptly as possible to increase awareness of possible hazards. Alerts may also be issued when EPA becomes aware of a significant hazard. It is important that facilities, SERCs, LEPCs, emergency responders and others review this information and take appropriate steps to minimize risk.

PROBLEM

Catastrophic failures of aboveground, atmospheric storage tanks can occur when flammable vapors in the tank explode and break either the shell-to-bottom or side seam. These failures have caused the tanks to rip open and, in some cases, hurled the tanks through the air. A properly designed and maintained storage tank will break along the shell-to-top seam. Then, the fire would more likely be limited to the damaged tank and the contents would not be spilled. This alert describes the types of tanks that may be prone to catastrophic failure and maintenance practices that can help prevent the accidents.

RECENT ACCIDENTS

Several accidents have occurred within the last few years in which storage tanks have failed catastrophically when the flammable vapors inside an atmospheric tank exploded. The tank was either propelled upward from its base (shell-to-bottom seam failed) or split along the side seam. As a result, workers were killed or injured and the contents were released into the environment.

Three specific incidents demonstrate the potential dangers posed to workers, the public, and the environment when these storage tanks fail catastrophically. In these incidents, the shell-to-bottom seam failed after an explosion and the tank was propelled upward. All occurred in older, atmospheric steel storage tanks. Often workers were performing tank maintenance or other activities that introduced an ignition source. The vapors were ignited either inside the tank or outside and then flashed back into the tank.

In a 1995 incident, during a welding operation on the outside of a tank, the combustible vapor inside two large, 30-ft. diameter by 30-ft. high, storage tanks exploded and propelled the tanks upward — one landing more than 50 feet away. The flammable liquid inside was instantly released and ignited, resulting in a massive fire that caused five deaths and serious injuries.

In a 1992 incident, while workers were welding the outside of a tank empty of liquid, the residual vapor in the storage tank exploded and propelled the tank upward and into an adjacent river. Three workers were killed and one was injured.

In a 1994 incident, during a grinding operation on a tank holding petroleum-

HAZARD AWARENESS

Tank design and inspection/maintenance practices are factors directly related to catastrophic tank failure.

Tank design

Historically, accidents where the shell-to-bottom seam fails are more common among older storage tanks. Steel storage tanks built before 1950 generally do not conform to current industry standards for explosion and fire venting. Atmospheric tanks used for storage of flammable and combustible liquids should be designed to fail along the shell-to-roof seam when an explosion occurs in the tank. This prevents the tank from propelling upward or splitting along the side. Several organizations have developed standards and specifications for storage tank design. Published standards relevant to this design feature include API-650,"Welded Steel Tanks for Oil Storage" issued by the American Petroleum Institute (API). Additional codes and standards, published by API and other organizations, address tank design, construction, venting, and safe welding and are listed at the end of this alert.

Poor inspection, maintenance, and repair practices

Tanks that are poorly maintained, rarely inspected, or repaired without attention to design, risk catastrophic failure in the event of a vapor explosion. Either weakening of the shellto-bottom seam through corrosion or strengthening the shell-to-roof seam relative to the shell-to-bottom seam will increase the vulnerability of the tank to failure along the shell-to-bottom seam. The practice of placing gravel and spill absorbants around the base of the tank, may increase the likelihood of bottom corrosion. Given years of this practice, the bottom of some tanks, especially older ones, may be below ground level, thereby trapping moisture along the tank bottom. This can weaken the bottom and the shell-to-bottom seam. Alternatively, changes to the roof seam such as modifications to or replacement of the roof, or attachments to the roof, could make the roof-to-shell seam stronger relative to the shellto-bottom seam.

Other hazards that can contribute to a tank

explosion and possible consequences are:

Combustible vapors

Generation of combustible vapors is a hazard not only for the storage of pure flammable liquids but also for the storage of any sludge or mixture where a combustible component is present or can be produced by reaction. Sludge (slop tanks) and mixture (e.g., oil/water) tanks may be particularly vulnerable because they are sometimes open to the air; explosive atmospheres may form inside and outside the tank. Facilities may not always recognize this hazard. In addition, even tanks appearing to be empty may pose a hazard if they still contain combustible vapors.

In the cited cases, the potential for combustible vapors was not clearly recognized and materials were stored in tanks that were not equipped with flame arresters to prevent external fire from reaching the vapor space inside the tank or with vapor control devices to limit vapor emissions from the tank.

Ignition sources

When combustible vapors escape from their containment and mix with air in the presence of an ignition source, combustion may occur. To minimize this hazard, all possible ignition sources must be isolated from potential combustible vapors, e.g., welding equipment or other maintenance equipment that can spark or arc, sources of static electricity, lightning, "hot work" in adjacent areas, and any electrical equipment in the vicinity of tanks that does not conform to National Fire Protection Association (NFPA)-70, “National Electric Code.”

Proximity to workers and environment

The danger posed by these tanks is often increased when the location of the tank does not conform with current minimum spacing requirements. Sections 2-3.2 to 2-3.3 of NFPA-30 discuss minimum spacing. For mitigating consequences to workers, the environment, and other tanks, proper secondary containment (diking) should be considered for containment.

HAZARD IDENTIFICATION

Facilities should evaluate their storage tanks for potential to catastrophically fail and identify factors that could cause storage tank explosion. Some of the factors to look for include, but are not limited to, the following:

- Atmospheric storage tanks that do not meet API-650 or other applicable code(s) and contain flammable liquids or liquids that may produce combustible vapor.
- Tanks with corrosion around the base and/or steel tanks whose base is in direct contact with ground and exposed to moisture.
- Tanks or associated structures (e.g., pipes) with weakened or defective welds.
- Tanks used to store mixtures containing water and flammables where the water phase is at the tank bottom and may contribute to internal bottom corrosion.
- Tanks containing combustible vapor and not equipped with flame arrestors or vapor control devices to limit emissions.
- Possible ignition sources near tanks containing combustible vapor.

PROCESS SAFETY AREAS FOR HAZARD REDUCTION

Storage tanks should comply with all regulations, industry codes and standards, including inspection and maintenance requirements to keep tanks in proper condition. Facilities with storage tanks that can contain flammable vapors should review their equipment and operations. Areas to review should include, but not be limited to, the following:

1) Design of atmospheric storage tanks

API and other organizations have standards and codes that address recommended practices for tank design and construction. It is imperative to evaluate whether the liquids or certain components of liquid mixtures may generate combustible vapors. Design measures include fire protection, flame arrestors, emergency

venting (such as part of the API-650), prevention of flash back (for tanks containing flammable liquids), and proper berming or diking.

2) Inspection and maintenance of storage tanks

API-653 has tank inspection guidelines and procedures for periodic inspections and testing, especially for older tanks. These procedures call for written documentation of inspections by API Certified Tank Inspectors. Measures to review include procedures for pressure testing, welding inspections, and checks for corrosion or metal fatigue. API-650 specifies welding procedures and welding qualifications as well as joint inspection (e.g., radiograph and magnetic particle examination). Programs for tank inspection and maintenance should be developed in accordance with these standards.

3) Hot-work safety

Both the Occupational Safety and Health Administration's (OSHA) regulations concerning

hot work and NFPA's standards on welding should be reviewed for compliance. Hazard reduction measures include proper hot-work procedures such as obtaining a hot work permit, having a fire watch and fire extinguishing equipment present, and proper testing of atmosphere for explosivity; covering and sealing all drains, vents, manways, and open flanges; sealing all sewers (to prevent gas or vapor migration); and training workers and providing them with appropriate protective equipment.

4) Ignition source reduction

Both OSHA regulations and NFPA standards should be reviewed for compliance. Hazard reduction measures may include: having all electrical equipment in a hazardous environment conform with the requirements of the National Electric Code (NFPA-70), grounding tanks to dissipate static charge, using only "non-spark producing" tools and equipment in flammable atmospheres, and taking care to not create sufficient heat or sparks to cause ignition of flammable vapors.

INFORMATION RESOURCES FOR HAZARD REDUCTION

The above information is for general guidance only. References with information about the hazards of catastrophic failures and methods of minimizing them are listed below. Regulations potentially applicable to storage tanks and codes and standards that may be relevant are included. For more information consult the following:

Statutes and Regulations

Section 112(r) of the Clean Air Act focuses on prevention of chemical accidents. It imposes on facilities with regulated substances or other extremely hazardous substances a general duty to prevent and mitigate accidental releases. Accident prevention activities include identifying hazards and operating a safe facility.

EPA's Risk Management Program (RMP) Rule [40 CFR 68] is intended to prevent and mitigate accidental releases of listed toxic and flammable substances. Requirements under the RMP rule include development of a hazard assessment, a prevention program, and an emergency response program.

EPA has tank inspection regulations under the Spill Prevention Countermeasure and Control Plan and Oil Pollution Control Act of 1990 [40 CFR119].

The Occupational Safety and Health Administration (OSHA) has the Process Safety Management Standard [29 CFR 1910.119], which includes regulations on tank inspection, fire prevention, and conduct during hot-work; regulations concerning the storage of flammable and combustible liquids [29 CFR 1910.106]; regulations concerning fire protection and prevention during welding, brazing, and cutting [29 CFR 1910.252] and regulations covering the duties and responsibilities of a fire watch [29 CFR Part 126].

Occupational Safety and Health Administration
Phone: (202) 219-8151 - Public Information
Web site: http://www.osha.gov

Codes and Standards

The American Petroleum Institute (API) has tank standards and guidelines on safe welding.

American Petroleum Institute
1220 L St NW

Washington DC 20005
Phone: (202) 682-8000
Web site: http://www.api.org
Relevant API standards include:
API Standard 620 — Design and Construction of Large, Welded, Low-Pressure Storage Tanks, ninth edition, February 1996 (includes Addendum 1, December 1996).
[API Standard 650 comes from] Welded Steel Tanks for Oil Storage, ninth edition, May 1993 (includes Addendum 1, December 1994; Addendum 2, December 1995; and Addendum 3, December 1996).

API Recommended Practice (RP) 651 — Cathodic Protection of Aboveground Petroleum Storage Tanks, first edition, April 1991.
API RP 652 — Lining of Aboveground Petroleum Storage Tank Bottoms, first edition, April 1991.
API Standard 653 — Tank Inspection, Repair, Alteration, and Reconstruction, second edition, December 1995 (includes Addendum 1, December 1996).
API Standard 2000 — Venting Atmospheric and Low-Pressure Storage Tanks: Nonrefrigerated and Refrigerated, fourth edition, September 1992.
API RP 2003 — Protection Against Ignitions Arising Out of Static, Lightning, and Stray Current, fifth edition, December 1991.
API PUBL 2210 — Flame Arrestors for Vents of Tanks Storing Petroleum Products, second edition, 1982.
API RP 2350 — Overfill Protection for Petroleum Storage Tanks, first edition, March 1987.

◆

The American National Standards Institute (ANSI) has the B-31.3 Refinery Piping Code and other standards and codes.
American National Standards Institute
655 15th St NW
Washington DC 20005
Phone: (202) 639-4090 or
11 West 42nd St
New York, NY 10036
Phone: (212) 642-4900
Web site: http://www.ansi.org

◆

The American Society of Mechanical Engineers (ASME) has the Pressure Vessel Code and other codes relevant to tanks and storage vessels.
American Society of Mechanical Engineers
1828 L St NW, Suite 906

Washington DC 20036
Phone: 1 (800) 843-2863 or (202) 785-3756
Publications and membership 1 (800) 843-2763
Codes and standards (212) 705-8500
Accreditation and certification programs (212) 705-8581
Web site: http://www.asme.org

◆

The American Society of Nondestructive Testing (ASNT) certifies welding and non-destructive examination (NDE) and non-destructive testing (NDT) inspectors.
American Society of Nondestructive Testing
P.O. Box 28518
1711 Arlingate Lane
Columbus, OH 43228
Phone: 1 (800) 222-2768 or (614) 274-6003
Web site: http://www.asnt.org

◆

The American Welding Society (AWS) certifies welding inspectors with the designation AWS QC-1 (Quality Control) Welding Inspector and has guidelines on safe welding.
American Welding Society
550 NW LeJeune Rd
Miami, FL 33126
Phone: 1 (800) 443-9353 or (305) 443-9353
Web site: http://www.amweld.org

◆

The National Fire Protection Association (NFPA) has lightning and flammable/combustible liquid codes.
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
Phone: (617) 770-3000
Customer Service: 1 (800) 344-3555
Web site: http://www.nfpa.org
Relevant NFPA codes include:
NFPA 30 — Flammable and Combustible Liquid Code, 1996 edition.
NFPA 51 — Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes, 1992.

NFPA 51B — Fire Prevention in Use of Cutting and Welding Processes, 1994.
NFPA 70 — National Electric Code, 1996.
NFPA 77 — Static Electricity, 1993.
NFPA 780 — Lightning Protection Code, 1995.

◆

Underwriters Laboratories Inc. (UL) has standards for product safety.
Underwriters Laboratories Inc.
333 Pfingsten Rd

Northbrook, IL 60062
Phone: (847) 272-8800
Web site: http://www.ul.com
Relevant UL standards include:
UL-142 — Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids, 1993.

CONTACT THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW HOTLINE
(800) 424-9346 OR (703) 412-9810
TDD (800) 553-7672
MONDAY-FRIDAY, 9 AM TO 6 PM, EASTERN TIME
◆◆◆
VISIT THE CEPPO HOME PAGE ON THE WORLD WIDE WEB AT:
http://www.epa.gov/swercepp/
NOTICE
The statements in this document are intended solely as guidance. This document does not substitute for EPA's or other agency regulations, nor is it a regulation itself. Site-specific application of the guidance may vary depending on process activities, and may not apply to a given situation. EPA may revoke, modify, or suspend this guidance in the future, as appropriate.

EXHIBIT 11:

Federal Register **Presidential Documents**
Vol. 59, No. 32
Wednesday, February 16, 1994

Title 3—

The President

Executive Order 12898 of February 11, 1994

Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1–1. *Implementation.*

1–101. *Agency Responsibilities.* To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

1–102. *Creation of an Interagency Working Group on Environmental Justice.* (a) Within 3 months of the date of this order, the Administrator of the Environmental Protection Agency (''Administrator'') or the Administrator's designee shall convene an interagency Federal Working Group on Environmental Justice (''Working Group''). The Working Group shall comprise the heads of the following executive agencies and offices, or their designees: (a) Department of Defense; (b) Department of Health and Human Services; (c) Department of Housing and Urban Development; (d) Department of Labor; (e) Department of Agriculture; (f) Department of Transportation; (g) Department of Justice; (h) Department of the Interior; (i) Department of Commerce; (j) Department of Energy; (k) Environmental Protection Agency; (l) Office

of Management and Budget; (m) Office of Science and Technology Policy; (n) Office of the Deputy Assistant to the President for Environmental Policy; (o) Office of the Assistant to the President for Domestic Policy; (p) National Economic Council; (q) Council of Economic Advisers; and (r) such other Government officials as the President may designate. The Working Group shall report to the President through the Deputy Assistant to the President for Environmental Policy and the Assistant to the President for Domestic Policy.

(b) The Working Group shall: (1) provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations; (2) coordinate with, provide guidance to, and serve as a clearinghouse for, each Federal agency as it develops an environmental justice strategy as required by section 1–103 of this order, in order to ensure that the administration, interpretation and enforcement of programs, activities and policies are undertaken in a consistent manner;

(3) assist in coordinating research by, and stimulating cooperation among, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Housing and Urban Development, and other agencies conducting research or other activities in accordance with section 3–3 of this order;

(4) assist in coordinating data collection, required by this order;

(5) examine existing data and studies on environmental justice;

(6) hold public meetings as required in section 5–502(d) of this order; and

(7) develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

1–103. *Development of Agency Strategies.* (a) Except as provided in section 6–605 of this order, each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)–(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum: (1) promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable for undertaking identified revisions and consideration of economic and social implications of the revisions.

(b) Within 4 months of the date of this order, each Federal agency shall identify an internal administrative process for developing its environmental justice strategy, and shall inform the Working Group of the process.

(c) Within 6 months of the date of this order, each Federal agency shall provide the Working Group with an outline of its proposed environmental justice strategy.

(d) Within 10 months of the date of this order, each Federal agency shall provide the Working Group with its proposed environmental justice strategy.

(e) Within 12 months of the date of this order, each Federal agency shall finalize its environmental justice strategy and provide a copy and written description of its strategy to the Working Group. During the 12

month period from the date of this order, each Federal agency, as part of its environmental justice strategy, shall identify several specific projects that can be promptly undertaken to address particular concerns identified during the development of the proposed environmental justice strategy, and a schedule for implementing those projects.
(f) Within 24 months of the date of this order, each Federal agency shall report to the Working Group on its progress in implementing its agency-wide environmental justice strategy.
(g) Federal agencies shall provide additional periodic reports to the Working Group as requested by the Working Group.
1–104. *Reports to the President.* Within 14 months of the date of this order, the Working Group shall submit to the President, through the Office of the Deputy Assistant to the President for Environmental Policy and the Office of the Assistant to the President for Domestic Policy, a report that describes the implementation of this order, and includes the final environmental justice strategies described in section 1–103(e) of this order.
Sec. 2–2. *Federal Agency Responsibilities for Federal Programs.* Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Sec. 3–3.*Research, Data Collection, and Analysis.*
3–301. *Human Health and Environmental Research and Analysis.* (a) Environmental human health research, whenever practicable and appropriate, shall include diverse segments of the population in epidemiological and clinical studies, including segments at high risk from environmental hazards, such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards.
(b) Environmental human health analyses, whenever practicable and appropriate, shall identify multiple and cumulative exposures.
(c) Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order.
3–302. *Human Health and Environmental Data Collection and Analysis.* To the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. section 552a): (a) each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;
(b) In connection with the development and implementation of agency strategies in section 1–103 of this order, each Federal agency, whenever practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public, unless prohibited by law; and
(c) Each Federal agency, whenever practicable and appropriate, shall collect,

maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are: (1) subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11001–11050 as mandated in Executive Order No. 12856; and (2) expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law.

(d) In carrying out the responsibilities in this section, each Federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among Federal agencies and with State, local, and tribal governments.

Sec. 4–4. *Subsistence Consumption of Fish and Wildlife.*

4–401. *Consumption Patterns.* In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

4–402. *Guidance.* Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or

wildlife. Agencies shall consider such guidance in developing their policies and rules.

Sec. 5–5. *Public Participation and Access to Information.* (a) The public may submit recommendations to Federal agencies relating to the incorporation of environmental justice principles into Federal agency programs or policies. Each Federal agency shall convey such recommendations to the Working Group.

(b) Each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations.

(c) Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.

(d) The Working Group shall hold public meetings, as appropriate, for the purpose of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice. The Working Group shall prepare for public review a summary of the comments and recommendations discussed at the public meetings.

Sec. 6–6. *General Provisions.*

6–601. *Responsibility for Agency Implementation.* The head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.

6–602. *Executive Order No. 12250.* This Executive order is intended to supplement but not supersede Executive Order No. 12250, which requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving Federal financial assistance. Nothing herein shall limit the effect or mandate of Executive Order No. 12250.

6–603. *Executive Order No. 12875.* This Executive order is not intended to limit the effect or mandate of Executive Order No. 12875.

6–604. *Scope.* For purposes of this order, Federal agency means any agency on the Working Group, and such other agencies as may be designated

by the President, that conducts any Federal program or activity that substantially affects human health or the environment. Independent agencies are requested to comply with the provisions of this order.

6–605. *Petitions for Exemptions.* The head of a Federal agency may petition the President for an exemption from the requirements of this order on the grounds that all or some of the petitioning agency's programs or activities should not be subject to the requirements of this order.

6–606. *Native American Programs.* Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition, the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally-recognized Indian Tribes.

6–607. *Costs.* Unless otherwise provided by law, Federal agencies shall assume the financial costs of complying with this order.

6–608. *General.* Federal agencies shall implement this order consistent with, and to the extent permitted by, existing law.

6–609. *Judicial Review.* This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person. This order shall not be construed to create any right to judicial review involving the compliance or noncompliance

of the United States, its agencies, its officers, or any other person with this order.

oe–

THE WHITE HOUSE,
February 11, 1994.
[FR Citation 59 FR 7629]

EXHIBIT 13:

Carol M Browner
MC-1101A
USEPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
Washington, DC 20460
browner.carol@epa.gov

Dear Administrator Browner,

This letter is to request your assistance in the investigation of the attached complaint by the Pittsburg Unified School District board of trustees, Joe Hawkins a disabled individual, and myself, Mike Boyd President of CAlifornians for Renewable Energy, Inc. (CARE).

We wish to process this complaint through the EPA Office of Civil Rights for violations of Title VI by the California Energy Commission (CEC), Bay Area Air Quality Management District (BAAQMD), and the California Air Resources Board (CARB), in their approval of the Pittsburg District Energy Facility CEC docket 98-AFC-1 and the Delta Energy Center CEC docket 98-AFC-3. We wish to process this complaint through the Office of Environmental Justice for discriminatory effects resulting from the review of and over site by EPA Region IX Air Division, and additionally for the review of the PSD permit for the Delta Energy Center by the EPA Environmental Appeals Board (EAB) docket PSD99-76.

Low-income children and minority populations in the community of Pittsburg Contra Costa County California already experience disparate impacts from criteria air pollutants in comparison to surrounding counties. These two projects will further inflict disparate impacts from criteria pollutants in the form of particulate matter, NOx, and Toxic Air Contaminants (TACs). Contra Costa County low income and minority populations already suffer elevated levels of occurrences of asthma, and breast cancer, along with increased human mortality attributable to particulate matter exposure. The community of Pittsburg's low-income children and minority populations experience these effects disparately in comparison to non-minority non-low income populations within Contra Costa County and in the surrounding counties.

No mitigation for impacts from these projects will be received by the Pittsburg Unified School District to mitigate the effects that school children, predominantly low income and minority, will experience as a result of these projects. The remedy we seek is to prohibit the development of these projects without local mitigation and local emission offsets. We seek the recognition by the CEC, BAAQMD, and CARB of their responsibility to identify disparately impacted low income and minority populations like Pittsburg's, and provide for appropriate mitigation and alternatives pursuant to Federal law, and we seek the requirement that this be made part of their certified regulatory programs.

Thank you for your assistance in this matter.

Michael E. Boyd –CARE, April 17, 2000
(408) 325-4690

821 Lakeknoll Dr.
Sunnyvale, CA 94089

This document is best viewed at the web site
http://www.calfree.com/OCRDelta.html

To: EPA Office of Civil Rights
Attn: Yasmin Yorker-Title VI Team Leader
Yorker.yasmin@epamail.epa.gov
U.S. EPA
Ariel Rios Building
Office of Civil Rights
1200 Pennsylvania Ave., MC1201
Washington D.C. 20460

To: EPA Office of Environmental Justice
Attn: Barry Hill Director
hill.barry@epa.gov
U.S. EPA
Ariel Rios Building
Office of Civil Rights
1200 Pennsylvania Ave., MC2201A
Washington D.C. 20460

Complainants

Michael Boyd –CARE, Joe Hawkins, Jim MacDonald, and the board of trustees of the Pittsburg Unified School District. (See addendum [i])

Complaint of Title VI violations by the California Energy Commission, Bay Area Air Quality Management District, California Air Resources Board, EPA Region IX, and the EPA Environmental Appeals Board, in the approval of the development of and issuance of EPA PSD permits for the Delta Energy Center (98-AFC-3) and the Pittsburg District Energy Facility (98-AFC-1).

Michael Boyd, Joe Hawkins and Jim MacDonald (Complainants) of Pittsburg, California file the following complaint. None of the complainants in this complaint are attorneys, nor does legal counsel in this matter represent us[1]. Mr. Hawkins and Mr. MacDonald are both members of the non-profit corporation Californians for Renewable Energy, Inc. (CARE). Michael Boyd, the president of the board of directors, represents CARE. CARE (also known as Intervenor CRE) has participated

[1] Complainants acknowledge Caroline Ferrell of the Center for Race, Poverty, and the Environment – Delano California, for review and comments of the draft complaint.

as an intervenor in the proposed Delta Energy Center Application for Certification (AFC) before the California Energy Commission (CEC). Mr. Hawkins, who is handicapped as a result of toxic chemical exposure, also participated as an intervener in the Delta Energy Center AFC representing Community Health First. Mr. MacDonald represents the community of Pittsburg with a fiduciary responsibility to protect Pittsburg's low income and minority children from hazardous environmental effects as a trustee of the Pittsburg Unified School District. Mr. MacDonald participated in the Bay Area Air Quality Management District's (BAAQMD's) Determination of Compliance (DOC) process in the issuance of the Prevention of Significant Deterioration (PSD) permit for the Delta Energy Center. Mr. MacDonald also participated as a member of the public in the AFC for the Pittsburg District Energy Facility AFC (98-AFC-1) as well as the Delta Energy Center (98-AFC-3). The filing of this complaint is a joint filing by the parties CARE, Mr. Hawkins as a handicapped individual, and Mr. MacDonald as a duly elected representative of the Pittsburg community, along with the entire board of trustees of the Pittsburg Unified School District.

Respondents

California Energy Commission

From Commission's 1999-2000 Budget[ii] "Federal Funds - proposed expenditure level is $8,659K. This includes $2,680K in staff support and contracts for the SEP program and $5,979K for anticipated federal awards for various Commission programs."

Bay Area Air Quality Management District

EPA Funding, "INVESTIGATIONS, SURVEYS OR STUDIES CONSIDERED NEITHER RESEARCH, DEMONSTRATION NOR TRAINING; AND COMPREHENSIVE ESTUAR- INE MGMT POLLUTION CONTROL & ABATEMENT $561,380." [iii]

EPA Funding Pending, "AIR POLLUTION CONTROL PROGRAM SUPPORT." [iv]

California Air Resources Board

EPA Funding, "INVESTIGATIONS, SURVEYS OR STUDIES CONSIDERED NEITHER RESEARCH, DEMONSTRATION NOR TRAINING; AND COMPREHENSIVE ESTUAR- INE MGMT POLLUTION CONTROL & ABATEMENT $125,000." [v]

EPA Funding, "SMALL GRANT - DEVELOPMENT OF A THREE DAY STANDARDIZED TRAINING PROGRAM FOR STATE & LOCAL GOVERNMENTS ON THE NEW SERVICE REVIEW & PREVENTION OF SIGNIFICANT DETERIORATION (PSD)- CARB WITH INPUT FROM LOCAL AIR POLLUTION CONTROL DISTRICT STAFF AND EPA, PROPOSE TO MODIFY THE EXSISTING EPA NSR/PSD TRAINING COURSE TO ADDRESS THE NEEDS OF THE STATE AND LOCAL ENFORCEMENT PERSONNEL $50,000." [vi]

The EPA is responsible for processing by EPA's Office of Civil Rights (OCR) complaints filed under Title VI of the Civil Rights Act of 1964, as amended (Title VI), alleging discriminatory effects resulting from the

issuance of pollution control permits by state and local governmental agencies that receive EPA funding. Petitioners contend that the proposed mitigation measures violate Title VI in that they unfairly impact low-income children and minority communities affected by the failure of the applicant to eliminate unhealthful air emissions in an area that EPA has designated as non-attainment for Ozone. Petitioner's position is that the Commission's support of the projects at current sites is in violation of Title VI of the Civil Rights Act of 1964, and as such the Commission's failure to provide an adequate alternatives analysis and subsequent approval is in violation of CEQA and NEPA, and is an "abuse of discretion" on the part of the Commission. Pursuant to 40 C.F.R. § 7.120(b)(2) this complaint violations of Title VI of the Civil Rights Act of 1964 by the California Energy Commission, Bay Area Air Quality Management District, California Air Resources Board, EPA Region IX, and the EPA Environmental Appeals Board, in the approval of the development of and issuance of EPA PSD permits for the Delta Energy Center (98-AFC-3) and the Pittsburg District Energy Facility (98-AFC-1) occurred within the last 180 days. The PSD permit for 98-AFC-1 occurred prior this 180-day period.

Introduction

We wish to process this complaint through the EPA Office of Civil Rights for violations of Title VI by the California Energy Commission (CEC), Bay Area Air Quality Management District (BAAQMD), and the California Air Resources Board (CARB), in their approval of the Pittsburg District Energy Facility CEC docket 98-AFC-1 and the Delta Energy Center CEC docket 98-AFC-3. We wish to process this complaint through the Office of Environmental Justice for discriminatory effects resulting from the review of and over site by EPA Region IX Air Division, and additionally for the review of the PSD permit for the Delta Energy Center by the EPA Environmental Appeals Board (EAB) docket PSD99-76.

Low-income children and minority populations in the community of Pittsburg Contra Costa County California already experience disparate impacts from criteria air pollutants in comparison to surrounding counties. These two projects will further inflict disparate impacts from criteria pollutants in the form of particulate matter, NOx, and Toxic Air Contaminants (TACs). Contra Costa County low income and minority populations already suffer elevated levels of occurrences of asthma, and breast cancer, along with increased human mortality attributable to particulate matter exposure. The community of Pittsburg's low-income children and minority populations experience these effects disparately in comparison to non-minority non-low income populations within Contra Costa County and in the surrounding counties.

No mitigation for impacts from these projects will be received by the Pittsburg Unified School District to mitigate the effects that school children, predominantly low income and minority, will experience as a result of these projects. The remedy we seek is to prohibit the development of these projects without local mitigation and

local emission offsets. We seek the recognition by the CEC, BAAQMD, and CARB of their responsibility to identify disparately impacted low income and minority populations like Pittsburg's, and provide for appropriate mitigation and alternatives pursuant to Federal law, and we seek the requirement that this be made part of their certified regulatory programs.

Complainants contend that the California Energy Commission, Bay Area Air Quality Management District, California Air Resources Board, EPA Region IX, and the EPA Environmental Appeals Board, in the approval of the development of and issuance of an EPA PSD permit for the Delta Energy Center (98-AFC-3) and the Pittsburg District Energy Facility (98-AFC-1), failed to comply with the *EPA's Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses of April 1998* which out lines the following steps:

- **Determine the actual or possible area of impact of the project.** *For this site it would include a worst-case scenario of all potential pollution from the project (All controls fail or possible burning of alternate fuel. Possible gas line rupture due to rail car derailment caused by deliveries or employees having to cross heavily used railroad tracks and being hit. All this, in combination with the many LPG, chlorine and ammunition trains.) Determine worst-case scenario for Delta water pollution. For this site it would include the facility being completely flooded and all stored chemicals entering the Delta. Such a disaster could have negative effects on the Delta and SF Bay. The project is situated in an area prone to flooding. Worst-case scenario on groundwater contamination related to chemicals stored on site leaching into groundwater. Worst-case scenario sabotage.*
- **Definition of Minority:** *any population consisting of less than 50%caucasian.*
- **Definition of low income:** *In the absence of any local definition of low income the National poverty line is to be used. The California Department of Education recognizes families that qualify for free and reduced lunch as low income.*
- **With the possible impact area established, the minority and low-income population within that area must be determined.** *Any population of 50% or more minority or low income qualifies, examples: the minority and low income population of a school district; the minority and low income population of a city; the minority and low income population of the downtown, uptown, westside, eastside; or by census block or tract. To keep it simple we have been defining minority populations by census blocks and low income by public schools and census blocks.*
- *An extensive* **EIR study of the existing, potential or foreseeable pollution that effects the EJ communities** *is then done. This includes the effects of lack of medical access, lead pipes and paint, disease patterns, planned new roads and industries. Whether there are subsistence farmers or gatherers of natural food supplies that might be affected by project. Do they depend on fishing to supplement their diet? Do they use ground water that might be contaminated by the project?*
- *The* **results are compared to a larger non-minority, non low-income community**. *In this case the designated community should be Marin County.*
- *At this point a determination can be made.* **If the study finds that the environmental quality within the EJ community is worse than the designated comparable community then the applicant cannot build** *unless they can show there is no other alternative (cost is not a factor) or that they will completely mitigate the effects on the EJ community.*

- **The applicant must conform to all other existing requirements**.

Complainants summarize their compliant as follows:

1) The CEC did violate the requirements by Title VI that it completes a EIR (CEQA) and EIS (NEPA) in its permitting of these projects which includes federal mandates for Environmental Justice Analysis in such projects.
2) The CEC discriminated against the low income children and the predominantly minority population of Pittsburg in permitting these projects, without a federal mandated Environmental Justice Analysis that identified the community of Pittsburg as a target Environmental Justice population.
3) The CEC discriminated against the low income children and the predominantly minority population of Pittsburg in failing to identify the disparate impact of criteria air pollutants, ground level pollutants, and toxic air emissions (TACs) from these projects in comparison with the surrounding counties of Salano, Napa, and Marin.
4) The CEC discriminated against the low income children and the predominantly minority population of Pittsburg in failing to identify the disparate impact of air pollutants on human mortality and asthma in Contra Costa County in comparison with the surrounding counties of Salano, Napa, and Marin.
5) The CEC discriminated against the low income children and the predominantly minority population of Pittsburg in the permitting of these projects without local mitigation of air impacts that benefit local air quality, and sustain continuous improvements in regional environmental conditions.
6) The CEC discriminated against disabled persons in failing to provide appropriate accommodations for Joe Hawkins at its November 18, 1999 evidentiary hearing.
7) The CEC discriminated against African Americans persons by deny the Rev. Bill Forrest and opportunity to act as an expert witness on Environmental Justice at its November 18, 1999 evidentiary hearing.
8) The BAAQMD did violate the requirements by Title VI that it completes an EIR (CEQA) and EIS (NEPA) analysis in its PSD permitting of these projects, which includes federal mandates for Environmental Justice Analysis in such projects.
9) The BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in issuing a PSD permit for these projects, without a federal mandated Environmental Justice Analysis that identified the community of Pittsburg as a target Environmental Justice population.
10) The BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in failing to identify the disparate impact of criteria air pollutants, ground level pollutants, and toxic air emissions (TACs) from these projects in comparison with the surrounding counties of Salano, Napa, and Marin.
11) The BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in failing to identify the disparate impact of air pollutants on human mortality and asthma in Contra Costa County in comparison with the surrounding counties of Salano, Napa, and Marin
12) The BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in issuing a PSD permit for these

projects without local mitigation of air impacts that benefit local air quality, and sustain continuous improvements in regional environmental conditions.

13) EPA Region IX through its authority delegated to BAAQMD did violate the requirements by Title VI that it completes an EIR (CEQA) and EIS (NEPA) analysis in its PSD permitting of these projects, which includes federal mandates for Environmental Justice Analysis in such projects.

14) EPA Region IX through its authority delegated to BAAQMD in issuing a PSD permit for these projects, without a federal mandated Environmental Justice Analysis that identified the community of Pittsburg as a target Environmental Justice population.

15) EPA Region IX through its authority delegated to BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in failing to identify the disparate impact of criteria air pollutants, ground level pollutants, and toxic air emissions (TACs) from these projects in comparison with the surrounding counties of Salano, Napa, and Marin.

16) EPA Region IX through its authority delegated to BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in failing to identify the disparate impact of air pollutants on human mortality and asthma in Contra Costa County in comparison with the surrounding counties of Salano, Napa, and Marin

17) EPA Region IX through its authority delegated to BAAQMD discriminated against the low income children and the predominantly minority population of Pittsburg in issuing a PSD permit for these project without local mitigation of air impacts that benefit local air quality, and sustain continuous improvements in regional environmental conditions.

18) The EPA Environmental Appeals Board discriminated against the low income children and the predominantly minority population of Pittsburg in its review and subsequent denial of the appeal of a PSD (PSD99-76) permit for the Delta Energy Center, without a federal mandated Environmental Justice Analysis that identified the community of Pittsburg as a target Environmental Justice population.

19) The California Air Resources Board (CARB) discriminated against the low income children and the predominantly minority population of Pittsburg in approving permit guidelines for these projects, without a federal mandated Environmental Justice Analysis that identified the community of Pittsburg as a target Environmental Justice population. Further, CARB's failure to mandate air quality guidelines for these projects acted to perpetrate discriminatory effects.

Project Descriptions

The Pittsburg District Energy Facility (PDEF) CEC docket 98-AFC-1 is 500 MW gas fired power plant. A more thorough description of the project is provided in addendum.[vii]

The Delta Energy Center (DEC) CEC docket 98-AFC-3 is 880 MW gas fired power plant. A more thorough description of the project is provided in addendum.[viii]

Existing Conditions Demonstrate Disparate Impacts

Complainants reference the written briefs, comments, and figures provided to/by the CEC, BAAQMD, EPA Region IX, CARB, and the EPA EAB. Complainants contend that evidence in the CEC record demonstrates that there is a disparate impact on minority and low-income children in the city of Pittsburg, Contra Costa County California.

Complainants contend that the sites of the two projects violates the civil rights of populations of minority and low income children in the Pittsburg area as identified in figures 4[2] provided by EPA's Region IX, and 5 provided by The Northern California Council for the Community (NCCC) as the Pittsburg community's population is already disparately impacted by known EPA regulated sites (as identified in figure 1 and Table 3) in proximity to the site of the proposed Delta Energy Center. Tables 1 and 2 along with figures 2 and 3 provide specific CARB data, which demonstrates the disparate impacts of criteria air pollutants on Contra Costa County in comparison to those of the counties of Marin, Salano, and Napa.
.[3]

[2] *Rebuttal to Senior Staff Counsel Dick Ratliff's Brief on the Delta Energy Center Project Alternatives* 11/04/1999 http://www.calfree.com/Rebuttal.html

[3] *Rebuttal to Senior Staff Counsel Dick Ratliff's Brief on the Delta Energy Center Project Alternatives* 11/04/1999 http://www.calfree.com/Rebuttal.html

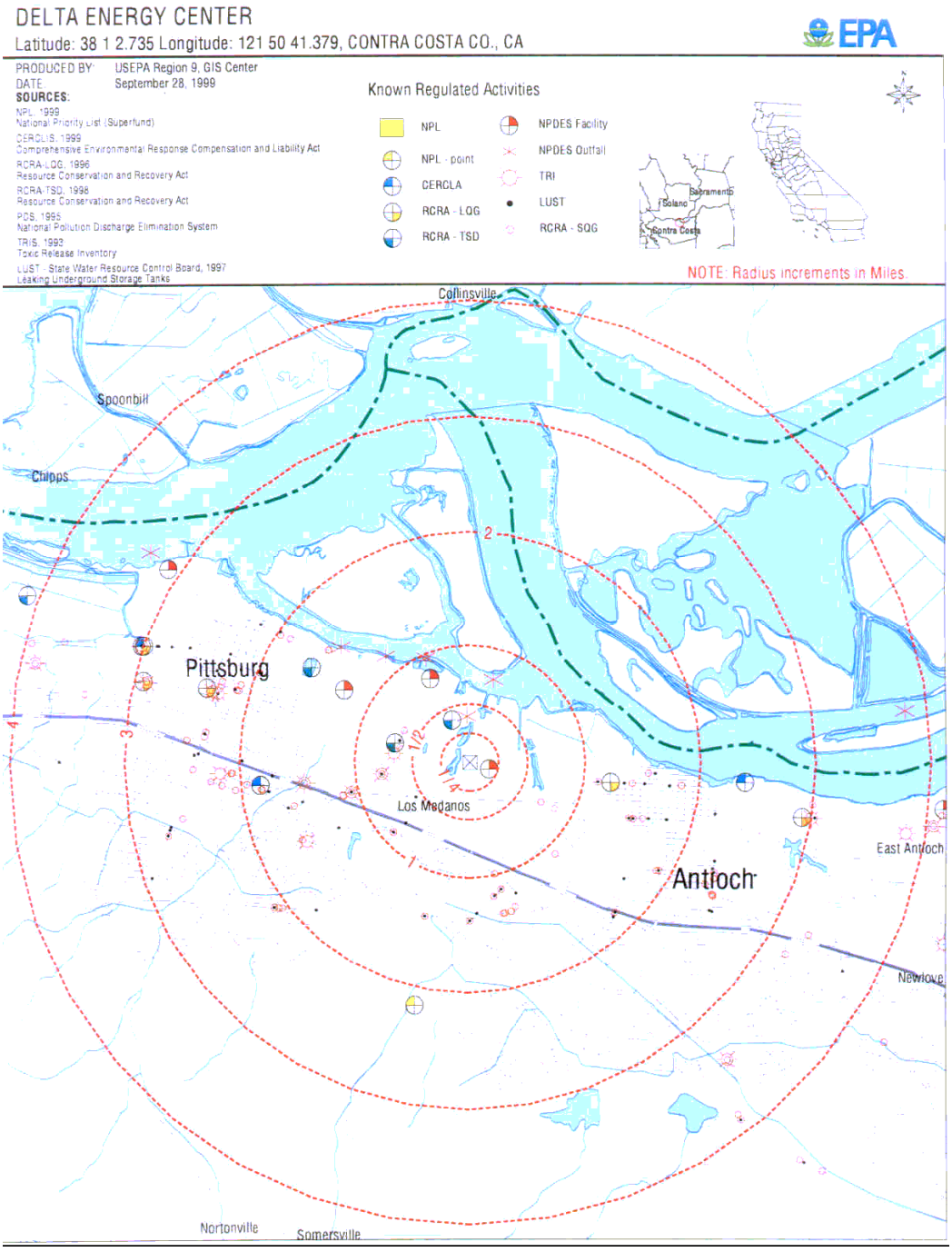

Figure 1 Known EPA Regulated Sites

Complainants present results from CARB comparing seven criteria air pollutants from adjacent counties in 1996 to demonstrate the disparate impacts to Contra Costa County.

"Emissions of seven criteria air pollutants are compiled in this report. The pollutants are total organic gases (TOG), reactive organic gases (ROG), carbon monoxide (CO), oxides of nitrogen (NOx), oxides of sulfur (SOx), particulate matter (PM), and particulate matter with an aerodynamic diameter of 10 micrometers or smaller (PM10). Some of these pollutants are precursors to other pollutants. For example, oxides of nitrogen and reactive organic gases are precursors to the formation in the atmosphere of oxidants such as ozone. Some of the oxides of nitrogen and oxides of

sulfur emitted in the gaseous state are converted to nitrate and sulfate particulates, respectively."[4]

County Total	TOG	ROG	CO	NOX	SOX	PM	PM10
Contra Costa	200	93	490	120	36	44	26
Marin	38	21	140	17	0	12	7
Solano	78	48	230	50	18	38	22
Napa	28	11	67	9	0	8	5

Table 1 Total emission of criteria pollutants by county.

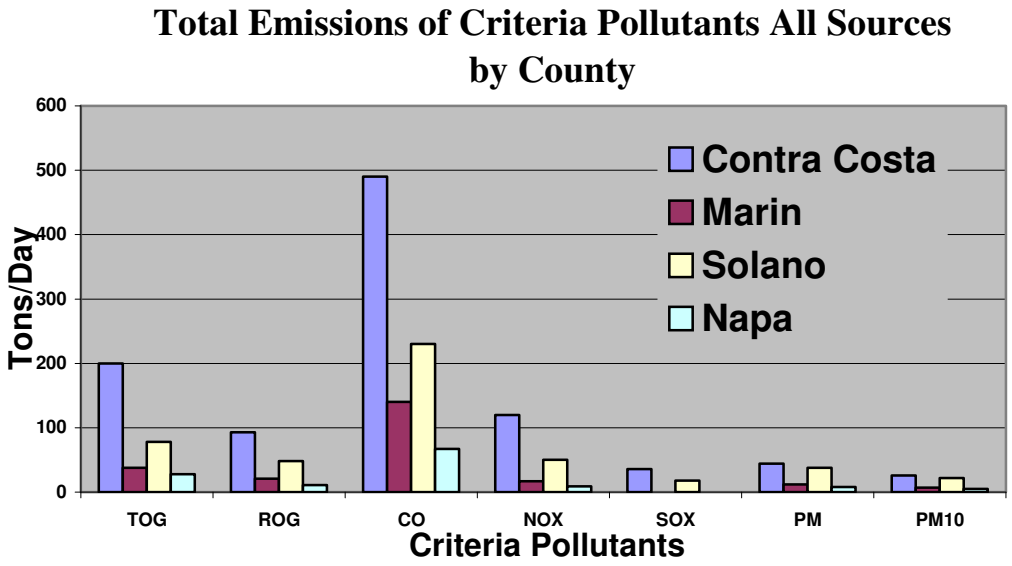

Figure 2 Total emissions of criteria pollutants by county.

County Stationary	TOG	ROG	CO	NOX	SOX	PM	PM10
Contra Costa	130	36	39	61	32	8	6
Marin	13	3	0	0	0	0	0
Solano	37	14	2	11	17	1	1
Napa	4	2	7	1	0	7	4

Table 2 Total emissions of criteria pollutants from stationary sources by county.

[4] CARB *California Emissions Inventory Data*
http://www.arb.ca.gov/EMISINV/maps/statemap/cntymap.htm

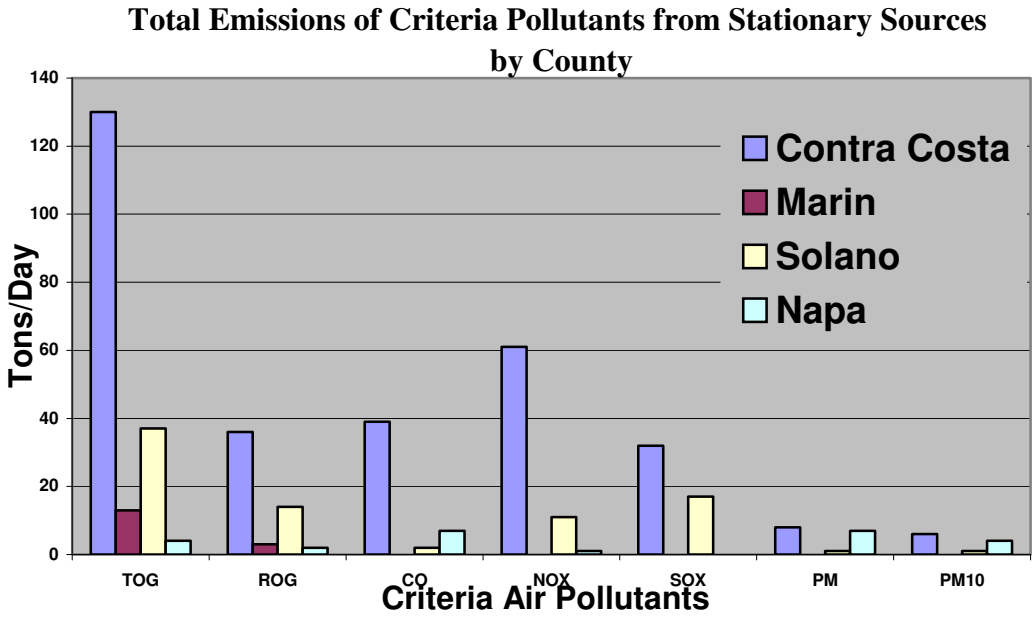

Figure 3 Total emissions of criteria pollutants from stationary sources by county.

Complainants contend that the sites of the two projects violates the civil rights of populations of minority and low income children in the Pittsburg area as identified in figures 4[5] provided by EPA's Region IX, and 5 provided by The Northern California Council for the Community (NCCC) as the Pittsburg community's population is already disparately impacted by known EPA regulated sites (as identified in figure 1 and Table 3) in proximity to the site of the proposed Delta Energy Center. Tables 1 and 2 along with figures 2 and 3 provide specific CARB data, which demonstrates the disparate impacts of criteria air pollutants on Contra Costa County in comparison to those of the counties of Marin, Salano, and Napa.

[5] *Rebuttal to Senior Staff Counsel Dick Ratliff's Brief on the Delta Energy Center Project Alternatives* 11/04/1999 http://www.calfree.com/Rebuttal.html

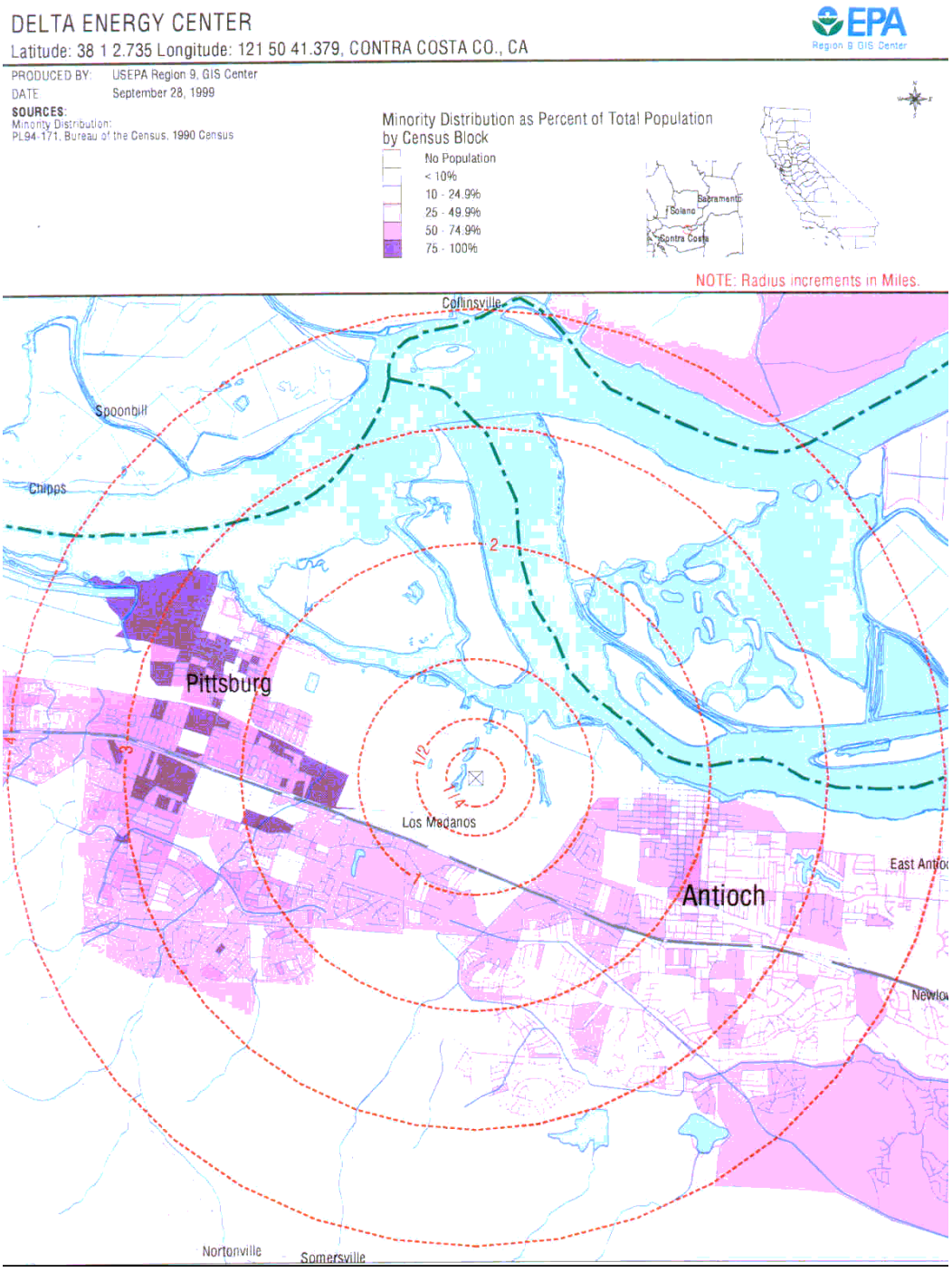

Figure 4 Minority Distributions as a Percentage of Total Population

Complainants cite figure 6 to demonstrate that on the census tract level that a large concentration of 50% or greater of low-income children exist in the Pittsburg Community which currently experience disparate impact from air emissions compared to surrounding counties.[6]

[6] The Northern California Council for the Community (NCCC), *Contra Costa County United Way/Hospital Council Collaborative Community Assessment* http://www.ncccsf.org/contra_costa_report/ccost_9of39.pdf

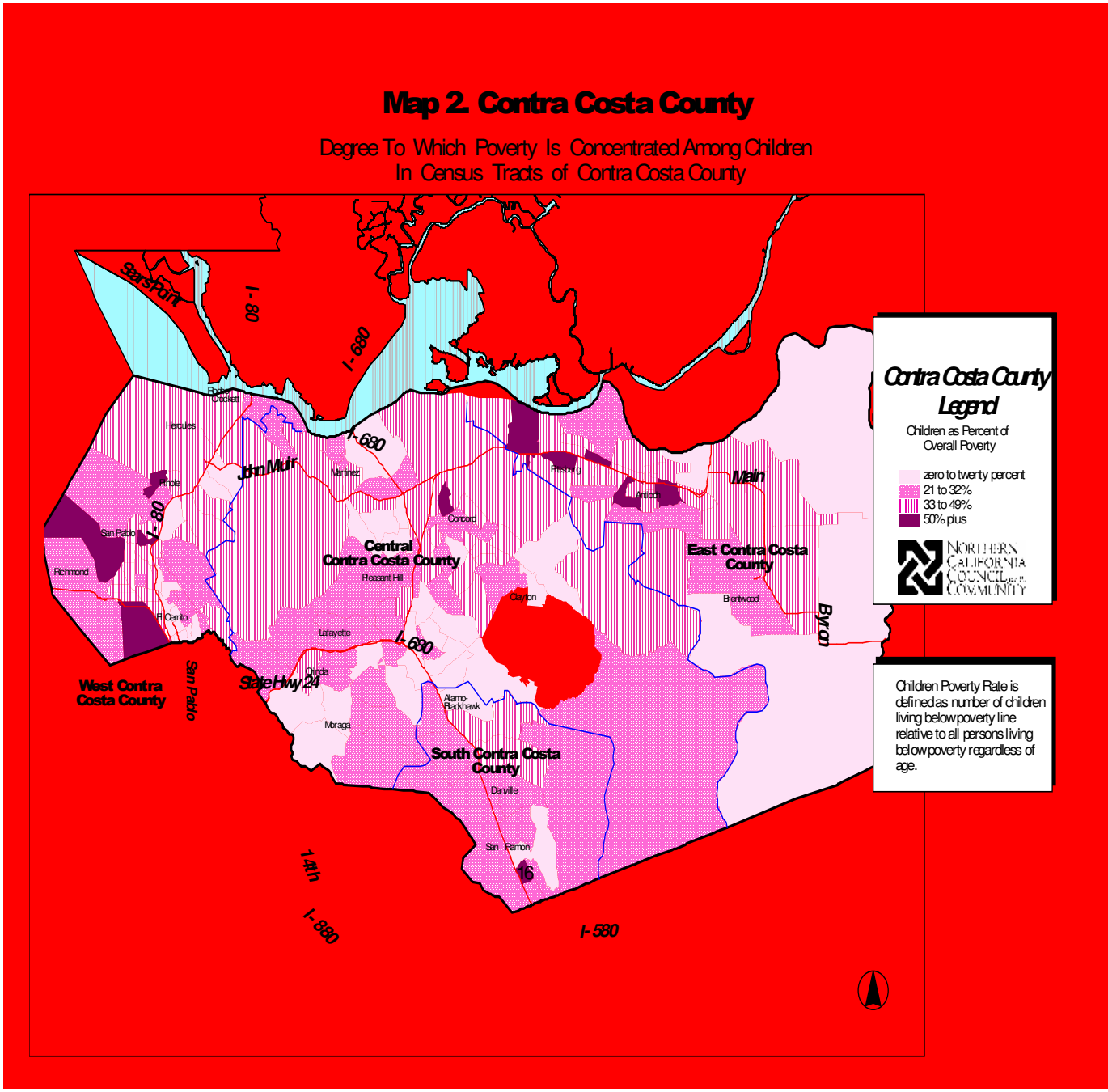

Figure 5 Low-Income Children in Contra Costa County

The CARB identifies four of California's top point sources for NOx within near proximity of the proposed project as cited in Table 3 below[7].

[7] CARB *The 1999 California Air Quality and Emissions Almanac Chapter 5: Emissions and Air Quality Tables for County Portions of Air Basins* http://www.arb.ca.gov/aqd/almanac/pdf/tbl5_24.pdf

Air Basin	Facility Name	City	NOx (tons/year)
San Francisco Bay Area	Shell Martinez Refining Company	Martinez	4447
Mojave Desert	Southdown (Cement)	Apple Valley	4106
North Central Coast	P G & E	Moss Landing	4037
San Francisco Bay Area	Chevron Inc.	Richmond	3612
Mojave Desert	Riverside Cement Company	Oro Grande	3361
San Francisco Bay Area	Tosco Corp. Avon Refinery	Martinez	3161
San Francisco Bay Area	Exxon Corporation	Benicia	3078
South Coast	Chevron USA Inc.	El Segundo	2587
South Coast	California Portland Cement Co.	Colton	2289
Mojave Desert	California Portland Cement Co.	Mojave	2246
1. Facility totals are for calendar year 1995. Some facilities may have reduced or increased emissions since			
1995. These changes will be reflected in subsequent almanacs.			
2. The lists of facilities do not include military bases, landfills, or airports.			

Table 3 California's top point sources for NOx

Impact cannot be considered insignificant because it's contribution to

air quality is insignificant when compared to other sources

Complainants cite CARE's Comments on the Presiding Member's Proposed Decision from page 165 as follows:

5. Cumulative Impacts

Despite finding that cancer and non-cancer risks are *de minimis*, Staff nevertheless assessed the project's potential cumulative impacts to public health by looking simultaneously at the project's maximum impacts, those of the recently licensed PDEF power plant, and those of the existing Dow Chemical plant. (Ex. 20, p. 35.)

The assumption that because the potential cumulative impacts are *de minimis* should not be used as a basis for not completing an adequate cumulative impact analysis on air quality impacts and should be factored into any alternatives analysis. From <http://www.pgedivest.com/eirtc/comments/u.html>:

"A project's impact cannot be considered insignificant because it's contribution to air quality is insignificant when compared to other sources. Kings County Farm Bureau v. City of Hanford 221 Cal. App.3d 692, 720 (5th Dist. 1990). The Court of Appeals held inadequate the cumulative impact analysis prepared for an EIR for a proposed coal-fired cogeneration power plant. The Court called this method of finding an impact insignificant because it was small compared to other sources, the incorrect approach. Id. This "ratio" theory of impact analysis allows a large pollution problem to make a project's contribution appear less significant in a cumulative impact analysis. But the Court strongly disagreed, holding that such a method would "avoid analyzing the severity of the problem and allow approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling." It is invalid and terribly misleading of the DEIR to conclude that the impacts to air

quality are insignificant because it is less then one percent of regional emissions. (Pg.4.5-59). In fact, the more severe existing environmental problems are, the lower the threshold should be for treating a project's cumulative impacts as significant. Id. at 721. See discussion of Los Angeles Unified School District v. Los Angeles (1997) 58 Cal. App. 1019, supra."

The screening analysis indicated that the points of maximum impact of the three projects are broadly dispersed. The points of maximum impact vary with each facility because of different stack heights, different exhaust velocities, and the vagaries of modeled weather. (11/18 RT 255.) The modeled point of maximum impact of PDEF is approximately 5.5 miles north of DEC s project site. (Ex. 20, p. 35.) The point of maximum impact of the Dow facility, which has been modeled by BAAQMD, occurs in Antioch four miles southwest of the impact location for PDEF and considerably north of the DEC s maximum point of impact. (*Ibid*.) Staff, therefore, found that none of the maximum points of impact are even close to each other. (*Ibid.*) Staff s witness, Mr. Ringer, testified that it would make no sense to add the risk factors given the disparate points o maximum impact. (11/18 RT 254.) Mr. Ringer noted that similar to DEC, the PDEF facility also represents a *de minimis* impact in the screening context even at its point of maximum impact. (*Ibid*.) CRE contends that the maximum impact area is a matter of conjecture in that ambient air conditions are not static and subject to change depending on temperature, humidity, wind speed, and direction.

Evidence of the record shows CEC & BAAQMD failure to address

Disparate impacts.

Complainants' provides following comments to the PRESIDING MEMBERS PROPOSED DECISION (PMPD) with deletions shown as in this ~~example~~ and additions shown in this example to provide evidence of examples of CEC's and BAAQMD's failure to address disparate impacts on minority and low-income children in the community of Pittsburg.[8]

The CEC discounts the petitioner's (complainant's) (complainant)'s arguments and evidence presented on the Presiding Members Proposed Decision starting on page 3…Petitioners (complainants) proposed to correct the decision starting from page 3 as follows:

"Intervenors Californians for Renewable Energy, Inc. (CRE) and Community Health First (CHF) were active Intervenors in this proceeding. Both Intervenors expressed concern that project-related emissions would degrade air quality and cause detrimental health effects from toxic air contaminants. The Intervenors submitted copies of documents that were downloaded from the Internet in their efforts to show

[8] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

that the substances emitted by the project were dangerous to public health. Intervenor CRE provided exhibit 57, "Letter from EPA Region IX to BAAQMD, dated September 23, 1999, offering comments on the Preliminary Determination of Compliance", as evidence of the applicant's and Commission's failure to comply with EPA recommendations for mitigation. ~~Although the~~ The Intervenors presented passionate arguments in support of their positions, the evidence of record clearly establishes that the project ~~complies~~ fails to comply with all applicable federal, state, and local regulatory programs that are designed to protect the environment and public health. Intervenor CRE provided for the record exhibits 32, 55, 57, 62, 69, 70, 71, 75, and 77. Exhibit 32 entered by intervenor CHF is the same as exhibit 77 a) EPA Region IX provided population density and threatened and endangered species identification geographical map of the Delta Energy Center proximity.

BAAQMD and CEC discriminated against the low-income children and the predominantly minority population of Pittsburg in failing to provide monitoring (which was a permit condition in the PDEF 98-AFC-1), and with holding information on particulate matter impacts from the public. Further corrections of the record in the PMPD starting at page 3 are as follows:[9]

Intervenor CAP-IT was concerned about the installation and operation of particulate monitoring station in the Pittsburg-Antioch area. In the Commission's Decision on the Pittsburg District Energy Facility, the PDEF Applicant was directed to work with DEC and BAAQMD to purchase, install, and operate a new particular monitoring station in the project vicinity. Condition AQ-78 is included in his Decision to require DEC to coordinate with the PDEF and BAAQMD to purchase, install, and operate the new particulate monitoring station. DEC will also provide funding to retrofit the existing Pittsburg air monitoring station to collect data on toxic air contaminants. BAAQMD and the applicant failed to provide current air monitoring station data from the new particulate matter monitoring station. The monitoring stations results should have been made public, and made part of the record prior to issuance of the PMPD. The BAAQMD, applicant, and Commission decided in behalf of the public to with hold this information from the publics review and consideration in this matter. During the November 18, 1999 evidentiary hearing the applicant failed to respond to the question of CAP-IT, on the air monitoring station and it's data

Evidence of the Commission's, BAAQMD's, and Applicant's intent to discriminate.

Evidence of the Commission's, BAAQMD's, and the Applicant's intent to discriminate is their attempt to with hold information from the public on PM10. Complainants site the transcript of the November 18, 1999 evidentiary hearing, starting at page 53.[10]

Cross-Examination by Ms. Lagana:

[9] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).
[10] November 18, 1999 -- Transcript of CEC hearing held in Antioch, California. (404 pages, 757 kilobytes)

Question-Mr. Rubenstein, I have some questions regarding the air monitoring station that this project is sponsoring being installed in Pittsburg, well, actually Pittsburg/Antioch. The station was originally installed on September 19th at a location in Antioch, 1201west 10th street. And subsequently the bay area air quality management deems it unacceptable for various environmental reasons, is that correct?
Answer -I was not involved in that review, but that is my understanding, yes.
Question-Okay. So the station is going to be removed to another location which bay area air quality has consented would be more appropriate to be in an environment that would not contaminate the results as the first location would have.
Answer- without judging what they said about the first location - -
Question-correct.
Answer-the answer is yes; the station will be moved to a new location where the bay area district has said that it would be suitably located.
Question- okay. When will that new site be in production? Do you have a guesstimate?
Answer-No. I know that from a site visit I took there today, that site preparation work for the relocation actually is going to begin tomorrow. I don 't know exactly when the station will be, in fact, relocated. I could make some checks during a break and get that answer for you.
Question- Okay. I would like to know if it's the month of November or December.
Answer I will find that out for you.
Ms. Lagana
Question-since the station, Mr. Rubenstein, was supposed to be in production one year prior to your production of the - -of your power plant, right, prior to the project going into production through construction, there was the - -the station was supposed to be up and running and taking results. That was the requirement of the CEC, one year prior to production, two years after production.
Hearing Officer Gefter- What is your question for the witness?
By Ms. Lagana:
Question- The question is, will that set the time back, so we 're now going to be starting September 19th, we would be starting in November or December? So those two months, since the evidence –the data being accepted now, or taken now is not acceptable to the bay area air quality management, will the clock now be set at November or December rather than September?
Answer-I'm not sure. There are a couple things
I don't understand. First, - -
Question-Okay, - -
Answer- -is as I said, I don 't know what the bay area district 's determination was regarding the original site. So, I can 't say whether it 's because they thought the data were going to be inaccurate or not.
Answer- yes, they did, I read the letter."

Complainants' objects to the Commission and BAAQMD's failure to provide current air monitoring data and a local PM10 monitoring site as stipulated in the conditions of 98-AFC-1 the PDEF.

Adversely impacted minority populations mandates thorough

alternatives analysis as mandated by

Environmental Justice guidelines

Complainants believe that the presence of adversely impacted minority populations and low-income children within the impact zone as identified in the non zero PM10 impact area of figure C-12 of exhibit 55 mandates a more thorough alternatives analysis as mandated by Environmental Justice guidelines. Complaints cite Comments on the Presiding Members Proposed Decision [11] for addendum[ix]

Disparate impacts from air emissions on the community of Pittsburg

From CARE's written testimony on the Delta Energy Center[12]

Petitioner (complainant) position is that the FSA's failure to comply with CEQA in its alternatives sections resulted in the failure to mitigate adverse impacts on air quality from this project. The applicant proposes to mitigate both regional and cumulative air quality impacts from this project through the use of trading of emission reduction credits (ERCs). Current EPA policy does not encourage the use of ERCs. Petitioner (complainant) cites the letter to BAAQMD Air Pollution Control Officer, Ellen Garvey, from EPA Region IX Chief Permits Officer, Matt Haber, titled EPA Comments on the Preliminary Determination of Compliance for the Delta Energy Center - September 23, 1999 page 2 where it states,

"The source plans to use the provisions for interpollution trading under District rules and provide 81.8 tons of VOC ERC in place of the required NOx ERCs. In the EPA's notice proposing limited approval/disapproval of Regulation 2 Rules 1,2 and 4 (63 FR 59924), EPA identified interpollution trading of NOx and VOC as a significant approvability issue. The District rule does not contain adequate safeguards to ensure an overall air quality benefits from this type of trading."

Petitioner (complainant) contends that without interpollution trading the applicant cannot mitigate the adverse air quality impacts associated with this project which are both cumulative and regional impacts and should have been examined in the alternatives analysis. EPA's citation of this as a "significant approvability issue" because it "does not contain adequate safeguards to ensure overall air quality benefits" demonstrates staff's and counsel's mistaken assumption in that, "staff has

[11] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

[12] *Written Testimony and Identification of Witnesses for a November 18, 1999 Hearing on the Delta Energy Center (98-AFC-3) Socioeconomic, air quality, and public health* http://www.calfree.com/Delta_Test.html

not found a significant air impact associated with this project". This serves to demonstrate the inadequacy of staff's analysis.

Petitioner (complainant) has reviewed the BAAQMD FDOC for resolution of this concern for interpollution trading with EPA Region IX Matt Haber Chief Permits Office as identified in exhibit F. In the FDOC attachment C-1 titled Offsetting NOx emissions with POC reductions is referred to on Page 20 of the FDOC. This is the only reference petitioner (complainant) could find to EPA's concern, and it is unclear to petitioner (complainant) who the parties in this memo represent in this process.

Petitioner (complainant) has reviewed the FDOC in regards to offsets for PM10. Page 19 of the FDOC states in this regard,

"With projected PM10 emissions of greater than 100 tons per year, the DEC is considered to be a Major Facility for PM10 pursuant to District Regulation 2-2-220.1. Therefore, emission offsets must be provided at a ratio of 1.0 to 1.0 pursuant to District Regulation 2-2-303. Pursuant to District Regulation, 2-2-303.1, the applicant has opted to provide SO2 ERCs to offset a portion of the proposed PM10 emission increases at offset ratios deemed appropriate by the APCO. As stated earlier, the standard BAAQMD interpollutant trade-off ratios for the Pittsburg area is 3 to 1 for SO2 to PM10."

Petitioner (complainant) contends that the major source of PM10 in the state of California is NOx in reaction with ammonia producing Ammonium Nitrate not SO2 that the applicant has opted to provide as ERC offsets of NOx. Therefore the applicant's offset for PM10 fails to properly mitigate PM10 impacts from this project.

"Petitioner (complainant) would also include that the EPA doesn't agree with the applicant's use BACT limits for POC emissions from the gas turbines/HRSG duct burners proposed by the BAAQMD in their Preliminary Determination of Compliance for the Delta Energy Center. The EPA instead requires the use of the Federal LAER since the location of the Delta Energy Center is in a region of the state in non-attainment for Ozone. Petitioner (complainant) cites the letter to the BAAQMD from the EPA page 1 where it states,

"EPA does not agree with the Best Available Control Technology (BACT) limit for POC from the gas turbines/HRSG burners proposed by the Bay Area Air Quality Management District (District) in the Preliminary Determination of Compliance (PDOC). As the District is aware, Rule 2 of Regulation 2 requires BACT to be at least as stringent as the federal Lowest Achievable Emission Rate (LAER). Neither the limit listed from District BACT Guideline 89.s.1 nor "expected" POC emission rate satisfy federal LAER."

Petitioner (complainant) contends that air quality non-attainment is a regional problem associated with air pollution emissions in the San Francisco Bay Area, and the greater Sacramento Valley, and as such, cumulative air quality impacts should be evaluated based on impacts to the entire region, not limited to within a six-mile radius of the project

Petitioner (complainant) has reviewed the BAAQMD FDOC for resolution of the concern "EPA does not agree with the Best Available Control Technology (BACT) limit for POC from the gas turbines/HRSG burners proposed by the Bay Area Air Quality Management District (District) in the Preliminary Determination of Compliance (PDOC)" with EPA Region IX Matt Haber Chief Permits Office as identified in exhibit F. On page 15 of the FDOC it under Precursor Organic Compounds (POCs) it states:

"In response to comments from EPA and ARB, the applicant has accepted a BACT specification of 2 ppmvd POC @ 15% O2 that will apply during all operating modes except start-up and shutdown. This converts to an emission factor of 0.00251 lb/MM BTU and a mass emission rate of 5.03 lb/hr."

Petitioner (complainant) contends that the EPA requires 1 ppmvd for POC not the FDOC specified 2 ppmvd. In regards to this on page 2 of exhibit F it states,

"The PDOC states that an oxidation catalyst is BACT, but then goes on to say that the applicant's emission limit is not based on the use of an oxidation catalyst. EPA disagrees with the assertion in the PDOC that the oxidation catalyst will not significantly control POC. Source test data provided by ARB suggests that this type of catalyst will result in ROC levels from turbines on the order of 1.0 ppmvd. Additionally, there is evidence that a 1.0ppmvd limit has been achieved in practice. Source test data for the Crockett Cogeneration Co. Plant in Crockett, CA show that the plant is meeting this level, while the Bear Mountain Ltd. Cogen facility in Bakersfield, CA, is permitted at 0.6 ROC (equivalent to POC)…. Collectively, these evidence and data are the basis for EPA's assessment that BACT for this project is 1.0 ppmvd."

Petitioner's (complainant's) position is that the BAAQMD FDOC and the FSA failed to identify potential significant unmitigated adverse impacts on air quality and public health resulting from particulate matter PM10 and PM2.5 potentially in excess of 1,681 tons annually. Petitioner's (complainant's) contention is that the FDOC and FSA failed to analyze the potential impacts of 357 tons of ammonia slip cumulatively with respect to four out of ten of California's largest stationary sources of NOx, including number one Shell Martinez Refining Company at 4,447 tons/year. These four sources are within near proximity to the proposed DEC and have net annual NOx emissions of 14,298 tons/year. For further testimony in this matter petitioner (complainant) cites exhibit G:

"In this case, the treatment technology that Calpine has chosen to reduce its NOx emissions will have the collateral effect of significantly increasing the presence of tiny particulate matter in the vicinity of the facility. The vast majority of increase particulates will be smaller than 2.5 microns in diameter (PM2.5). EPA has recognized that the smaller fraction particulates pose an even greater health risk with respect to respiratory disorders than more coarse particulates. Other treatment technology options for NOx exist that would not have resulted in such a large increase in particulate matter emissions."

Calpine's emissions limit for NOx is based on its proposal to use Selective Catalytic Reduction ("SCR") as a central component of its NOx treatment technology. See

EPA's Ambient Air Quality Impact Report ("Air Quality Report") at 4. SCR uses ammonia as a reducing agent in controlling NOx emissions from gas turbines. The portion of the unreacted ammonia passing through the catalyst and emitted from the stack is called "ammonia slip." Ammonia is currently unregulated as an air contaminant. However, it is recognized to contribute to ambient concentrations of both PM10 and PM2.5.

The California Air Resources Board recently released a document entitled "Guidance for Power Plant Siting and Best Available Control Technology" ("CARB Guidance")(excerpted hereto as Exhibit C. The CARB Guidance recognizes the relationship between ammonia slip and increased levels of particulate matter, including PM2.5:
Ambient PM2.5 is composed of a mixture of particles directly emitted into the air and particles formed in air from the chemical transformation of gaseous pollutants (secondary particles). Principle types of secondary particles are ammonium sulfate and ammonium nitrate formed in air from gaseous emissions of sulfur oxides and NOx, reacting with ammonia. Studies conducted in the South Coast Air Basin by Glen Cass of Caltech have indicated that ammonia is a primary component in secondary particulate matter. As a result, districts should consider the impact of ammonia slip on meeting and maintaining PM10 and PM2.5 standards.
CARB Guidance, page 24.

Complainants cite SUTTER POWER PROJECTPSD Appeal No. 99-6.
"Calpine's emission limitation for NOx includes an ammonia slip of 10 ppmvd corrected to 15% O2 and averaged over 1 hour. Further assuming that one lb mole of NH3 reacts to form one lb mole of NH4NO3, up to 438 tons/yr (2,398 lb/day) of secondary PM10 could be formed in the stack and downwind assuming adequate HNO3 is available. [1] These collateral PM10 emissions are nearly five times higher than the proposed controlled maximum annual operational PM10 emissions from the Project (92.5 tons/yr). AFC Table 8.1-21. Most of this additional PM10 will be extremely small particles, less then 2.5 microns in diameter."

Petitioner (complainant's) cite page 9 Table 3 of the FDOC for 714,669 pounds/year of ammonia slip from the Delta Energy Center. This is equivalent to357.33 tons/year of ammonia slip." Assuming the worst case scenario of 100% reaction of ammonia slip with NOx in the mornings and evenings during periods of plant startup and shutdown, high relative humidity, and lower air temperatures the total potential for PM10 and PM2.5 is given by 357.33 tons NH3 times 80 tons NH4NO3 per ton mole divided by 17 tons NH3 per ton mole gives 1,681 tons of particulate matter per year. Petitioner (complainant) contends the failure of the FSA and FDOC to address this impact fails to mitigate potential significant disparate impacts on public health and human mortality in proximity to the proposed project.

BAAQMD, CEC, and CARB discriminated in failing to perform an Environmental Justice analysis

BAAQMD, CEC, and CARB discriminated against the low-income children and the predominantly minority population of Pittsburg in failing to perform an Environmental Justice analysis on disparate impacts from air emissions on the community of Pittsburg. Complainants cite CARE's Comments on the Presiding Member's Proposed Decision from page 105 of the PMPD as follows:[13]

Operation of the Delta Energy Center will create combustion products and utilize certain hazardous materials that could expose the general public and workers at the facility to potential health effects. The following sections describe the regulatory programs, standards, protocols, and analyses that address these issues.

A.AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. The Commission must find that the project complies with all applicable laws, ordinances, regulations, and standards related to air quality. National ambient air quality standards (NAAQS) have been established for six air contaminants identified as criteria air pollutants. These include sulfur dioxide (SO2), carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2), lead (Pb), and particulate matter less than 10 and 2.5 microns in diameter (PM10 and PM2.5) and their precursors: nitrogen oxides (NOx), volatile organic compounds (VOC), and Sox. The federal Clean Air Act 45 requires new major stationary sources of air pollution to comply with New Source Review (NSR) requirements in order to obtain permits to operate. The U.S. Environmental Protection Agency (EPA), which administers the Clean Air Act, has designated all areas of the United States as attainment (air quality better than the NAAQS) or nonattainment (worse than the NAAQS) for criteria air pollutants.

SUMMARY OF EVIDENCE The project site is within the Bay Area Air Quality Management District's (BAAQMD or Air District) jurisdiction 46 and is classified as a federal attainment area for NO2, PM10, Pb, and SO2. (Ex.63, Table 4.5-9;Ex.2, /8.1.2.) Attainment areas must comply with the federal Prevention of Significant Deterioration (PSD) regulations. Consequently, the project is subject to PSD review for NO2, PM10, and CO. Emissions of SO2 are below PSD significance criteria. (*Ibid.*) The air district is currently nonattainment for the federal O3 standard. (Ex.63, pp.4.5-8, 4.5-9,4.5-16.)

California ambient air quality standards (CAAQS) promulgated by the California Air Resources Board (CARB) are, in general, more stringent than the federal standards. (Ex.28, p.20.) The Air District is considered a nonattainment area for O3 and the 24-hour average PM10 state standards. (Ex.2, / 8.1.2;Ex.63, Table 4.5-2.)

The EPA, BAAQMD, and CARB worked together with the Energy Commission to determine whether the project's emissions would cause significant air quality impacts and to identify appropriate mitigation measures to reduce potential impacts to levels of insignificance. (11/18 RT 143-146.)

1.BAAQMD s Final Determination of Compliance

[13] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

On October 25,1999,BAAQMD released its Final Determination of Compliance (FDOC). The FDOC concludes that DEC will comply with all applicable air quality requirements, and imposes certain conditions necessary to ensure compliance. (Ex.58, 73.) Pursuant to Commission regulations, the conditions contained in the FDOC are incorporated into this Decision. (Cal. Code of Regs. tit.20, //1744.5,1752.3.) The Air District witness, Dennis Jang, testified that the project would comply with BAAQMD s strict requirements, and with state and federal regulations.49 (11/18 RT 143.) Federal and state ambient air quality standards are shown in **Air Quality** Table 1. Intervenor CRE filed an appeal of BAAQMD's Final Determination of Compliance (FDOC) with the U.S. EPA Environmental Appeals Board (EAB) received on November 18, 1999, which contests BAAQMD's and CEC's findings of compliance.

The EPA Environmental Appeals Board (EAB) discriminated against the low income children and the predominantly minority population of Pittsburg in its refusal to review and subsequent denial of the appeal of a PSD (PSD99-76) permit for the Delta Energy Center, without a federal mandated Environmental Justice Analysis that identified the community of Pittsburg as a target Environmental Justice population due consideration by the board as such.

Complainants cite corrections to the Delta Energy Center PMPD as follows:

2.California Environmental Quality Act (CEQA) Requirements
The Commission not only reviews compliance with Air District rules but also evaluates potential air quality impacts according to CEQA requirements. The CEQA Guidelines provide a set of significance criteria to determine whether a project will:
(1) Conflict with or obstruct implementation of the applicable air quality plan;(2) violate any air quality standard or contribute substantially to an existing or projected air quality violation;(3) result in a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment for state or federal standards;(4) expose sensitive receptors to substantial pollutant concentrations; and (5) create objectionable odors affecting a substantial number of people. [Cal. Code Regs.tit.14, Appendix
G (CEQA Guidelines, Appendix G).]

Staff's witness, Mr. Badr, testified that DEC would not violate any local, state, or federal air quality standards nor contribute to significant cumulative impacts. (11/18 RT 109-110,120-121;Ex.54, pp.17-18; see also, the testimony of Staff witness, Mr. Franco at 11/18 RT 127 et seq.; Ex.55.) The following discussion provides an overview of air quality in the Pittsburg area and describes the analyses that support the conclusions reached by BAAQMD and Staff. Intervenor CRE provided written (Ex. 62) and oral evidence at the November 18, 1999 hearing that demonstrates that this project will violate air quality standards and contribute substantially to existing air quality violations for Ozone and PM10, and that this will result in cumulative considerable increases of the criteria pollutants NOx and PM10. CRE further identified exposure of sensitive receptor to substantial pollution concentrations in the form of PM10 and TACs.

Complainants cite corrections to the Delta Energy Center PMPD as follows:[14]

b. Ambient Air Quality

Applicant relied on ambient air data from the air quality monitoring station in Pittsburg, located on 10th Street, which measures ozone, CO, NO2, and SO2. (Ex.2, /8.1.3.) The data on ambient PM10 concentrations were obtained from the Bethel Island monitoring station, 12 miles east of DEC in Contra Costa County. (Ex.43, p.4.) Historically, the highest measured PM10 concentrations in the county occur at Bethel Island. (Ex.54, pp.3, 8.) **AIR QUALITY** Figure 1 summarizes the historical air pollutant concentrations in the Pittsburg area from 1988-1997.Concentrations above 1.00 are those that exceed the most stringent air quality standard. Intervenor CRE disagrees that air pollution data is representative of existing conditions as the data is from monitoring stations to far from the proposed site and is over 3 years old and therefore out dated. In a letter from Dennis Jang of BAAQMD to Jim MacDonald dated Oct. 27, 1999. Mr. Jang confirms that 1. "Monitoring data must be representative of the ambient air quality of the proposed facility impact area." 2. "… Three years of data is considered to be representative of long-term ambient conditions," 3. "… There is not sufficient time for the District to collect significant monitoring data…" and 4. "…BAAQMD did not conduct a formal analysis of the potential environmental justice ramifications of the Delta Energy Center…".

I. Ozone

The Pittsburg area has experienced, in general, an average of four or five days a year with violations of the 1-hour state standard for ozone. (Ex.54, p.4.) Regional violations of the EPA s less stringent 1-hour national standard were also recorded in recent years. (*Ibid.*) Ozone formation is influenced by year-to- year changes in atmospheric conditions. Therefore, the long-term trend in ambient ozone levels is a more accurate indicator of whether a region is experiencing overall ozone reduction. (*Ibid.)* ~~As shown in Air Quality Figure 2, the long-term trend shows that Contra Costa County has made significant progress toward attainment of the 1-hour national standard. BAAQMD is developing strategies to bring the air basin into attainment.~~ As shown in Air Quality Figure 2 air quality attainment for ozone was only achieved in 1992, 1993, and 1994 (prior to deregulation and the use of ERCs). Following this time period a constant level on non-attainment for the 1-hr ozone was maintained until the last recorded data in 1997 (when deregulation occurred). BAAQMD fails to provide current ozone attainment data and therefore fails to provide current evidence of attainment for ozone and therefore evidence that BAAQMD's strategies for attainment are working. (*Ibid.)*

AIR QUALITY Figure District Ozone Design Value 1970-1998

Each design value represents the fourth highest concentration recorded in the air basin during the previous three years. Design values are used to determine attainment status. (Source: Ex.54, p.5; BAAQMD, 1998.)

II. Carbon Monoxide

The highest CO concentration levels in Pittsburg are at least one-half lower than the most stringent California standards shown in Figure 1. (Ex.54, p.5.) The mobile sector (cars, trucks, buses) is the main source of CO. Peak CO concentrations occur

[14] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

during rush hour traffic in the morning and afternoons, and in the late evening due to wood burning in residential fireplaces. (*Id.*, p.6.) All counties in California, except for Los Angeles County, are in compliance with the stringent state requirements and are expected to remain in compliance into the future. (*Ibid.)*

III. Nitrogen Dioxide

NO2 levels in Pittsburg are one-half or less of the most stringent 1-hour ambient air quality standard shown in Figure 1. (Ex.54, p.6.) Approximately 90 percent of the NOx emitted from combustion sources is NO, while the balance is NO is oxidized in the atmosphere to NO2 but some level of photochemical activity (sunlight) is needed for this conversion. The highest levels of NO2 occur in the fall. In the summer, although the conversion rates of NO to NO2 are high, the heat and windy conditions disperse pollutants, preventing accumulation of NO2 to levels approaching the 1-hour ambient air quality standard. (*Ibid.)* ~~Ambient NO2 concentrations should not increase in the foreseeable future due to implementation of the control measures already included in the air quality management plans approved by BAAQMD.51 (Ex.54, p.17.)~~ BAAQMD fails to provide current NO_2 attainment data and therefore fails to provide current evidence of attainment for NO_2 and therefore fails to provide evidence that BAAQMD's strategies for attainment are working.

NO is oxidized in the atmosphere to NO2 but some level of photochemical activity (sunlight) is needed for this conversion. The highest levels of NO2 occur in the fall. In the summer, although the conversion rates of NO to NO2 are high, the heat and windy conditions disperse pollutants, preventing accumulation of NO2 to levels approaching the 1-hour ambient air quality standard. (*Ibid*.) ~~Ambient NO2 concentrations should not increase in the foreseeable future due to implementation of the control measures already included in the air quality management plans approved by BAAQMD.51 (Ex.54, p.17.)~~ BAAQMD fails to provide current NO_2 attainment data and therefore fails to provide current evidence that BAAQMD's strategies for attainment are working.

IV. Particulate Matter (PM)

Fine particulate matter (PM10) is caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources (usually carbon particles);organic, sulfate and nitrate aerosols formed in the air from emissions of gaseous pollutants; and natural aerosols. (Ex.43, p.5; Ex.2, /8.1.3.6.) PM 10 levels have been measured below national standards but above state standards at the Bethel Island monitoring station over the last ten years. (*Ibid*.) The highest PM10 concentrations occur during the winter, when the contribution of ground level releases to ambient PM concentrations is disparately high due to emissions from wood-burning fireplaces. State air agencies have begun installing monitors to measure particulates smaller than 2.5 microns (PM2.5), which are produced, *inter alia*, in wood smoke. (Ex.54, p.9.) The new particulate monitoring station in Antioch will measure both PM10 and PM2.5. (Condition **AQ-78.)** BAAQMD and the applicant failed to provide current air monitoring station data from the new particulate matter monitoring station. The monitoring stations results should have been made public, and made part of the record prior to issuance of the PMPD. The BAAQMD, applicant, and Commission decided in behalf of the public to with hold this information from the public's review and consideration in this matter. During the November 18, 1999 evidentiary hearing

the applicant failed to respond to the question of CAP-It, on the air monitoring station and it's data.

4.Potential Impacts –
Applicant used EPA-approved computer models to simulate the worst-case emission impacts, using meteorological data collected at the Pittsburg Power Plant station between 1994-1997. (Ex.2, / 8.1.4.1.2;Ex.54, p.14.) Intervenor CRE identified (Ex. 62)[15] during the November 18, 1999 hearing that the worst-case impact of ammonia slip in reaction with NOx was not identified in the FDOC or FSA. Assuming the worst case scenario of 100% reaction of ammonia slip with NOx in the mornings and evenings during periods of plant startup and shutdown, high relative humidity, and lower air temperatures the total potential for PM10 and PM2.5 is given by 357.33 tons NH3 times 80 tons NH4NO3 per ton mole divided by 17 tons NH3 per ton mole gives 1,681 tons of particulate matter per year. Intervenor CRE contends the failure of the FSA and FDOC to address this impact fails to mitigate potential significant impacts on public health and human mortality in proximity to the proposed project. BAAQMD fails to provide current attainment data and therefore fails to provide current evidence of attainment and therefore evidence that BAAQMD's strategies for attainment are working. Intervenor provided demographic data in graphical form to the Commission in Intervenor CRE's *Rebuttal to Senior Staff Counsel Dick Ratliff's Brief on the Delta Energy Center Project Alternatives* dated November 4, 1999. Known EPA Regulated Sites data was provided to Intervenor CRE by EPA Region IX Environmental Justice Division and is shown as figure 2

The EPA Environmental Appeals Board (EAB) discriminated against the low income children and the predominantly minority population of Pittsburg in its refusal to review and subsequent denial of the appeal of a PSD (PSD99-76) permit for the Delta Energy Center, without a federal mandated Environmental Justice Analysis that identified disparate impacts from particulate matter on the community of Pittsburg as a target Environmental Justice population due special considerations by the board as such.

Complainants cite corrections to the Delta Energy Center PMPD as follows:

d. Cumulative Impact Analysis
~~Although DEC s emissions do not result in a direct violation state or federal standards, the~~ The project's emissions are potentially cumulatively considerable under CEQA since they have the potential to contribute to an existing air quality problem as the region is nonattainment for state and federal ozone standards, and the state 24-hour average PM10 standard. (11/18 RT 48;Ex.54, p.17-18.) Intervenor CRE filed an appeal of BAAQMD's Final Determination of Compliance (FDOC) with the U.S. EPA Environmental Appeals Board (EAB) received on November 18, 1999, which contests BAAQMD's and CEC's findings of compliance.

As discussed above, these standards are infrequently violated, and the contribution of the project to regional emissions is relatively small. (See Ex.63, Table 4.5-17.) CRE notes for record that the air data is not current and non-site specific to this project.

[15] November 18, 1999, hearing testimony by Californians for Renewable Energy, Inc., Michael E, Boyd, Sunnyvale, Calif.

"Condition AQ-78 is included in his Decision to require DEC to coordinate with the PDEF and BAAQMD to purchase, install, and operate the new particulate monitoring station", and the Commission has failed to perform this condition of the PDEF, or provide data for public review of the particulate matter monitoring station it had up and running. Nevertheless, Staff performed a cumulative impacts analysis to examine the combined effects of the proposed project, PDEF, and the existing Contra Costa and Pittsburg power plants (recently purchased by Southern Energy from PG&E.) Known EPA Regulated Sites data was provided to Intervenor CRE by EPA Region IX Environmental Justice Division and is shown as figure 2 .The emissions of other existing industrial sources in the area, such as Dow Chemical and oil refineries were excluded ~~included~~ in the ~~ambient background air quality data used in the modeling~~. cumulative impacts analysis to examine combined effects (Ex.55.) It is the Intervenor CRE's contention that the failure to meet the requirements of CEQA for alternatives, and alternative siting resulted in a failure to identify and mitigate cumulative adverse air quality impacts and the associated risk to public health. Intervenor's position is that the FSA fails to discuss cumulative impacts associated with other projects and their association with alternative sites for the DEC. Intervenor CRE wishes to cite further case evidence the CEQA Case "Laurel Heights Improvement Association of San Francisco, Inc., v. The Regents of the University of California" issued by the Court of Appeals,

"First, it ***found the EIR did not adequately describe the "project" within the meaning of CEQA because the EIR did not discuss the future cumulative effects*** of the relocation of additional UCSF operations to the Laurel Heights site. Second, ***the Court of Appeal found inadequate the EIR's discussion of project alternatives.*** Third, ***the court found no substantial evidence to support the Regents' conclusion that all significant environmental effects will be mitigated.***"

The maximum cumulative NO2 impacts from all the sources are mostly due to the higher emissions from Pittsburg Power Plant, because it is an older, less efficient power plant. Mr. Franco testified for Staff that the maximum cumulative impact was almost exclusively due to the Southern plant but the PM maximum impacts for the other plants, including DEC, did not overlap. (11/18 RT 131-132.) The emissions from the Pittsburg Power Plant does not contribute substantially to the maximum expected cumulative impacts from the modeled power plants, however, because its plume does not interact with the plumes from the other modeled power plants. (Ex.54, p. 17.) During cross-examination by intervenor CRE of Mr. Franco at the Commission's air hearing of November 18, 1999 the witness identified Figure C-12 (Ex. 55) Non-zero PM10 concentrations as the impact zone of PM10 greater than $1e^{-7}$ g/m^3 for the intervenor. Intervenor CRE also identified this as the impact zone during the formation of PM10 in reaction between the ammonia slip and NOx emissions from known EPA regulated sites. (Fig.2, & Ex. 77b) CRE contends this also serves as the impact zone for purposes of environmental justice analysis.

5. Mitigation

The Air District has adopted an air quality management plan, which has an elaborate system of specific requirements, including BACT and offsets as a mitigation program to avoid or substantially lessen the cumulative problem. (11/18 RT 48 ET seq.) The program also includes retrofit requirements on existing power plants to continually ratchet down their current emissions. (11/18 RT 43-47.)

a. Best Available Control Technology (BACT)

BAAQMD requires the project to use BACT to control emissions. The project will burn only natural gas (except for the emergency diesel fuel pump). (Ex.43, p.6.) The exclusive use of natural gas will limit the formation of VOC, PM10, and Sox emissions. The combustion turbines will be equipped with low-NOx combustors to minimize NOx formation. (Ex.2, p.8.1-22.) After combustion, the turbine exhaust gases will be treated by Selective Catalytic Reduction (SCR) systems to further reduce NOx emissions. The FDOC requires Applicant to meet a limit of 2.5 ppm at a one-hour average, which is one of the most stringent requirements imposed on a power plant facility. (Ex. 58.) "Intervenor CRE would also include that the EPA doesn't agree with the applicant's use BACT limits for POC emissions from the gas turbines/HRSG duct burners proposed by the BAAQMD in their Preliminary Determination of Compliance for the Delta Energy Center. The EPA instead requires the use of the Federal LAER since the location of the Delta Energy Center is in a region of the state in non-attainment for Ozone. Intervenor cites the letter to the BAAQMD from the EPA page 1 where it states,

"EPA does not agree with the Best Available Control Technology (BACT) limit for POC from the gas turbines/HRSG burners proposed by the Bay Area Air Quality Management District (District) in the Preliminary Determination of Compliance (PDOC). As the District is aware, Rule 2 of Regulation 2 requires BACT to be at least as stringent as the federal Lowest Achievable Emission Rate (LAER). Neither the limit listed from District BACT Guideline 89.s.1 nor "expected" POC emission rate satisfy federal LAER."

Intervenor contends that air quality non-attainment is a regional problem associated with air pollution emissions in the San Francisco Bay Area, and the greater Sacramento Valley, and as such, cumulative air quality impacts should be evaluated based on impacts to the entire region, not limited to within a six-mile radius of the project

To control CO and VOC, BAAQMD s guidelines identify an oxidation (CO) catalyst at the typical technology used to minimize emissions. (Ex.54, p.19.) Applicant does not propose to use post-combustion oxidization catalyst because the project will meet BACT requirements without the catalyst. Applicant's witness, Mr. Rubenstein, testified that low hydrocarbon levels are met by current equipment with or without the catalyst. (11/18 RT 149.) Mr. Badr testified that, to his knowledge, the Commission has never licensed a project without requiring a CO catalyst. (*Id* .at p.152.) Although the FDOC finds that the project meets the CO and VOC standards without the catalyst, the advantage of a catalyst is lower hydrocarbon emissions. (*Id* .at 147-148.) The FDOC provides that DEC must install the CO catalyst if BACT levels are not achieved, and further requires that the HRSGs and other equipment be configured to allow the catalyst to more easily be installed if necessary. (Id. at 155.)

PM10 will be controlled by inlet air filtering for the combined cycle CTG and HRSG unit since natural gas contains only trace quantities of noncombustible material. (Ex.54, p.20.) In addition, the cooling tower includes 0.0006 percent drift eliminator efficiency to reduce PM10 emissions associated cooling tower operations. (*Ibid.*) Conditions **AQ-72-73** ensure that the drift eliminator meets this standard. CRE identifies that PM10 for the stacks is not regulated. Intervenor contends that the

major source of PM10 in the state of California is NOx in reaction with ammonia producing Ammonium Nitrate.

Emissions of S02 will be controlled by using natural gas, which typically contains only traces of sulfur. The resulting SO2 emission concentrations will be less than 1.0 ppm @15%O2. (Ex.54, p.20.)

b. Emission Reduction Credits/Offsets

Emission Reduction Credits (ERCs or offsets) are created when existing permitted emission sources cease or reduce their operations below permitted levels. (Ex.54, p.20.) The ERCs are reviewed, approved, and banked by the Air District. (*Ibid.*) The Air District s rules require offsets for PM10 and ozone emissions. (11/18 RT 38-39;Ex.58.) Intervenor CRE contends that the major source of PM10 in the state of California is NOx in reaction with ammonia producing Ammonium Nitrate not SO2 that the applicant has opted to provide as ERC offsets of NOx. Therefore the applicant's offset for PM10 fails to properly mitigate PM10 impacts from this project. Air Quality Table 3 in the PMPD page 119 amplifies this contention with a shown net increase in NOx and PM10 emission offset to below regulatory attainment levels utilizing SOx ERCs.

In response to concerns from Staff and local residents, Applicant has provided offsets from the local region. (11/18 RT 52-53.) In addition, Staff requested the Air District to require offsets for cooling tower PM10 emissions. (Ex.54, p.22; 11/18 RT 40.) Condition **AQ-77** requires DEC to provide these additional offsets from the Spreckels facility. **Air Quality** Table 3 lists the offsets proposed by Applicant. CRE contests the Commissions failure to identify the number of jobs lost during plant shutdowns, which generated the ERC sources listed in Air Quality Table 3 in the PMPD page 119 in the Commission's socioeconomic analysis.

c. Additional Mitigation

As described by Mr. Rubenstein, additional mitigation proposed by Applicant includes:

• The new air monitoring station in Antioch that will collect meteorological data as well as PM10 and PM2.5 data;

• Improvements to BAAQMD s Pittsburg monitoring station to provide air toxics measurement capabilities comparable to the Bethel Island station; and,

• Routine analysis of data collected at the Pittsburg, Bethel Island, and new Antioch stations, with reports prepared and distributed to interested parties every six months. (Ex.43, p.7.)

6. Intervenors

Intervenors CAP-IT, CHF, and CRE were concerned that PM10 data from the Bethel Island monitoring station were not representative of ambient levels in Pittsburg. Staff s testimony indicated that Bethel Island is appropriate because of its proximity to the project site and the fact that it lies in the east-west fluctuation that dominates the local/regional wind pattern. (11/18 RT 111-112.) Both Staff and Applicant believe that PM10 levels at Bethel Island may be higher than those in Pittsburg. (*Id* .at 137-138.)

CHF and CRE believe that the Air District s requirement for ammonia slip (10 ppm) is too high, citing a CARB guideline that suggests a lower limit (5 ppm). Staff explained that the CARB guideline is based on an assumed NOx level of 2ppm on a three-hour average while the project is limited to 2.5 ppm on a one- hour average. (11/18 RT 116-118.) The shorter averaging time may require greater short-term ammonia use and a resulting higher level of ammonia slip that would be appropriate to maintain the 2.5-ppm level for NOx. *(Ibid.)*

Finally, Staff concluded that the project would not expose sensitive receptors to substantial pollutant concentrations. Applicant, BAAQMD and CEC have failed to identify "sensitive receptors" and perform analysis specific to these sites. List of specific sensitive receptors: nearest residents approx. 3/4 mile. Within approx. 1.5 miles: El Pueblo HUD housing, Martin Luther King elem. used as a preschool and head start program for low income residents, county medical clinic, Los Medanos College, Bell-Clark Babe Ruth Baseball Fields Antioch, Turner School Ant., Kaiser Med. Cen. Ant. Within approx. 2 miles: Pittsburg High School, Adult ed., Stoneman elem., Central Jr. High, Pitts. Sr. Center, Los Medanos Sr. Center, Contra Costa fairgrounds, Prospects High Ant., Alt. Ed. Center & Antioch Adult School. Rec. Cen.& Senior Center, Ant. High School. Ant. Jr. high School. Fremont School., Live Oak HS, Kimball School., Marsh School., Mission School., Sutter School., Delta Memorial. Hosp. Within approx. 3 miles: Pitts. Alt. Ed., Parkside School. Los Medanos School. Heights School., Hillview Jr. School., Highland School., Foothill School. PM10 impacts, even using worst-case calculations were well below the Air District's PSD threshold for significance. Assuming optimal weather conditions in the reaction of NOx and ammonia slip. (Ex.55, p. C-12.) ~~Staff noted that these less-than-significant impacts would occur immediately adjacent to the plant and not in residential areas. (*Ibid.*) Applicant s witness, Mr. Rubenstein, testified on cross-examination by Mr. Hawkins of CHF that no one is going to be breathing the plume until it has been diluted to the point where concentrations are immeasurable. (11/18 RT 65:19-22.)~~

COMMISSION DISCUSSION

Intervenors CHF and CRE raised concerns primarily about the chemistry involved in modeling studies performed by Staff and Applicant. (Exs.62, 67, and 68.) They also challenged BAAQMD's comprehensive regulatory program and questioned whether the FDOC complied with EPA and CARB guidelines. ~~The evidence overwhelmingly supports a finding that the modeling assumptions were appropriate, that the regulatory agencies cooperated with each other, and that the FDOC incorporated the most stringent feasible standards applicable to power plants in the Air District. The Intervenors did not present any credible rebuttal to the Air District s conclusions. Accordingly, we adopt the Air District s recommendations and find that the project conforms to all applicable federal, state, and local laws related to air quality.~~ The evidence overwhelmingly supports a finding that modeling assumptions fail to meet BAAQMD requirements –

1. "Monitoring data must be representative of the ambient air quality of the proposed facility impact area."
2. "… Three years of data is considered to be representative of long-term ambient conditions".

Intervenors CRE and CHF provided substantial evidence for the record in rebuttal to the Air District's conclusion otherwise, (Ex. 55, 57, 62, & 77) that this project fails to

meet the requirements of applicable federal, state, and local laws related to air quality.

The Commission has typically required a CO catalyst in previous certification proceedings. In this case, the evidence indicates that the projects will likely meet BACT for CO and VOC without using a CO catalyst. Indeed, the FDOC does not require a CO catalyst; however, Condition AQ 30 provides that DEC will install such catalyst if project emissions exceed permitted levels. Staff did not take a clear position on whether to require the catalyst in the project design. Since the Applicant is willing to take the risk that the project could be shut down to install the catalyst, the Commission does not find it necessary to impose a requirement to install the catalyst at this time. ~~We believe that adequate safeguards are in place to ensure the project will operate at the permitted levels approved in the FDOC.~~

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. National ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) have been established for six air contaminants identified as criteria air pollutants, including sulfur dioxide (SO2), carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2), lead (Pb), and particulate matter less than 10 and 2.5 microns in diameter (PM10 and PM2.5) and their precursors: nitrogen oxides (NOx), volatile organic compounds (VOC), and SOx.
2. The Bay Area Air Quality Management District (BAAQMD or Air District) has jurisdiction over the area where the project site is located.
3. The Air District is a federal attainment area for NO2, PM10, Pb, and SO2.
4. The Air District is a non-attainment area for the federal O3 standard and the California standards for O3 and PM10. Air monitoring data is older than three years for the proposed project.
5. Operation of the project will result in emissions of NOx, CO, VOC, SO2 and particulate matter that will ~~would, if not mitigated,~~ contribute to violations of air quality standards.
6. Applicant relied on data from the air quality monitoring station on 10th Street in Pittsburg that measures ozone, CO, NO2, and SO2, that is over three years old.
7. Applicant relied on data from the particulate (PM10) monitoring station at Bethel Island, which is over three years old. The new monitoring station that was a condition of approval of the PDEF was shut down and moved to an unspecified location for unspecified reasons without data release.
8. The Bethel Island monitoring station records the highest PM10 concentrations in Contra Costa County.
9. The Bethel Island monitoring station is an appropriate and representative site to measure ambient PM10 concentrations for the Pittsburg-Antioch area. Monitoring data must be representative of the ambient air quality of the proposed facility impact area. One limitation of air monitoring is that it is spatially limited to specific monitoring locations
10. DEC will purchase, install, and operate a particulate monitoring station in the Pittsburg-Antioch area, in cooperation with the Pittsburg District Energy Facility (PDEF), and in consultation with BAAQMD. The new monitoring station that was a condition of approval of the PDEF was shut down and moved to an unspecified location for unspecified reasons without data release.

11. DEC will pay for upgrades to the Pittsburg monitoring station on 10th Street to include air toxics measurement capabilities.
12. BAAQMD released its Final Determination of Compliance (FDOC) for the DEC project on October 25, 1999. The conditions contained in the FDOC are incorporated into the Conditions of Certification below.
13. DEC will employ the best available control technology (BACT) to control project emissions of criteria pollutants. Should be Lowest Achievable Emission Rate (LAER) per CEC exhibit 57.
14. DEC s offset package provides more than enough emission reduction credits (ERCs) to satisfy BAAQMD's requirements. BAAQMD provides no evidence of compliance with the District's attainment plan, nor evidence that ERC trading is assisting in reaching attainment goals.
15. DEC s offset package includes ERCs from the local community and surrounding areas. Offsets for specific criteria pollutants are not provided.
16. Condition **AQ-27b** limits project NOx emissions to 2.5 parts per million (ppm) averaged for one hour.
17. Condition **AQ-30** requires DEC to install an oxidation catalyst to control project emissions of CO and VOC if emissions exceed permitted levels.
18. Operation of DEC in combination with PDEF and the two existing Southern power plants in the Pittsburg-Antioch area will not result in significant cumulative impacts to air quality. No cumulative analysis of DOW and other EPA regulated sites renders the cumulative analysis inadequate.
~~19. Implementation of the Conditions of Certification below ensures that DEC will not result in any significant adverse impacts to air quality.~~

The Commission, therefore, concludes that with implementation of the Conditions of Certification below, DEC will fail to conform with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portions of APPENDIX A of this Decision.

Complainants cite CARE's Comments on the Presiding Member's Proposed Decision from page 160 as follows:[16]
In California, the Air Toxics Hot Spots Information and Assessment Act requires the quantification of TACs from specified facilities, which are categorized according to their emissions levels and proximity to sensitive receptors. (Health & Safety Code, /44360 et seq.; Ex.63, p.4.5-11.) If potential health risks are found, the facilities are required to implement various risk reduction measures. (Health &Safety Code, / 44391 ET seq.) Applicant performed a health risk assessment that was reviewed by both Staff and BAAQMD. (Ex.20, p.23; Ex.58.) Applicant s risk assessment employed scientifically accepted methodology that is consistent with he requirements of the California Air Pollution Control Officers Association (CAPCOA) and with risk assessment methods developed by the U.S.EPA. (Ex.20, pp.24-25; 11/18 RT 217, 241.) ~~This procedure emphasizes a worst-case screening analysis in order o evaluate the highest level of potential impact by including all the following:~~
• assuming the highest expected levels of emissions from the source: excluding the stacks and ammonia slip in reaction with NOx.

[16] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

• assuming weather conditions that would result in the highest ambient concentrations;
• using the computer model that results in the highest depicted impacts; that utilized old data, which was not site specific
• using health-based standards designed to protect the most sensitive member of the population (i.e., children, the elderly, and those with respiratory illness); excluding sensitive receptors identified by CRE
• calculating the health risks (excluding risk of human mortality from particulate matter) to a person at the exact location where emissions are theoretically most concentrated (the maximally exposed individual or MEI); and
• assuming that this most sensitive person is exposed to that exact maximum concentration of TACs for 70 years, every day for 24 hours per day; based on TAC data not representative of existing conditions (Ex.20, p.24.) and testimony of witness Ms. Lagana at the Commissions 11/18/1999 hearing on public health.

Adversely impacted minority populations mandates a more

thorough analysis of impacts on sensitive receptors

2. Impacts

The location of sensitive receptors near the site is an important factor in considering potential public health impacts. Casa Medanos, the nearest residence, is approximately 2,200 feet south of he site. The nearest residences to the east and west are located, respectively, in Antioch at a distance of 5,000 feet and in Pittsburg about 6,500 feet away. (Ex.1, p.7; Ex.20, p.27.) Applicant also considered the locations of other sensitive receptors including schools, hospitals, emergency response facilities, long-term care facilities, and daycare centers within a three-mile radius of the site. (Ex.2, Figures 8.12.1a, 8.12.1b,and 8.12.1c.) Applicant, BAAQMD and CEC have failed to identify "sensitive receptors" and perform analysis specific to these sites. List of specific sensitive receptors: nearest residents approx. 3/4 mile. Within approx. 1.5 miles: El Pueblo HUD housing, Martin Luther King elem. used as a preschool and head start program for low income residents, county medical clinic, Los Medanos College, Bell-Clark Babe Ruth Baseball Fields Antioch, Turner School Ant., Kaiser Med. Cen. Ant. Within approx. 2 miles: Pittsburg High School, Adult ed., Stoneman elem., Central Jr. High, Pitts. Sr. Center, Los Medanos Sr. Center, Contra Costa fairgrounds, Prospects High Ant., Alt. Ed. Center & Antioch Adult School, Rec. Cen.& Senior Center, Ant. High School. Ant. Jr. high School. Fremont School., Live Oak HS, Kimball School., Marsh School., Mission School., Sutter School., Delta Memorial. Hosp. Within approx. 3 miles: Pitts. Alt. Ed., Parkside School. Los Medanos School. Heights School. Hillview Jr. School., Highland School., Foothill School.

Determine the actual or possible area of impact of the project.

During cross-examination by intervenor CRE of staff's witness Mr. Franco at the Commission's air hearing of November 18, 1999 the witness identified Figure C-12 (Ex. 55) Non-zero PM10 concentrations as the impact zone of PM10 greater than $1e^{-7}$ g/m^3 for the intervenor. Intervenor CRE also identified this as the impact zone during the formation of PM10 in reaction between the ammonia slip and NOx emissions from known EPA regulated sites. (Fig.2, & Ex. 77b) CRE contends this also serves as the impact zone for purposes of environmental justice analysis. The evidence of this from the November 18, 1999 hearing is as follows:

"MR. RATLIFF: There is a nice plate for Delta, if that's your question.

MR. BOYD: Oh, okay, in the back here. Okay, I've got it.

HEARING OFFICER GEFTER: Tell us what page this is.

MR. BOYD: I'll tell you in just one second. It's on C-12. Now, this area here is, this square that I cited on -- or the rectangle on 3.2, that's the same area that you're analyzing here for PM10 emissions, right?

MR. FRANCO: Yes, that's correct.

MR. BOYD: Okay, now in your opinion would you say that the PM10 emissions are covering 90 percent of the analysis area?

MR. FRANCO: I mean all depends on what concentrations you want to select.

MR. BOYD: Well, let's say --

MR. FRANCO: No, I mean what I'm trying to say is that the scale goes from impact of zero to impact of around 2.2 micrograms per cubic meter.

MR. BOYD: Okay.

MR. FRANCO: It's a very small -- I mean there is very small quantities. Depending on how many you include you would have -- it would seem that you have a larger and larger -- I mean the more it seems that you have more, a larger impact area.

MR. BOYD: Okay. Now, the reason I'm asking this question is I'm trying to establish what the impact area is of the emissions. Okay, --

HEARING OFFICER GEFTER: Is that your question?

MR. BOYD: And so what would you say, excluding those that are zero, right, that more than 90 percent of the area has some impact from
PM10?

MR. FRANCO: I mean the numeric - this is a numerical model, a computer model that gives you -- I mean infinite -- give you as an estimate in passing infinitesimal small numbers, you know what I mean?

MR. BOYD: No, I understand.

MR. FRANCO: So, the --

MR. BOYD: But we're on a scale of zero to 2.2 even --

MR. FRANCO: So what --

MR. BOYD: So what I'm asking you is everything except zero, about more than 90 percent of this analysis then is identified in this figure as being impacted at one level or another by PM10, correct?

MR. FRANCO: That's correct, but most of the impact area is I would say concentrations lower than 1 microgram per cubic meter."

Elevated Levels of Toxic Air Contaminants (TACs)

Demonstrates Disparate Impacts

6. Intervenors

Ms. Lagana for CAP-IT (Community Abatement of Pollution and Industrial Toxins) presented testimony about the October 19, 1999, Bucket Results that are discussed in Exhibit 71. CAP-IT s Bucket Brigade captured air samples of VOCs and sulfides at three locations in Pittsburg and Bay Point and sent the samples to the Performance Analytic Lab in Simi Valley for review by Communities for a Better Environment. (11/18 RT 267-268.)

The results showed somewhat elevated levels for specified TACs, but included a caveat that the results were preliminary because the data did not account for background levels detected at regulatory monitoring stations around the Bay Area for each chemical. (11/18/RT 273.) The report also noted that the sampling results are not levels shown in the standard literature to cause acute health problems although some were above expected background levels. (Ex. 71, p.2.) Upon cross-examination by Applicant, Ms Lagana explained there was also possible contamination from the Federal Express box in which the samples were placed for delivery. (*Id,* at p. 274.) The report, however, suggested that many chemicals present together might cause health impacts at lower levels than one chemical by itself. (Ex. 71, p. 2.)

Mr. Hawkins for Community Health First (CHF) is particularly concerned about the potential cumulative effects or total body burden caused by exposure to a mixture of TACs in the environment. (Ex. 67, p. 9.) Mr. Hawkins provided citations to, and excerpts from, several articles discussing potential health effects from specific TACs that will be emitted during project operations. (Ex. 68.) Mr. Hawkins indicated that he suffers from chemical poisoning and is highly susceptible to potential xenobiotic effects from air pollution. He opposes the project because, he believes, it will increase the chemical soup in the Pittsburg area. (CHF s 12/3 Brief.) Essentially, Mr. Hawkins does not agree with the methodologies used by the regulatory agencies to determine potential health effects from project emissions. (*Ibid*.)

CHF's representative, Mr. MacDonald, cross-examined Staff's witness regarding the dispersion of toxins and air pollution coming out of [DEC] and dropping onto Pittsburg. (11/18 RT 262.) Mr. Ringer reiterated that project emissions do not just go up and come straight down, rather, under worst-case weather conditions, which result in he highest impacts at any location, the maximum risk location is 5.5 miles south of the site. (11/18 RT 262:18-22.)

Worst Case Scenario failed to Examine Disparate Impact of Ammonia

Slip on Formation of Secondary Particulate Matter

CRE's representative, Mr. Boyd, cross examined the applicant's witness Mr. Rubenstein on whether or not the applicant's air analysis included consideration of the production of secondary particulate matter through its formation in reaction between NOx and ammonia slip for the project. The November 18, 1999 hearing transcript is as follows:

"BY MR. BOYD Question one is in your analysis did you examine the worst-case scenario that I've cited in my testimony of the 100 percent production of secondary particulate matter? Did you use that as your worst-case scenario, or did you use as a worst-case scenario the maximum PM10 emission that's identified in the FDOC?

MR. BOYD: On page 10 I think it was. Page 10, under the top 10 stationary sources for NOx. I talk about the worst-case scenario.

MR. RUBENSTEIN: The answer to your question is no, we did not, because we could not credibly hypothesize your worst case scenario of the 100 percent reaction of ammonia slip with NOx in mornings and evenings, during periods of plant start-up and shut-down, with high relative humidity and lower ambient air temperatures going on for a year. So, no, we did not address that."

The applicant's witness MR. Rubenstein provided uncontroverted testimony that the applicant, BAAQMD, and the CEC failed to identify the production of secondary particulate matter in their analysis.

Failure to Consider Elevated Levels of Toxic Air Contaminants (TACs)

Demonstrates Disparate Impacts

CRE's representative, Mr. Boyd, cross examined the applicant's witness Mr. Lowe on whether or not the applicant's air analysis included elevated TAC levels as measured by intervenor's witness Ms. Lagana. The November 18, 1999 hearing transcript is as follows:

"MR. BOYD: Did you consider the fact that -- in your analysis did you consider the fact that we have elevated levels of acetone, MTBE and toluene and carbonyl sulfide in the area? And there's a couple others that I didn't mention.

MR. LOWE: Yes, for those chemicals that are the same as what's in emissions from the facility. I noted that what's estimated to be worst-case concentration from the facility are thousands times lower than these concentrations presented in this table.

MR. BOYD: They are 1000 times lower?

MR. LOWE: Thousands of times lower."

The applicant's witness MR. Lowe provided uncontroverted testimony that the applicant, BAAQMD, and the CEC failed to identify elevated TAC levels as measured by intervenor's witness Ms. Lagana in their analysis.

Failure to Consider Estimate of Mortality Associated with

Particulate Matter Demonstrates Disparate Impacts

CRE's representative, Mr. Boyd, cross examined the applicant's witness Mr. Lowe on whether or not the applicant's air analysis included an estimate of mortality associated with particulate matter in this area. The November 18, 1999 hearing transcript is as follows:

"HEARING OFFICER GEFTER: Please state your question.

MR. BOYD: My question is in my testimony on page 15 under the metropolitan statistical area identified as San Francisco/Oakland, California, the estimated annual cardiopulmonary deaths attributed to particulate air pollution is identified in the range of 715 to 1748. Do you agree with this estimate of mortality associated with particulate matter in this area?

MR. LOWE: Mortality from exposure to particulate matter was considered in the development of the national ambient air quality standard.

MR. BOYD: I guess that's his answer."

The applicant's witness MR. Lowe failed to provide uncontroverted testimony that the applicant, BAAQMD, and the CEC had identify an estimate of mortality associated with particulate matter in this area, and therefore identified this projects cumulative PM10 impacts on public health.
From CARE's written testimony on the Delta Energy Center[17] Complainants cite the National Resources Defense Council for the effect of particulate matter on human health and mortality at the web site addendum[x] for San Francisco/Oakland region for a range of 752 to 1,748 annual deaths attributable to particulate matter.
http://www.nrdc.org/worldview/index.html

Failure to recognize disparate impacts on public health perpetrates discriminatory effects

Complainants cite Comments on Presiding Members Proposed Decision.[18]

COMMISSION DISCUSSION

~~The evidence has clearly established that potential health effects from project TAC emissions are *de minimus*. This conclusion is essentially uncontroverted by credible evidence. Moreover, the~~ The health risk assessment performed by Applicant was reviewed by BAAQMD s Toxics Evaluation Section and found to comply with current accepted practice as well as District rules and procedures. (Ex. 58, p. 22.) However, we will address the concerns of Intervenors Californians for Renewable Energy (CRE) and Community Health First (CHF) since they were very involved in the evidentiary hearing on this topic.

Intervenors CRE and CHF ask the Commission to disregard the health risk assessment methodology developed and approved by local, state, and federal regulatory agencies because they believe the addition of another power plant facility in Pittsburg will degrade the environment. Mr. Hawkins, in particular, has filed several passionate pleas, demanding that the Commission halt the proceedings because of his preexisting personal disability from exposure to toxic chemicals. Mr. Hawkins filed a demand notice to correct or cure violations of the Bagley-Keene Open Meeting Act on this matter on December 21 1999. According to Mr. Hawkins, his participation as an Intervenor in this proceeding could be viewed as David against Goliath, i.e., one citizen against the big power plant company and the governmental agencies involved in this case. Notwithstanding Mr. Hawkins views, the governmental entities that reviewed the data in his case are mandated to protect public health by using appropriate scientific protocol. ~~Employing that protocol establishes that DEC will not create or contribute to adverse public health impacts.~~

~~Although~~ Intervenors CRE and CHF challenged the data and the methodology employed by Applicant and Staff. ~~, they did not present any convincing evidence to show that TAC emissions from the DEC project would result in adverse health effects. The Intervenors focus on the identification and amounts of pollutants~~

[17] *Written Testimony and Identification of Witnesses for a November 18, 1999 Hearing on the Delta Energy Center (98-AFC-3) Socioeconomic, air quality, and public health* http://www.calfree.com/Delta_Test.html

[18] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

~~produced by the facility was not persuasive in view of the well-established scientific principle and expert testimony that dispersion patterns are more important than merely looking at the amounts of gross emissions. (Mr. Ringer's testimony at 11/18 RT 253.)~~

The Bucket Report~~, which~~ was presented by CRE via testimony of Ms. Lagana. ~~, did not provide useful evidence because it only measured TAC concentrations at a moment in time at specific locations not related to the locations of maximum impact for DEC. Moreover, the Report itself indicated that the samples could have been contaminated~~. This ~~flawed~~ data appears in stark contrast to the years of data collected at BAAQMD s monitoring stations. ~~Thus, we were not persuaded by the results of this report.~~

Disparate Impacts on Threatened and Endangered Species are not identified

Complainants cite CARE's Comments on the Presiding Member's Proposed Decision from page 199 as follows:
Mr. Hawkins, for Intervenor Community Health First, sought to establish that cooling tower drift of constituents from the effluent used as cooling water might, when intermixed with rainwater, adversely affect biological resources. (10/3 RT 23:12-41:15.) Applicant presented the testimony of Ms. Brown who stated that USFWS conducted its endangered species analysis based upon an independent review of the biological resources information provided by the Applicant. (10/ RT 34:20-41:15; 35:18-24.) According to Ms. Brown, the results were the following: Specifically in this case, based on all of the activities, including construction of the plant, that the project was not likely to adversely affect the salt marsh harvest mouse, the California Clapper Rail, the Delta smelt and its associated critical habitat, the Sacramento spilt tail, the Lange's Metalmark butterfly, the Antioch Dunes Evening Primrose and its associated habitat, and the Contra Costa Wallflower. (10/3 RT 36:12-23.) We determined that there was likely an adverse effect to the vernal pool fairy shrimp that the Applicant would be mitigating for at a ratio of three acres for every acre lost from the construction of the plant [and that mitigation was found to be acceptable]. (10/3 RT 36:23-37:6.)

Second, Mr. Hawkins attempted to establish the need for before and after water and soil sampling to determine the rainwater effects, intermixed with plant emissions, on biological resources. (10/3 RT 39:7-41:17; 52:19-56:19.) However, uncontroverted testimony established that such sampling is not a criteria element used by any regulatory agency to measure project impact on biological resources. (11/3 RT 57:1-19.) Exhibit 32 entered by intervenor CHF is the same as exhibit 77 a) EPA Region IX provided population density and threatened and endangered species identification geographical map of the Delta Energy Center proximity. CRE contests the failure of the biological resources analysis to address threatened and endangered species identified on said exhibit.

Complainant contends that this fails to properly identify threatened and endangered species that are adversely impacted by air emissions. Complainant cites for evidence

EPA Region IX's review of the sites of threatened and endangered species and drinking water supplies in proximity of the Delta Energy Center dated September 28,1999 figure 1.[19]

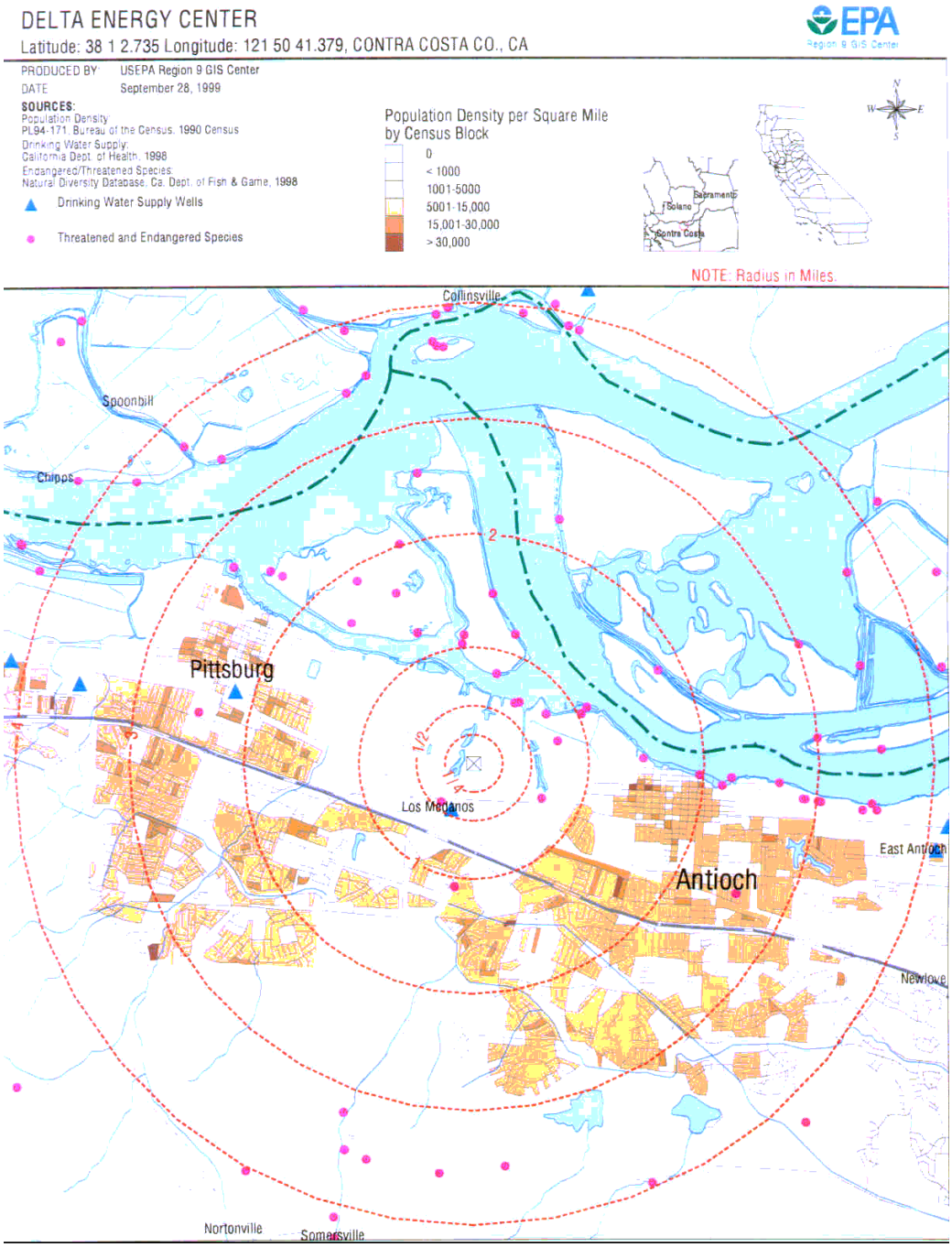

Figure 6 sites of threatened and endangered species and drinking water supplies in proximity of the Delta Energy Center

Analysis fails to comply with previous EPA Final Guidance For

[19] *Rebuttal to Senior Staff Counsel Dick Ratliff's Brief on the Delta Energy Center Project Alternatives* 11/04/1999 http://www.calfree.com/Rebuttal.html

Incorporating Environmental Justice Concerns

Complainants cite CARE's Comments on the Presiding Member's Proposed Decision from page 312 as follows:

3. Environmental Justice

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

- Title VI

Title VI itself prohibits intentional discrimination. The Supreme Court has ruled, however, that Title VI authorizes Federal agencies, including EPA, to adopt implementing regulations that prohibit discriminatory *effects*. Frequently, discrimination results from policies and practices that are neutral on their face but have the *effect* of discriminating.[2] Facially-neutral policies or practices that result in discriminatory effects violate EPA's Title VI regulations unless it is shown that they are justified and that there is no less discriminatory alternative.

In July 1992, EPA published a report, entitled Reducing Risk for All Communities, which noted that minorities and low-income populations experience higher than average exposures to selected air pollutants, hazardous waste facilities, and other forms of environmental pollution. The report also documented some of the initiatives taken by US EPA program and regional offices to address communities in need. In 1993, Administrator Carol M. Browner reaffirmed the Agency's commitment to environmental justice The U. S Environmental Protection Agency (EPA) defines environmental justice as:
The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people, including racial, ethnic, or economic group should bear a disparate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. (EPA, *Final Guidance for Incorporating Environmental Justice Concerns in EPA's Compliance Analyses*, April 1998.)
In 1994, president Clinton issued Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), which directed the U. S. Environmental Protection Agency (EPA) and all other federal agencies to develop environmental justice strategies that identify and address disparately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low income populations. 165 (Executive Order 12898, February 11, 1994.)

The EPA's Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses of April 1998 out lines the following steps:

- *Determine the actual or possible area of impact of the project. For this site it would include a worst-case scenario of all potential pollution from the project (All*

controls fail or possible burning of alternate fuel. Possible gas line rupture due to rail car derailment caused by deliveries or employees having to cross heavily used railroad tracks and being hit. All this, in combination with the many LPG, chlorine and ammunition trains.) Determine worst-case scenario for Delta water pollution. For this site it would include the facility being completely flooded and all stored chemicals entering the Delta. Such a disaster could have negative effects on the Delta and SF Bay. The project is situated in an area prone to flooding. Worst-case scenario on groundwater contamination related to chemicals stored on site leaching into groundwater. Worst-case scenario sabotage.

- *Definition of Minority: any population consisting of less than 50% Caucasian.*
- *Definition of low income: In the absence of any local definition of low income the National poverty line is to be used. The California Department of Education recognizes families that qualify for free and reduced lunch as low income.*
- *With the possible impact area established, the minority and low-income population within that area must be determined. Any population of 50% or more minority or low income qualifies, examples: the minority and low income population of a school district; the minority and low income population of a city; the minority and low income population of the downtown, uptown, westside, eastside; or by census block or tract. To keep it simple we have been defining minority populations by census blocks and low income by public schools and census blocks.*
- *An extensive EIR study of the existing, potential or foreseeable pollution that effects the EJ communities is then done. This includes the effects of lack of medical access, lead pipes and paint, disease patterns, planned new roads and industries. Whether there are subsistence farmers or gatherers of natural food supplies that might be affected by project. Do they depend on fishing to supplement their diet? Do they use ground water that might be contaminated by the project?*
- *The results are compared to a larger non-minority, non low-income community. In this case the designated community should be Marin County.*
- *At this point a determination can be made. If the study finds that the environmental quality within the EJ community is worse than the designated comparable community then the applicant cannot build unless they can show there is no other alternative (cost is not a factor) or that they will completely mitigate the effects on the EJ community.*
- *The applicant must conform to all other existing requirements.*

Determine the actual or possible area of impact of the project.

During cross-examination by intervenor CRE of staff's witness Mr. Franco at the Commission's air hearing of November 18, 1999 the witness identified Figure C-12 (Ex. 55) Non-zero PM10 concentrations as the impact zone of PM10 greater than $1e^{-7}$ g/m^3 for the intervenor. Intervenor CRE also identified this as the impact zone during the formation of PM10 in reaction between the ammonia slip and NOx emissions from known EPA regulated sites. (Fig.2, & Ex. 77b) CRE contends this also serves as the impact zone for purposes of environmental justice analysis. The evidence of this from the November 18, 1999 hearing is as follows:

"MR. RATLIFF: There is a nice plate for Delta, if that's your question.

MR. BOYD: Oh, okay, in the back here. Okay, I've got it.

HEARING OFFICER GEFTER: Tell us what page this is.

MR. BOYD: I'll tell you in just one second. It's on C-12. Now, this area here is, this square that I cited on -- or the rectangle on 3.2, that's the same area that you're analyzing here for PM10 emissions, right?

MR. FRANCO: Yes, that's correct.

MR. BOYD: Okay, now in your opinion would you say that the PM10 emissions are covering 90 percent of the analysis area?

MR. FRANCO: I mean all depends on what concentrations you want to select.

MR. BOYD: Well, let's say --

MR. FRANCO: No, I mean what I'm trying to say is that the scale goes from impact of zero to impact of around 2.2 micrograms per cubic meter.

MR. BOYD: Okay.

MR. FRANCO: It's a very small -- I mean there is very small quantities. Depending on how many you include you would have -- it would seem that you have a larger and larger -- I mean the more it seems that you have more, a larger impact area.

MR. BOYD: Okay. Now, the reason I'm asking this question is I'm trying to establish what the impact area is of the emissions. Okay, --

HEARING OFFICER GEFTER: Is that your question?

MR. BOYD: And so what would you say, excluding those that are zero, right, that more than 90 percent of the area has some impact from
PM10?

MR. FRANCO: I mean the numeric - this is a numerical model, a computer model that gives you -- I mean infinite -- give you as an estimate in passing infinitesimal small numbers, you know what I mean?

MR. BOYD: No, I understand.

MR. FRANCO: So, the --

MR. BOYD: But we're on a scale of zero to 2.2 even --

MR. FRANCO: So what --

MR. BOYD: So what I'm asking you is everything except zero, about more than 90 percent of this analysis then is identified

in this figure as being impacted at one level or another by PM10, correct?

MR. FRANCO: That's correct, but most of the impact area is I would say concentrations lower than 1 microgram per cubic meter."

Established the minority population within the impact area

The fact there is a protected population in the zone of impact of the project that is more than 50 percent minority was established through the uncontroverted testimony of staff's witness Ms. Stennick during cross examination by Intervenor Ms. Lagana as follows:

MS. LAGANA: Ms. Stennick, could you please tell me what is the population of the -- white population of the City of Pittsburg 1998, according to your submitted testimony in record?

MS. STENNICK: Now, you want to know the total population --

MS. LAGANA: No.

MS. STENNICK: -- of the -- the total -- white population, the non-minority population for the --

MS. LAGANA: The white population of the City of Pittsburg. I figure everything else is nonwhite, so, what is the white in 1998?

MS. STENNICK: It's 18,730.

MS. LAGANA: No, percentage, please.

MS. STENNICK: Oh, I'm sorry, you wanted percentage?

MS. LAGANA: Please.

MS. STENNICK: 36.1 percent.

MS. LAGANA: Bingo! Doug, do you think that's a minority or majority?

MR. HARRIS: I'd like to object on the basis that the analogy she's drawing is different than the analogy we were drawing before in terms of impact area. The impact area is not bound by the geopolitical boundaries in Contra Costa County.

MS. LAGANA: Says who?

MR. HARRIS: It's bounded -- says the --

HEARING OFFICER GEFTER: Off the record.

(Off the record.)

HEARING OFFICER GEFTER: Ms. Lagana may ask the question of the witness.

MS. LAGANA: 36.1 percent white population in the City of Pittsburg. Would you conclude that that's a minority or a majority?

MR. BUCHANAN: I'm going to have to admit to being distracted while Ms. Stennick answered her cross. If she could please repeat her statistics, please?

MS. STENNICK: I was asked what the percentage of the white population was for the City of Pittsburg in 1998, and that was 36.1 percent.

MR. HARRIS: This question is more appropriately addressed to Mr. Crisp.

MS. LAGANA: I'm sorry, Mr. Buchanan can't tell me if that's a majority number or minority number?

MR. HARRIS: Can we go off the record again?

HEARING OFFICER GEFTER: Yes, we're going to go off the record.

(Off the record.)

HEARING OFFICER GEFTER: Mr. Crisp.

MR. CRISP: And the question is?

MS. LAGANA: Given the statistic that Ms. Stennick provided, that the white population of the City of Pittsburg in 1998 in terms of percentage is 36.1, would you consider that number a majority or a minority?

HEARING OFFICER GEFTER: A minority of what? Of 100 percent?

MS. LAGANA: Of 100 percent.

HEARING OFFICER GEFTER: All right.

MR. CRISP: I would consider 36 percent
to be a minority of 100 percent.

Projects expose Pittsburg to Environmental impact that is high and adverse

There must be an environmental impact that is high and adverse

2. There must be an environmental impact that is high and adverse. **EPA Guidelines** April 1998, **5.0 METHODS AND TOOLS FOR IDENTIFYING AND ASSESSING DISPROPORTION-ATELY HIGH AND ADVERSE EFFECTS**:

"A fundamental step for incorporating environmental justice concerns into EPA NEPA compliance activities is identifying minority and/or low-income communities that may bear disparately high and adverse effects as a result of a proposed action. Once these minority and/or low-income communities are identified and located, the potential for disparately high and adverse effects to these communities must be assessed. It is important to understand where such communities are located and how the lives and livelihoods of members of these communities may be impacted by proposed and alternative actions. Minority communities and low-income communities are likely to be dependent upon their surrounding environment (*e.g.,* subsistence living), more susceptible to pollution and environmental degradation (*e.g.,* reduced access to health care), and are often less mobile or transient than other populations (*e.g.,* unable to relocate to avoid potential impacts). Each of these factors can contribute to minority and/or low-income communities bearing disparately high and adverse effects. Therefore, developing an understanding of where these communities are located and how they may be particularly impacted by government actions should be a fundamental aspect of the EA and EIS development process."

The federal guidance documents clearly intend this to apply to both health effect and environmental effects in the broader context. (CEQ Guidance, p.20. However the federal guidance indicates that high and adverse effects are the same a significant effects in a NEPA context. (CEQ Guidance, p.20; EPA Guidance, /3.2.2.) This is essentially the same as a significant adverse impact in a CEQA context, and is indicative of the relative intensity of the impact. (Ex.51, p.4.) Intervenor CRE provided written (Ex. 62) and oral evidence at the November 18, 1999 hearing that demonstrates that this project will violate air quality standards and contribute substantially to existing air quality violations for Ozone and PM10, and that this will result in cumulative considerable increases of the criteria pollutants NOx and PM10. CRE further identified exposure of sensitive receptor to substantial pollution concentrations in the form of PM10 and TACs. The applicant's witness MR. Rubenstein provided uncontroverted testimony that the applicant, BAAQMD, and the CEC failed to identify the production of secondary particulate matter in their analysis. The applicant's witness MR. Lowe provided uncontroverted testimony that the applicant, BAAQMD, and the CEC failed to identify elevated TAC levels as measured by intervenor's witness Ms. Lagana in their analysis. The applicant's witness MR. Lowe failed to provide uncontroverted testimony that the applicant, BAAQMD, and the CEC had identify an estimate of mortality associated with particulate matter in this area, and therefore identified this projects cumulative PM10 impacts on public health. Intervenor CRE cites this as evidence of impacts with the potential adverse impacts that are high and adverse within EJ guidelines.

3.The high and adverse impact must disparately affect minority/low income persons. In effect, the environmental effect ~~(or health hazard)~~ must ~~appreciably~~ exceed ~~the risk rate or impact on the general population or other appropriate~~ comparison group. (CEQ Guidance, p. 20.) The CEQ Guidance also states that a disparately high and adverse impact can occur from cumulative or multiple adverse exposures from environmental hazards, thus emphasizing the importance of cumulative impact analyses. (*Ibid.*)

Staff's witness, Ms. Stennick, testified that the affected population is not predominantly minority or low-income. (11/18 RT 313,316.) First, Staff defined the affected area as a five-mile radius from the project based on ~~the potential for cumulative air quality (including toxic air contaminants) impacts in the vicinity.~~ data that would best hide the fact that Pittsburg is an EJ community (*Id.*at pp.315, 338.) Using data from the 1990 census as not recommended by the Guidance, Staff found that the population living within this radius is less than 50 percent minority, and far less than 50 percent low-income. (Ex.20, pp.256-260, Exs.51, 61.)

Since the 1990 census data were challenged by ~~several Interveners~~ the applicant as outdated, Staff acquired more recent demographic projections but unclear data because it had data from outside the 5-mile radius ~~that confirmed its prior conclusions:(1) a clear majority of the population within the five mile radius (58 percent) are non-minority (Ex.61, Table 2);(2) the majority of all census tracts within (or partially within) the five mile radius are non-minority (*Ibid.*); (3) the low- income population in the affected area is far below 50 percent (Ex.20, Table 8); and (4) the minority/low-income population within the affected area is not meaningfully greater than that of the general population, including that of the geopolitical unit of Pittsburg (64 percent Hispanic/non-white).(Ex.61,Table3.) Ms. Lagana for Intervener CAP-IT implied during cross-examination of Staff's and Applicant's witnesses that the affected area contained within the five-mile radius was too small, and that Staff should have included the entire geopolitical unit of the City of Pittsburg. (11/18 RT 344 et seq.) Staff disagreed because focusing on the geopolitical unit, without regard to impact, would have artificially inflated the minority population, a practice inconsistent with the federal guidance.168 (Ex.61, p.2; EPA Guidance, /2.1.1,CEQ Guidance, p.19.) In comparing the overall population within the affected area to the population in the City of Pittsburg, however, Staff found that the demographic data do not reveal a significantly greater minority population within the city.169 (11/18 RT 315.)~~

Other questioning by Interveners Californians for Renewable Energy (CRE) and Community Health First (CHF) ~~suggested that Staff's affected area radius was too broad, and should have been more tightly drawn.~~ (11/18 RT 341-343.) In public comment, Mr. MacDonald for Intervener CHF postulated that the EPA Guidance requires identification of populations smaller than the census tract level, and that even three individuals could constitute a pocket that defines an environmental justice issue for the area that was shown to be affected in the air study for CEC. This study showed a greater area of affect than the 5-mile radius. Each and every pocket of minority and low-income communities within the affected area can be designated an EJ community. (11/18 RT 369-370.)

According to Applicant's witness, Mr. Crisp, the characteristics of a population in any particular geographic or political jurisdiction have little to do with whether there's an issue of environmental justice; the data must be relevant to the project's potential impact area. (*Id* .at p.348.) An inquiry of demographics at the sub-census tract level performed by Mr. Crisp uncovered no evidence of highly concentrated protected populations at that level. (11/18 RT 342-343.) Regarding the second element of the analysis (a high and adverse impact), both Staff and Applicant determined that the project does not constitute a high and adverse environmental impact or hazard, in either a direct or cumulative context. (11/18 RT 313 [Stennick],

293,297 [Crisp].) According to Staff and Applicant, the project does not present any significant environmental risk to *any* population.170 (*Ibid.*) The CEC and BAAQMD have consistently failed to recognize the significance of (CEC exhibit 77c) from EPA Region IX Environmental Justice Division and this is further evidence of the Commission's and BAAQMD's discriminatory act in failure to recognize this as significant evidence of a target minority population in the city of Pittsburg which meets the definition by federal Environmental Justice Guidelines as disparate adverse impact's on minority or low income individuals. Intervenor CRE presented these as evidence again in petitioner's (complainant's) 11/12/1999 CEC *Written Testimony and Identification of Witnesses for a November 18, 1999 Hearing on the Delta Energy Center (98-AFC-3) Socioeconomic, air quality, and public health*, and again in petitioner's (complainant's) testimony at it's November 18, 1999 Hearing on the Delta Energy Center (98-AFC-3) Socioeconomic, air quality, and public health.

As discussed in the **Air Quality** section, the project emits PM10 and ozone precursors that could potentially create significant cumulative impacts because the air district is not in attainment for the federal ozone or state 24 hour PM10 standards. ~~Staff performed a worst-case cumulative impacts analysis for PM10 and NO2, including the combined worst-case emissions of DEC, the PDEF project, and the existing operation of the two Southern power plants. (Ex.55.) The modeling results for DEC indicated that for both PM10 and NO2, he potential impacts were well below state and federal air quality standards. (Ex.55, pp. C- 10,C-11, C-12.)~~ Staff notes that ~~these *insignificant*~~ impacts were found to occur immediately adjacent to the DEC site and not in residential areas. (*Ibid.*) ~~Staff, therefore, concluded that the maximum PM10 concentrations from the four modeled facilities do not overlap and there are no significant cumulative impacts from criteria pollutants. (11/18 RT 132-140.)~~

~~Staff asserts this conclusion is supported by project compliance with BAAQMD's regulatory program requiring emissions offsets that, as a matter of law, will reduce the project's potential contribution to cumulative effects to levels of insignificance under CEQA.171 (Staff 12/3 Brief on Socioeconomic et al.) Regarding public health (i.e., emissions of toxic air contaminants, or TACs) standard risk assessments were performed by Applicant, Staff, and BAAQMD.The calculations indicated that the potential risk for cancer or other health effects would be *de minimis*, not cumulatively considerable, and will not contribute a significant cumulative impact. (See **Public Health** section of this Decision.) Regarding the third element of the environmental justice analysis (whether project effects fall disparately on a minority/low income population), Staff and Applicant determined there is no disparate impact on minority/low- income populations.172 (11/18 RT 313 [Stennick]; 139 [Crisp].) According to Applicant, since the minority/low-income population in the affected area is less than 50 percent and the project will not result in adverse impacts to public health or the environment; there are no disparate impacts to evaluate. (Ex.51, p.10.)~~

Intent to discriminate by CEC, BAAQMD, and applicant shows in inadequacy of CEC EJ analysis

Intervenor CRE submits the following document in its entirety as a rebuttal to CEC Staff's, Applicant's and BAAQMD's Environmental Justice testimony: **U.S. Environmental Protection Agency's Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses**, April 1998. If not already part of the record it is admissible under Commission's regulations (Cal. Code of Regs. tit. 20, 1212.) "Hearings need not be conducted according to technical rules relating to evidence and witnesses." This code was quoted by applicant in a letter of Opposition to Intervener Joe Hawkins' Petition for Disqualification of Testimony From DEC.

In addition, note the following Rebuttal to: **SUPPLEMENTAL ENVIRONMENTAL JUSTICE DATA AND ANALYSIS Report for the Delta Energy Center Power Plant Project (98-AFC-3) dated Nov 3, 1999.** Testimony of Amanda Stennick.

• Testimony of Amanda Stennick: page 1, paragraph 2, basically states staff chose 5-mile radius to determine presence of minorities. In Stennick's own supplemental testimony (page 2 paragraph 1 line 6) she quotes EPA's Guidance to define the term affected area "as that area which the proposed project will or *may* (my emphasis) have an effect on." Testimony of Guido Franco A Modeling Assessment of Cumulative Air Quality Impacts of the Pittsburg District Energy Facility and Other Incremental Sources dated May 3, 1999 (sponsored by Staff, EXHIBIT 55). Mr. Guido Franco confirms there is no difference in air modeling between 98-AFC-1 and 98-AFC-3. He re-submitted the air study for 98-AFC-1 for the air study of 98-AFC-3. Since the affected area is determined by this modeling how does staff explain affected area for 98-AFC-1 as 1.5 miles and the affected area of 98-AFC-3 as 5 miles? The modeling maps show Bay Point, Pittsburg, Antioch and Oakley as the most affected area. Reference pages 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 5-10 of A Modeling Assessment of Cumulative Air Quality Impacts of the Pittsburg District Energy Facility and Other Incremental Sources, May 3, 1999 (prepared for California Energy Commission, Final Written Testimony, Docket #98-AFC- I, Contract Number 700-98-006) by Joseph S. Scire, Certified Consulting Meteorologist.

Testimony of Amanda Stennick continues on page 2, paragraph 1, and line 3: "A minority population exists if the minority population percentage of the affected area is fifty percent or greater than the affected area's general population. The Guidance does not define the term "affected area", however it states that the analyst should interpret the term "as that area which the proposed project will or may have an effect on."" This statement is taken completely out of context and does not imply that the study is merely based on total minorities to non-minorities but on pockets of minorities and low-income that is made up of more than 50% with in the affected area. EPA's Compliance Guidance April 1998, **1.2 Principles/Philosophy of this Guidance**, paragraph 4, page 7. **"**The sensitivity to environmental justice concerns should sharpen the focus of the analysis. While the analytical tools to be used are similar, the analysis should focus both on the overall affected area population and on smaller areas and/or communities within the affected area". Paragraph 7, page 7 of EPA's Guidance: "Environmental justice concerns may lead to more focused analyses, identifying significant effects that may otherwise have been diluted by examination of a larger population or area. Environmental justice concerns should always trigger the serious evaluation of alternatives as well as mitigation options."

2.1.1 Minority and Minority Population, paragraph 2, page 11 of EPA's Guidance. **"**The fact that census data can only be disaggregated to certain prescribed levels (*e.g.*, census tracts, census blocks) suggests that pockets of minority or low-income communities, including those that may be experiencing disparately high and adverse effects, may be missed in a traditional census tract-based analysis (my emphasis). Additional caution is called for in using census data due to the possibility of distortion of population breakdowns, particularly in areas of dense Hispanic or Native American populations. In addition to identifying the proportion of the population of individual census tracts that are composed of minority individuals, analysts should attempt to identify whether high concentration "pockets" of minority populations are evidenced in specific geographic areas." Paragraph 4, page 11 of EPA's Guidance. **"**A factor that should be considered in assessing the presence of a minority community is that a minority group comprising a relatively small percentage of the total population surrounding the project may experience a disparately high and adverse effect. This can result due to the group's use of, or dependence on, potentially affected natural resources, or due to the group's daily or cumulative exposure to environmental pollutants as a result of their close proximity to the source. The data may show that a distinct minority population may be below the thresholds defined in the IWG key terms guidance on minority population. However, as a result of particular cultural practices, that population may experience disparately high and adverse effects. For example, the construction of a new treatment plant that will discharge to a river or stream used by subsistence anglers may affect that portion of the total population. Also, potential effects to on- or off-reservation tribal resources (e.g., treaty-protected resources, cultural resources and/or sacred sites) may disparately affect the local Native American community and implicate the federal trust responsibility to tribes." Even if information is broken down by census tract it is clear there are at least submitted by CH2Mhill, Nov 8, 1999.
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• Testimony for Calpine/Bechtel POLICY AND REGULATORY CONTEXT, Page 2, paragraph 2: "The Federal initiative is based primarily on Title VI of the Civil Rights Act of 1964. California has no equivalent of Title VI and, consequently, has developed no statewide environmental justice policy. While the California Environmental Quality Act (CEQA) requires a review of environmental impacts, there is no requirement to further determine the extent to which those impacts are distributed on minority or low-income segments of the affected population. For this reason, although the CEC must comply with the non-discrimination provisions of the Civil Rights Act, there is no requirement for a state agency or commission to conduct an Environmental Justice analysis." Rebuttal: Staff Report for 98-AFC-3, page 277, paragraph 3 SOCIOECONOMIC RESOURCES Amanda Stennick, ENVIRON-MENTAL JUSTICE: "President Clinton's Executive Order 12898, 'Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations' was signed on February 11, 1994. The order required the US Environmental Protection Agency (USEPA) and all other federal agencies to develop environmental justice strategies. The USEPA subsequently issued Guidelines that require all federal agencies and state agencies receiving federal funds (my emphasis) to develop strategies to address this problem. The agencies are required to identify and address

disparately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations."

• Testimony for Calpine/Bechtel, ENVIRONMENTAL JUSTICE page 2, paragraph 4: "Notwithstanding the requirement of BAAQMD to comply with Title VI and with EPA's implementing regulations, there is no requirement to address Executive Order 12898, Environmental Justice. The executive Order applies to federal only." Rebuttal: Staff Report for 98-AFC-3, page 277, SOCIOECONOMIC RESOURCES, Amanda Stennick, ENVIRONMENTAL JUSTICE: "President Clinton's Executive Order 12898, 'Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations' was signed on February 11, 1994. The order required the US Environmental Protection Agency (USEPA) and all other federal agencies to develop environmental justice strategies. The USEPA subsequently issued Guidelines that require all federal agencies and state agencies receiving federal funds, to develop strategies to address this problem. The agencies are required to identify and address disparately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations."

• Testimony for Calpine/Bechtel, **ENVIRONMENTAL JUSTICE,** page 3, paragraph 5: 1. There must be a minority or low-income population in the impact zone Presidential Executive Order 12898 refers to populations of low-income and minority people. It is important to differentiate a population from a community, neighborhood, or other small geographic area. Focusing solely on neighborhoods, for example, would ignore impacts on members of a low-income population that do not live in a neighborhood that would be classified as "low-income." While some agencies' guidance, and many EISs, uses the terms *population, community, and neighborhood* interchangeably, the only term used in the Presidential Executive Order is population. As a result, its applicability encompasses individuals who may be geographically dispersed. In determining whether an impact falls disparately on minority or low-income populations, this testimony also considers the entire low-income and minority population in the affected area so as not to exclude those who do not live in a geographic area that might be classified as "minority" or "low-income." Rebuttal: **EPA Guidance** April 1998, **1.2 Principles/Philosophy of this Guidance,** paragraph 4, page 7, "The sensitivity to environmental justice concerns should sharpen the focus of the analysis. While the analytical tools to be used are similar, the analysis should focus both on the overall affected area and population and on smaller areas and/or communities within the affected area." Paragraph 7, page 7, "Environmental justice concerns may lead to more focused analyses, identifying significant effects that may otherwise have been diluted by examination of a larger population or area. Environmental justice concerns should always trigger the serious evaluation of alternatives as well as mitigation options." **2.1.1 Minority and Minority Population** paragraph 2, page 11, "The fact that census data can only be disaggregated to certain prescribed levels *(e.g.,* census tracts, census blocks) suggests that pockets of minority or low-income communities, including those that

may be experiencing disparately high and adverse effects, may be missed in a traditional census tract-based analysis. Additional caution is called for in using census data due to the possibility of distortion of population breakdowns, particularly in areas of dense Hispanic or Native American populations. In addition to identifying the proportion of the population of individual census tracts that are composed of minority individuals, analysts should attempt to identify whether high concentration "pockets" of minority populations are evidenced in specific geographic areas." Paragraph 4, page 11, "A factor that should be considered in assessing the presence of a minority community is that a minority group comprising a relatively small percentage of the total population surrounding the project may experience a disparately high and adverse effect. This can result due to the group's use of, or dependence on, potentially affected natural resources, or due to the group's daily or cumulative exposure to environmental pollutants as a result of their close proximity to the source. The data may show that a distinct minority population may be below the thresholds defined in the IWG key terms guidance on minority population. However, as a result of particular cultural practices, that population may experience disparately high and adverse effects. For example, the construction of a new treatment plant that will discharge to a river or stream used by subsistence anglers may affect that portion of the total population. Also, potential effects to on- or off-reservation tribal resources (e.g., treaty-protected resources, cultural resources and/or sacred sites) may disparately affect the local Native American community and implicate the federal trust responsibility to tribes." Page 38, last paragraph, **"**Minority and/or low-income communities are often concentrated in small geographical areas within the larger geographically and/or economically defined population center targeted for study. Minority communities and low-income communities may comprise a very small percentage of the total population and/or geographical area."

• Testimony for Calpine/Bechtel, page 4, paragraph 2, "2. A high and adverse impact must exist. In accordance with the spirit of the Executive Order and its implementation through the National Environmental Policy Act (the federal equivalent of CEQA), a high and adverse impact is considered in this testimony to generally be synonymous with *significant* adverse human health or environmental effects. The CEQ (1997) Guidance indicates that, when determining whether effects are disparately high and adverse, agencies are to consider whether the risks or rates of impact "are significant (as employed by NEPA) or above generally accepted norms." Under NEPA and CEQA the term "significant" has special meaning, considering both the context in which the impact would occur and the relative intensity of the impact." Rebuttal: **EPA Guidelines** April 1998, **5.0 METHODS AND TOOLS FOR IDENTIFYING AND ASSESSING DISPARATELY HIGH AND ADVERSE EFFECTS**: "A fundamental step for incorporating environmental justice concerns into EPA NEPA compliance activities is identifying minority and/or low-income communities that may bear disparately high and adverse effects as a result of a proposed action. Once these minority and/or low-income communities are identified and located, the potential for disparately high and adverse effects to these communities must be assessed. It is important to understand where such communities are located and how the lives and livelihoods of members of these communities may be impacted by proposed and alternative actions. Minority communities and low-income communities are likely to be dependent upon their surrounding environment (*e.g.,* subsistence living), more susceptible to pollution and environmental

degradation (*e.g.,* reduced access to health care), and are often less mobile or transient than other populations (*e.g.,* unable to relocate to avoid potential impacts). Each of these factors can contribute to minority and/or low-income communities bearing disparately high and adverse effects. Therefore, developing an understanding of where these communities are located and how they may be particularly impacted by government actions should be a fundamental aspect of the EA and EIS development process."

• Testimony for Calpine/Bechtel, page 7, last paragraph **Sources of Demographic Data**: "First, school enrollment data for the 1998-99 school year were collected for the Pittsburg and Antioch Unified School Districts. The school enrollment data cannot be used. To begin, these limited school data sets are not usable for the environmental justice analysis by themselves because they encompass only a fraction of the total population (i.e., school-age children who attend public schools). Further, public school enrollment data cannot be considered a statistical sample of the total, since they are neither random nor representative, and encompass only about one-third of the total population. Public school data reveal nothing about families and households without children or those with children in private schools. And they reveal nothing about the low-income populations (since eligibility for the free or reduced-price lunch program is based on incomes higher than poverty, and not all eligible students participate in the program). Finally, they are compiled at such a high level of aggregation (i.e., by school) that they cannot be used to indicate demographic characteristics of the DEC impact zone." Rebuttal: The problem of childhood hunger is not simply a moral issue. Scientific evidence suggests that children who are hungry are less likely to become productive citizens. A significant body of medical data provides compelling evidence that hungry children, even those who experience only mild malnutrition during the critical stages of their development, may suffer negative life-altering consequences. Children who are denied an adequate diet may suffer abnormal brain, cognitive, and psychological development, which, if not corrected, can be irreparable. Hungry children have a harder time learning in school; they have shorter attention spans, and suffer more absences due to illness. A child who is unequipped to learn because of hunger and poverty is more likely to be poor as an adult. Over 8 million children live in working poor families. Free and reduced lunch programs are not a gift of public funds but are based on the ability of families to properly feed their children. It is more than appropriate to use these program guidelines in determining low-income families. **EPA Guidelines** April 1998, **2.1.2 Low-Income Population,** page 12, paragraph 1, line 4: "In conjunction with census data, the EPA NEPA *analyst should also consider state and regional low-income and poverty definitions as appropriate.* In identifying low-income populations, agencies may consider as a community a group of individuals living in geographic proximity to one another or set of individuals (such as migrant workers or Native Americans) where either type of group experiences common conditions of environmental exposure."

• Testimony for Calpine/Bechtel, page 6, last paragraph line 3 **"**As set forth immediately above, the California Energy Commission and Calpine/ Bechtel have satisfied the federal requirements related to environmental justice by performing the analysis using the best available data (my emphasis), the 1990 Census data. Page 10, last paragraph, "Further, for this testimony, population information was obtained from a variety of sources. Data were used from the smallest level of aggregation

available in order to detect any pockets of minority or low-income population that might be obscured by averaging over large areas." Rebuttal: **SUPPLEMENTAL ENVIRONMENT JUSTICE DATA AND ANALYSIS** (Docketed Nov.03, 1999) pages 3, 4, 5, maps and tables showing increase in minority population; **EPA Minority and Low-Income Maps** by census block 1990 census. EPA Minority and low-income maps clearly refute Calpine/Bechtel's claims that they used "smallest level of aggregation available". Calpine/Bechtel acknowledges that Census block information is available but then discounts its importance with a statement that we believe can only be interpreted at best, as a lack of comprehension of EPA guidelines. Page 8, paragraph 2, line 6 of applicant's testimony: "However, they are only available at the Census block group level. This level of aggregation in the Pittsburg-Antioch area homogenizes results over very large areas; revealing little about the specific impact zone around the DEC facility."

In addition, note the following rebuttal to: **Testimony for AFC of DEC**; CH2Mhill, September 1999; Richard C. Hunn, Jr., Senior Environmental Planner:

• Testimony of Mr. Hunn: page 8, Section 3, Summary A. line 10, "Sensitive Receptors, including schools, hospitals, emergency response facilities, long-term care facilities and day care facilities…are discussed in further detail as part of the analysis of hazardous materials handling." Page 18, line 1, "There are sensitive receptor facilities (such as schools, daycare facilities, convalescent centers, or hospitals) near the project site." It is clear that sensitive receptors are near the project but no EJ study was done to determine minorities and low-income population at this site. Page 19, paragraph 3, confirms that Calpine has an existing co-generation plant. If they already have a plant that is providing Dow Chemical with electricity and steam, why do they need another one? Since they don't need additional capacity for Dow, have they considered an alternative site for the plant as per EJ guidelines? Page 18, Section C, Operational Impacts, does not identify what materials will be coming in by rail. There is no information on the possibility of train derailment, crash, tanker car rupture or worst-case scenario. Example: A rail car or tanker truck carrying LPG or hydrochloric acid could be damaged and spill contents (hit by truck or train bringing in supplies to plant). Consider also that munitions cars from Concord Naval Weapons Station, which travel tracks adjacent to plants, could be involved.

In a letter from Dennis Jang of BAAQMD to Jim MacDonald dated Oct. 27, 1999. Mr. Jang confirms that 1. "Monitoring data must be representative of the ambient air quality of the proposed facility impact area." 2. "… Three years of data is considered to be representative of long-term ambient conditions," 3. "… There is not sufficient time for the District to collect significant monitoring data…" and 4. "…BAAQMD did not conduct a formal analysis of the potential environmental justice ramifications of the Delta Energy Center…" Clearly BAAQMD did none of the Environmental Justice studies required of it.

In reviewing the qualifications of CEC's staff, applicant's witnesses and BAAQMD's staff I can not find where they have shown the technical ability and knowledge to be certified by the state of California pursuant to part 5 of Division 26 of The Health and Safety Code.

Applicant, BAAQMD and CEC have failed to identify "sensitive receptors" and perform analysis specific to these sites. List of specific sensitive receptors: nearest residents approx. 3/4 mile. Within approx. 1.5 miles: El Pueblo HUD housing, Martin Luther King elem. used as a preschool and head start program for low income residents, county medical clinic, Los Medanos College, Bell-Clark Babe Ruth Baseball Fields Antioch, Turner School Ant., Kaiser Med. Cen. Ant. Within approx. 2 miles: Pittsburg High School, Adult ed., Stoneman elem., Central Jr. High, Pitts. Sr. Center, Los Medanos Sr. Center, Contra Costa fairgrounds, Prospects High Ant., Alt. Ed. Center & Ant. Adult School. Rec. Cen.& Senior Center, Ant. High School., Ant. Jr. high School., Fremont School., Live Oak HS, Kimball School., Marsh School., Mission School., Sutter School., Delta Memorial. Hosp. Within approx. 3 miles: Pitts. Alt. Ed., Parkside School. Los Medanos School., Heights School., Hillview Jr. School., Highland School., Foothill School.

Applicant, BAAQMD and CEC have failed to provide relevant ambient criteria and toxic statistics for "sensitive receptors". *Toxic Air Contaminant Control Program,* Bay Area Air Quality Management District [937 Ellis Street; SF, CA 94109]. Annual Report 1997, Volume I, Page 10, AIR TOXICS AMBIENT MONITORING NETWORK states "Monitoring is considered the definitive method for establishing ambient pollutant concentrations. One limitation of air monitoring is that it is spatially limited to specific monitoring locations." The Pittsburg monitor is west of the above named "sensitive receptors", the Concord monitor is so far Southwest (approx.10 miles) of Pittsburg that it is not even in the air stream coming from or going to Pittsburg, and the Bethel Island monitor is too far East (approx. 11.5 miles) and readings diluted by a secondary air mass from the North to be of any statistical use.

• Applicant, BAAQMD and CEC have failed to identify potential foreseeable sources of pollution. Truck and car traffic are on the rise with new home and mall construction, City of Pittsburg is planning to become a Port Authority, which will result in higher truck, and marine caused air pollution. With all of the power plants in Pittsburg, the city is planning on capitalizing on its Enterprise Zone by enticing big polluting industry with low electric bills. Air Liquide industrial gas manufacturing plant has already filed its Negative Declaration with Pittsburg. With deregulation of the electric industry, it is foreseeable that the two, already existing, gas-fired power plants and the 3 GWF petroleum coke-fired power plants will substantially increase their output and pollution. It is also foreseeable that a worse case scenario should include trucks carrying hazardous material may be hit when crossing nearby tracks and/or hazardous material or munitions rail car derailment. This type of analysis is crucial in determining Environmental Justice issues.22 minority and low-income populations within a 5-mile radius of the project (see EPA's Minority Distribution and Density maps). Even by using CEC's 1999 Census tract map a clear minority population is identified.

• Testimony of Amanda Stennick continues on page 2, paragraph 2. **"**The Guidance states that a demographic comparison to the next larger geographic area or political jurisdiction should also be presented to place population characteristics in context when determining whether impacts fall disparately on minority and low-income populations. Staff used the City of Pittsburg (the political jurisdiction within which the DEC would be constructed) as the appropriate unit of geographic analysis.

Comparing the affected area, which has a total minority population of 42%, to the City of Pittsburg, which has a total minority population of 63.9%, indicates that the affected area does not constitute a minority population that is disparately affected by the DEC. Rebuttal: 99% of Pittsburg is within the 5-mile radius with an approximate population of 55,000. On page 4, Testimony of Amanda Stennick, her submitted table for 1999 shows total population of affected area as 148,052. Pittsburg is within the 5-mile radius, with a smaller population. Methodology used by CEC's staff is questionable since the next larger political jurisdiction was not used.

CEC discriminated against African Americans persons in the

Evidentiary hearing process

The CEC discriminated against African Americans persons by deny the Rev. Bill Forrest and opportunity to act as an expert witness on Environmental Justice at its November 18, 1999 evidentiary hearing. CARE strongly objected for the record at the CEC November 18, 1999 evidentiary hearing against exclusion of Rev. Bill Forrest as a witness on Environmental Justice.

Mr. Bill Forrest presented comment indicating that he was concerned about potential disparate impact on minority communities from project-related activities. He wanted assurance that the project would not cause cancer or other ill effects. (11/18 RT 352 ET seq.) Intervenor CRE was further denied due process by the Hearing Officer in the denial of intervenor's law full written notice of witnesses for socio-economics in intervenor's written testimony of November 12, 1999. The Hearing Officer scheduled the hearing on socio-economics (environmental justice) for after midnight on November 18, 1999 despite being noticed as the first item on the Commission's version of the Internet agenda. The one witness of the intervenor remaining after midnight, Rev. Bill Forrest, was forced by the Hearing Officer to speak as a member of the public. Intervenor CRE additionally provided a copy of Rev. Forrest's resume in advance of the meeting. His experience as an investigator for the EEOC alone qualifies him as an expert on this matter. Intervenor CRE provides this transcript as evidentiary in the Hearing Officer's prejudice in favor of the applicant and against the petitioner (complainant) in this matter.

CEC discriminated against disabled persons in the evidentiary hearing process

The CEC discriminated against disabled persons in failing to provide appropriate accommodations for Joe Hawkins at its November 18, 1999 evidentiary hearing.

Intervenors CRE and CHF ask the Commission to disregard the health risk assessment methodology developed and approved by local, state, and federal regulatory agencies because they believe the addition of another power plant facility

in Pittsburg will degrade the environment. Mr. Hawkins, in particular, has filed several passionate pleas, demanding that the Commission halt the proceedings because of his preexisting personal disability from exposure to toxic chemicals. Mr. Hawkins filed a demand notice to correct or cure violations of the Bagley-Keene Open Meeting Act on this matter on December 21 1999.[20] According to Mr. Hawkins, his participation as an Intervenor in this proceeding could be viewed as David against Goliath, i.e., one citizen against the big power plant company and the governmental agencies involved in this case. Notwithstanding Mr. Hawkins views, the governmental entities that reviewed the data in his case are mandated to protect public health by using appropriate scientific protocol.

Disparate Impacts on Low Income Children Demonstrated through demographics, testimony, and action of the

Pittsburg Unified School District

Complainants cite Figure 5 Low-Income Children in Contra Costa County for evidence of the existence of target low-income children in impact area. Complainants cite evidence of PUSD resolution 99-32[21] (Figure 7). Complainants further cite testimony of trustee Jim MacDonald.

"As further evidence of this project's violation of Title VI in the Pittsburg community, petitioner (complainant) cites the resolution 99-32 (October 13, 1999) from the Trustees of the Pittsburg Unified School District requesting the EPA declare Pittsburg an Environmental Justice Area. Petitioner (complainant) contends that the proposed mitigation measures violate Title VI in that they unfairly impact low income and minority communities affected by the failure of the applicant to eliminate unhealthful air emissions in an area of EPA non-attainment" for Ozone.

[20] December 18 & (amended) 21, 1999, complaint filed under Bagley-Keene Act ("*Demand to Correct or Cure Violations of the Bagley-Keene Open Meeting Act*") by Joe Hawkins, Community Health First.
[21] *Rebuttal to Senior Staff Counsel Dick Ratliff's Brief on the Delta Energy Center Project Alternatives* 11/04/1999 http://www.calfree.com/Rebuttal.html

RESOLUTION 99-32

Requesting the EPA Declare Pittsburg an Environmental Justice Community

The TRUSTEES of the PITTSBURG UNIFIED SCHOOL DISTRICT are concerned over the ever-increasing pollution levels to which our students and staff are exposed. Recent medical evidence indicates that pollution has a much higher negative effect on the health and welfare of the community than previously suspected. EPA studies confirm that minority and low-income populations carry an unjust burden of health risks from pollution. These health effects put additional strain on population groups already disenfranchised, resulting in a poor learning environment at home and reduced learning capacity at school due to chronic sickness and absence from school.

Hospitalization due to asthma attacks is alarmingly high in Contra Costa County. Between January and June, 1999, 71 children were hospitalized at the San Pablo Emergency Room and 68 at the Pinole Emergency Room. Rate for hospitalization due to asthma in the 94520 zip code area in Concord (north side) is 214 per 100,000. In 1996, 656 Californians died of asthma. Possibly due to socio-economic and environmental reasons, African-American children under age 15 are 4.5 times more likely to have an asthma attack than Caucasians (taken from Contra Costa Times article on Regional Asthma Management and Prevention Initiative Report). Since Pittsburg Unified School District is over 60% minority and 67% free or reduced lunch, this puts a tremendous burden on the school district.

Because of the ever-increasing relocation of smokestack industries to the Pittsburg area, and the already existing environmental health risks, the TRUSTEES of the PITTSBURG UNIFIED SCHOOL DISTRICT, acting as duly elected representatives of the people, ask the EPA to declare Pittsburg an Environmental Justice Community and begin appropriate studies of the environmental hazards our students face.

YES:
NOES:
ABSENT:

Robert L. Superintendent
Superintendent/Secretary to the
PITTSBURG BOARD OF EDUCATION

Adopted: 4 - 0- 1

Figure 7 Resolution 99-32 of the Pittsburg Unified School District.

The Pittsburg Unified School District received no direct mitigation for disparate impacts from these projects. The Commission's PMPD on the 98-AFC-3 states for the school district,

"3. Potential Impacts

a. Housing and Schools

Applicant anticipates that most of the construction labor force will commute one hour or less each way to the job site and will not, therefore, adversely impact housing or schools. 160 (Ex. 50 at p. 3; 11/18 RT 284.) DEC will pay a one-time developer fee of $5, 890 to the Pittsburg Unified School District. 161 In addition, Staff estimated that $1.75 to $2.25 million from annual property taxes paid by DEC would go to school districts in Contra Costa County. 162 (*Ibid.*)"

The Pittsburg Unified School District is an Average Daily Attendance District (ADA) as opposed to a Basic Aid school District, which would receive funding from the property tax role for the County of Contra Costa. As such the District's funding

does not come from property taxes and therefore the District receives no net benefit from the projects. Additionally both projects are within a City of Pittsburg's redevelopment zone. Therefore any increase in the property tax increment will go to the city's redevelopment agency in any case. Complainants cite Pittsburg Unified School District Trustee Jim MacDonald from CARE's Comments on the Presiding Member's Proposed Decision. [22]

"5.Public Comment
Mr. MacDonald, who represented Intervenor CHF, presented testimony that he is a Trustee of the Pittsburg Unified School District and that he voted for Resolution 99-32,adopted by the School District on October 13,1999. (Ex.69.) This Resolution asks the EPA to declare Pittsburg an Environmental Justice Community. Mr. MacDonald also presented public comment indicating his view that BAAQMD's programs are unfair to minorities and low-income populations. (11/18 RT 367 ET seq.) As mentioned previously, Mr. MacDonald argued that the census tract data should have been disaggregated to smaller units to better identify the affected minority populations within the affected area as shown in air study. (*Id.* at p.369.)

Complainant Jim MacDonald spoke with Mr. Running Grass of EPA Region IX EJ division on possible mitigation for disparate impacts on the District. The issues discussed included: providing school districts authority to perform EJ analysis on these projects at the applicants expense, providing the District no cost electrical service, and provide the District electrical school buses. Complainants cite that these mitigations are real, benefit local air quality, and sustain continuous improvements in regional environmental conditions. Complainants suggest further District mitigation in the form of an applicant funded long-term health assessment on project impacts on the Pittsburg Unified School District's children.

The Remedy Sought

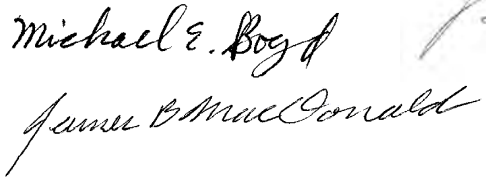
The remedy sought by CARE is as follows. 1) The California Energy Commission's CEC's certified environmental program be revoked by the California Resources Agency until the CEC completes a program EIR/EIS on such program which includes federal mandates for Environmental Justice Analysis. 2) EPA Region IX revoke BAAQMD's authority to issue PSD permits until such time as it completes a program EIR (CEQA) and EIS (NEPA) analysis on its permitting program which includes federal mandates for Environmental Justice Analysis in such projects. 3) The Commission is required to deny the Delta Energy Center (on a vote for reconsideration) on Environmental Justice grounds due to the disparate impact on the minority and low-income community of Pittsburg California. 4) That a CEQA NEPA and EJ compliant EIR /EIS be completed on any current or future energy projects within Contra Costa County.

[22] Comments on Presiding Member's Proposed Decision filed by Michael E. Boyd, Californians for Renewable Energy, Inc., January 26, 2000. (Adobe Acrobat PDF file, 52 pages, 578 kilobytes).

Conclusion

Low-income children and minority populations in the community of Pittsburg Contra Costa County California experience disparate impacts from criteria air pollutants in comparison to surrounding counties. These two projects will further inflict disparate impacts from criteria pollutants in the form of particulate matter, NOx, and Toxic Air Contaminants (TACs). Contra Costa County's low income and minority populations already suffer elevated levels of occurrences of asthma, and breast cancer, along with increased human mortality attributable to particulate matter exposure. The community of Pittsburg's low-income children and minority populations experience these effects disparately in comparison to non-minority non-low income populations within Contra Costa County and in the surrounding counties.

No mitigation for impacts from these projects will be received by the Pittsburg Unified School District to mitigate the effects that school children, predominantly low income and minority, will experience as a result of these projects. The remedy we seek is to prohibit the development of these projects without local mitigation and local emission offsets. We seek the recognition by the CEC, BAAQMD, and CARB of their responsibility to identify disparately impacted low income and minority populations like Pittsburg's, and provide for appropriate mitigation and alternatives pursuant to Federal law, and we seek the requirement that this be made part of their certified regulatory programs.



d 4-14-00 Joe Hawkins 4-14-00 Jim MacDonald-trustee 4-14-00
President-CARE Community Health First Pittsburg Unified School District

Addendum[i]

PITTSBURG UNIFIED SCHOOL DISTRICT

2000 RAILROAD AVENUE – PITTSBURG – CALIFORNIA 94565

Superintendent's Office
Robert Newell, Superintendent
Yvonne Jaramillo, Secretary

PHONE: (925) 473-4231 **FAX: (925) 473-4274**

To: Mike Boyd
From: Bob Newell, Secretary
to the Board of Education
Date: April 17, 2000
Re: Complaint with the Office of Civil Rights on
Environmental Justice Issues

At its April 12, 2000 Board meeting, the Pittsburg Board of Trustees unanimously voted to file a complaint on Environmental Justice Issues.

The complaint as voted was on the web at http://www.calfree.com/OCRDelta.html on Friday, April 7, 2000.

In the background information to the Board, reference was made to Resolution 99-32 (copy attached) requesting the EPA declare Pittsburg an Environmental Justice Community.

Robert L. Newell
Superintendent/Secretary to the
Pittsburg Board of Education

Addendum[ii]

Energy Commission Budget For Fiscal Year 1999-2000

$107.3 million Public Interest Renewable Resource Trust Funds

$66.9 million	Public Interest RD&D Programs Trust Fund
$33.4 million	Energy Resources Programs Account (ERPA) Funds
$8.6 million	Federal Trust Funds
$3.4 million	Reimbursement Funds
$10.2 million	Miscellaneous Funds
$229.8 million	TOTAL

The Commission's proposed 99/00 budget is $229.8 million. Included in this amount are $107.3 million in Public Interest Renewable funds, $66.9 million Public Interest RD & D funds, $33.4 million in ERPA funds, $8.6 million in federal funds, $3.4 million in reimbursement funds and $10.2 million in miscellaneous funds.
Authorized positions are 504.6. Total support funding is $47.3 million consisting of $30.3 million for personal services, $9.6 million for contracts and $7.4 million for other operating. Special item or pass through funding is $182.5 million.

The following summarizes Commission funding sources:
DERF Funds - proposed expenditure level is $1,002K. These are support funds for three staff and $700K for contracts. Language is included in the Budget Bill to allow for a two year encumbrance period to 6/30/01 and a liquidation period of 6/30/05.
ERPA Funds - proposed expenditure level is $33,378K. ERPA is the primary funding source for CEC staff, contract and operating expenses and also funds Export grants.
ETRDDA Funds - proposed expenditure level is $1,134K which includes $874K for the Small Business Loan Program and $260K for transportation research and development activities. Language is included in the Budget Bill to allow for a two year encumbrance period to 6/30/01 and a liquidation period to 6/30/03.
Federal Funds - proposed expenditure level is $8,659K. This includes $2,680K in staff support and contracts for the SEP program and $5,979K for anticipated federal awards for various Commission programs.
GRDA Funds - proposed expenditure level is $251K for 4.6 staff and $3,200K for local assistance. Language is included in the Budget Bill to allow for a two year encumbrance period to 6/30/01 and a liquidation period to 6/30/03.
Katz Funds - proposed expenditure level is $643K. These are support funds for 10 staff.
MVA Funds - proposed expenditure level is $114K. These are support funds for approximately two staff.
Public Interest Research, Development and Demonstration Programs Trust Fund - proposed expenditure level is $5,055K for approximately 24 staff, operating and baseline contracts and $61,800K for pass through program funds. Language is included in the Budget Bill to allow for a two year encumbrance period to 6/30/01 and a liquidation period to 6/30/04, and flexibility in the types of funding agreements and selection criteria.
Public Interest Renewable Resource Trust Fund - proposed expenditure level is $2,343K for approximately 10 staff, operating and baseline contracts. Additionally, another $104,955K are continuously appropriated pass through program funds available outside the Budget Bill.
PVEA Funds - proposed expenditure level is $1,403K for 22.5 staff.
1998-99 Fiscal Year Budget

Envirofacts Report on Grants Information Non-Construction Grants

BAY AREA AQMD (Grant #: 999922010)
939 ELLIS STREET
SAN FRANCISCO, CA 94109

Contents:

Project Information

CFDA Number:	66.606
CFDA Description:	SURVEYS, STUDIES, INVESTIGATIONS, SPECL
Project Description:	- CAA 103 - PM 2.5 MONITORING NETWORK
Project Start Date:	MAR-19-1998
Project End Date:	SEP-30-2000
Total Project Cost:	$1,259,782
Project Location (City, State, County):	VARIOUS, CA, 9 BAY AREA COUN
Project Manager:	PETER HESS
Project Phone:	

EPA Information

EPA Program:	INVESTIGATIONS, SURVEYS OR STUDIES CON- SIDERED NEITHER RESEARCH, DEMONSTRATION NOR TRAINING; AND COMPREHENSIVE ESTUAR- INE MGMT POLLUTION CONTROL & ABATEMENT
Statutory Authority:	CLEAN AIR ACT: SEC. 103
EPA Project Officer Name:	VALERIE COOPER
EPA Project Officer Phone:	4157441237
EPA Cumulative Award:	$561,380

Amendments

Amendment#	Award Date	Funds Awarded
999922011	MAR-04-1999	$316,030
999922012	DEC-02-1999	$55,586

This report was run on APR-15-2000.

Addendum [iv]

Envirofacts Report on Grants Information Non-Construction Grants

BAY AREA AQMD (Grant #: 009056000)
939 ELLIS STREET
SAN FRANCISCO, CA 94109

Contents:

Project Information

CFDA Number:	66.001
CFDA Description:	AIR POLLUTION CONTROL PROGRAM SUPPORT
Project Description:	- FY-2000 AIR POLLUTION CONTROL PROGRAM
Project Start Date:	OCT-01-1999
Project End Date:	SEP-30-2000
Total Project Cost:	$53,453,612
Project Location (City, State, County):	, CA, ALAMEDA CONTRA
Project Manager:	PETER HESS

Project Phone:

EPA Information

EPA Program:	AIR POLLUTION CONTROL PROGRAM SUPPORT
Statutory Authority:	CLEAN WATER ACT: SEC. 105
EPA Project Officer Name:	VALERIE COOPER
EPA Project Officer Phone:	4157441237
EPA Cumulative Award:	

Amendments

Amendment#	Award Date	Funds Awarded
009056001	FEB-09-2000	

This report was run on APR-15-2000.

Addendum[v]

Envirofacts Report on Grants Information Non-Construction Grants

CALIFORNIA AIR RESOURCES BOARD (Grant #: 826744010)
2020 L STREET
SACRAMENTO, CA 95812

Contents:

Project Information

CFDA Number:	66.606
CFDA Description:	SURVEYS, STUDIES, INVESTIGATIONS, SPECL

Project Description:	PROVIDE TRAINING AND ASSISTANCE TO THE CHINESE FOR THE DESIGN AND DEVELOPMENT OF AN AIR POLLUTION MONITORING NETWORK - To provide training and assistance to the Chinese in designing their sampling network in approximately 11 cities.
Project Start Date:	JUN-30-1998
Project End Date:	DEC-31-1999
Total Project Cost:	$125,000
Project Location (City, State, County):	SACRAMENTO, CA, SACRAMENTO
Project Manager:	OSLUND, BILL
Project Phone:	9164453745

EPA Information

EPA Program:	INVESTIGATIONS, SURVEYS OR STUDIES CON- SIDERED NEITHER RESEARCH, DEMONSTRATION NOR TRAINING; AND COMPREHENSIVE ESTUAR- INE MGMT POLLUTION CONTROL & ABATEMENT
Statutory Authority:	CLEAN AIR ACT: SEC. 103
EPA Project Officer Name:	BAILEY, MARIANNE (2650R)
EPA Project Officer Phone:	2025646402
EPA Cumulative Award:	$125,000

Amendments

Amendment#	Award Date	Funds Awarded
826744011	AUG-17-1999	

This report was run on APR-15-2000.

Envirofacts Report on Grants Information
Non-Construction Grants

CALIFORNIA AIR RESOURCES BOARD (Grant #: 827408010)
2020 L STREET
SACRAMENTO, CA 95812

Contents:

Project Information

CFDA Number:	66.607
CFDA Description:	TRAINING AND FELLOWSHIP GRANTS
Project Description:	SMALL GRANT - DEVELOPMENT OF A THREE DAY STANDARDIZED TRAINING PROGRAM FOR STATE & LOCAL GOVERNMENTS ON THE NEW SERVICE REVIEW & PREVENTION OF SIGNIFICANT DETERIORATION (PSD)- CARB WITH INPUT FROM LOCAL AIR POLUTION CONTROL DISTRICT STAFF AND EPA, PROPOSE TO MODIFY THE EXSISTING EPA NSR/PSD TRAINING COURSE TO ADDRESS THE NEEDS OF THE STATE AND LOCAL ENFORCEMENT PERSONNEL.
Project Start Date:	MAY-01-1999
Project End Date:	APR-30-2000
Total Project Cost:	$50,000
Project Location (City, State, County):	SACRAMENTO, CA, SACRAMENTO

Project Manager:	DEBBS, VALINDA
Project Phone:	9163226037

EPA Information

EPA Program:	TRAINING
Statutory Authority:	CLEAN AIR ACT: SEC. 103
EPA Project Officer Name:	HAAS, CRAIG (2242A)
EPA Project Officer Phone:	2025640053
EPA Cumulative Award:	$50,000

Amendments

No amendments were found in the database for this Recipient

This report was run on APR-15-2000.

Addendum[vii] **General Description of the Pittsburg District Energy Facility Project (98-AFC-1)**

On June 15, 1998, the Pittsburg District Energy Facility, Limited Liability Company (LLC), filed an Application for Certification (AFC) with the California Energy to construct and operate the Pittsburg District Energy Facility (PDEF). The PDEF will be providing process steam to USS-Posco Industries. Electrical energy produced from the proposed power plant will be sold to California's regional power pool and other electricity consumers. The PDEF electric generating plant and related facilities, such as the electric transmission line, natural gas pipeline and water lines are under the Energy Commission's jurisdiction. The power plant certification process examines engineering and environmental aspects of power plant proposals, and contains requirements similar to those contained in the California Environmental Quality Act (CEQA).

The PDEF is to be located on a 12-acre site on East 3rd Street, west of the intersection of East 3rd and Columbia in the City of Pittsburg, in eastern Contra Costa County. The site is on the northwest corner of property owned by USS-Posco Industries.

The applicant proposed a combined cycle combustion turbine generator (CTG) design with a nominal capacity of 500 megawatts (MW). The design consists of two trains of "F" class CTG machines with either one or two steam turbine generators. Natural gas is burned in the combustion turbine generators, which converts the thermal energy into mechanical energy required to drive the compressor and electric generator. The combustion turbine trains include exhaust stacks and step-up transformers, heat recovery steam generator (HRSG) units, steam turbine generator units and their transformers, and water treatment and cooling towers. A 115 kilovolt (kV) high voltage switchyard will be located on the west side of the project site. Reclaimed water for

turbine cooling will be supplied from the Delta Diablo Wastewater Treatment Facility located in the City of Antioch. Estimated cost of the project is between $200 & $300 million.

In support of the City of Pittsburg's effort to reroute existing marine terminal truck traffic as well as provide improved access to the project site, the PDEF project has sponsored and will construct a new Truck Bypass Road which will be approximately 0.75 mile long. It will connect East 14th Street, near the existing intersection of Columbia Street and East 14th, to Harbor Street, near the existing intersection of East Santa Fe Avenue and Harbor.

Nitrogen oxide (NOx) emissions from the combustion process will be reduced to 2.5 parts-per-million by volume dry (ppmvd), or less, at 15 percent oxygen by utilizing dry low NOx combustion technology and a selective catalytic reduction (SCR) system. The SCR system will use aqueous ammonia for the reduction process.

Linear electric facilities associated with the project include: a new 2.5 mile double circuit 115 kV overhead/underground electric transmission line to connect the project to Pacific Gas & Electric's (PG&E) existing Pittsburg Power Plant Switchyard; and a new 1.2 mile single circuit 115 kV line to connect the PDEF with the USS-Posco Industries plant. Sections of these new lines will parallel existing 115 kV lines.

Pipeline facilities associated with the project include: a potable water supply line approximately 500 feet long; a gas pipeline approximately 3.6 miles long; a sewer line approximately 500 feet long; and a reclaimed water line approximately 2 miles long. The entire pipeline facilities will be buried underground. The engineering and environmental details of the proposed project are contained in the AFC.

On June 12, 1998, the Pittsburg District Energy Facility, LLC, filed an application for certification for a 500-megawatt natural gas-fired cogeneration project to be located in the City of Pittsburg. The application was approved on August 17, 1999, and construction on the project began on September 20, 1999. On September 28, 1999, ownership of the Pittsburg Energy Facility, LLC was transferred to the Calpine Corporation.

On November 24, 1999, the California Energy Commission (Energy Commission) received a petition from the Calpine Corporation. The petition, submitted under section 1769 (a) of the California Energy Regulations, requested approval to modify the description and design of the Pittsburg District Energy Facility. Specifically, the Calpine Corporation sought approval to implement the following changes:

Modify the process make-up water supply to allow for the use of potable water from the City of Pittsburg for process make-up water. Reclaimed water from the Delta Diablo Sanitation District and raw water from the Contra Costa Water District will be primary and secondary back-up sources, respectively.

1. Add a second circuit to the 115 kV transmission line dedicated to USS-POSCO.

2. Modify the fuel gas pipeline route to tie into the Delta Energy Center's gas line at the Delta project site, and include Delta's gas line to PG&E's Line 400.

3. Provide back-up steam to DOW Chemical.

4. Change the name of the project from Pittsburg District Energy Facility to Los Medanos Energy Center

Modifications requested by Calpine/Bechtel were approved by the CEC at its business meeting of March 22, 2000 without a formal amendment of the PDEF AFC and further environmental review.

Addendum [viii] General Description of the Delta Energy Center Project (98-AFC-3)

On December 18, 1998, the joint partnership of Calpine Corporation and San Francisco-based Bechtel Enterprises Inc., an affiliate of Bechtel Group Inc., file an Application for Certification (AFC) seeking approval from the Energy Commission to construct and operate the Delta Energy Center. The project is an 880-megawatt (MW), natural gas-fired, combined cycle electric generation facility. The Delta Energy Center is proposed to be located on an undeveloped 20-acre parcel at the Dow Chemical Company facility located generally north and west of the Delta Diablo Sanitation District treatment facility.

A new 3.3-mile, 230 kilovolt (kV) electric transmission line is proposed This line will interconnect to the electric transmission system at the existing Pacific Gas and Electric Company substation near the Pittsburg Power Plant. The line will be above ground as it runs in front of the USS POSCO, then will transition to underground along 8th Street. A 0.8-mile underground 13.8 kV line will be built to supply electricity to Dow Chemical. A new, 5.3-mile natural gas pipeline will be placed in the existing Dow Chemical right-of-way along the Santa Fe Railroad and will connect to PG&E's Antioch natural gas terminal. Water for the cooling towers will be secondary-treated wastewater from the Delta Diablo Sanitation District, which will receive additional treatment on the project site to comply with the requirements of the Department of Health Services. A short water supply line will be constructed from Delta Diablo to the project. Water for steam production and domestic uses will be supplied by the Contra Costa Water District and transported in Dow's existing 20-inch pipeline. All plant discharges will be sent back to the Delta Diablo Sanitation District for disposal in its existing discharge pipe. Approximately 200,000lb/hr of saturated steam will be supplied to Dow Chemical in a 0.7- mile above ground insulated carbon steel pipeline. Condensate will be returned in an un-insulated pipe carried on the same structures.

Addendum [ix] Disparate Impacts Mandates More Thorough Alternatives Analysis

Under Project Alternatives starting at page 19 of the PMPD the Commission's description of intervenors positions requires several corrections as follows starting at page 27:

"CRE presented legal argument asserting that Staff's alternatives analysis violates CEQA because Staff focused too narrowly on Applicant s declared objectives and thereby eliminated other feasible alternatives that would more effectively prevent adverse environmental impacts. (CRE 11/2 Rebuttal Brief, p.2.) At the evidentiary hearing, CRE's representative, Michael Boyd, questioned the definition of feasibility used by Staff, claiming that Staff s apparent emphasis on economic feasibility was inappropriate. (10/5 RT 101-102,114-116.) CRE contends that the Commission erred in exempting Applicant from the Notice of Intention (NOI) process, 15 that CRE believes is equivalent to the CEQA scoping process. (CRE Rebuttal Brief.) By eliminating the NOI process, CRE asserts that the public was denied the opportunity to meaningfully participate in the project's environmental review. (*Ibid.)* CRE asserts that the Commission s siting process is not certified by the Secretary of the Resources Agency as required b Section 21080.5 of the Public Resources Code. CRE relies on the ~~arguments presented in the Petitioner (complainant) (complainant)'s Brief in the matter of *Brad Foster v. Energy Resources Conservation Development Commission*, CaseNo.S-081009, that has been summarily denied b the California Supreme Court~~ passage into California law of amendments to the Warren-Alquist Act SB110 which mandates review of the Commission's environmental program by the California Resources Agency. CRE also claims that Staff failed to consider environmental justice issues in the alternatives analysis because, CRE believes, harmful air emissions in the Pittsburg area unfairly impact low income and minority communities. (CRE Rebuttal Brief, p.9.) CRE argues that the mitigation measures recommended by Staff and BAAQMD do not comply with EPA requirements. (*Ibid.)*

COMMISSION DISCUSSION

Section 25540.6(b) of the Public Resources Code does not require an alternative site analysis for a cogeneration project at an existing industrial site. In this case, although the project does not meet the efficiency standards of Section 25134 to achieve cogeneration status under the Warren-Alquist Act, the evidence clearly establishes that DEC is conceived as a cogeneration plant since it will supply process steam and electricity to Dow. The Commission, therefore, finds a strong relationship between DEC and the existing industrial site as the result of the solicitation by Dow Chemical for this project. Accordingly, we believe that section 25540.6(b) is applicable to this case. Intervenor CRE formally objects to the failure of the CEC to identify renewable energy supplies, or propose, or consider any renewable energy project, the "environmentally preferred alternative" in the, "Delta Energy Center (98-AFC-3) Final Staff Assessment". Intervenor requested the CEC prepare and Environmental Impact Report on the proposed project in compliance with CEQA as the "environmentally preferred alternative" to this project is renewable

energy, which will provide near zero emission sustainable power generation in an area of regional non-attainment for ozone and PM10. The CEC's certified environmental program is under review by the California Resources Agency pursuant to SB110. Intervenor CRE believes that this analysis of alternatives fails to identify the "environmentally preferred alternative" as such, and therefore fails to comply with CEQA's requirements for alternatives and mitigation. As evidence of the legal basis for intervenor's position intervenor cites the CEQA Case "Citizens for Goleta Valley v. Board of Supervisors of Santa Barbara County," in which the Court of Appeals, "Held that: ***(2) failure of environmental impact report to consider alternative was improper***."

We have, nevertheless, reviewed the evidence on alternative sites and technologies to ensure that all potential concerns were considered. This examination is necessarily limited to those sites within approximately one-half mile of the DEC site because of the operating characteristics of the steam line. We view this technical limitation as critical in assessing alternative site feasibility. Intervenor CRE states that the "Delta Energy Center (98-AFC-3) Final Staff Assessment" failed to meet the requirements of CEQA to clearly identify the "Proposed Pittsburg District Energy Facility site" as an "environmentally preferred alternative" to the proposed DEC. CRE identifies that the Commission is aware of the Applicants proposed amendment to the PDEF AFC is pending and will if approved meet the objective requirements of the Commission and the Applicant as sited for this project.

The Commission is not persuaded by Intervenor CRE's argument that Staff focused on Applicant's economic interests rather than on environmental impacts in reviewing the feasibility of alternative technologies or alternative sites~~. Not only was no evidence presented to support this assertion, but the CEQA Guidelines instruct the lead agency to use the rule of reason in examining alternatives that achieve the project's basic objectives. [Cal. Code of Regs, tit.14,/15126.6(f).] We find that Staff complied with CEQA requirements and performed a balanced analysis that considered all relevant factors. Intervenor~~ Intervenor CRE believes that this analysis of alternative siting "environmentally preferred alternative sites" fails to identify alternative sites as such, and therefore fails to comply with CEQA's requirements for alternative siting and mitigation. As evidence of the legal basis for Intervenor CRE's position intervenor CRE cites the CEQA Case "Citizens for Goleta Valley v. Board of Supervisors of Santa Barbara County" in which the Court of Appeals, "Held that: ***(3) alternative of development on a different site was not adequately considered***." As such, the intervenor's position is that this projects environmental document therefore fails to meet the requirements for CEQA. Intervenor CRE's position is that this section fails to provide a

technically accurate analysis of the beneficial effects on air emission of the reduced project in comparison with the proposed project. Intervenor CRE would like to note that the statement, "this smaller project would be less likely to meet project objectives and offers no environmental benefits when compared to the proposed project", is technically incorrect in regards to environmental benefits. Further the compliance with the requirements for the applicant's "economic" objectives should not be cited unless this alternative can be shown to be economically unfeasible. As evidence of the legal basis for Intervenor CRE's position intervenor once again cites the CEQA Case "Citizens for Goleta Valley v. Board of Supervisors of Santa Barbara County" in which the Court of Appeals, "Held that: ***(1) alternative of a smaller project was not shown to be economically unfeasible***."

The evidentiary record indicates that the proposed alternative technologies do not meet project objectives and the proposed alternative sites are less advantageous than the project site. Since the project, as mitigated, will not create any significant impacts, none of the alternative sites in Pittsburg or Antioch could potentially reduce environmental impacts that do not exist. The option of a smaller project, such as a 240 MW cogeneration facility at the proposed site, was considered because it could potentially result in reduced air emissions, although it would include similar onsite project components, and similar linear facility routes. While Staff suggested the smaller facility would be more environmentally preferable, all of the potential adverse impacts associated with the proposed project will be mitigated to levels of insignificance just as they would be for a smaller project. Thus, there is no advantage to a smaller-sized project option. CRE's position is that the "Delta Energy Center (98-AFC-3) Final Staff Assessment" failed to meet the requirements of CEQA to clearly identify the "Proposed Pittsburg District Energy Facility site" as an "environmentally preferred alternative" and the reduced project alternative to the proposed DEC. CRE identifies that the Commission is aware of the Applicants proposed amendment to the PDEF AFC is pending and will if approved meet the objective requirements of the Commission and the Applicant as sited for this project. CRE disagrees with staff position that the potential adverse impacts associated with the proposed project will be mitigated to levels of insignificance as cited in intervenor's comments on air quality, public health, socioeconomic impacts and as presented in CEC exhibit 62.

While the no project alternative may temporarily avoid the project's potential impacts, the benefits of the project, which replaces older, inefficient generating facilities, would not be realized. Moreover, the industrially-zoned site is likely to be developed in any event, which would necessarily require a CEQA-based environmental impacts analysis and

mitigation measures appropriate to the development of an industrial facility and similar to those required of DEC. CRE contends that the Commission should prepare a formal EIR pursuant to CEQA as its environmental program is pending review by the California Resources Agency. The no project alternative would therefore facilitate the cure sought by intervenor in that a CEQA compliant environmental document is prepared for industrial development at the proposed site that is consistent with local ordinances, state and federal laws.

~~While w~~ We are sympathetic to the Intervenors view that renewable technologies are potentially less harmful to the environment than gas-fired technology. ~~the~~ The Commission is mandated to ensure the development of efficient generation sources that ~~can~~ meet the requirements of California's energy market and balanced this with the need to maintain air quality within federal and state air attainment guidelines for PM10 and Ozone. ~~. (See, discussion at 11/18 RT 388-393.)~~The Commission will continue to foster and encourage the development of renewable energy technologies but at the same time, while the applicant's evidence demonstrates that large modern, state-of-the-art gas-fired power plants are the most efficient and reliable technologies that can provide power at the scale required in California at the present time, it fails to meet the requirements for technology that limits emissions levels to those that mitigate existing conditions for non-attainment for Ozone and PM10. (See, sections on **Power Plant Efficiency** and **Power Plant Reliability**.)

Regarding potential cumulative environmental impacts, the record establishes that mitigation measures contained in the Conditions of Certification have failed to factor~~ed~~ in the potential cumulative impacts for each topic area in this Decision. The sections on **Socioeconomic**, **Air Quality**, and **Public Health** provide discussions of Intervenors concerns regarding Environmental Justice, Air Quality, and Public Health. Moreover, the regulatory regimen designed by the U.S.EPA and the California Air Resources Board (CARB) is intended, through offsets, to allow industrial development while protecting air quality. ~~As explained in the **Air Quality** and **Public Health** sections, the project meets the applicable regulatory criteria.~~

Intervenor CRE cited ~~the *Sutter* appeal that was pending before the California Supreme Court~~ passage into California law of amendments to the Warren-Alquist Act SB110 which mandates review of the Commission's environmental program by the California Resources Agency in arguing that the Commission s regulatory program to license power plants is not certified by the Secretary of the Resources Agency. ~~CRE raises the same issues that the Commission addressed and rejected in the Order Denying Petition for Reconsideration in the Application for~~

~~Certification for the Sutter Power Plant Project [Order No.99-0623-20; June 23,1999 (Docket No.97-AFC-2).] We will not reconsider those arguments here~~.

The Commission concludes, therefore, that none of the technological or site alternatives reviewed by Applicant and Staff, nor proposed by the Intervenors, would avoid or substantially lessen significant project-related impacts since all potential adverse impacts will be mitigated to insignificant levels. Moreover, none of the proposed alternatives would more feasibly achieve project objectives than the project description and the project site as proposed by the Applicant. No Conditions of Certification are required for this topic. CRE disagrees with the Commission's conclusion, and cites for the record as evidence of the validity of intervenor's positions CEC exhibit 62 C "Brief on the Delta Energy Center (98-AFC-3) Final Staff Assessment -- Inadequacy of Alternatives Analysis Pursuant to CEQA" [ix], and cites the transcript from the Hearing before the Energy Commission on October 5, 1999. Intervenor CRE believes that the presence of adversely impacted minority populations within the impact zone as identified in the non zero PM10 impact area of figure C-12 of exhibit 55 mandates a more thorough alternatives analysis as mandated by Environmental Justice guidelines.

Addendum [x] **"1. What are the health effects of particulate air pollution?**

More than two-dozen community health studies since 1987 have linked particulate pollution to reductions in lung function, increased hospital and emergency room admissions, and premature deaths. Recently, two major epidemiological studies (by the American Cancer Society and Harvard University) were published that showed that people living in more polluted cities had an increased risk of premature death compared to those in cleaner cities.

2. How does mortality attributable to particulate pollution compare to total cardiopulmonary mortality?

NRDC estimates that at current levels of pollution, approximately 64,000 premature deaths from cardiopulmonary causes may be attributable to particulate air pollution each year. That represents 6.5% of all cardiopulmonary deaths, which total 986,000 per year. The national estimate of mortality attributable to smoking is 418,690 for 1990.

3. Who is at greatest risk?

The elderly and those with heart and lung disease are at greatest risk of premature mortality due to particulate air pollution. One to two years on average in more polluted areas might shorten their lives.

4. How do particles cause harm to human health?

The exact toxicological mechanisms are not well understood, but researchers have a number of theories. For instance, studies show that particulate matter causes respiratory symptoms, changes in lung function, alteration of mucociliary clearance, and pulmonary inflammation, which can lead to increased permeability of the lungs. Increased permeability might precipitate fluid in the lungs in people with heart disease. In addition, mediators released during an inflammatory response could increase the risk of blood clot formation and strokes.

Particulate exposure might also increase susceptibility to bacterial or viral respiratory infections, leading to an increased incidence of pneumonia in vulnerable members of the population. Potential mechanisms could include impairment of clearance mechanisms or immune system function. In the presence of pre-existing heart disease, acute bronchiolitis or pneumonia induced by air pollutants might precipitate congestive heart failure.

Particulate air pollution might also aggravate the severity of underlying chronic lung disease, causing more frequent or severe exacerbation of airways disease or more rapid loss of lung function.

5. Has a cause-and-effect relationship been demonstrated?

Evaluation of epidemiological studies requires consideration of a number of factors such as strength of the association, consistency of the association, dose-response relationship, biological plausibility, and coherence with other known facts. Based on these factors, a number of prestigious international panels including a British Committee on the Medical Effects of Air Pollutants and a Committee of the Health Council of Netherlands have concluded that there is a cause-and-effect relationship between particulate pollution and mortality.

6. What exactly is particulate matter?

Particulate matter includes a wide range of pollutants -- road dust, diesel soot, fly ash, wood smoke, and sulfate aerosols that are suspended as particles in the air. These particles are a mixture of visible and microscopic solid particles and minute liquid droplets known as aerosols.

7. Where do fine particles come from?

Combustion of fossil fuels is the principal source of fine particle emissions, including the burning of coal, oil, diesel fuel, gasoline, and wood in transportation, power generation, and space heating. Old coal-fired power plants, industrial boilers, diesel and gas-powered vehicles, and wood stoves are the worst culprits. High temperature industrial processes such as metal smelting and steel production are also significant sources.

8. What level of exposure to particulates is considered unhealthy? Is there a threshold?

Epidemiological studies have reported a linear relationship between exposure and effects. In other words, the higher the concentration of particles, the greater the effect on the health of populations. Effects have been demonstrated at levels well below the current National Ambient Air Quality Standards. Scientists have not been able to identify a threshold below which health effects do not occur. While not a threshold, the long-term epidemiology studies show that the risk of premature deaths starts to increase at annual average concentrations of PM2.5 of 10 g/m3, according to the World Health Organization.

9. How did NRDC come up with its mortality estimates?

NRDC used a methodology suggested by prominent research scientist Dr. Joel Schwartz of the Harvard School of Public Health. We applied the findings of a 1995 study by the American Cancer Society (ACS) and Harvard Medical School to local data to gauge the extent of the particulate pollution problem. The ACS study is the largest, most comprehensive long-term epidemiologic study examining the effect of ambient air pollution on human health. The study used statistical techniques to adjust for age, and to control for the effects of smoking, body weight, occupational exposure, and other risk factors.

There were four steps to NRDC's analysis: 1) Analysis of EPA particulate monitoring information for metropolitan statistical areas; 2) Tabulation of data from the National Center for Health Statistics on adult mortality rates from selected cardiopulmonary causes; 3) Calculation of a risk coefficient per microgram of particle pollution from data presented in the ACS study; and 4) Application of the risk coefficient to city-specific monitoring and mortality data.

Although NRDC's analysis relies on several assumptions, a sensitivity analysis based on alternative assumptions shows that the estimates are reasonable.

California-Particulate Air Pollution Attributable Mortality by MSA

This table identifies Metropolitan Statistical Areas in the state of California. For each MSA, the table shows PM-10 concentration and NRDC's estimate of air pollution attributable deaths.

The table shows the average annual mean PM-10 concentration in each MSA over the five-year period, 1990 through 1994. The higher the PM-10 concentration, the greater the risk of premature mortality from heart and lung disease

For each MSA, we present point and range estimates of the annual adult cardiopulmonary deaths attributable to air pollution The estimates are derived by applying a risk factor reported in a study of an American Cancer Society cohort to MSA-specific information on PM-10 concentrations and mortality from selected causes. The range estimates are derived from the confidence intervals for the risk ratio reported in the ACS study.

For the purposes of comparison, the table also shows the total number of cardiopulmonary deaths in the MSA and the number of deaths from car accidents.

Metropolitan Statistical Area	Average Annual Mean PM-10 Concentration (1990-1994) (ug/m³)	Estimated Annual Cardiopulmonary Deaths Attributable to Particulate Air Pollution						
		Point Estimate	Range	–	Range	Deaths per 100,000 Population	Adult Cardio-Pulmonary Deaths (1989)	Deaths from Auto Accidents (1989)
ANAHEIM-SANTA ANA, CA	38.1	1,053	*632*	-	*1,433*	55	7,429	369
BAKERSFIELD, CA	54.8	464	*284*	-	*618*	115	2,005	163
CHICO, CA	33.1	104	*62*	-	*143*	72	924	59
FRESNO, CA	51.7	488	*298*	-	*653*	95	2,265	212
LOS ANGELES-LONG BEACH, CA	43.8	5,873	*3,550*	-	*7,933*	79	33,825	1,458
OXNARD-SIMI VALLEY-VENTURA, CA	30.6	182	*108*	-	*251*	34	1,864	110
REDDING, CA	28.3	58	*34*	-	*80*	50	683	60

RIVERSIDE-SAN BERNARDINO, CA	48.1	1,905	*1,158*	-	*2,560*	122	9,685	748
SACRAMENTO, CA	31.9	488	*290*	-	*669*	48	4,625	260
SALINAS-SEASIDE-MONTEREY, CA	19.4	29	*17*	-	*40*	10	1,019	62
SAN DIEGO, CA	34.8	999	*597*	-	*1,365*	54	8,147	412
SAN FRANCISCO-OAKLAND, CA	28.7	1,270	*752*	-	*1,748*	39	14,694	414
SAN JOSE, CA	32.8	447	*266*	-	*612*	35	4,015	179
SANTA BARBARA-SANTA MARIA-LOMPOC, CA	30.5	124	*74*	-	*171*	41	1,278	53
SANTA CRUZ, CA	13.2	0	*0*	-	*0*	0	881	37
SANTA ROSA, CA	20.0	52	*31*	-	*73*	17	1,600	86
STOCKTON, CA	44.8	321	*194*	-	*433*	93	1,794	125
VALLEJO-FAIRFIELD-NAPA, CA	28.2	120	*71*	-	*165*	36	1,437	67
VISALIA-TULARE-PORTERVILLE, CA	60.4	302	*186*	-	*402*	123	1,277	167
YUBA CITY, CA	37.4	65	*39*	-	*89*	64	472	37

Table California: Particulate Air Pollution Attributable Mortality

Point estimates are derived from the risk ratio reported in the ACS study. Ranges are derived from 95-percent confidence intervals around the risk ratio in the ACS study.

Metropolitan Statistical Areas are as defined by the Office of Management and Budget for 1980, except for New England, where areas are New England County Metropolitan Areas."

EXHIBIT 13:

MEMORANDUM OF UNDERSTANDING ON ENVIRONMENTAL JUSTICE AND EXECUTIVE ORDER 12898

WHEREAS, on February 11, 1994, the President signed Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" ("Executive Order 12898" or "Order"), and issued an accompanying Presidential Memorandum (references to this Order herein also generally include this Memorandum), and

WHEREAS, Executive Order 12898 applies to the following agencies: the Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Health and Human Services, Department of Housing and Urban Development, Department of the Interior, Department of Justice, Department of Labor, Department of Transportation, and the Environmental Protection Agency. The Order applies to the following offices in the Executive Office of the President: Office of Management and Budget, Office of Science and Technology Policy, Office of the Deputy Assistant to the President for Environmental Policy, Office of the Assistant to the President for Domestic Policy, National Economic Council, and Council of Economic Advisers. The Order also applies to other agencies and offices as the President may designate, Executive Order 12898, sec. 1-102, 6-604 (Feb. 11, 1994). The agencies and offices that are listed in section 1-102 or designated by the President under section 6-604 of the Order are referred to herein as "covered agencies" and "covered offices," respectively, and

WHEREAS, Executive Order 12898 requires each covered agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations," *id*., sec. 1-101, and

WHEREAS, each responsibility of a covered agency under Executive Order 12898 "shall apply equally to Native American programs," *id*., sec. 6-606, and

WHEREAS, Executive Order 12898 establishes an Interagency Working Group on Environmental Justice ("Interagency Working Group") consisting of the heads of the agencies and offices listed above and any other officials designated by the President, or their designees, *id*., sec. 1-102(a), and

WHEREAS, Executive Order 12898 directs the Interagency Working Group to assist the covered agencies by providing guidance and serving as a clearinghouse, *id*., sec. 1-102(b), and

WHEREAS, Executive Order 12898, as amended, required that the then-covered agencies submit to the Interagency Working Group by March 24, 1995, an agencywide environmental justice strategy to carry out the Order, *id*., sec. 1-103(e), as amended by Executive Order 12948 (Jan. 30, 1995), and

WHEREAS, Executive Order 12898 further required, within two (2) years of issuance, that the then-covered agencies provide to the Interagency Working Group a progress report on implementation of the agency's environmental justice strategy, Executive Order 12898, sec. 1-103(f), and

WHEREAS, Executive Order 12898 requires that covered agencies conduct internal reviews and take such other steps as may be necessary to monitor compliance with the Executive Order, *id*., sec. 6-601, and provide additional periodic reports to the Interagency Working Group as requested by the Group, *id*., sec. 1-103(g), and 2

WHEREAS, Executive Order 12898 provides that a member of the public may submit comments and recommendations to a covered agency relating to the incorporation of environmental justice principles into the agency's programs or policies and provides that the agency must convey such recommendations to the Interagency Working Group, *id*., sec. 5-5(a), and

WHEREAS, the covered agencies and the Interagency Working Group remain committed to full ongoing compliance with Executive Order 12898, and

WHEREAS, Executive Order 12898 does not preclude other agencies from agreeing to carry out the Order and to participate in the activities of the Interagency Working Group as appropriate, and as consistent with their respective statutory authorities and the Order;

NOW THEREFORE, the undersigned agencies (referred to herein as "Federal agencies") hereby agree:

I. Purposes

A. To declare the continued importance of identifying and addressing environmental justice considerations in agency programs, policies, and activities as provided in Executive Order 12898, including as to agencies not already covered by the Order.

B. To renew the process under Executive Order 12898 for agencies to provide environmental justice strategies and implementation progress reports.

C. To establish structures and procedures to ensure that the Interagency Working Group operates effectively and efficiently.

D. To identify particular areas of focus to be included in agency environmental justice efforts.

II. Authorities

This Memorandum of Understanding on Environmental Justice and Executive Order 12898 ("Memorandum of Understanding" or "MOU") is in furtherance of the Order, including the authorities cited therein. Federal agencies shall implement this Memorandum of Understanding in compliance with, and to the extent permitted by, applicable law.

III. Actions and Responsibilities

A. Adoption of Charter. This Memorandum of Understanding adopts the Charter for Interagency Working Group on Environmental Justice ("Charter") set forth in Attachment A. Each Federal agency agrees to the framework, procedures, and responsibilities identified in the Charter and agrees to provide the Interagency Working Group with the agency's designated Senior Leadership Representative and Senior Staff Representative by September 30, 2011.

B. Participation of Other Federal Agencies. While Executive Order 12898 applies to covered agencies, the Order does not preclude other agencies from agreeing to undertake the commitments in the Order. Likewise, while the Executive Order identifies the composition of the Interagency Working Group, other agencies may, to the extent consistent with the Order, participate in activities of the Interagency Working Group as appropriate. An agency that is either not a covered agency or not represented on the Interagency Working Group, or both, may become a "Participating Agency" by signing this Memorandum of Understanding. To the extent it is not already a covered agency, a Participating Agency agrees to carry out this Memorandum of Understanding, as well as Executive Order 12898, and to the extent it is not already

represented on the Interagency Working Group, a Participating Agency agrees to participate in activities of the Interagency Working Group, as appropriate. The term "Federal agency" herein refers to covered agencies that sign this MOU and to Participating Agencies that sign this MOU.

C. Federal Agency Environmental Justice Strategies; Public Input; Annual Reporting.
1. **Environmental Justice Strategy.** By September 30, 2011, after reviewing and updating an existing environmental justice strategy, where applicable, and as the agency deems appropriate, each Federal agency will post its current "Environmental Justice Strategy" on its public webpage and provide the Interagency Working Group with a link to the webpage. If the agency posts and provides a draft Environmental Justice Strategy, then it will post and provide its final Environmental Justice Strategy by February 11, 2012. Thereafter, each Federal agency will periodically review and update its Environmental Justice Strategy as it deems appropriate and will keep its current Environmental Justice Strategy posted with a link provided to the Interagency Working Group.

2. **Public Input.** Consistent with Executive Order 12898, section 5-5, each Federal agency will ensure that meaningful opportunities exist for the public to submit comments and recommendations relating to the agency's Environmental Justice Strategy, Annual Implementation Progress Reports, and ongoing efforts to incorporate environmental justice principles into its programs, policies and activities.

3. **Annual Implementation Progress Report.** By the February 11 anniversary of Executive Order 12898 each year, beginning in 2012, each Federal agency will provide a concise report on progress during the previous fiscal year in carrying out the agency's Environmental Justice Strategy and Executive Order 12898. This "Annual Implementation Progress Report" will include performance measures as deemed appropriate by the agency. The report will describe participation in interagency collaboration. It will include responses to recommendations submitted by members of the public to the agency concerning the agency's Environmental Justice Strategy and its implementation of the Executive Order. It will include any updates or revisions to the agency's Environmental Justice Strategy, including those resulting from public comment. The agency will post its Annual Implementation Progress Report on its public webpage and provide the Interagency Working Group with a link to the webpage.

D. Areas of Focus. In its Environmental Justice Strategy, Annual Implementation Progress Reports and other efforts, each Federal agency will identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations, including, but not limited to, as appropriate for its mission, in the following areas: (1) implementation of the National Environmental Policy Act; (2) implementation of Title VI of the Civil Rights Act of 1964, as amended; (3) impacts from climate change; and (4) impacts from commercial transportation and supporting infrastructure ("goods movement"). These efforts will include interagency collaboration. At least every three (3) years, the Interagency Working Group will, based in part on public recommendations identified in Annual Implementation Progress Reports, identify important areas for Federal agencies to consider and address, as appropriate, in environmental justice strategies, annual implementation progress reports and other efforts.

IV. Miscellaneous

A. Parties, Effective Date, Amendment. This MOU becomes effective for a Federal agency when it signs the MOU. An agency may sign the MOU at any time. The MOU may be amended by written agreement of the then-current signatory Federal agencies.

B. Applicable Law. Nothing in this MOU shall be construed to impair or otherwise affect authority granted by law to, or responsibility imposed by law upon, an agency, or the head thereof, or the status of that agency within the Federal Government. This MOU shall be implemented consistent with applicable law and subject to the availability of appropriations.

C. Fiscal. This MOU is not a fiscal or financial obligation. It does not obligate a Federal agency to expend, exchange or reimburse funds, services or supplies, or to transfer or receive anything of financial or other value.

D. Internal Management. This MOU and activities under it relate only to internal procedures and management of the Federal agencies and the Interagency Working Group. They do not create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its agencies or other entities, its officers, employees or agents, or any other person.

V. Signatures

A. Covered Agencies.

\s \s

_____ _____

Eric H. Holder, Jr. Ken Salazar
Attorney General of the United States Secretary of the Interior
Date: _____ Date: _____

\s \s

_____ _____

Thomas J. Vilsack Hilda L. Solis
Secretary of Agriculture Secretary of Labor
Date: _____ Date: _____5

\s \s

_____ _____

Kathleen Sebelius Shaun Donovan
Secretary of Health and Human Services Secretary of Housing and Urban Development
Date: _____ Date: _____

\s \s

_____ _____

Ray LaHood Steven Chu
Secretary of Transportation Secretary of Energy
Date: _____ Date: _____

\s \s

_____ _____

Lisa P. Jackson Rebecca M. Blank
Administrator Acting Secretary of Commerce
U.S. Environmental Protection Agency
Date: _____ Date: _____

\s

_____

John Conger Acting Deputy Under Secretary
(Installations and Environment)
Department of Defense
Date: _____6

B. Participating Agencies and Offices.

\s \s

_____ _____

Arne Duncan Eric K. Shinseki
Secretary of Education Secretary of Veterans Affairs
Date: _____ Date: _____

\s \s

_____ _____

Janet Napolitano Nancy Sutley
Secretary of Homeland Security Chair
Council on Environmental Quality
Date: _____ Date: _____

\s \s

_____ _____

Martha Johnson Karen G. Mills
Administrator Administrator
General Services Administration Small Business Administration
Date: _____ Date: _____

Letter No. 11

Kristin Vahl

From: Victoria Michalski [victoriaann0212@yahoo.com]
Sent: Thursday, August 25, 2011 6:56 PM
To: Kristin Vahl
Subject: WesPac Pittsburg Energy Infrastructure Project

NO.

This is a totally unacceptable project for so many reasons.

Downtown Pittsburg is finally looking and feeling revitalized, why would you want to screw that up?

Vidrio is finally all sold and occupied. Remember the pain of seeing it unfinished and vacant for 2 years?

People are finally not afraid to come to Pittsburg for dining and events.

There are finally some decent people that live here and take care of their homes, families and property.

I live at 592 Herb White Way. I bought my house in June, 2007. It is worth almost nothing compared to what I purchased it for.

This will impact the values of our homes even more. St. Peter Martyr is right by those tanks. Children deserve clean, fresh air and should not have to be concerned about

big tanks in the back of their playard.

NO.

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5541
FAX (510) 286-5559
TTY 711

Letter No. 12

Flex your power!
Be energy efficient!

August 17, 2011

CC004072
CC-24-23
SCH# 2011072053

Ms. Kristin Vahl
City of Pittsburg
Planning Department
56 Civic Avenue
Pittsburg, CA 94565-3418

Dear Ms. Vahl:

The WesPac Pittsburg Energy Infrastructure Project – Notice of Preparation

Thank you for including the California Department of Transportation (Department) in the environmental review process for the WesPac Pittsburg Energy Infrastructure project. The following comments are based on the Notice of Preparation (NOP). As the lead agency, the City of Pittsburg (City) is responsible for all project mitigation, including any needed improvements to state highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan of the environmental document. Required roadway improvements should be completed prior to issuance of the Certificate of Occupancy. Since an encroachment permit is required for work in the state right of way (ROW), and the Department will not issue a permit until our concerns are adequately addressed, we strongly recommend that the City work with both the applicant and the Department to ensure that our concerns are resolved during the environmental review process, and in any case prior to submittal of a permit application. Further comments will be provided during the encroachment permit process; see the end of this letter for more information regarding encroachment permits.

Transportation Permit

Project work that requires movement of oversized or excessive load vehicles on state roadways, such as State Route (SR) 4 requires a transportation permit that is issued by the Department. To apply, a completed transportation permit application with the determined specific route(s) for the shipper to follow from origin to destination must be submitted to the address below.

Office of Transportation Permits
California DOT Headquarters
P.O. Box 942874
Sacramento, CA 94274-0001

See the following website link for more information: http://www/dot.ca.gov/hq/traffops/permits/.

Traffic Control Plan

This project is in very close proximity to SR 4. We recommend that you coordinate your construction activities with the Department's, District 4 office, to avoid any unnecessary conflicts and delays. Please provide the project's construction Traffic Control Plan (TCP) for review.

Traffic Impact Study

We encourage the City to coordinate preparation of the Traffic Impact Study (TIS) with our office, and we would appreciate the opportunity to review the scope of work. Please include the information detailed below in the TIS to ensure that project-related impacts to state roadway facilities are thoroughly assessed. The Department's *"Guide for the Preparation of Traffic Impact Studies"* should be reviewed prior to initiating any traffic analysis for the project; it is available at the following website:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

The TIS should include:

1. Vicinity map, regional location map, and a site plan clearly showing project access in relation to nearby state roadways. Ingress and egress for all project components should be clearly identified. The state ROW should be clearly identified.

2. The maps should also include project driveways, local roads and intersections, parking, and transit facilities.

3. Project-related trip generation, distribution, and assignment. The assumptions and methodologies used to develop this information should be detailed in the study, and should be supported with appropriate documentation.

4. Average Daily Traffic, AM and PM peak hour volumes and levels of service (LOS) on all significantly affected roadways, including crossroads and controlled intersections for existing, existing plus project, cumulative and cumulative plus project scenarios. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect study area roadways and intersections. The analysis should clearly identify the project's contribution to area traffic and degradation to existing and cumulative levels of service. Lastly, the Department's LOS threshold, which is the transition between LOS C and D, and is explained in detail in the Guide for Traffic Studies, should be applied to all state facilities. Please note, the Department considers LOS by itself as an inadequate measure of effectiveness (MOE) for describing traffic operational conditions since it may actually mask a deficient condition on one or more approaches. As for intersection analysis the accepted MOEs used by the Department include flow (output), average control delay, queue (length or number of vehicles), and Volume/Capacity (V/C) ratio. For freeway and ramp operations, flow (output), speed, and travel time/delay are the accepted MOEs in addition to LOS.

5. Schematic illustration of traffic conditions including the project site and study area roadways, trip distribution percentages and volumes as well as intersection geometrics, i.e., lane configurations, for the scenarios described above.

Encroachment Permit

Please be advised that any work or traffic control that encroaches onto the state ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating state ROW must be submitted to: Office of Permits, California DOT, District 4, P.O. Box 23660, Oakland, CA 94623-0660. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process. See the website link below for more information. http://www.dot.ca.gov/hq/traffops/developserv/permits/

Please forward at least one hard copy and one CD of the environmental document, along with the TIS, including Technical Appendices, TCP, and staff report as soon as they are available to: Luis Melendez, Transportation Planner, Community Planning Office, Mail Station 10D, California, District 4, P.O. Box 23600, Oakland, CA 94623-0660.

Please feel free to call or email Luis Melendez of my staff at (510) 286-5606 or luis_melendez@dot.ca.gov with any questions regarding this letter.

Sincerely,

GARY ARNOLD
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

Letter No. 13

CONTRA COSTA
WATER DISTRICT

1331 Concord Avenue
P.O. Box H2O
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122
www.ccwater.com

August 16, 2011

VIA FACSIMILE (925)252-4814
Hard Copy to Follow

Ms. Kristin Vahl
Planning & Building Dept.
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565-3814

Subject: Request for Comments on the Notice of Preparation for the Proposed WesPac Energy-Pittsburg Terminal (AP-11-761)

Dear Ms. Vahl:

The Contra Costa Water District (CCWD) is in receipt of a request for comments on the Notice of Preparation for the proposed WesPac Energy-Pittsburg Terminal (AP-11-761). CCWD understands that an EIR will be prepared for this proposed project and we are providing background information that we believe should be included as part of the pending environmental review. CCWD commented earlier on the project in our letter of May 12, 2011 to the City (attached). Please refer to the attached letter for CCWD's previous comments on the project that we want discussed in the EIR.

Please contact me at (925) 688-8119 should you have further questions.

Sincerely,

Mark C. Seedall

Mark A. Seedall
Principal Planner

Attachment: CCWD Map of Facilities

MAS/jmt

May 12, 2011

VIA FACSIMILE (925)252-4814
Hard Copy to Follow

Ms. Kristin Vahl
Planning & Building Dept.
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565-3814

Subject: Request for Comments on the Proposed WesPac Energy-Pittsburg Terminal (AP-11-761)

Dear Ms. Vahl:

The Contra Costa Water District (CCWD) is in receipt of a request for comments on the proposed WesPac Energy-Pittsburg Terminal (AP-11-761). CCWD understands that an EIR will be prepared for this proposed project and we are providing background information that we believe should be included as part of the pending environmental review. CCWD manages and maintains water intake facilities that it owns and operates such as the Mallard Slough Intake and Pump Station. This facility, located approximately 2 miles to the east of the proposed project, serves as an available water intake that has typically been used for untreated water during winter and spring months when significant fresh water flows through the Sacramento River from winter rains or snow melt keep salt water intrusion from the San Francisco Bay west of this location. The Mallard Slough Pump Station can also provide an emergency water supply in the event that the Contra Costa Canal System is disrupted east of Baypoint.

CCWD also manages and maintains water facilities that are owned and operated by the United States Bureau of Reclamation (Reclamation). This includes the Contra Costa Canal with an intake at Rock Slough as well as a number of untreated water laterals. CCWD has two additional intakes: Old River pump Station near Discovery Bay and Middle River Pump Station at Victoria Island adjacent to Victoria Canal. (See attached map of CCWD facilities.) CCWD provides wholesale water service to the City of Pittsburg who in turn provides retail water service.

CCWD requests that the CEQA environmental document on the project consider the following:

1. The number, type, size, and frequency of petroleum tankers that would utilize the facility.
2. The location of CCWD's Mallard Slough intake facility, Rock Slough Intake, Old River Intake, and Middle River Pump Station Intake.
3. Safeguards to be utilized to prevent hazardous material spillage into the Delta from the WesPac facility.
4. Estimates of the time it will take if an unconstrained spill occurred for oil to travel to each of CCWD four intakes.
5. Emergency response measures to be initiated in case of project hazardous material spillage.

Please contact me at (925) 688-8119 should you have further questions.

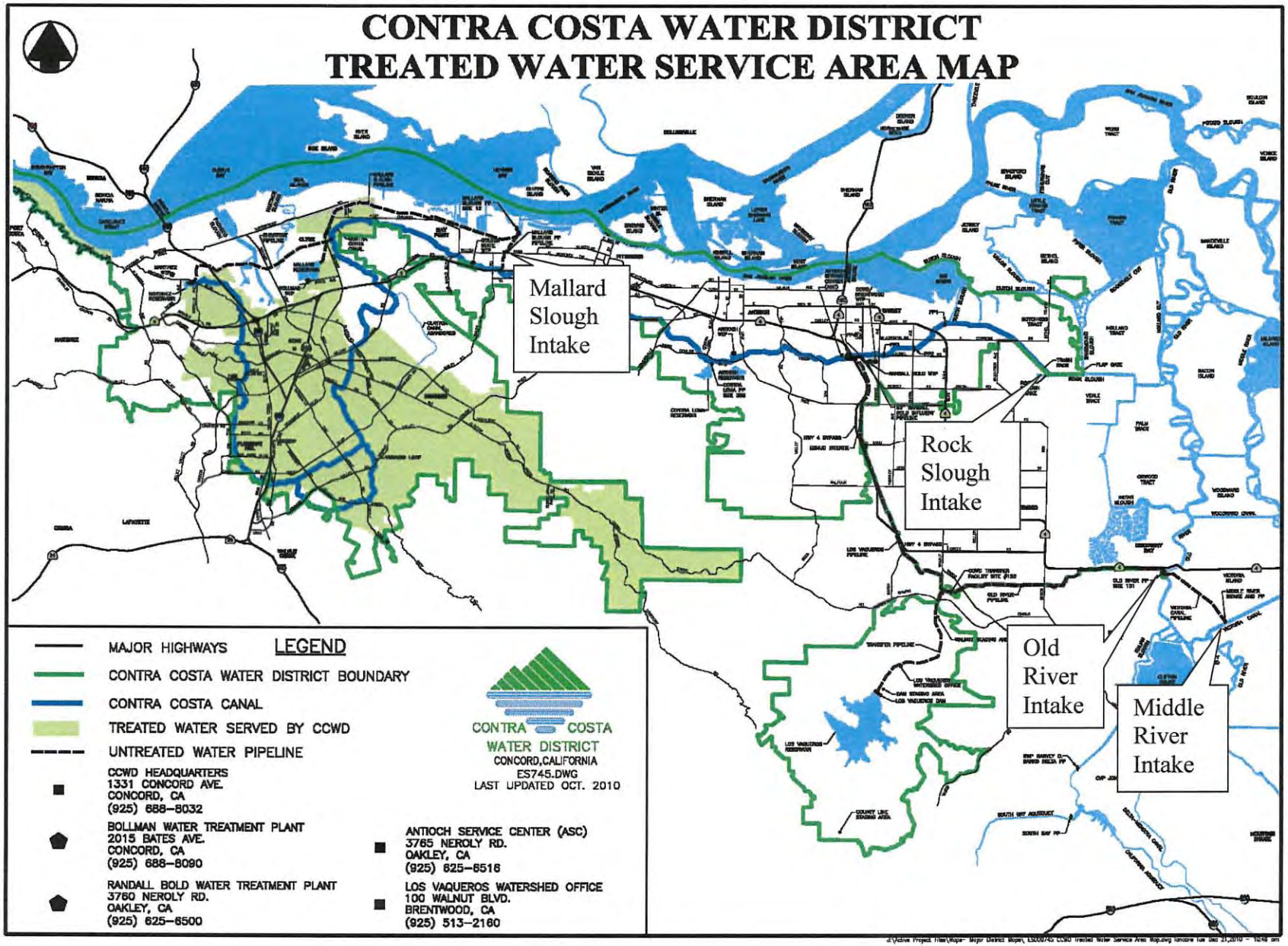
Sincerely,

Mark A. Seedall
Principal Planner

Attachment: CCWD Map of Facilities

MAS/jmt

CONTRA COSTA WATER DISTRICT
TREATED WATER SERVICE AREA MAP



Letter No. 14

August 15, 2011

Kristin Vahl
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565

Re: Notice of Preparation for the WesPac Pittsburg Energy Infrastructure Project

Dear Ms. Vahl:

Thank you for the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the WesPac Pittsburg Energy Infrastructure Project. The City of Antioch (City) is located at the western edge of the California Delta System at the confluence of the Sacramento and San Joaquin Rivers. The City currently provides water services to a population of 103,000 covering an estimated 29 square miles of developed and undeveloped land. In order to meet the treated water demands of our customers, the City obtains water from two primary sources: the Sacramento/San Joaquin Rivers and the Contra Costa Canal owned and operated by the Contra Costa Water District. Together, these two sources have the ability to provide the City with a total treated water capacity of 52 million gallons per day (MGD). In order to take water supplies directly from the Sacramento/San Joaquin Rivers, the City owns and operates a Delta intake system located along Fulton Shipyard Road in the lower San Joaquin River. This river pumping intake has the capacity to pump up to 16 MGD.

The City is concerned that the proposed project could have negative impacts to existing water quality in the Delta from a potential oil spill that could prevent the City from operating our existing water intake facilities. The City is requesting the potential for water quality impacts at our intake facility be investigated as part of the project's Draft Environmental Impact Report.

The City also requests that the Draft Environmental Impact Report study potential impacts from an oil spill on the Dow Wetlands and the Antioch Dunes National Wildlife Refuge which is home to several endangered and endemic species.

Please feel free to contact me should you have any questions at twehrmeister@ci.antioch.ca.us or 925-779-7038.

Sincerely,

T. Wehrmeister

Tina Wehrmeister
Community Development Director

cc: Phil Harrington, Capital Improvement Director
Mindy Gentry, Senior Planner

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

EDMUND G. BROWN, Jr, Governor
JOHN McCAMMAN, Director

Letter No. 15

August 11, 2011

Ms. Kristin Vahl
City of Pittsburg
Development Services – Planning Division
65 Civic Avenue
Pittsburg, CA 94565

Dear Ms. Vahl:

Subject: WesPac Pittsburg Energy Infrastructure Project, Notice of Preparation, SCH #2011072053, City of Pittsburg, Contra Costa County

The proposed project consists of modernization and reactivation of existing fuel storage and distribution facilities at the GenOn Pittsburg Generating Station in the City of Pittsburg, Contra Costa County. The following comments are submitted by the Department of Fish and Game (DFG) in response to a Notice of Preparation (NOP) released pursuant to the California Environmental Quality Act (CEQA).

Please provide a complete assessment (including but not limited to type, quantity and locations) of the habitats, flora and fauna within and adjacent to the project area, including endangered, threatened, and locally unique species and sensitive habitats. The assessment should include the reasonably foreseeable direct and indirect changes (temporary and permanent) that may occur with implementation of the project. Rare, threatened and endangered species to be addressed should include all those which meet CEQA definition (see CEQA Guidelines, Section 15380). DFG-recommended survey and monitoring protocols and guidelines are available at http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf.

The Environmental Impact Report (EIR) should include an analysis of changes in nitrogen deposition rates associated with new operational procedures at the generating station. Also, any related nitrogen deposition impacts on special-status plants in the deposition area, such as increased competition from exotic plant species, should be discussed and mitigated.

Please be advised that a California Endangered Species Act (CESA) Permit must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the project. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document must specify

impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA Permit.

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of an LSAA is subject to CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the LSAA notification process, please access our website at http://www.dfg.ca.gov/habcon/1600/; or to request a notification package, contact the Lake and Streambed Alteration Program at (707) 944-5520.

If you have any questions, please contact Ms. Andrea Boertien, Environmental Scientist, at (209) 942-6070; or Mr. Jim Starr, Environmental Program Manager, at (209) 941-1944.

Sincerely,

Larry Wyckoff for

Carl Wilcox
Regional Manager
Bay Delta Region

cc: State Clearinghouse

Letter No. 16

STATE OF CALIFORNIA Edmund G. Brown Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

August 1, 2011

Kristin Vahl
City of Pittsburg
Planning Department
65 Civic Avenue
Pittsburg, CA 94566-3418

RE: SCH# 2011072053 WesPac Pittsburg Energy Infrastructure Project; Contra Costa County.

Dear Ms. Vahl:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. . **USGS 7.5 minute quadrangle name, township, range and section required.**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,
Katy Sanchez
Katy Sanchez
Program Analyst
(916) 653-4040

cc: State Clearinghouse

Native American Contact List
Contra Costa County
August 1, 2011

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister , CA 95024
ams@indiancanyon.org
831-637-4238
Ohlone/Costanoan

Amah/MutsunTribal Band
Irene Zwierlein, Chairperson
789 Canada Road
Woodside , CA 94062
amah_mutsun@yahoo.com
(650) 851-7747 - Home
(650) 851-7489 - Fax
Ohlone/Costanoan

Jakki Kehl
720 North 2nd Street
Patterson , CA 95363
jakki@bigvalley.net
(209) 892-1060
Ohlone/Costanoan

Don Hankins
P.O. Box 627
Forest Ranch, CA 959421
530-343-3489 - phone/fax
Miwok

Katherine Erolinda Perez
PO Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415
Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Amah/Mutsun Tribal Band
Joseph Mondragon, Tribal Administrator
882 Bay view Avenue
Pacific Grove, CA 94062
831-372-9015
831-372-7078 - fax
Ohlone/Costanoan

Trina Marine Ruano Family
Ramona Garibay, Representative
30940 Watkins Street
Union City , CA 94587
soaprootmo@msn.com
510-972-0645-home
209-688-4753-cell
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Amah/Mutsun Tribal Band
Melvin Ketchum III, Environmental Coordinator
7273 Rosanna Street
Gilroy , CA 95020
408-842-3220
Ohlone/Costanoan

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for proposed SCH# 2011072053 WesPac Pittsburg Energy Infrasturcture Project; Contra Costa County.

Native American Contact List
Contra Costa County
August 1, 2011

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
2574 Seaboard Avenue
San Jose , CA 95131
muwekma@muwekma.org
408-205-9714
510-581-5194
Ohlone / Costanoan

Amah/MutsunTribal Band
Jean-Marie Feyling
19350 Hunter Court
Redding , CA 96003
jmfgmc@sbcglobal.net
530-243-1633
Ohlone/Costanoan

The Ohlone Indian Tribe
Andrew Galvan
PO Box 3152
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 - Cell
(510) 687-9393 - Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Linda G. Yamane
1585 Mira Mar Ave
Seaside , CA 93955
rumsien123@yahoo.com
831-394-5915
Ohlone/Costanaon

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for proposed SCH# 2011072053 WesPac Pittsburg Energy Infrasturcture Project; Contra Costa County.

Letter No. 17

Kristin Vahl

From: Tom Harais [TomH@eccta.org]
Sent: Thursday, July 28, 2011 5:43 PM
To: Kristin Vahl
Subject: WesPac Pittsburg Energy Infrastructure Project and EIR

No comments at this time.

Thomas J. Harais, CFO
801 Wilbur Avenue
Antioch, CA 94509
V: (925) 754-6622 X261
C: (925) 550-7602
F: (925) 757-2530
tharais@eccta.org / www.trideltatransit.com

City of Pittsburg

EIR Scoping Meeting Notes

August 4, 2011

On Thursday August 4th, 2011 a public scoping meeting was held to discuss the proposed WesPac Pittsburg Energy Infrastructure Project and associated Environmental Impact Report (EIR) to be prepared by the project proponents, WesPac Energy LLC (WesPac) and Oiltanking Holding Americas, LLC. The following comments and questions were received from attendees:

- Concerns were raised regarding potential environmental impacts associated with air emissions, associated odor causing agents, and/or other sources of pollutants associated with the proposed project. Concerns were made regarding air quality and hazards and hazardous materials impacts and cumulative impacts which may be associated with the proposed project.
- Previous operations have resulted in terrible odors.
- Concerns were raised from a representative of the City of Pittsburg's Mariner Walk Home Owners Association in reference to safety, hazards and hazardous materials, and other dangers (including whether or not there is potential for explosion) associated with nearness to sensitive receptors. Concerns were raised regarding human health and safety, air quality, noise, and aesthetics (e.g., appearance of tanks). In addition, the representative wanted to make sure that the methodology for how hazards are quantified is very clear.
- Why wasn't an initial study completed?
- How long has the existing GenOn Pittsburg Generation Station been in an inactive/dormant (caretaker) status?
- Will the City be paying for any portion of the project?
- When will a Draft EIR be released for public review?
- Concerns regarding shipping and road vehicle traffic were raised, including the following specific questions:
    - How many gallons of fuel oil per year will be received by the storage terminal?
    - How many ships will be docking at the marine terminal [typical/annual/daily/weekly ship traffic]
    - How large will the ships be? What capacity will the marine terminal be able to handle, regarding ship size?
    - What will the storage capacity be at the proposed storage terminal?
    - What was the existing capacity of the old storage terminal?
    - What will we do to prevent ships waiting to unload at this facility from "idling" while at anchor nearby?
    - How many barrels per year throughput for this facility at maximum capacity?
    - How many ships per year (or month) will call at this facility
    - How many vehicle trips per day can we expect when the facility is up and running?
- Can the facility currently pump into the existing pipelines?
- Where are ships currently located when idling and waiting for a place to store fuel oils?
- Comments were made regarding project objectives, and relieving ship congestion at existing marine terminals.

- Will the development of a partially refined crude oil storage facility create too large of a supply, and create a negative impacts to refineries? Is there a large enough demand for stored crude oil?
- Did the City of Pittsburg notify all interested federal and state agencies of the proposed project for comment (i.e. schools)? As concerns were raised about the project's compliance with the recently signed environmental justice memorandum of understanding (MOU) between various federal agencies (Note: A copy of the MOU was provided to City of Pittsburg staff.)
- Concern was raised for homes along West 10th Street regarding impacts to the long-term value of the properties, impacts associated with noise, odor causing agents, and safety associated with potential impacts resulting from construction of the proposed project.
- Concerns were raised by representatives from First Baptist Church regarding noise and vibrations, hazards and hazardous materials handled on site, and impacts on population and housing. Impacts from Tank #9 were of particular concern to this group.