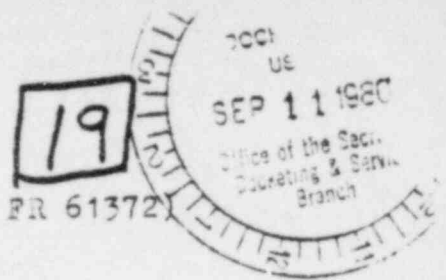


Sept 11, 1980

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF THE
PROPOSED RULEMAKING ON
CONFIDENCE ON RADWASTE
MANAGEMENT

PR 50-51 (44 FR 61372)



Cross-statement of Marvin I. Lewis, Individual Citizen Intervenor

Summary: This cross statement reviews the Positions of various Participants and the impact upon the "Purposed of Proceeding " and this Participant's own concern as stated in his Statement of Position. Incorporated in this Cross statement are also Motions and suggestions for areas for further investigation. This Statement or Cross Statement shows that a finding of confidence in radwaste management at this time is totally inappropriate and indefensible. Statements which this participant knows are honest and proper are pointed out as are statements which are improper , self-serving and devious.

Several participants raised pertinent and original points. These points describe the direction that must be explored to achieve "confidence in radwaste management."

Statement of Position of the American Nuclear Society (SOP ANS):

The SOP ANS raises a most basic concern on Page 9:
"For unless the problem is defined, how can a solution be judged to be adequate?"

Although this question is a most appropriate one , the answer to this question by the ANS is not appropriate. The ANS attempts to define the hazard potential in comparison "to that of the ore body from whence the fuel which produced the waste came." P 14 ANS SOP. That this hazard potential is defined as a comparison "to the ore body from whence the fuel which produced the waste came" is a totally inappropriate definition. This inappropriateness is well demonstrated in ~~xxxx~~ the very short statement of position of William Lochstet , Ph. D. , Statement of Position(Lochstet SOP).

Dr Lochstet shows by simple , easy to follow, calculations that large numbers of health effects are masked and obscured by comparison with the health effects associated "with the ore body from whence the fuel which produced the waste came". Dr Lochstet shows that these health effects , which would be considered acceptable by the ANS comparison, are actually deaths of tens of thousands of people. Deaths of tens of thousands of people are not acceptable no matter how they are hidden . Deaths

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Deaths of tens of thousands of people ~~generate~~ generate a negative finding of "confidence in radwaste management."

Judith H. Johnsrud, Ph.D., Statement of Position (Johnsrud SOP)

Dr Judith H Johnsrud, Ph. D. , of the Environmental Coalition (ECNP) on Nuclear Power submitted a concise , succinct SOP for ECNP.

This participant wishes to join in agreement with all the points in the Johnsrud SOP except one.

Dr Johnsrud calls for a "demonstration" of the geological repository as a minimum by which "confidence in radwaste management " may be assessed.

"In order to reach any such conclusion, the Commission must be assured that waste disposal techniques and actual disposal have been demonstrated to be capable of and effective at sequestering radioactive waste from the ~~biosystem~~ biosystem for the requisite time period."

A mere demonstration of one geological repository is not an iron clad guarantee of enough repositories being available in a timely fashion. Although discussion of 'enough' repositories being available in a timely fashion appears ~~premature~~ premature in light of the fact that not even one repository has successfully reached a demonstration phase, the subject of enough or sufficient ~~number~~ number of repositories being available in a timely fashion is a necessary part of a 'demonstration' to provide confidence in radwaste management.

A 'demonstration' of one operating geological repository is not sufficient unless there is assurance that enough geological repositories will be ~~in~~ in place for all the high level radwaste which we will produce. If , one suitable site is found for one demonstration repository, ~~each~~ each subsequent site may be ~~more~~ more and more difficult to find.

Suitable sites are a non-renewable natural resource. The present situation in oil supply is an example of what happens with non-renewable natural resources. As we use up each gallon of oil, the next gallon of oil gets more difficult and more expensive. Geological repository sites are non-renewable natural resources. Like oil , as we use up geological ~~repository~~ repository sites , we will get to a point where the next acceptable site will be "prohibitively expensive."

Therefore, we must determine the total number of repositories and we must assure that the total number will not be "prohibitively expensive."

Area for further investigation: We must determine in this proceeding:

1. The total number of geological repositories that will be needed;
2. and that the total number of geological repositories will not be "prohibitively expensive;
3. and that the total number of geological repositories will be available in a timely fashion.

A mere "demonstration" of one repository cannot meet the assurances required in the FR Notice Oct 25 79 "Purposes of Hearing." Some other process or scoping is essential.

Reference for the above "Area for further investigation" comes from ENTROPY LAW AND THE ECONOMIC PROCESS, Gergesue Roegen, Harvard 76.

Department of Energy Statement of Position (DOE SOP)

The question of a total number of geological repositories does not appear in any of the statement of positions clearly. The total number is not an esoteric or small point. Some cursory treatment of total waste appears in the DOE SOP.

The capacity of a geological repository is 70,000 MTU. (Page II-48 DOESOP)
 A curve showing total spent fuel waste appears on Page V 10. The data in that curve is taken from tables in the same section. The characteristics of the total total spent fuel radwaste curve are those of an exponential curve. If this curve remains exponential, the amount of radwaste will double every 7 to 10 years. Using a doubling time of 10 years and extending the radwaste curve beyond 2010, we get

Year	Number of repositories
2010	2.77 (3)
2020	5.4
2030	10.8
2040	21.6 (22)

Of course, this number does not include TMI#2, West Valley, commercial decommissioning wastes and military wastes. Nor does this number include other unforeseen and unanticipated wastes. The total number of geological repositories ~~must~~ must be known, assured in a timely fashion and not "prohibitively expensive." Further, the total number geological repositories needed for all radwaste must be used in this proceeding. Competition for adequate sites can develop between military wastes, spent fuel, TMI#2 and West Valley "undefined" waste forms and even highly toxic non-radiological toxic wastes.

Presently , there is no impetus for geological disposal of non-radiological toxic wastes. Nonetheless, as the difficulty of disposal and quantity of non-radiological toxic wastes increases an impetus for geological disposal will develop. Therefore, we can expect competition for geological repository sites from non-traditional industries.

A similar scenario of competition for geological repository sites from Low Level Radioactive wastes may also develop. Many LLW have been left improperly: *Cononsberg, Port Hope. Grand Coulder , Middlesex and many others. Many states have shown an interest in developing LLW sites outside their borders . Somebody will come up with the idea of geological repositories for LLW to solve the present shortage of LLW sites.

Reference: DOE /EV 0005 all UC 70 Apr 1978.) * Cannonsberg, Middlesex. TMI# 2 NUREG 0683 PEIS TMI#2 Cleanup DRBC/DEC Program to find LLW radwaste sites. Memo of Understanding para 10.

When somebody comes up with the idea of geological repositories for LLW , there will be greater competition for sites. This will raise the price of each site and reduce the availability.

The above scenarios point out that a single demonstration will not be enough to produce any finding of "confidence in radwaste management." We must be assured that all radioactive waste will be timely and adequately handled for a positive finding.

Atomic Industrial Forum Statement of Position (AIF SOP)

One final point concerning the quantity of high level radioactive wastes. The AIF SOP (III-1 Page 8) produces numbers which make the concept of geological repositories look most appropriate. However, the AIF numbers ignore the reality of TMI#2 wastes, decommissioning wastes and other wastes which challenge the propriety of AIF's conclusions.

Edison Electric Institute Statement of Position (EEI SOP).

The Statement of Position which appears most fraught with inaccuracies, errors and misdirections is the UNWMOG EEI SOP . The first statement which is in obvious error is , " for purposes of this hearing the precise time frame within which a repository will be operational is not of critical importance." Page 2 EEI SOP.

The decrease in the public's confidence that high level radioactive waste will ever be dealt with properly and effectively is directly proportional to the time that these wastes will sit in spent fuel pools without a permanent, demonstrated solution in operation. An operational repository with a schedule to accept spent fuel is only a single first step toward a finding of confidence in radwaste management. Without an operational repository, a finding of confidence must be negative.

"national policy may dictate" (EEI SOP) Some means must be taken to assure safe and adequate radwaste management despite the future vagaries of "national policy." This is the point emphasized in the Lewis SOP. (Lewis SOP Page 8) "National Policy" may turn its back on technological fixes or be so embroiled with war or shortages that no resources can be found to tend to the waste problem. Civilizations in the past have turned their back on certain techniques for various reasons. King Saul had all the withes and warlocks killed. (Samuel 1 Chapter 28 Verse 3 This is the reference in the Hebrew text. I don't know if it is the same in the English translation.) Ayatolla Khomeini has thrown many scientists and technicians out of Iran. These are two examples of countries changing their national policy as significantly and completely as the US would if it suddenly decided to ignore technology completely.

The US may eventually turn its back on a technological fix. A major nuclear disaster, as described in Wash 1400, Reactor safety Study, and the previous Wash 740 Update, wherein we could lose an area "the size of Pennsylvania," would hasten American thinking away from technological fixes and make assurances of the proper handling of radwastes even more problematical. We owe a greater debt to the future than to tie ~~it~~ their survival to their ability to handle the same technologies which we put in place.

Furthermore the vagaries of "national policy" often hinge upon much more mundane happenstances than a major nuclear accident. Our Country has just seen a former president pardoned without charges being brought. Here in Phila, we have seen a slew of our elected officials convicted of bad acting in FBI produced films.

Our "national policy" swings upon such underpinnings. Sure and safe management of radwaste cannot be tied to "national policy."

Neither is a panicked stampede to permanent geological repositories needed. However some means must be found to assure safe radwaste management without any ties to "national policy."

Pages 2 and 3 of the EEI SOP speaks of "w/o environmental harm", extent of review", "safe and environmentally acceptable manner", until disposed of ~~appropriately~~, "ultimately", "until disposal facilities are available". Apparently "until" and "ultimately" are enough scheduling for the EEI. "Ultimate" and "until "

are not sufficient scheduling for a positive finding of confidence. This is the equivalent of Participant Lewis boasting that he can tear a Manhattan phone book in half with his toes. He can boast all he wants that he can tear that phone book in half with his toes, but "until" he "ultimately" tears that phone book in half with his toes, there is very little confidence that he can tear that Manhattan Phone book in half with his toes.

This is the same situation that applies to geological repositories "until" they are "ultimately" operating.

Finally the EEI recommends, "Accordingly, the commission should adopt a rule providing that neither the safety nor environmental implications of maintaining spent fuel on-site beyond the anticipated expiration of a nuclear reactor license need be considered in any individual licensing proceeding."

A side from the very telling ~~xxx~~ facts and questions which have come forth in the many past expanded fuel pool hearings, (Docket 59-272 79) this approach would lead to hundreds of repeats of the West Valley situation. Utilities would have no incentive to provide proper maintenance to a property past its income producing years. Abandonment - such as impending at W Valley - would be the rule wherever a utility ~~xxxxx~~ could get away with it.

Storing spent fuel on site past the income producing period of the plant is a scenario that inspires no confidence.

Storing at AFR's is even worse than storing on site. AFR's will increase transshipments greatly. Without an operating repository, many shipments would go to AFR's further away from their final resting place than the plant where the spent fuel started its pilgrimage. This type of transshipment (plant AFR repository) would increase transportation distances and danger of transportation accidents.

This scheme, AFR storage begs a finding of no confidence.

On Page 1-16 of Document 3 , EEI shows how inappropriate comparisons can really throw the perspective of danger out of any reasonable filter. Here EEI compares the oral dose of plutonium to caffeine. This is totally inappropriate.

1. Intestinal tract take up of plutonium is low.
2. Inhalation carcinogenicity of plutonium is very high.

Therefore , the comparison should be between Caffeine and plutonium: oral dose for caffeine vs inhalation dose for plutonium.

3. Take up of plutonium gastro intestinally has been as much as 1400 too low in NRC estimates. (Statement of Terry Wash, ~~NRDC~~ NRDC, Docket 50-3 dated Oct 3, 1977.)
4. The minimum exposure of lung tissue to Plutonium below which no cancer will form has not been determined. (The Plutonium Controversy, John W. Gofman, M.D. JAMA Jul 19, 76 V 236)

The above display the vaguaries and misdirections upon which the conclusions of the EEI SOP totter.

Participant Lewis apologises for not reviewing each SOP in detail .
/This Cross Statement is respectfully submitted and copies are being sent to Marshall Miller and the Office of the Secretary.

Marshall Miller

Addendum 1.

Suggestion for determining amounts of unexpected radwaste.
Dr Walter Jordan has just written NUCLEAR POWER AND ITS
ENVIRONMENTAL EFFECTS. ANS ~~LIXI~~ 1980.

In chapter 4 , he points out that the accident occurred after
800 known years of reactor operation . That means the
TMI accident happened once in 800 reactor years. There are
soon going to be about 200 reactors operating in the free world .
That means we may get one TMI type accident every 4 years.

$200 \times 4 = 800$ reactor years.

Hopefully that will give some kind of estimate of how much
radioactive waste we must contend with from accidents.

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