



Department of Energy

Washington, DC 20585

September 14, 2012

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DNF SAFETY BOARD

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004

Dear Mr. Chairman:

This letter is to inform you that the Department of Energy (DOE) has completed Action 1-1 of the Department's Implementation Plan (IP) for Defense Nuclear Facilities Safety Board (Board) Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant (WTP)*.

The remaining deliverable for Action 1-1 is a letter to the Board forwarding the transcript of the Secretary of Energy's speech at a WTP town hall meeting on June 21, 2012. The transcript of the Secretary's remarks is enclosed. The Secretary's expectations regarding Safety Culture at the WTP were formally communicated to the Under Secretary for Nuclear Security in a memorandum dated December 5, 2011, and previously transmitted to the Board as Action 2-1 of the IP in a letter dated January 24, 2012.

If you have any questions, please feel free to contact me or Mr. James Hutton, Acting Associate Deputy Assistant Secretary, for Safety, Security, and Quality Programs, at (202) 586-5151.

Sincerely,

A handwritten signature in cursive script that reads "David Huizenga".

David Huizenga
Senior Advisor
for Environmental Management

Enclosure





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Transcript of Secretary of Energy Chu's Visit to WTP Construction Site

The following is a transcript of the video of Secretary of Energy Chu's visit to the construction site on June 21, 2012.

Secretary of Energy Chu: Well, thank you, first, I was very pleased to see you here, I was very impressed until as we were pulling up Frank Russo told me that for those who wanted overtime, they could stay and hear me, so I was less impressed with what time and a half could get you. I come from a culture that if you want people to show up you give them free donuts.

Anyway, I am very pleased that so many of you are here to hear what I have to say and the message is very simple, and most of this is intended to actually get your feedback and answer your questions. So, first of all, there should be no doubt in any of your minds how important the Department of Energy considers this project. This project is the most complicated nuclear project, not only in the United States, but as far as we know, the world has ever undertaken, and not only is it a complicated project, it is a very complex project, it is a very, very complicated thing, where you're fulfilling a very important obligation that we left behind, starting with the Manhattan Project and tied to a time when we perhaps did not know better, to clean up the Manhattan Project and the Cold War legacy. This is something that is very, very important to the Department of Energy and very important to the country, and of course, it's very important to all of you and everybody in the state of Washington. So, let there be no doubt that this is a very big deal for us at the Department of Energy and for me personally.

So, I want to start with that. I also want to say, I was, before I went to Washington, first, I wasn't always a bureaucrat, I'm looking forward to the day when I won't be a bureaucrat, but my previous bureaucrat job, my only other bureaucrat job was when I was a lab director and I was the director of about 5,000 people. And in situations like that and I think Frank Russo feels the same, that those 5,000 people, from all the spectrum within that lab, actually looked to not only the director, but the leadership, they looked to them so that they can say, "do the leaders really care about us, do they really care about where our careers are going to do, do they really care about our safety?" And again, this is something that when I was lab director, it was a very big deal for us. I had a research group at the time, a personal research group. Every week we had a group meeting of about 20 people, and at the beginning of every group meeting, the first fifteen minutes, we didn't talk about science, we actually talked about safety, in my personal group meeting. And that's something we tried very hard to instill in our Lawrence Berkeley Lab, and I hope, in all your meetings, that's also the very first thing one does, in the morning. It's common practice, ok this is what we're about to do in each little subgroup, this is about what we're to do, let's think about it, and do it in the right way. The entire integrated safety management is based upon a very simple idea: before you do something, think about it, while you're doing it, think about it, if anything unusual comes up, think about it. Stop, and think about it, and then afterwards, stop and think about it. And always communicating with your fellow workers and your supervisors. Another thing I understand also is instilled here, we at Lawrence Berkley lab, had a program we called "Workers Watching Workers" and let me give you an example of this. When I was lab director, sometimes, I forget what it was, a picture was tilted, or the clock, oh I know what it was, it was one of those clocks on the wall, and it's battery operated and it stopped working. So, I thought, oh heck, so I took a chair and put it under, next to the wall, and I was going to climb on the chair and pick up the clock and change the batteries. And my assistant just took me by the arm as I was about to step up like that and she said "no way." So, that was great, I mean as lab



director, and the assistant just outside my office, was like “no way, what are you doing, you’re going to stand in this chair?” It might have been a swivel chair but I’m not sure. But that’s part of, I think, of what we all need to do here.

The other thing in terms of getting a safety culture is that, you know, we’ve said this before when the deputy was here and spoke about this, I wanted to reinforce this, that you have to get out there and say if there’s something you’re worried about, if there’s something you’re concerned about, we at LBL and I think it’s true here, you get the opportunity to say, wait, stop, let’s talk about this, something’s not quite right. Not just plunge ahead, just let’s stop, and everybody should have the ability to do that, or, and also, that you should have the ability to stop and say, “well, I’m not really easy about that, I’m feeling kind of uneasy about this, let’s stop.”

Now, one of the issues and this has already come up, in one of the focus group things that HSS came by and it’s a frustration that’s gone to me that sometimes you make your input known, you tell your concerns to your fellow workers and especially your management and it seems to disappear down this big bunny hole never to appear again. And you might get cynical and say, “why would I ever want to voice my concerns when it seems to disappear?” Now, I don’t know if this is any comfort to you, but as Secretary of Energy, I will ask some questions and say, “well maybe we should do this...”, and you know what? It disappears and I never get any feedback, and even simple things, three weeks later, no one ever tells me. Now, if I remember, and I remember only about half, which is why they don’t tell me, is that, sometimes it’s done and they just don’t tell me, and a lot of times they don’t want to do it because they kind of disagree with it, and so they say, “well, he’ll forget.”

So, I know it doesn’t give you any comfort to know that it happens to the Secretary of Energy, and probably to the President of the United States. I don’t know about this one but I’ll tell you a story of one several administrations ago, and it had to do, I hope he doesn’t mind, and it’s secondhand, so I can’t swear that it’s true. This was when Jimmy Carter was president, and Jimmy Carter, a very, very intelligent person, a nuclear scientist by training, and he would like to go into an office and read his stuff and make little annotations and just think about it himself instead of having large committees to tell him what do you advise, and so he would make these little annotations, this should be done, and that should be done, so on and so on, and then we’d give them to his Chief of Staff or someone like that, and you’d think the President of the United States, this is what he wants, it’s in his own handwriting, it’s on a piece of paper, here it goes, it’s gonna be done. And what someone told me in the middle of his administration, someone got this piece of paper, a copy of it, a photostatic copy with “da, da, da, da, JC,” for Jimmy Carter, and looked at it and said, “Hm, I don’t agree with this”, so he just took it and ripped it up and threw it away. I said, “what?!” “Well, we’re going to test how good his tracking system is,” so it was known as the JC Tracking System. Anyway, that doesn’t help, I know.

So, what we’re going to try to do is, and this is very much on our minds, yes, we want you to speak up and we are going to re-double our efforts to make sure that when we hear your concerns, we act on it, and we communicate back to you what’s happening, because that’s part of the responsibility, and we actually act on it. And so that is very much on our minds as well. Now, I, you’ll notice I’m actually not looking down at my notes. But I just wanted to say a few other things, we are taking this very seriously, as you know, we are going to be asking, I know, don’t say yet again, another survey, but we do want to know what you’re doing, and I will promise you, maybe, and you notice I’m not wearing my hard hat, so, not because it’s after hours but because you never know whether there some of you guys out there might be angry at me, I don’t know, but in any case, I think we are taking this very seriously, in a serious way, there is going to be in the coming weeks, the managers, I’m going to read this, The Office of River Protection of Richland Operations, will be completing a safety conscious work environment training. I



was told that it was going to be done by now but the person who was coming, the first time he tried to come here, he got kidney stones, the second time he tried to come here, when his plane was on the tarmac, it was hit by lightning. And I think he still wants to come here, but I'm not sure (laughter). But in any case, I think I've talked way too long, and I would be happy to answer any questions you might have.

Q: Pleased to meet you. I agree with the safety culture here because after working here six months, I realized that my own business for 18 years, we never had one injury, so that's why I really bought into it. My question has to do with, if you would go back to Washington, and I think everybody would agree with this question, I hope so, and ask the President to give Bechtel the money they request so we can all work and get this site done and keep our state safe and if he'll give us the money, I'm a right-wing Republican and I will vote Democrat for the rest of my life! (laughter and applause)

Chu: I will convey that message! Thank you.

This by the way, while you're looking for others, this is not a Democrat/Republican thing, it's an obligation no matter who is President and for the next decades years, we've got to clean this up, we've got to do it in the most expeditious way we can, and this is what this is about. But the next time I see him I'll say that you can get one more vote, at least!

Q: Just wanted to really know what's going on with Yucca Mountain. (Applause)

Chu: OK, I'll tell you right now, as I understand it, it's before the court as to whether the NRC has the jurisdiction to say, to pull the license application, and so whatever happens, that's going to really depend on what the court says. Now if the court says no, you don't have the jurisdiction to let it go forward, then we're going to have to move forward and listen to the court say, push forward. So, let's just say, so that's where it is now in terms of what's going on. It's a very complicated issue, I would say that, on strictly scientific ground, what happened was when that was chosen, we now know, it's safe to say, it wasn't an ideal site. We discovered later that there was far more water than was anticipated, then there was a plan to fix that by putting a titanium umbrella underneath that would cost another about seven or ten billion dollars. And the original license, now if so ordered, so we'll have to follow and support the obligation to the original license, and the original license was 10,000 years and that meant that over a 10,000 year period, the both human made and the geological confinement would protect people in the surrounding areas so that there would be a certain upper limit of radioactive material that could be kept. Since that application, now the application is still for 10,000 years, but there was a Supreme Court ruling that says if science says that it should be for a longer period of time, up to a million years, then you have to justify for that as well.

So, now, let's, one scenario is we have to apply for the application and see what is determined, whether it would survive that application, and after that you know what's going to happen, if it satisfies that application, then it goes into a million years, so while, and I'm not going to..., while that's happening, what we'd like to do and there's a Blue Ribbon Commission appointed by the President, that spent two years, saying no matter what happens with Yucca Mountain, we're going to have to do other things no matter what, so let's get that stuff going. Ok, and so, which is very sensible, I think, again it's very apolitical really doesn't matter, but highly likely, we would, not highly likely, almost for sure we would need another site, and with the statutory limits already placed, we would fill up Yucca Mountain in a day. And then they also recommended a number of other things so, I think it was a very, very good commission, led very well, and so we're looking at that. Meanwhile, right now it's in the hands of the court, specifically what happens with Yucca Mountain. But regardless of what happens with Yucca



Mountain, we're going to have to look forward to these other things no matter what, so that's what's happening currently. Does that answer your question?

Q: Good afternoon, there's a lot of talking in the newspapers, editorial opinions and so forth, about legal do's and don'ts about moving forward with this project. A lot of it I don't claim to understand, a lot of it I think for most of us don't understand, but we continue to work on this project because we live here. I have lived in this area since 1977, my grandfather was part of the Hanford project that built the nuclear bomb so it's of personal interest to me. Maybe you could help us understand a little bit the Tri-Party Agreement, some of the legal aspects between DOE and the state of Washington, how it really is affecting this project, some of those issues so that we really have an understanding other than what's being written in the papers because it seems to be awful slanted in one direction and we don't really understand what's pushing this project and how it really is affecting us as a group. Is it going to close the gates, is it not going to close the gates, what the deadlines are?. Just help us understand that if you could.

Chu: OK sure, well, look, let me start by saying, the U.S. Government and the Department of Energy have to clean up this Cold War legacy, there's no question about that. So, what has happened is we had signed, I think in 2010, a Tri-Party agreement, based on knowledge at the time that we were committed, we were going to do this, and had milestones and what to do. Your original, your first question was, are there rumors, are we going to shut the gates, this and that? No. But, as we go forward, as issues come up, for example, some of the issues that have come up, well, there is this issue, for example, about the pretreatment plant, pulse jet mixers, these things, and particle clots. Initially, we thought that was under control, but here's where, going back to the safety culture, what we at the Department of Energy, above all else, and this is going to have to take precedence over any schedule we might have had, if there's a concern that comes up, just as if there's a concern that comes up in the construction or the demolition of this whole site, we've got to really stand and take notice of it. It's the safety of the workers, it's the safety of the people in this area, and it's the overall environmental responsibility to the Columbia River and everything, all right. So, as new things come up, and, suppose, a couple of years ago, we thought, ok we understand this, so you make a plan, but as new things come up, you would agree with me that you shouldn't say, wait a minute, we've got a plan, we've got a schedule, we've got all these things going on, we've got a legal agreement with the state of Washington, we're going to push forward.

Remember what I said about ISM, think before you do it, as you're doing it, if something comes up, stop, think, and so, there were some concerns raised, and, recently, well there were concerns raised before I think the experts felt that, ok, we understand, it's under control, but as we continued to look at that, we're saying, well maybe they have a point. And so right now we're in the middle of trying to find out, are these concerns? Because we don't want to even to have a very small probability, and by small I mean miniscule, because once this thing is built, as you know the design is, for the next 40 or so years, no one goes in it, it's one gigantic hot cell. And it's got to work and it's got to work in a way that it doesn't break down, that it doesn't leak, that it doesn't make even a worse environmental problem, and it doesn't expose anybody working here on the site when it's in operation or anybody in the community or anybody in the local area, so this above all weighs very, very heavily upon all of us and if there's, I don't know, if there's one chance in a million, one chance in ten thousand, but we would not tolerate a one chance in one-tenth of one percent or a hundredth of one percent that something really bad would happen. All right? So, if there's something that comes up that says there's a chance, albeit a slim chance that something bad could happen, we've really got to sit up and take notice, so we're working through this.

You may know there's a building, a pulse jet mixing test facility to exactly address these concerns so we can know not just by sitting and doing paper studies but by building a pilot, test it and see whether there's any risk. And so we're doing that. And so we again, the primary concern is we want to make something



that works, we want to make something that's safe and we want to make something that continues to protect the people in this area and the entire environment. So, that's where we're at, now we're not, it's safe to say, perhaps that we were more sure several years ago than we are today, but I don't want to just plunge ahead and say, hey, we've got a plant, let's do it, again it goes directly back to the entire integrated safety management culture that we have at the Department and certainly we can't do that at the highest level, we just can't say, let's plunge ahead. So that's where we are; we're not going to close the doors, we're not going to, put this thing in, because we've got to do this thing anyway.

Q:...the workers here by taking questions, up in front of and taking questions, and take them off the cuff...

Chu: Without a hard hat!

Q (cont'd): . . . I personally believe that you were the best cabinet appointment that President Obama made, the highest qualified in my memory and maybe the best suited to command this position and validated further by your presence here today and your interest in us. Remembering back to 1993, your predecessor then was a visionary, Secretary Hazel O'Leary, she started that ISMS and the safety culture we live in today. It was set in motion by her administration, resulted in the only safe work place that we benefit from now, a vast improvement from the previous decades of injury and death. I've been here for 35 years and I've seen some of that. I don't believe you're just another bureaucrat here to boast your accomplishments and to repeat platitudes, but you have the ability to be a visionary and charted a course for the future of nuclear energy and in cleanup technology.

I also believe that Hanford has the best assembly of scientists, engineers and highly skilled craft workers in the nuclear field. We have risen to every challenge that the Department of Defense and the Department of Energy has put to us and have excelled to their completion. Starting with the B reactor to win the war with Japan, the N reactor to win the Cold War, FFTF to demonstrate advanced reactor test and design, we have the history of being the best of the best here at the Hanford site. We'd like to continue that.

My question to you is, when we remember back 20 years from now, like I'm remembering back to Hazel O'Leary and what started this safety culture and made it such a great place for us to work, will we recall you as a leader with vision that planted the tree, that bore good fruit and the fruit of that tree remain? We need a mission beyond cleanup by which our heirs and the nation may benefit from your leadership. It needs to be planned now so that it will be ready when this defense cleanup dwindles away, before our Hanford team scatters. We don't want to be dancing with wolves, the forgotten outpost on the nuclear frontier waiting for news from the other Washington that never comes. We've been tantalized recently with some talk of further nuclear activity, our governor proposed some things recently about the new modular reactors. I've been hearing this since, new production reactors for tritium, 30 years ago. I've followed closely a series of so-called "visions" that have been brought forth by the Department of Energy and Defense that never really came to fruit.

Can you tell me today, or you can get back to me in the near future with news of spent nuclear fuel reprocessing, it's a good idea. You're a scientist and understand that I believe. Why should we bury the stuff in the ground when we could reprocess it, make such a small amount and then reuse it again. We're perfectly positioned to do that here. Advanced nuclear design reactor, helium cooled jet reactor. Let's build one here, let's show the world what we can do. Small modular reactors like been proposed by our governor to power this plant and further research in PNNL laboratory. We eagerly await news from the other Washington.



Chu: Well, thank you. First, let me just say that in terms of the nuclear future, I think, and even after Fukushima you may have known, is no we should not be turning our back on nuclear power, it is a carbon-free source of energy. I, years ago, wrote an editorial in the Wall Street Journal, saying let's think seriously about small modular nuclear reactors. I think your point about the way we do it now is a very good one. Most people don't realize that if you look at the energy content in the uranium we use to power nuclear reactors, we use less than one percent of the full energy content of the uranium before it becomes spent fuel to make electricity. And by that I mean, that if you take the neutrons in these nuclear reactions you turn that into plutonium and then that plutonium is then fissionable, and then there are other materials that are fissionable, and if you want the ultimate amount of waste, you don't want to be satisfied with one percent, ideally you'd like 20, 30, 50 percent of the energy. 20, 30, 50 times more electricity per amount of ultimate waste. And that's one of the problems with a single repository like Yucca Mountain. If you have one through cycle and with just our current nuclear reactors, not with a new generation, it would have filled up within a decade, even before the lifetime of the existing fleet is over.

So, we do very much want to look at how we can figure out how to do this, and this will require several things. It will require technologies that we don't really have in our hand as in we're ready to go and build because this has got to be done in a way that makes economic sense as well. But technology where you have a small fraction of reactors that have even higher energy, faster neutrons that can break down the very long lived waste. There are long lived waste products, Neptunium is the longest of them, which turns the nuclear spent fuel problem into the million year problem. And we're now learning over the last five years that you can design reactors and optimize them to break down the long lived radioactive components, break down and split them, you use the heat to generate electricity and you turn the much shorter lived stuff. So you turn a million year problem in to a couple hundred year problem. Now, just between you and me, nothing humans have made that we know of have lasted a million years. Right? So far, probably not even 2000 years, right? People will say what about the Roman aqueducts? Well, most of them don't really work anymore. So, but we have built things that last 500 years, or we find a natural geological site that doesn't go anywhere that we know is stable for 5 million years. Well, back to your question, so there's an opportunity to develop technology that can get much more electricity, greater amount of electricity with the same amount of fuel, greatly reduce the amount of spent fuel ultimately waste. Ok, if we want to use nuclear, we're going to use nuclear in this century, but we certainly in the next 30, 50 years, we're going to, but if you're going to use it in the century and the following century, we better be on a path that can get much more electricity with the same amount of ultimate waste, otherwise we've got a problem. We ultimately can't, there won't be enough in the repositories.

So, one of the things, so this is again a fight with others, not everybody feels the way I do about nuclear, a lot of people really hate it. And it's also regional, some people like it more than others or are willing to tolerate more than others, but certainly as far as I will argue, as a scientist and as much as I can that this is one of the energy options that we just can't let lie idle and we need to do the research and we need to work on it so we are doing as best we can, not everybody in Congress and the administration feels this way, so it is a constant battle of trying to get a bigger budget. But certainly, right now, maybe if the scientists that have thought about this and the engineers that have thought about this will say this is the right way to go, it's not only small modular reactors, the small modular reactors because they inherently are much safer, the new generation reactors are much safer than the oldest first generation reactors, but with a small modular reactor, the principal design so that use both control of your electrical power system, full control of your access to the water, just total control and that it will glide to a stop and has enough thermal energy that it will not melt not and it will not leak. All right. So with a smaller modular reactor you can actually design something that can have that capability and that's good. The other thing is a lot of places in the United States, they don't have the electrical infrastructure to take a standard reactor, one gigawatt to one-and-a-half gigawatts, the local transmission lines. Most of the places in the



United States are a couple hundred, like half megawatt, a couple hundred megawatt, half a gigawatt. Couple hundred megawatt. So, there's a lot going for it, we're trying very hard to help push this forward and again it's something where it's not quite ready for prime time in the sense that no one is willing to plunk down \$10 million to start building and that's kind of the going price. But I still would really like to see new research on an accelerated level, so, as you say, this would be a potentially good site. I think for the next 10 or 20 years, what's the lifetime of this facility (he asks what the lifetime of this facility is - 40 years) 40 years, we can, I think you're right to ask us to start thinking about what happens after 30 or 40 years, I agree with that. But we still have a little time.

Now, as far as I'm concerned, it goes back to the message today, my concerns about what happens here is, hopefully, I'll live for maybe 20 more years, and I don't want to see in my lifetime, anything bad happening over here. And I think my predecessors and my successors will also make decisions based on that. We don't want to see anything bad here, we don't want to see any contamination of the Columbia River, we don't want to see any of this stuff. So again, this is a commitment that we made to the state and the people of Washington.

Well, does that mean the hour is nearly up? Just kidding, I know you're here because you wanted to hear me!

But, look, I'll be going to several more meetings today and tomorrow and I wanted to thank you for staying and listening to me and asking questions, I appreciate that and I am very sincere when I say that we owe it to you that you raise concerns, we act on it and we let you know what we're doing because there's nothing, and I know this from personal experience, there's nothing that there is more cynicism than if you raised a legitimate concern and we look at it, that at least we owe it to you to tell you what's happening and let you know what we're doing. At a minimum we've got to do that. And we're going to try to act on it because I will say this, I said it at the beginning and I'll say it at the end. The safety of this enterprise, the safety of you, our workers, you're our real asset, in the Department of Energy, is what really matters, so thank you again for being here.