

NR 0558



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
June 18, 1980

Ms. Kay Bull
1242 Church Street
San Francisco, California 94114

Dear Ms. Bull:

This is in reply to your letter of March 13, 1980, to the Nuclear Regulatory Commission.

With regard to mutations caused by radiation, you may be interested in the section on genetic effects on pages 51-53 of the enclosed report NUREG-0558 of May 1979 on "Population Dose and Health Impact of the Accident at the Three Mile Island Nuclear Station" prepared by technical staff members of the Nuclear Regulatory Commission, the Department of Health, Education and Welfare and the Environmental Protection Agency. Also, attention is called to genetic effects of the Three Mile Island accident on the offsite population within 50 miles, which are included in the table on page 61. Of the total of 78,000 persons who would normally develop genetic effects in the first generation from all causes, 60 to 970 could result from natural background radiation, and from 0.01 to 0.64 could result from the lifetime impact of the population dose from the TMI accident from March 28 through April 7, 1979. The number of genetic effects from the TMI accident for all future generations could range from 0.05 to 4.8. Attached is a pamphlet published by the American Cancer Society that contains a discussion with Dr. Arthur C. Upton concerning low level radiation risks. It should provide additional assurance regarding the low risks discussed above.

As to disposal of radioactive wastes, enclosed is a message of February 12, 1980, from President Carter to the Congress, establishing a comprehensive radioactive waste management program intended to protect the public health and safety.

In connection with the safety of nuclear power plants, an NRC Action Plan has been developed to provide a comprehensive and integrated basis for the improvements necessary as a result of the experience with the Three Mile Island accident and official studies and investigations of the accident. Every effort is being made to protect the public health and safety at all nuclear power plants that are currently in operation or that may start operating in the future.

Sincerely,

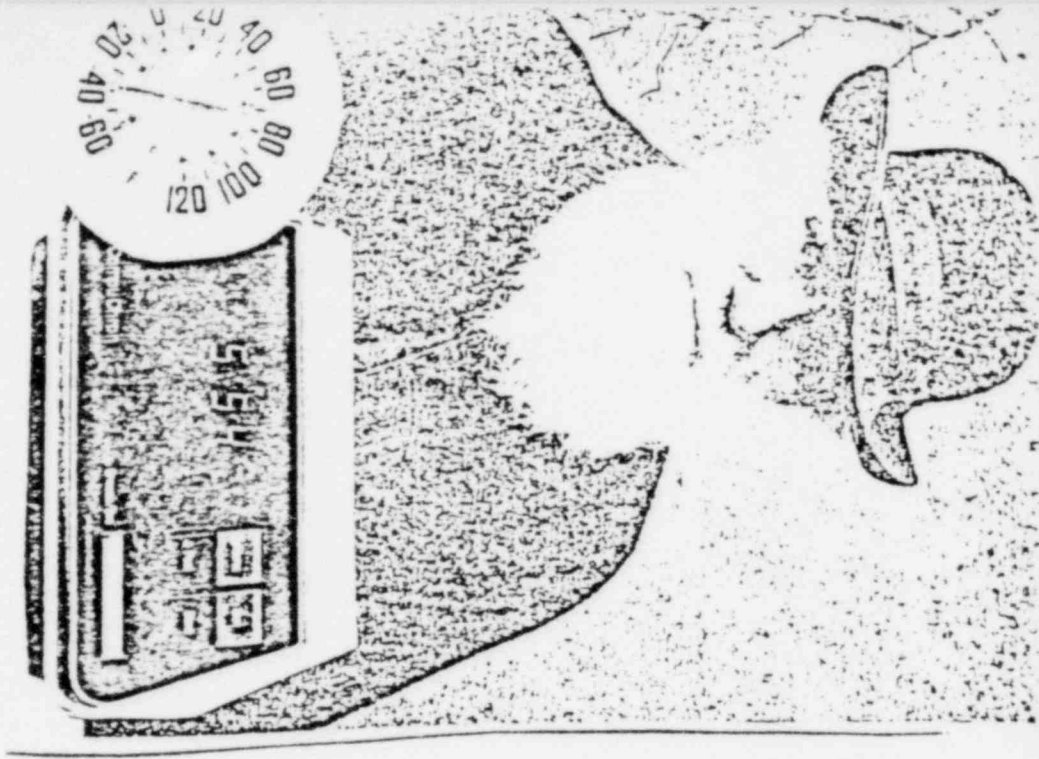
Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
As stated

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Kay Bull
1242 Church St.
San Francisco, CA
94114



Dear NRC,

As a member of our American society, and as such seeking to be well informed on the concerns of our time, I attempted a private accumulation of written material regarding nuclear energy. The consistency of what had been written as to what had been applied seemed to bare little correlation.

The consequence of my study has left me quite puzzled. My original intention of becoming more familiar with nuclear power as an energy source has disintegrated to confusion. This means of communication with your organization is an attempt to clarify this condition.

In order to better acquaint you with my quandry I should like to present one quote and two photographs, as an example of material encountered during my personal investigation.

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" IT HAS ALREADY BEEN STATED THAT HOWEVER SLIGHT THE AMOUNT OF RADIATION, IT IS CAPABLE OF CAUSING MUTATIONS. THERE IS NO MINIMUM AMOUNT OF RADIATION THAT MUST BE EXCEEDED BEFORE HARMFUL MUTATIONS CAN BE INDUCED. ABOUT 85 PERCENT OF KNOWN MUTATIONS OCCURRING SPONTANEOUSLY IN MAN ARE RECESSIVE. OF THE APPROXIMATELY 75 DOMINANT MUTATIONS OCCURRING SPONTANEOUSLY IN MAN, MOST ARE DETRIMENTAL; INDEED, ABOUT 80 PERCENT ARE LETHAL, WHICH MEANS THAT ABOUT TWO OUT OF TEN SUCH MUTATIONS WILL SURVIVE TO BE REPRODUCED IN THE NEXT GENERATION. ...

... MOST MUTATIONS OCCUR SPONTANEOUSLY WITH A FREQUENCY OF LESS THAN ONE PER MILLION COPIES. MAN'S MUTATION RATE THROUGHOUT HIS HISTORY HAS BEEN QUITE ADEQUATE TO ENSURE HIS FAVORABLE CONTINUING EVOLUTION WITHOUT THE NECESSITY OF ANY ARTIFICIAL SPEEDING UP OF THAT RATE. IN FACT, THE GREAT DANGER FROM ARTIFICIALLY PRODUCED RADIATION LIES IN THIS: BY INCREASING THE MUTATION RATE, UNFAVORABLE MUTATIONS WOULD ACCUMULATE IN SUCH HIGH FREQUENCIES THAT THEY WOULD ENDANGER THE SURVIVAL OF THE SPECIES. ..."

HUMAN HEREDITY

ASHELEY MONTAGU
1959
PGS. 331 - 332

Numerous statements supporting Mr. Montagu's remarks were disclosed through my readings. Their concurrence seems to suggest direct opposition to the existing operation and proliferation of nuclear power plants.

To the individual seeking knowledge of the time in which we live, these polarities are quite unsettling. The evaluation of our technological achievements becomes entangled with the question of survival of the species. Since it can be surmised that all human beings share the concern for "favorable continuing evolution" - perhaps it would be of more optimistic persuasion were these two factors not so negatively contingent upon the other.

I understand that a role of your organization is to exercise regulations on the use of nuclear energy. To my mind this would appear to be a task of great difficulty.



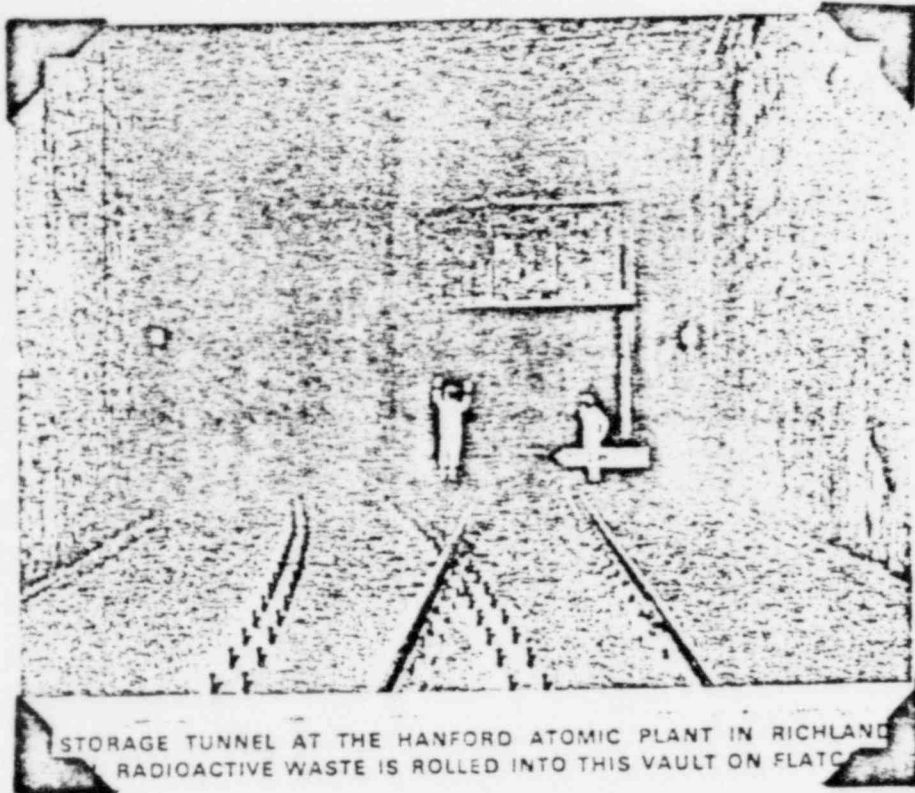
AN ATOMIC GARBAGE MAN HOLDING A CONTAINER OF RADIOACTIVE WASTE THAT WILL BE BURIED AT SEA. HE MAY BE THE ONLY TYPE OF RUBBISH COLLECTOR IN THE WORLD WHO HAS TO CARRY A GEIGER COUNTER TO WORK WITH HIM. WHY IS THIS AN OLD-FASHIONED METHOD OF WASTE DISPOSAL?

This photograph appeared in a 1968 publication entitled "OUR POLLUTED WORLD". Besides the statement referring to the dated method of disposal; it is immediately apparent few persons of the 1980's would be satisfied with such minimal material protection (i.e. , gloves only) .

Through standards set by your organization the working conditions of persons involved in the handling of radioactive materials has become more sensitive to the hazardous states they represent.

And yet, I cannot relinquish the evidence presented to the effect that there is no minimal level of exposure to radiation that is CONDUCTIVE TO HUMAN EVOLUTION.

The photograph of the atomic garbage man suggests an innocence in the realm of nuclear research. It was presented at a time when the "infinite" source of power offered was its most substantial *raison d'etre*. To be certain, such simplistic thought is not so offensive, as merely lacking the knowledge made available to us today.



I found this photograph in the same publication " OUR POLLUTED WORLD ",1968. Much to my surprise a similar picture recently appeared in our local news papers. The photo was accompanied by an article detailing a system of nuclear disposal within granite beds buried deep below the earth's surface.

The actuality of such an activity occurring at this point in time seems in total disregard to research on nuclear wastes and their physiological effects, within the last 12 years. The concept of radioactive materials allowed to decompose over the next 1000 years providing "perfect" conditions are maintained, is hard to swallow. Especially when it has become common to read of mishaps occurring within the plants themselves in our daily papers. (The most recent example being that of a caretaker mopping the floor and accidentally catching his shirt in an important piece of equipment, inside the chambers of a nuclear plant.) *

As humans, we all recognize the margin of error that occurs in any well laid plans. It would seem apparent the caretaker's incident was not intentional. And yet, a situation could arise from such an insignificant act whose consequence could endanger the lives of many people. Should we hold the "caretaker" responsible ? Should society demand from persons involved in this field of work "no mistakes" ?

I believe it is one of humans' more noble assets to aspire perfection within the realm of our interests. Nuclear power may be an idea towards which some persons feel the desire for perfection. However, when the actuality of obtaining that goal endangers the continuence of the species, as well as placing individuals under such marginal conditions for it's success... is it worth it ?

For myself, the justification for increasing nuclear power plants, as well as the burial system of radioactive wastes, becomes less defined. The more information I acquire, the more confused I become as to it's practise.

I am hopeful that your organization will be able to provide some explanation as to the inconsistencies with which I have found myself confronted. I would appreciate any response helpful towards a better understanding of the use of nuclear energy in this country.

THANK YOU FOR YOUR ATTENTION.

Looking foward to your reply;

Sincerely,

Kay Bull

31380

* PS - During the course of this letter , I made reference to the most recent news article on radioactive hazards. I should like to update this material at this time.

Radioactive Gas Vented At TMI Plant

Middletown, Pa.

The operators of the crippled Three Mile Island nuclear power plant began purging a tiny amount of radioactive gas into the atmosphere yesterday, a preliminary step to the first human visit inside the contaminated reactor building since the March 1978 accident.

Officials said the release would not pose any danger to the public.

The purging involves an air lock that leads to the interior of the containment building. Operators said it will take about three days to remove a trace of radioactive krypton from the 9-by-12-foot airlock so workers can enter.

The workers will enter the airlock to make various radiation measurements. They will be able to pinpoint radiation inside the

containment building by holding a device up to the interior airlock door.

It will be another three to four weeks before workers can go through the airlock and into the containment building. That step will involve the release of a larger amount of krypton.

Nevertheless, the amount is expected to be well below the levels normally discharged by an operating nuclear plant. The Nuclear Regulatory Commission has yet to approve the release of the larger amount of krypton gas.

Plant recovery chief Robert Arnold and a pool of reporters and photographers stood in front of three large exhaust vents that discharge air from the plant into the atmosphere.

The krypton traveled from the



Workers wearing anti-contamination suits entered the room containing the airlock.

airlock through a series of radiation monitors, through a filtering system and then out the exhausts. The filtering system is effective with other kinds of radiation, but krypton cannot be filtered from air.

Plant health physicist Beverly Dellaloggia then held a radiation monitoring device in front of the exhaust vent. At its most sensitive setting, the device did not show any increase of radiation after the purge began.

Dellaloggia next held the dial of a wristwatch against the probe of her monitor. The monitor alarm bell sounded, and its needle went to the top of the scale.

When she switched the monitor to a setting one thousand times less sensitive, the watch still set off the alarm. She said that illustrated that an extremely low level of krypton was being discharged.

Arnold said the total amount of krypton to be purged from the airlock is 47 millicuries. A millicurie is one thousandth of a curie, and an operating plant normally discharges 75 curies a day.

Later, when workers enter the containment building, Arnold said a total of about 28 curies of krypton will be released when the doors to the airlock and the containment building are opened and shut.

Under normal conditions, NRC regulations allow a release of about 2000 curies a day.

Commenting on concern that there may still be danger stemming from the condition of the plant's damaged core and its cooling equipment, Arnold said the chance of a serious problem is near zero.

"It's very, very small, but it's not zero," he said. "The only way we can remove that chance is to remove the core, and the only way to remove the core is to get on with the cleanup."

A series of mechanical and malfunctions last March 28 led to the most serious nuclear accident in U.S. civilian history. A loss of cooling water exposed and over-heated 100 tons of uranium fuel.

Continued on Page 6



Beverly Dellaloggia and Robert Arnold measured the radiation being released.

Trouble With Turbines in Atom Plants

Washington

Federal officials are concerned about cracking in the steam turbines of nuclear power plants, so far, problems have been discovered in nearly a dozen plants.

Nuclear Regulatory Commission and industry officials emphasized yesterday that the turbines are outside of a reactor's containment building in the non-nuclear part of the plants. But they said it is possible, though highly unlikely, that a turbine could break and send debris through the containment wall or into cooling pipes.

So far, the cracks have been discovered only in turbines manufactured by the Westinghouse Electric Corp., but the NRC has notified owners of all of the country's nuclear power plants of the problem. Westinghouse has built steam systems for 25 operating reactors, but has supplied turbines to other reactors as well. No plants in California are reported to have the problem.

"It's something that has been of some concern to us for several months," said NRC spokeswoman Sue Gagner. She said inspections have been ordered of all plants using Westinghouse turbines, but so far no reactor has been ordered shut down.

Gagner said that if cracking is found the utility must either repair it immediately or prevent the NRC justification and assurances that continuation of the plant's operation will not endanger safety.

Westinghouse said the company has been looking into the cracking problem with its utility customers for five months and has developed techniques to detect the cracks and "take necessary remedial actions."

The problem emerged last June when cracks were discovered in the discs of a turbine at the Surry 2 reactor in Virginia. Over the next six months similar cracks were discovered on turbines at four other reactors, prompting the NRC in December to inform all utilities of the potential problem.

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