



SCFS FORUM

Southern California Federation of Scientists
"Science in the Public Interest"

Volume 42 No. 1

June, 1993

\$1.00

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Founded in 1951 as the Los Angeles Chapter of the Federation of American Scientists, the Southern California Federation of Scientists is a non-profit educational organization dedicated to issues affecting SCIENCE, SOCIETY and PUBLIC POLICY. The **FORUM** is intended as a communications vehicle among our members and readers. We hope that our readers will send their comments and debate one another on the issues of the day. Please contact or send all materials to:

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3318 Colbert Ave., Suite #200
Los Angeles, CA. 90066
(310) 390-3898

SCFS Project Reports

1. Jobs/Economic Conversion Task Group

After a number of meetings, the group is still trying to decide exactly what it wants to do. It is hoped that will be decided shortly, so that the work can proceed. Shel Plotkin published a short article on his version of Economic Conversion in In These Times. Additionally, there have been a number of speaking requests on this subject. Hopefully, an official SCFS position on both a jobs program and an economic conversion program will be forth coming shortly.

2. Vietnam Wind Turbine Program

SCFS received approximately \$5000 from the American Friends Service Committee to purchase two sets of electronic wind monitoring equipment. These were taken to Vietnam last November by Paul Vu and Shel Plotkin. They acted as consultants to the Ho Chi Minh Polytechnic Institute and Science & Technology Committee who fabricated and installed one 100 foot high pole in a remote fishing village that is known to generally have good wind energy. Without going into detail, this was no small feat because there was no large crane available for raising the pole as we have in the US.

At present wind data is being recorded by the electronic equipment automatically while back-up data is being recorded each day manually. If the automatically recorded data on magnetic cards should be lost, all data could still be analyzed manually. Thus far the data has been excellent, averaging 15-20 m.p.h. a large fraction of each day. However, we have to be very cautious because this is their windy season and the good data may not continue.

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In the meantime, a second 100 foot pole is being fabricated. Its installation will be much more difficult than the first one because the location is much more remote. While we have some apprehension about this, the Vietnamese have demonstrated such cleverness in the past that their statements regarding their confidence in figuring out the installation of the second pole will probably be true. Perhaps we should not be so apprehensive.

Anyway, so far so good!

3. Vietnam Well Drilling Project

Some time ago, SCFS supporters donated approximately \$3000 to pay for purchase and shipment of a portable well drilling unit. Word was received that many wells have been drilled thus far with Vietnam providing the hand pumps and piping for each installation. However they did send word back that some drilling was not possible with the five drill bits provided. Therefore, a special heavy duty drill bit was purchased and just delivered about one month ago. Hopefully, this will provide drilling capability everywhere they need it. Again, we will keep members posted.

4. ALL THINGS NUCLEAR

Sales have been very good, the book having been used as a course text at five universities and is currently in its fifth small printing. Jim Warf is presently busy revising and rewriting much of the first edition, so we will be publishing the second edition shortly. ###



Letter To Congressman George E. Brown

April 26, 1993

Congressman George E. Brown, Jr.
U. S. House of Representatives
Washington, D. C. 20515

Dear Congressman Brown:

This letter addresses the matter of the breeder reactor known as the Integral Fast Reactor.

By way of introduction, I am Professor of Chemistry, Emeritus, at the University of Southern California, where I have taught and carried out research for 44 years. During World War II, I was a group leader on the Manhattan Project, directing the analytical and inorganic chemistry sections at the Iowa State University installation Ames, Iowa, and was also active at the University of Chicago and at Oak Ridge. I hold patents for the development of key portions of the solvent extraction technique which evolved into the PUREX process of extracting plutonium, used by the United States and later by other countries to separate plutonium from nuclear reactor fuel. Throughout my professional career I have specialized in nuclear issues and nuclear policy. Four years ago I published a book on the subject, entitled ALL THINGS NUCLEAR. As a board member and past chair of the Southern California Federation of Scientists, I am exceedingly concerned about any technology which would make it easier to obtain plutonium by the smaller countries, and thus proliferate nuclear weapons.

This letter is written out of concern about an effort by the US Department of Energy to embark on a new breeder reactor and plutonium reprocessing program. This effort is fraught with perils, both in terms of nuclear weapons proliferation and endangering our environment.

Of course you know that President Carter established a national policy against a "plutonium economy," a nuclear fuel cycle based on separation of plutonium

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and its reuse. This was done out of recognition correctly, I believe that the risks of proliferation would be associated with widespread commerce in separated plutonium. Moreover, commercial reprocessing in this country (and in the former USSR) has been a disaster from the environmental viewpoint, as witnessed at West Valley, NY.

When Ronald Reagan took office, the non-reprocessing and related policies were quickly reversed. A number of worrisome reprocessing and breeder programs were advanced with DOE support.

When Bill Clinton took office, he vowed to terminate these so-called "advanced reactor" programs. You will recall that in his State-of-the-Union speech he focused special attention on his decision to end these programs. OMB Director Panetta wrote that the decision to terminate the Integral Fast Reactor (IFR) breeder in particular was because of the "proliferation concerns" and because of the long-standing bipartisan policy against reactors which require a plutonium fuel cycle. Those of us who have spent our lives concerned with nuclear weapons proliferation were very gratified by this decision.

But a few weeks later, newly seated DOE Secretary O'Leary reversed this decision, putting back all of the IFR funds, but moving them into two other categories, namely "actinide recycle" and "facilities." This is a grave error, and I hope you will attempt to induce DOE to go to back the course the president initially set.

Proponents of the Integral Fast Breeder are trying to sell it as an "actinide burner" rather than the breeder reactor it really is. The actinide elements referred to are neptunium, plutonium, and americium. The word "burner" as used here is a slang term in the nuclear community for "consumption by fission," and misleads many people who are unfamiliar with nuclear terminology. What the breeders would accomplish is to convert the actinides into fission products such as strontium-90 and cesium-137, which themselves are dangerous enough. The uranium-238 blanket around breeder reactors would absorb excess neutrons and breed still

more plutonium-239.

Studies by the National Academy of Sciences and the Lawrence Livermore National Laboratory indicate that one would have to operate a substantial number of such reactors (along with reprocessing plants) for 1000 years to reduce the current civilian plutonium inventories by a factor of 100; this is still ten times less reduction than the IFR program goal. The IFR is thus absurd as an "actinide burner." I urge you to examine the Ramspott report (Lawrence Livermore National Laboratory, February, 1992).

Breeder programs have been closed down in the USA, England, France, and Russia. Only Japan is seriously considering this type (the Monju reactor). The reactors use liquid sodium as coolant. They do not moderate the fast neutrons from fission, and thus are inherently dangerous.

What is equally hazardous about the IFR breeder reactor is its companion reprocessing technology. The "actinide recycle" program aims developing a new "pyroprocessing" or "electro-refining" technique to remove plutonium and other actinide metals from spent nuclear fuel. Thousands of tons of high-level waste would be chemically processed and converted into chloride form. In one version, called TRUMP-S, this material, at a high temperature, would be electrolyzed to plate out the actinide metals. These steps are enough to give any chemical safety engineer nightmares.

The net effect would be to substantially increase the volume of high-level waste. Any realistic assessment would recognize the likelihood of environmental releases. The chlorides of the fission products left behind would be in the worst possible chemical form, namely soluble salts mobile in the environment. Proponents of the process evidently claim that disposal on or near the surface of the earth is satisfactory.

Even more worrisome is that any effort to find cheaper and easier processes for plutonium separation vastly increases proliferation risks, despite the relatively high plutonium-240 content. Risk of theft or diversion increases. Perfection of the electrolytic separation processes enhances potential use of the technique by developing countries, such as Pakistan, Iran, and

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Iraq.

I, along with some colleagues with specialties in nuclear matters, would be pleased to discuss these matters with you in more detail when you are back in California, if it would be helpful to you. Could we arrange such a meeting?

I urge you to assist in getting our country's nonproliferation actions back on track.

Sincerely,

James C. Warf
Professor of Chemistry, Emeritus

The title above is for identification only; the opinions are those of the author. ###

**Handwritten Reply from
Congressman Brown**

5-8-93

Dear Professor Warf -

Thank you for your letter of 4-26-93 regarding the Integral Fast Reactor. Your letter is probably the best short discussion of this issue that I have seen. Please continue to provide me, and other Members, with such excellent presentations.

You may remember that I led the years-long fight in the House to Kill the Clinch River LMFBR, at the request of President Carter. I was however willing to review the Actinide burn-up argument for continuing with some form of I.F.R. Your letter convinces me that such argument is not sufficient to continue the project.

Thank you for your continued leadership on important nuclear issues such as this.

Sincerely
George E. Brown, Jr.

**Notes From SCFS General
Meeting of April 19**

by Shel Plotkin

Nabil Elgabalawi lectured on "Micro-Gravity", a JPL project he has been involved with for many years.

Micro-Gravity is of no interest to the military and is of interest in the basic science realm only. Astronauts originated the work, the idea being to develop some beneficial space activity that would provide a commercial base for a space-based industry. To date, no useful project has been developed. Possible areas would include (1) fundamental physics (including combustion), (2) new materials (only finding effects at present), and (3) biology (effects only, first on rats/mice and then on cells).

JPL is involved with four levitation areas for containerless confinement: (a) acoustic; (b) electro-magnetic; (c) electrostatic; (d) microwave. Concentration is on basic physics, hoping that applications will follow someday. Examples would include behavior of drops and bubbles, blood flow, etc. with the hope being that this might have application to very large fluid systems here on Earth.

Many experiments have been performed on drop dynamics, particularly with liquid helium. Theoretical predictions of helium transition characteristics were proved which cannot be done on Earth. Protein crystal growth is better in space but is of questionable utility. Silicon cells for photovoltaics has not been done because of power limitations, although the theory indicates that much larger crystals can be grown in space. This might be worthwhile, but thus far no useful results have been demonstrated. The initial space programs were for space manufacturing, but now the emphasis is on biologic or gene processes with material manufacturing being downplayed.

The evidence is overwhelming that gravity is essential for human beings. ###

**General Meeting Notice
"Health Care Plans"**

**July 24, Saturday, 7:30 p.m.
Orange County Unitarian Church**

SCFS along with nine or more other organizations is having a general meeting on Health care plans. The Orange County Unitarian Church and SCFS is one of the sponsoring organizations. Speakers will be announced, so look for the forthcoming flyer. ###

Unpublished Letter to the L.A. Times

January 4, 1993

Editor, Los Angeles Times
Times Mirror Square
Los Angeles, CA 90053

Re.: Ward Valley Nuclear Waste Dump

Your article "Nuclear Waste Law Fails to Provide New Dumps," 1/1/93, failed to mention some cogent reasons that several environmental groups, including the Southern California Federation of Scientists, oppose the presently proposed Ward Valley nuclear waste dump. If only a medical waste disposal facility were intended, there would be support for the project. The proposal is objectionable in its present form because of the implied decladding of nuclear reactor fuel rods, and subjecting the contents to procedures which separate the transuranics. This would permit diluting the two most important fission products, cesium-137 and strontium-90, with dirt for disposal at Ward Valley. Simple calculations, based upon the cesium and strontium allowances specified in the Ward Valley Materials License shows that about 95% of the high-level nuclear waste from all four 1100-megawatt reactors at San Onofre and Diablo Canyon over a thirty year period would take 16% of the Ward Valley Class C trench.

Burying large quantities of cesium-137 and strontium-90, arising from nuclear reactors, in unlined, open trenches is exactly what we condemned the former Soviet Union for doing about 15 years ago. So here we are, the supposedly responsible USA, trying to engage in nearly the same unsound technical practice many years later when we ought to know better.

Many Californians may be fooled by disingenuous medical waste claims when the real objective is a technically unsound ploy by the nuclear power industry to get rid of the largest quantity of their high-level waste, but many of us in the environmental movement have been attuned to their trickery over the years. The nuclear power industry is not going to hide behind the

nuclear medicine institutions without a significant response from those of us who have fought their irresponsibility for many years. If politicians for the California Department of Health Services really want a nuclear medical waste facility, let them remove the cesium and strontium from the Ward Valley Materials License. The only source for cesium-137 and strontium-90 is cold war waste and spent fuel from nuclear reactors. Ward Valley is also scheduled to receive considerable tritium, which is the radioactive nuclide most likely to migrate out.

Cordially,

Sheldon C. Plotkin, Ph.D., P.E.

James C. Warf, Ph.D.
SCFS Ward Valley Task Group

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Ward Valley Repository

A new site for low-level waste is being readied at Ward Valley, California, in a desolate, wind-swept stretch of the Mojave desert 24 miles west of Needles. The design of the dump seems to be short on redundant safety features, primarily in the name of economy. For example, it is planned to just dump steel drums of waste into unlined trenches. Only about 3% of the total number of curies would arise from medical and academic waste if most of the tritium is recovered rather than being dumped. Mandatory tritium recovery should be considered whenever this is feasible, which is almost always the case. Tritium is an especially mobile form of low-level waste. If the repository is not approved, then low-level waste will continue to be stored at hundreds of urban locations.

An SCFS analysis revealed that the probable major reason for so much effort being expended to force this waste dump on California is that the dump materials license specifies that thirty years worth of strontium-90 plus cesium-137 from all four California 1000 Mw nuclear reactors would fill only 16% of the Class C trench. This requires separation of the transuranics, but two promising development projects are expected to

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accomplish this objective. Nuclear reactor corporations could then announce publically that they had solved the nuclear waste disposal problem, thus justifying, they would hope, the construction of new nuclear power plants.

While Ward Valley itself is a closed basin with respect to surface water, its underground water and that of the nearby Piute Valley aquifer (which supplies water to Needles) are interconnected. Water head differences are so small that flow in the aquifers can be reversed, so that water could conceivably sometimes enter the Piute Valley aquifer. At the site of the proposed repository the ground water is 650 to 700 feet deep.

Recycling tritium and removal of the strontium-90 and cesium-137 from the materials license satisfies most of the objections to the building of this waste dump, normal nuclear medical waste poses only a small hazard.

One unresolved aspect of the Ward Valley repository is the degree of liability the State of California and the City of Needles would have in case of radioactivity release. City officials are concerned that the repository has been represented as required only 70 acres, yet the request for land was for 1000 acres. Does this mean a large expansion in the future? The Nuclear Regulatory Commission apparently has the power to declare an emergency and then order the facility to accept unanticipated waste. City officials fear that the Ward Valley aquifer, a potentially valuable source of water in the desert land, might be sacrificed.

During the last days of the Bush administration, sale of the land to California was approved, but the new Interior Secretary under Clinton halted completion of the transaction until he is satisfied it is legal. Today a new crisis has arisen as explained in the following "Ward Valley Action ALERT" from CBG (Committee to Bridge the Gap). ###

Announcements

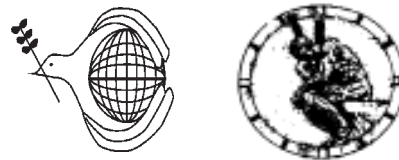
Logo Contest

Some Exec Board meetings ago, there was much discussion about the SCFS logo.

There are three options:

- 1). **No logo at all.**
- 2). **Keep the present logo on the masthead.**
- 3). **Adopt a new and different logo.**

As a matter of history, the SCFS logo has changed several times over the years, our present one not being the original (see samples below). It is now time for the members to get involved. Write the office what you think and if you chose option (3) above, don't forget to include what you would like to see the logo changed to. For those of you that are artistically inclined, feel free to FAX or mail us a sketch of your proposed logo, and we will take it from there.



CTB Letter Response

The Exec Board hopes all members responded to our special appeal for CTB letters. Five pre-written copies were sent to each of you. It was indeed gratifying to know that our contingent in Great Britain responded. Josie Stein mailed us the following postcard which we want to share with all the members:

Dear SCFS -

Just to let you know that I sent in the CTB letters you sent round. Hope there was a good response among the membership -- and that the politicians listen. The Brits are now alone in opposing a CTB - it's outrageous.

Cheers, Josie

Ward Valley Action ALERT!

On May 7, California Governor Pete Wilson announced that within 30 days he will issue a licensing decision on the controversial Ward Valley nuclear waste project, without having conducted the formal evidentiary hearing he had repeatedly promised to hold. Wilson did so despite a court having just ruled that he has the authority to hold the promised hearing. Notwithstanding unresolved environmental and safety problems, Wilson plans to dump large quantities of long-lived radioactive wastes, primarily from nuclear power plants, in unlined trenches over a pristine underground aquifer just 10 miles from the Colorado River. The company chosen to run the dump has operated three failed radioactive waste dumps in other states.

Before the court ruling, Wilson Administration officials repeatedly promised to hold the hearing unless precluded from doing so by the court, Nothing in the ruling prohibits Wilson from holding the promised hearing *yet Wilson has broken his promise and now says that he will not hold the hearing!* All the court said is that Wilson is not legally bound by the agreement he reached with the State Senate to hold the hearing. He is free to hold the hearing or not hold it. Ironically, this was always the case. No one had ever claimed the agreement was legally binding Wilson had made a political promise, which he could always violate if he chose and suffer the political consequences. He has now chosen to do precisely that-break his word.

The hearing, which is referred to as an “adjudicatory hearing,” would include the formal presentation of evidence, the testimony and cross-examination of witnesses under oath, and a formal ruling on the record by an administrative law judge. After promising to hold the adjudicatory hearing, Wilson joined the proposed contractor, a group of radioactive waste generators, and others in a lawsuit to block the very action he had committed to carrying out. In addition to promising the State Legislature that it would hold the hearing, the Wilson Administration repeatedly promised the federal government that it would conduct such a hearing as a condition of obtaining the Ward Valley land from the federal Department of the Interior. **Now that the Governor has broken the promise upon which the land transfer was conditioned, and there is no way of resolving outstanding environmental issues, the land transfer must be halted.**

The key to stopping Ward Valley now rests with Secretary of the Interior Bruce Babbitt. Wilson cannot build the proposed dump until the federal government transfers the Ward Valley land to the state. Secretary Babbitt can withhold

the land from Wilson and stop Ward Valley, or at least force Wilson to hold the promised hearing.

To stop Wilson from building a dangerous radioactive waste dump in California, write and/or call Secretary Babbitt. Your comments should include the following:

- Wilson Administration officials promised both the State Legislature and the federal government that they would hold an adjudicatory hearing unless precluded from doing so by a court.
- The Wilson Administration’s land transfer application made the adjudicatory hearing a condition of the land transfer.
- The recent court ruling allows Wilson to conduct the promised hearing. Wilson cannot be allowed to break his promise either by having asked a court to block the hearing or by not holding it once the court said he could if he wished.
- Now that Wilson has violated his pledge, upon which the land transfer was conditioned Secretary Babbitt should not transfer the land to the State of California.
- It is unacceptable to consider transferring land for use as a radioactive waste dump so long as unresolved environmental issues exist. Without the promised hearing there is no longer any way to resolve those outstanding issues.
- Dumping large quantities of long-lived nuclear power plant wastes in unlined trenches near the Colorado River in a dump operated by a company which has run three failed radioactive waste dumps elsewhere is unacceptable.

Also write and/or call California Senator Dianne Feinstein and your Congressional Representative. Explain the situation and ask them to write Secretary Babbitt and ask that the land not be transferred until and unless there has been a full and fair adjudicatory hearing as promised and all outstanding environmental problems have been resolved.

Secretary Bruce Babbitt (202) 208-7351
U.S. Dept. of the Interior
1849 "C" Street, NW
Washington, DC 20240

Senator Dianne Feinstein (310) 9147300 or
United States Senate (202) 224-3841
331 Senate Hart Office Building
Washington, DC 20510

Southern California
Federation of Scientists
3318 Colbert Ave., Suite #200
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