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STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530  
AUTH.NAME AUTHOR AFFILIATION  
YAQUINTO, G. Arizona, State of  
RECIP.NAME RECIPIENT AFFILIATION  
MARTIN, J.B. Region 5 (Post 820201)

SUBJECT: Discusses 910315-16 newspaper articles which detailed possible safety flaws in Palo Verde Nuclear Generating Station causing degree of concern to many residents of Phoenix metropolitan area.

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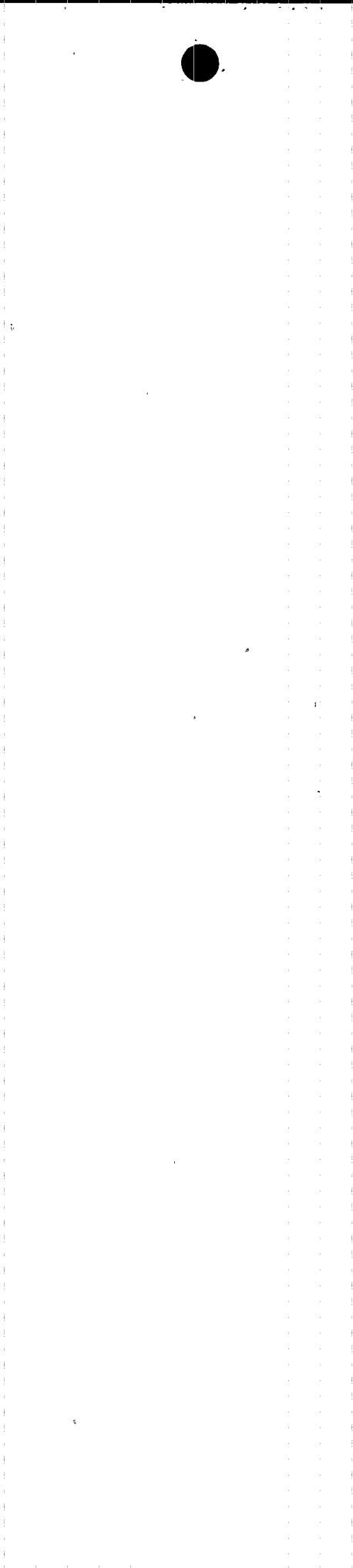
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JAMES MATTHEWS  
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ARIZONA CORPORATION COMMISSION APR 11 AM 10:28

April 9, 1991

Mr. John B. Martin  
Administrator  
United States Nuclear Regulatory Commission  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, California 94596

RE: PALO VERDE NUCLEAR GENERATING STATION (PVNGS) SAFETY ISSUES

Dear Mr. Martin:

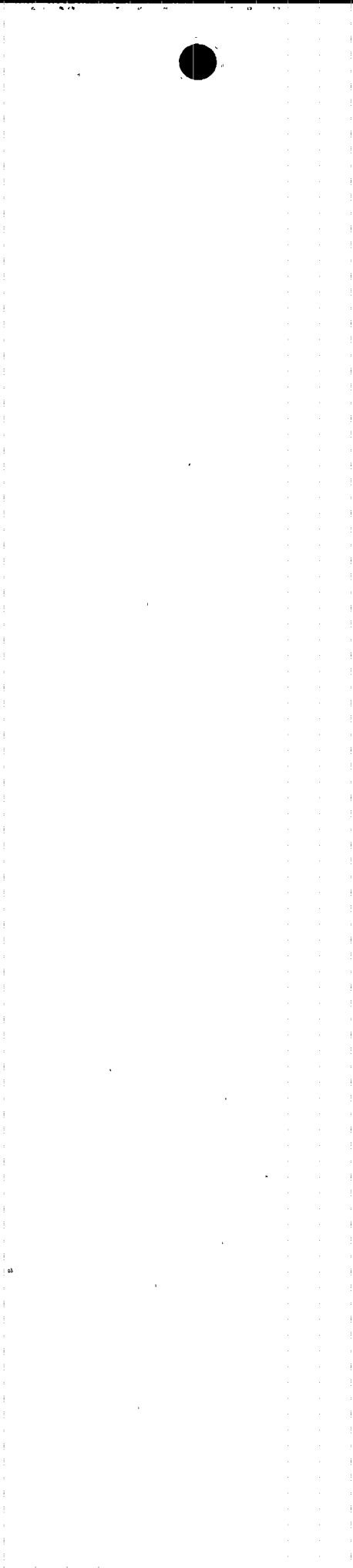
On March 15 and 16, 1991, the enclosed articles appeared in the Arizona Republic and Phoenix Gazette newspapers, detailing possible safety flaws in the Palo Verde Nuclear Generating Station (PVNGS). The newspaper accounts indicate that these flaws might present an unacceptable reactor meltdown risk. These articles, as you might imagine, have caused a degree of concern to the many residents of the Phoenix metropolitan area. While Mr. Greg Cook, the NRC Spokesman was quoted as saying that, "these numbers are much too rough...to draw a conclusion that the plant...is not safe," the release of this information, nevertheless, has caused some alarm.

The Arizona Corporation Commission, as you know, is the state agency responsible for the economic regulation of Arizona Public Service Company (APS), a co-owner and manager of the PVNGS. While our responsibilities do not specifically include oversight of nuclear safety, economic and safety issues are, nevertheless, intertwined. Accordingly, we have an interest in how this particular safety matter evolves.

As we understand it, the PVNGS is still operating within the NRC parameters under which an operating license was granted, and the current round of publicity was prompted by a risk analysis which the NRC asked all nuclear operators to undertake. This analysis showed that the PVNGS had an approximate 1 in 1,000 chance of a reactor meltdown due to electrical failure -- much more likely than the NRC's desired level.

We further understand that APS met with the NRC on March 15 to discuss this analysis and perhaps some remedial changes.

TE-0111

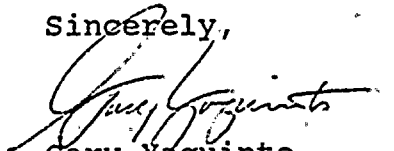


Mr. John Martin  
April 9, 1991  
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The Arizona Corporation Commission is interested in the outcome of that meeting and in any future steps the NRC might require APS to take regarding safety at PVNGS. We are, therefore, requesting an NRC briefing on these matters. There is also some confusion in our minds about exactly how the PVNGS is complying with NRC safety standards. A meeting between the NRC and the Arizona Corporation Commission Staffs should help to clarify the situation. And, as indicated in my letter of January 7 (a copy of which is attached for your ease in reference), I would renew my request to be included in future meetings between the NRC and APS.

Please feel free to call me on this matter. My number is (602) 542-0745.

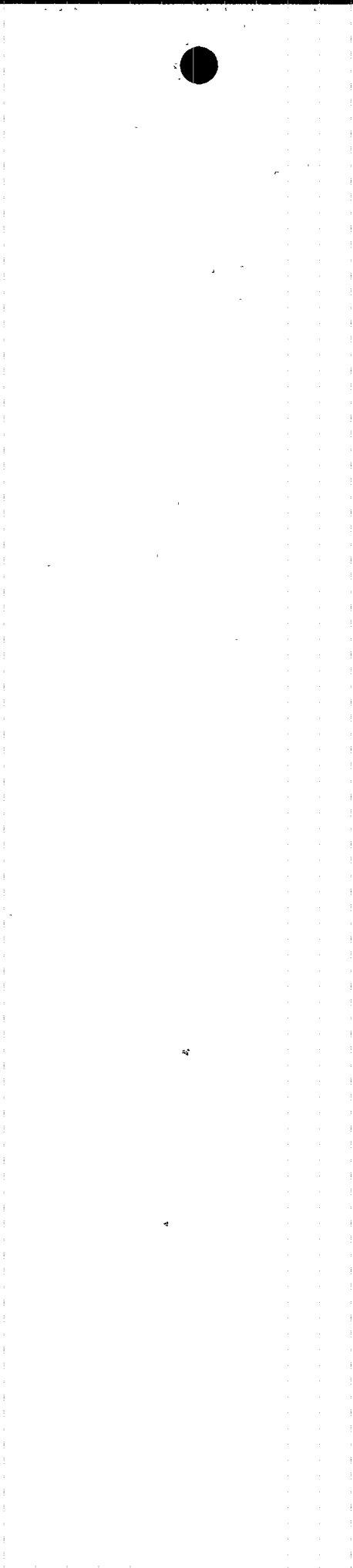
Sincerely,



Gary Yaquinto  
Director  
Utilities Division

GY:JB:mi  
Enclosures

cc: Chairman Marcia Weeks  
Commissioner Renz Jennings  
Commissioner Dale Morgan  
Charles Tedford, Director, Arizona Radiation  
Regulatory Agency  
Steve Olea, Chief Engineer  
Arizona Corporation Commission



# Palo Verde safety lags, study says

The Associated Press

A safety analysis indicates a 1-in-1,000 chance that electrical failure could lead to a reactor meltdown at the Palo Verde Nuclear Generating Station, officials said Friday.

+ That is 10 times the probability the Nuclear Regulatory Commission would like to see, NRC spokesman Greg Cook said.

He said officials from the NRC and the Arizona Nuclear Power Project discussed the preliminary analysis in Walnut Creek, Calif. The Arizona Nuclear Power Project operates the \$9.3 billion, three-reactor complex 55 miles west of downtown Phoenix.

"These numbers are much too rough at this point to draw a conclusion that the plant is not as safe as we used to think or that it is not safe enough," Cook said.

"Rather, what we are getting from this analysis is another way of identifying potential weak spots in the plant's hardware."

Meltdown is the nightmare of the nuclear industry. It means losing control of nuclear reaction.

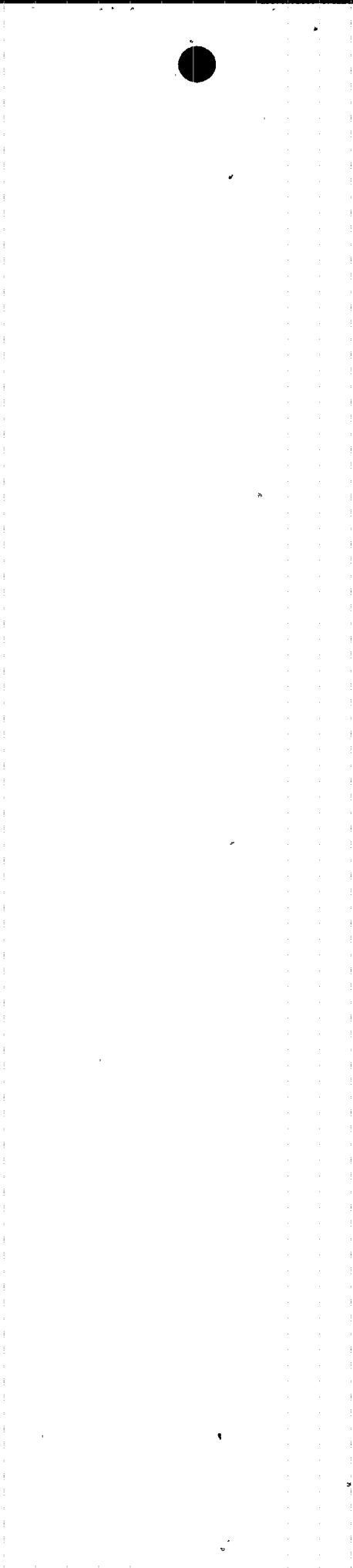
The estimate is the first calculated for Palo Verde. Estimates prepared for five other plants suggested lower probabilities, Cook said.

Cook said the NRC is trying to prepare risk analyses for all 112 nuclear complexes in the nation.

The NRC began the effort in 1975 but had to reassess it after a 1979 accident at Three Mile Island in Pennsylvania.

Officials say the average nuclear plant has about 100 million interrelated parts. Under the right circumstances, the failure of one could cause an accident. However, it would take human error and the failure of whole systems to create a meltdown.

Before Three Mile Island, the nuclear industry, the utilities that were purchasing nuclear plants and the Atomic Energy Commission regarded the probability of a major nuclear accident to be so small that it posed no significant risk to the public.





## Threat of safety flaw at Palo Verde raised

Officials of the Palo Verde Nuclear Generating Station are to meet with federal regulators today to discuss a possible flaw in the triple-reactor plant that may increase the chance of a serious accident.

The Nuclear Regulatory Commission requested the meeting after discovering during a safety review of the plant west of Phoenix that an electrical outage may leave the facility with only one critical cooling pump for each of the reactors.

"It doesn't mean there would be an accident, but it does mean that they're weakened," NRC spokesman Greg Cook said.

He said the potential problem

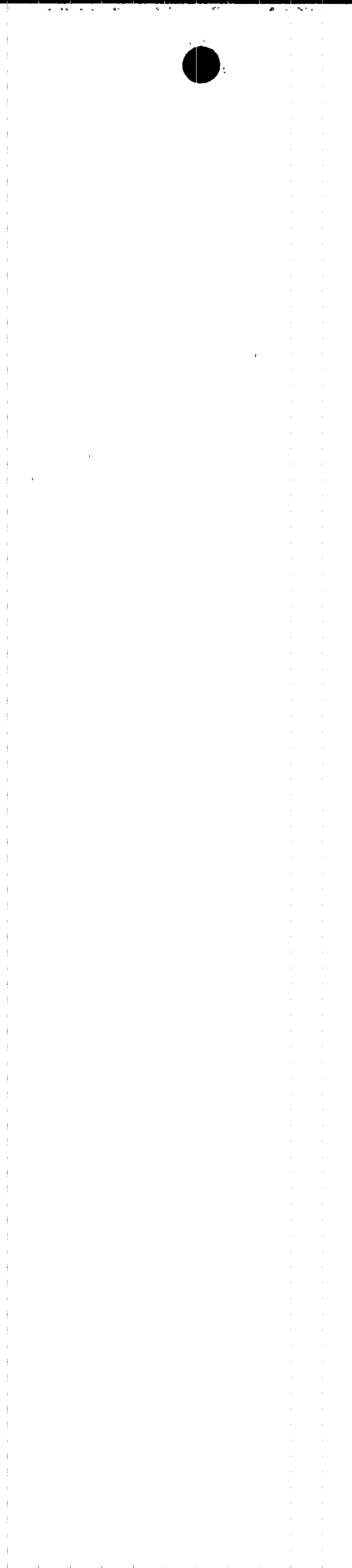
involves two identical sets of electrical equipment that provide power to several components of the plant including the water pumps. If one of the sets were to fail, he said, only one pump would be available to provide emergency cooling water to a reactor.

"That would increase the chance of a fuel meltdown because there would be no backup pump," Cook said.

He said the potential problem was discovered during a reactor-safety study that the NRC is conducting.

Cook said officials will discuss ways of correcting the problem.

The meeting is scheduled for the Walnut Creek, Calif., regional office of the NRC.



# Palo Verde's meltdown risk too high, NRC says

## Data suggest weakness in plant's safety systems

By Victor Dricks  
THE PHOENIX GAZETTE

How safe is the Palo Verde nuclear plant?

The question has taken on new significance in light of a preliminary safety analysis prepared by the Nuclear Regulatory Commission and the Arizona Nuclear Power Project.

Results of the study are scheduled to be discussed today at the NRC's Region V headquarters in Walnut Creek, Calif.

They suggest that there is a 1-in-1,000 chance that a failure of an electrical system could cause a reactor meltdown at the \$9.3 billion plant 65 miles west of downtown Phoenix. The NRC goal has been to have the risk of a meltdown be less than 1-in-10,000 for all nuclear plants, according to NRC spokesman Greg Cook.

The preliminary estimate is the first specifically calculated for Palo Verde, though estimates have been prepared for five other plants suggesting lower probabilities for severe accidents.

The effort by each of the nation's 112 operating nuclear plants to prepare mathematical risk analyses is expected to continue through early next year.

The Palo Verde assessment generated numbers suggesting a weakness in one of the plant's safety systems that might require an immediate fix, Cook said.

"These numbers are much too rough at this point to draw a conclusion that the plant is not as safe as we used to think, or that it is not safe enough," Cook said. "Rather, what we are getting from this analysis is another way of identifying potential weak spots in the plant's hardware so they can be improved."

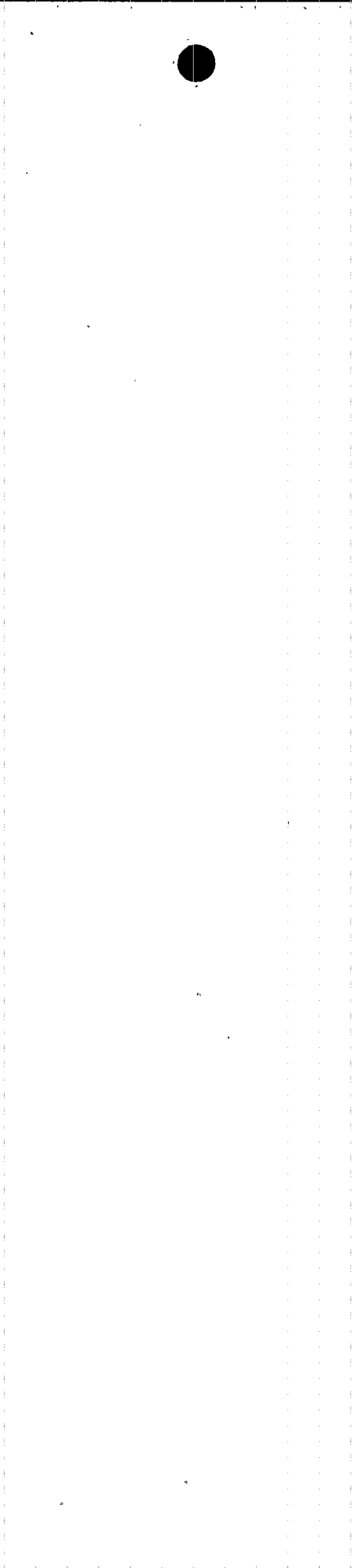
The effort, which NRC officials first undertook in 1975, but had to reassess after a 1979 accident at Three Mile Island in Pennsylvania, underscores the difficulty experts have in assessing the risks of highly complex technology such as an atomic power plant, the space shuttle or NASA's proposed space station.

The average nuclear plant has about 100 million interrelated parts. The failure of any one, under certain circumstances, can precipitate a chain of events leading to an accident.

Before Three Mile Island, the nuclear industry, the utilities that were purchasing nuclear plants and the Atomic Energy Commission regarded the probability of major nuclear accidents to be so small that they posed no significant risk to the public.

"Although it was clear that if a reactor core melted and a significant fraction of its radioactivity escaped, serious harm could result, it was presumed that such an accident would never occur," Anthony Nero Jr., an assistant professor of physics at Princeton University, wrote in "A Guidebook to Nuclear Reactors."

See ■ PALO VERDE, Page B2



# PALO VERDE

From B1

During the development of the nuclear power industry in the 1960s through the early 1970s, the only public government report on the risk of nuclear power estimated that a catastrophic accident might occur only once every 100,000 to 1 billion years of reactor operation, according to Nero.

In 1976, the NRC published a study by Norman Rasmussen, a professor of nuclear engineering at the Massachusetts Institute of Technology, which often is cited by anti-nuclear activists as evidence that nuclear power is unacceptably risky. The study predicted the chances of a catastrophic accident as 1-in-10,000 and concluded an average person had a greater likelihood of being killed by lightning than by nuclear power.

An accident causing the damage of the type that occurred at Three Mile Island had been predicted to occur only once every 33,000 reactor-years. Yet it took only 500 reactor-years — or 1/66th of the time that had been mathematically predicted. In its wake, the NRC and the nuclear industry faced new public pressure for more reliable risk analyses.

"One of the criticisms of the Rasmussen safety study was that it failed to indicate the uncertainties in their estimates," said Robert Pollard, a nuclear safety engineer with the Union of Concerned Scientists in Washington, D.C.

"What we learned at Three Mile Island and at lots of other plants was that unless you get down to the detail of design of individual plants, your predictions are not very valuable," he said.

In 1985, amid uncertainty about the reliability of the risk assessments that constitute the theoretical bedrock of what was becoming an increasingly controversial energy option, Congress asked the NRC a direct question: Given what you know about these analyses, what is the probability of a major accident at some plant in the U.S. in the next 20 years, assuming 100 operators are operating.

NRC Commissioner James Aspelstine estimated the risk at 45 percent, but noted that uncertainties in calculations were so wide that the chances of a major accident could be as high as 99 percent or as low as 6 percent.

