

**California Department of Health Services
Division of Environmental and Occupational Disease Control
Occupational Health Branch**

HAZARD EVALUATION SYSTEM

&

INFORMATION SERVICE

Annual Report

December 2004 - November 2005

A report to the Legislature submitted to the Department of Industrial Relations for the
Hazard Evaluation System and Information Service

12/30/05

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 1

December 2004 - November 2005

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

This report is mandated in Labor Code Section 147.2. It details the implementation and operation of the repository, including but not limited to: the amounts of and source of funds allocated and spent on repository activities; the toxic materials, harmful physical agents and other workplace hazards investigated during the past year, and recommendations made concerning them; actions taken to inform interested persons of possible hazards of exposure to toxic materials and harmful physical agents; and any recommendations for legislative changes relating to the functions of the repository.

The mandates of the Labor Code have been implemented in the following fashion:

1. Provision of a telephone information service to individuals seeking information about workplace hazards;
2. Provision of educational materials and an education/outreach function;
3. Provision of a hazard assessment function;
4. Provision of an extensive information repository; and
5. Provision of technical support and consultation regarding occupational health to the Department of Industrial Relations (DIR), Department of Health Services (DHS) and other agencies.

In 2005, HESIS continued to implement its mandates to protect California workers from occupational illness and disease. HESIS identified, evaluated, and provided practical information on toxic chemicals and other workplace hazards, assisted the DIR Division of Occupational Safety and Health (Cal/OSHA) in determining whether illnesses and diseases were work-related and in promulgating protective occupational health standards, and initiated and worked collaboratively with others on targeted public health hazard prevention projects and activities.

HESIS's accomplishments include:

- **Identifying workplace chemicals that pose excessive risks of cancer or reproductive/developmental damage** and determining safer exposure limits through a contract project with Cal/EPA to assist Cal/OSHA in promulgating protective standards.
- **Developing recommendations for a consistent, science-based process for identifying and controlling exposures to asthma-causing agents** to protect workers and communities in a Centers for Disease Control (CDC)-funded

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 2

December 2004 - November 2005

Occupational Health Branch (OHB) and Environmental Health Investigations Branch (EHIB) collaborative project.

- **Initiating work on a US Environmental Protection Agency (EPA) Pollution Prevention grant project to evaluate use, toxicity, and alternatives for five new industrial solvents** with the Institute for Research and Technical Assistance (IRTA) to protect workers and communities from chronic disease and to help businesses convert to the safer alternatives.
- **Providing medical consultations to assist Cal/OSHA** in determining that cases of heat-related illnesses/fatalities, acute silicosis, ergonomic injuries, rhabdomyolysis (severe muscle breakdown), hantavirus pulmonary syndrome, and other illnesses and diseases were related to work, and recommending ways to prevent new cases.
- **Investigating a case of bronchiolitis obliterans in a food flavor manufacturing facility** with Cal/OSHA, and planning a collaborative project, *Flavor Industry Safety and Health Evaluation Program* with OHB, Cal/OSHA, California-based flavor manufacturers, and the National Jewish Medical Research Center to determine if other workers are at risk for this life-threatening lung disease.
- **Providing technical assistance to Cal/OSHA in promulgating occupational health standards** through participation on and preparation of technical resource materials for Advisory Committees charged with developing protective standards for 1-bromopropane, methyl methacrylate, and other chemicals, workplace respiratory and dermal sensitizers, an emergency heat illness regulation, and an airborne infectious disease standard.
- **Completing an investigation of worker exposure to glutaraldehyde in the manufacture of heart valves** with other OHB staff and publishing and disseminating a report that includes recommendations for preventing asthma and other glutaraldehyde-related health effects.
- **Completing participation on a California Air Resources Board (CARB) Workgroup to amend the 1994 Drycleaning Airborne Toxics Control Measure** to ensure protection of worker and public health with representatives from industry, non-governmental organizations, and state, local, and federal governmental agencies.
- **Completing work on a CARB Technical Review Committee that provided oversight for a low volatile organic compound (VOC), low toxicity automotive aerosol cleaning products study** with solvent-based aerosol manufacturers, water-based cleaning manufacturers, aerosol packagers, users of automotive aerosol products, and local, state, and federal governmental agency representatives.
- **Completing work on a Cal/EPA Polybrominated Diphenyl Ethers (PBDEs) Interagency Working Group** with other DHS staff to consider the nature and extent of the PBDE problem in California and to recommend actions Cal/EPA, DHS, and

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 3

December 2004 - November 2005

others can take to mitigate exposures to and potential health effects of these persistent and ubiquitous flame retardant substances.

- **Completing an investigation of occupational health and safety hazards of large-scale steam autoclave treatment of medical waste** with other OHB staff in response to a technical assistance request from Health Care Without Harm. Developed a report for broad dissemination to stakeholders that includes hazard prevention recommendations.
- **Revising the HESIS fact sheet *Molds in Indoor Workplaces*** to include information on the Cal/OSHA Sanitation Standard that prohibits excessive water intrusion that can lead to mold growth and updated resources to assist in preventing work-related mold illness.
- **Disseminating 17,497 HESIS publications and recording 273,637 website downloads and page views** of HESIS publications posted on the OHB website.
- **Providing reliable answers, daily, to questions about health effects, symptoms, and effects on pregnancy of chemicals and other workplace hazards** from employees, employers, health care providers, and governmental agencies.
- **Maintaining a Repository of Occupational Health Information (ROHI)** that consists of 33,227 selected and uniquely indexed scientific articles, and continuing to work on a project to convert the articles from hard copy to electronic format and provide Web access to facilitate evaluation of worker hazards.
- **Analyzing survey data from women firefighters and tradespersons and developing preliminary conclusions** regarding the availability of properly-fitted, effective personal protective equipment with OHB and Cal/OSHA staff in a collaborative, interagency study.
- **Initiating work on project to develop a collaborative model to provide ongoing education and training on chemical hazards to immigrant workers** through a contract with the University California (UC) Berkeley Labor Occupational Health Program.
- **Initiating work on project to promote the use of safer alternatives to toxic solvents** used in the lithographic printing industry through a contract with UC Berkeley School of Public Health.
- **Developing a guideline for health care practitioners, *Developmental Toxicants and Healthy Childbearing*** in response to a request from Kaiser Hospital to help them respond to patients' inquiries about the effects of workplace chemicals and other toxicants on pregnancy outcome.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 4

December 2004 - November 2005

- **Developing a project to evaluate the feasibility of using occupational codes on patient information forms** to characterize and identify at-risk occupational exposures for a cohort of pregnant patients through a contract with the UC Berkeley School of Public Health.

HESIS's work with collaborators to integrate illness, injury, and pollution prevention strategies continued this year. Through these collaborative efforts, HESIS is helping to optimize state and local public health capacity, maximize protection for workers, community residents, and the environment, and simplify regulatory compliance for small businesses. HESIS participated on Cal/EPA-convened working groups and technical review committees to help prevent health hazards from exposure to dry cleaning solvents, polybrominated diphenyl ethers, solvent-based automotive cleaners, and lithographic printing cleanup solvents. HESIS's participation helped to ensure that alternative chemicals that are selected to comply with air quality regulations do not pose unintended, new health hazards for workers.

HESIS began working with IRTA on an EPA Pollution Prevention grant project to evaluate the health hazards of five new and emerging unregulated solvents, identify uses and safer alternatives for the new solvents, educate employers and workers about their health hazards and promote use of safer alternatives, and recommend protective occupational health standards for the five solvents, if needed. The results of the project will help employers prevent illness and chronic disease among workers, and will prevent harmful exposures that may be emitted from workplaces into nearby communities.

HESIS continued to provide technical assistance to Cal/OSHA to help prevent workers from becoming ill and injured. On a regular basis, HESIS provided medical consultation to Cal/OSHA Enforcement to determine if cases of illness and disease were work-related, and developed recommendations to assist employers in preventing new cases of work-related health problems. HESIS served on and provided technical assistance to Cal/OSHA Advisory Committees, and is helping Cal/OSHA develop more protective permissible exposure limits for workplace carcinogens and reproductive toxicants, dermal and respiratory sensitizers, and other chemicals, a permanent heat illness standard, and an airborne infectious disease standard. HESIS continues to make progress on a project that will provide Cal/OSHA staff Web-based access to the HESIS Repository of Occupational Health Information, a collection of occupational health journal articles uniquely indexed for quick retrieval to assist staff with field investigations and other hazard assessment work.

Other collaborative public health activities this year included: completing, with other OHB staff, a study of worker health and safety hazards related to steam autoclaving of medical waste and an evaluation of worker exposures to glutaraldehyde in the heart valve manufacturing industry; making recommendations for a consistent, science-based

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 5

December 2004 - November 2005

process for identifying and controlling exposures to occupational asthmagens in a joint DHS OHB and EHIB project funded by the CDC; assessing the availability of effective personal protective equipment for women firefighters and tradeswomen with Cal/OSHA staff and other OHB staff; planning a cooperative study with California flavor manufacturers, Cal/OSHA, National Jewish Medical Center, and other OHB staff to determine if workers are at risk for bronchiolitis obliterans, a serious lung disease; and working on contract projects with the University of California to educate and train immigrant workers about chemical hazards, and to evaluate the use of occupational codes on patient information forms to identify at-risk exposures for pregnant workers.

HESIS staff continued to assess the health hazards of specific work-related exposures and to provide technical assistance to agencies and groups. Surveillance of the occupational health literature, identification of new and unappreciated hazards, and expansion of the information repository are ongoing. The OHB Web site (www.dhs.ca.gov/ohb/HESIS/hesipub.htm) continues to showcase the publications developed by HESIS. HESIS also continued to provide support for OHB through active participation on the management team and serving on Branch-wide and Division-wide committees.

Section 1.01 Labor Code Section 147.2 - Mandate 1

Provide reliable information of practical use to employers, employees and representatives of employees, and other governmental agencies on the possible hazards to employees of exposure to toxic materials or harmful physical agents.

1. Telephone Response System (TRS)

- Consultations. Provided 195 formal health and safety consultations from December 2004 through November 2005. The consultations concerned *chemical* (61%), *biological* (8%), and *physical* (4%) agents, also *indoor air quality, primarily molds* (20%). *Safety hazards and musculoskeletal disorders* (2%) and *other health and safety issues* (5%), including regulatory requirements and cancer and illness clusters, constituted the remaining consultations.
- Callers. Responded most frequently to inquiries from *employees* (38%) followed by *employers* (19%), *governmental agencies*, including Cal/OSHA (12%), *health care providers* (10%), *unions and non-governmental organizations* (4%), and *others*, including consultants and attorneys (17%).
- Inquiries. Received requests for *information* (63%) related to specific workplace hazards and issues, questions about the relationship of *symptoms* (22%) to work exposures, and questions related to the impact of work exposures on *pregnancy outcome* (15%).

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 6

December 2004 - November 2005

- Mail-out Program (MOP). Continued to increase the efficiency of the TRS by developing, revising, and disseminating packets of materials on common toxic materials and other workplace hazards for which HESIS receives a large number of repeat inquiries. The MOP packets include generic letters, fact sheets, and other specific hazard evaluation / prevention information. Additions during the report period include: 1) ozone-generating air cleaning devices; 2) chlorine; 3) dioxin; 4) flood response hazards; 5) glove materials; and 6) electromagnetic fields internet resources.
- Quick Response Program. Continued to use and add to the database of comprehensive responses to streamline the TRS process. The database serves as an informational resource for answering repeat questions on complex or unusual toxic materials or hazards.

2. Educational Materials Development

- Molds in Indoor Workplaces Fact Sheet (November 2005). Revised the March 2001 fact sheet to include information on the revised Cal/OSHA Sanitation Standard (based on a recommendation by HESIS) that recognizes workplace mold as unsanitary, and requires employers to eliminate water intrusion that can lead to mold growth. Also revised the Resources section and made other minor revisions. Targeted to office workers, teachers, and other workers in indoor/building environments and their employers, the fact sheet includes information on: health effects, how to tell if you are exposed at work, how exposure occurs, symptoms, workers at high risk for mold-related illnesses, what to do about mold in the workplace, and resources.
- Chemical Fact Sheet Update Project. Continuing to work on this project to update chemical fact sheets published by HESIS between 1989 and 1993. Identifying and evaluating all relevant toxicological, medical, pharmacokinetic, industrial hygiene, and regulatory information published after the publication dates of the 15 fact sheets. In addition, the revised fact sheets will include recommendations for safer, pollution-preventing substitutes and industrial hygiene control strategies for specific occupational uses of the chemicals.

Completing final drafts and anticipate publishing updated versions of the following fact sheets in 2006:

- ◆ Isocyanates
- ◆ Glutaraldehyde
- ◆ Methylene Chloride

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 7

December 2004 - November 2005

3. Educational Materials Dissemination

- HESIS Outreach Activities / Publications Request Line. Distributed **17,497** HESIS publications through outreach activities and in response to direct requests during the report period. The Occupational Health Branch Web site generated some of the requests.

Mailed Aerosol Cleaner Use in Auto Repair and Injury, Illness, & Pollution Prevention in Auto Repair to:

- ◆Automotive Service Council Local Chapters
- ◆International Association of Machinists Local Lodges
- ◆Certified Unified Program Agencies and
- ◆Air Pollution Control Officers.

Continued to mail HESIS publications to the Cal/OSHA District and Area Offices for further dissemination by Enforcement and Consultation staff, and to serve as resource information for their telephone consultations. Mailed 1,700 auto repair industry publications (*Aerosol Cleaner Use in Auto Repair; Injury, Illness, & Pollution Prevention in Auto Repair; and Diesel Engine Exhaust Health Hazard Advisory* during the report period.

Organizations and groups that requested and disseminated HESIS publications include:

- ◆San Diego County Department of Environmental Health distributed *Aerosol Cleaner Use in Auto Repair; Injury, Illness, & Pollution Prevention in Auto Repair; n-Hexane Use in Auto Repair; and Diesel Engine Exhaust Health Hazard Advisory* at Automotive Pollution Prevention Workshops.
- ◆California Committee on Occupational Safety and Health (CalCOSH) used *Understanding Toxic Substances* and *Sewing Machine Operators* to conduct outreach and training.
- ◆San Francisco Health Department used *Aerosol Use in Auto Repair and Injury, Illness, & Pollution Prevention in Auto Repair* in pollution prevention trainings.
- ◆Comp West used *Understanding Toxic Substances* to educate new workers' compensation policy holders by linking the publication to their Web site and distributing hard copies of the booklets.
- ◆Contra Costa Hazardous Materials Program distributed *n-Hexane Use in Auto Repair* and *Aerosol Cleaner Use in Auto Repair* to their auto repair Green Businesses.
- ◆Occupational Health Internship Program used *Drywall Installers, Sewing Machine Operators, Nursery Workers, Warehouse Workers, and Lab Pipettors* as resource materials for student interns.
- ◆Safety Management & Development used *Understanding Toxic Substances* in conducting Hazard Communication trainings.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 8

December 2004 - November 2005

- ◆ California Air Resources Board (CARB) Public Information Office continued to disseminate HESIS chemical fact sheets to educate the public about chemicals CARB has identified as Toxic Air Contaminants.
 - ◆ California Bureau of Barbering and Cosmetology continued to disseminate the HESIS booklet, *Artificial Fingernail Products: A Guide to Chemical Exposures in the Nail Salon* to educate licensees.
 - ◆ Highland Supply Corp.
 - ◆ U.S. EPA
 - ◆ County of San Diego
 - ◆ Holtville Fire Dept.
 - ◆ Montgomery County Public Schools
 - ◆ Cal/OSHA
 - ◆ State Compensation Insurance Fund
 - ◆ City of South Pasadena Fire Dept.
 - ◆ Sierra Telephone
 - ◆ City of Fortuna
 - ◆ CA Youth Authority
 - ◆ Steve's Auto Care
 - ◆ Battery Systems
 - ◆ Wood—Think It Was New
 - ◆ CA Authority of Racing Affairs
 - ◆ County of Tuolumne, Environ. Health
 - ◆ Contra Costa Hazardous Materials
 - ◆ Inglewood Public Library
 - ◆ Orange County Fire Authority
 - ◆ Milpitas Fire Department
 - ◆ County of Monterey Dept. of Health
 - ◆ Fullerton Fire Department
 - ◆ Petaluma Fire Prevention
 - ◆ California Business Group
 - ◆ Santa Barbara County Fire Dept.
- Conferences, Meetings, Presentations. Continued to distribute HESIS publications, brochures, and publication lists at formal conferences and meetings, and at presentations and lectures given by HESIS and other OHB staff. This year, these included the: ◆ OHB Buildsafe Tailgate Train the Trainer Statewide Seminars ◆ Western Regional Pollution Prevention Network Annual Meeting ◆ East Bay Painting & Decorating Contractors of California Trade Show ◆ California Public Health Association Annual Meeting ◆ Cal/OSHA Advisory Committee Meetings ◆ Asthma, Diesel, & Port Activity Town Hall Meeting, Long Beach ◆ Cal/OSHA Senior Industrial Hygienist Meetings ◆ Western Occupational Health Conference ◆ California Public Health Assoc.—North Brown Bag Seminar and ◆ Pacific Builders Safety Expo, Sacramento.
 - TRS Consultations. Disseminated additional HESIS publications to supplement and reinforce the hazard evaluation and prevention information provided to callers.
 - OHB Web Site. Continued to disseminate HESIS educational materials via www.dhs.ca.gov/ohb/HESIS/hesispub.htm

Posted *Aerosol Cleaner Use in Auto Repair and Injury, Illness, and Pollution Prevention in Auto Repair* to the OHB Web site during the report period.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 9

December 2004 - November 2005

Posted the following HESIS booklets in PDF format: (1) *Understanding Toxic Substances*; (2) *HESIS Guide to Solvent Safety*; (3) *Workplace Chemical Hazards to Reproduction: A Resource for Worker Health and Safety Training and Patient Education*; and (4) *Artificial Fingernail Products: A Guide to Chemical Exposures in the Nail Salon*

Recorded **273,637** downloads and page views of HESIS publications from 12/1/04 to 11/30/05.

Top ten HESIS publications downloaded or viewed:

◆ *Formaldehyde* (22,033) ◆ *Molds* (15,956) ◆ *Understanding Toxic Substances* (12,164) ◆ *Chromium 6* (9,194) ◆ *Artificial Fingernail Products* (8,727)
◆ *Rabies* (6,446) ◆ *Warehouse Workers* (6,398) ◆ *Trichloroethylene* (6,373)
◆ *Grocery Cashiers* (6,354) ◆ *Guide to Getting Medical Care for Job-Related Pain that Won't Go Away* (6,305)

4. Education / Outreach

- Protecting Immigrant Workers from Occupational Illness and Disease: A Collaborative Model to Assess Needs and to Provide Education and Training. Initiated work on this contract project that is being implemented by the UC Labor Occupational Health Program (LOHP). Identified community-based organizations that provide services to immigrant workers to participate in the project. They include: Colectiva de Mujeres, San Francisco; San Francisco Day Laborer Program; Centro Legal de la Raza, Oakland; Lideres Campesinas; and Asian Law Caucus. Based on a needs assessment, and with assistance from HESIS, LOHP will develop a two-day Training of Trainers on toxic chemicals and safer alternatives to increase the capacity of the organizations to provide education and technical assistance to immigrant workers. A goal of the project is to pilot a collaborative model between HESIS, LOHP, and community organizations to provide ongoing health and safety assistance to immigrant workers. The collaborative model will enable HESIS to understand the unique needs of immigrant workers and to develop mechanisms to reach these workers with key information on new and emerging chemical hazards to protect against work-related illness and disease.
- OHB Web site Development. Developed Web pages that describe HESIS and the program's major activities and projects. Newly developed HESIS Web pages include: *Providing Practical Information*; *Recommending Protective Standards*; *Providing Early Warnings About Workplace Health Hazards*; *Tracking Workplace Chemical Hazards*; and *Providing Medical Assistance to Help Ensure Safe and Healthful Workplaces.*

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 10

December 2004 - November 2005

- California Public Health Association Annual Meeting. Presented *Injury, Illness, and Pollution Prevention in Auto Repair: A Collaborative Model to Protect Workers, Communities, and the Environment*.
- California Industrial Hygiene Council Annual Meeting. Presented *Why Not Use Quantitative Risk Assessment to Set PELs*.
- Western Regional Pollution Prevention Network Annual Conference. Presented (1) *Chlorinated Paraffins and t-Butyl Acetate: What We Know, Don't Know, & Should Know to Protect Health and the Environment*; (2) *Prenatal Phthalate Exposure and Male Genital Development*.
- Council of State and Territorial Epidemiologists Annual Meeting. Presented preliminary findings of the Women and Personal Protective Equipment (PPE) study. The collaborative OHB and Cal/OSHA study assesses types of PPE used by tradeswomen and female firefighters, and their fit acceptability.
- California Public Health Association—North Brown Bag Seminar. Presented *Protecting Workers, Communities, & the Environment From Toxic Chemicals & Other Hazards*.
- DHS OHB “Show & Tell” Meetings. Presented: (1) *Emerging Chemicals: New Health Risks for Workers & Communities*; (2) *It's All in the Way You See It: Re-Framing Attitudes Toward Occupational Health and Safety*. The purpose of the Show & Tell meetings is to ensure that staff are familiar with the work being conducted in OHB, and to increase opportunities for intra-branch collaboration—one of the goals of the OHB strategic plan.
- University of California Center for Occupational and Environmental Health Occupational Medicine Residents Orientation. Presented *Hazard Evaluation System and Information Service: Protecting Workers Through Public Health Service, Projects, and Policy Initiatives* to help orient the residents to the Occupational Health Branch.
- Occupational Health Internship Program (OHIP). Presented *Workplace Health Hazards: What We Know, Don't Know, & Need to Know to Protect Workers* to help orient students participating in an 8-week program. The goal of the program is to link the skills and interests of students with the needs of workers to eliminate and control hazards and prevent occupational illnesses and injuries. A second goal is to interest students in pursuing careers in occupational health.
- Stanford University and Collaborative on Health and the Environment Reproductive Health Workshop. Participated in *Understanding Environmental*

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 11

December 2004 - November 2005

Contaminants and Fertility: Science and Strategy at the invitation of the organizers to provide an occupational health perspective and information on relevant HESIS program activities.

- City of San Francisco World Environment Day. Participated in *Precautionary Principle World Café Discussion* at the invitation of the organizers to provide an occupational health perspective and information on HESIS's integrated strategies to protect workers, communities, and the environment.
- National Public Radio. Discussed liver toxicity and other potential occupational health hazards of decamethylcyclopentasiloxane (Green Earth™), a solvent used in dry cleaning.
- Cal/OSHA District Manager Meeting. Presented information on the benefits of and assistance provided by the Cal/OSHA Medical Unit (to which HESIS provides medical consultation) and HESIS.
- Cal/OSHA Senior Industrial Hygienist and Medical Unit Meetings. Continued to provide oral and written reports of HESIS program activities and to solicit feedback on educational materials and key projects. Also discussed relevant OHB activities, and provided toxicological expertise during ongoing participation in these bimonthly meetings.
- DHS Indoor Air Quality Working Group (IAQWG). Continued active participation in the Working Group. Continued to provide oral and written reports of HESIS activities, particularly related to indoor air quality, for dissemination within the group and posting on the IAQWG Web site.
- Pollution Prevention Center Advisory Committee Meeting. Continued to participate with other Committee members in discussions of completed and on-going projects conducted by the Institute for Research and Technical Assistance (IRTA) and applicable environmental and occupational health and safety regulations. Organized by IRTA, the Pollution Prevention Center is a unique partnership of businesses, agencies responsible for regulating air, water and waste streams, and public health agencies. Advisory Committee members include representatives of US EPA Region 9, Cal/EPA's Department of Toxic Substances Control and CARB, the City of Los Angeles Bureau of Sanitation, South Coast Air Quality Management District (SCAQMD), Southern California Edison, Rockwell International, and HESIS. The Center works with agencies and industries to provide the latest technological information on industrial cleaning processes as well as updates on environmental laws and regulations pertinent to all Advisory Committee members.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 12

December 2004 - November 2005

- OHB Occupational Health Watch, Summer 2004. Published three articles on HESIS prevention-based projects in the newsletter: (1) *Looking Out for Heat Stress on Hot Days*; (2) *Push for Better Protection Against Asthma*; and (3) *Using Safer Automotive Cleaners*. The purpose of the newsletter is to share with stakeholders, including unions, employers, trade groups, employee organizations, and health care providers, OHB's efforts to identify and evaluate workplace hazards, and to track and prevent occupational hazards, injury, and disease in California.

Labor Code Section 147.2 - Mandate 2

Collect and evaluate toxicologic and epidemiologic data and any other information that may be pertinent to establishing harmful effects on health of exposure to toxic materials or harmful physical agents.

1. Selected Hazard Assessments

- EPA Pollution Prevention Grant — Evaluation of Use, Toxicity, and Alternatives to New and Emerging Industrial Solvents
Initiated work on this US EPA-funded project after obtaining approval for a non-competitive bid and contracting with the Institute for Research and Technical Assistance (IRTA), a non-profit organization, as specified in the grant proposal. Identifying health hazards, uses, and cost-effective, safer alternatives for 1-bromopropane (1-BP), decamethylcyclopentasiloxane (D5), n-methylpyrrolidone (n-MP), parachlorobenzotrifluoride (PBCTF), and 1,2-trans-dichloroethylene (DCE), five new and emerging industrial solvents. The goal is to educate workers and employers about the health hazards and to help businesses convert to the safer alternatives. Adopting safer alternatives to the solvents will help to protect workers and community residents from chronic disease and will simplify regulatory compliance for employers.
- Occupational Health Hazard Risk Assessment Project: Protecting California Workers from Chronic Health Damage
Completing work on this contract project with the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA). Identified workplace chemicals that may pose risks of cancer and reproductive damage because they are either not regulated by Cal/OSHA, or the existing Cal/OSHA Permissible Exposure Limit (PEL) is based on short-term or acute health effects, such as irritation, as opposed to long-term health effects like cancer. Estimated cancer risks to workers at the existing PELs for Proposition 65 occupational carcinogens. The estimates are based on cancer unit risk values developed by OEHHA, after adjusting the values for occupational exposure. Identified the PEL values for the un-regulated and under-regulated chemicals that would be

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 13

December 2004 - November 2005

required to lower the cancer risk for exposed workers to 1/1000, the risk level which is currently used to regulate occupational carcinogens. The goal of this project is to assist HESIS in implementing its mandate to recommend science-based, protective occupational health standards to Cal/OSHA. Preparing a peer-reviewed publication. The publication will describe the project findings and use of a consistent, quantitative risk assessment method to identify protective exposure limits for workplace chemicals that cause cancer or reproductive and developmental toxicity.

- Evidence-Based Approach to Setting Occupational Exposure Limits for Asthma-Causing Agents Project

Completed work on this CDC-funded joint project with OHB Occupational Health Surveillance and Evaluation Program staff, the DHS Environmental Health Investigations Branch, and two project consultants. The goals of the project are to (1) prevent asthma among workers and community members by proposing a science-based, consistently applied process to identify and control exposures to workplace agents that cause asthma; and (2) strengthen the linkages between environmental and occupational asthma prevention activities. Developed and evaluated a list of 30 occupational asthma-causing agents identified by state, national, and international organizations and agencies. Based on existing methods used in the U.S. and selected other countries, identified policy issues that may impact consistent identification and control of exposures to occupational asthmagens. Developed recommendations based on the policy issues to help ensure early identification and timely regulation of occupational asthma-causing agents. Publication of the project findings and recommendations in a peer-reviewed journal article and in *California Asthma Facts* will facilitate broad dissemination to government and non-governmental agencies, academic researchers, pulmonary medicine physicians, and community-based organizations.

- Investigation of Bronchiolitis Obliterans Risk in the California Food Flavoring Industry

Participated in conducting a Cal/OSHA Medical Unit investigation and drafting an Order to Take Special Action to protect against serious respiratory disease at a food flavoring facility in Southern California. The investigation was in response to a confirmed case of bronchiolitis obliterans in a worker who used diacetyl and other chemicals suspected of causing this life-threatening disease. Planning *Food Flavor Industry Safety & Health Evaluation Program*, an onsite industrial hygiene and medical surveillance project to be conducted jointly with other OHB staff, Cal/OSHA, California food flavor manufacturers, and the National Jewish Medical Research Center. Attended planning meetings with project participants to discuss identification of potential workers at risk in California, required elements of an evaluation program, and required information and resources. Developed a protocol for use in the joint project.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 14

December 2004 - November 2005

- Large-Scale Steam Autoclave Treatment of Medical Waste: Investigation of Potential Worker Hazards Project
Completed work, with the OHB Occupational Health Surveillance and Evaluation Program, on this project that was initiated in response to a technical assistance request from the American Nurses Association, Center for Environmental Health, and other members of Health Care Without Harm. Health Care Without Harm wanted to ensure that concern over a prior environmental hazard (e.g., dioxin exposure from medical waste incineration) does not result in new health risks to workers. Characterized occupational health hazards of a large-scale steam autoclave by: 1) observing the medical waste treatment process; 2) interviewing employer representatives; 3) interviewing drivers and medical-waste-treatment plant workers; 4) reviewing employer written records; and 5) conducting key informant interviews. Assessed worker exposure to chemical, biological, and/or physical hazards, and ergonomic stressors; employer measures to limit worker exposures; and worker training and hazard communication about their exposures. Developed, and will disseminate a report that includes project conclusions and hazard prevention recommendations.
- California Chemicals Policy Advisory Committee
Completed serving as a technical advisor on this committee organized and convened by the California Policy Research Center, University of California Office of the President. Other representatives were from the DHS Division of Environmental and Occupational Disease Control and University of California Center for Occupational and Environmental Health (COEH). Provided technical expertise, and reviewed, evaluated, and provided comments on two drafts of the policy paper. The final policy paper, which reflects the views of the author, will be submitted to the Legislature in January 2006. The California Policy Research Center responded to a request by Senator Byron Sher and Assembly Member John Laird. The project goals were to (1) identify significant chemical policy models in the U.S. and Europe and analyze their applicability to California; (2) convene key stakeholders to share and provide input on the comparative analysis; and (3) prepare an overview paper that analyzes the policy options and identifies appropriate chemical policy models for California.
- California Air Resources Board (CARB) Dry Cleaning Airborne Toxics Control Measure (ATCM)
Completed participation on a workgroup comprised of industry, government, and non-government organizations to evaluate (and amend if necessary) the 1994 ATCM that addresses perchloroethylene (perc) emissions. The purpose of the evaluation was to compare perc dry cleaning to the available alternatives and determine whether the current ATCM is adequately protective of public health. HESIS's participation helped to ensure that worker health and safety issues were addressed as a part of the ATCM evaluation.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 15

December 2004 - November 2005

Assisted the Institute for Research and Technical Assistance (IRTA) in evaluating the effectiveness of dry cleaning alternatives to perc in conjunction with the CARB-sponsored ATCM project. Reviewed and evaluated available toxicity data and Material Safety Data Sheets (MSDSs) for the alternative aliphatic hydrocarbon solvents, DF 2000™, Hydroclene Drycleaning Fluid™, Shell Oil Company Dry Cleaning Solvent™, and Ecosolv Dry Cleaning Fluid™. Also evaluated the toxicity of the dry cleaning absorbents, Tonsil Optium 414 FF™ and Diatomaceous Earth (J.T. Baker). Concluded that the toxicity of all of the hydrocarbon dry cleaning alternatives is consistent with general organic solvent toxicity—none pose risks of cancer, and they are not selective reproductive or developmental toxicants. Compared to perc which is a carcinogen, HESIS considers them safer dry cleaning fluid alternatives. Tonsil and Diatomaceous Earth contain crystalline silica and pose a risk of silicosis and lung cancer if airborne dust is inhaled. Potential exposure and health risks should be minimal if they are kept wet and there is no exposure to the dry material. Due to volatile organic compound (VOC) emission concerns and unresolved cancer and other health concerns with some of the perc alternatives such as decamethylpentasiloxane (D5), CARB is considering strengthening the existing Dry Cleaning ATCM instead of transitioning to non-perc alternatives to ensure protection of public health.

- California Air Resources Board (CARB) Automotive Repair Industry Study
Completed work on the Technical Review Committee (TRC) comprised of representatives of the solvent-based aerosol manufacturers, water-based cleaning manufacturers, state and federal government agencies, aerosol packagers, and users of automotive aerosol products. As a member of the TRC, provided oversight for a CARB-funded study (conducted by IRTA) to develop, test, and demonstrate near-zero volatile organic compound (VOC) water-based aerosol products in the automotive repair industry. Also provided toxicological and occupational health and safety expertise, and assisted IRTA in conducting a toxicity comparison of the low-VOC alternative cleaners (tested during the project) with the existing solvent-based cleaners. Based on the toxicity comparison, concluded that the low-VOC alternative cleaners are of low toxicity and pose significantly less risks of health hazards than the high-VOC solvents currently in use. Although a few of the water-based cleaners contain solvent additives, the concentrations are low. The alternative cleaners that contain soy/acetone blends are also of low toxicity compared to the solvent-based cleaners. IRTA found that alternative low-VOC, low toxicity, water-based and soy/acetone-based aerosol cleaners performed adequately, and in some cases, very well for engine degreasing, carburetor and fuel injection system cleaning, brake cleaning, and general purpose cleaning. The VOC content of the alternative cleaners ranged from zero to 10 percent.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 16

December 2004 - November 2005

- South Coast Air Quality Management District (SCAQMD) Lithographic Printing Industry Study
Continued to serve on a technical panel for this study funded by SCAQMD. The purpose of the study is to determine whether there are viable alternatives to current high-VOC solvents used for cleaning printing press parts. Other members of the technical panel include the Printing Industry Association; ink, roller, blanket, and press manufacturers; and local printers affected by the District's rule 1171. The rule imposes future compliance dates for the use of lower-VOC cleaning materials. HESIS is helping to ensure that the alternative cleaning materials selected to comply with air quality regulations do not pose new hazards to workers. During the report period, continued to attend meetings and review and comment on progress reports presented by the project contractors. The Graphic Arts Technical Foundation reported on reformulating existing solvents, IRTA reported on developing new solvents, and the University of Tennessee reported on evaluating the performance of low-VOC solvents.
- Protecting Lithographic Printers from Chronic Health Damage: Promoting the Use of Safer Alternatives for Toxic Cleanup Solvents
Initiated work on this new project that is being implemented through an interagency agreement with the UC Berkeley School of Public Health. Identified Material Safety Data Sheets for solvent products used in lithographic printing, and began researching safer alternatives. The goal is to prevent potential long-term health damage among workers in the lithographic printing industry by promoting the use of safer alternatives to the toxic cleanup solvents currently in use. This project will identify lithographic printers potentially at risk for solvent-related health problems; evaluate solvents used by the printers, including hazard controls and knowledge of the health hazards; identify existing, safer solvent alternatives; and elucidate opportunities and barriers related to using safer solvent alternatives in specific lithographic printing facilities. This information will help HESIS conduct outreach to the lithographic printing industry to help prevent work-related nerve damage, cancer, and other chronic health hazards, and to prevent environmental pollution caused by emissions of toxic printing solvents.
- Cal/EPA Polybrominated Diphenyl Ether (PBDE) Interagency Working Group
Participated, with other DHS representatives, and with representatives of Cal/EPA Boards, Departments, and Offices on this Workgroup formed at the direction of the Cal/EPA Secretary. The purpose was to consider the nature and extent of the PBDE problem in California and to recommend actions Cal/EPA and others can take to mitigate exposures to and potential health effects of PBDEs. The manufacture, distribution, and processing of pentabrominated diphenyl ether (pentaBDE) and octabrominated diphenyl ether (octaBDE) flame retardants will be prohibited in California as of June 1, 2006. The prohibition was prompted by findings that exposures to PDBEs are widespread and may pose health risks. Because penta and octaBDEs are ubiquitous, Californians will

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 17

December 2004 - November 2005

continue to be exposed after the ban. Cal/EPA and DHS staff conducted preliminary studies to better understand the pathways and extent of PBDE exposure in California and PBDE toxicity. The Workgroup recommendations propose further monitoring of PBDE levels to increase the science base for decision-making. In addition, the Workgroup made several recommendations for near-term action that are intended to reduce PBDE exposure through outreach and education, voluntary pollution prevention, and regulatory initiatives. The findings and recommendations of the Workgroup are outlined in the draft report, *Recommendations for PBDE Exposure Reduction: A Report of the Cal/EPA PBDE Workgroup*.

- Richmond Field Station and Zeneca Site Health Hazard Assessment
Responded, with staff from the DHS Environmental Health Investigations Branch (EHIB), and the Contra Costa County Health Officer, to concerns from a coalition of unions representing UC Richmond Field Station employees, local business owners, and community residents about possible health effects from exposures at two adjacent, contaminated sites in Richmond. Provided toxicology and occupational health expertise, attended town hall meetings, assisted in developing conclusions and recommendations, and reviewed and provided comments on a Provisional Joint Health Statement developed by EHIB and issued by the Contra Costa County Health Services Department and the California Department of Health Services. The Health Statement was based upon available information about *current* exposure from the sites. Concluded, on the basis of limited available data, that it does not appear that indoor air in nearby businesses and in Richmond Field Station buildings is being impacted by contamination from the sites. Made recommendations related to Cal/EPA Department of Toxic Substances Control (DTSC) collecting additional information on contaminants, and UC and DTSC taking specific actions to provide information about site contaminants and to mitigate exposures to the contaminants. New information may warrant revision of the statement and changes in recommended actions.
- Kaiser Healthy Childbearing Project
Initiated work on this new project in response to a request from Kaiser Hospital's Women's Health Research Institute (WHRI). WHRI requested help in responding to inquiries (currently being referred to Kaiser Genetics Counselors) from patients of childbearing age who are concerned about the effects of workplace chemicals and other toxicants on pregnancy outcome. Developed a guideline for health care practitioners, *Developmental Toxicants and Healthy Childbearing*. The guideline describes developmental toxicants such as polychlorinated biphenyls (PCBs), polybrominated diphenyl ethers (PBDEs), phthalates, dioxins, perchlorate, lead, mercury, and organic solvents and the risks posed through home and environmental exposure; sources of exposure; recommendations for reducing exposures; and resources. It also includes information, recommendations, and

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 18

December 2004 - November 2005

resources on identifying and evaluating the effects on pregnancy of workplace toxicant exposures. Agreed that patients' inquiries related to effects of workplace hazards on pregnancy could be referred to the HESIS Telephone Response System. Will provide additional technical assistance through presentations on workplace reproductive and developmental toxicants at Kaiser-sponsored health care provider conferences.

- Evaluating Occupational Coding on Patient Information Forms to Identify At-Risk Exposures to Pregnant Workers
Developed an interagency agreement with the University of California, Berkeley, to implement this new project. The goal is evaluate the feasibility of characterizing occupational exposures for a cohort of pregnant patients and identifying toxicants that pose risks of developmental toxicity using occupational codes on patient information forms. This information would help HESIS conduct industry and job-related education and outreach to workers, employers, and health care providers on reproductive and developmental toxicants, and on ways to protect against exposure. The project was developed in response to the ongoing inquiries HESIS receives daily about effects of chemicals and other workplace exposures on pregnancy outcome.
- Women's Personal Protective Equipment (PPE) Fit Problems Study
Continued to participate in a joint Cal/OSHA and OHB study to assess the availability of properly-fitted, effective PPE for women firefighters and tradespersons. Developed and presented preliminary conclusions based on analysis of survey data. Final conclusions, a description of specific fit problems, and potential solutions are being developed for the final report. The study was prompted by a request from a labor representative of the Cal/OSHA Advisory Committee to address this long-standing issue that has been raised over the years by many women workers.
- Nanotechnology Interagency Workgroup
Began working with other OHB staff and representatives of the Cal/EPA Office of Environmental Health Hazard Assessment to discuss nanotechnology substances and their potential occupational and environmental health hazards. Met in November to share information, review current activities, and plan future meetings.
- Methylene Chloride, Toluene, Benzene, Mercury, and Acids / Hazards to Pregnancy — Employee Assistance
Assessed potential effects on the pregnancy (5½ weeks) of a chemist who has worked in an environmental laboratory for five years. According to the chemist, she works directly with the chemicals in a room that does not have a fume hood—a violation for which her employer has been cited by Cal/OSHA. She is concerned because one laboratory employee has miscarried three times, another

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 19

December 2004 - November 2005

two times, and there have been two cases of children born with birth defects. With her permission, and based on her description of the workplace and of symptoms consistent with respiratory irritation, provided her physician a written assessment of the potential pregnancy outcome risks from overexposure to solvents and mercury. Recommended medical removal for the duration of her pregnancy or until air monitoring data show that she is not being overexposed to the chemicals. Explained the employer's legal responsibility to ensure that all employees, regardless of their reproductive status, are protected from overexposures to toxic substances. Invited the employer to call HESIS to discuss the medical removal recommendation or other information in the letter, if needed.

- Indoor Air Quality / Pre-School — Employee Assistance
Assisted, with the help of a bilingual OHB staff person, a pre-school teacher with limited English who reported that she and two other co-workers developed respiratory and skin problems after several ceiling tiles fell down in a classroom and school bathroom. The tiles fell following a period of wet weather. Roof leaks and foul smells were associated with the incident. Although the teacher suspected fiberglass exposure, advised that mold exposure should also be evaluated. Provided written materials and referrals. Based on the report that several teachers were experiencing significant health problems, filed a Cal/OSHA complaint on the teacher's behalf. Also notified the local Health Department since children's health may be affected.
- Natural Rubber Latex / Allergic Response — Employee Assistance
Assisted an office worker who suffered a serious allergic reaction when she was required to blow up hundreds of rubber balloons. She subsequently was diagnosed with Type 1 latex allergy. She continues to experience symptoms and asked if a "rubber-based" offset printing ink used in the office might be responsible. Evaluation of the MSDS for the ink indicated that the rubber was not natural latex. However, learned from the employee that there is active mold growth in the building, and that seven other employees have reported illnesses associated with indoor air quality. Filed a Cal/OSHA complaint on the employee's behalf, and provided medical referrals, information on other potential sources of latex, and an article showing that carpeting and furniture can act as a reservoir for latex-containing dust. Also informed the employee that there is some evidence that the common mold, *Aspergillus fumigatus*, is a cross-reactive allergen to latex.
- Cancer "Cluster" / Office Building — Employee Assistance
Responded in writing to an office worker who was concerned about four diagnosed cases of cancer (three breast cancers and one prostate cancer) among 16 co-workers, and the possible relationship of the cancers to a Proposition 65 sign in the building. An additional concern was the worker's past

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 20

December 2004 - November 2005

difficulties having children. Explained Proposition 65 and informed the caller that a posted warning does not necessarily mean chemicals known to cause cancer or reproductive/developmental toxicity are used in the building. Based on the description of the tenants/types of businesses, concluded that chemical use in the building appears unlikely. Advised asking the building manager why the Prop 65 sign is posted. Explained that cancers often seem to occur in "clusters". However, most of the clusters are not really excess cases of cancer, but simply reflect the number of cases expected in subsets of any large group of people. Also explained that cancers of different organs (e.g., breast and prostate) or in different tissues in the same organ, are considered different diseases with different cause-and-effect relationships. As a result, they are not likely to be related. Also discussed the long latency of most cancers, and why building-related cancers would not likely be evident after only five years.

- Toxic Gases / Battery Charging – Symptomatic Employee Assistance
Evaluated potential exposures and health effects associated with acute symptoms experienced by five employees while working near a battery charging room of a retail store. The employees' symptoms included headache, persistent fatigue, and dizziness. They also reported odors described as "rotten, sulfur smells". The symptoms occurred over a two-day period with response by the local Fire Department on both days. The Fire Department reported carbon monoxide (CO) readings of 101 ppm and a Lower Explosive Limit (LEL) of 18 to 20%. The employee's healthcare provider determined that her carboxyhemoglobin was normal. Based on contact with the Fire Department and the manager of the shopping mall responsible for the battery charging room, learned the following: 1) the batteries were a standard lead-acid type, but were being charged dry (inadequate acid); 2) the batteries emit hydrogen gas, not CO, during charging; and 3) hydrogen gas is a positive interference for CO with the type of air monitor used by the Fire Department. Concluded that the batteries may have emitted hydrogen gas which resulted in the elevated LEL reading. The odorous gases could have contained hydrogen sulfide, arsine, and/or stibine. The reported symptoms are consistent with exposure to these gases. Provided this information to the employee, the charging room manager (controlling employer), and the Cal/OSHA District Office. Advised the employee of her right to be seen by her health care provider while her workers' compensation claim is pending, and referred her to the Workers' Compensation Division of Information and Referral.
- Glutaraldehyde / Heart Valve Manufacture / Hazard to Pregnancy — Employee Assistance
Evaluated the risks to the pregnancy of a worker exposed to glutaraldehyde at a heart valve manufacturing facility. Explained that although the reproductive and developmental toxicity of glutaraldehyde has not been well-studied, it is unlikely to affect her pregnancy if exposures are kept below levels which cause irritation

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 21

December 2004 - November 2005

or asthma. Discussed the irritant, and respiratory and dermal sensitizing potential of glutaraldehyde, and ways to protect against overexposure. In response to the employee's request, assured that she would receive a copy of the OHB report on glutaraldehyde use in her facility when completed.

- Hantavirus / Mice Droppings — Employee Assistance

Assisted an employee concerned about exposure to hantavirus and other health hazards associated with large quantities of mice droppings in the attics and crawl spaces of five buildings where he was installing Heating, Ventilation, and Air Conditioning (HVAC) controls. He works in the space all day without personal protective equipment, and the droppings "are everywhere". He and another worker were experiencing respiratory symptoms, but he was not sure if they were being caused by exposure to dust or fiberglass, or something more serious. As a new employee, he was reluctant to report his concerns to his employer for fear of losing his job. Information about hantavirus on the CDC website prompted him to contact HESIS. Explained the Cal/OSHA Injury and Illness Prevention Program standard (provided Web link) and his employer's obligation under the standard to ensure a safe work environment, including removing the mouse droppings, training workers on potential health hazards, and providing personal protective equipment and other protections. Provided contact information and Web site link to the DHS Vector-Borne Disease Section for information on hantavirus in the region, potential risks, and how to protect against the risks. Emphasized the importance of protecting his health, and advised reporting symptoms he perceives to be work-related to his health care provider and to his employer.

- Formaldehyde / Asthma — Symptomatic Employee Assistance

Assisted a librarian experiencing symptoms of asthma as well as lethargy, malaise, confusion, and forgetfulness from work-related exposure to formaldehyde. The formaldehyde was off-gassing from carpets and pressed wood shelves in a newly constructed school library. She has not seen air monitoring results, but reportedly they showed "high" levels, which resulted in her being off work briefly. She is still experiencing symptoms even though the building has aired out—two physicians have verified that her symptoms are related to formaldehyde exposure. Peak flow monitoring is consistent with a work-related effect. She has not had a methacholine challenge test. She has filed a workers' compensation claim, a Cal/OSHA complaint, and a grievance with her union. Sent the *HESIS Formaldehyde Fact Sheet*, discussed information in the fact sheet (specifically on required medical surveillance and medical removal), and provided guidance on how to share the information with her physician. Subsequently, with the employee's permission, discussed the issues directly with the treating physician. Requested information on the Cal/OSHA complaint to determine if Cal/OSHA Medical Unit response is appropriate or needed.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 22

December 2004 - November 2005

- n-Hexane / Brake Cleaning — Symptomatic Employee
Assisted a career mechanic who reported heavy use of solvent-based brake cleaning products, and was experiencing numbness in his hands and arms. He became aware that his symptoms may be related to the use of brake cleaners after reading the HESIS *n-Hexane Use in Auto Repair Health Hazard Advisory*. Referred the mechanic to the UC San Francisco Occupational Medicine Clinic for evaluation. The UC clinic identified the first case of peripheral neuropathy in a California auto mechanic, and has subsequently identified other cases linked to the use of n-hexane-containing automotive cleaners. In response to environmental regulations, automotive cleaners were reformulated with n-hexane as a substitute for methylene chloride and other chlorinated hydrocarbon solvents.
- Solvents, Cutting Oils, Other Machine Shop Health Hazards — Employer Assistance
Provided health hazard information to assist a small business owner who was developing an Injury and Illness Prevention Program for his machine shop. Sent the *HESIS Guide to Solvent Safety*, *HESIS Guide to Metalworking Fluids*, *HESIS n-Hexane Health Advisory*, and a section of the Cal/OSHA Respiratory Protection Standard. Explained that voluntary use of respirators does not require a respiratory protection program as described in the Cal/OSHA standard (Title 8, Section 5144).
- Indoor Air Quality (IAQ) / Dead Birds and Mold — Employer Assistance
Provided information and resources to help a small business employer address an IAQ issue in a leased building. Dead birds and mold have been in the space above the ceiling tiles for approximately two years, and the employees were experiencing headaches and exacerbation of asthma. The commercial landlord replaced the ceiling tiles, but refused to correct the moisture intrusion and bird access problems. Sent the HESIS fact sheet, *Mold in Indoor Workplaces*, the Cal/OSHA Sanitation Standard with Section g (requires prevention of water intrusion as source of mold growth) highlighted, and the National Institute for Occupational Safety Health (NIOSH) Histoplasmosis fact sheet (moldy bird droppings pose risks). Explained, however, that as an employer, he cannot file a complaint with Cal/OSHA Enforcement against the building manager. Recommended reviewing the lease agreement and seeking legal advice in getting the roof repaired to exclude moisture. Also suggested that the local health department may be able to encourage the landlord to take action given the health problems employees are experiencing. Cautioned to ensure that the office employees are not present during cleanup/tear out activities that disturb the dirt in the ceiling space.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 23

December 2004 - November 2005

- Carrion Odor / Hazard to Pregnancy — Employer Assistance
Evaluated potential risks to the pregnancies of several employees for a university industrial hygienist. The pregnant employees experienced nausea caused by odors from a dead rat in the ceiling of their work area. The rat had been removed, but the employees were concerned about potential adverse developmental effects and wanted to know what chemicals they had inhaled. Identified relevant literature regarding odors of decomposition, and explained in writing, that the low levels of exposure to hydrogen sulfide, other odorous sulfur compounds, ammonia, and volatile organic compounds generated from the dead rat did not pose a developmental hazard and did not put them at increased risk for an adverse pregnancy outcome.
- Heat / Retail Store — Employer Assistance
Assisted the supervisor of the store's garden department who inquired about the potential health hazards to employees of working outside in 90° heat and high humidity. The supervisor also wanted to know whether additional work breaks are required. Explained that there was no Cal/OSHA Heat Stress Standard (at that time) to provide specific guidance to employers on how to prevent heat-related health problems. However, under the Cal/OSHA Injury and Illness Prevention Standard, employers are obligated to identify, provide training on, and implement control measures for all workplace hazards, including heat. Sent the OHB BuildSafe Safety Break Cards on Heat Stress and the OSHA Heat Stress Cards in English and Spanish.
- Tuberculosis (TB) / Office Building — Employer Assistance
Helped an analyst in a county risk management department respond to workers concerned about potential infectious material in the ductwork of an office building that previously was a hospital. Based on a consultation with the DHS Indoor Air Quality Program, explained that the risk of contracting TB from the HVAC system should be minimal since the Control of Communicable Diseases Manual states that there are no special precautions for handling fomites (e.g., dishes, laundry, bedding, clothes, and personal effects from infectious persons). Recommended regular HVAC inspection and maintenance to ensure good indoor air quality.
- Nail Salon Chemicals / Air Emissions — Employer Assistance
Responded to the owner of a retail store located adjacent to a nail salon who requested assistance in dealing with odors from the salon. According to the owner, this had been a problem for three years. The owner, two employees, and some customers had experienced headaches, eye irritation, and odors which they attribute to the chemicals used in the nail salon. An inspection by the city brought relief, but it was temporary. Explained that there are no current Cal/OSHA regulations to protect employers in these situations. Advised using lease provisions to address the issue with the landlord, employing practical

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 24

December 2004 - November 2005

ventilation (HVAC) solutions, or pursuing additional city intervention. Sent the HESIS booklet, *Artificial Fingernail Products—A Guide to Chemical Exposures in the Nail Salon* and the NIOSH publication, *Controlling Chemical Hazards During the Application of Artificial Fingernails*.

- Cycloheximide / Hazard to Pregnancy — Health Care Provider Assistance
Assessed risks to the pregnancy of a brewery worker with potential exposure to cycloheximide, a developmental toxicant listed under Proposition 65, for her physician. The employee weighs out cycloheximide-containing powder on the laboratory bench without local exhaust ventilation or respiratory protection. Discussed the reproductive and developmental toxicity as in the *HESIS Cycloheximide Hazard Alert*. Cycloheximide causes adverse reproductive effects in male and female animals at levels below those which cause other toxic effects. It causes birth defects when pregnant animals are exposed to low doses, and it is toxic to the testes and sperm of male animals. There are no human health effects data. Exposure can occur through inhalation and absorption through intact skin. Explained that cycloheximide can be used safely. Exposure control measures such as a properly functioning laboratory fume hood and sound hygiene that the employer is required to implement, would also protect the pregnant employee. Until it can be assured that there is no potential exposure to cycloheximide, recommended that the employee be re-assigned to other job duties that do not pose risks to her pregnancy. Sent information on pregnancy discrimination published by the California Department of Fair Employment and Housing Authority.
- Organic Solvents / Hazards to Pregnancy — Health Care Provider Assistance
Assessed potential pregnancy risks for a physician whose patient, a chemist, works in an environmental lab and uses several solvents, including benzene and methylene chloride. The patient's first child was born with birth defects. Based on the patient's description of the working conditions (job tasks, inadequate ventilation, etc.), recommended that the physician advise her to discontinue working in the lab unless it can be shown that exposures to solvents and other chemicals are being controlled using appropriate engineering controls.
- Hypochlorite (Bleach) / Hazard to Pregnancy — Health Care Provider Assistance
Assessed potential risks to the pregnancy of a worker exposed to bleach for an obstetrics case manager of a community health center. The worker cleans chicken-contaminated areas for a poultry producer, and experiences some irritation of the eyes and nasal passages. Explained that bleach is a contact irritant and should not pose a pregnancy risk unless exposures are high enough to make the worker ill. However, the irritant symptoms described by the worker are a sign of overexposure, and should be prevented through improved ventilation and evaluation of work practices.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 25

December 2004 - November 2005

- Solvents / Leather Tanning Industry — Health Care Provider Assistance
Assisted a psychologist in assessing the potential relationship between a patient's mental health problems and solvent use for over 13 years in the tanning industry, and subsequent exposure to solvent-based paints. Confirmed that solvents can have both short- and long-term adverse effects on the brain, and discussed the symptoms associated with solvent-induced neurotoxicity. Emphasized the importance of differentiating between use and exposure in assessing the relationship of past work on the patient's current health problems. Explained that in general, neuropsychiatric testing is more useful if data on baseline function are available. Provided information on solvent neurotoxicity, including neurobehavioral effects, published by NIOSH and other organizations.

2. Technical Assistance – Cal/OSHA Medical Unit Consultations

- University of California / Meadow Valley Forest Camp, Davis — Hantavirus
Concluded that a confirmed case of hantavirus pulmonary syndrome (HPS) in a UC Davis employee was related to work conducted on a small rodent sampling project in the Plumas National Forest. Work activities which included trapping, handling, and tagging live rodents brought the employee into potential contact with aerosolized rodent feces, urine, and saliva. Frequent rodent bites and living in rodent-infested housing affiliated with the research project, also increased the employee's risk of infection. Surveillance data from the DHS Vector-Borne Disease Section documents that approximately 30% of the deer mice in the region of the research project demonstrate, serologically, Sin Nombre Virus (SNV), the causative agent of HPS.

Deficiencies in the employer's health and safety program that contributed to the employee's illness included: lack of an effective Injury and Illness Prevention Program, in particular health and safety training and communication regarding hazards and illnesses; and failure to implement guidelines published by the CDC, CDHS, and others to mitigate risks to researchers handling live rodents in hantavirus endemic regions of California. This guidance includes proper rodent handling and sedation, respiratory protection, gloves, eye protection, and appropriate trap disinfection. Many of these guidelines are now in place.

- Pacific Steel Casting / Berkeley — Acute Silicosis
Concluded that a pulmonologist's final diagnosis of acute silico-alveolar proteinosis (a form of Pulmonary Alveolar Proteinosis or PAP) in a foundry mold operator was due to work-related exposure to silica. Acute silico-alveolar proteinosis is on a continuum with acute silicosis and closely mimics this condition in its presentation. Progressive shortness of breath, headaches, fatigue, and poor exercise tolerance developed approximately 1-2 months after the operator began employment. The initial diagnosis of acute silicosis was

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 26

December 2004 - November 2005

based on chest x-ray and chest CT findings. A review of the employee's personal history and past medical and occupational histories, indicated no causative factors. The operator's condition improved after he was removed from work and treated with oxygen. He has returned to work with revised job duties that restrict his exposure to silica. Although exposure monitoring indicated that the employer was in compliance with the silica PEL, there is a high likelihood that the operator developed this rare pulmonary condition from short-term, high overexposure to respirable silica. Recommended that the employer implement ongoing efforts to minimize silica exposure and training as specified in the Cal/OSHA Injury and Illness Prevention Program and Hazard Communication regulations.

- Nationwide Boiler, Inc. / Fremont — Acute Respiratory Distress Syndrome (ARDS)

Concluded that a fleet mechanic's acute inhalational injury that resulted in pulmonary edema and, ultimately, acute respiratory distress syndrome (ARDS), was work-related. The mechanic performed maintenance operations on a trailer-mounted boiler/deaerator (DA) unit. The maintenance activities required at least seven entries into a confined space over a seven-hour period—five of the entries involved use of an acetylene torch on a steel pipe. He did not use respiratory protection. He was asymptomatic while performing the maintenance, but developed symptoms that included coughing up blood-tinged sputum, shortness of breath, nausea, and chest congestion after he left work. He was hospitalized in the intensive care unit and was treated with antibiotics, steroids, and inhalational therapy. He reported no past chronic pulmonary problems, does not smoke, and has no history of asthma or allergies. Chest X-rays, a CT scan, an echocardiogram, and multiple lab tests were performed. The CT scan showed bilateral lower lobe swelling consistent with pneumonitis. The employee's condition improved with treatment, he continued to improve at home, and he returned to work approximately one month after the initial injury.

Concluded that the specific cause of the employee's inhalational injury was toxic exposure to chemicals released from the pipe or pipe sealant, or contaminated aerosol generated from water in the pipe. This is based on the worksite visit, information that the pipe contained only water, review of the MSDS for a sealant used on the pipe, and evaluation of the clinical findings. The confined space conditions would have maximized exposure to the chemicals or contaminated aerosol. Recommendations to the employer included designing and implementing a confined space program, and implementing hazard communication, respiratory protection, and effective training programs. In addition, recommended implementing a record keeping and tracking system that provides information on where and how boiler units are used. This information would help to identify potential toxic exposures of concern to maintenance workers.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 27

December 2004 - November 2005

- Bowen Engineering & Environmental / Fresno — Carbon Monoxide Poisoning
Concluded, based on evaluation of their medical records, that the symptoms and carboxyhemoglobin (COHb) levels of 14 workers were consistent with overexposure to carbon monoxide gas. The workers were appropriately referred and evaluated at local hospitals. The high number of workers overexposed and the resultant impact on their health are serious. The overexposures occurred during work in an asbestos containment area where Bobcat tractors were operating. The significant levels of COHb two and a half to four hours following cessation of exposure indicate that their peak COHb levels were likely between two to four times higher than the measured levels. The COHb levels of many of the workers may have greater than 25 percent. It is estimated that cognitive sequelae (problems with memory, attention or concentration, and affect) lasting one month or more, occur in 25-50 percent of patients with loss of consciousness or with COHb levels greater than 25 percent. Recent information suggests that treatment with hyperbaric oxygen can be beneficial with regard to the neurological sequelae of CO toxicity, even after COHb levels have normalized. These workers were not provided hyperbaric oxygen. However, they could have been candidates for such treatment since many likely had evidence of cognitive sequelae one month or longer following carbon monoxide overexposure.
- SitOnIt Seating / Cypress — Asthma
Participated in follow-up investigations to identify potential at-risk employees. The need for follow-up investigations was based on an earlier Cal/OSHA Enforcement inspection that documented overexposure to methylene diisocyanate (MDI) contained in Hot Melt Adhesive™, and two employees with work-related asthma. Developed and administered questionnaires to six employees with potential exposure to Hot Melt Adhesive. In response to the employer's concerns regarding the worksite investigation, discussed an alternative method to identify employees who may be affected by exposure to MDI. Agreed that a voluntary, employer-initiated medical surveillance program that included appropriate elements would help to prevent work-related, isocyanate-induced asthma at the facility. Outlined some of the basic components that should be included in the employer's medical surveillance program: (1) inclusion of employees who worked with Hot Melt during the period when Cal/OSHA documented overexposure to MDI; (2) baseline spirometry followed by testing every six months for two years; (3) questionnaire administration and medical examination in languages appropriate for the exposed workers; and (4) capacity to refer to pulmonologists, if warranted. Recommended use of the medical surveillance program in the Cal/OSHA Formaldehyde Standard as a model. Approved the employer's medical surveillance program after suggested revisions were incorporated.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 28

December 2004 - November 2005

- Spectra Laboratories / Fremont — Ergonomic Injuries
Concluded that six reported injuries met the threshold for work-related, repetitive motion injuries in Cal/OSHA's Ergonomic Standard (T8 CCR 5110), including the following essential elements of the standard: (1) each employee was diagnosed with a repetitive-type injury; (2) each employee had an injury that was at least 50% caused by repetitive workplace activities (keying, typing, scanning, bar coding, sorting, racking, loading, and unloading specimens); (3) each employee's injury was diagnosed by at least one licensed physician; and (4) all six injuries were reported within a 12-month period. The conclusion was based on three facility visits, interviews with injured employees, and a thorough review of the available medical records.
- Dameron Hospital / Stockton — Tuberculosis (TB)
Concluded that the hospital's TB Exposure Control Plan was acceptable as an approach to the management of TB risks. However, did not find any documentation to support the hospital's compliance with the Cal/OSHA Respiratory Protection Standard (T8 CCR 5144). In 2004, consistent with Federal OSHA's action, the Occupational Safety and Health Standards Board repealed the Cal/OSHA TB Standard (T8 CCR 5147). As a result, the Cal/OSHA Respiratory Protection Standard became the default regulation for protecting workers, including health care workers, who are exposed to TB. The CDC recommends that a NIOSH-approved respirator at least as protective as an N-95 filtering facepiece is necessary to protect workers. This recommendation requires employers to comply with the Cal/OSHA Respiratory Protection Standard. Dameron Hospital is located in a county with a relatively high incidence of TB. Therefore, hospital staff and infection control personnel should have a higher index of suspicion for TB when patients from the community are admitted or evaluated for signs and symptoms that are suggestive of TB. Recommended ongoing compliance with CDC recommendations for control and prevention of TB, and compliance with the Cal/OSHA Respiratory Protection Standard with respect to the use of respiratory protection. Dameron Hospital will need to develop a Respiratory Protection Program that meets the needs of their facility and the Cal/OSHA Standard.
- Jose Ochoa Farm Labor Contractor / Modesto — Heat-Related Illness
Concluded that heat most likely played a role in the acute illness of a 22 year-old laborer with schizophrenia. He developed altered mental status and lost consciousness while working in a peach orchard in extreme heat in the Central Valley, and was hospitalized and treated for four days. The reported diagnosis was heat stroke, but the question raised throughout his hospitalization and upon discharge was whether his condition could have been due to a reaction to his prescribed medications. He had just started on a medication that is known to cause neuroleptic malignant syndrome (NMS). The signs and symptoms of NMS

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 29

December 2004 - November 2005

overlap with those of heat exhaustion and heat stroke. However, in over 80% of NMS cases, rigidity or mental status changes signal the onset of the syndrome. The clinical course of NMS shows that 16% of patients develop NMS within 24 hours of initiating neuroleptic treatment, 66% by one week, and virtually all cases occur within the first 30 days. The physician treating the employee's schizophrenia believes that the acute illness was due to heat stroke, not NMS. Was not able to exclude some contribution of the neuroleptic medication to the employee's acute illness. However, since heat also was a contributing factor, recommended evaluation of the employer's Injury and Illness Prevention Program to determine its adequacy in preventing heat-related illness.

- Oakland Police Department / Oakland — Rhabdomyolysis
Concluded that a 34-year-old police officer trainee developed rhabdomyolysis (severe muscle breakdown) from a combination primarily of excessive exertion and (relative) volume depletion. The effects of heat also probably contributed to her condition. She collapsed after doing endurance drills, was treated with intravenous fluids at a hospital emergency room, and was discharged home. Three days later she was admitted to a hospital for five days after being seen in the Emergency Room. Elevated liver enzymes and the presence of muscle enzymes in her blood were of concern. Laboratory analysis showed a highly elevated creatinine phosphokinase (CPK). Because of the high CPK, the employee was diagnosed with rhabdomyolysis (severe muscle breakdown). Treatment included rehydration in the hospital. The employee may be prone to rhabdomyolysis in some way, but no clear predisposition has been identified. Recommended that the City of Oakland Police Department continue to monitor their Academy program to ensure that heat stress prevention is a priority element of the program given that trainees work at high levels of physical exertion.
- Castillo Farm Labor Contractor / Bakersfield — Heat-Related Fatality
Concluded that the medical information strongly supports that a field laborer's death was caused by picking bell peppers in extremely hot weather (over 100°F). The employer did not have an adequate heat stress prevention program in place, which could have helped to prevent the worker's death. The coworker who found the ill worker by the roadside stated that he was "shaking". He tried to assist the worker with fanning, offering water, and moving him to a more shady area. At this time, the ill worker was alert and speaking. Eventually someone called 911 and the Fire Department arrived within 10-15 minutes. The ambulance arrived within 20-25 minutes. The ill worker was still alive when the ambulance arrived but subsequently died during transport. According to the coworker, no one had noticed that the ill worker was missing or ill. Based on interviews and review of the employer's health and safety documents, it was determined that the employer lacked an adequate IIPP or heat stress prevention program. Training was inadequate on heat-related illness, the importance of drinking water in hot environments, and communication. No first-aid provisions were available on site,

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 30

December 2004 - November 2005

nor were any workers trained or certified to administer first-aid medical assistance.

- Zepeda's Farm Labor Service / Corcoran — Heat-Related Fatality
Concluded that the available medical information strongly supports that a 37-year old laborer died due to heat stroke after a day in the fields harvesting lettuce seeds in 100°F weather. The employee exhibited clear central nervous system symptoms (hallucinations, nausea, vomiting) and signs (extremely elevated body temperature) which are consistent with the diagnosis of heat stroke. The wife of the deceased worker was present in the field and in the van on the day he died. She stated that he had worked from 7 am to 3 pm without eating lunch. He had taken breaks between 9 to 9:10 am and a 15-minute break sometime between 1 and 2 pm. According to the wife, he was extremely quiet when entering the van. The van had been locked all day. Everyone entered immediately without airing out the van or cooling it off. The only functioning window in the van was the driver's window. Her husband sat behind the driver. He began to talk to himself in a disassociative way, and was sick to his stomach. He was taken to Hanford Community Medical Center. The medical records document a body temperature of 108°F (rectal). He was without spontaneous breathing or pulse. Cardiopulmonary resuscitation was attempted, but was unsuccessful. The wife states that the water had a chlorine smell, and was not always available in the field. She did not know what an Injury and Illness Prevention Program was, and had not been trained in heat stress prevention.
- Jose Luis Chavez Farm Labor Contractors / Colusa — Heat-Related Illness
Determined that the medical evidence strongly suggests the employee's collapse, loss of consciousness, and hospitalization were directly related to serious heat-related illness. The critical care treatment he required (intubation and treatment and monitoring due to liver failure, infection, and a clotting disorder) was serious and also was a direct complication of heat stroke. The employee collapsed at the end of his workday after cutting and harvesting onions in temperatures that went from approximately 68°F at 6 am to 100°F at 2:30 pm. According to coworkers, the employee stated that he felt dizzy and went to sit down. When co-workers checked on him later, he was unconscious. The co-workers placed ice over his head, neck, chest, abdomen, and arms and doused him with cold water. He was taken initially to Colusa Regional Medical Center, but subsequently was airlifted to Enloe Medical Center in Chico. The Doctor's First Report of Occupational Injury or Illness (DFR) documents the employee's body temperature as 103°F and a diagnosis of "neurological event, possible heat stroke". The employee recovered, but required additional time away from work due to his increased susceptibility to recurrent heat stroke if exposed to excessive temperatures. Recommended evaluation of the employer's Injury and Illness Prevention Program to determine if it is adequate to prevent heat stress-related injuries and illnesses.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 31

December 2004 - November 2005

- Rogelio L. Castellano & Sons / Visalia — Fatality
Concurred with the pathologist's oral opinion that the most probable, direct cause of the employee's death was head trauma. The medical facts do not conclusively point to a diagnosis of heat stroke. It is clear that the employee was not feeling well while in the field, but his symptoms reportedly were present when he arrived at work. In retrospect, his symptoms may have been associated with a non-heat illness-related etiology. The 44-year old farm laborer was discovered dead in the Giumarra vineyards near Bakersfield. He and his brother lived in Visalia and had traveled to the vineyards to pick grapes. Interviews conducted with coworkers suggest that the deceased employee had not felt well, but his brother pushed him to keep working. On the day of the incident, water reportedly was available and was iced. Based on employee interviews, training on heat stress prevention and medical emergency response procedures did not appear to be well established. The employer disclosed on interview that the heat illness prevention program and medical response procedure were not adequate. Water does appear to be provided in adequate quantities, although the exact quantity available is not determined. The coroner's report states that the decedent died as a result of (A) Dehydration due to: (B) Environmental Exposure. Other significant conditions were: Subarachnoid and Sudural Hemorrhage. The mode of death was undetermined.
- Pro Trades Connection, Inc. / Roseville — Heat-Related Injury
Concluded that the medical evidence suggests that the employee lost consciousness and incurred skull and neck fractures due to workplace exposure to heat. The employee was working indoors as a carpenter, renovating a restaurant. His day began at 6 am when the ambient temperature was approximately 75°F. He took a scheduled break at 9:30 am, at which time he drank water. At 10 am, the temperature had risen to 92°F. Around this time he lost consciousness and fell backwards, striking his head on the concrete. He was transported to Sutter Roseville Medical Center where he was evaluated, treated, and released. The treating neurosurgeon confirmed that he believed that the employee's injury occurred due to heat syncope (passing out) related to working in the heat. From his clinical assessment, there did not appear to be any underlying neurological condition that predisposed the employee to heat stress or to the head/neck injury. Recommended evaluation of Pro Trades' Injury and Illness Prevention Program to determine whether it is adequate to prevent injuries and illnesses related to heat stress.
- Donlen Landscaping / Murphys — Heat Stress
Concluded that the available medical information supports that the employee developed heat cramps and heat exhaustion after sequential days of working in over 100°F temperatures. While it appears that he attempted to replace his lost volume with fluids (water), he did not adequately replace lost electrolytes, which

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 32

December 2004 - November 2005

resulted in severe cramping. He also had evidence of ongoing volume depletion, which caused him to nearly pass out. The ambulance report states that the 41-year old employee was working as an outside laborer in 100°F weather for a week. He developed lightheadedness, almost passed out, and had muscle cramping from neck to toes. He was found on the ground incoherent and sweating, and was doused with a hose. The employee stated that he drinks water (was not able to discern volume) every 20 to 30 minutes, but does not urinate until 2-3 hours after leaving work. The emergency response team provided oxygen and fluid to the employee. The Emergency Room diagnosis was heat exhaustion and hypokalemia (low potassium). Recommended assessment of the employer's Injury and Illness Prevention Program to determine if it is adequate to prevent heat stress-related injuries and illnesses.

- Warren Asbestos Abatement Contractors, Inc. / Oroville — Heat-Related Illness
Concluded that the available medical evidence strongly supports that this employee developed heat exhaustion followed by severe volume depletion while working outdoors in 90°F weather. The medical consequences from this condition lead to the development of muscle breakdown, acute renal failure, and associated sequelae. The employee was removing roofing material with bars and shovels wearing a Tyvek™ suit and a full-face, air-purifying respirator. The Emergency Room notes state that the employee had pain and cramps “everywhere”, nausea and vomiting, double vision, and weakness. The diagnosis was heat exposure, strenuous physical exertion leading to rhabdomyolysis (severe muscle breakdown), and acute renal failure. The employee was admitted to the intensive care unit. He was treated with large volumes of fluid over a two-hour period. Dialysis was considered, but did not become necessary since his renal function responded to fluids. It is likely that the elevated ambient heat (plus radiant heat), personal protective equipment, physical exertion, and inadequate fluid replacement, all contributed to the employee's illness. Recommended evaluation of the employer's Injury and Illness Prevention Program to determine whether it is adequate to prevent heat stress-related injuries and illnesses.

3. Technical Assistance – Selected Other Constituents

- Mold / Sports Club — DHS Technical Assistance (Controlled Correspondence)
Provided a written response, on behalf of DHS, to a constituent seeking to file a formal complaint about mold contamination in the daycare area of a sports club. Explained that the Merced County Environmental Health Department is the appropriate agency to contact regarding the complaint. Provided the name of the staff person and contact information. Also explained that applicable regulations depend on the location of the mold (home, workplace, hospital, etc.). Several regulations may apply, or none may apply to a given situation. Employees

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 33

December 2004 - November 2005

affected by health conditions related to mold can file complaints with Cal/OSHA. Customers sometimes succeed in getting conditions corrected by communicating directly with business owners or managers.

- Nanotechnology / Potential Occupational and Environmental Health Impacts — DHS Division of Environmental and Occupational Disease Control Technical Assistance

Identified proposed activities to help assess the potential impacts of this emerging technology on the health and safety of workers and communities in California. Proposed a pilot study to develop and evaluate methods that could be used to locate research and production facilities (current or future) in California. Such methods could include tracking federal funding and licensing/permitting activities, and interviewing key informants. Proposed assembling a multidisciplinary team consisting of industrial hygienists, toxicologists, occupational medicine physicians, epidemiologists, and health educators to (1) conduct field investigations of selected facilities; (2) develop exposure information and identify research questions; (3) characterize the occupational and environmental toxicological impacts and identify research questions; (4) survey workers to determine their safety attitudes and concerns, and to assess the need for establishing a worker registry; (5) conduct epidemiological studies where toxicity/health concerns are defined; and (6) participate in national and international groups of nanotechnology health and safety managers to assess needs and exchange information and educational resources.

- Mold / Prison Housing — DHS Indoor Air Quality Section Technical Assistance

Provided jurisdictional advice to assist in responding to a Controlled Correspondence inquiry from a prison inmate concerned about health problems related to an indoor mold problem. Explained that Labor Code Section 6304.3 establishes procedures for resolving complaints of unhealthy working conditions of state prisoners. However, since the inquiry concerned prison housing ("dorms"), not the prison industry, Cal/OSHA would not have jurisdiction. Cal/OSHA would have jurisdiction if correctional officers were also affected by the mold problems.

- Tuberculosis (TB) / New Hires — DHS Tuberculosis Control Branch Technical Assistance

Provided information on current practices and recommendations regarding chest X-ray requirements for new hires. Discussed inconsistent practices in health care settings. The joint CDHS/California TB Controllers Association Guidelines for Skilled Nursing Facilities identify three months as an acceptable interval for requiring chest X-rays for new hires. This means that if an employee can show evidence of a negative chest X-ray within three months of hire, then there is no need to repeat the X-ray. However, new draft CDC guidelines for preventing TB in health care settings basically state that there is no need for repeat chest

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 34

December 2004 - November 2005

X-rays after a negative baseline if the employee has no symptoms and is not a part of a contact investigation.

- Methylene bis (phenylisocyanate) (MDI) / Truck Bed Spray Application — Cal/OSHA Technical Assistance
Provided a list of truck bed lining companies to the Cal/OSHA Consultation Santa Fe Springs District Office to assist them in conducting additional outreach and on-site inspections. Earlier inspections showed that MDI levels in some facilities were over five times the Cal/OSHA Permissible Exposure Limit. Based on a fatality in the state of Michigan and case reports by the Washington Department of Labor and Industries, HESIS previously sent letters and other resource information to 67 employers who use spray products containing MDI to install truck bed linings. HESIS warned employers of the potential serious hazards to employees, including asthma, skin allergies, and reduced lung capacity that can occur from overexposure to the products.
- Psoriasis / Workplace Health Concern— Cal/OSHA Technical Assistance
Assisted Cal/OSHA Enforcement in responding to a concern about the presence of skin flakes (caused by a worker with psoriasis) at a shared workstation. The inspector was seeking practical advice for the employer regarding ways to address/mitigate the issue. Stressed that psoriasis is not communicable, but that skin flaking associated with psoriasis is a potential sanitation concern. Suggested practical sanitation measures including use of a keyboard cover and floor cover (plastic cover over carpet), and providing the employee with wipes and a vacuum with which to clean the area. Advised that the employer handle the situation in a respectful manner since the employee's cooperation is key to implementing any of the suggested sanitation measures.
- Isocyanates / Medical Surveillance — Cal/OSHA Technical Assistance
Continued to provide assistance in evaluating the effectiveness of the medical surveillance program established by Fleetwood Motor Homes. The surveillance program, which is based on the requirements of the Cal/OSHA Formaldehyde Standard, is to prevent isocyanate-induced sensitization and to comply with an Experimental Variance issued by Cal/OSHA. Employees are exposed to diisocyanate-based paint during spray painting operations. Reviewed and evaluated periodic medical exam information, which includes pre/post spirometry data collected over the course of a week.
- Bloodborne Pathogens / Dialysis Unit — Cal/OSHA Technical Assistance
Helped to determine whether administration of medication into an IV line without engineered sharp injury protection (ESIP) was in violation of the Cal/OSHA Bloodborne Pathogen Standard. Visited the facility with Cal/OSHA, observed the process, and discussed the issues and results of a study the company conducted to evaluate and rule out contamination of the IV line with bloodborne pathogens.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 35

December 2004 - November 2005

Offered suggestions and potential options the employer could implement to ensure protection for employees and comply with the Standard.

- Indoor Air Quality (IAQ) / Non-Industrial, Non-Office Settings — Cal/EPA Air Resources Board (CARB) Technical Assistance
Assisted CARB in responding to a scientific review panel's request to add non-industrial workplace IAQ issues to their AB 1178-mandated report, "Indoor Air Pollution in California". HESIS had previously submitted information on IAQ issues in office settings for the report. Provided specific examples of IAQ complaints and inquiries documented by HESIS, NIOSH, and other public health agencies and scientists in selected service industries, including schools and preschools, hair and nail salons, and dry cleaning establishments; facilities at risk for tuberculosis infections such as hospitals, homeless shelters and jails; and from exposures encountered during flood cleanup work, and use of janitorial cleaning products and pesticides for aircraft disinsection.
- Stained Glass Chemicals / Hazard Controls — Cal/EPA Technical Assistance
Responded to an owner of a stained glass business who had contacted Cal/EPA for information on removal of combustion products created when a torch is used to solder and fuse lead and different types of flux and patinas. Discussed health hazards, and differences between particles and gases in terms of filtration. Explained why it is important to remove products of combustion from the work area by replacing contaminated air with fresh air, and why not to rely on particle filters, electrostatic precipitators, or ozone-generating air cleaners for this purpose. Sent the chapter on stained glass in *The Artist's Complete Health and Safety Guide* by Monona Rossol.
- Dairy Manure Pit Hazards / Fatalities — California Air Resources Board (CARB) Technical Assistance
Notified CARB of the recent fatalities in dairy manure pits that were associated with methane-using equipment. CARB is sponsoring studies related to use of this equipment in dairy manure pits. Recommended that the agency provide information on the potential hazards to the investigators. CARB notified HESIS that the investigators had been informed of the hazards.
- Silicosis / California Data — State Compensation Insurance Fund (SCIF) Technical Assistance
Responded to a SCIF Loss Control representative who wanted statistics on silicosis cases in California during the last 3-5 years, and information on the types of industries associated with the cases. The data would be used to determine/justify the need for an educational project on silicosis awareness for policy holders/employers. The project is in the early stages of development. Referred to the OHB Occupational Health Surveillance and Evaluation Program Section which collected data over a five-year period as a part of a NIOSH grant.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 36

December 2004 - November 2005

Sent two journal articles: "Silica and Noise Exposure During Installation of Fiber Cement Siding", JOEH, January 2004; and "Highway Repair: A New Silicosis Threat", AJPH, May 2001.

- Indoor Air Quality / Symptomatic Employees — Ventura County Sheriffs Association Technical Assistance
Assisted a union official in evaluating potential hazards in an office building that could have caused symptoms reported by six employees. The reported symptoms included extensive skin rashes, shortness of breath, and severe eye irritation. Although the building has a history of mold problems, and mold was suspected as a cause of the symptoms, there were no reports of mold odor. However, was informed that the HVAC ductwork is old and that the inside of the ducts is reportedly lined with fiberglass. Based on this information, concluded that the symptoms may be due to exposure to fiberglass dust. Explained that some fiberglass is coated with epoxy binding agents that can cause allergic responses in some individuals. Advised that all symptomatic employees consult the same health care provider, if possible. Provided health hazard information on fiberglass, with an emphasis on acute health effects, and on molds. Offered to review industrial hygiene reports.
- "Toluene-Like Substances" / Penal Code Violation — Orange County District Attorney's Office
Responded to a prosecutor who wanted a definition of "toluene-like substances" as referred to in Penal Code 381(b). In particular, he wanted to know if tetrafluoroethane was included in the definition. The DA's Office needs clarity regarding the definition to prosecute juveniles who abuse various organic solvents. Explained that tetrafluoroethane is an organic solvent with intoxicating potential similar to toluene. However, HESIS is not aware of a DHS list of "toluene-like substances" referred to under Section 381(b) of the Penal Code that can be used for compliance purposes. Referred to the DHS Office of Legislative and Governmental Affairs for information regarding the list.
- Stagnant Water / Construction Site — International Brotherhood of Electrical Workers (IBEW) Technical Assistance
Assessed potential health hazards to construction workers of pools of rain runoff which had developed a foul odor for an IBEW representative. The water had accumulated below basement level in a semi-closed area with poor ventilation. The addition of chlorine bleach to the water increased worker complaints. Informed the union that the stagnant water would not pose health hazards unless it contained sewage runoff, mosquitoes, or added chemicals or other toxicants. Confirmed that use of bleach is inadvisable and ineffective treatment of dirty water. Explained that in sufficient concentrations, chlorine can create a health

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 37

December 2004 - November 2005

hazard by causing irritation, asthma, and other adverse effects on the respiratory system.

- Almond Processing / Health Hazards — International Longshore and Warehouse Union (ILWU) Technical Assistance
Responded to a request from the ILWU Business Agent for assistance in evaluating the health hazards of a list of products used in processing almonds. The union wanted to determine if several cases of cancer among their members were exposure-related. Explained the need for Material Safety Data Sheets (MSDSs) to identify and evaluate the hazardous ingredients in the products. At the union's request, provided information on the Cal/OSHA Hazard Communication Standard, including the employer's obligation under the Standard to provide access to MSDSs, training on the health hazards of hazardous chemicals, and protection against chemical overexposure. Referred to Cal/OSHA's Research and Standards staff for responses to their follow-up inquiries regarding which MSDSs they could request, their right to "see" versus "copy" MSDSs, and costs associated with copying MSDSs.
- Barium / Blood Levels — Office of Internal Affairs Technical Assistance
Responded to a question from a Special Agent concerning agency (Cal/EPA or Cal/OSHA) responsibility for regulating levels of barium in the body. Informed the Agent that barium levels are not regulated. Laboratories report serum/blood levels of barium based on population norms. Explained that the population norms do not necessarily represent "safe" levels—and they do not correlate with specific barium exposure levels. Advised that any interpretation of the laboratory values need to be correlated with clinical symptoms or exposure levels. Sent the Agency for Toxic Substances and Disease Registry document on barium.
- Metallic Mercury / Engine Gauges — Agency for Toxic Substances and Disease Registry (ATSDR) Technical Assistance
Took several actions to help prevent occupational and environmental exposures to mercury vapor in response to a request from an ATSDR representative. ATSDR sent information documenting the sale in California of mercury gauges that are used for tuning dual carburetor engines frequently found in motorcycles and outboard motors. During use of the gauges, it is not uncommon for liquid mercury to be drawn unintentionally into the engine. Mercury vapor is then released rapidly in the engine exhaust posing a health and environmental hazard. Sent a letter to the company that sells the gauges, Motion Pro, informing them that their online MSDS was inadequate to protect workers, and requesting that they improve it. Subsequently, Motion Pro posted a new, comprehensive MSDS on their website. Also sent a letter to the California Air Resources Board (CARB) alerting them about the mercury gauges. Suggested that CARB consider regulating the devices, since effective, mercury-free alternatives are

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 38

December 2004 - November 2005

available. Filed a complaint with Cal/OSHA requesting an inspection on behalf of employees handling mercury at the company.

- Silica / Fiber-Cement Products — National Institute for Occupational Safety and Health (NIOSH) Technical Assistance
Alerted NIOSH surveillance program staff about a new source of silica exposure from fiber-cement products. The products contain roughly 50% silica and are used in the construction industry for house siding and floor underlayment. Exposure to dust generated when fiber-cement products are sawed to size for installation can result in high risks of silicosis and lung cancer for construction workers.

3. Information Repository

- HESIS Repository of Occupational Health Information (ROHI).
Continued to review key occupational health and toxicology journals; identify relevant articles; classify them by agent, health effect, or industry; and store them in ROHI binders. Added 640 new articles to the Pro Cite ROHI database during the year. The database now consists of 33,227 articles. ROHI facilitates quick identification and retrieval of information to support HESIS' hazard evaluation and technical assistance functions.

HESIS Electronic-Repository of Occupational Health Information (e-ROHI)

Continued work on this project to convert the hard copy ROHI to a Web-based format to provide desktop access to the uniquely indexed journal article collection and increase the efficiency of conducting hazard assessments.

- Occupational and Environmental Health (OEHL) Library.
Continued to serve as a member of the OEHL Library committee with staff from Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA), the University of California, and the DHS Environmental Health Investigations Branch. Helped to plan and to mitigate the impact on library services and holdings shared with OEHHA when DHS staff moved to the Richmond Campus in August 2005.

Labor Code Section 147.2 - Mandate 3

Recommend to the Chief of the Division of Occupational Safety and Health (DOSH) that an occupational safety and health standard be developed whenever it has been determined that a substance in use or potentially in use in places of employment is potentially toxic at the concentrations or under the conditions used.

Standards Recommendations / Assistance

- 1-Bromopropane (1-BP) — Proposed Permissible Exposure Limit (PEL) Assistance
Assisted Cal/OSHA in assessing a proposed PEL for 1-BP, a newly developed, unregulated solvent that poses risks of reproductive and nervous system damage. HESIS issued a 1-BP Health Hazard Alert in 2003, and 1-BP was added to California's Proposition 65 List in 2004. An industry group proposed a PEL of 100 ppm (parts per million parts of air) derived using benchmark dose (BMD) methods with no uncertainty factors. The Cal/OSHA proposal of 1 ppm (from the Cal/OSHA 5155 Airborne Contaminants Advisory Committee) is based on a HESIS recommendation to Cal/OSHA in 2004. The proposed PEL was derived from a Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) chronic Reference Exposure Level for 1-BP in which uncertainty factors were used. With technical assistance from OEHHA, evaluated and prepared written comments on the publication, *Development of an occupational exposure limit for n-propylbromide using benchmark dose methods*. Reg Toxicol and Pharmacol 40:136-150 (Stelljes ME and Wood RR, 2004) upon which the 100 ppm industry proposal was based. The written comments and subsequent discussion with Cal/OSHA addressed the following: 1) definition of benchmark dose and benchmark concentration; 2) selection of critical effects in non-cancer risk assessment; 3) application of uncertainty or safety factors; and 4) basis for the differences in 1-BP PELs proposed by HESIS and the industry group.
- Glutaraldehyde — Investigation of Use in the Heart Valve Manufacturing Industry
Completed an investigation (with other OHB staff) of glutaraldehyde use in the manufacture of heart valve devices from animal tissue for human implant. The purpose of the site investigation at Medtronic Heart Valves, Santa Ana, was to learn about potential worker exposure to glutaraldehyde in this unique industry, and about measures that have been implemented to control exposures in the context of HESIS's proposal to reduce the Cal/OSHA PEL from 0.2 ppm to 0.015 ppm and to require medical surveillance and medical removal to prevent work-related asthma. Conducted walkthroughs, reviewed records, and interviewed worker and employer representatives.

Conclusions from the investigation included: 1) approximately 200 workers (predominantly female) making bioprosthetic heart valves have continuous airborne exposure to glutaraldehyde over the course of every workshift. There also is a potential for skin and eye contact with glutaraldehyde. Between January 1999 and April 2004, six potential cases of glutaraldehyde-related injury or illness were recorded on OSHA Logs. 2) Medtronic has implemented many control measures that have decreased workers' exposures to glutaraldehyde, including use of a less toxic alternative to glutaraldehyde for specific procedures,

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 40

December 2004 - November 2005

a closed system for handling large volumes, and local exhaust ventilation for certain tasks; 3) employee measured glutaraldehyde exposures are all well below 0.2 ppm, the Cal/OSHA Ceiling Limit; 4) adverse health effects, including respiratory tract irritation and asthma, can occur at 0.05 ppm, employees' current levels of glutaraldehyde exposure; 5) workers have many valuable opportunities for training and communication about hazards, including ongoing maintenance of an active, cross-departmental Health and Safety Committee that includes managerial and non-managerial representatives.

Recommendations to reduce health risks included: 1) implement additional engineering controls to minimize workers' exposures to glutaraldehyde; 2) identify and implement an appropriate glove to prevent skin exposure to glutaraldehyde and latex; 3) require use of safety glasses when handling glutaraldehyde solutions; 4) implement a medical surveillance program for glutaraldehyde-exposed workers; and 5) hire on-site health care provider support for the Environmental Health and Safety Program.

- Methyl Methacrylate (MMA) — Cal/OSHA's Proposed PEL
Continued to provide technical assistance to Cal/OSHA's Research and Standards Health Unit. Met with industry representatives and Cal/OSHA staff, including the Acting Chief, to respond to comments opposing Cal/OSHA's proposed revision of the MMA PEL from 100 ppm to 20 ppm. Discussed a technical response document submitted by the industry. The industry representatives argued, in part, that use of a MMA PBPK (physiologically-based pharmacokinetic) model to update EPA's 1998 risk assessment would support their proposed PEL of 50 ppm. At HESIS' request, an EPA scientist (identified by the industry representatives) who had been involved in generating the 1998 risk assessment, provided comments on the industry's argument regarding the 50 ppm PEL. The EPA scientist agreed that the MMA PBPK model should be used, but stated that the industry's technical response document did not provide sufficient evidence to support a MMA PEL of 50 ppm. The EPA scientist recommended conducting the risk assessment using the PBPK model to generate a protective PEL.
- Cal/OSHA's Permissible Exposure Limit (PEL) Update Advisory Committee.
Participated in meetings with representatives from industry, labor, academia, and government to provide input to Cal/OSHA on proposed PELs that had been recommended by the 5155 Airborne Contaminants Advisory Committee. During the report period, participated in discussions of toxicological data and potential health risks to workers for 14 substances, including: 1-bromopropane, 1,4-dioxane, glyoxal, and nickel.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 41

December 2004 - November 2005

- Cal/OSHA Sensitizer Advisory Committee
Participated in meetings and provided technical assistance and input (with other government, industry, and labor stakeholders) on how to regulate workplace agents that cause respiratory and dermal sensitization. Reviewed and evaluated the American Conference of Governmental Industrial Hygienists' Threshold Limit Value Documentations for 55 occupational sensitizers under consideration by the Advisory Committee, and determined whether they caused respiratory or dermal sensitization, or both. Twenty-three of the agents are dermal sensitizers, 13 are respiratory sensitizers, and 16 agents are both dermal and respiratory sensitizers. With other OHB staff, developed a model respiratory sensitization questionnaire for use in medical surveillance programs to detect early signs of work-related asthma.
- Cal/OSHA Airborne Infectious Disease Committee
Continued to participate in meetings and provided technical consultation and support to Research and Standards Health Unit staff in developing a comprehensive standard to protect against TB and other airborne infectious diseases. Stakeholders from industry, state and local governments, and organized labor are providing input on elements of the proposed regulation, including the scope, a written airborne infectious disease exposure control plan, engineering and work practice controls, respiratory protection, and medical surveillance.
- Cal/OSHA Heat Stress Advisory Committee and Emergency Standard
Provided technical and medical assistance in documenting health effects associated with work-related heat illness, and the need for a Cal/OSHA standard. Attended Advisory Committee meetings with labor and industry stakeholders. Provided input based on HESIS medical consultations and opinions on eight heat-related illnesses / fatalities investigated by the Cal/OSHA Medical Unit during the report period. Participated in teleconferences with Cal/OSHA to assess appropriate elements of the emergency standard and the need for a permanent standard. Conducting research on the 2005 heat-related cases to inform the rulemaking process related to development of a permanent standard. With Cal/OSHA staff, developed a questionnaire and interviewed Cal/OSHA Compliance Officers to capture and summarize critical enforcement activities associated with the Medical Unit cases.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 42

December 2004 - November 2005

Labor Code Section 147.2 - Mandate 4

Notify the Director of Food and Agriculture of any information developed by the Repository which is relevant to carrying out his or her responsibilities under Chapter 2 (commencing with Section 14001) of the Division of Food and Agriculture Code.

There were no activities under this mandate during the report period.

Labor Code Section 147.2 - Mandate 5

Assure the use of and non-duplication of resources of other governmental agencies.

Use of Other Governmental Agency Services / Resources

- Cal/OSHA. Continued, on a routine basis, to meet with, consult with, make referrals to, and use and disseminate educational materials and Web site information in providing TRS consultations and technical assistance, and in recommending occupational health and safety standards.
- DHS. Continued, routinely, to consult with, make referrals to, and use materials and Web site information developed by numerous other DHS programs to evaluate and provide consultations regarding workplace hazards. In the report period, these programs included: The Environmental Health Laboratory Branch Indoor Air Quality Section, Environmental Management Branch, Vector-Borne Diseases Section, Disease Investigations and Surveillance Branch, Radiological Health Branch, Environmental Health Investigations Branch, and the Immunization Branch.
- Cal/EPA - Office of Environmental Health Hazard Assessment. Continued to consult with staff and use risk assessment resources to identify occupational carcinogens and reproductive toxicants and to assist Cal/OSHA in developing Permissible Exposure Limits for workplace chemicals. Continued to share the resources of the Occupational and Environmental Health Library.
- Cal/EPA – Department of Toxic Substances Control Pollution Prevention and Technology Development. Continued to consult with staff and to use technical information and other resources to recommend pollution prevention strategies to protect workers from the adverse health effects of organic solvents and other hazardous substances.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

Annual Report - Page 43

December 2004 - November 2005

- National Institute for Occupational Safety and Health (NIOSH). Continued to use and disseminate educational materials and to use and refer callers to their Web site for information and publications. Worked with NIOSH staff in planning an evaluation of the California food flavor manufacturing industry to determine if workers are at risk for bronchiolitis obliterans.

Section 1.02 Labor Code Section 147.2 - Mandate 6

Recommend legislative changes related to the functions of HESIS.

There were no activities conducted under this mandate in the report period.

Authorized Positions in HESIS for 2004

Permanent positions

Research Scientist Supervisor II	Julia Quint, Ph.D.	100%
Public Health Medical Officer II	Janice Prudhomme, D.O., MPH	100%
Associate Industrial Hygienist	Elizabeth Katz, MPH, CIH	100%
Office Technician	Beverly Broadway	100%
Office Assistant	Amy Le	25%