

WM DOCKET CONTROL WASTE BOARD MEETING  
MINUTES OF THE NUCLEAR WASTE BOARD MEETING  
CENTER May 17, 1985

'85 JUN 17 1:30 p.m.  
ERSE 81049  
Harrings Room  
Rowesix, Building #1  
4224 Sixth Avenue S.E.  
Lacey, Washington 98503

WM Record File  
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WM Project 10  
Docket No. \_\_\_\_\_  
PDR   
LPDR

Board Members Present:

- Warren A. Bishop, Chair
- Dr. John Beare, DSHS Designee
- Senator Max Benitz
- Dr. Surinder Bhagat, Alternate Designee, Water Research Center
- Curtis Eschels
- Senator Sam Guess
- Ray Lasmanis, DNR Designee
- Representative Dick Nelson
- Representative Nancy Rust
- Richard H. Watson

Distribution: D. Kunihiro Reg. II  
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Others Present:

Bob Shirley, representing Senator Goltz

The meeting was called to order by Warren A. Bishop, Chair.

Mr. Bishop introduced Dr. Surinder Bhagat of Washington State University, Alternate Designee for Dr. William Funk of the Water Research Center, who was attending his first Nuclear Waste Board meeting.

Mr. Bishop noted the change in staffing with the resignation of David W. Stevens as Program Director. Mr. Bishop praised Mr. Stevens for his years of dedication to the program, and acknowledged his expertise in the field. He noted Mr. Stevens had been active on the Task Force established by the Governor prior to the passage of the legislation creating the Board. He then served as the Program Director of the Office and Executive Secretary of the Board since its inception in 1983. Mr. Stevens was wished well in his new endeavors. Donald Provost was named to be Acting Program Director of the Office on an interim basis. Mr. Provost has been active in the program as a technical consultant with the Washington State Department of Ecology since the beginning of the program.

The minutes of the April 19, 1985 meeting were approved as published.

## Status of Low-Level Compact Process

Lynda Brothers, Assistant Director, Office of Hazardous Substances and Air Quality, WDOE, reported there had been little concrete progress made in the Compact process. She stated the last quarterly meeting of the Northwest Interstate Compact was not particularly productive. Discussed at that meeting were the issues Dr. Brothers discussed with the Board on April 19. She said the mark-up of the Udall amendments to the Low-Level Waste Policy Act is scheduled for May 21, which is the most significant event on the horizon. Still at issue, she said, was the sited states' desire for some concrete form of volume reduction with question of its effective achievement.

Representative Nelson inquired if the amendments intended to extend the time frame for ratification of the Compacts in exchange for reduction of volume of wastes coming to proposed Compact states. Dr. Brothers replied presently Compacts that are approved by the Congress have the right to exclude out-of-region wastes January 1, 1986, although no Compacts have yet been approved. The amendments would change that date to January 1, 1993. The state testified at the initial hearing in March indicating it was not happy with that length of an extension, although the state would support amendments as there were other elements in the package that were felt important. These included a volume reduction of approximately 40% nationwide, some financial incentives on surcharges to be applied over time at incremental rates to provide financial incentives to other regions to site facilities. Also suggested in the testimony was the amendments including some specific milestones for those regions that do not have disposal capacity.

Representative Nelson asked if volume reduction equated to activity reduction. Dr. Brothers said not necessarily. She said various proposals discussed would distribute waste by classes. Volume reduction at those levels, regardless of the class, would reduce the activity levels, she said, but if one class were reduced some incremental amount it might not reduce activity levels. Representative Nelson observed the intent was to recycle or use less low-level radioactive material, but if activity reduction is not emphasized how will it be known there is less radiation produced. Dr. Brothers said the only way to reduce volumes going to Hanford would be to have alternative sites, and if there were reductions in the radioactive waste being generated.

Also contributing to reduction would be development of new disposal techniques, as well as source reduction, she said. This would also have the benefit of reduced transportation costs and distances.

Representative Nelson wondered if the Udall amendment would result in less radioactivity being shipped to Hanford, or would the generators simply reduce the volume and comply with the Act. Dr. Brothers said she did not know the answer at this time, but ultimately the answer could be yes. Representative Nelson asked if the intent is to distribute the radiation burden around the

country, could a law be written specifying the activity levels, rather than reducing the volumes? Dr. Brothers said she was uncertain, that has been the national focus of debate and the state's testimony had not focused on the activity level, but rather on the volume level with the supposition that the activity level would follow.

#### Public Involvement Report

Anita Monoian, Chair of the Public Involvement Working Group, said most of the activity is continuing activity. Aside from the upcoming Newsletter, which she said she would have Marta discuss, new Fact Sheets are being developed on the following subjects:

1. Monitored Retrievable Storage
2. Defense Wastes
3. Socio-Economics
5. Environmental
6. Basic Radiation Facts
7. Glossary of Radioactive Waste Terms

Marta Wilder discussed the activity on the upcoming Newsletter and stated a major timeline will be inserted in this issue. This issue will include articles on defense wastes, commingling, MRS and on questionnaire response received as a result of the February-March questionnaire. If there is room, she said, an article will be written on how waste is stored in a repository. An added feature will be a box of upcoming events and available handouts.

Ms. Monoian reported that within the last month there have been 16 presentations to approximately 700 people. These have been conducted by staff persons, but some Advisory Council members were involved also.

Ms. Monoian said although the Advisory Council terms are expiring, the current members are continuing to serve until new appointments are made. This puts the Public Involvement Group into a position of being reluctant to make too many long-range plans. However, short-range plans are being continued, she said. The opportunity to distribute material at the Washington Association of Cities and the Washington Association of Counties is being investigated. Both meetings will be held in Spokane within the next few weeks.

A new item being developed, Ms. Monoian said, was a generic flyer describing available information, including Fact Sheets, slide show, Newsletters, etc. This could be used as a handout for any gathering and for use by members of the Council and Board.

Another item of interest was a letter received from USDOE Headquarters discussing the consideration of funding for a joint USDOE/state nuclear waste education program. A formal request would come from the Richland Office. Mr. Provost said they are contemplating putting out a Request for Proposal (RFP) to universities, primarily to prepare materials to be used in public information programs. He

said it appears concern that materials prepared by the USDOE could give the perception of being biased. This will receive a response in a timely manner.

Ms. Monoian continued that the slide show is being updated, and will be updated as appropriate. Mr. Bishop added the set of slides available will be increased to eight and groups would be encouraged to utilize them.

Dr. Beare asked to what degree the Reference Center is being utilized, and since the Librarian was not present Marta Wilder offered to get the figures for the Board. She did not say the usage had increased and she estimated there had been about 160 requests in the past couple of months, coming from other agencies, interest groups, and some students and other individuals. She added an effort would be made to incorporate in the Newsletter a regular listing of documents available in the Reference Center which might be of interest to those wanting more detailed and technical information.

#### Litigation

Charles B. Roe, Assistant Attorney General, reported in the case of the Nuclear Waste Board v. U.S. Department of Energy relating to the siting guidelines. The 9th Circuit Court conducted a Pre-Briefing Conference on April 23. This Conference related not only to this case, but also the case initiated by the Environmental Policy Institute. Shortly before the Conference was convened, he said, the U.S. Department of Justice advised him that they would move to dismiss the state's case, along with the EPI case. This set the tone for the remainder of the Conference. The U.S. Department of Energy is now required to file their motion to dismiss and the supporting Memorandum by the 24th of May. The state will have approximately a month to respond and in mid-July the United States has a reply brief opportunity. Thereafter, he said, oral argument, if it is to be had, will be conducted in San Francisco the last two weeks of July. The forecast from there was that the Court would probably render a decision on the jurisdictional issue during that month or the month of September.

Mr. Roe said the Court has bifurcated the case and taken on the jurisdictional issue first. If the Court determines it has jurisdiction, it will go to the merits of the case. He said he had begun to try to evaluate the record the United States compiled. This record, he remarked, is approximately 78 feet long, if you measure on an apple box, by apple box basis. He said he had had some differences with the Justice Department as to what should be in the record, and rather than carry on that dispute he filed a supplemental amendatory petition for review with the 9th Circuit, together with a motion to consolidate that case with the Nuclear Waste Board case initiated in March. They deal primarily, he said, with whether the Environmental Protection Standards, the proposed Mission Plan, and the Draft EA as related to Hanford should be part of the record.

Concerning intervenors in Washington State's litigation, Mr. Roe said the state of Nebraska has been granted intervenor status, as well as seven private utilities. Mr. Roe said he has also been advised by the Attorney General in Minnesota earlier this week at the National Association of Attorneys General meeting on High-Level Nuclear Waste Committee, that Minnesota will be filing shortly a proceeding similar to one filed by Washington State, and this would be filed in the Court of Appeals for the 8th Circuit in St. Louis. Several other states are contemplating filing, he said, and he anticipated at least two others will file similar proceedings in different Circuit Courts of Appeal.

Mr. Roe said other issues being carefully evaluated include: Nuclear Waste Policy Act Funding of State Litigation Actions; Defense Waste Relationship to the NWPA; and Water Rights. Mr. Roe said the state of Nevada case did not directly raise the issue of funding for litigation, but the United States has asked the Court to decide it. He said Washington State is working closely with Nevada on this issue, as well as several other states with the possibility of initiating litigation in this area. (See attached memorandum of May 16, 1985.)

Mr. Bishop reminded the Board that when the denial came from USDOE regarding funding requested for litigation, the Board did submit a request through Orin Smith for an amount to be appropriated from the State General Fund. That request is currently pending. In response to a question as to where the funding would come from should the monies not be supplied in the budget, Mr. Bishop said funding would have to come out of whatever monies are available in the budget of the Attorney General. This would have to be arranged within the priorities of all the other cases the state has to handle. Mr. Eschels referred to the letter of concurrence in this request for funding written by Attorney General Ken Eikenberry.

#### Monitoring Contract/DSHS

Dr. Beare referred to the update of the Department of Social & Health Services activities with respect to developing a monitoring program for the BWIP site. He said a grant was received from USDOE through the Department of Ecology in the amount of \$86,462, and work has begun. Dr. Beare introduced Bob Mooney who is in charge of the Environmental Monitoring Program in the Radiation Control Section. He gave an overview of the current activities.

Mr. Mooney said the contract calls for specific environmental sampling laboratory analysis of levels of radioactivity in the environment at the BWIP site. It also requires monitoring of the meaning of the results, what the USDOE monitoring program shows, the quality of that, the proper location of stations, and the environmental impacts that are seen from these activities. He said they are currently looking specifically at the field work to get monitoring started for analysis by the state Radiation Laboratory to provide the agency to report to the Board independent measurements different from USDOE.

Mr. Mooney said earlier this month aerial photos of the site were taken and meetings were held with the U.S. Department of Energy and Battelle Northwest, who does their monitoring. A series of monitoring stations closest to the repository site were selected to take the first samples. The reason for going to existing stations, he said, was to gain immediate data to compare with USDOE. Their own environmental monitoring program is not yet fully designed for the BWIP site, and discussions are being held on this subject in order to establish stations that will compliment each other. This, he said, will be DSHS' first effort.

Samples of soil and groundwater will be collected from that general area as a next step. The Radiation Laboratory is moving to new facilities next month, Mr. Mooney said, and it was not advisable to bring them samples at this time, as they would be unable to analyze for two or three months. In July the proposed scope of work for next year will be presented to the Board. This would lay out the overall program the state would use to supplement that work done by USDOE.

Mr. Mooney passed around samples of Thermoluminescent Dosimeters (TLDs), which the laboratory has been using for years. He said they are state-of-the-art technology, but easy to put out, and low-labor intensive. They can sit in the environment for a week--a month, or three months and will measure the radioactivity penetrating gamma. It usually takes about three months to get a good signal. At the laboratory they are run through an automatic counter which heats the chip inside to a certain time/temperature regime, and as the chip reaches a certain temperature it will give off a glow. A sophisticated light meter will look and measure the light--the more light, the more radiation it was exposed to in the field. He demonstrated for the Board the glow of a series of exposed chips, one of which had been exposed to 23,000 rads of radiation, about a million times above what would be measured in the environment. (A copy of the Status Report Outline is attached.)

Senator Guess inquired if the DSHS instrumentation would be comparable in all respects to the instrumentation used by Battelle. Mr. Mooney replied the only difference would be that Battelle uses individual chips in a tube that they handle by hand. They are both calibrated against the same sources. Mr. Mooney said although USDOE has some sixty to eighty stations throughout the site; at the two DSHS has selected, Yakima Gate and the East Gate, the tests will be conducted the same. Currently, he said USDOE is changing TLDs monthly, DSHS changes quarterly, and USDOE had agreed to change quarterly so the readings from the two sets of numbers should be the same within the allowable errors of a laboratory measurement.

Ray Lasmanis asked how close to the ground were the chips placed. Mr. Mooney said there is a requirement that they be one meter off the ground, which is not critical, but is the standard height.

Dr. Beare asked Mr. Mooney to comment on how the information would be processed once it is collected. Mr. Mooney said data, as received, will be presented on a quarterly basis, plus a tabulation in annual reports distributed by both DSHS and USDOE. For this program a report will be issued with combined data which will show comparison of the numbers. Periodic meetings will be held also to discuss the quality of the assurance of that data and any differences that are observed.

Don Provost asked if the grant application would expand the program, and Mr. Mooney said they anticipated doing more than TLD, soil and water samples. For instance, he said this program only measures penetrating gamma, but does not give data on plutonium in soil.

Senator Guess asked if DSHS had in the past found any irregularities in the information received from Battelle and other subcontractors at Hanford. Mr. Mooney said they had received questions and had usually been able to resolve why there were differences.

Dr. Beare added that when this monitoring process was initiated, it was done on the basis of its being a beginning of the development of a baseline monitoring program. As the proposal is developed for the next funding cycle, additional activities will undoubtedly be included as the need is seen.

#### EA Review Comments

Mr. Bishop pointed out there were three articles in the packets for Board review: (1) draft cover letter to Ben Rusche; (2) Statement Overview; and (3) review for the Reference Repository Location prepared by EnviroSphere with Shannon & Wilson and Cooper Consultants. He said the intent was to approve these documents and to send these final comments to the U.S. Department of Energy on May 20.

Mr. Provost asked Louise Dressen of EnviroSphere to walk the Board through the review they prepared and explain the changes. Ms. Dressen said they had continued to review the draft EA following submission of the comments on March 20. Taken into consideration were the comments made by Board members following presentation of the first report. To assist in the discussion at this meeting, Ms. Dressen said they did extract the substantive changes from the complete document submitted earlier. A large number of editorial and "wordsmithing" changes were made, and some comments contained additions and modifications. She said the Abstract in the packets reflects some additional comments and changes requested by the staff as the result of their review of the full work.

Ms. Dressen said the key comments in this additional material relate primarily to the transportation, tectonics, and geohydrology issues. A few selected comments and modifications deal with climate and natural resources. The first two comments deal with the state's concern about the need for economic risk assessment, one

addressing the pre-closure economic risk concerns, and the other dealing with post closure economic risk. The third comment, she said, began a series dealing with transportation. Another comment addresses the need to take into consideration the role of monitored retrievable storage in the transportation analysis, citing the recent announcement of preferred sites in Tennessee and the impact of that on transportation routes, travel frequencies, and radiation exposures from transportation.

Another comment lists five specific examples of the kind of information looked for in response to more specifics from USDOE. Other comments addressed the need to look closely at what kind of assumptions were made as far as population densities are concerned, particularly along rail routes; point is made to look not only at transportation routes from the east, but to recognize there will be some wastes from the west and south; the point is reemphasized about the concern with the apparent weight that has been assigned to the cost and risk of transportation; concern addressed about additional traffic that would be generated from the worker force at the Hanford site; barge transport is raised concerning inconsistencies in the draft EA as well as other USDOE publications.

Other comments included emergency response capability and provided specific areas that needed addressing; modification to provide specific examples of some of the construction cost considerations that should be addressed, such as water inflow to shafts; pointed out geophysical abnormalities, which have been identified at the site, could possibly be considered to be faults and have an impact on repository performance and should be clearly addressed. Also included is a whole series of issues dealing with tectonics and seismicity, Ms. Dressen said. Other minor comments were made including micro-earthquake swarms within the repository horizon, and other points that need to be reevaluated in the tectonics guideline.

Another series of comments addressed geohydrology. One comment was added primarily addressing the need for further discussion on the reasons why it is believed there is a great deal of uncertainty in projected groundwater travel times. Comments were also made providing a few modifications to address the point of beneficial uses of groundwater at some time in the future. Also suggested was consideration be given to potential changes in hydrologic conductivity which could be caused by the thermal effects of the water.

Other slight modifications were made and geochemistry and climatic concerns were addressed. Additional information was added to the tectonics area, noting the Rattlesnake-Wallula alignment and recent work by USDOE that should be considered and evaluated. Similarly, comments relating to geodetic strain rates provide some additional information, and further comments were made on the micro-quake swarms and their meaning. Other comments relating to geohydrology were made, with small additions to the natural resources siting guideline addressing the potential presence of dissolved methane in

the basalt at the repository location. A final comment, Ms. Dressen said, addressed post closure criticality relating to groundwater.

Ms. Dressen said these changes and additions could be incorporated into a final document ready for transmittal on May 20.

Senator Guess asked if consideration were given to the announcement by USDOE of the MRS program in which they intended to use at least two dedicated trains a week from the Tennessee site to a western site. Ms. Dressen said there is a specific comment that says it is necessary in the final EA to address that new role, and in particular its implications on transportation. It was his observation that perhaps the comments concerning transportation were more extensive than necessary. Dr. Brewer said it was realized that a lot of the transportation comments raised as issues would disappear if MRS goes, but no one will probably know for some time if MRS would be certain or the direction it would take if it did go. He said he would address this later in the meeting. Representative Nelson observed that at another meeting it was pointed out that the western states would be contributing wastes that might go by truck to a western repository, and only the eastern waste might be transported by train.

Representative Rust inquired if the wastes in the MRS would only be stored temporarily, and then shipped to the west. Don Provost said the USDOE has proposed an integrated MRS system to cover handling, consolidation of the wastes in containers, and temporary storage if there is a delay in a repository. A Letter Report will be sent to Congress in June, he said, to be followed up with a detailed report in January to include engineering details. The estimated cost of an MRS such as this, he said, is about one billion dollars. He added that in the screening of eleven sites to arrive at the three, USDOE did not talk to any of the involved states and never contacted the state of Tennessee, where all three of the final sites were selected. These are the Clinch River Breeder Reactor site near Oak Ridge, the Oak Ridge Reservation, and a TVA Reactor site at Hartzville. He said no check was made with TVA or the state of Tennessee or any of these sites. There will be no final decision, he said, until authorization is received by Congress.

Representative Nelson inquired as to the procedure to submitting any further comments that might be received. Mr. Provost said the U.S. Department of Energy had indicated they would take comments and try to respond to them as long as possible, even after the submission of the documents being discussed. He suggested they be sent to the Office and they will either be incorporated or sent along separately to USDOE.

Mr. Watson moved that the Board approve the submittal of the revised comments on the draft Environmental Assessment, as presented. The motion was seconded and carried. The Office was authorized to transmit the final response to the draft EA.

Don Provost commented some higher levels of uranium in certain wells on the Hanford Reservation have been reported. The Department of Social & Health Services has been meeting periodically with the USDOE in tracking that situation. The High-level Nuclear Waste Management Office and the Department of Ecology are also tracking this, and should any Board member be interested in having an update on this situation, he suggested contacting Bob Mooney of the Department of Social & Health Services, who could arrange a meeting. If enough were interested, he said, it might be possible to have a briefing.

Representative Nelson said he understood there had been a meeting with some members of the Board and the USDOE in the last week or so to clarify the draft EA comments and the meeting also reached in the area of USDOE's plans to respond to the comments. He asked for a summary of the plans to respond. Mr. Provost said that basically the meeting was to ensure USDOE understood our comments as their problem was to identify the contributor of the comments. Their plan was to go through the many thousands of comments received, categorize the issues with a number, and respond to them in that manner. They agreed to future meetings for further clarification before the final EA is issued. Representative Nelson said he understood the USDOE position was that they would respond to the "official state comments" in detail. He asked if that were the case. Mr. Bishop said he did not get that impression in the meeting with Ellison Burton. Dr. Brewer said he recalled that they said they would reply to the state of Washington's official position, and in other cases where there were a number of public comments from individuals or other organizations, they might group those together by category, such as "Transportation", etc. He said his impression was they would do everything possible to address every concern. Dr. Brewer said he thought USDOE did not intend a difference in quality in responses, but he did remind the Board USDOE headquarters had sent over 2,000 individual comments to Richland alone, and there are 16,700 comments on the nine EAs, with more coming in now. Representative Nelson said his concern was that the citizen who commented deserved the same opportunity for response as the members of the Board, and he hoped this could be conveyed to USDOE. Mr. Provost said it was the Board's intent they would all be treated equally, and this point would be transmitted.

#### Presentation by Dr. Robert M. Jefferson

Mr. Bishop introduced Mr. Robert M. Jefferson, a nationally-recognized authority on transporting radioactive materials. He was with Sandia National Laboratories from 1957 to April, 1985 and managed their Transportation Technology Center since 1978.

Mr. Jefferson said that most of the research in the safety of transporting radioactive materials of all kinds has been conducted in the Transportation Technology Center of the Sandia National Laboratories. With reference to the possibility of Hanford becoming a repository site, he said the shipments sent there would be spent fuel and high-level glassified logs. He said these are solid

materials, either encapsulated in large canisters or contained in the fuel pins of the reactor fuel element, it is a minimum of ten years old with a loss of a good deal of its generating capacity and its radioactivity, but it is still hazardous. He went on to say the experience in transporting this kind of material in this country has been extremely good over the past 21 years it has been done, with an average of between 250 and 300 shipments a year in this country since 1964. He said the French average about 1,000 a year, the Germans average several hundred a year, with the British up nearly 1,000 a year, all under the same international regulations. Although there have been accidents, he said, there has not been an accident which has created a release of materials. He said the reason was because of all the hazardous materials moved in the world, high-level nuclear ones are the only ones required to be transported in containers designed to survive accidents. He described some of the testing activity at Sandia in New Mexico, mentioned the British tests, and emphasized the tests were primarily conducted to evaluate engineering tools and not the casks. He said all these tests show large margins of safety designed into the system.

Referring to volumes to be shipped west, Dr. Jefferson said the highest number he had seen was that if each fuel element were shipped in a separate cask there would be about 9,000 shipments a year. However, he said, more probably two or three fuel elements would be shipped in a cask to make a more realistic figure of about 4,000 truck ships per year, if all went by truck. Should MRS go into effect and the rail were used from MRS to the repository, the figure would drop to approximately three to three and a half rail cars a week. He pointed out costs would not be lowered, as facility costs would have to be considered as well.

Concerning highway transportation, Dr. Jefferson said the states already have the authority under HM 164 to determine the routing any shipments will use, so long as the state can show the route they propose meets basically two criteria: (1) It is safer than the Interstate Highway system, which is the preferred routing according to the Department of Transportation; (2) The problem cannot be exported.

Referring to the radiological risk of transporting nuclear waste, Dr. Jefferson said an analysis was done in which 4,500 truck shipments a year were used. As a result of that study it was determined a person living in a house thirty feet from the highway, with every shipment passing by the house, the average annual exposure would rise by about 4 millirem per year. He said in the Seattle-Tacoma and Spokane areas the average annual background radiation is about 180 MR per year.

Dr. Jefferson further discussed accident and sabotage possibilities and described tests and studies conducted in this regard. He said the interesting result of the study concluded more deaths would result from the explosion, and the problem was not radiological, but mechanical. He said that was found to be true in the transport

activity as well, and that was one reason why the DOT's HM 164 dictates use of the Interstate Highway system and a minimization of mileage.

In discussing the emergency response capabilities available should a major accident occur, he said he learned in talking with emergency response people in the state of Washington and other states and found there is more capability in that area in existence than is generally thought. The initial responsibility for response lies with the local governments, the people who are closest to any accident that takes place. Support should be available to them from the states. In addition, he said there is support available from two primary sources: (1) the Interagency Radiological Assistance Program (IRAP), a 24-hour day, 7-day a week manned center in Washington, funded by a large number of federal agencies; and (2) the Joint Nuclear Accident Coordinating Center (six in all with the primary one in Albuquerque).

Mr. Jefferson added that of all the materials transported in this country the transportation of high-level nuclear materials has by far and away the best safety record.

In the discussion that followed Senator Guess recommended the book by Theodore Wolff entitled "Transportation of Nuclear Materials". He said it was an excellent collection of data. (Note: A copy of this book is available for viewing in the High-Level Nuclear Waste Reference Center.)

Dr. Brewer asked if, either in the international standard or in the practice in this country, the containers are designed against a specific hydrostatic pressure, that is, a depth of water. Mr. Jefferson said the regulations were recently changed in that regard. Prior to this year the requirement was an 8-hour immersion in three feet of water. Eight hours of immersion are now required in 50 feet of water. He said the Japanese had done some studies in that regard since all of their transport of spent fuel is done through intercoastal waterway, or deep ocean vessel. Their conclusion, he said, was that if the waste were lost in a depth of less than 2,000 feet and it could be recovered within 20 years, there would be no problem. Mr. Jefferson said the design is for 50 feet, but the problem is that the cask structurally, because of the other features that are required, such as shielding and containment integrity, is so overdesigned that the conclusion that the Japanese drew was that it would easily stand submersion to a depth of 2,000 feet.

#### State of Oregon

Mr. Bishop said that because the possibility of a permanent repository at Hanford is a serious concern to the state of Oregon, a proposed joint Washington-Oregon review of a Hanford repository has been suggested. He said conversations have been held between the governors of the two states over the past several months, and attempts are being made to develop ways with the U.S. Department of

Energy to involve Oregon in some relationship with the state of Washington, preferably a contractual relationship, to assist them to carry out studies in areas of expertise they might be able to assemble in Oregon. He said he felt from conversations held with USDOE officials they were encouraging this effort. A packet of material was distributed to the members of the Board which described the state of Oregon's involvement in issues related to high-level radioactive waste management.

Mr. Bishop introduced Bill Dixon, Administrator, Siting and Regulation Division of the Oregon Department of Energy, who has been appointed by Governor Atiyeh to review all issues associated with Hanford. Mr. Dixon discussed the concept of the joint Washington-Oregon review for the Hanford activities. He began with an overview of the organization created by the Governor when he appointed a Hanford Review Committee consisting of nine state agencies, which Mr. Dixon chairs. He said the first part of the Review Committee's Mission Statement was to make sure that if a repository were to be built at Hanford, it could be done without adverse impacts upon Oregon. Also needed, he said is that safe transportation of high-level waste is assured. Oregon also needs to make sure that defense wastes stored at Hanford would not have long-term environmental impacts upon Oregon. The Governor has also asked the Committee to ensure that some decommission reactor parts scheduled for shipment up the Columbia River in the next couple of years can be shipped safely and disposed of at Hanford without adverse impact. This includes some of the decommissioned reactors from the Navy and the first commercial power reactors in Pennsylvania.

Mr. Dixon said their first major area of concern was the impact upon water--either groundwater or surface water--so subcommittees were established to study these issues. The second major concern, he said, is transportation. Again state agency experts were called upon to study this issue. In addition to the Technical Review Committee, he said a public Advisory Committee was established to make sure the state is responding to the citizen concerns.

Mr. Dixon expressed the state's concern about the uncertainties that exist today and if they can every be reduced to an acceptable level. He said Oregon also agrees that additional actions are needed to ensure long-term stability of defense wastes currently stored at Hanford. He said Oregon also believes there needs to be a coordinated national program to address transportation risks and to work out ways to reduce these risks.

Because the concerns Oregon has and the belief that Washington shares these concerns, Mr. Dixon said he had recommended to Governor Atiyeh that Oregon should join Washington in a joint review of these issues. Not only would it be beneficial to both states, he said, but it avoids the need to duplicate the work being done by Washington, and it provides Oregon with some influence with the Washington State Governor and Legislature if a veto were to be necessary. A joint review would also provide Washington with increased public and political support for its decisions, he said,

and it also makes sense for the United States Department of Energy. Oregon would be uniquely impacted by a repository, he said, because of the Columbia River. A joint review, he continued, would allow USDOE to recognize that concern without having to amend the Nuclear Waste Policy Act. Also it would allow the establishment of a national model for cooperation, which the USDOE will ultimately need if they are going to address the transportation issues that will affect any states.

Mr. Dixon said lastly, a joint review makes sense for the people, because the ratepayers, and to some extent the taxpayers, are the ones funding this whole program. This proposal has been presented by Governor Atiyeh to Governor Gardner, he said, and Governor Gardner has agreed that it makes sense. In discussing the proposal with the U.S. Department of Energy, he said they agreed it makes sense. Mr. Dixon offered to work with the Board, staff and subcommittees to work out the details of a joint review.

Representative Nelson wondered what would be the scope of the review. Mr. Dixon replied this would have to be discussed noting what particular areas Oregon could best contribute in the technical reviews and program management. Mr. Bishop pointed out he had forwarded copies of Oregon's materials to the Environmental Monitoring Group and the Transportation Group for study and the Board's approval would be requested before any proposal is transmitted to USDOE.

Ray Lasmanis inquired if the state statute should be considered for revision at the next regular legislative session to include an Oregon representative on the Nuclear Waste Board. Mr. Bishop said that was a possibility and discussions would be held with the Board. He noted that Oregon is invited to attend the meetings, but he questioned the necessity to add another member to the Board through legislation. Mr. Bishop added three Indian tribes have recently become affected nations and it was anticipated they would be invited to attend Board meetings also. Representative Rust commented she agreed Oregon representatives should come to the meetings, but questioned their being given voting status as members of the Board. Mr. Eschels stated he felt there was a desire by both the Governor of Washington and the Governor of Oregon to share the resources each state has. He said he thought whatever arrangement is put together should produce a good working relationship responsive to the concern of both states. Mr. Bishop added he could see the possibility of Oregon and Oregon University being involved in the public relations program proposed by USDOE.

Dr. Beare said one of the concerns raised in the Transportation Policy Working Group meeting earlier was that although the Columbia River does not impact the state of Idaho as it does the state of Washington, the state of Idaho would be concerned about the transportation routes. He wondered if the study could or should include the state of Idaho. Mr. Bishop said the same questions were raised in the Advisory Council meeting, but he believed the proposal from Oregon was to attempt to find areas where Washington and Oregon had

unique activities that could justify some joint arrangement. He thought transportation and its corridors could involve a great number of other states. He cautioned the working groups would have to be careful in shaping any proposal to be sure it is unique to Oregon and Washington.

Mr. Eschels suggested the Advisory Council might be utilized in this effort, if the Government Task Force is established in the Council.

#### Environmental Monitoring Committee Report

Mr. Provost stated the report by the Department of Social & Health Services was very inclusive and relayed the current information monitoring. A meeting of the Committee will be schedule soon, he said, to discuss the grant for the coming year and the Oregon proposal. He hoped there could be a recommendation on the grant at the next Board meeting, and some material on the Oregon proposal.

#### Defense Waste Report

Mr. Bishop said he believed some ground had been gained on the defense waste issue. He said the response by USDOE to the Governor's letter acknowledged the fact that they had changed their view on the possible funding of our interest and studies in the field of defense waste, rather than maintaining the rigid position they had taken in the past. However, he said the letter did leave some important areas for clarification. He said Don Provost and Charlie Roe will ask for a meeting on Monday with John Anttonen in the Richland Office and some of their staff to staff discussion with the hope of bringing about a clarification of the letter received. He said their discussion would also be based upon a draft policy statement from the USDOE headquarters concerning funding of defense waste activities. Mr. Provost explained their policy was that only those defense wastes that impact the performance of a site can be studied under that grant proposal. This gives a lot of latitude at Hanford, he said. Other states, such as the salt sites, Mr. Provost said, would only be paid for the transportation aspects that affect a salt repository, and the Department of Energy has already decided that the granite states would receive no defense waste money. He added this was not a final policy and the states' opinions would be sought.

#### Economic Risk Committee

Mr. Eschels reported the Committee had not met since the earlier report to the Board, although there has been some communication between the staff and USDOE. He recalled that in the Board's comments on the draft Environmental Assessment it was suggested that the Department should include in its final EA an analysis of what economic damage was possible, and secondly, that it separate the question of how probable that is from the total amount that is at risk. He said it was understood that a draft response to the Board's letter of April 20 was being circulated in the Department

of Energy. Mr. Eschels continued that earlier Brookhaven National Laboratories was examining this question and how to approach it. Its draft report has been received by USDOE, although that has not translated into a response to the Board's letter of April 10. Informally, he said, it was learned there is a tentative determination that USDOE has decided not to include any analysis of the potential damage within the final EA. On the second point, he said, it is also understood that there is a tentative determination that USDOE cannot separate the probability of damage from the extent of damages. He said the staff has requested that USDOE provide some response to the letter and that be followed up with a schedule of discussions of the differences between the state and USDOE.

Mr. Eschels said at the next meeting of the Economic Risk Committee, they would discuss the issues and make a recommendation to the Board whether or not to challenge the Department in its decision, if that is the final result. Secondly, he said if the Department continues along the lines of the tentative decision the Committee would look at whether it, on its own, would recommend initiating some analysis. Another option, he said, is simply to provide ideas to USDOE. When the meeting is scheduled, he said, he would circulate the meeting announcement to the Board members.

#### Transportation Policy Working Group Report

Mr. Watson reported the first meeting of the Transportation Policy Working Group was held this morning with representatives of the Department of Transportation, the State Patrol, Utilities and Transportation Commission, and the Department of Social & Health Services, along with some Energy Office staff and Bob Shirley, representing Senator Goltz. He said in the future they will be including representatives from the Joint Science & Technology Committee of the Legislature, who have expressed an interest in this issue. He said the primary objective at this meeting was to begin scoping the extensive sets of issues existing in the transportation field, and identifying where efforts would be focused in the immediate future.

He said the consensus at this meeting was concentrating on the areas of choice of the model mix of transportation, the route selection, and the approach to risk assessment. A work plan is being developed to address these issues in the immediate future. He said given the decision regarding the MRS facilities, this should not change any analysis to only that option, but it will become one of the sets of options to be considered until some definitive decisions are made in that direction.

Another area agreed upon was the large importance of public involvement in the transportation aspect. The representative from the State Patrol, he said, was particularly emphatic that those living along possible transportation route would be extremely interested in the kind of scrutiny given to transportation plans. Mr. Watson said his working group would be coordinating with the

Advisory Council's Public Involvement Committee to make sure that transportation considerations are effectively carried into the public involvement program.

A final area addressed, he said, was the liability issue. He asked Bob Shirley to speak to that issue. Mr. Shirley said it was agreed to bring to the full Board three recommendations:

1. Recommend to the Governor that he send a representative to the upcoming Congressional hearings on the Price-Anderson Act to ask Congress to include complete, unlimited liability of the federal government for all accidents involving nuclear material, including defense waste, and to remove completely sovereign immunity as a defense with respect to all accidents involving nuclear material.
2. Recommend to the Governor that he send a letter to the governors of the other 47 contiguous states to inform them of the upcoming Congressional hearings on the Price-Anderson Act and request that they join with Washington in our request for complete, unlimited liability with respect to all accidents involving nuclear material.
3. Recommend to the Governor that he send a letter which outlines his position on Price-Anderson to the Washington Congressional delegation.

Dr. Beare moved that the Board endorse the recommendations of the Transportation Committee. The motion was seconded, and there being no objection, the motion was carried.

Mr. Bishop said it was his understanding the hearings on the Price-Anderson Act would be fairly early in June. He added there were several legislative proposals being introduced in Congress, and he mentioned one by Representative Side Morrison. The Interior Committee is also working on legislation amending the Price-Anderson Act.

Senator Guess mentioned at the National Conference of State Legislators in Charleston, South Carolina, various Attorneys General discussed the question of unlimited liability, which is unknown in America. Their consensus was that it was not anticipated the Congress would go that far. They may up the limit, he said. Mr. Shirley mentioned the whole issue of a repository for nuclear waste is also an unknown.

#### Technical Report

Dr. Brewer reported completing the final comments on the draft Environmental Assessment had been the major item of work. However, during this period the set of Technical Policy Provisions provided by Mr. Provost is significant to note. Dr. Brewer expressed his concern about the ability to monitor the repository performance 2-300 years down the road, with the existing defense wastes in the

same environment as the repository. Under the terms of the grant condition, the state would have been prohibited from doing any serious work on that issue until now. Dr. Brewer said there would be very profound, technical consequences should an MRS be developed. The analysis now states that in transporting materials from Tennessee to Hanford the rail facilities would be used. Dr. Brewer said he felt a mature period was being entered in the technical department and it is working well with USDOE.

### Legislative Report

Gary Rothwell reported the only piece of legislation passed in the last session requiring specific action by the Board is Senate Bill 3468. He said the bill had not yet been signed by the Governor, but he knew of no reason why the Governor would not sign it. He said it is essentially a study bill which requires the Board to commence studies "as soon as practicable" on the following issues:

1. The economic, social, public health and safety, and environmental impacts of a repository on state and residents.
2. The risks to states citizens of transporting (high-level) radioactive wastes; recommend alternative routes; and study and recommend improvements in state, local, and federal agency accident response capabilities.
3. The financial and technical resource impacts of a repository on affected state and local government agencies.

Progress on these studies is to be noted in the Board's semi-annual reports.

Mr. Rothwell provided a Draft Plan for Implementation of SSB 3468 (see attached). He asked for Board review and comment on the suggested Plan.

### USDOE Activities Comment

Don Provost reported he had attended the first-tier Program Directors' meeting in Baltimore, a National Association of Attorneys General meeting and a quarterly information meeting in Kansas City. Also at the information meeting, he said, were four legislative members and Max Power of the Joint Science & Technology Committee of the Legislature. Mr. Provost said a procedure for reporting these meetings with brief summaries of the information to the Board is being established. He then summarized some of the issues covered at the meetings:

Mission Plan. The Mission Plan should be released about June 1, he said, depending upon the printer. It is now 14 months late. The Plan will outline the USDOE position on many items, and will be a preliminary determination on each of these. The Department plans to update the Mission Plan periodically and will look at

it at least once a year. The major addition will be the coverage of the MRS concept which has been announced. It will also cover defense wastes. The President has made the commingling decision, and the Plan will reflect that.

Another major policy decision of the the Department of Energy will be that the Mission Plan will state that the preliminary determination of suitability of a site will be made at the time of recommendation. This has been a source of argument between NRC, the state, and the U.S. Department of Energy. The state has always maintained that three sites should be characterized. If the Department makes it preliminary determination at the time of recommendation for characterization, it would mean only one site would be names. This appears to be an invitation for lawsuits, as most of the states, as well as NRC has discussed this issue. Copies will be sent to the Board when the Mission Plan is received.

Environmental Assessments. The final EAs will be issued in the fall, and right now it appears they mean October 1 as the target date. Mr. Provost thought realistically the EAs would be issued about the first of the year. Shortly after the release of the EAs, repository site nominations and recommendations will be made.

MRS Status. The Department will send a letter report on the MRS in June, with a full technical report submitted in January.

EPA Standards. Mr. Provost reported the NRDC v. EPA lawsuit, filed because of a lack of a standard, has apparently been settled and both parties will stipulate that the EPA Standards will be issued in August.

Price-Anderson. The Udall hearings scheduled for June were discussed.

#### Other Meeting Summary Reports

Senator Sam Guess reported on his recent extended trip to the Savannah River Plant in South Caroline and the Waste Isolation Pilot Plant, a research and development project of the USDOE, in New Mexico.

Senator Guess thought the most important thing he saw was the TNX Plant at Savannah River. It is a vitrification plant being built for the liquid spent fuel being stored there. He described the present 51 storage tanks each containing approximately five million curie of radiation, and the problems experienced in removing the wastes. The development of a special pump has enabled them to do the job. He said he was also impressed with the way the vitrification plant was designed, beginning with a test-tube type of process at each step. He described the entire process and said following these extensive tests vitrification of the material is now being produced. He was also impressed by the testing being done with the material in the casks, and felt there was no danger in the

final product. During all of this process, Senator Guess said, cost estimates were run and they were able to reduce costs from two billion, eight hundred million dollars down to nine hundred ten million dollars. The plant is now in approximately a 20% stage and should be completed in 1987, with testing in 1988, and final use.

Senator Guess provided the Reference Center with several comprehensive brochures describing the plant and its operations. These are available for public review in the Center. (Attached is a written report of his visit by Senator Guess.)

Senator Guess reported at the deep salt storage in Carlsbad approximately four miles of tunnel had been completed at 2100 feet below the surface. He said the salt beds were laid down 225 million years ago and the salt is extremely dense and hard. He spent two hours underground during the tour and described the entire operation in some detail. Brochures he furnished the Reference Center are also available for public review.

Senator Guess said one important item he wished to emphasize was the quarterly report issued by the Citizens Advisory Board, composed of twenty-one people. They meet quarterly, he said, and after each meeting a volume of materials is published. He said it was a very thorough discussion, and he would recommend this to the USDOE for Hanford. He thought this would be of great value in the area of public concern.

Senator Guess stated this was one of the best educational trips in which he had been able to participate, and he urged as many members of the Board to visit both plants should the opportunity arise. If only one trip were possible, he said he thought Carlsbad should be viewed.

Mr. Provost added that the environmental group in New Mexico is highly regarded nationwide. They have offered to have our representatives down to review their activities, or to bring a representative from their group here to explain their operations.

#### Other Business

Mr. Bishop announced that a Survey Mission from Japan will be visiting Washington State on June 3 in Richland and June 4 they will be in Olympia and would like to visit the Office. He said they are principally interested in low-level waste, but will plan to take the full tour in Richland. Members will be contacted when final plans are known, he said, and any members who are in the area will be welcome.

## Public Comment

Andrew Gray, student at the University of Washington, said he thought it would be a good idea to install monitors downwind of the Purex Plant since TLSs only register gamma rays and do not register plutonium, in order to establish a baseline radiation count for the Hanford site.

Mr. Provost explained that the funding for the monitoring program is purely for a BWIP baseline, which eventually will be expanded. He said the Department of Social and Health Services and the Legislature have separate plans to handle the specifics Mr. Gray mentioned. He said there would be a separate monitoring effort for the Purex Plant.

Mr. Gray questioned the EnviroSphere models where they computed their won simulated travel times. He urged that the models and the input parameters be described to be meaningful to reviewers. Ms. Dressen of EnviroSphere explained there were no different models used. They were the same kind of conceptual models that were used in the EA. She said all EnviroSphere did was vary the assumptions that are fit into that model.

David Tarnas of the University of Washington inquired if the motion made at the Advisory Council meeting that morning recommending the Board adopt a policy on participation by other states on the reviews of the Hanford site would receive action by the Board. Mr. Bishop replied this motion would be brought to the Board at the next meeting.

Mr. Tarnas referred to some reports he had read on vitrification which indicated it may not be a useful, long-term storage mechanism for alpha-emitting wastes. He said he wanted the Board to be aware of this, and Senator Guess replied he would ask Savannah River to comment.

There being no further business, the meeting was adjourned.

STATUS REPORT

May 17, 1985

BWIP ENVIRONMENTAL RADIATION MONITORING  
DEPARTMENT OF SOCIAL AND HEALTH SERVICES

- Contract signed and work begun 3/19/85.
- \$86,462 total budget through 9/30/85.
- Contract proposal for 10/1/85 to 9/30/86 due to WDOE by 7/15/85.
- Existing DSHS staff reassigned to contract while recruitment and hiring of new staff is under way.
- Staff meetings begun between DSHS, WDOE, U.S. DOE, Rockwell, and Battelle.
- Site visits made and meetings held at Hanford May 8 and 9, 1985.
- Analysis begun of existing quality assurance programs currently available and degree of involvement by DSHS lab and by U.S. DOE lab. See Attachment 1.
- existing U.S. DOE stations selected for installation of gamma dosimeters (thermoluminescent dosimeters - TLDs). TLDs to be installed June 27, 1985. TLDs to be exchanged quarterly thereafter. See Attachment 2.
- Work yet to start:
  1. Review of U.S. DOE's scope of work proposal for their Environmental Radiation Monitoring Program.
  2. Establish locations for soil and groundwater sampling.
  3. Develop material for response to public requests.
  4. Consolidate and organize technical documents.
  5. Participation in audits of federal and state labs.
  6. Define new procedures and equipment required.
  7. Routine schedule of quality assurance meetings.
  8. Review and comment on final Environmental Assessment.

ATTACHMENT 1

QUALITY ASSURANCE PROGRAMS FOR  
ENVIRONMENTAL RADIATION LABORATORIES

1. U.S. Environmental Protection Agency Intercomparison Program
  - Approximately 130 laboratories participate.
  - Selected radionuclides in air filters, water, milk and food.
  - Some Department of Energy contractor labs participate.
  - DSHS participated in approximately 85 different analyses in 1983 and their results compared exceedingly well with the known values established by EPA.
  
2. International Environmental TLD Intercomparison Program
  - A U.S. DOE program operated from Idaho National Engineering Laboratory.
  - Typically 100 laboratories participate from 25 countries, including U.S. DOE contractor laboratories.
  - DSHS has participated in the studies with excellent results.
  
3. Environmental Measurements Laboratories Intercomparison Program
  - A U.S. DOE program operated from Brookhaven.
  - Approximately 35 labs participate, including U.S. DOE contractor labs.
  - Selected radionuclides in air filters, water, vegetation, tissue, and soil.
  - DSHS will incorporate additional types of radionuclides and sample matrices that are not included in the EPA program and which will be important to BWIP monitoring.

ATTACHMENT 2

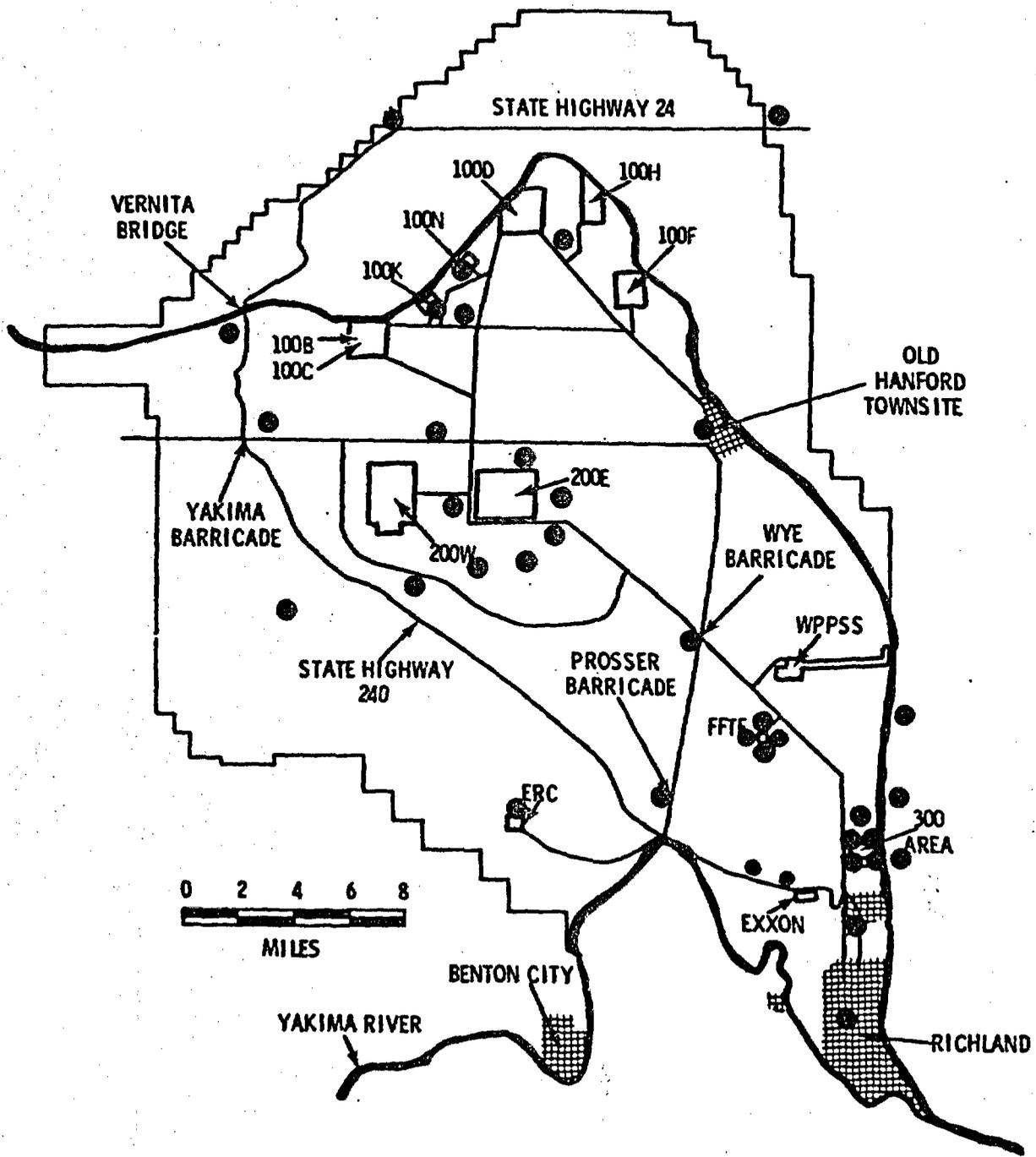


FIGURE 1.2. Onsite and Perimeter Air Sampling Locations



# OFFICE OF THE ATTORNEY GENERAL

## MEMORANDUM

May 16, 1985

TO: WARREN BISHOP, Chairman  
Nuclear Waste Board

FROM: CHARLES ROE *CR*  
Senior Assistant Attorney General

SUBJECT: Litigation Status Report

This is to report on the status of the litigation initiated by the Nuclear Waste Board pertaining to the implementation of the Nuclear Waste Policy Act and related matters.

### 1. Siting Guidelines Litigation

#### A. Nuclear Waste Board v. Department of Energy Ninth Circuit No. 85-7128

A pre-briefing conference dealing with the subject case (and its companion case of Environmental Policy Institute v. Herrington) was conducted by the Ninth Circuit Court of Appeals on April 23, 1985. At that time, the attorney for the Department of Energy announced that he was filing a motion to dismiss the Nuclear Waste Board case (as well as the Environmental Policy Institute case) on the grounds that the court had no jurisdiction. In light of this federal action, the court announced that it was processing the two cases in two stages conducted in sequence. It would first deal with the "jurisdictional" issue. If the court concluded it has jurisdiction to decide the cases, the court would then deal with the challenges to validity of the siting guidelines. The court established the following briefing schedule on the jurisdictional issue:

- (1) Department of Energy motion to dismiss and supporting brief to be filed by May 24, 1985;
- (2) Nuclear Waste Board responding brief to be filed by June 28, 1985; and

**Inter-office Correspondence**

WARREN BISHOP

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May 16, 1985

- (3) Department of Energy reply brief to be filed by July 15, 1985.

Oral argument, if directed by the court, would likely be heard in the last two weeks of July. A court decision on the jurisdiction issue is forecasted for August, 1985.

In terms of intervenors in Nuclear Waste Board, the court has granted party-intervenor status to the States of Colorado and Nebraska, the Environmental Defense Fund and seven private utilities.

Finally, it is noted that a potential dispute over the content of the record in Nuclear Waste Board has arisen. To resolve that issue, I have filed a second petition for review with the Ninth Circuit together with a motion to consolidate that case with the Nuclear Waste Board case initiated in March.

**B. Other Siting Guideline Litigation**

I was advised earlier this week that Minnesota will shortly initiate litigation similar to the Nuclear Waste Board in the ~~Fifth~~ Fifth Circuit Court of Appeals. In addition, I have been advised that at least three other states may well do the same in other federal circuit courts of appeal. If these appeals are to be timely filed, they must be filed within approximately two weeks.

**2. Possible Litigation**

The following areas are being carefully examined:

- A. NWPA Funding of State Litigation Actions.
- B. Defense Waste Relationship to the NWPA.
- C. Water Rights

I will be prepared to respond to any questions you may have at the board meeting of May 17, 1985.

CBR:bj

cc: Jeff Goltz

WORKING  
PAPER

PLAN FOR IMPLEMENTATION  
OF  
SSB 3468

	REVIEW PARTICIPANTS IN DSDDB ACTIVITIES	BOARD COMMITTEE/ WORKING GROUP	CITIZENS ADVISORY COUNCIL	PRIVATE CONTRACTOR	INTER-GOV. AGREEMENT	HLNW M OFFICE
Socio/Economic IMPACTS	X	X		X		
HEALTH & SAFETY IMPACTS	X		X	X	X	
ENVIRONMENTAL IMPACTS	X			X		X
TRANSPORTATION RISKS	X	X			X	
ALTERNATIVE ROUTES		X			X	
ACCIDENT RESPONSE CAPABILITIES	X	X	X		X	
FINANCIAL IMPACTS ON GOVERNMENTS			X		X	X
TECHNICAL RESOURCE IMPACTS ON GOVTS.			X		X	X

REPORT (continued) - Page 2  
Savannah River Operations Office  
Aiken, South Carolina

We then toured the low level burial ground and found that it varies a great deal from that operated by the U. S. Department of Ecology at Hanford. Much of the material is stored on concrete pads in huge culvert sections with 6-inch walls and one-foot thick lids. DuPont has also developed a new packaging capsule made out of 1/2-inch steel plate and it is 4 feet x 4 feet x 6 feet. The waste will be compacted before being stored on the concrete pads for retention outside. One of the features of this storage which I did not expect, was the handling of the supermate which is the liquid that gathers in the tanks after the sludge and the salts have precipitated out. The procedure will be to mix the supermate with sand and cement and cast 50-ton blocks in trenches. The trenches will then be covered over and left to set. It is estimated that these concrete blocks will leach at the rate of 1% per year. In other words, it will take 100 years for the material that is stored there to find its way into the underground water system.

Bill Brumley conducted us through the DWPF equipment test facility (TNX). I think it would be easier to say that this is the area in which the vitrification process was developed on a stage basis. First, they did their work in test tube size containers, then to 12th scale, then 8th scale, then 1/2 scale. The laws of similitude have held and the simulation of the vitrification has worked at each step. It is an extremely impressive operation. This research project has been underway for 10 years. The permanent plant was originally estimated to cost \$2.8 billion and has now been brought down to \$910 million. We learned that glass in liquid form is the most perfect solvent devised by man, and that when it cools, there is no possible way for any of the material to leak or to get into the atmosphere or in any way to affect humanity.

The process begins with placing the glass frit (in other words, powdered glass or ground up glass) in the boiler into which the slurry will be added. The temperature is raised to 1600 degrees. The entire material becomes liquid and it is then

**R E P O R T**  
**VISIT TO SAVANNAH RIVER OPERATIONS OFFICE**  
**UNITED STATES DEPARTMENT OF ENERGY**  
**AIKEN, SOUTH CAROLINA**

**TO: Science and Technology Committee**  
**Washington State Legislature**

On May 3, 1985, we arrived at the Administration Building (703A) and were met by Mr. Carl A. Nandras, our escort to the conference room, for a welcome by Bob Morgan, Engineer of the operations.

We were given an overview of the Savannah River plant by Jim Garver and then briefed by Michael O'Rear and Bill Brumley. These briefings were in great detail and I appreciated the opportunity of being given the information in layman's terms in order that both my wife and I could understand what we were to see later in the day. The briefing occupied the period of time between arrival and lunch, and we departed for the "F" area at 12:40 P.M.

Mike O'Rear was joined in describing the tank farm and all of the operations that were going on there by Mr. Brent Boare of DuPont. Brent is the Superintendent of Waste Management Operations. There are 51 tanks. Each tank contains approximately five million curie of radiation. A great deal of research has been done on removing the sludge and cleaning the tanks. It was most impressive to stand on top of one of the tanks knowing that we were standing on that amount of nuclear waste. When we reboarded our bus, there was absolutely no indication on the meter that we had picked up any radiation.

Our next stop was at the defense waste processing facility construction site. A tremendous amount of construction is underway, and the pamphlets which were given to us fully describe the entire operation. I was particularly impressed that the vitrification plant rests on a 10-foot thick layer of concrete and steel and that all operations within the canyon will be done remotely. It is almost impossible for one to comprehend the scope of the project without having first visited this site.

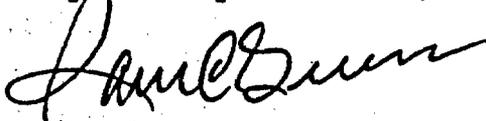
REPORT (continued) - Page 3  
Savannah River Operations Office  
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deposited into casks which are 10 feet high, 2 feet in diameter, made of 3/8-inch stainless steel. Each cask, or bottle, has a 5-inch neck through which the molten glass is deposited. Since there is a certain amount of radioactive material deposited on the outside of the bottle, it is placed into a sandblasting pit and thoroughly cleaned. No radioactive material is left on the outside of the cask and you can place your hand or instrument over the outside of the bottle. To seal the cask, it is placed in a press, the cap pressed down into the opening with 75 thousand pounds of pressure per square inch and a current is introduced of 240 thousand amperes. The metal becomes molten in 1½ seconds and the seal is completed. We were shown a large number of samples of the tests which have been made and in no instance were the seals breached. Breaches which have occurred in the casks have been around the neck after 13 thousand pounds of pressure per square inch have been applied.

When these casks are shipped, they are placed into a very large canister (again, a cask) which has been lined with spent nuclear fuel. The spent nuclear fuel which has two-tenths of 1% of radioactivity will absorb any radioactivity. One cask per railroad car will be shipped. It will be possible to store 1,040 of these canisters or casks on the site which will mean approximately two years of production by the DWPF. Once the present backlog of waste contained in the 51 tanks has been processed, the DWPF production rate will be adjusted to match the rate at which the newly produced waste is generated. The plant will be completed in August 1988 and processing will begin in August 1989.

We departed the TNX facility and toured the L-Lake/Dam construction site. We returned to the main administration building at 5:00 P.M.

Respectfully submitted,



Sam C. Guess  
State Senator

May 15, 1985