

Subject: : Conservation

Topic: : Do you support or oppose nuclear power generation?

Re: Do you support or oppose nuclear power generation?

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URL:

Your search does not say why it is not safe and exactly who these people are that are reporting it. Is it greenpeace or some other enviro group, which I lump EPA, that says everything is unsafe.

a little more research would yield more information to base sound judgement.

Processing spent fuel does not make it less radioactive. When fuel is processed, the enriched uranium or plutonium, that is generated by the neutron capture reaction, is removed. All the fission product, which is what is very radioactive, still exists. Also, when processing fuel other types of hazardous waste is produced, because you have to basically dissolve the fuel and extract the 'good' stuff. To dissolve the fuel, very bad solvents are used and some of them themselves are a menace. Now you have a mixed waste.

It should also be remembered that radioisotopes decay exponentially. Spent fuel does not remain glowing green for ten thousand years. Throughout the millennia, it is continually decaying, becoming less and less radioactive, less and less hazardous, as time goes on. And because the decay is exponential, most of it happens in the early stages so that the majority of time period is spent at a significantly lower level of activity than at initial disposal and in fact a level that is not especially hazardous at all. Compare this to those mercury and arsenic solid wastes from coal burning, which will be just as hazardous in ten thousand years as they are today.

However, it is of course the case that regulatory agencies are never happy with that, particularly when nuclear power comes into the mix, which is why agencies like the EPA demand that any methods of spent fuel disposal be able to contain the material for at least 10,000 years, even though it will have stopped being a significant hazard long before this. It should be remembered that regulatory agencies are always over cautious about things and so their criteria do not define the limits of safety. Safety comes well before their criteria.

As for the safety Yucca Mountain.

Yucca Mountain incorporates multiple barriers from the casks encasing the spent fuel to the geological stability of the area used. The case against the environmental security of Yucca Mountain is based on manufacturing an improbable set of circumstances over an excessive length of time.

First, it would require the climate to change making the now desert region turn into an area frequented by water and the geology would need to change to allow the water to permeate the currently impermeable rock so it comes into contact with the casks. The water would then need to erode down the concrete, which would take a great deal of time. Then it would have to eat its way through the stainless steel containers. Finally it would have to dissolve the spent fuel and whatever material is used to immobilise it. Then the material must be transported

out of the repository to inhabited areas.

And the deadline for all this, climatic and geological shifts, erosion through multiple layers of hardened materials, and transportation over long distances, is 10,000 years. Normally, it takes many millions of years for something of this scale to happen and that is in circumstances where the barriers were not designed to be resistant to these things. There was no sophisticated containment for the Oklo reactor and yet no significant movement has happened even after billions of years.

Yet the originally planned opening date for Yucca Mountain has come and gone by 8 years and no sign of completion is on the horizon. It was not a subsidy that was supposed to pay for this. American nuclear utilities pay 0.1c/kWh towards a spent fuel disposal fund, which would be used by the government to provide the service. The utilities continue to have to store spent fuel on their plant sites at their own cost because of the delays (though it should be noted how remarkable it is that several decades worth of waste can still be stored in a relatively tiny space on site). The incompetence of the government at fulfilling their part of the business transaction has prompted the utilities to actually sue for damages, by wasting the money they have paid into the spent fuel fund while simultaneously forcing them to pay extra for continued interim storage.

That said, many people do not think Yucca Mountain is ideal, because it is seen as wasteful since it disposes of perfectly useful energy resources. Closing the cycle with fast reactors and reprocessing is the better solution for waste. The DoE policy of Yucca Mountain is based around these practises still being outlawed in the United States.