

The Case for Recycling Spent Nuclear Fuel

Program Office for Nevada Nuclear

Recycling nuclear fuel to develop Nevada's stake-hold in the energy business and secure the countries current and future inventory of spent nuclear fuel.

Through the efforts of Steven Curtis and his work with ANS (American Nuclear Society) and Gary Duarte through the US Nuclear Energy Foundation, this proposal advocates that the Yucca Mountain Repository operational management be presented to the Department of Energy (DOE) as a **Public/Private Partnership** managed by a non-profit foundation and establishing a **“Program Office for Nevada Nuclear”**. In this manner, lead industry professionals, Federal officials, and Nevada State representatives can engage in the efforts of managing the Spent Nuclear Fuel (SNF) disposition by contracting its operations through government contracts with eligible companies (e.g. AECOM, Framatome formally AREVA, etc.) and extending its product into new recycled fuels. As part of the effort, Nevada would be afforded a Carbon-Free National Laboratory designation and participate in the development of Small Modular Reactors (SMR) and micro-grid applied research.

Background:

Nevada became the center of the cold war nuclear testing program. From the first above-ground test in 1950 until the last underground test in 1992, the outdoor laboratory for studying nuclear applications was known as the Nevada Test Site. The name changed to the Nevada National Security Site when the mission became more directed toward experiments related to a more diverse set of emergency management, science-based stockpile stewardship, and a plethora of multi-agency experiments best done away from prying eyes and population density, in the interest of national security and safety.

During the heyday of nuclear testing, ironically, the leadership of Nevada, including the Governor, the Clark County Commission, and the City of Las Vegas all signed endorsements for the spent nuclear fuel repository at Yucca Mountain. As the entertainment industry heated up in the 1980s and the work at the Nevada Test Site spun down, the attitude changed for unknown reasons. By 1987, the prospect of hosting the spent nuclear fuel in Nye County became an almost heretical protestation by candidates to boost their chances of election, supported by biased anti-nuclear media stories.

Local nuclear scientists and engineers were horrified at this approach. Technically, this move seemed like economic suicide. Yucca Mountain became a household phrase and misinformation spread unfounded fear despite the great economic benefit possible. The Nuclear Energy Institute (NEI) opened an office in Las Vegas to promote the virtues of the Yucca Mountain Project. After Harry Reid became the majority leader in Congress and closed the program office in 2010, despite the fact that 90% of the public “touring” the facility was favorable to opening the site, the issue disappeared from the fabric of Las Vegas. The NEI Las Vegas office was shut down almost immediately.

Since that time, the project was declared “dead” by all candidates and the subject disappeared from the public arena until recently. A renewed interest in the economic potential rekindled interest among a group of community leaders. This pro-nuclear fervor spurred renewed opposition publicity. The main objections seem to be that such a project would devastate the entertainment business in Las Vegas, however, the project is about 100 miles from the Las Vegas Strip and it is difficult to see any impact on the entertainment market. In fact, the addition of a high-tech industry would add diversity to the economy and:

1. Would extend the possibility of professional and technical jobs to Nevada graduates,
2. Establish a diverse business in Nevada at least as large as the Tesla Gigafactory in Reno,
3. Increase the professional and high-paid technical jobs which predominantly support the entertainment business in Las Vegas.
4. Offer the opportunity to almost double the research portfolio of the Nevada universities, and
5. Enhance the College of Southern Nevada's education posture with nuclear technology trade.

A Nevada Waste Programs Office was formed and funded by the State of Nevada in the mid-1980s and was charged with developing legal delaying tactics through suits filed in the 9th Circuit Court of Appeals in California (Nevada is part of the 9th Circuit district). The budget for this office is paid by Nevada taxpayers. Ironically, the addition of the energy business to Nevada's portfolio, which Nevada is paying \$5+ million per year to fight, would greatly augment the tax base and attain many of their goals of economic diversity.

Within the last couple of years, the grass-roots movement has experienced a resurgence. Since Harry Reid stepped down from the Senate in 2016, the issue has been in the media almost daily. Four groups in Nevada have been coordinating to bring a new perspective to the people of Nevada regarding the delivery of spent nuclear fuel to Nevada in light of the great potential for economic benefit in high-tech industry. They are: NevadansCAN, the Nevada chapter of the National Defense Industrial Association, the Nevada section of the American Nuclear Society, and the US Nuclear Energy Foundation. Reinvigoration of the next-generation nuclear business case in Nevada is certain to return more permanent high-tech jobs in the 10,000s for many decades to come.

Introduction and discussion:

The State of Nevada is facing a crossroads with the "Yucca Mountain Project". While they have enjoyed some early "victories" in the Congress for funding Yucca Mountain in President Trump's recent budgets, the preponderance of the nation is in favor of starting up the project to bury spent nuclear fuel in the Nevada desert, as evidenced by the overwhelming House vote (340-72) on H.R. 3053, The Nuclear Waste Policy Act of 2018¹. Nevada realizes that they are weak in seniority in both the Senate and House, so they are expected to increase the number of law suits filed in the 9th Circuit Court to extract as many delays as they can to thwart the effort to secure a final resting place for the spent nuclear fuel from the United States' nuclear power plants. Since there appears, at least to the nuclear professional community, to be no material showstoppers for moving this program along and since it is the law of the Nation, it makes sense that the spent fuel is destined for Nevada eventually.

A recent poll taken in Nevada shows that Nevadans are about split on whether spent nuclear fuel should come to the Silver State if some sort of benefit program can be proposed. However, the polls also show that only about 10% of citizenry are "concerned or very concerned" about this issue². The State leadership, however, remains almost unanimously opposed to the law as it is currently written. A concerted education program would bring the virtue of this business case to an atmosphere of understanding and agreement.

Overwhelmingly, when individuals are presented with the facts and the potential benefits, they favor proceeding with the program. As part of an ANS Operations and Power Division grant, ANS-Nevada has been conducting outreach to organizations in northern and southern Nevada. Over the past 4 years, I have personally presented to 12 groups on nuclear basics and spent nuclear fuel facts (some on this grant and some independent of this grant). All of these groups were overwhelmingly in favor of recycling spent nuclear fuel if it led to benefits from the US Government and the potential for high-tech business development related to nuclear energy production. This would

¹ <https://www.congress.gov/bill/115th-congress/house-bill/3053/all-actions?overview=closed&q=%7B%22roll-call-vote%22%3A%22all%22%7D>

² Nevadans for Responsible Energy Solutions, Amplify Relations, Polling Results, February 23, 2017.

lead us to believe that, armed with facts and a picture of the economic development potential, Nevadans would be in favor of spent nuclear fuel acceptance and their priority for its inception would increase.

Four organizations are leading the charge for Nevada clean nuclear energy business development.

1. **The American Nuclear Society (ANS) – Nevada Section** – The nucleus of support for the acceptance of spent nuclear fuel in Nevada has been driven by the ANS section for more than 30 years. There is also a strong student chapter of ANS at the University of Nevada, Las Vegas. Technical presentations suited to the general public have been made all during this time and will continue into the future. Support from the National ANS hierarchy would greatly help promote and expand this program. The student section of ANS – Nevada has presented a Nuclear Science Merit Badge workshop for both Boy and Girl Scouts for more than 12 years. This program has been very successful in getting the word out to future citizens as well as their parents. (<http://www.ans.org/pi/edu/>). In addition, ANS Position Statement #80, 2009, supports, among other SNF disposition methods, expeditious processing of the Yucca Mountain license application in an open, technically sound manner (<http://ans.org>).

2. **The National Defense Industrial Association (NDIA), Southern Nevada Chapter (NDIA/SNV)** – Although organized about one year ago, this section has reached to the top levels of the DoD through the local Nellis AFB and Creech AFB leadership. The issue of primary concern in the local area is assured power for Creech AFB. The president of NDIA (Retired General Hawk Carlisle) has been to Nevada to emphasize the importance of assured energy to the group and to discuss its implications all the way to the Secretary of Defense. Leaders at Creech AFB have been involved in planning to become a prototype site for a Small Modular Reactor (SMR) for their assured energy program. NDIA/NV has inspired these discussions and has organized technical meetings in support of this program. Website: <https://ndia-snv.org/>.

3. **US Nuclear Energy Foundation, Reno-Sparks, NV:** – Formed in 2006, the US Nuclear Energy Foundation is a registered 501(c)(3) non-profit corporation, in the State of Nevada. USNEF held the first and largest non-partisan non-political public Yucca Educational Symposium in the country, November, 2013 at the Atlantis Casino Resort Spa, Reno, Nevada. USNEF has made inroads through public presentations education forums and publishing factual documents and materials. USNEF also has a YouTube site at: https://www.youtube.com/results?search_query=usnef The web site has been regarded as a definitive source of information and the public presentations have been active in the northern Nevada press. The mission is grassroots public education as participating stakeholders and advise government officials about the business case for recycling spent nuclear fuel as a model for improving the economic posture for Nevada and the national security posture of spent nuclear fuel for the United States. They are focused organization of nuclear advocacy and have a positive contact with the Trump Administration, which is motivated to resolve the Yucca Mountain issue. Website research available at: <http://usnuclearenergy.org>.

4. **NevadansCAN – Citizen Action Network, Las Vegas** (<https://nevadanscan.com/>) – Formed about three years ago, NevadansCAN provides expertise in support of candidates who espouse their values. One of their main concern is to advance the chances for Nevada to take advantage of their position as the leading State to receive the spent nuclear fuel. Recycling, next-generation reactor applied research, micro-grid research and making Nevada home to the Carbon-Free Energy National Laboratory are some initiatives they endorse and actively support. They are involved with the effort to advance DoD SMR development and are actively working with Nevada leadership to better understand the economic and business benefits inherent in next-generation nuclear programs.

Through the efforts of the NDIA/NV leadership, a coalition of business and political leaders in Nevada has been focused on turning around the opposition in favor of securing a solid future in Nevada related to development of nuclear energy based on spent nuclear fuel coming to Nevada. While the current cadre of Congressional delegates from Nevada are publically vocal in their disagreement with “dumping” spent nuclear fuel in Nevada, there is an attitude, through their offices, to gain more understanding of “things nuclear” not evident in 35 years. The issue is

“alive” in the State as evidenced by the almost daily appearance of some reference to “Yucca Mountain”. The tide is turning and there has never been a better time to revisit the issue than now.

Current vision shared NevadansCAN and its community partners:

1. **No permanent storage of spent nuclear fuel in Nevada** – This stance appeals to the media and Nevada leadership core message (i.e. “No nuclear waste dump”).
2. **Recycle spent nuclear fuel vs. permanent storage in a repository** – This is not now the position of the US Government, but, since it is cost effective in comparison to a permanent repository (initial costs = \$25 billion vs. \$200 billion) and would offer high-tech jobs in depressed rural Nevada, its appeal is growing within the State, especially Nye County where the proposed repository is located.
3. **Applied Engineering for Next-Generation Reactor Technical Transfer at the Nevada National Security Site (NNSS)** – NNSS is ideal for developing a remote, secure, secluded outdoor laboratory for transitioning research on fuel forms, next-generation designs, electricity delivery innovations, and DoD development of assured power sources based on SMR. Industry/Government partnerships could take advantage of the opportunity to locate an “Industrial Park” adjacent to the NNSS.
4. **Development of a National Center for University Programs for Next-Generation Reactors** – Both major universities in Nevada (the University of Nevada, Las Vegas (UNLV) and the University of Nevada, Reno (UNR)) each have impressive nuclear engineering, health physics, and radiochemistry programs which grant advanced degrees and are working with national laboratories and industry on next-generation reactor, nonproliferation techniques, and emergency response programs. Part of the effort in the program office would be to inspire these university programs to better integrate with NNSS, NDIA, and ANS/NV to focus their efforts on next-generation nuclear in Nevada
5. **Carbon-Free Energy National Laboratory (CAFE)** – The State of Nevada has emphasized renewable energy as its focus for accomplishing clean-energy goals. If nuclear energy is included in the clean energy portfolio, the synergies between renewable (solar, wind, geothermal) and sustainable (nuclear) can be explored in an atmosphere of total focus on a carbon-free energy program based in applied engineering and research in an atmosphere of public/private partnership.
6. **DoD Assured Energy Development** – The NNSS is directly adjacent to Creech AFB. As such, it is the perfect place to introduce prototype SMR power systems for use on military bases and for mobile, tactical applications. This process is already embraced by NDIA in Nevada and has been advanced to the levels of the Secretaries of the Air Force and Army as well as the Secretary of Defense. Talks are already on-going between the DoD Strategic Capabilities Office (SCO) and DOE-Nuclear Energy. The NDIA Assured Energy Division was instituted by NDIA/SNV and is a supported division within NDIA.
7. **Micro-Grid Applications Research** – DoD has already embraced the “islanding” of energy supply for both its strategic and tactical assets. The issues of EMP and vulnerability of the national electric grid can be reduced by migrating to a “micro-grid” energy supply posture. SMRs are the ideal energy sources for this effort based on their compact energy configuration and their protection from EMP since they will be employed in underground, shielded configurations. They will be designed to support the national grid, provide assured energy to civilian and military communities, allow for mobile power supply in emergencies and supply power exclusive of the national electric grid during times of grid failure.

The atmosphere, both politically and economically, in Nevada has significantly changed, even in the last five years. The State is openly seeking economic diversity, is coming to grips with their persistent lack of high-tech and professional businesses, has demonstrated a desire to improve its K-12 education posture through community-based as well as Government-funded programs, and has shown that it seeks to improve the economic posture of its rural counties. With an enhanced education program regarding the possibilities of nuclear industry and a greater presence from the nuclear industry, American Nuclear Society professional organization and pro-nuclear environmental organizations, Nevada is poised to embrace a future in energy development lead by next-generation nuclear applied engineering and research. Public relations messages, both in media and in person, could quickly inform the citizens

to the vast opportunity and extremely low risk. The timing has never been better for a modest investment from the nuclear energy and pro-nuclear environmental community to secure the agreement of the State of Nevada to proceed with spent fuel initial storage leading to recycling of spent nuclear fuel and the possibilities inherent in their taking national leadership in the carbon-free energy goals established in most of the United States.

Steven Curtis
Past President of the ANS Nevada Section
Current ANS Member

Gary Duarte
Director, US Nuclear Energy Foundation



Steven Curtis

Steven Curtis is president of Alphatech, Inc., a company formed to expand technology to fight counterterrorism. His clients include a number of Department of Defense (DOD) and Department of Energy (DOE) subcontractors. For 15 years, he has been a national response radiological counterterrorism field deployment team leader on the Nuclear Emergency Search Team (NEST) and the radiological Consequence Management teams. He was instrumental in the DOE modernization effort post 9/11. As a radiological expert, Steve has been deployed to field missions all around the world in support of DOD and DOE in response to counterterrorism incidents and scientific experiments. As an officer in both the active duty Army and Nevada National Guard, Steve served in leadership positions as an Armor officer and as a strategic communications design and installation engineer. Mr. Curtis has studied the Yucca Mountain since 1981, has written several papers related to the project, and has advised others on the technical aspects of the project. Mr. Curtis holds a BSEE and a Master's Degree in Health Physics and is a past president of both the Nevada Section of the American Nuclear Society and the Lake Mead Chapter of the Health Physics Society.



Gary J. Duarte

Director, US Nuclear Energy Foundation. My knowledge of nuclear energy is that of an average citizen, I am not a scientist or an engineer. I served as Executive Vice President of the Maine Jaycees, organized the first statewide multi-chapter March of Dimes Walk-A-Thon. I started and operated Duarte Typesetting Company for 17 years, the first computerized book phototypesetting company in the State of Maine.

Founding the US Nuclear Energy Foundation when retiring in 2006 has been an obsession. A grassroots directive to educate America about the truth of nuclear technology and the development of nuclear waste management and reprocessing. I began my nuclear and research education by attending and participating in several national American Nuclear Society meetings and have accumulated a contacts list of nearly 1,400 nuclear scientists and engineers worldwide. I participated in several ANS "Focus on Communications" workshops under the Projects tab on the website; <http://www.usnuclearenergy.org/ANS.html>

At various times I make presentations to the American Nuclear Society, local civic clubs & organizations and have also addressed the need for the industry to support grassroots education on rebranding nuclear technology at the Advanced Reactor Technical Summit III at the Oak Ridge National Laboratory.

Business Plan Outline Yucca Mountain as a (PPP) Public Private Partnership

Compiled by Gary J. Duarte 2020

Through research, objective analysis and external consultation, we are developing this first draft outline to demonstrate the potential of **unifying multiple agencies, private companies and stakeholders** to overview this concept of developing the Yucca Mountain spent nuclear fuel facility as a Public Private Partnership. This proposal is a new approach, a potential resolution to the 40+ year Nevada political opposition to the science and engineering of the Yucca facility making it an economic model. By adding **recycling of the spent fuel into NEW fuel is a \$14-trillion dollar future market potential**. Recycling our current inventory of 77,000 tons of SNF offers the largest single economic potential business plan ever to be written in Nevada. This is a FIRST DRAFT and through the efforts of other interested stakeholders, we have the opportunity to develop a cohesive program to solve the nation's Spent Nuclear Fuel storage based on a tremendous business model.

We are also able to indicate that the PPP proposal is supported by one of the nation's leading "think tanks" The Heritage Foundation, Washington, D.C.

What Yucca Mountain \$-Trillions could do for Nevada and the Nation In the short and Long-Term Business, Economic and Educational Applications:

Massive education funding, universities, colleges, private schools, high schools, special education, etc., in Nevada and nationwide. The growth of education comes from the expansion of private business who need graduates for their staffing requirements.

Unlimited scholarships for all economically depressed students. Funding provides a leveling of competition for all college bound population segments.

Funding to develop the world's largest recycled nuclear fuels complex. It takes a "movement" of business, government, high-tech, and funding to develop a "world complex" this is the economic engine. Such a facility might be established as a satellite facility of the Idaho National Laboratory working to develop fuels designed for advanced reactors. The facility would not necessarily have to be located at the Yucca Mountain site. It could easily be located in Northern Nevada or Hawthorn, NV (Home of the U.S. Army Munitions Depot).

Attract advanced high-tech industry = economic diversification and high paying science & engineering jobs. The influx of technology cash would double the Nevada casino industry, restaurants, bars, auto sales, etc. every Nevada small business would grow with the economic stimulus. This would satisfy the political concern of Nevada's primary economic engine, gambling and its related industry.

A position statement is like a thesis or goal. It describes one side of an arguable viewpoint. When writing a position statement, the author(s) gather a list of reasons to support a particular viewpoint and make their stand clear to the audience. The list below are individual groups or associations who have written "position statements" supporting the science and engineering of the Yucca Mountain Repository design and construction. *(The complete statements from these agencies is available as necessary).*

26 National Groups and Associations Who Have Written Position Statements Resolutions & Comments Supporting the Yucca Mountain Nuclear Waste Repository Science & Engineering and build

Let's put things into perspective. For some 40+ years Nevada "politics" has opposed the **Yucca Mountain** nuclear waste repository not the science. It has been passed into law by congress, given approval "**position statements**" by the following national groups and associations. Science in itself is bipartisan, politics threatens scientific reasoning.

- US Chamber of Commerce Institute for 21st Century Energy
- IEEE (Institute of Electrical and Electronics Engineers) a heritage over 125 years 360,000 members in 150 countries)
- The Heritage Foundation May 1, 2008, publication # 2131
- NEI (Nuclear Energy Institute)
- American Nuclear Society, 12,000 + membership worldwide
- Over half of the U.S. Governors have petitioned congress on behalf of Yucca Mountain
- IBEW 35th International Convention support nuclear energy & legislation to ensure a national nuclear waste facility
- Sustainable Fuel Cycle Task Force
- National Association of Regulatory Utility Commissioners
- Nuclear Infrastructure Council
- Partnership for Science and Technology Nuclear Waste Strategy Coalition
- United States Nuclear Energy Foundation
- U. S. Chamber of Commerce
- Idaho Chamber Alliance
- South Carolina Chamber of Commerce
- Tri-City Industrial Development Council, Washington
- Alliance for Nevada's Economic Prosperity Economic Development
- Partnership of Aiken and Edgefield Counties
- Citizens for Nuclear Technology Awareness
- Greater Idaho Falls Chamber of Commerce
- Idaho National Laboratory Retired Employees Association
- Commissioner Gary Hollis, Nye County, NV
- Fuel Cycle Science Panel
- Nevada Republican Assembly
- National Federation of Republican Assemblies

The USNEF foundation over the years has attracted some significant interest from the nuclear industry.

USED FUEL AND DEPLETED URANIUM WORTH TRILLIONS

Kenneth D. Kok, PE, Paper No. ICEM2013-96001, 7-pages, 08-12-13.

Link to complete paper:

<http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1832623>



American Society of Mechanical Engineers: 2013 15th International Conference on Environmental Remediation and Radioactive Waste Mgmt. Brussels, Belgium, September 8–12, 2013, Copyright © 2013 by ASME.

ABSTRACT: The purpose of this paper is to examine the energy and economic value of used nuclear fuel and depleted uranium. In the USA these materials are considered to be wastes. As such they are candidates for permanent disposal. The disposal of these materials in a manner that isolates them from human contact is a scientific, engineering, economic and political problem. Isolation can be defined requiring no potential human contact during a stated period of time due to failed containment. The period of isolation is to be in excess of one million years.

The uranium in the used fuel and the depleted uranium left over from the enrichment process represent about 99.5 percent of the uranium that was removed from the ground by mining uranium ores. If these materials can be utilized they would not be considered to be wastes. In addition, they would carry a positive economic value. The value of these materials, based on the energy that can be extracted from the uranium, **(the worldwide inventory) exceeds \$100 trillion dollars.** (The **U.S. 77,000 metric tons is valued at \$14 Trillion dollars**). Based on this, the conclusion is that the material is a very valuable resource and **definitely is not a waste.**

REPROCESSING TECHNOLOGY: The reprocessing technology developed in the IFR program is also unique. Reprocessing of commercial reactor fuels currently uses a wet chemical process which produces large volumes of waste. It also separates the plutonium in the used fuel as an independent product leading to safeguards related concerns.

Gary J. Duarte
Director, US Nuclear Energy Foundation
comments@usnuclearenergy.org
775 224-2089

AREAS OF SPECIALIZATION (A layman with a mission). I grew up in Maine playing ice hockey about 12 years in the Contractors Hockey League. I played music with several local bands, Bob Bedard, The Fascinations, my band The Liverpool Gas Company played the PAL Hop Days at Lewiston City Hall. We were an opening act for the Young Rascals, Dave Clark Five, Cyrkle, McCoys and others. I lived there about 38 years and moved to Nevada in 1984. I saw the Maine Yankee Nuclear Power plant go online in 1972 and it produced electrical energy through 1997 a 25-year successful operating history and planned retirement.

My knowledge of nuclear energy is that of an average citizen, I am not a scientist or an engineer. An entrepreneurial background began at the age of about 7 or 8 talking an employee of a lumber company into building me a rock maple shoe shine box for a percentage of my earnings, he did, I did, I paid, I still have it! I served as Executive Vice President of the Maine Jaycees, organized the first statewide multi-chapter March of Dimes Walk-A-Thon. I started and operated Duarte Typesetting Company for 17 years, the first computerized book phototypesetting company in the State of Maine. We developed a software application Stylo-Type I, the first "Mac" based mnemonic coding program to link a Macintosh computer to a Linotronic typesetting machine.



Coauthored a paper "The SGML Solution to System Independence" by Gary J. Duarte, President, DeskTop ComPosition Systems, Inc. & J.Sperling Martin, Vice President, Aspen Systems Corp. 1990. SGML (standard generalized markup language) was a text based mnemonic markup code, a predecessor and included as part of HTML (hypertext markup language) now used in WEB document processing. As an industry specialist I taught the Introduction to Printing & Graphics at Truckee Meadows Community College several years, Reno, Nevada and worked several years in the casino entertainment realm on stage work and as an audio video technician.

Founding the US Nuclear Energy Foundation when retiring in 2006 has been an obsession. A grassroots directive to educate America about the truth of nuclear technology and the development of nuclear waste management and reprocessing. I began my nuclear and research education by attending and participating in several national American Nuclear Society meetings and have accumulated a contacts list of nearly 1,000 nuclear scientists and engineers worldwide. I participated in several ANS "Focus on Communications" workshops under the Projects tab on the website; <http://www.usnuclearenergy.org/ANS.html>

Over the years we have addressed the industry to support grassroots education on rebranding nuclear technology at the Advanced Reactor Technical Summit III at the Oak Ridge National Laboratory.



Dr. Alan Waltar

Retired, Senior Advisor as Director of Nuclear Energy
Pacific Northwest National Laboratory
Professor and Head of Nuclear Engineering at Texas A&M University
Alan.Waltar@gmail.com
509-548-5272

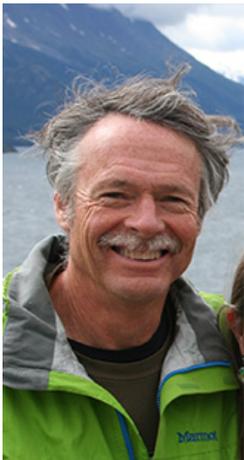
Dr. Alan Waltar: He was the keynote speaker at our USNEF presentation during the American Nuclear Society meeting in Reno, 2006. Dr. Waltar is a retired Senior Advisor and Director of Nuclear Energy to the Pacific Northwest National Laboratory (PNNL), Richland, Washington. He was also Professor and Head of Nuclear Engineering at Texas A&M University, where he helped to build that program into the largest Department of Nuclear Engineering in the nation. Dr. Waltar is a Fellow and Past President of the American Nuclear Society. He is also author of the book “Radiation and Modern Life” - Fulfilling Marie Curie’s Dream” and “America the Powerless” as well as co-author of two textbooks on fast reactors. He serves as well as a consultant to the IAEA and the U.S. Department of Energy. Dr. Waltar was instrumental in the formation of the World Nuclear University Summer Institute (SI) and has served as a mentor and a member of the faculty for all eleven of the institutes.



Bruce Marlow

Vice President, AREVA, (retired 2014)
A 41 year veteran of AREVA
brucemarlow@gmail.com
530 264-6064

Bruce Marlow, Bruce has been supporting the successful operations of the Nuclear Power Industry by driving Innovation and training along with leading large integrated projects. Currently, Bruce is working on Clean Water, Geothermal and Energy Storage projects that are keeping him running on a very busy pace. While at AREVA, Bruce was the Integrated Site Manager leading the AREVA Team working to return the San Onofre Nuclear Generating Station (SONGS) back to service until its unfortunate close decision. Before becoming a Vice President, Mr. Marlow served as the General Manger of Conam/Rockridge, an AREVA legacy company where he was responsible for all Business Development, Project Execution and Technology Advancement. He developed Conam from a \$2.5 million company in 1980 into a \$40 million organization in 7 years. In 1997, Conam generated 70% of the operating income of AREVA North America. Mr. Marlow has worked at every Pressurizer Water Reactor (PWR) in the US and several in Japan and Europe.



Peter G. Shaw

Radiological Controls Engineer, Naval Reactor Facility, at
Idaho National Laboratory (Retired)

peter.shaw27@gmail.com

AREAS OF SPECIALIZATION:

Radiological controls in the handling and packaging of spent nuclear fuel and nuclear waste. Analysis of radiological waste and waste residues, In Situ treatment of buried radioactive-TRU and LLW hazardous buried and underground tank waste,- liquids, ashes, salts, sludge's, debris, contaminated soils Development of treatment criteria for both effectiveness and implementability. Preparation, review implementation of technical work documents for handling, treatment and disposal of the full spectrum of radiological materials.

Arvid Pasto

PhD Ceramics, State University of New York

arvidpastro@yahoo.com

AREAS OF SPECIALIZATION: Arvid Pasto spent his entire 39-year career working in the field of materials for energy applications. He retired in 2007 as Director of, High Temperature Materials Laboratory (HTML), and Manager of EERE and Technology Programs, Metals and Ceramics Division at, Oak Ridge National Laboratory (ORNL). In the latter capacity he directed the operations of the HTML, a national “user facility”, and he managed the applied energy technology programs of the Division.

Experience includes eleven years at the corporate R&D center of GTE in Waltham, MA, and eight years prior to that in the Metals and Ceramics Division of ORNL. During his time at ORNL he became, in the 1970's, one of the world's most knowledgeable individuals on europium oxide, a potential to replace boron carbide as the control rod material for fast nuclear reactors. He conducted in-reactor radiation tests of europium oxide at the EBR-II reactor at the Idaho National Laboratory. Later, he was on the ORNL team that won an IR-100 award for their development of microsphere nuclear fuels.

His degrees are from the State University of New York, College of Ceramics at Alfred University, earning a B.S. in Ceramic Science in 1967, an M.S. in Ceramics in 1969, and a Ph.D. in Ceramics in 1972. Arvid is a Fellow of the American Ceramic Society, and has served on numerous professional boards and committees, including the Virginia Tech MSE Department Advisory Board. He was also Vice-President of the United States Advanced Ceramics Association (USACA).



Dennis Moltz, PhD

B.S. Chemistry, B. S. Mathematics, Texas A&M University (1974)
Ph.D., Nuclear Chemistry, University of California, Berkeley (1979)
dmmoltz@sbcglobal.net



Dennis Moltz, PhD: Dennis is Co-Coordinator for our USNEF Northern Nevada Chapter. His background is a B. S. Chemistry, B. S. Mathematics, Texas A&M University Ph.D., Nuclear Chemistry, University of California, Berkeley Dennis owns, **High Desert Nuclear Technologies LLC**, Carson City, NV Dennis does contract work for Radiation Detector (all energies of photons and particles), Ion source technologies, isotope separations, chemistry of radioisotopes, Nuclear Waste Issues, Low Level Background Counting, Fabrication for Any Nuclear Experiment, Special Nuclear Electronics Designs. Dennis has experience with most accelerators in North America.

John Shanahan

President, [Go Nuclear](http://GoNuclear.org)
President, Environmentalists for Nuclear Energy - USA
acorncreek2006@gmail.com
303 399 0393



John Shanahan, President, Go Nuclear, a Civil Engineer. Over 30 years' experience with design, research and licensing for commercial nuclear power plants in the USA and Switzerland. Advocate for global public education about widely useful forms of nuclear power, science, technology, medicine, and low-dose radiation. Go Nuclear, Inc. is a non-profit organization based in Denver, Colorado, USA. We work with professionals in nuclear energy, nuclear medicine, and low-dose radiation around the world. We also work with advocates outside these fields from students up to retired professionals in other fields. John is also President of Environmentalists for Nuclear Energy - USA, EFN-USA, is a non-profit organization based in Denver, CO. It affiliated with and align our values and mission with Environmentalists for Nuclear Energy, EFN, in Houilles, France, Bruno Comby is Founder and President.



Dr. Bruce P. Johnson
Professor Electrical Engineering
University of Nevada Reno
Reno, Nevada
AREAS OF SPECIALIZATION:

Dr. Johnson's area is high frequency electronics and electromagnetic compatibility. He is trained as a Physicist including courses in nuclear and health physics. Current research interests include solar and piezoelectric energy generation and high frequency instrumentation.



Ken Koeppe
Semi retired businessman
Reno, Nevada
kenkoeppe@live.com
AREAS OF SPECIALIZATION:

Businessman who has profited well in Financial management, Equipment leasing, Building material and Lumber sales.

As a youth in the San Francisco area I was promised a "glowing" future with the advent of cheap electricity, using nuclear energy.

Unfortunately, Luddites and emotional environmentalists' protesting the future, have brought this nation to the brink of perpetual darkness and financial ruin by refusing to use this safe, clean production method.

Knowledge is power and the truth regarding nuclear power production is the key to all mankind, living in comfort and developing the potential for eliminating poverty throughout the world. Fearing the unknown and making no effort to know, will doom you to fear alone.

Eric Jelinski M. Eng. P. Eng.
Senior Consultant for a major nuclear energy company (2014- present)
Teaching nuclear engineering at University of Toronto and at
University of Ontario Institute of Technology (2014)
eric_jelinski@sympatico.ca



AREAS OF SPECIALIZATION:

Supervising student 4th year Capstone Course Projects at University of Toronto Project Manager for Engineering Strategies and Practice course at University of Toronto Teaching aerodynamics, math and engineering and nuclear engineering at Georgian College. On Georgian College Advisory Committee for implementation of a Power Engineering Program and set up a nuclear engineering course 31 years at OPG – Nuclear Positions included, engineering, maintenance and operations / Major Components Lifecycle, SG's, HX, Pumps, Piping / Tooling design for life extension and refurbishment / Contracts Manager and Shift Outage Manager / 20 years in electric vehicles, teaching, design & consulting (1990-2010) / Published papers for SAE and NESEA / Taught EV Technology Course at Durham College / Organizing Electrothons.

Michael W. R. LaFontaine
Consulting Physicist, PhD
AREAS OF SPECIALIZATION



Consulting Physicist: Instructor for nuclear engineers and physicists re. in-core reactor radiation detection principles and system design for China Nuclear Power Research Institute, Shenzhen, China. Quarterly Reactor Physics School instructor for post-grads regarding reactor radiation detection systems at Atomic Energy of Canada Ltd.'s Chalk River Laboratories. Contract Physicist for Mitsubishi Heavy Industries, US-APWR projects. Contract Physicist & Radiation Safety Officer for Mirion Technologies (IST Canada) Inc. Extensive experience measuring and monitoring radiation. Specializing in research, design and development of radiation detectors, radiation monitoring, and Class 1E reactor control systems for a variety of applications; also preparation and presentation of radiation monitoring and radiation training programs and instruction.

Bill Stremmel
bstremmel@gmail.com
AREAS OF SPECIALIZATION



I appreciated the role of nuclear energy growing up in the Chicago area where Commonwealth Edison achieved over 50% of its generation from reactors by the 1970's. Graduated from Indiana University in 1976 with degree in Transportation & Public Utilities Management. Experience in private sector ranged from work in an industrial traffic department to North American agency operations for global cargo carriers. My twin vocational aptitudes of Analysis and Accounting are now employed with CyberTran, developing an automated Ultra-Light Rail Transit (ULRT) system.

Civic involvement includes 12 years on advisory committee to Alameda County CA Transportation Authority and now membership of Pahump, Nevada's Nuclear Waste & Environment Advisory Committee. I jumped into the fray over Yucca Mountain when a National Monument was designated as an underhanded ploy to block rail access into the repository.



Blaise Jorgensen
Blaise@trustmasters.com
(775)219-6129

Environmentalist, Marketing, and Electronics descriptors fit me well. Educated in Trade school, circuit board level Technician, specifically in electronics Mathematics and circuitry. Continued self-education, fueled by an undying passion for science and technology. In recent years moved into business marketing.



Amanda Foster / (662) 607-9635
Research Analyst, US Nuclear Energy Foundation
Alastrineluna@gmail.com

Amanda Foster grew up in Rochester, NH. Not too far from the Seabrook Nuclear facility. (Several years ago its license application was extended through 2050). She moved from New Hampshire to Texas and currently resides in Mississippi. She has a deep passion for all things nuclear that started with the Fukushima disaster. Through reading all of the media and anti-nuke stories she acquired a factual knowledge about nuclear facilities and our great need for them. She is happy to put her best foot forward and help however she may.

Description of Business

The U.S. Department of energy conducts the current management of the Yucca Mountain Project. Their ability to forward the building of the Yucca facility has been road blocked by the State of Nevada over 40 years, for political reasons not based on the science and engineering. It is designed by private government certified companies, specializing in radioactive materials for long-term safety and security of the facility. For many years, the DOE had established a Nuclear Waste Fund where a small percentage of the costs for nuclear energy production costs were set aside for the construction of the Yucca facility. This fund currently sits at about \$40-billion dollars immediately available to start construction of the side-drifts within the current 8-mile horseshoe tunnel as soon as the Nevada opposition is overruled.

Interstate Commerce Laws Overrule Political Opposition

How the Interstate Commerce Laws effect the Nevada political opposition to the Yucca Mountain Project. Looking at the law considering the DOE converts the Yucca program to a Public Private Partnership: USNEF (*or some other ENTITY*) is a Nevada 501 (c3) CORPORATION legally incorporated in the state of Nevada.

Interstate commerce refers to the purchase, sale or exchange of commodities, transportation of people, money or goods, and navigation of waters between different states. Interstate commerce is regulated by the federal government as authorized under Article I of the U.S. Constitution. The federal government can also regulate commerce within a state when it may impact interstate movement of goods and services and may strike down state actions which are barriers to such movement.

If the DOE were to move forward with our proposal to transfer management of the Yucca MT build as a PPP, the State of Nevada could NOT prevent USNEF (*or some other ENTITY*) from moving the Yucca SNF to the federal government Yucca Mountain facility in Nevada!

We could build the strength of this proposal by locating other stakeholder major non-profit foundations as co-participants.

A. Company Ownership/Legal Entity:

The US Nuclear Energy Foundation is offering to establish and manage a proposed project along with the participation of several other like-minded organizations with shared interests in the **Public Private Partnership model**. USNEF has a worldwide contacts database of some 1,000 nuclear scientists & engineers. Other participating organizations listed below could bring their interests to the table in order to provide a unified effort. The USNEF Advisory Board consists of many highly qualified members fully capable of rendering management advice to the Yucca program.

Ken Koepp and Steven Curtis, recommend the best advancement for our Yucca efforts proposing a Public Private Partnership would be **unity with the independent players listed below**, Including Pro-Yucca, former Governor Bob List. I am open to this if they are interested in initiating a discussion. It might be helpful for them to know that the nuclear people at **The Heritage Foundation support the proposal of Yucca as a PPP**. It would certainly be a powerful assembly to generate this unity.

1. The American Nuclear Society (ANS) – Nevada Section, Las Vegas / Ronald Fraass Chair / Rfraass@aol.com
2. US Nuclear Energy FND, Sparks: <https://usnuclearenergy.org> Gary Duarte, comments@usnuclearenergy.org
3. NevadansCAN – Citizen Action Network Vegas 702 767-1617 (<https://nevadanscan.com/> nevadanscan@gmail.com)
4. National Defense Industrial Association, Southern NV Chapter, Marty Waldman, email2mart@gmail.com

Aside from the political opposition, the Yucca Mountain facility has always held the largest single entity economic future for the State of Nevada. **The future recycle capacity** of these materials for new fuels is **documented at \$14-trillion dollars** it is irrefutable. The problem remains public and political EDUCATION.

B. Company Structure:

The **Yucca Mountain Project** will be managed by a Board of Advisors familiar with the science & engineering technical design and the political support.

C. Current Location: _____ The physical location of Yucca Mountain is about 100 miles north of Las Vegas, NV.

D. Prospective Properties:

Scenarios currently exist for the Yucca repository. The recycling facility does not have to be built at the Yucca site. It could be located in northern Nevada in Hawthorne, NV, which is home to our federal U.S. Hawthorne Army Depot.

<https://www.milbases.com/nevada/hawthorne-army-depot>

Consideration for this site would drive economic engines for Southern and Northern Nevada, again to assist with economic diversification.

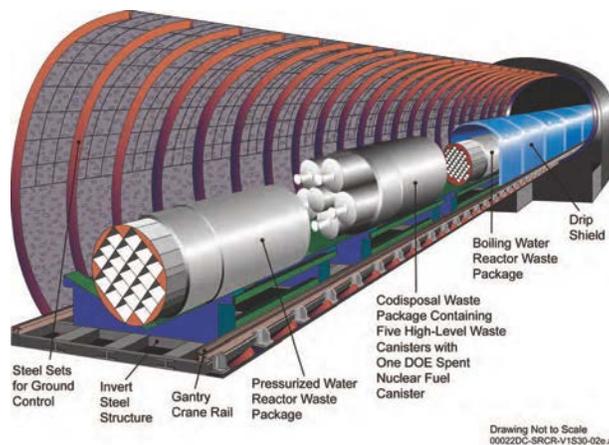
E. Financial Management:

The financial management of Yucca Mountain might be recommended as using a four-phase progression.

Phase One is “preparing & planning the fuel rods for transportation of the 27 locations on the East coast it currently sits.”

Phase Two is updating the DOE planned transportation routes for the move, city and rural escort services.

Phase Three is completing the side-drift construction of the 8-mile long horseshoe tunnel to receive/store the fuel casks.



The final phase: begin the outline for developing **Yucca as the largest world class Spent Nuclear Fuel RECYCLING** facility.

I. Marketing:

This will setup to be a rather complex task. Selling this “proposal” will require the inclusion of government agencies, private sector businesses, independent stakeholders and private foundations.

A. Market Analysis:

This also will be a complex task. Here we are proposing a marketing endeavor, not for \$50-million or \$250-billion, BUT for \$14-trillion. Again, no single endeavor has ever developed a marketing program for \$14-trillion dollars.

B. Market Segmentation:

Market Segment 1: Heritage Foundation other participants and stakeholders

Executive Summary: Yucca as a PPP . . .

Background

US NUCLEAR ENERGY FOUNDATION

“Nuclear Advocacy Through Grassroots Education”

A Non-Profit 501 (C)(3) Nevada Foundation
PO Box 2867, Sparks, NV 89432 (775) 224-2089
www.usnuclearenergy.org Email comments@usnuclearenergy.org

“YES”

Yucca Educational Symposium 2013

The Yucca Mountain Nuclear Waste Repository Educational Symposium
This Outline Draft has a close resemblance to our USNEF
Yucca educational grant proposal draft still in process

1) Nuclear Waste Policy Act of 1982:

- a. A statement review of the original intent of the Nuclear Waste Policy Act.
- b. The 2008 amendment updates to the NWSA.
- c. 2013 update the processing, storage and reprocessing of spent fuel.
- d. We need to identify that Yucca media coverage denoting negative articles and how the overweight of negative media (controlled by bureaucrats) has unfairly represented the technical science of Yucca Mountain and proliferating a negative perception of the facility to Nevada’s public. The August 2013 D.C. Court of Appeals recently upheld the U.S. Court of Appeals granted 2 to 1 a mandamus petition that will force the Nuclear Regulatory Commission to complete the licensing process for the Yucca Mountain repository. The petition for writ of mandamus against the Nuclear Regulatory Commission was filed by parties including the National Association of Regulatory Utility Commissioners; Nye County, Nevada.
- e. Dialogue how the misinformation supports the politics at the expense of the citizens. Bureaucrats have somehow convinced the casino industry that the Yucca Repository would kill tourism in Nevada yet the French AREVA reprocessing storage facility in La Hague France gets 280 requests annually for tours.
- f. We need to **openly educate the purpose of the original law** for the Yucca facility as a permanent storage site in order to carry through the original intent of the law which is “in place”. We also need to identify that the facility has been delayed partly because of the advancement in both storage and reprocessing technology and it would be the full intent of implementing the “total” neutralizing of ALL of this stored spent fuel when nuclear science “solves the complete closing of the fuel cycle”.

2) How and why a Yucca educational program will transform Nevada’s public opinion:

- a. “YES” will provide PowerPoint presentations, print collaterals and movies to supplement the symposium “panel participant” dialogue and audience Q&A.
- b. Facts data and charts to provide a robust truth of the science. We too often undermine the ability of our citizens to comprehend factual data and give them instead “downsized” information.
- c. “YES” will provide the symposium events schedules to all “panel participants” in advance so that they can coordinate their messages.
- d. “YES” has made arrangements for the showing of the new documentary **Pandora's Promise** a 2013 documentary film directed by Robert Stone. From his page on HIS website: The making of this film has taken me to four continents on a **grand tour of the hidden world of nuclear energy**. I’ve been inside the doomed power plant at Chernobyl (the first cameraman to do so, I believe), deep into the Fukushima exclusion zone, and to a popular beach in Brazil that has a naturally occurring background radiation level that’s over 300 times what is considered “normal!” I’ve visited a **little known research facility in Idaho**

where a new kind of reactor was developed 20 years ago that can't meltdown and is fueled by nuclear waste.

If there was a single ah-ha moment it was when I was granted entry into a room in France (the size of a basketball court) where all the **waste from powering 80% of the country for 30 years is stored: four cylindrical tubes 10 meters long and 1 meter wide are all that's left from powering the city of Paris for 30 years with clean nuclear energy!** I thought, "My God, what on Earth were we thinking?" Robert Stone

- 3) The "YES" symposium will detail the potential economic impact of the Yucca Nuclear Waste Repository and some economic forecasts if combined with a reprocessing facility:
- The potential economics of Yucca Mountain as a storage facility have not been made radially available to Nevada's citizens. The ongoing nuclear waste fund will provide the sustainability of the storage program.
 - As the planned Yucca permanent storage facility is constructed, the designs in recent years, call for the expected removable of this "spent fuel" as our "**reprocessing technology**" advances to the full resolution of closing the fuel cycle. The first step the public needs to understand is establishing the facility as a **stable economic business**.
 - The second task receiving much discussion in recent years is the commercial size development of a "reprocessing facility" for the 66,000 tons we currently have. We need to "**educate**" the Yucca Mountain "**reprocessing facility**" as a "**modular nuclear technology proposal**". The business economics of nuclear technology must be "educated" on 60 year timelines. We must "educate" the Yucca Project on the basis of "**incremental modular design stages**". Design the reprocessing facility as self-contained "modules" that can expand by 1, 2, 3 modules at a time. Time allows for **productive redundancy** or **interactive modification** as technology advances the need for expansion may reduce.

4) Symposium Invitees:

- Nevada Congressman **Mark Amodei**
- Illinois Congressman **John Shimkus**
- Idaho Senator **James Risch**
- Donald R. Hoffman** founded EXCEL Services Corporation (EXCEL) in 1985 to provide specialized professional services to nuclear utilities in licensing and regulatory support and technical specifications. In the quarter century since the formation of the company, EXCEL has become recognized as a premier worldwide supplier of regulatory support services. Mr. Hoffman is very active in the nuclear industry. He is the sitting President of the American Nuclear Society. He is also the president of Eagle Alliance, a US grassroots organization that represents all facets of nuclear science and technology. Prior to starting EXCEL, Mr. Hoffman served in the US Nuclear Submarine Navy as a senior reactor operator and engineering officer and as a Branch Chief and lead reviewer at the Nuclear Regulatory Commission reviewing License Applications and Technical Specifications.
- Dr. Nicholas Tsoulfanidis** received a B.S., Physics, University of Athens, Greece, 1960 a M.S., in Nuclear Engineering (NE), University of Illinois, 1965 and a Ph.D., in NE, University of Illinois, 1968. In 1968 he joined the faculty of the NE program University of Missouri-Rolla, There, he served until 2004 as a faculty member, Chairman of the Department, Interim Vice Chancellor for academic Affairs and Associate Dean of the School of Mines and Metallurgy for Graduate Studies and Research for more than 10 years. In addition to his teaching and administrative duties he performed research in the area of radiation transport, radiation protection/health physics, and the Nuclear Fuel Cycle. He has written numerous technical papers and a text entitled "*Measurement and Detection of Radiation*", its 3rd Edition out in November 2010; He is the co-author of the book "*The Nuclear Fuel cycle: Analysis and Management*"; the 3rd edition of this book will appear in September 2012. He did consulting work for electric Utilities and the NRC. Since June 1997, Dr. Tsoulfanidis is serving the Editor of Nuclear Technology, an international technical Journal published by the American Nuclear Society [ANS]. During the period July 1 2005- July 31 2007 he served as Interim Chair of the Chemical & Metallurgical

Engineering Department at the University of Nevada –Reno. He is now an Adjunct Professor at UNR and at the University of Utah.

- f. **CDR Kirk S. Lippold**, USN (retired) Commander of the USS Cole Cmdr. Kirk S. Lippold, U.S. Navy (ret) was Commanding Officer of the USS Cole when it came under attack by al-Qaeda suicide bombers on October 12, 2000, in the port of Aden, Yemen. During his command, he and his crew distinguished themselves by saving the guided missile destroyer from sinking. The attack on the USS Cole was one of the most brazen acts of terrorism by al Qaeda prior to September 11, 2001, and one of the seminal events of the war on terror. Prior to assuming command of the USS Cole, Cmdr. Lippold served as: Executive Officer of the USS Shiloh, an Aegis-class guided missile cruiser; Operations Officer on the commissioning crew of the USS Arleigh Burke; and Division Officer aboard the USS Yorktown, an Aegis-class guided missile cruiser, where he completed a seven and half month deployment to the Mediterranean, and participated in the Achille Lauro aircraft seizure, Black Sea Freedom of Navigation operations against the Soviet Union, and Attain III combat operations in the Gulf of Sidra off of Libya, which followed several Libyan sponsored terrorist attacks in Europe. *CDR Lippold has addressed our USNEF Foundation and he supports nuclear energy and the Yucca Mountain Storage Facility.*
- g. **Jack Spencer** oversees Heritage Foundation research on a wide range of domestic economic issues as director of the Roe Institute for Economic Policy Studies. Those topics include federal spending, taxes, energy and environment, regulation and retirement savings. Before his promotion to **Roe Institute director in July 2013**, Spencer specialized in nuclear energy issues in both the domestic and global arenas as Heritage’s senior research fellow in nuclear energy policy. He was Heritage’s go-to expert on nuclear waste management, technological advances, industry subsidies and international approaches to nuclear energy. Spencer also researched regulation of the industry, proliferation issues, the global energy market and national security uses for nuclear power. Much of his work centered on developing a comprehensive, subsidy-free, market-based approach to nuclear energy policy. That strategy includes fighting to preserve Yucca Mountain as a safe repository for nuclear materials. Spencer has testified before Congress on related topics, including nuclear loan guarantees and international implications of the growth of commercial nuclear power. The President’s Blue Ribbon Commission on America’s Nuclear Future heard his testimony in 2010 on how to introduce market forces into public policy for safely managing nuclear waste.
- a. **Taylor Wilson**, 19 year old child prodigy is an applied nuclear physicist and National Science Foundation recipient. A recent graduate of Davidson Academy, a school for profoundly gifted kids in Reno, Nevada, Wilson has been captivated by nuclear energy and nuclear power since he was 10 years old. He has built a device that can detect nuclear materials in cargo containers and is currently being field tested. He entered that project last year in Intel’s premiere science fair and won \$50,000. Despite offers from the top universities in the country, he’s chosen to take a fellowship offered by Peter Thiel, of PayPal fame. The fellowship pays him \$100,000 over the next two years. Wilson plans to start a company to further develop and market his devices.
- b. **Dr. Alan Waltar**, retired Senior Advisor to the Pacific Northwest National Laboratory (PNNL) in Richland, WA., recently retired as Director of Nuclear Energy. He was Professor and Head, Nuclear Engineering, Texas A&M University from 1998 to 2002, where he helped to build that program into the largest Department of Nuclear Engineering in the nation, also served as President of the American Nuclear Society, 94-95. With Professor Albert Reynolds, he co-authored the FAST BREEDER REACTORS textbook. In addition to organizing numerous international technical conferences, Dr. Waltar has published over 75 open literature scientific articles.
- c. **Bruce Marlow**, Retired, Vice President, AREVA, Nuclear, currently, <http://waterfx.co/>
- d. **Stewart Brand**, The Whole Earth Catalogue, Stewart is in one of the movie clips in Pandora’s Promise
- e. **Robert Stone**, Director of the movie Pandora’s Promise.

By providing a more detailed draft of this outline we expect to be able to coordinate the topics that this “potential symposium panel” will address and document the entire symposium for public access.

We **MUST YUCCA EDUCATE** our Nevada public and government needs to understand as well. It doesn’t matter which “side of the fence” you may be on, In the case of America’s “**Requirement for High Level Nuclear Storage**” our government has failed to implement Congressional Law and the recommended solution by “many” of the stakeholders is a consideration to transfer the Nuclear Waste Policy Act to a “Public – Private Foundation separating the business to business and government specification to government.

Gary J. Duarte, Director / US Nuclear Energy Foundation