

**Blue Ribbon Commission Disposal Subcommittee**                      **Sept 1, 2010**  
**Essential Elements of a State Technical Review and Lessons Unlearned on Radioactive Waste Disposal**

**Robert H Neill**    **Director Emeritus**  
**New Mexico EEG**  
[righters@highfiber.com](mailto:righters@highfiber.com)  
**302 537-9634**  
**505 821-5170**

It is essential to have a state conduct a technical evaluation of the impact on public health and the environment of any proposed High Level Waste (HLW) repository in that state.

The following identifies essential elements for such an evaluation.

OBJECTIVITY    neither pro nor anti  
INDEPENDENT    no external approval  
COMPETENT      senior, knowledgeable staff  
MULTIDISCIPLINARY    but primarily radiation protection  
PUBLISH ANALYSES      EEG issued 80 reports  
TESTIFY BEFORE LEGISLATURE AND CONGRESS      about 50 times  
PRESENTATIONS AT PROFESSIONAL MEETINGS      state, national and intl  
LEADERSHIP ROLE IN PROF SOCIETIES

CANDOR    Recognition of uncertainties in predictions of waste behavior over 10,000 years  
HUMILITY    Identify uncertainties in predictions of radiation dose over 1 million years

**PART OF WIPP SUCCESS STEMS FROM PUBLIC CONFIDENCE BASED ON EEG EVALUATION OF IMPACT ON PUBLIC HEALTH**

WIPP A\$19 Billion repository for defense transuranic waste. The CH-TRU waste is respirable, soluble and in a carbon steel vented 55 gal drum (DOT Type A)

Public acceptance is greater for activities in defense of the country. (Note that 10% of HLW is defense waste)

States do not regulate HLW or TRU waste. DOE does. States do regulate the non –radiological toxic organics under RCRA. The hazards of RCRA waste at WIPP are much less than the radionuclides.

**LESSONS UNLEARNED IN RADIOACTIVE WASTE DISPOSAL**

- It is necy to plan, evaluate and plan some more to avoid “changed our mind” syndrome as has been done for HLW after spending over 10 B on YMP. Planning for a 2<sup>nd</sup> rep was discontinued since it would be easier to increase capacity of first than proceed with a second. With abandonment of first, we have no back up.
- The 1957 NAS report recommended resolving all major technical concerns before authorizing construction. This 53 year old recommendation is important.
- Don’t use screening approach of identifying 5 sites through lists of desirable criteria, , then 3 and finally one..
- Resolve jurisdictional disputes between regulatory agencies promptly. The 2 year impasse between EPA and NRC should not have been allowed to occur.

- Predicting a radiation dose from the inhalation of resuspended particulates over a million year time period is meaningless. Similarly, doses from the ingestion of radionuclides in food is not useful because we don't know what diets will be. The standards must be revisited.
- Most of the existing standards of EPA and NRC are salvageable.
- DOE should not rely so heavily on contractors for key analyses and should develop scientific in-house staff for decision making. Contractors don't identify the authors of reports which prevent ready access to information. The disclaimer that DOE puts in front of each contractor report that DOE disowns the usefulness of the information should be eliminated.
- Don't ask Congress to solve technical regulatory problems. Either convince the regulator of the validity of your concerns or modify the design

#### PERSPECTIVE

Radiation exposure from radioactive waste is not unique. Ionization is the same whether it is from a fissionable material or an X-ray. Medical diagnostic and therapeutic exposure to the US public is 9000 times greater than the collective dose from nuclear power plants! (NCRP 160 2009)

- Risk analyses are vital but we need to do benefit analyses as well. People appear to believe the benefits of the 7.3 increase in medical radiation in two decades (now 50% of total exposure) outweigh the risks
- People in Africa starve to death each day since food spoils before getting to market and people must shop each day. Food irradiation can extend the shelf life of many foods for months.

#### FUNDING

- Over \$10 Billion on YMP HLW to date
- Over \$22 Billion collected from rate payers for electricity from nuclear power plants
- Estimated cost of YMP \$97 Billion
- Amount of HLW to be disposed exceeds authorized quantities
- Future funding will be more difficult to obtain