

**Lompoc Interagency Workgroup
Other Environmental Issues Subcommittee (OEIS)**

Summary of Activities & Recommendations

April 10, 2003

Background

The Lompoc Interagency Work Group (LIWG) created the “Other Environmental Issues” Subcommittee (OEIS) to evaluate potential environmental hazards and factors not associated with agricultural pesticide use that may have contributed to an increased rate of respiratory illnesses in Lompoc.

The OEIS assessment included such activities as radon monitoring, document review, and interviewing representatives from environmental agencies, the regulated community, and local experts familiar with Lompoc. The OEIS relied on documented information, when available. However, the majority of information discussed and reviewed was based on anecdotal information provided by agency staff familiar with Lompoc sources or local experts. Using available information, the OEIS prioritized issues based on the potential to contribute to the respiratory illnesses indicated in the OEHHA report. The OEIS then submitted recommendations for further action to the LIWG.

The OEIS would like to thank those agencies and departments who provided information and technical support to the subcommittee.

Findings

The OEIS attempted to address the most pressing environmental issues. Thus, the OEIS first addressed community concerns regarding the diatomaceous earth (DE) mining and milling industry raised by LIWG community members during a public meeting held in Lompoc in January 1998. In April 1998, the OEIS developed recommendations, which were presented to the LIWG for further action. These recommendations included:

1. That OEHHA develop cancer and chronic non-cancer risk factors for crystalline silica that can be incorporated into the Air Toxics Hot Spots Program (AB 2588) risk evaluations.
2. That the California Air Resources Board (ARB) nominate crystalline silica for evaluation as a potential toxic air contaminant and consider Lompoc for enhanced particulate sampling and characterization of crystalline silica.
3. That health-based studies be conducted in Lompoc with the goal of determining possible associations between environmental agents and illness among the residents of Lompoc. These environmental agents include, but should not be limited to: diatomaceous earth mining and milling emissions, radon, byproducts associated with agricultural operations, organic debris, pollens and molds, and other potential contaminants.

The following is a summary of the actions taken by, or authorized by the LIWG, in response to these OEIS recommendations:

1. The LIWG asked OEHHA to develop cancer and chronic non-cancer risk factors for crystalline silica. The ARB also requested that OEHHA develop a chronic non-

cancer risk factor for crystalline silica. OEHHA is developing a chronic non-cancer reference exposure level for crystalline silica.

2. The ARB conducted a pilot study of ambient air monitoring for crystalline silica in Lompoc. The report on this monitoring titled, "Pilot Monitoring Study of Crystalline Silica in Ambient Air in Lompoc, California – April 2003," is being submitted to the LIWG. The report will also be provided to OEHHA for interpretation of the monitoring results. In summary, the only samples with quantifiable concentrations of crystalline silica (the quartz form) were collected at the background site in Santa Maria. These results were similar to those from a previous study in northern Santa Barbara County. The previous study concluded that the measured concentrations of quartz were attributable to re-suspended paved road dust. It is important to note that monitoring for the pilot study occurred in 2001, after the Grefco facility closed.
3. Recommendation 3 was not implemented by the LIWG.

In developing these recommendations and investigating these issues, the OEIS met as a subcommittee on over 16 occasions from March 1998 to June 2002.

In addition, the OEIS reviewed information and attempted to assess the potential environmental impacts of: the DE processing facilities and crystalline silica; radon; Vandenberg Air Force Base emissions; the Torch oil processing facility; anhydrous ammonia fertilizer use; wind-blown dust from crop tilling; meteorological conditions; flower seed production; pollens and mold spores; and water quality. Of these, naturally occurring radon, a recognized cause of lung cancer, was found in Lompoc.

Diatomaceous Earth Processing Facilities

Emissions data were reviewed for both the Grefco facility (which ceased operations in August 1998 and officially closed in October 1998) and the Celite facility (still in operation), with particular focus on emissions of crystalline silica. Santa Barbara County Air Pollution Control District (SBCAPCD) staff provided background information on Grefco and Celite. Grefco's processing plant was located on the floor of the Lompoc Valley, in close proximity to residential, commercial and industrial areas, whereas Celite's processing facility is located at a higher elevation in a canyon south of the City of Lompoc.

According to the SBCAPCD, approximately 60-80 tons of silica dust were emitted by Grefco annually. This amount did not include the "fugitive dust" coming from areas other than the stacks. Although Celite is larger, Grefco was an older facility and had not made major modifications to its control equipment in the past two decades. Grefco had been the subject of numerous complaints and had received Notices of Violations for both public nuisance and visible particulate emissions. Other major problems included poor industrial hygiene practices, and fugitive emissions. Primary pollutants emitted from both facilities include crystalline silica (cristobalite, the principle form of crystalline silica from the calcining process), sulfur emissions, and formaldehyde.

The OEIS also reviewed the 1993 EPA Region 9 funded report “North Santa Barbara County Crystalline Silica Study,” conducted by the SBCAPCD. Based on modeling and monitoring, the 1993 study projected that potential impacts from emissions of crystalline silica would be confined to the plant sites and the areas immediately surrounding the DE facilities. Although the North County Study did not look specifically at Lompoc, the OEIS found no information to conflict with this general conclusion, based on physical observations and compliance history. The study also pointed out the need for further guidance by health authorities regarding the toxicity of crystalline silica.

Unfortunately, the OEIS did not have the opportunity to monitor the impacts of Grefco’s operations both before and after closure. Nevertheless, the OEIS believes the closing of this facility most likely contributed to an improvement of air quality in the immediate area of the former facility and a reduction in risk.

Radon

U.S. EPA Region 9 and the City of Lompoc distributed over 50 radon test kits to residents of Lompoc. Educational outreach material was provided to all participants and the general public in both English and Spanish. Results from initial testing in 1998 found a majority of the samples (27 out of 50) were less than the 4pCi/L recommended action level. Some of the samples were found to contain concentrations of radon above the U.S. EPA action level. This is consistent with historical information, which indicates that portions of Santa Barbara County have radon concentrations higher than other parts of the western United States. This finding led the OEIS to recommend to the LIWG that radon be recognized as a potential hazard in the Lompoc Valley and that residents of Lompoc be encouraged to undertake a low cost radon test of their homes in order to identify their level of risk. Subsequently, the City of Lompoc, in cooperation with the American Lung Association of Santa Barbara and Ventura Counties and the State Office of Radon, undertook a program to provide free radon test kits to residents. This program is still operating and radon information is available at Lompoc City Hall.

Vandenberg Air Force Base

The OEIS reviewed air toxics emissions data provided by SBCAPCD for Vandenberg Air Force Base (VAFB). Based on a limited data review, the OEIS concluded that routine non-launch generated emissions were unlikely to pose a significant respiratory hazard in Lompoc. The OEIS also spoke with safety officials from VAFB about potential emissions from rocket launches. According to VAFB officials, flight safety staff conduct air dispersion modeling, prior to each launch, to evaluate the potential for adverse impacts of launch emissions on and off the base. The objective of the modeling is to protect against air concentrations in excess of levels known to be immediately dangerous to life and health (IDLH levels). As long as the model does not predict exceedances of these levels of concern, launches can occur, regardless of whether the wind direction would take the launch emissions toward Lompoc. No ambient or off-site air monitoring data are collected by VAFB. However, according to VAFB officials, air monitoring is conducted at launch sites for occupational purposes. VAFB did not provide such information to the OEIS for review.

In addition, the City of Lompoc commented on a Draft Supplemental Environmental Impact Statement for the Evolved Expendable Launch Vehicle Program addressing potential impacts associated with a proposal to allow the addition of up to five strap-on solid rocket motors to the Atlas V lift vehicle and to allow the use of larger solid rocket motors on the Delta IV lift vehicle at VAFB.

Torch oil processing facility

The Torch oil processing facility (now owned by Nuevo Energy Company) is located approximately six miles north of Lompoc. Torch dewateres and degasses oil before it is transferred to the Tosco plant in San Luis Obispo. Torch emits hydrogen sulfide. Torch operates a monitoring system for hydrogen sulfide. After reviewing hydrogen sulfide monitoring data for the mid-1990s provided by the SBCAPCD, the OEIS concluded that although intermittent emissions were detected, the emissions were all below regulatory action levels.

Anhydrous ammonia fertilizer use

Anhydrous ammonia fertilizers used in agriculture can pose a hazard as respiratory irritants. According to the Santa Barbara County Agricultural Commissioner's Office, the use of anhydrous ammonia fertilizers has been discontinued in the Lompoc Valley. Most growers apparently now use aqueous ammonia drip fertilizer systems which in theory reduce peak emissions of ammonia.

Wind-blown dust from crop tilling

The public expressed concern about exposure to wind-blown dust from crop tilling on the west side of Lompoc. Ambient air monitoring for respirable particulate matter (PM-10) was conducted at a school on the west side of Lompoc from June 1995 through May 1996, for comparison with PM-10 data collected in downtown Lompoc. Samples of 24 hours in duration were collected every six days at each site. Neither sampling site exceeded the 24-hour California Ambient Air Quality Standard for PM-10 of 50 micrograms per cubic meter. (The SBCAPCD continues to conduct PM-10 monitoring in downtown Lompoc.) The OEIS recognizes that there may be shorter periods or peaks of wind-blown dust that may contribute to respiratory irritation. There are no ambient air quality standards for PM-10 exposure of less than 24 hours.

Meteorological study of Lompoc Valley

The OEIS also proposed a meteorological study designed to characterize the inversions of the Lompoc Valley. A request for proposals (RFP) was prepared and distributed. The single response to the RFP was deemed inadequate, so a study was never funded.

Flower seed production

Flower seed production occurs on the west side of Lompoc. The OEIS was concerned such production would increase the amount of windblown pollens during the flowering time of the year. According to staff of the Santa Barbara County Agricultural

Commissioner's Office, acreage in flower seed production has remained relatively constant in recent years.

Pollen and molds

According to the previously mentioned OEHHA report and a Santa Barbara County allergist, there may be a correlation between the months of the year with more cases of respiratory illnesses, bronchitis, and asthma, and the months with highest pollen and mold spore releases. The OEIS was directed by the LIWG to develop a proposal to conduct sampling for pollens and mold spores. Initial work on a proposal was completed, however the OEIS recommended that the mold and pollen study not be undertaken, as there was no funding readily available and it was the opinion of representatives of the Department of Health Services and the Santa Barbara County consulting allergist, that such a survey would not yield conclusive information and that specific outdoor molds or pollens could not be identified as respiratory irritants unique to Lompoc versus the comparison communities.

Water quality

Representatives of the OEIS toured the City's Water Treatment Plant and reviewed the City's 1997 Annual Water Quality Report. Lompoc's drinking water was evaluated as a potential source of pollutants. However, no chemicals were detected above relevant health levels. The OEIS identified caked flocculent (formerly crystalline silica material) stored in piles at the facility. Under strong wind conditions, these piles may pose an inhalation hazard to nearby residents of the treatment facility. Analysis of the white sludge from a drying basin at the facility found no crystalline silica.

Recommendations for Further Study

The OEIS recommends that OEHHA update the hospital discharge information and the Tri-Counties Regional Cancer Registry information related to respiratory illness in Lompoc.

The OEIS recommends that radon information continue to be provided to the general public, along with the remaining 4-day radon test kits.

The OEIS recommends that an educational program addressing indoor air quality be undertaken to provide the public with information on how to reduce irritants and chemicals in their homes, including smoking.

The OEIS recommends that information on chemical use reduction in homes and businesses be made available to the public.

OEIS Membership

Stacy Lawson, OEIS Co-Chair (2001-03)	City of Lompoc
Lynn Baker, OEIS Co-Chair (2001-03)	California Air Resources Board
Ray Chavira, past OEIS Chair (1998-2001)	U.S. EPA Region 9
Joel Cordes	Santa Barbara County APCD
Carla Frisk	Office of former State Senator Jack O'Connell
Martha Harnly	California Dept. of Health Services
Chris Pauley	Celite Corp.
Dave Pierce	Lompoc resident
Deb Robinson	Lompoc resident
Duane Sikorski	Santa Barbara County APCD (former member)
Bill Steinke	UC Davis (former member)
Lauren Sullivan	Lompoc resident (former member)
Susan Segovia	City of Lompoc