

# Safety Insider

August 2014

## **Bay Area Environmental Safety Group September**

### **Meeting Time and Location**

Wednesday, September 15, 2014  
12:00 – 1:00 PM

Registration starts at 11:30 AM

\$28 Members with reservations  
\$37 Non-Members and Walk-ins

Santa Clara Golf and Tennis Club  
Conference Center

5151 Stars and Stripes Drive  
Santa Clara, CA  
(408) 330 – 0001

For directions go to  
[www.baesg.org](http://www.baesg.org) or see Page 3

RSVP at  
[baesgreservation@gmail.com](mailto:baesgreservation@gmail.com)

September Meeting Topic:  
**EHS Employment Trends and Job  
Hunting Tips** presented by BAESG's  
own Jobs Coordinator, Quinn Duane.

**See next month's newsletter for details**

## **October's Meeting will be the Annual BAESG Professional Development Conference**

**This year's all day event will once  
again be held at the Palo Alto  
Research Center's Auditorium  
3333 Coyote Hill Road  
Palo Alto, California**

**"Regulatory Compliance- It is  
Global, It is Local, and It is Nano"**

**See the Planned Agenda  
below in the Newsletter**

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# **BAESG Professional Development Conference Agenda**

**Our sessions will include the impact of existing, modified and new regulations, on EHS Management and implementation of programs and policies at your facility. Our presentations will cover topics that impact your facility at a Local, Regional, State, National and International level!**

## **RoHS & REACH Environmental Compliance: How to Turn Compliance into an Opportunity**

Presented by Ken Kapur, Associate Global Director of EHS, Thermo Fisher

## **Impending Proposition 65 Reform: New and Enhanced Requirements that all California Businesses will be Subject to**

Presented by Troy Christensen, QSP-QSD, PE; Founder/Managing Principal, Otis Institute

## **Effects of Executive Order 13650, Improving Chemical Facility Security – CFAT**

Presented by Rodney Lockett, Region 9 Director, Field Operations Branch Infrastructure Security Compliance Division U.S. Department of Homeland

## **Drought in California-the New Paradigm for Business Operations**

Presented by Karen Morvay Koppett, Santa Clara Valley Water District

## **Sampling and Analytical Considerations related to OEL's for Various Nanomaterial's**

Presented by Alan M. Segrave, P.G., Division Manager, Laboratory Services, Bureau Veritas *North America*

## **Effective Exposure Controls for Nanomaterial's**

Presented by Xavier Alcaraz, MSPH, CIH, CSP, Principal Consultant, EORM

**Check out the BAESG website at [www.BAESG.org](http://www.BAESG.org) for more details and downloadable registration form. Early registration will obtain the best pricing. The BAESG is also working on implementing a credit card payment system. Watch your email inbox and the next issue of the newsletter for more information.**

**The California Environmental Health + Safety Training Center will award Eight REHS CEU's and Eight General CEU's for this conference.**

There are also a few exhibitor spaces available. Your contribution towards this event will provide the funding for this year's BAESG college scholarship. Contact Michael Hall for more information- [Michael@ehsTraining.org](mailto:Michael@ehsTraining.org).

## Member Spotlight



**Dave Baldwin**

Dave has been in the field of EH&S since 1975. He began his career as the Water Pollution/Water Front Safety Officer at the US Coast Guard. In 1978, he worked at the Health and Safety department of National Semiconductor, and he eventually moved up the ladder as the IH Manager for the company. In 1989, Dave joined Hewlett Packard as their Corporate IH Manager. After 10 years, Agilent Technologies spun off from Hewlett Packard, and this is where Dave is currently working as the Corporate IH Manager for both corporations.

Dave received his Bachelor of Art degree in Biological Sciences from San Jose State University. He also holds a Master of Sciences degree in Occupational and Environmental Toxicology from the University of San Francisco. Further, Dave is also a Certified Industrial Hygienist, Certified Safety Professional, and an Environmental Management System Lead Auditor.

Despite education and certifications, Dave has published books and professional journals, which include an article called "*Oil Spills – How Clean is Clean in the U.S. Coast Guard Port Safety Bulletin,*" and the *Encyclopedia of*

*Occupational Health and Safety*. He is also working on his 4<sup>th</sup> edition of the *Chemical Safety Handbook for the Semiconductor/Electronics Industry*, which will be published this coming fall.

Dave believes that it is particularly crucial to stay current with the practice in order to be able to manage risks that the employees are exposed to in their workplace. Simply complying with the regulations and responding to the needs of the employees are not sufficient. Lastly, Dave encourages his colleagues to be persistent in his or her project proposals. Dave suggests that if one's proposal gets rejected, he or she should not give up. Conversely, one should continue to pursue his or her proposal with external benchmarking, data, and other informal analyzes. Once the organization's business climate has improved, upper management might be able to see the added-values of the proposal.

## Regulatory Update



**On April 11, 2014, OSHA published in the *Federal Register* the final rule revising 29 CFR 1910.269 and 1926 Subpart V standards governing workplace safety in electric power generation, transmission and distribution work. Generally, the rule revises this standard for consistency with corresponding overall industry standards and requirements. It clarifies and**

expands the employer's responsibility to provide arc-rated clothing to employees based on reliable workplace hazard assessments, and places responsibility for care and maintenance on the employer, although home laundering is explicitly accepted. Employers must comply with these new requirements by April 1, 2015. It's important to note OSHA estimates the updates to this rule will save more than 20 lives and prevent 118 serious injuries each year.

### **Next steps for compliance**

OSHA's changes are generally embraced as much-needed measures to better protect the men and women who work on or near electric power lines. Now that the final rule has been published, employers should take swift action to

1. Conduct the proper hazard analyses and incident energy calculations. Employers must make reasonable estimates of incident energy by January 1, 2015, and provide protective clothing and related PPE for arc-flash protection by April 1, 2015. Although the changes pertaining to arc-rated clothing will not be enforced until April 1, 2015, employers should schedule and prepare for the required hazard and incident energy analyses, as this information is critical to advancing toward properly protecting employees and ensuring compliance with the new ruling.

2. Identify groups within the company that require PPE under the new rule, as well as items and quantities the organization will require. Based on the information gathered in step one, employers will need to provide head-to-toe FR clothing for all hazards greater than 2 calories or for work above 600 volts. This mandate for full body protection means that workers will now be required to wear FR pants, balaclavas or face shields, boots, and gloves — in addition to FR shirts and jackets already commonly provided.

3. Engage an arc-rated clothing solution provider, and do so well in advance. A critical path to compliance is determining and implementing the service solution that is the best fit for the employer's unique needs. OSHA acknowledges considerable flexibility in the approaches employers can use to satisfy PPE requirements, and makes several statements indicating support of an allowance-based FR clothing program. OSHA's assessment of the cost to employers is based on "a cost of \$1,534.00 per employee for eight sets of flame-resistant clothing ... or on an annualized cost of approximately \$452.88 per employee" (p. 287); accordingly, an allowance program whereby employees are provided with a one-time new hire allowance of \$1,534 and an annual allowance of \$455 represents a straightforward approach to meeting the new requirements. Allotment programs and programs that combine allowances with allotments will help bridge the gap to the new requirements. Do not wait to engage an arc-rated clothing supplier, as the ruling will significantly increase demand for arc-rated items and the effects will be felt throughout the supply chain. The last time an FR clothing PPE standard was issued was in 2010, and there were significant industry-wide shortages.

4. Partner with selected arc-rated clothing supplier to develop resources and plans for teaching and enforcing proper care and maintenance. Under the new ruling, OSHA clarified its stance that FR and arc-rated clothing should reasonably and appropriately be treated as personal protective equipment (PPE). This designation reinforces the employer's responsibility to provide, pay for and retain ultimate responsibility for care and maintenance of arc-rated clothing. OSHA clearly indicates that "the responsibility for maintaining PPE rests squarely with the employer under existing OSHA standards" (p. 187). While the designation of FR clothing as PPE requires additional employer oversight, OSHA specifically states in the preamble that it "is not prohibiting home laundering of FR and arc-rated clothing" (p. 187). Whether employers take advantage of the convenience and cost effectiveness of home laundering or pay for industrial laundering, employers must train their employees in proper care and maintenance techniques. For both home and industrial laundry, OSHA is clear that

the employer must inspect the clothing on a regular basis to ensure that it is not in need of repair or replacement. Employers should develop and plan to provide training and resources to employees. A straightforward approach to ensuring employees' arc-rated clothing is properly cared for and maintained is to provide and conduct a PPE inspection at each job briefing. To maximize the efficiency of this solution, experienced FR clothing suppliers can partner with employers to "train the trainers."

### **The role of arc-rated clothing suppliers**

The 1910.269 ruling contains a great deal of information. To help employers understand how protective requirements and employer responsibilities are changed under the new rule, arc-rated clothing suppliers should be thoroughly familiar with the contents, requirements and implications of the ruling as it applies to arc rated/FR clothing.. Help employers understand their responsibilities under the new ruling, how to properly protect employees, and how to adapt their current protective clothing programs. . Provide educational and informational resources to help employers and their organizations gain compliance with the new requirements.. Provide guidance and tangible plans for executing the changes within required timeframes. With sufficient notice, arc-rated clothing suppliers should be able to manage demand and ensure customers are properly protected and compliant within a reasonable timeframe. . Provide straightforward care and maintenance instructions and resources to support employers as they, in turn, educate employees and enforce care and maintenance standards.. Have the flexibility to provide: • Boots, balaclavas/ face shields, and hand protection alongside arc rated shirts, pants, coveralls, and outerwear. • A variety of flexible service solutions to fit employers' individual needs.

# News Release

## Report: **U.S. Companies Need to Accelerate Sustainability Efforts**

By Josh Cable

A new report by Ceres concludes that while there are encouraging pockets of sustainability leadership in the U.S. business community, far too many companies merely are taking small, incremental steps to address sustainability issues that could affect their bottom lines – and the future of our planet.



We know corporations are good at publicizing their sustainability goals and achievements. But how much progress are they really making toward addressing pressing sustainability issues such as climate change and human rights?

A new report by Ceres and Sustainalytics concludes that while there are encouraging pockets of sustainability leadership in the U.S. business community, far too many companies merely are taking small, incremental steps to address sustainability issues that could affect their bottom lines – and the future of our planet.

“Given the acceleration of environmental and social challenges globally – floods, droughts and workplace tragedies – most U.S. corporations are not keeping pace with the level of change,” said Mindy Lubber, president of Ceres, a Boston-based sustainability advocacy group. “Those that step up to the challenge will be best-positioned to thrive in the rapidly changing, resource-constrained 21st century economy.”

The report, which assesses the sustainability performance of 613 of the largest publicly traded companies in the United States, tracks corporate performance against 20 key metrics, including governance, disclosure, labor standards and greenhouse gas emissions reductions. Among the findings:

- While many companies are taking action to reduce greenhouse gas emissions, few have set time-bound targets. More than two-thirds of the companies evaluated (438) have activities in place aimed at reducing greenhouse gas emissions, but only 35 percent (212) have established time-bound targets for

reducing emissions. In terms of renewable energy, 37 percent of companies have implemented a program, while only 6 percent have quantitative targets to increase renewable energy sourcing.

- More companies are setting clear sustainability standards for suppliers. Fifty-eight percent of companies (353) have supplier codes of conduct that address human rights in supply chains, compared with 43 percent in 2012. However, only a third (205 companies) have some activities in place to engage suppliers on sustainability performance issues, up from 27 percent in 2012.
- A growing number of companies are incorporating sustainability performance into executive compensation packages. Twenty-four percent of companies (147) link executive compensation to sustainability performance – up from 15 percent in 2012.

“The findings of this report should inspire companies to examine their own progress and identify where they stand on the path to sustainability,” said Michael Jantzi, CEO and Founder of the research firm Sustainalytics. “This is about more than how companies stack up against their peers – it’s about how innovation is driving performance from the corporate boardroom throughout the entire supply chain.”

The report, [“Gaining Ground: Corporate Progress on the Ceres Roadmap for Sustainability.”](#) was released at the 2014 Ceres Conference in Boston. In addition to assessing the sustainability efforts of companies, the report provides information to shareholders about how the companies in their portfolios are performing in key areas, such as disclosing material issues and engaging with stakeholders, according to Ceres.

“This report is critical for investors because it reveals how well-prepared – or in many cases, how poorly prepared – individual companies are to thrive in an economy being profoundly shaped by sustainability risks and opportunities,” said Anne Stausboll, CEO of the California Public Employees’ Retirement System.

## Featured Article

### What You Need to Know About Dust Explosions

**This two-part series examines the causes of dust explosions, their devastating impact and the measures suggested by OSHA, the National Fire Protection Agency and the Chemical Safety and Hazard Review Board to eliminate them. Part 1 examines the risks of dust and how to reduce the hazards.**

*Dec 1, 2009* **Michael A. Maxwell**

According to recent research conducted by the U.S. Chemical Safety and Hazard Investigation Board (CSB), over 280 explosions and fires have resulted from the ignition of dusts or dust clouds in U.S. industrial plants over the last 25 years. These incidents have caused 119 fatalities and over 700 injuries as well as untold millions of dollars in damages.<sup>1</sup> It is likely there were at least 80 additional incidents that were not documented in the CSB study.

OSHA launched a Combustible Dust National Emphasis Program (NEP; OSHA Directive CPL-03-00-008) in October 2007, providing procedures for inspecting for dust hazards, policies for industrial plants to implement designed to reduce dust explosion risks and guidelines on implementing National Fire Protection

Association (NFPA) standards and codes. The NEP resulted in an unusually high number of General Duty clause violations, indicating a strong need for a combustible dust standard. The General Duty clause is not as effective as a comprehensive combustible dust standard would be at protecting workers, so on Oct. 21, OSHA published an advance notice of proposed rulemaking (ANPR) in the *Federal Register* as an initial step in development of a standard to address the hazards of combustible dust.

“Since 1980, more than 130 workers have been killed and more than 780 injured in combustible dust explosions,” said acting Assistant Secretary of Labor for OSHA Jordan Barab when announcing the proposed rulemaking.

## DUST RISKS

What is most amazing is how little those in the chemical process industry (CPI) understand about the risks posed by dusts. While most people understood that certain dusts are an explosion risk — for example, coal dust, grain dust and fertilizer dust — very few understood the broad range of powders and dusts that actually posed a fire and/or explosion danger in the industrial plants. This fact was brought home by the explosion at Imperial Sugar.

How can a powder — a solid, typically non-hazardous material like sugar or plastic — become a fire and explosion (or, more appropriately, a deflagration) risk? This was the question the OSHA inspectors and chemical industry workers were asking. A careful examination of the nature of finely ground materials, and how fires work, is necessary to understand why this risk exists.

We all know that it takes three components to make a fire: a fuel the fire will feed on, a source of oxygen to sustain the fire and an ignition source, such as a spark, flame or heat. But how do these relate to our examination?

When we understand that fire is a chemical process — an oxidation reaction — we more easily can understand how a seemingly non-hazardous material can become a great fire or explosion risk. In fact, most materials can oxidize. A prime example is iron that rusts, or chemically reacts, to form iron oxide. When we place a bar of steel where it is exposed to air, the surface will slowly rust. This process typically takes days, weeks or longer.

However, if we grind that iron bar up into very fine particles, there is significantly more surface area that becomes exposed and this surface will react with the available oxygen at a much more rapid rate. The finer the particles are, the quicker the reaction will proceed. This reaction also releases heat, so if the reaction proceeds at a rapid rate, it will generate heat at a quicker rate, and this heat will cause the gas around the particles to expand.

This rapid heat generation and oxidation of the fine particulate creates a flame front. If that flame front moves at less than the speed of sound it generally is considered to be a deflagration.<sup>2</sup> When a deflagration occurs in an enclosed space, an increase in pressure results when the expansion of the internal gases caused by the heat generated is restricted by the enclosure walls. This creates an explosion, where the expanding pressure wave can cause damage to the enclosure.

If the flame and pressure wave moves faster than the speed of sound, the “explosion” is classified as a detonation.<sup>2</sup> Detonations generally are associated with high explosives and, in general, cannot be controlled with pressure relief vents of any type.

This same mechanism will occur with any material that can oxidize with the release of heat (called an exothermic reaction). Therefore, most organic chemicals, plastics, foods, metals, carbon compounds, pharmaceuticals and chemical intermediates can present a risk when they are in the form of very fine powders. The finer the powder, the greater the risk. In contrast, materials that require the addition of heat to oxidize (endothermic reactions) will not spontaneously ignite or explode.

## DUST HAZARD REDUCTION

Once we understand how and why dusts can become fire and explosion risks we can determine how best to bring industrial facilities into compliance with OSHA's NEP and the eventual combustible dust standard. While it may not be possible to eliminate all dust, the primary goal must be the elimination of major, or catastrophic, explosions inside the facility.

To accomplish this, the first task is to reduce or eliminate accumulations of combustible dusts from exposed and hidden surfaces inside the plant. It is a fact that most catastrophic explosions — those that create the greatest devastation and loss of life within the plant — are secondary explosions caused when the shock or pressure wave from a smaller, primary explosion causes accumulated dust on horizontal surfaces to become airborne, where it is ignited by the primary ignition source. As this accumulated dust can extend for great distances away from the initial ignition source, the small fire or explosion rapidly can expand and cause millions of dollars in damages and the risk of severe injury or death.

The National Fire Protection Association (NFPA) has determined that dust accumulations of as little as 1/32<sup>nd</sup> inch (approximately the same thickness as an average paper clip) are sufficient to create a dust deflagration when dispersed and exposed to an ignition source.<sup>3</sup> The removal of accumulated hazardous materials is the primary emphasis of OSHA's NEP plan and is the focus of OSHA's inspections.<sup>4</sup>

There are three essential components to the reduction of hazardous dust accumulations. These are identification of problem areas, identification of problem dusts and elimination of dust hazards. Within all industrial facilities where powdered materials either are handled or generated, some dust escapes from the processing and conveying equipment. This dust naturally settles on horizontal surfaces in close proximity to the dust source. These surfaces may be on top of the equipment itself, on stairs, railings, support steel, light fixtures, etc.

Over time, the accumulation of dust may become extensive. Those surfaces that are highly visible often are cleaned on a periodic basis and may present a very minimal hazard. However, "hidden" surfaces generally are overlooked. These include support steel, roof support members and trusses, equipment surfaces above eye level, light fixtures and elevated ductwork, piping or cable trays.

These problem areas are the areas that will draw the attention of OSHA inspectors and are the areas that safety professionals should concentrate on cleaning.<sup>4</sup> The watchword in reducing the risk of dust explosions is housekeeping: cleaning up dust accumulation in all areas, visible or hidden.

The second aspect of reducing the dust explosion risk is to identify the hazardous nature of the accumulated dusts. Not all dusts present a fire or explosion risk. While it is preferred that all accumulated dusts be cleaned up for safety reasons, the emphasis here is to concentrate on those dusts that present a real fire or explosion risk.

Conduct an inventory of all the powdered materials within the facility and review material safety data sheets (MSDS) to determine if a risk already has been identified. In the event the MSDS is incomplete or if no MSDS exists for the powder under review, physical hazard testing may need to be conducted. Several NFPA publications<sup>2,5,6,7</sup> provide additional information on explosive and combustible materials. Of course, a hazard may be assumed to exist for all unidentified materials and a cleanup undertaken anyway.

Eliminating the problems involves the general housekeeping chores discussed above, but goes beyond that to address the sources of the primary dust and ignition sources. This involves a review of the process and process equipment to minimize any openings where dust can escape and to eliminate sources of heat, sparks, combustion, etc. wherever possible. To facilitate this process, OSHA and the Chemical Safety Board rely on the NFPA and their collection of codes, standards and guidelines, which will be discussed in Part 2 of this article.

# MEETING LOCATION

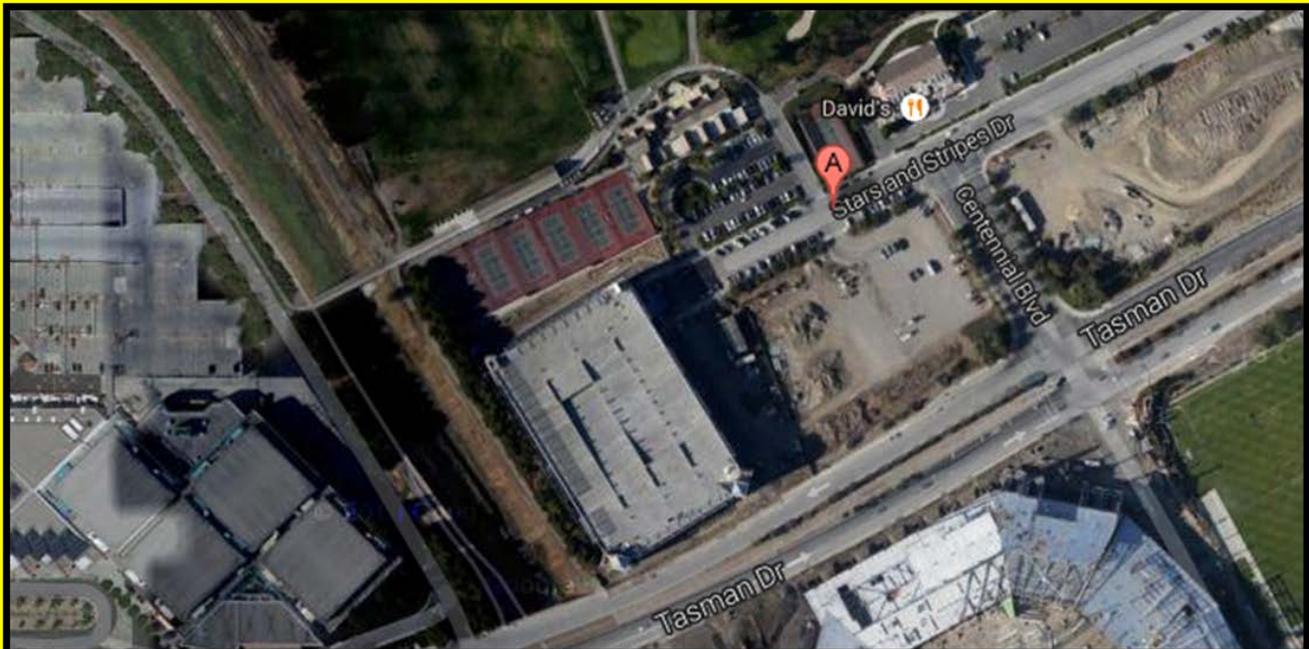
Santa Clara Golf and Tennis Club Conference Center  
5151 Stars and Strips Drive  
Santa Clara, CA, (408) 980-9515

(Off Tasman across from the new stadium entrance)

(Second traffic light east of the Hilton on Tasman)

Lunch will feature a sumptuous Chef's Choice Menu.

Please let Jarod know if you have any special Dietary needs, such as vegetarian.



## 2013 PDC Sponsors



**Enviro  
Safetech**  
Your **SAFETY** is **OUR** Business



**Prestige Safety Rx**  
Local On-site Safety Eyewear Provider  
[www.prestigesafetyrx.com](http://www.prestigesafetyrx.com)  
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**NCA|ETC**  
**NORTHERN CALIFORNIA  
ENVIRONMENTAL  
TRAINING CENTER**



**genium**  
Waste In. Green Out.

## Upcoming Classes

**UC Santa Cruz Extension** has the following training courses/seminars coming up in Cupertino/Santa Clara (For more information see: <http://www.ucsc-extension.edu/>)

- [Waste Stream Management - September 8 – October 27](#)
- [Regulatory Framework for Toxic & Hazardous Material – October 1 – 29](#)

**Environmental Training Center** has courses/seminars coming up at Mission College (For more information see: <http://www.envtraining.org/>).

**Please email Stanley Li, Newsletter Editor at [Stanley.Li@parc.com](mailto:Stanley.Li@parc.com) if you have an event that you would like posted on our upcoming events page. All notices are subject to BAESG Board member approval.**

## Job Postings

Senior Environmental Engineer or Geologist, Terraphase Engineering Inc.  
San Francisco Bay Area- see <http://www.terraphase.com> for more details.

Environmental Health and Safety Manager, Revance Therapeutics,  
San Francisco Bay Area- see <http://www.revance.com/careers/> for more details.

Safety Manager, Silverado Contractors, Inc., San Francisco Bay Area  
see <http://www.silveradocontractors.com> for more details.

Area Safety Manager, Republic Services, San Francisco Bay Area  
see [www.republicservices.com/careers](http://www.republicservices.com/careers) for more details.

# BAESG MEMBERSHIP APPLICATION

Please use your browser's PRINT command to print this membership application form. Please complete the form and attach membership dues. Annual membership dues are \$50.00. (\$25.00 for full-time students and retired EH&S professionals).

Make your check payable to **BAESG** and return with this application to:

Membership Director  
**Bay Area Environmental Safety Group**  
P. O. Box 60363  
Sunnyvale, CA 94088-0363

## Personal Information and Company Address (to be listed in the Membership Directory)

Name: \_\_\_\_\_

Application Date: \_\_\_\_\_ New  Renewal

Full-time Student? Yes \_\_\_ No \_\_\_

Certifications (such as PE, CIH, CSP, CHMM) \_\_\_\_\_

Job Title (or field of study): \_\_\_\_\_

Company or (College/University): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City, State, and Zip Code: \_\_\_\_\_

Daytime Phone (with area code): \_\_\_\_\_ Fax: \_\_\_\_\_

Email address: \_\_\_\_\_

**Monthly newsletters will be sent to the above email address.**

Would you like to receive job opportunities?  yes  no  
at what e-mail address?  same  this one: \_\_\_\_\_

**Areas of Interest: Please indicate any areas of special interest that you would like to see covered during the monthly meetings.**

**TOPIC:** \_\_\_\_\_

**PRESENTING?** Yes \_\_\_ No \_\_\_ **TOPIC:** \_\_\_\_\_