

University nuclear reactor won't power single light bulb

By Mike Sweeney

The nuclear reactor at UNL doesn't fit the popular picture of nuclear power plants generating enough power to light a city.

Nebraska's reactor, in the basement of the Nebraska Engineering Center, can't even power a single light bulb.

The reactor contains about \$100,000 of uranium in 265 fuel rods surrounded by a water bath, but it produces less than one watt of power, according to Dennis Alexander, associate professor of mechanical engineering.

"That's not even enough to heat the water," Alexander said.

He explained that the reactor is an educational tool for the engineering college. It helps students get used to low-level radiation and also gives them an understanding of what goes on in a large reactor, he said.

Student experiment

Students may perform small experiments with the reactor, Alexander said.

For example, he said, students chart the reactor's production of neutrons (neutrally-charged atomic particles), or experiment with making objects radioactive.

Alexander said the reactor is not large enough to be used in research. He said UNL is the only school in the Big Eight without a research reactor, because of a lack of funds.

The university's reactor is sub-critical, Alexander said. In other words, the reactor must have a steady supply of neutrons to interact with the uranium and sustain the reactor's power, he said.

Critical reactors operate differently. Once a reaction is started in a critical reactor, it will continue even if the neutron source is removed, he said.

"It's like your car continuing down the road after the gas initially present is gone," Alexander said.

Plutonium counted

A 79-gram chunk of plutonium-beryllium the size of a cigar serves as the neutron source for Nebraska's reactor, Alexander said.

He said the sale of plutonium and uranium is strictly controlled, and he must report the amount the university has to the federal government every year.

Neutrons emitted from the radioactive plutonium strike the uranium rods, splitting U-235 atoms into smaller atoms. Most of the reactor's energy comes from the kinetic energy of the newly-formed smaller atoms, Alexander said.

The reactor "could last forever as little as we use it," Alexander said. The plutonium in the reactor has a half life of 24,000 years—in other words, half of its atoms undergo radioactive decay every 24,000 years.

Alexander said the university's reactor isn't dangerous, and described nuclear power as clean, efficient, and cheap.

Energy source

While Alexander said there is no single answer to America's fuel problems, he said nuclear power should be developed.

"We need to use all our energy sources," Alexander said. "The U.S. has got to get off its hind end and let us develop new energy sources."

He said the cost of building nuclear power plants is higher than the cost of building other plants, but nuclear fuel is more economic than coal and natural gas.

If properly used in a reactor, one pound of uranium supplies as much power as 1,400 tons of coal, he said.

"Once the fuel is in the reactor, it can operate for years," he said.

He also said that nuclear plants contain all their wastes while coal plants spew their wastes into the atmosphere.

Kansas City art tour planned

A bus trip to the Nelson Art Gallery in Kansas City is being sponsored April 12 by the UNL Division of Continuing Studies and International Educational Services.

Featured will be a tour of the French Impressionism and Contemporary Art Exhibit featuring the Monet Triptych (Water Lilies), on special display.

Buses will leave Lincoln at 6:30 a.m.,

arrive in Kansas City at 10:30 a.m. and depart at 7 p.m. with an expected return time of 11 p.m. Following the noon exhibit tour, participants are free to continue their tours individually or shop in nearby Country Club Plaza.

Cost per person is \$18 and does not include meals. For further information contact Christa Joy, 345 Nebraska Union, 472-3264.



We Moved!
 "The Worlds Finest Bicycles
 and Repair Service"
 is now at
1616 "O" Street
 3 Blocks from Campus Closer, Better Service
Mr Bike
 1616 "O" St. 90 Days Same as Cash 477-4711



Sansui Sale





A117 Amp Reg. \$189.95
SALE \$149.95





TU-217 Tuner Reg. \$199.95
SALE \$149.95



SC1100 Cassette Reg. \$279.95
SALE \$229.95

Entire Sansui Line on Sale.
Speakers, Tape Decks,
Headphones, and more.



Top Rated
AU-717 Tuner Reg. \$550.00
 85 Watts x 2
SALE \$399.95



G-2000 Receiver
 16 Watts x 2
SALE \$189.95

Reliable Stereo
 230 N. 10th 475-2685

(... and don't forget, best prices
 in town on records and tapes!)



SR535
 Direct Drive Turntable
 Reg. \$269.95
SALE \$224.95

Financing Available



Free Parking in Front.

