GOLDEN GATE UNIVERSITY School of Law

Environmental Law and Justice Clinic

January 30, 2008

Mr. Scott Lutz
Manager, Toxic Evaluation Section
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Sent by email to: slutz@baaqmd.gov

Dear Mr. Lutz:

On behalf of The West Berkeley Alliance for Clean Air and Safe Jobs, the Environmental Law and Justice Clinic submits these comments on the draft "Health Risk Assessment Report, Pacific Steel Casting Company, 1333 Second Street, Berkeley, California, 94710," dated September 24, 2007. In this letter, we refer to the Bay Area Air Quality Management District as "BAAQMD," or "the Air District," or simply "the District," and we refer to Pacific Steel Company as "PSC," or "Pacific Steel." Our comments are as follows.

1. **Inaccessibility of risk assessment content**
   A large portion of the risk assessment report consists of electronic Microsoft Access database files. The portions of the risk assessment rendered in PDF format, and thus readily accessible to the public, do not provide information on the toxic air concentrations that were estimated via the air dispersion model. Neither are the emission values used as inputs to the air dispersion model provided in PDF format. In order to look at this critical portion of the risk assessment, a reviewer needed to be proficient in the use of database software in order to query the Access database files provided in the appendix. Publication of key portions of the risk assessment only in the form of database files represents a significant barrier to meaningful public participation. We recommend that the Air District require PSC to republish a second draft of the report with additional PDF format tables including such documentation as is necessary to allow a standard technical review with reasonable reviewer effort.

2. **Potential underestimation of short-term air concentrations**
   Despite the accessibility issues raised above, we ran several queries on the Microsoft Access database files that were provided in Appendix D.3 of the risk assessment. In particular we queried the emissions tables ("tblEmissions") from three of the risk assessment databases ("OP_existing," "OP_Future," and "W1_Existing") to check the emission levels that were utilized in the air dispersion calculations. We found some apparent anomalies between the short-term and long-term emissions used for the source terms in each of these files. These anomalies consisted of short-term emission rates (equivalent to the maximum hourly estimates reported in the PSC emissions inventory report) that were lower than the long-term average emissions for the same source term. For example, in the OP_existing database, the average long-term emission rate of manganese from "SRC34, Plant 2, Source 27-fugitives" was 2.78×10^{-4} (g/s), whereas the short-term emission rate from this source was reported as 2.35×10^{-4} (g/s).

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Based upon our query of the databases, this problem appears to be widespread: In each of the three databases that we queried, there were 349 instances where the short-term emission rate was lower than the long-term emission rate. Moreover, there could be additional inappropriately low short-term values that are nonetheless larger than the long-term ones, although we made no attempt to identify these. This apparently general problem of emission-rate underestimation could lead to inappropriately low short-term concentration estimates in the risk assessment. We recommend that the short-term emission inputs to the dispersion model be comprehensively reviewed by PSC and the District and revised as necessary.

3. **Potential problem with long-term average emission values used to estimate off-site worker exposures**
The risk assessment estimated off-site worker risks for three 8-hour shifts at the plant. Section 4.8.1 of the assessment explains the methods used to calculate exposure concentrations in air:

> "operating schedules for each emission source were incorporated into the modeling to match diurnal emission patterns with diurnal dispersion characteristics of ambient air. These operating schedules were also used in estimating the average air concentrations during each of the three assumed offsite worker shifts."

We agree that matching the process operating schedules with diurnal meteorology and with shift-hours of off-site workers is an appropriate refinement of the dispersion analysis. However, the model used long-term emission values that were obtained by averaging all hours for each process operating schedule, instead of averaging only those operating hours occurring during each shift. For operations that have large and systematic variations in emission rate over the period of operation, this could underestimate average emissions for any particular 8-hour shift.

For example, fugitive emissions from the Plant 2, S29 and S31, pouring and shakeout operations are listed in risk assessment Table 4.1 as occurring from 6 pm to 10 am of the following day. Second-shift workers will be regularly exposed to emissions from these sources between 6 pm and midnight. Third-shift workers will be exposed from midnight to 8 am. If, as a result of the regular timing of pouring operations, emission levels from these sources were normally higher during one shift and lower during the other, then an average emission level based upon the entire process schedule will underestimate actual exposure levels for one of the shifts.

It may be that systematic variations in the plant's "cross-shift" operational emissions are small, such that the differences in risk arising from this condition would be insignificant. In any case, this potential source of variability in emissions should be analyzed and discussed in the risk assessment. For those cases where this type of variability may be significant, the dispersion model should be re-run using three sets of long-term, 8-hour-shift average emissions.

4. **Need to consider all relevant toxicity criteria for manganese**
The risk assessment utilized the current OEHHA REL for manganese (0.2 ug/m^3) to determine possible health impacts to the surrounding neighborhoods. This value is 4 times less stringent than the current U.S. EPA Reference Concentration of 0.05 ug/m^3. In addition the Agency for Toxic Substances and Disease Control has defined a Minimal Risk Level for manganese of 0.04 ug/m^3. The Air District should consider both these health protective values in determining the extent and significance of the environmental hazard posed by the plant's current manganese emissions. State law generally gives the District authority to use more stringent criteria in

deciding whether PSC poses a significant risk to the local community.[1] In addition, the Air Toxics "Hot Spots" law gives the District discretion to consider other information and use stricter standards than those set by the state board with regards to "Hot Spots" inventories and risk assessments.[2]

In addition, the District should also consider that OEHHA has recently proposed a more stringent chronic REL for manganese, thus making it more consistent with the values that have been developed by the federal health agencies. Moreover, OEHHA has proposed a new 8-hour REL for manganese that should also be taken into consideration.

Finally, in determining whether PSC presents a significant risk to the community, the Air District should determine whether the other Toxic Air Contaminants being emitted from the facility have alternative toxicity criteria that are more stringent than those developed by OEHHA. If so, then the District should consider these other criteria in judging the environmental health impact of the facility.

5. **Risk reduction audit and plan**

The Air District noted in its public workshop on the PSC risk assessment that it will consider hazard indices greater than one to be indicative of the need for community notification. We also point out that in cases where facility emissions are judged by the District to be a significant health risk to the community, the facility is required by the California Health and Safety Code to prepare a risk reduction audit and mitigation plan.[3] The District has not specified a hazard index that it generally considers to be a significant health risk under Air Toxics "Hot Spots" regulations. However, BAAQMD's permitting policies require the use of Best Available Control Technology to reduce toxic emissions when the non-cancer hazard index for a new or modified source rises above 0.2, and the District will refuse to permit a group of related new sources at a facility if their hazard index is one or greater.[4]

In addition, the California Air Resources Board reports that 17 of the California air districts have defined a hazard index level triggering a risk audit and mitigation measures. More than half of these districts regard a hazard index of one as a significant risk level requiring risk reduction measures.[5] Given that BAAQMD has determined that a hazard index of one represents a

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[1] An air district may, "…establish stricter standards than those set by law or by the state board for nonvehicular sources…" California Health and Safety Code, Section 39002.

[2] An air district is not prevented from, "…establishing more stringent criteria and requirements than are specified in this part for approval of emissions inventories and requiring the preparation and submission of health risk assessments. Nothing in this part limits the authority of a district under any other provision of law to assess and regulate releases of hazardous substances." California Health and Safety Code, Section 44365(b).

[3] "Whenever a health risk assessment approved pursuant to Chapter 4 (commencing with Section 44360) indicates, *in the judgement of the district*, that there is significant risk associated with the emissions from a facility, the facility operator shall conduct an airborne toxic risk reduction audit and develop a plan to implement airborne toxic risk reduction measures…" California Health and Safety Code, Section 44391(a). [emphasis added]

[4] "The APCO shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project risk exceeds any of the following project risk limits: A cancer risk of 10.0 in one million (10^{-5}). A chronic hazard index of 1.0. An acute hazard index of 1.0." See, BAAQMD Regulation 2-5-302.

[5] See: Air Resources Board web site at http://www.arb.ca.gov/ab2588/ district_levels.htm.

significance or action level in its other permitting activities, and considering that numerous other air districts throughout the state use a hazard index of one as the "Hot Spots" trigger level for risk audits, BAAQMD should use a hazard index of one as the significant risk level for the PSC risk assessment.

The PSC air dispersion model predicted concentrations of manganese that result in hazard indices greater than one under the current OEHHA standard of 0.2 ug/m^3. Utilizing the more stringent, federally defined toxicity criteria for manganese, or considering the proposed OEHHA criteria (noted above), these hazard indices would rise by a factor of about 4 to 5, and hazard indices greater than one would extend further out into the community. For all the above reasons, we therefore urge the District to deem that PSC's air emissions represent a significant risk, and to require PSC to carry out a risk audit and a mitigation plan capable of reducing these hazard indices to less-than-one.

6. **Background air pollution should be considered**

The risk assessment fails to consider the impact of the plant's emissions in combination with ambient background levels of criteria and other air contaminants, and thus is underestimating the potential for cumulative risk posed by PSC. The OEHHA Air Toxics Hotspots risk assessment guidance document states the Air District should determine whether it will require the risk assessment to include a consideration of the additive risk of background criteria air pollution:

> "The District should be contacted to determine if the contribution of background criteria pollutants to respiratory health effects is required to be included in an HRA for the Hot Spots Program. If inclusion is required, the method for calculating the health impact from both acute and chronic exposure (respiratory endpoint) is the standard HI approach (see Sections 8.3.1 and 8.3.4). The background criteria pollutant contribution should be calculated if the HI from the facility's emissions exceeds 0.5 in either the acute or chronic assessment for the respiratory endpoint."[6]

Neither the risk assessment protocol document[7] nor the draft risk assessment indicates that this consultation has taken place, nor do these documents report whether the Air District has made a determination as to how the risk assessment should deal with background Criteria air pollutants. Second, in light of the fact that the risk assessment has estimated respiratory hazard indices that are greater than 0.5 for several of the chronic exposure scenarios, the District should require the risk assessment to characterize the added risks of criteria air pollution (especially including particulate matter) near the plant.

In addition, although not covered in the Toxic Hot Spots risk assessment guidance, the Air District should require the risk assessment to consider background levels of TACs in its calculation of non-cancer risks. For example, Bay Area ambient air monitoring stations in Fremont and San Francisco had 24-hour manganese concentrations ranging up to about 0.05 ug/m^3 between 2000 and 2003. Given that manganese hazard quotients near the plant are in some

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[6] *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003*, OEHHA, at page 8-14.

[7] *Modeling Protocol for Pacific Steel Casting Health Risk Assessment, 1333 Second Street Berkeley, California Facility, August 2005*, Environmental Resources Management, ERM.

cases elevated above one, and in some cases, close to one, the additive effects of background manganese would provide a more accurate picture of the potential health risks due to plant emissions.

Finally, Berkeley Forge Company is located in between PSC Plants 1 and 2. The risk assessment should consider the additive impact of any toxic air pollutants and particulate matter emanating from this nearby industrial source.

Thank you for your consideration of these comments. Please feel free to call me at 415-369-5352 if you have any questions or would like clarification on any of the points covered.

Sincerely,

Kenneth Kloc, Ph.D., MPH
Staff Scientist