



# AICHE Orange County

NEWSLETTER OF THE ORANGE COUNTY SECTION, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS

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January 2006

## LA-OC Joint Meeting JANUARY DINNER MEETING

### Future Directions of the Port of Los Angeles

S. David Freeman  
President, Los Angeles Board of Harbor  
Commissioners

**Tuesday, January 24, 2006**  
**5:30 PM**

S. David Freeman was appointed to the Los Angeles Board of Harbor Commissioners by Mayor Antonio Villaraigosa and confirmed by Los Angeles City Council on September 9, 2005.

Freeman has a 30-year record as board member and manager of many of America's largest publicly owned businesses. President Jimmy Carter appointed Freeman as chairman of the Tennessee Valley Authority in 1977, where he cut sulfur oxide emissions in half. He then served as general manager of large public power agencies for the next two decades, including the Los Angeles Department of Water and Power, from 1997 to 2001. Under his leadership, the DWP kept the rates level and lights on during California's power crisis.

Freeman has won awards from the Los Angeles Coalition for Clean Air, National Wildlife Association and Global Green for his devotion to clean air, clean water, and renewable energy. He negotiated the settlement of the decades-long dispute over the dust pollution from the Owens (Dry) Lake, resulting in the restoration effort that has created a bird sanctuary and cleaner air for that pristine area.

Freeman served as a U.S. Merchant Marine in World War II, transporting gasoline across the North Atlantic. He authored Energy: the New Era in

1974, holds a B.S. in Civil Engineering from Georgia Tech, and an L.L.B. from the University of Tennessee.

#### Meeting Schedule:

5:30 p.m.	Social Hour
6:30 p.m.	Dinner
7:20 p.m.	Break
7:30 p.m.	After-Dinner Program

**Place: Khoury's Restaurant.**

**110 North Marina Dr., Long Beach**

**Directions:** From the north, take the 605 south and take the Seventh Street/Long Beach exit. Go 1.4 miles and take the Studebaker Road exit. Continue south on Studebaker Road for 1.4 miles. Turn right on East Second Street. Continue on another 0.6 miles, then Turn left on Marina Drive at the first signal after PCH. Proceed 1 mile and enter the parking lot for Khoury's.

From Torrance/South Bay, take the 405 south and exit on Studebaker Road. Continue south on Studebaker for 2.1 miles. Turn right on East Second Street. Continue on another 0.6 miles, then Turn left on Marina Drive at the first signal after PCH. Proceed 1 mile and enter the parking lot for Khoury's.

From Orange County, take the 405 north and exit on Westminster Ave. West. Go 1.9 miles until Westminster Ave. becomes Westminster Blvd. Go an additional 3.9 miles until Westminster becomes East Second Street. Continue on another 0.6 miles, then Turn left on Marina Drive at the first signal after PCH. Proceed 1 mile and enter the parking lot for Khoury's.

**Reservations:** Please make your reservation for diner by sending an e-mail reservation to [janicewest@dslextreme.com](mailto:janicewest@dslextreme.com) or call 714-343-3412 **ASAP** no later than Thursday, 19 Jan, 2006.

**Cost:** Members and guests, \$20 with a reservation, \$25 at the door; Students \$5 with reservation, \$10 at the door; Unemployed/Retired, \$15 with reservation, and \$20 at the door.



## Legal Corner

### “KEEPUS” Committee Status (Newsletter FY06-04)

Bob Katin

Fellow ChEs,

Since my last newsletter there has been a third Stakeholders meeting held by the consultants to the Assembly Business and Professions (B&P) Committee. These meetings are being held to try to pass SB 246 at the B&P hearing currently scheduled for 14 FEB 2006.

The 3rd Stakeholders meeting occurred on 13 OCT 05. The junior consultant to the B&P Committee asked attendees what problems they saw with the State Engineers' Act. PECG and CELSOC continued to claim the present law causes no problem and does not need to change. The senior consultants to the B&P Committee asked PECG and CELSOC what about the 2-page list of problems which the junior consultant had developed and distributed at the 2nd Stakeholders meeting on 29 SEP 05. Bruce Blanning of PECG claimed they did not have time to review the list. The senior consultant asked him to review it right now. He replied that he saw no problems with the State Engineers' Act. The senior consultant became frustrated and annoyed. It is clear that PECG and CELSOC have no intention to participate in good faith meetings and develop an equitable State Engineers' Act. Instead of ChE's fighting PECG and CELSOC, now there is a Senior Consultant to the B&P Committee that is taking the argument to the Assembly B&P Committee.

The strategy now is that the MARKETPLACE has to come to the table. If the MARKETPLACE follows the law, they must hire a civil engineering firm to conduct plant work because those activities are defined by State Law to be the exclusive and arbitrary practice of CE, and the industrial exemption does not include CE activities. So the MARKETPLACE and their lobbyist must plead their case to the Assembly B&P Committee. For the public health and safety, and for the economy of California, vote YES ON SB 246.

The next Stakeholders meeting is on 10 NOV 2005 in Sacramento. To pass SB 246, our needs are:

1. Lobbyists for industry must meet with Assembly B&P Committee members to convince them to vote yes on SB 246. Please have your company lobbyist coordinate with CLCPE's lobbyist.
2. We still need support letters. Proponents are listed on the NorCal AIChE website <http://aiche-norcal.org/Government/lettervolsOct05.pdf>. If your company is not listed, write a letter on company letterhead and copy Bob Katin at P. O. Box 4727, Antioch, CA 94509. If you do not have the authority to sign a letter on company letterhead, show the requested letter to your boss and ask your boss to sign a support letter. A sample letter can be found at <http://aiche-norcal.org/advocacy.php> from there look at the first bullet and click on the link for sample letter.
3. We need to show that there are a large number of ChEs in CA. If you know any ChEs in CA, send me their name and e-mail address so when I testify next I can claim the largest number possible.
4. If you were prevented from conducting ChE activities, provide a letter to Bob Katin including as many details as possible.

Thanks,

Bob Katin, PE

Chair, AIChE's California Government Relations Committee (aka KeepUs)

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## Eliminating Antifreeze Pollution

**Bob Deshotels, P.E., Engineering Gadfly**

Antifreeze is one of many chemicals that seeps from people's back yards into the creeks and underground water of Orange County. Antifreeze contains ethylene glycol, which is highly poisonous to animals, and depletes oxygen out of surface water. Although antifreeze is not the most noxious of household hazardous waste chemicals, it is one chemical that most of us can do without. Unless you drive your vehicle to a region with sub-freezing temperatures, your car or truck will actually run better with water in the radiator.

Pure ethylene glycol is the active ingredient in the kind of antifreeze you can find in a store. In a 50% volume solution with water, a glycol mixture freezes at -34°F. But pure ethylene glycol freezes at a temperature of 4°F. Not only does pure glycol provide minimal freeze protection, it's combustible. This is an example of "more is not better".

Antifreeze is advertised as a coolant. This is true; but water is a better coolant. Compared to water, pure ethylene glycol at 180°F has about 50% of the thermal conductivity and 65% of the heat capacity. This means under severe operating conditions, the engine block and cylinder heads will run hotter, under greater thermal stress. Antifreeze has a greater density and much greater viscosity than water. This means more power consumed by the water pump while circulating antifreeze through the engine. Antifreeze advertising emphasizes "boil-over protection." A 50% glycol solution contained in a radiator with a 15 psig pressure cap boils at 265°F, compared to 250°F for water. Either water or a glycol mixture provides enough safety margin to keep your radiator from boiling-over if your cooling system is functioning normally. During normal operation, the coolant going into the engine should be close to the thermostat setting (usually 180°F). The important fact is that with antifreeze your coolant and engine will run a little hotter. Whether your engine boils-over or not, excessive engine temperature causes excessive thermal expansion, which can lead to excessive wear, cracked cylinder heads, or head gasket failure.

Ethylene glycol, pure or mixed with water, is more corrosive than water itself. With or without antifreeze, your engine coolant should contain a corrosion inhibitor to prevent the coolant from corroding engine cooling passages. Especially if your engine contains aluminum, corrosion products insulate metal surfaces and impede coolant circulation. Oil leaking into the coolant from the engine, or radiator stop-leak added to the coolant can have the same effect. With rust or sludge in the engine cooling passages, it is possible for the coolant to be at the correct temperature while portions of the engine are overheated. To avoid corrosion problems, all antifreeze contains a corrosion inhibitor, which loses effectiveness each time air gets into the radiator. Antifreeze makers advise you to change their coolant on a regular schedule to maintain corrosion protection. For example, the Zerex® label implies you should change antifreeze every time you change oil. Prestone® advises that you should change their regular antifreeze every year. Major antifreeze makers sell premium antifreeze, designed to last five years. The long-life antifreeze has the same ingredients, but contains more corrosion inhibitor. Fortunately, you can buy the corrosion inhibitor separately, at a fraction of the cost of antifreeze. Typical new car instructions call for a coolant with an organic type (carbon-based) corrosion inhibitor containing no silicates, amines, nitrites, or borates. The corrosion inhibitor made by Prestone meets those requirements. You should drain a cup or so of coolant from the bottom of your radiator every year to check it. Unless your coolant is seriously sludged-up (looks like coffee), you can keep the coolant in place.

Ethylene glycol is highly toxic to pets and wildlife. Land animals and birds are attracted to the sweet taste of glycol. A few swallows of antifreeze solution will cause death a couple of days later from kidney failure. For example, a cat can be poisoned by merely licking antifreeze off its feet after walking through a puddle of it. With some extra effort, you can buy animal-friendly antifreeze that uses propylene glycol, which has nearly the same coolant properties as ethylene glycol. The Prestone® website shows their LowTox® propylene glycol antifreeze, but you won't find it on the shelves of any stores around here. Although propylene glycol is



technically slightly toxic, it is approved as a food additive.

Ethylene glycol and propylene glycol, when exposed to aerobic bacteria naturally present in soil and water, will decompose over a period of several days. During this biodegradation, the aerobic bacteria consume dissolved oxygen from the water. The level of dissolved oxygen determines the life-supporting capacity of a creek or marsh, because the forms of life associated with a healthy body of water – fish, amphibians, crustaceans, mollusks, and worms – all require dissolved oxygen to live. The concentration of dissolved oxygen in healthy water is measured in parts per million. As a result of the low natural oxygen capacity, decomposition of 1 gallon of ethylene glycol can destroy the environmental health of 200,000 gallons of water.

### What You Can Do

- 1 If your vehicle leaks antifreeze, get it repaired without delay. Don't expect radiator stop-leak products to fix the problem. Collect the leakage and dispose of it at a household hazardous waste site.\* If your neighbor has a leaking radiator, talk to your neighbor; if that doesn't work, inform the city.
- 2 Don't change your antifreeze unnecessarily. The antifreeze provided with new cars has a supply of corrosion inhibitor normally good for 5 years, and the ethylene glycol is good for decades. If the coolant is not too murky, just keep using it. If the coolant contains sludge, or system has to be drained for maintenance, ask the service technician where the antifreeze will be collected. You may want to verify that their collection drum isn't already full.
- 3 Unless you are going to drive to an area with sub-freezing temperatures, replace the antifreeze with demineralized water and a corrosion inhibitor. Don't believe the service technician's arguments about the necessity for antifreeze in our subtropical climate. If your dashboard has a temperature indicator, you will notice that it reads cooler with water. If you drain the coolant yourself, dispose of it at a household hazardous waste site.\*

\* Many auto supply stores will dispose of used antifreeze for you. The antifreeze must be in labeled, closed containers. For information about free household hazardous waste sites in Orange County, visit the website [www.oilandfills.com/faq\\_haz.asp](http://www.oilandfills.com/faq_haz.asp).

**For further information about cleaning-up fresh water and the ocean, visit [www.surfrider.org/20\\_ways.pdf](http://www.surfrider.org/20_ways.pdf).**

### STUDENT CORNER

Please contact the newsletter editor if you would like to publish any AIChE student chapter meeting summary or contribute any articles related to science/engineering.

### Newsletter Contributors Wanted

The newsletter editor would like to hear from you if you have one or more brief articles to contribute, especially a review or brief discussion of a good website, technical book, etc.

### Professional Engineering Employment Update

Job Seeking Members can receive a list of web sites of area companies that sometimes hire ChEs. Contact the Senior Member Everett Knell at [EWKnell@aol.com](mailto:EWKnell@aol.com) to receive this list by e-mail. Put "OCAICHE Company List" in the subject line of your email request.

- ① If you have an employment opportunity in Southern California for a chemical engineer, the newsletter will advertise it for free.



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## 2006 Orange County AIChE Officers

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**DATED MATERIAL**

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