

JAN 20 2009



*Save the Air in Nevada County*

January 20, 2009

Tom Last  
Planning Director, City of Grass Valley  
Grass Valley City Hall  
125 E. Main Street  
Grass Valley, CA 95945

Dear Mr. Last,

*Save the Air in Nevada County* (STA in NC) is pleased to provide formal comments on the Draft Environmental Impact Report (DEIR) for the proposed Idaho-Maryland Mine (IMM) Project, SCH No. 2007092017, dated October 2008.

As a 501(c)(3) non-profit corporation dedicated to promoting clean air in the Sierra Nevada foothills, our comments specifically address the air-quality portions of the IMM DEIR and associated relevant documentation. Comments on the DEIR prepared by *Tamura Environmental, Inc.*, a nationally respected consulting firm on air-quality matters, are attached to this letter. This review was conducted by Todd Tamura, President of *Tamura Environmental*, whose resume is also attached to demonstrate his outstanding qualifications to perform a technical review of the air quality portions of the DEIR. This review identifies twenty-three specific areas where the air quality parts of the DEIR are incomplete or inaccurate. Among many other problems, the DEIR fails to quantify the emissions of, and assess the associated risks from, a number of Hazardous Air Pollutants and Toxic Air Contaminants that will be used by the proposed project and are known to cause cancer. The DEIR also incorrectly assesses, or fails to assess at all, the emissions of criteria pollutants and their precursors from specific sources, including nitrogen oxides and particulate matter, and in several instances fails to identify appropriate mitigation measures.

According to *Tamura Environmental's* assessment of the air quality portions of the DEIR: "There are numerous serious deficiencies in this portion of the DEIR. To the extent that a description of the project has been provided, the EIR fails to identify (or incorrectly quantifies) important emissions from the project, has deficient analyses of the emissions impacts, fails to identify significant applicable air regulations, and fails to identify mitigation measures that will comply with those regulations. We also find that the DEIR is inadequate with regard to providing a complete project description... In summary, the DEIR is incomplete and therefore inadequate with respect to air quality issues."

Our organization is also highly concerned about several aspects of the DEIR that collectively have the effect of minimizing the severity of our community's ongoing ozone air pollution problem and its impact on our health. In order for the planning commission, the city council and the public to make an informed decision regarding the proposed project, that takes into account its potential impact on the health of our community's citizens, the EIR must provide an accurate accounting of our ozone air pollution problem and describe the known impacts of ozone on public health. We therefore believe that the following aspects of the DEIR must be corrected:

- 1) The DEIR contains a very brief and incomplete description of the health impacts caused by ozone air pollution (see Page 4.2-3). The discussion focuses only on the short-term impacts of exposure to ozone, and even here it is incomplete. Additional symptoms of short-term exposure to ozone include inflammation of the lungs and reduced lung function, coughing, wheezing, sore throat, chest pain, headaches and fatigue. The discussion in the DEIR does not address the significant long-term hazards of breathing air with elevated ozone levels, such as we currently experience in Western Nevada County. According to the U.S. Environmental Protection Agency, the California Air Resources Board and the American Lung Association, repeated exposure to elevated levels of ozone can lead to long-term health effects such as increased incidence of childhood asthma, accelerated lung aging and reduced lung function, lung cancer, increased hospitalizations and elevated premature mortality rates. There is mounting evidence that the damage ozone causes to children's respiratory systems may be lasting and permanent. The "Pollutant Health and Atmospheric Effects" discussion for ozone in Table 4.2-2 should also be expanded accordingly.
- 2) The section entitled "Existing Air Quality in the Project Vicinity" on page 4.2-1 of the DEIR, gives a brief description of the air quality monitoring currently taking place in Grass Valley and summarizes the air quality data in Table 4.2-1. However, this section does not explicitly state the facts that Grass Valley and Western Nevada County are currently in non-attainment of both State and Federal ozone standards established for the protection of public health, and have been continuously in non-attainment of these standards since the early 1990's. These important facts must be stated explicitly in this description to properly inform the reader of the true state of the Grass Valley area's air quality situation.
- 3) Table 4.2-1, "Air Quality Data Summary (2002-2006)," presents the number of days that ozone concentrations measured at Grass Valley exceed government health standards. The two ozone standards shown in this table are the California 1-hour average standard (0.09 ppm) and the old Federal 8-hour ozone standard (0.08 ppm). However, California also has an 8-hour average ozone standard (0.070 ppb) and in May 2008 the EPA issued a new and more protective Federal 8-hour ozone standard (0.075 ppm), as correctly indicated in Table 4.2-2. These ozone standards have been established for the protection of public health based on the latest scientific research. Data on the number of exceedance days in Grass Valley for the California 8-hour standard needs to be added to Table 4.2-1, and the data for the old 8-hour Federal standard needs to be replaced by the new Federal standard. This will make Table 4.2-1 consistent with the standards listed in Table 4.2-2. As presented now, Table 4.2-1 makes Grass Valley's ozone air pollution

problem appear to be less severe than it actual is. For example, the number of exceedance days of the old Federal 8-hour standard, as currently shown in Table 4.2-1, varies between **13 and 25 days** for the years 2002 to 2006. However, for these same years, the number of days exceeding the California 8-hour standard (not currently shown in the table) varies between **66 and 87 days**. Lastly, footnote (a) in this table incorrectly states that State standards are not to be exceeded more than once per year, when in fact the State standards are not to be exceeded.

- 4) Table 4.2-3, "Nevada County Attainment Status," incorrectly states that Nevada County is "Unclassified" with respect to the State 8-hour average ozone standard, when in fact Nevada County is in **non-attainment** of the State 8-hour standard (see [http://www.arb.ca.gov/desig/adm/2006/state\\_ozone.pdf](http://www.arb.ca.gov/desig/adm/2006/state_ozone.pdf) ). The language in the section describing California State standards on page 4.2-10 also needs to be corrected to reflect the fact that Nevada County is in non-attainment of the State 8-hour ozone standard.
- 5) In Table 4.2-6, "Project Construction and Operation Emissions," total emissions from the project are estimated in pounds per day and are not broken down between stationary and mobile sources. As noted in the attached letter by Tamura Environmental Inc., the annual emissions from all stationary and mobile sources must be known in terms of tons per year to determine whether certain regulations would apply. Data on the project's estimated annual emissions in tons per year is also needed to compare the emissions from this project with other emissions sources contained within the California Air Resources Board emissions inventory. Such a comparison is necessary to give the public and government officials a true picture of the relative magnitude of the emissions expected to occur from the project in relation to other emissions sources in Nevada County and upwind areas that impact our ozone levels through transport.

In view of the above comments and more especially the attached technical review by *Tamura Environmental*, it is our firm opinion that the deficiencies in the DEIR are so serious and widespread that it must be rejected in its present form, and a new DEIR must be prepared and undergo further public scrutiny with opportunities for review and comment.

Upon carefully reviewing the Draft Environmental Impact Report, the Board of Directors and members of STA in NC strongly oppose the proposed Idaho-Maryland Mine Project for the following reasons:

- 1) As explicitly stated in the DEIR, the proposed project's adverse impact on our community's already-poor air quality will be "significant", "unavoidable" and "unmitigable".
- 2) When fully operational, the proposed mine and ceramics factory's projected emissions of nitrogen oxide, an ozone precursor, are **nine times greater** than the threshold determined by the Northern Sierra Air Quality Management District for an emissions source to potentially have a significant adverse impact on local air quality.

- 3) The numerous and significant flaws and omissions that characterize the Idaho-Maryland Mine DEIR, as described above and in the attached comments by *Tamura Environmental*, make it impossible to accurately judge the full extent of the adverse impacts the project would have on our community's air quality.
- 4) The proposed project clearly and directly violates the Clean Air Resolution unanimously adopted by the City of Grass Valley just last year, which affirmed the City's commitment to "reduce ozone pollution in Nevada County and create a clean, healthy environment for all of our county's residents, including children and senior citizens."

Thank you for the opportunity to provide comments on the Draft Environmental Impact Report for the proposed Idaho-Maryland Mine Project. If approved, we believe this project would have an enormous negative impact on the health and future of our children and our community. We urge the City Council to reject this proposed project and instead pursue alternatives with greater promise of long-term economic benefits and which pose fewer risks to our environment, for it is our belief that our community has the resources, knowledge, wisdom, and capacity to develop sustainable projects that enhance rather than harm our community's health and economic future.



Marina Bernheimer  
Director,  
Save the Air in Nevada County  
Post Office Box 441  
Grass Valley, CA 95945

Attachments:

- 1) *Comments on Draft EIR for Proposed Idaho Maryland Mine Project*, by Tamura Environmental, Inc., dated January 20, 2009.
- 2) Resume for Todd M. Tamura, QEP, Principal, Tamura Environmental, Inc.



19 4<sup>th</sup> Street Suite 200, Petaluma, CA 94952 • 1.707.773.3737

January 20, 2009

CITY OF GRASS VALLEY  
PLANNING DIVISION

JAN 20 2009

Ms. Marina Bernheimer  
Save the Air in Nevada County  
Post Office Box 441  
Grass Valley, CA 95945

*Re: Comments on Draft EIR for Proposed Idaho Maryland Mine Project*

Dear Ms. Bernheimer:

Per your request, Tamura Environmental, Inc. has reviewed the air quality-related portion of the October 2008 Draft Environmental Impact Report (DEIR) for the proposed Idaho Maryland Mine Project. There are numerous serious deficiencies in this portion of the DEIR. To the extent that a description of the project has been provided, the EIR fails to identify (or incorrectly quantifies) important emissions from the project, has deficient analyses of the emissions impacts, fails to identify significant applicable air regulations, and fails to identify mitigation measures that will comply with those regulations. We also find that the DEIR is inadequate with regard to providing a complete project description. Our detailed comments are as follows:

1. Table 4.2-6 is the only summary of air emissions provided, and does not identify emissions of Hazardous Air Pollutants (HAPs)<sup>1</sup> and California Toxic Air Contaminants (TACs).<sup>2</sup> For example,
  - a. It is known that hydrofluoric acid (HF) and hydrochloric acid (HCl) can be emitted in substantial quantities from ceramic clay products manufacturing<sup>3</sup> and are regulated by the U.S. Environmental Protection Agency (EPA). Using EPA's default HF emission factor for ceramics products manufacturing, potential emissions of HF are over 100 tons per year (TPY),<sup>4</sup> which would be very substantial (over ten times the Federal major source threshold for HF). In Appendix B.6, the DEIR cites a much lower HF emission factor from a three-page trade magazine article—which would result in a calculation of 3.5 TPY of HF

<sup>1</sup> This term is defined in Section 112(b) of the Clean Air Act (with modifications in 40 CFR 63.60).

<sup>2</sup> This term is defined in Title 17 of the California Code of Regulations, Section 93000.

<sup>3</sup> See, for example, US EPA, "Ceramic Products Manufacturing," Section 11.7 of the "Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources," AP-42, July 1996, available on the Internet at <http://www.epa.gov/ttn/chief/ap42/ch11/final/c11s07.pdf>.

<sup>4</sup> EPA's emission factor is 0.46 pounds HF per ton of ceramic product produced, and Appendix B.4 of the DEIR identifies the maximum ceramic products throughput as 1200 tons/day: (0.46 lb HF/ton cer.)×(1,200 tons/day)×(365 days/yr)/(2000 lb/ton) = 101 tons HF/yr.

emissions—and then miscalculates HF emissions as being only 0.00018 TPY.<sup>5</sup> HCl emissions are excluded entirely. The DEIR therefore fails to adequately quantify emissions of HF and HCl, and assess the associated risks.

- b. In Appendix B.4, Section 4.2.3 mentions “a standard solvent solution” being stored for which emissions “are considered HAPs due to the emission from a solvent that could potentially be cancer causing”. The last page of Appendix B.4 identifies this solvent as methylene chloride, a volatile substance (boiling point = 104 °F at sea level) with an annual throughput of 26,000 gallons (approximately 145 tons) per year. Methylene chloride is classified as a “Confirmed Animal Carcinogen with Unknown Relevance to Humans” by the American Conference of Governmental Industrial Hygienists (ACGIH)<sup>6</sup> and is both a HAP and TAC. Section 2.8.3 of the DEIR does not identify methylene chloride as a hazardous material expected to be used onsite, and its use is not described in Sections 2 or 4.2 of the DEIR. The DEIR also fails to assess risks from or identify mitigation for these emissions.
- c. Section 2.8.3 of the DEIR mentions that substantial amounts of sodium cyanide (NaCN) will be used (one to two-ton sacks transported to the site every three weeks). The DEIR notes that acids would be stored separately to prevent the formation of HCN gas; however, the DEIR states that personnel handling the materials would be equipped with respirators and that the handling and reagent mixing area would be well-ventilated, yet does not identify any associated emissions. Cyanide compounds are also listed as being HAPs and TACs. The DEIR does not quantify emissions of HCN or assess associated risks.
- d. The risk analysis in Appendix B.6 of the DEIR includes diesel particulate matter (PM) from haul trucks, but these emissions are not specifically quantified in Section 4.2. More importantly, the emissions calculations in Appendix B.2 are shown as being based on speeds of 35-55 mph, whereas haul trucks will likely be traveling at lower speeds (and idling) when on site; these emissions need to be taken into account also.
- e. HAP emissions associated with natural gas combustion, crystalline silica in fugitive dust, and diesel fuel evaporation are quantified in the health risk assessment (Appendix B.6 of the DEIR) but are not quantified in the body of the DEIR.

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<sup>5</sup> Appendix B.6 identifies a daily throughput of 1200 tons per day and an emission factor of 0.008 g/kg:  $(1200 \text{ tons/day})(2000 \text{ lb/ton})(\text{kg}/2,205 \text{ lb})(0.008 \text{ g/kg})(1 \text{ lb}/453.6 \text{ g}) = 19.2 \text{ lb/day}$ , whereas Appendix B.6 calculates 0.00105 lb/day.

<sup>6</sup> ACGIH, “2005 TLVs® and BEIs® Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices,” Cincinnati: ACGIH, 2005.

2. Table 4.2-6 also does not include all of the criteria pollutant emissions from the facilities.
  - a. Although EPA has identified that glaze spray booths are also significant sources of particulate matter (PM) emissions,<sup>3</sup> the DEIR does not identify how glaze will be applied or include any emissions associated with glaze application.
  - b. Table 4.2-6 references Appendices B.4 and B.5, where the only emissions associated with stationary fuel combustion equipment appear to be those for the ceramics plant burners and rotary dryers. Page 2-32 states that at the gold plant, “the heating and ventilation equipment, as well as the ovens and furnaces could be fueled by natural gas”; these emissions are also not included, nor are any emissions associated with any stationary diesel engines that may be needed at the sites.
  - c. Emissions associated with using SO<sub>2</sub> gas to detoxify the tailings from the leach process are also not identified or addressed in Appendix B.4.
  - d. Although reactive organic gas (ROG) emissions are identified on page 4.2-19, they were not included in emissions estimates shown in Appendix B.4.
3. The DEIR notes that the project is located in an area that is an ozone nonattainment area, and that NO<sub>x</sub> is a precursor to ozone. It is therefore important that Best Available Control Technology (BACT) be implemented for NO<sub>x</sub>, as required by NSAQMD regulations. The DEIR states that NO<sub>x</sub> emissions from the ceramics plant will be controlled using “low NO<sub>x</sub> burners,” but identifies an EPA emissions factor of 140 pounds per million standard cubic feet of natural gas burned (lb/MMscf) as being representative of a sufficiently low-NO<sub>x</sub> burner. This is EPA’s emission factor for large (> 100 MMBtu/hr) wall-fired boilers, which have not been identified as being part of this project; NO<sub>x</sub> burners that are representative of BACT from sources such as the kilns are typically guaranteed by vendors to emit substantially lower levels. The DEIR needs to specifically identify all of the sources of NO<sub>x</sub>, and thoroughly evaluate the availability of burners that emit less than 140 lb/MMscf of NO<sub>x</sub>.
4. “Hot spot” impacts of carbon monoxide (CO) emissions from vehicles typically need to incorporate intersections, and the associated stops and vehicle queuing. The CAL3QHC2 model incorporates vehicle queuing algorithms but was not used. Instead, Appendix B.3 of the DEIR shows that the CALINE line-source model was used. Although the DEIR does not include a description of how input parameters were chosen, it does not appear that vehicle queuing was taken into account.
5. The health risk analysis provided in Appendix B.6 states that it includes exhaust from the six ceramic plant kilns, but the “exhaust from the ceramic plant kilns” was estimated as being only exhaust that would be anticipated from natural gas combustion, plus the underestimated HF emissions identified in comment #1 above. Ceramext’s website<sup>7</sup> identifies that Golden Bear Ceramics has constructed a pilot plant in Grass Valley;

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<sup>7</sup> <http://www.ceramext.com/process/>

emissions that have been measured from this pilot plant should be identified and used to better estimate all emissions from the kilns, not just HF and those associated with the combustion of the natural gas. In addition, the health risk analysis does not include a map showing the nearest sensitive receptors to both the project sites and the nearby intersections affected by increased truck traffic.

6. Equipment associated with obtaining the gold from ore-containing mined materials would be subject to Subpart LL of the Federal New Source Performance Standards (40 CFR 60), "Standards of Performance for Metallic Mineral Processing Plants". The DEIR does not identify this as an applicable regulation in Section 4.2.2, and needs to describe how the proposed project would comply with this regulation.
7. The DEIR should identify the applicability of Subpart OOO of the Federal New Source Performance Standards (40 CFR 60), "Standards of Performance for Nonmetallic Mineral Processing Plants" to the crushers and other processing equipment for the (non-ore-containing) development rock. The DEIR needs to clearly identify whether this regulation applies; if not, why not; and if so, how the project would comply.
8. The DEIR should identify that Northern Sierra Air Quality Management District (NSAQMD) Rule 226 ("Dust Control") applies and identify how the proposed dust mitigation measures demonstrate compliance with this regulation.
9. Table 4.2-6 of the DEIR identifies "Project Construction and Operation Emissions" (which appears to include stationary sources and vehicular sources) in units of pounds per day, whereas the applicability of several regulatory requirements (including those listed in my comments below) are dependent on annual potential emissions (expressed in tons per year) from the stationary sources at the site only. Section 4.2 should be revised to show annual potential emissions from the stationary sources at the site. Section 4.2 should also identify that portable equipment is subject to the registration requirements of NSAQMD Rule 523 and identify how this equipment will comply with that rule.
10. If annual potential emissions of  $\text{NO}_x$  or VOC from the stationary facilities in the ozone nonattainment area exceed 100 tons per year (equivalent to 548 pounds/day, 365 days/year), the project is subject to Federal Nonattainment New Source Review (NNSR) regulations, which require the project to implement controls representative of the Lowest Achievable Emissions Rate (LAER) and purchase offsets for those emissions.
11. The applicability of and compliance with Federal General Conformity regulations (40 CFR 93, Subpart B) needs to be identified in the DEIR. If  $\text{NO}_x$  or VOC emissions (including those from construction and mobile sources used during the project's operation, but excluding any covered by an NNSR permit) in the ozone nonattainment area exceed 100 tons per year (TPY), General Conformity regulations prohibit any Federal agency from licensing or permitting the project unless it can demonstrate conformity with the area's implementation plan for obtaining the National Ambient Air Quality Standard (NAAQS) for ozone. (The regulations include more specific information with respect to how such a demonstration needs to be made.)

12. Federal regulations for HAP emissions control include “National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing” (40 CFR 63, Subpart KKKKK) for major sources of HAP and “National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing for Area Sources” (40 CFR 63, Subpart RRRRRR) for nonmajor (area) sources of HAP. The DEIR needs to clearly identify whether these regulations would apply; if not, why not; and if so, how the project would comply.
13. If the facility is a major source of Hazardous Air Pollutants (HAPs)—i.e., having the potential to emit 25 tons per year (TPY) or more of all HAPs combined, or 10 TPY of any individual HAP—boilers and process heaters will be subject to Subpart DDDDD of the Federal 40 CFR 63 standards, “National Emission Standards for Hazardous Air Pollutants from Industrial, Commercial, and Institutional Boilers and Process Heaters”. The DEIR needs to clearly identify whether this regulation would apply; if not, why not; and if so, how the project would comply.
14. The DEIR refers to electrowinning, and page 2-37 states that lead nitrate is expected to be used to enhance gold leaching kinetics. The DEIR should therefore identify the applicability of Subpart WWWW of the Federal 40 CFR 63 standards, “National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations”. The DEIR needs to clearly identify whether this regulation applies; if not, why not; and if so, how the project would comply.
15. Appendix B.5 of the DEIR incorrectly implies that the use of ultra-low sulfur diesel fuel (15 ppm sulfur content) was a voluntary mitigation measure for emissions from diesel equipment. Ultra-low sulfur diesel fuel is already required nationwide in all on-road diesel vehicles (per 40 CFR 80, Subpart I) and is required statewide for construction equipment and other non-road vehicles in California (per Title 13, California Code of Regulations, Section 2281(a)(5)). (Many of the other mitigation measures in this DEIR are also ones that would be required by regulation, and are not voluntary.)
16. The DEIR’s reference to emission controls for diesel particulate matter (DPM) are not entirely clear, nor does the DEIR address cases where DPM filters may not be available. The engine standards identified on page 4.2-11 apply to new engines, not existing ones. Page 4.2-18 states that “all mobile source equipment” will meet CARB Tier 3 emission standards, but it is not clear whether this is referring to construction equipment, on-site operational equipment, on-road vehicles and/or truck traffic associated with the site, or some subset of these three. Emissions calculations should also only take into account DPM retrofit controls for those equipment where DPM retrofit controls are confirmed to be commercially available.

In summary, the DEIR is incomplete and therefore inadequate with respect to air quality issues. The regulatory requirements listed above are not exhaustive; they merely include some of the more important requirements that either apply or are likely to apply based on the information that was provided in the DEIR.

If you have any questions or comments regarding this letter, please do not hesitate to contact me.

Sincerely,

TAMURA ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read "Todd Tamura", with a long horizontal flourish extending to the right.

Todd Tamura, QEP  
Principal

JAN 20 2009



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## **TODD M. TAMURA, QEP**

Over fifteen years of experience as an air quality consultant, with project experience including regulatory analysis and tracking, compliance assistance and evaluation, permitting, strategic evaluations, training, other technical analysis and communications relevant to air pollution laws and regulations, and legal support. Project manager and senior scientist at the consulting firms Sonoma Technology, Inc. (2002-2005) and Tech Environmental, Inc. (1993-2002) prior to founding Tamura Environmental in 2005. Conducted fuel combustion research for the M.I.T. Sloan Automotive Laboratory and Lawrence Livermore National Laboratory prior to consulting career.

## **EDUCATION**

Massachusetts Institute of Technology, M.S. Technology and Policy, 1993

University of California, Los Angeles, M.S. Chemistry, 1990

Harvey Mudd College, B.S. Chemistry with Distinction and Departmental Honors, 1988

## **AFFILIATIONS AND CERTIFICATIONS**

Association of Environmental Professionals, member, 2005-present

Institute of Professional Environmental Practice, Qualified Environmental Professional (QEP)  
#10990058, 1999-present

Air & Waste Management Association, member, 1993-present; Golden West Section, Executive Board member, 2005-2006; New England Section, Executive Board member, 1996-2002  
Vice Chair, Editorial Advisory Committee, *EM* magazine (environmental management journal of the Air & Waste Management Association), 2004-2007.

American Association for the Advancement of Science, member, 1997-present

American Chemical Society, member, 1991-present

Source Evaluation Society, 2001-present

Society of Automotive Engineers, member, 1993-2008

## **EXAMPLES OF RELEVANT PROJECT EXPERIENCE**

(More examples of project experience can be provided upon request. Some project experience shown is for work conducted as an employee of firms other than Tamura Environmental.)

**CEQA Review for Legal Counsel (2008).** Developed comments on a development project EIS health risk assessment, which focused on risk from air emissions of diesel particulate matter. Comments focused on identification of air emissions sources, dispersion modeling, risk assessment techniques, and risk communication.

**CEQA Review of Petroleum Terminal Expansion (2008).** Reviewed proponents' air emissions/air quality technical documentation and developed comments as a subconsultant to the city; prepared the air quality section of a Mitigated Negative Declaration document.

**Compliance Review – Rock Quarry and Brick Manufacturer (2005).** Evaluated an existing rock quarry and brick manufacturing facility with respect to compliance with state and local air pollution laws and regulations, on behalf of the County of Marin's Department of Public Works. Work included site visits and file reviews.

**LNG Terminal/Pipeline DEIS preparation (2006 – present).** Reviewed proponent's FERC resource reports, permit applications, and other data submittals pertinent to air emissions and air quality; prepared comments for FERC to send to proponent; developed air quality section of DEIS.

**White Paper: EIS Evaluation of Mobile Source Air Toxics (2002-2003).** Lead author of a white paper for the Federal Highway Administration regarding air toxics and cancer risk that was cited in *Sierra Club v. U.S. DOT et al.*

**Facility-Level Regulatory Compliance Assurance (various projects).** Provided compliance assistance for facilities in multiple states with respect to interpretation/organization of permit/regulatory requirements and associated technical support (e.g., emissions estimation/measurement support, development of recordkeeping templates, submittal of reports). Clientele for these services have included but are not limited to: the Town of North Andover Board of Health; Excelerate Energy; Toray Plastics (America), Inc.; Columbia Electric; Massachusetts Water Resources Authority; Parlex Corporation; Genetics Institute; Innovative Membrane Systems; Eastern Manufacturing Co.; BME Engineering; Milwaukee Metropolitan Sewerage District. Developed compliance notebooks for operating personnel for Gulf Gateway Energy Bridge and Ceredo Generating Station. Compliance for the Toray Plastics (America) facility was confirmed by a third-party audit under the auspices of EPA's StarTrack program.

**Due Diligence and Other Compliance Audits.** Evaluated technical issues associated with compliance at retail gasoline outlets (RGOs) in California for the Western States Petroleum Association (WSPA). Evaluated and monetarized known and projected air pollution-related assets and liabilities (within the applicable regulatory framework) associated with electric generating capacity owned by New England Electric Systems, Boston Edison Company, and Central Maine Power for a bidder on these assets (The Energy Group, based in the UK). Similar project conducted for three sewage sludge incineration facilities in Connecticut and Rhode Island purchased by Synagro.

**Technical Assessment – Particulate Matter (Federal Highway Administration).** Managed a Sonoma Technology, Inc. project team to evaluate state-of-the-art knowledge with regard to particulate matter and transportation, for purposes of guiding development of the Federal Highway Administration's 2005-2010 strategic research workplan for particulate matter. Authored report sections addressing emissions measurement, emissions models, control strategies, and dispersion models.

**Miscellaneous Legal Counsel Support (various projects).** Provided technical and/or regulatory support (with respect to air pollution regulations) to legal counsel for various clients. Cases have included quantification of fugitive emissions from asphalt, quantification of fugitive and other emissions from manufacturing and investigation of NSPS applicability history, and evaluation of suspected fraudulent air pollution control equipment.

**Comment Preparation for Regulations and Policies (2002 – present)**. Developed comments on various California air district and Air Resources Board regulations and policies for the Western States Petroleum Association (WSPA). Work has focused on the area of retail gasoline dispensing facilities (GDFs) and bulk terminals.

**Emissions Inventories and Control Measure Analyses (2003-2004)**. Developed emission inventory guidance and control measure assessments for the San Joaquin Valley Unified Air Pollution Control District. Analyses of winery fermentation processes involved detailed evaluation of air emissions testing programs, technical assumptions, and cost analyses, and was used by the District to support Regulation 4694 (adopted December 2005).

**Alternative Fuel Evaluations (1996-1997)**. Provided emissions estimates for evaluating alternative fuel usage in U.S. Postal Service delivery vehicles; moderated roundtable discussions between interested parties. Developed a decisionmaking tool for evaluating alternative fuel usage in Massachusetts Bay Transportation Authority transit buses, with regard to cost-effectiveness and compliance with EPA regulations for urban bus retrofits.

**Greenhouse Gas Inventory Evaluations (2006-2008)**. Reviewed GHG emissions issues associated with five LNG terminal projects proposed (or expected to be proposed) in southern California. Conducted technical review of El Paso Energy's national corporate emissions inventory for compressor stations, storage facilities, and related sources within the framework of the California Climate Action Registry (CCAR).

**State Implementation Plan Revision (2004)**. Project manager for the development of a revision to the 2009 Minneapolis/St. Paul Maintenance Plan for carbon monoxide (CO) as a consultant to the Minnesota Pollution Control Agency. Incorporated interagency consultation (as required by statute), authored final report, and completed project two months after contract authorization. EPA Region V issued a direct final approval of this revision (69 FR 71375, December 9, 2004) one month after receiving it.

**Environmental Sampling/Monitoring and Analysis (multiple projects)**. Planned, supervised, executed, and/or reviewed dozens of source testing programs, localized ambient air quality sampling programs, and indoor air quality sampling programs for a variety of clientele. Evaluated a variety of continuous emissions monitoring system (CEMS) technologies for multiple clients. Special focus on quality assurance of results, including evaluation of laboratory analyses.

**Other Technical Evaluations (various projects)**. Developed emissions inventories and evaluated control technology information for the San Joaquin Valley Unified Air Pollution Control District, Mid-Ohio Regional Planning Commission (MORPC, Columbus, OH), and Mid-America Regional Council (MARC, Kansas City). Vetted vendors for marine vessel emissions control equipment on behalf of Excelerate Energy. Summarized key operating experiences and other technical information regarding coal-fired utility boiler NO<sub>x</sub> control technologies for Orion Power's Director of Environmental Technologies (and developed a flexible cost-benefit tool for decisionmaking purposes).

## SELECTED PUBLICLY AVAILABLE REPORTS AND PUBLICATIONS

- Tamura T.M. (2006) Key Questions for Analysts of Energy Balances and Other Policy Analyses. *EM – The Magazine for Environmental Managers*. June, pp. 14-16. (Also available from <http://www.environmental-expert.com/resultEachArticle.aspx?cid=6477&codi=6607&idproducttype=6&idmainpage=62&level=0>.)
- Tamura T.M. (2006) Revisiting Earth Day. *EM – The Magazine for Environmental Managers*. April, pp. 31-34.
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