

The Case for Yucca Mountain

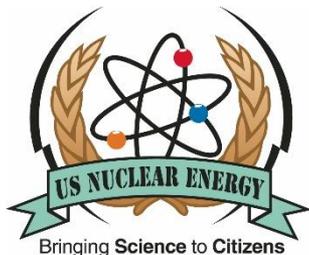
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“Nuclear Advocacy Through Grassroots Education”

The Case for Yucca Mountain

Slides contributed by:

**Entergy Nuclear, Mark Kirshe, Peter Shaw, INL,
Dr. Bernard Cohen Book, The Nuclear Energy Option, 1990**



The Case for Yucca Mountain

Nuclear Facts, the Science, Not Politics **Yucca Mountain Repository**

- **A thirty + year study by 8 of Americas National Scientific Laboratories.**
 - **Input and review recommendations from more than 100 US colleges & universities.**
 - **A taxpayer investment into the research study of more than \$10 Billion.**
 - **A future reprocessing economic potential of 14 trillion dollars.**
 - **Reviewed by more than 200 scientists and engineers at the NRC with no disqualifying elements found.**

The Case for Yucca Mountain

- DOE provide 97 million dollars to the State of Nevada to “parallel study” the data collection (science).
- Nevada is claiming 200 “contentions” in their opposition study, these, are expected to be overruled by the adjudication process by the NRC Atomic Safety & Licensing Board.
- In general Nevada’s opposition contentions were contracted through China, Japan, UK why not U.S?
- 9 of Nevada’s 17 Counties support completing the Yucca Application Process.
- 26 national groups & associations have written position statements supporting Yucca

The Case for Yucca Mountain

- **Advanced reactor designs will be capable of burning the current nuclear waste.**
- **Designed with robotic placement & retrieval, drone surveillance 24/7-365.**
- **The science data study behind “Yucca Mountain is safe beyond a reasonable doubt”.**

We can debate whether or not science can accomplish this but you cannot debate the fact, in the past 30 years’ science has produced digital television, hand-held cell phones with Internet video, and TV access etc. Nuclear power has made similar advances but government and the industry has not educated us on these advancements through grassroots public outreach.



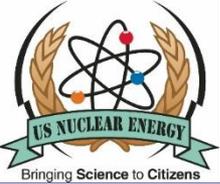
Reduce, Recycle, Reuse

**The Western United States offers some of
the best potential area for a**

National Above Ground Nuclear Fuel Temporary Storage Station



**The Hawthorne Nevada Army Depot 226 square miles,
ideal for long-term temporary storage**



U.S. Army Munitions Depot, Hawthorne, Nevada

The ideal location for a national above ground facility

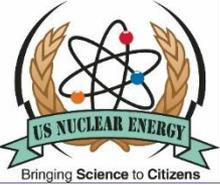
The Army depot in Hawthorne is managed by SOC-USA a company which provides security and mission support to military installations. (Rail and highway access).

Established first as a Navy depot in 1930. 226 sq. mi., 600,000 square feet of storage space in 2,427 bunkers "Worlds Largest munitions Depot" All the room necessary for a massive temporary above ground nuclear storage pad.

**An ideal transfer location when we advance Yucca MT
Or an ideal location for a national reprocessing facility.**

We have to continue to advance the SNF repository in order to advance SMRs, MSRs new nuclear technology public acceptance.



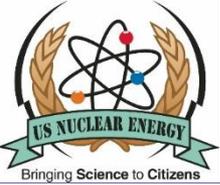


Reduce, Recycle, Reuse

But we do know...

- ✓ **America needs more energy to compete with industrial manufacturing worldwide.**
- ✓ **Selecting the best direction for used fuel has been confusing, indecisive and an economic challenge we must resolve.**

The Future of nuclear energy is dependent on closing its waste cycle

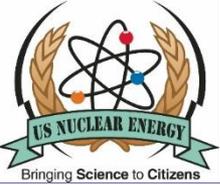


Reduce, Recycle, Reuse

It is time that we learn that our spent fuel is a reusable resource

- We have 50 years of experience with above ground storage.
- The NRC has approved designs and monitored approximately 72 locations nationwide for the past 40 years.
- Our proposal is that the best security for Spent Nuclear Fuel is a National Storage Transfer Facility to consolidate all 72 locations to a single remote high security location.
- Our nuclear power servicing companies need the option of offloading their SNF inventories to such a national facility.

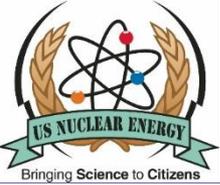
Consolidate, relocate, secure



Reduce, Recycle, Reuse

- **By design, all above ground spent fuel rod storage was planned as temporary until a government decision could be reached on a permanent storage facility or a combination of a reprocessing station.**
- **The delay, caused by Nevada politics shutdown of Yucca Mountain has already cost taxpayers \$12 billion in legal suits, estimated to be \$20 billion by 2020**
- **We must appeal to our grassroots citizens to MOVE this public policy ISSUE off from center and towards a logical resolution.**

Lessons learned are invaluable experience for future growth!



Reduce, Recycle, Reuse

- Nevada has several locations that would be an excellent site for a National Temporary Above Ground Facility.
- With or without the DOE completing a permanent repository at Yucca Mountain. A high probability exists that the final selection site would be located in an expansive desert location in the Western U.S.
- This makes Nevada an ideal CENTRAL location for such a temporary above ground transfer facility. Nevada offers 100% security shield as our military test ranges provide a high security profile over much of the Nevada land mass.

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Reduce, Recycle, Reuse

Myth

Americans don't want nuclear energy

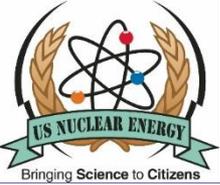
Truth

Americans favor nuclear energy

The media will depict that our citizens do not support nuclear energy. In a survey directly to people who lived within a 20 mile radius of a nuclear plant, 85% were in favor and not opposed to its operation.

So, we MUST resolve a temporary, permanent and reprocessing program to support new nuclear development.

There is strong nuclear energy support and it is increasing



Reduce, Recycle, Reuse

Spent Nuclear Fuel is NOT waste, 96% is **reprocessable**. Uranium is reused and waste is vitrified, turned to (glass).

- We have to portray Yucca as a storage garage for a 1965 Mustang. We store it for 25 years and (when retrieved for reprocessing) its economic value is astronomical.

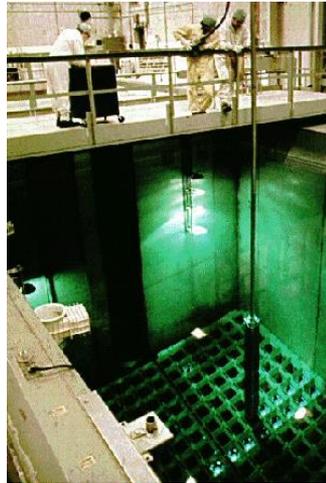
- The Yucca Mountain repository site is Congressional law. Its progress was only stopped by the Reid-Obama defunding, not by reversal of the law. This is politics, not science.

- **Recycling:** France, Britain, Japan, India, Russia and China all have nuclear development programs. All of these countries through American research are building reprocessing technologies and ALL have chosen deep geologic repositories for 6% permanent storage.

We would like to indicate that 2019, the economics of SNF reprocessing are not economically “profitable”, however, we also know that “research” will eventually, make the Yucca Mountain SNF inventory worth, about \$14-trillion dollars. ASME, Kenneth D. Kok, PE at the 15th International Conference on Environmental Remediation & Radioactive Waste Mgmt ICREM2013 September 8-12 2013 Brussels Belgium

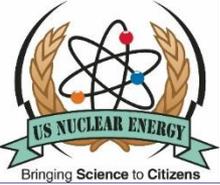
Reduce, Recycle, Reuse

Spent Fuel storage/disposal is still a political, not a technical issue. Store it . . . then recycle it!



Cool in pools then transfer to dry cask above ground storage.

- Science has proven that our planet has an unlimited supply of Uranium & eventually Thorium to support nuclear energy as a renewable source. We have to message this to our public, youth in our educational institutions and re-brand nuclear power as a renewable energy provider.



Reduce, Recycle, Reuse

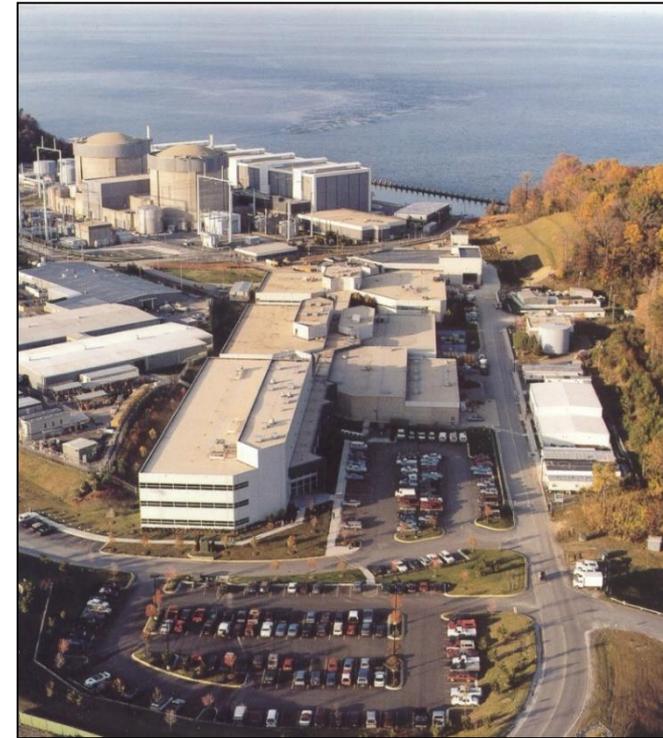
Nuclear Power is truly the safest, large volume, 53% of U.S. carbon free, most environmentally friendly electrical power source available to mankind.

The industry and its associations have allowed the TRUTH of nuclear technology to be misrepresented by media, environmentalists and politics.

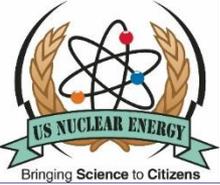
We can only correct this with a truthful campaign to the grassroots public. Visit the website:

Environmentalists for Nuclear

<http://efn-usa.org/>



Operating nuclear plants have received license extensions to operate another 30-years. They must offload their past 30 years of used fuel in order to store their next 30 years of service.

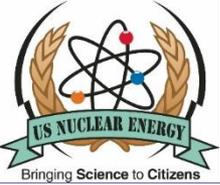


Reduce, Recycle, Reuse

- A modern day nuclear plant generates about \$430-million annually into a local community.
- 300 to 500 permanent employees (an 80 year designed plant life). 40 million dollars annually to this required labor pool.
- 20 million dollars annually into local and state taxes

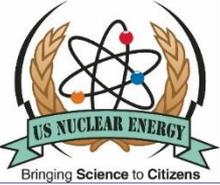


Most of the Western states for many years have been seeking “states rights” in recovering federal lands to states ownership. Nearly 85% of NV land is federal ownership. In order for the state to logically develop this land the two primary requirements are **ENERGY** and **WATER**. Both these resources are **premium costs in Nevada** which makes the states desire for industrial development to expensive **WITHOUT** nuclear power for water & electricity. 15



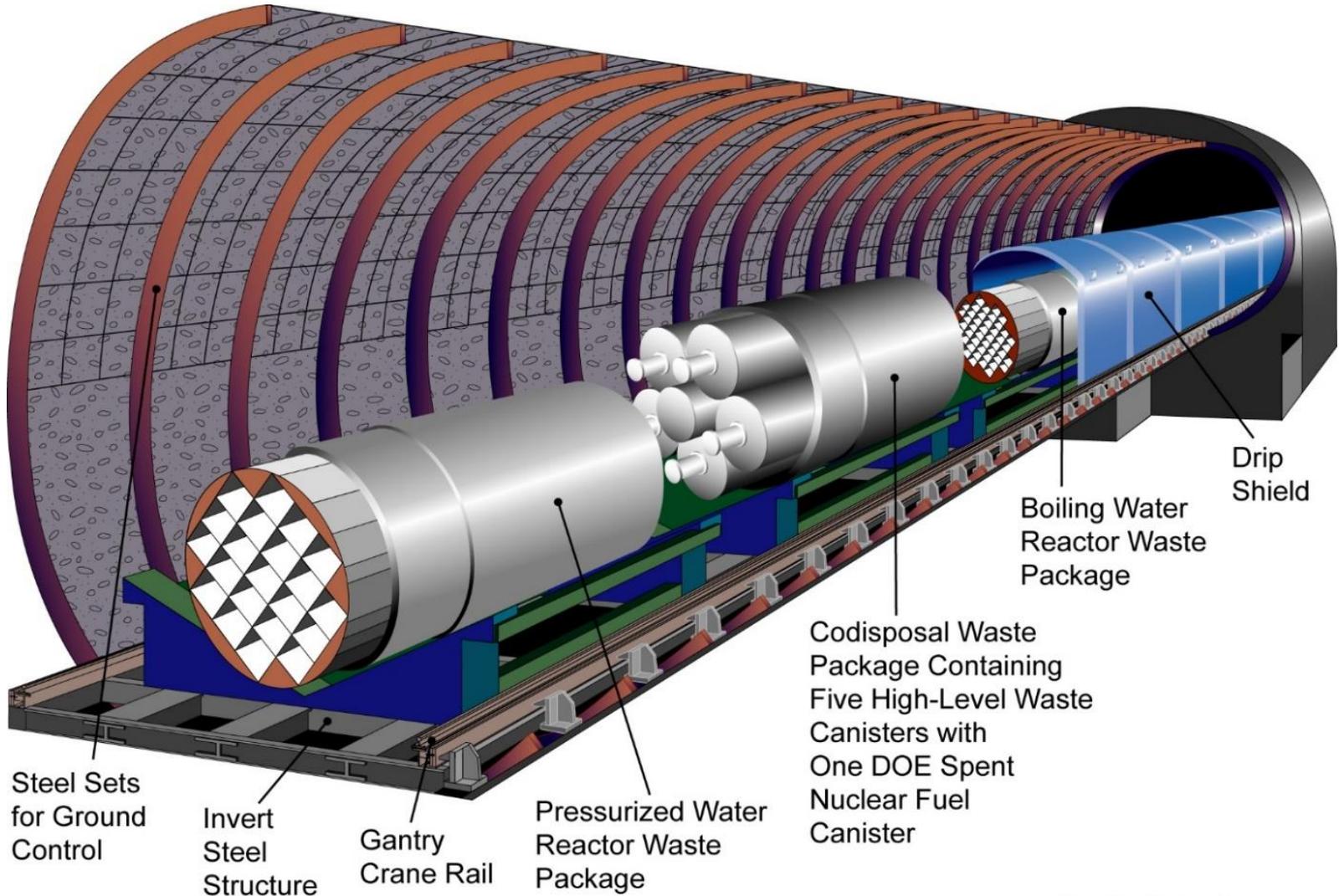
Reduce, Recycle, Reuse

- Several of our national nuclear facilities are experiencing problems and capacity overloading. Engineering, materials and technology we had available for temporary containers 40 years ago were not designed to provide safe storage for 40 years. These materials were **planned** to be moved to the Yucca Mountain facility **40 years ago**. It is **Nevada's political opposition** that has prevented our government agencies from accomplishing the **safe, timely, management** of our radioactive materials.
- We have to get this **educational awareness to our grassroots public**. This is the mission of **“US”** US Nuclear Energy Foundation.



Design of side drift emplacement storage

Does this look like a DUMP?



Drawing Not to Scale
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Community friendly is, “a place where people balance truth”

World Health Organization Study 2010

Grassroots education is critical to public policy REBRANDING!

What do you think is the **safest** form of power generation? The **deadliest**? According to a **2010** study by the **WHO**, Centers for Disease Control, and National Academy of Science, **coal** is the **deadliest** by far, killing **170,000** people **per trillion kilowatt hours**, or a tragic **1.964 million** people per year, **500,000 of which are in China**. To put that in perspective, the **WHO** estimates that **air pollution**, the primary reason for coal's high mortality rate, **kills 7 million people annually**.

Power Source	Mortality Rate per Trillion Kilowatt Hours	% of Global Power Supply	Average Annual Deaths	Times Safer Than Coal
Coal	170,000	50%	1.9635 Million	
Hydro	1,400	15%	4,851	121
Solar (Rooftop)	440	<1%	<102	386
Wind	150	1%	102	1,133
Nuclear	90	17%	353	1,889