D. Sherwood

0050677

Confederated Tribes and Bands
of the Yakima Indian Nation

Established by the
Treaty of June 9, 1855

June 5, 1995

Mr. John Wagoner, Manager
Richland Field Office
Department of Energy
P.O. Box 550 A7-50
Richland, WA 99352

Dear Mr. Wagoner:

Subject: REMOVAL OF SPENT FUEL FROM HANFORD K-BASINS STABILIZATION AND STORAGE OF FUEL FOR UP TO 40 YEARS; ENVIRONMENTAL IMPACT STATEMENT; COMMENTS ON--

DOE/RL Fact Sheet concerning the subject Environmental Impact Statement (EIS) requested comments on the removal of spent fuel from the K-Reactor fuel storage pools (basins), stabilization of the fuel, and subsequent interim storage of the fuel for a period of up to 40 years.

In previous meetings with Mr. Trenchard and others of your staff and in several letters concerning the disposition of spent fuel we have provided comments pertinent to the subject EIS. The documented comments are included in the ATTACHMENTS to this letter. These comments along with comments provided in meetings still apply and their consideration is requested. They include the following alternatives be considered.

1. Alternative design concepts should include dry inert storage of fuel in robust, self-shielded ductile iron casks on the surface at Hanford in a central storage area. The storage area should be designed to store other spent fuel and high-level radioactive wastes requiring shielding and otherwise to be disposed in a deep geological repository. Such a cask could also serve as a transport cask within the Hanford Site and thereby serve as a multipurpose cask. (Other functions are also suggested below.)

This proposal entails integration of the planning and engineering for the N-fuel in the K-basins with other efforts at Hanford for management of wastes and spent fuel. We have repeatedly emphasized the importance of a systems engineering discipline to accomplish this integration. Thus, this integration and design control effort (systems engineering) should be considered as an alternative mode of management considered in the EIS. Such management should be contrasted with other more independent project management approaches in order to properly allow evaluation of the relative impacts of each approach.

The Yakama Nation considers that appropriate integration and consideration of environmental impacts, consistent with NEPA policy, can only be accomplished by quality application of the systems engineering methodology for technical management of related programs. Valid NEPA decision making and scheduling of actions will naturally result from application of the systems engineering methodology.

Other spent fuels and materials considered for storage at such a facility should include spent fuel from FFTF, stabilized high-level radioactive waste from the TWRS, denatured/stabilized plutonium processed to a "spent fuel standard" for storage, greater than Class C wastes, old reactor control rods, concentrations of particular long-lived isotopes; for example, silver reactors for collection of radioactive iodine, or reactor activated components or materials, and other waste materials that should or may be disposed of in a deep geologic repository.

2. Reuse of site scrap materials should be considered as an alternative in the manufacture of the ductile iron casks suggested above. On-site recovery and production of casks should be considered. Our comments on the scoping of the TWRS EIS are pertinent in this regard.

3. Integration with OCRWM and their MRS and deep geologic repository projects should be explicitly considered in an appropriate systems evaluation as part of the alternatives selection process. In particular the usefulness of the robust ductile iron cask recommended above for use as a deep repository disposal package should be evaluated. Such usage is consistent with OCRWM's dual and multi purpose cask concepts.

4. <u>Alternative for surface storage of the fuel should consider a design lifetime of 500 years instead of 40 years.</u> We consider that the flexibility for future management and the security advantages of robust interim storage is extremely desirable to assure minimum attention by caretakers and safety and security of the materials at Hanford. This design lifetime (500 years) is consistent with the design requirement for storage of high-level radioactive waste in the stainless steel bins at INEL. (We consider the action at INEL is far-sighted and exemplary.) In this regard storage should not require the maintenance of elaborate buildings or utilities for maintaining and housing the wastes and/or their packages. The packages should be designed to be adequate to stand alone without attention for the 500 years period at the surface without other controls, except those required to exclude intruders, i.e., simple security.

The example of outdoor commercial spent fuel storage at the Virginia Electric Power Co. (VEPCO) at Surrey should be considered as a proven conceptual alternative in this regard. In addition the outdoor storage of various fuel storage casks has been evaluated in testing by DOE at INEL TAN site and should be considered in the EIS decision process.

5. Stabilization should not be considered unless testing of spent fuel indicates that access to air causes combustion of the fuel at ambient cask temperatures below 200 degrees C or other temperature that can be determined with reasonable assurance to be acceptable by passive temperature control measures incorporated into the design of the proposed ductile iron cask storage concept. In any case potential actions to stabilize the spent fuel should be based on needs stemming from repository waste form and waste package design considerations and such actions should be integrated with other OCRWM functions or requirements as suggested in comment 3 above.

The accomplishment of oxidation of spent fuel or other stabilization treatments deemed warranted for interim storage and/or disposal by OCRWM should be considered directly within the proposed ductile iron storage casks. Such an operation would avoid the need for a separate treatment facility and the extra handling necessary to remove fuel from the transport casks (if necessary) or the storage cask itself.

6. Management of tritiated water in the basins should be considered in the EIS. Alternatives should include the options of surface storage of the water, pending decay in a surface storage facility and dilution of tritiated water by fresh water, air (evaporation) or sea water with releases to the accessible environment near background tritium concentrations. Health effect impacts associated with the long-term influence of tritium in the environment accessible by biological systems, including humans, should include consideration of mutagenic effects on the Yakama Nation future generations in addition to cancer risks for individuals in any given generation. (Current environmental standards for tritium in the environment, e.a. 20,000 pCi/l, do not appear to adequately account for mutagenic effects on a small population of affected people such as the Yakama Nation.)

Actions should be avoided to release concentrated tritiated water to uncontaminated resources or other resources at Hanford for which remediation is being attempted. In this regard release of concentrated tritiated waste water to a clean aquifer is not appropriate.

7. Other comments that are contained in our previous letters concerning the subject issue should also be considered in the EIS preparation and alternative selection process. As we have repeatedly noted in the past, actions that expedite removal of the spent fuel from the K-basins and decontamination and decommissioning of the entire K-reactor facility are highly desirable to the Yakama Nation in order to allow free use of the riverine area at the Site by Yakama Nation members. As you know the Coyote Rapids has special cultural and religious significance to the Yakama people, not the least of which is the Treaty fishing right at an important local fishery there.

Sincerely,

Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakama Indian Nation

TWO ATTACHMENTS AS NOTED:

cc: K. Clarke, DOE/RL
C. Hansen, DOE/RL
M. Riveland, WA Ecol.
C. Clarke, U.S. EPA Reg. 10
T. Grumbly, DOE/EM
T. O'Toole, DOE/EH
G. F. Cole DOE/EM-36, HDQ
Washington Gov. M. Lowry
U. S. Senator P. Murray
DNFSB
D. Sherwood, EPA, Richland

#1 ATTACHMENT TO LETTER, Subject: REMOVAL OF SPENT FUEL FROM HANFORD K-BASINS STABILIZATION AND STORAGE OF FUEL FOR UP TO 40 YEARS; ENVIRONMENTAL IMPACT STATEMENT; COMMENTS ON-- DATED APRIL 20 1995

May 5, 1994

Mr. John Wagoner, Manager
Richland Operations Office
Department of Energy
P.O. Box 550
Richland, WA 99352

Subject: SPENT FUEL WORKING GROUP REPORT; COMMENTS ON--

Dear Mr. Wagoner:

1. We prepared a draft initiative for the Summit II to consider a pilot program for the dry storage of spent fuel at Hanford. This initiative is ATTACHMENT A to this letter. We consider the proposals of this initiative are valid and should be executed by DOE/RL to expedite the safety issues associated with the current fuel storage in the K-Basins.

2. The effort of the committee reviewing options for the K-Basin fuel, under the direction of Mr. Daily of your staff, should be expanded to include consideration of the ideas presented in ATTACHMENT A that reflect consideration of the overall need for storage of waste materials, including other spent fuel at Hanford. This recommendation is consistent with the systems engineering effort being accomplished to integrate work at Hanford. Thus, a directive to the committee should be provided to expand their rather limited charter which has been to focus on resolution of the fuel in the K-Basins. We consider that even though the issues associated with the K-Basins are important and of prime priority, work should be integrated with other needs at Hanford to conserve resources and achieve expeditious resolution of the other problems as well as the K-Basin issues.

3. We have commented in meetings with Mr. Hunter, Mr. Mecca and others in the past regarding the ill-conceived plan to re-encapsulate the fuel assemblies in the K-East Basin with the objective of continuing to store the fuel wet in K-West Basin. This plan entails generation of a significant new waste stream made up of the old aluminum vented canisters and the significant CRUD and other debris that would result from the re-encapsulation program. In addition, it would appear that the exposure to personnel handling each of the fuel assemblies would not be warranted. We recommend that all work to accomplish re-

encapsulation be stopped, pending the recommendations of the committee discussed in comment 2 above.

4. ATTACHMENT B is a letter to DOE containing comments on the spent fuel environmental impact statement (EIS) pertaining to Naval Reactors fuel and other Department of Energy spent fuel. The comments in ATTACHMENT B apply to the conclusions of the subject working group report. It should be noted that integration of the overall system for storage of spent fuel and other wastes requiring shielding and the disposal system for these wastes is an appropriate objective for the spent fuel EIS and the PEIS being prepared in parallel. We recommend the systems engineering discipline for this integration across the DOE complex including the activities of the Office of Civilian Radioactive Waste Management (OCRWM). The comments that we have made in the past to accomplish this integration are contained in ATTACHMENT C, a letter to OCRWM.

5. We agree with the comments in the subject report regarding the trench storage of spent fuel in the 200 West burial sites. Immediate actions should be taken to transfer this fuel to safe dry storage in shielded casks above ground where monitoring can be accomplished.

6. Testing of the characteristics of the various fuels at Hanford with respect to their stability in air or other dry storage should be accomplished in conjunction with the testing planned for the K-Basin fuel as warranted. Tests should establish the response of a range of fuel assemblies with aluminum as well as zircalloy cladding to varying temperatures and oxygen concentrations.

7. The Yakama Nation Environmental Restoration Waste Management Program should be kept informed on the progress of the committee work discussed in comment 2 above so as to facilitate participation in the decision making as warranted. To date it is not clear that Yakama Nation values, concerns and ideas have been incorporated into their considerations.

Sincerely,

Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakama Indian Nation

cc: K. Clarke, DOE/RL
M. Riveland, WA Ecol.
G. Emison, U.S. EPA Reg. 10
T. Grumbly, DOE/EM
Washington Gov., M. Lowry
U. S. Congressman, J. Inslee
U. S. Senator, P. Murray

ATTACHMENT A

SPENT FUEL DISPOSITION INITIATIVE

RECOMMENDATION: Initiate dry, inert atmosphere, shielded cask storage of spent fuel currently in environmentally unsound and unsafe wet storage at the 105-K East and K West Basins. Provide early pilot demonstration (within a year) of the handling equipment, storage casks and procedures for K-East fuel, with concurrent effort to scale up operations to achieve dry storage of all spent fuel in both East and West Basins within three years. Coordinate cask design with other needs at Hanford for storage of spent fuel or other materials requiring shielded storage, optionally in an inert atmosphere, to produce a "standard" cask design. Coordinate cask design with cask concepts emerging from commercial nuclear fuel storage applications to further standardize design and facilitate shipping and disposal, if decided in the future. In parallel assess the adequacy of dry storage of spent fuel in air, to allow this mode of storage as warranted.

DISCUSSION: The spent fuel stored in the 105-K Basins has a high percentage of failed cladding, leading to corrosion of the uranium alloy fuel and gross contamination of the water in the basins. The K East Basin is leaking severely into the ground with resulting contamination of the ground water and the nearby Columbia River shoreline. The K Basins are not seismically qualified and could drastically fail during an earthquake. Sand filters for basin water are dangerously loaded with uranium and plutonium sludges, presenting a criticality hazard that should be immediately reviewed and resolved as warranted.

Other facilities at Hanford, including T-Plant, PUREX, 300 Area Hot Cells or fuel storage areas, low-level burial grounds and FFTF have various types of fuel in interim storage. All these facilities could benefit in terms of improved safety and security and reduced cost derived from a standard method of dry cask storage at one central location. With the exception of the FFTF fuel, which is currently stored in liquid sodium and would have to be washed before transfer to dry storage, all other fuel or fuel pieces could readily be placed in dry cask storage by itself or in combination with other fuel types.

The current effort to prepare an Environmental Impact Statement for the disposition of all DOE spent fuel should consider, as an alternative action, the dry cask storage discussed above for fuel at Hanford, as well as, other DOE fuel. The pilot storage operation could validate the option for other DOE fuel storage applications.

Once fuel is removed from K East Basin, tritiated water can be removed and leakage to the environment eliminated.

ADVANTAGES: o The recommended initiative would provide resolution of a serious safety and environmental problem and allow for early D&D of the K-Reactor complex.

o Standardized dry casks could provide cost effective, safe, interim or long-term storage for high-level radioactive wastes and other high-specific activity wastes requiring shielding at Hanford and elsewhere at DOE facilities.

o Scrap or contaminated materials (concrete or steel) at Hanford could be recycled to make the spent fuel storage casks on site. A cask manufacturing facility could be justified from the pilot demonstration project, providing a self sustaining enterprise with customers away from Hanford.

o Costly and hazardous fuel handling associated with alternative re-encapsulation of the K East fuel and continued wet storage would not be necessary. In addition a significant waste stream of the old aluminum canisters and crud and corrosion products inside those canisters would not be created, consistent with waste minimization objectives.

BARRIERS TO ACTION: o The method of controlling actions and providing equipment for operations must be streamlined. The example of moving damaged fuel from the Three-Mile Island (TMI) Reactor could serve as a model for DOE to utilize. (From the time a contract was let to remove fuel from TMI to the time of actual removal of fuel was eight months.)

o Hanford's system design effort should be focused to establish a strategy for handling spent fuel and other high-activity wastes, considering appropriate interfaces or design parameters and other integrating metrics with commercial spent fuel storage and other DOE facilities. Action to estimate the appropriate integrating design parameters without actual negotiation with other design entities may be warranted with respect to the pilot dry storage project to expedite the development and otherwise "lead the way" for other entities. This focusing effort entails a rapid application of systems design at Hanford to a specific technical problem.

ATTACHMENT B

November 2, 1993

Rob S. Rothman, EIS Project Manager
Department of Energy
Idaho Operations Office
Idaho Falls, Idaho 83415-1120

Dear Mr. Rothman:

Subject: SYSTEM FOR SPENT NAVAL FUEL DISPOSITION; SCOPING OF THE ENVIRONMENTAL IMPACT STATEMENT FOR; COMMENTS ON--

The scope of the subject environmental impact statement should include consideration of conceptual systems and actions as follows:

1. Dry storage of navy fuel in universal dry storage casks, i.e., casks which can serve to provide a. interim storage at shipyards, or other designated interim storage facilities; b. transportation with or without additional transportation vehicle over-packs or impact protective devices, and c. disposal in a deep repository.

2. Dry storage in modularized storage units for shipyard storage and other interim storage facilities. Use of commercially available modular storage units, adapted for naval reactor hardware with internal fixtures, should be considered whether the units are metal casks or concrete shielded vaults.

3. Elimination of wet storage in pools at the Idaho Nuclear Reservation storage facilities and at other Naval Reactor facilities.

4. Consideration of the use of the Bangor, Washington shipyard for interim storage of spent fuel removed from ships at the Bremerton shipyard until a suitable regional MRS is established.

5. Consideration of the storage of Naval spent fuel in licensed regional Monitored Retrievable Storage (MRS) facilities designed to accommodate commercial spent fuel, defense spent fuel, and high-level radioactive wastes, consistent with policy described in the Nuclear Waste Policy Act.

6. Consideration of the interim storage, transportation and disposal of core modules, control rods and activated core structural components, containing high specific activity or long-lived isotopes, as a unit waste assembly without the need for separate handling and disposal of separate components, once the necessary defueling operations are completed at a shipyard. (Such

minimal handling would be consistent with ALARA principles, thereby reducing health impacts to workers and assuring necessary deep geologic disposal of these highly activated components with a significant inventory of long-lived radio isotopes in conjunction with core module disposal.)

7. Integration of storage, transportation and disposal of core modules from naval prototype reactors into the system for managing shipboard reactors.

8. A system that minimizes the need for transportation, since this operation is generally the greatest contributor to the safety of the public. (The events associated with train or truck accidents have nothing to do with radiation exposure of the public.)

9. Consideration of impacts of any actions that directly or potentially affect the Yakima Nation, including impacts to its ceded lands in the Northwest United States. (Such determination of impacts should be accomplished with the concurrence of the Yakima Nation in Government-to-Government consultations.)

Sincerely,

F. R. Cook, Technical Analyst
Environmental Restoration/Waste Management Program
Yakima Indian Nation
1933 Jadwin Avenue
Richland, WA 99352

cc. K. Clarke, DOE/RL
J. Wagoner, DOE/RL
Thomas Grumbly, DOE/EM
Washington Gov., M. Lowry
U. S. Congressman, J. Inslee
U. S. Senator, P. Murray

ATTACHMENT C

November 7, 1991

Thomas H. Isaacs
Office of Civilian Radioactive Waste Management
U.S. Department of Energy, RW-4
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Isaacs:

The Yakima Indian Nation (YIN) is a sovereign government with reserved rights established in the Treaty of 1855 with the United States government. Treaties are the Supreme Law of the Land, as provided in the Constitution of the United States of America. The YIN Treaty contains provisions protecting the Native American way of life; it is the first constitution of environmental law which must be honored.

The activities conducted by the U.S. Government at the Hanford Site since 1943 have irreversibly affected the health of the Yakima people and altered the Yakima ceded land upon which the Hanford site is located, in violation of Treaty law. Such events should never have been allowed to happen and must never happen again. The health and environmental impacts resulting from government activities must be fully examined and safely remedied to the maximum extent allowed by technology. Continued disposal of wastes on the Site and redistribution and dilution of wastes already there, utilizing inferior technologies and inadequate wastes forms in an attempt to achieve temporary isolation of wastes and effect environmental integrity, is unacceptable.

As you may know, the Yakima Indian Nation (YIN) has participated in various aspects of the nuclear and mixed waste problems associated with DOE's Hanford Reservation and other related environmental and safety matters for nearly 12 years, however, this participation has been limited and only now is there action by the DOE to facilitate significant improvement of this involvement.

The disposal of high-level radioactive waste (HLW) and spent fuel has been a major focus of our attention. This type of waste constitutes the greatest long-term liability to the Native American way of life at the Hanford Site and potentially in the entire Northwest.

Our contribution to the Nuclear Waste Policy Act was substantial. The provisions in the Act that provide for disposal of HLW, including defense wastes, in a deep geological repository are considered key provisions and strongly supported by the YIN.

Considering the large amount of HLW and both defense and commercial spent fuel buried or in storage at Hanford, awaiting permanent disposal, the YIN has a keen interest in the integration of plans and strategies of your Office with other Offices in the DOE for waste management and environmental remediation. However, it appears that this integration and coordination within the DOE is inadequate.

For Example, in reviewing the plans at Hanford for the disposition of HLW we have become concerned that DOE plans are inconsistent with the policy presented in the Nuclear Waste Policy Act as regards the disposal of HLW in a deep repository. Current plans established by the DOE and endorsed by the State of Washington indicate that much of the double shell tank wastes is to be disposed of in near-surface mixed waste disposal facilities (grout vaults) on the Hanford Site. However, this decision is in question because of the conclusions that the pretreatment processing planned for the double shell tank HLW is insufficient and that additional processing to separate Tc-99, I-129 and C-12 is required. The inadequacy of the grout to retain these isotopes, as well as other chemical toxic substances such as the nitrates, over the long-term is problematic.

These portended changes in direction along with the conclusion that single shell tank HLW requires remediation and disposal in conjunction with the double shell tank wastes, has lead to a reconsideration of the HLW management strategy at Hanford.

The potential for disposal of all the HLW at Hanford in a repository, without the disposal of any low level fraction in a near surface burial ground is now being considered. (The YIN considers this is an appropriate consideration, since it reduces the liability for future generations.)

With this situation in mind there is a necessity for close coordination between your Office and the environmental restoration/waste management under Mr. Duffy. Your Mission Plan should reflect this coordination and planning. It should not become a basis for justifying design assumptions regarding the waste forms, numbers and types for HLW.

One major issue is the assignment of a dollar value associated with each glass canister of HLW coming to the Repository. This arbitrary assignment of a fee (I have understood it is $350,000 per canister) is unfounded. It leads to unrealistic estimates of costs associated with the disposal of defense HLW and drives the Hanford waste management plans to schemes that reduce the numbers of glass canisters and increases the number of grout vaults and the volume of HLW left at Hanford. It promotes the undesirable waste

management practice of dilution in lieu of concentration of wastes.

The YIN considers that HLW should NOT be left at Hanford in the form of grout monoliths, diluted by a factor of 4 to 5 with the grout-making materials.

In a current engineering study for the disposition of single shell tank wastes, involving the use of ceramics for the high level waste form, a cost of $85 billion was estimated for disposal costs alone, even though it is expected that defense wastes will not take up more than about 10% of the area of the repository. With the Mission Plan estimate of repository costs at about $26 billion, the maximum cost associated with the repository disposal fee for defense wastes should not exceed about $2.6 to 3 billion no matter how many waste packages are generated. Such a cap on the repository fee defense wastes will eliminate the incentive to develop exotic new separations methods such as TRUEX which is estimated to cost $7 billion alone with the major benefit being the reduction of glass canisters issuing from a future vitrification plant at Hanford.

It is our observation that a systems engineering effort with respect to waste management (including consideration of an MRS) and disposal of defense HLW in the repository is warranted. Until such engineering is accomplished, the size and shape of waste packages and the makeup of the waste form should not be set, and the disposal costs should be derived from a fixed repository fee for all the defense waste. There should be only a minimal extra charge for repository handling fees, which can be established once the size and number of waste packages are determined. The DOE's attempt to decouple the repository effort from the defense waste management and disposal problem is unfounded.

In summary the major thrust of this letter is to identify the need for coordination and integration of engineering efforts within the various Offices of DOE to develop an engineered system that effectively resolves the laws and National policies requiring disposal of HLW in a deep repository and the fiduciary obligation of the United States Government to protect the rights of the YIN recorded in the Treaty of 1855. Such action should be incorporated into your Mission Plan.

Considering the impact of OCRWM design work on the Hanford Site cleanup effort and hence the YIN as described above, the YIN requests it be invited to send representatives to workshops regarding program documents, etc., consistent with DOE objectives presented in Chapter 7 of the Mission Plan.

Additional detailed comments regarding specifics of the Mission Plan and requests for information are contained in the Attachment to this letter.

Sincerely,

Yakima Indian Nation
Environmental Restoration/Waste Management
1933 Jadwin Avenue
Suite 110
Richland WA 99352

ATTACHMENT: DETAILED COMMENTS ON THE OFFICE OF CIVILIAN WASTE MANAGEMENT MISSION PLAN

ATTACHMENT: Attachment for letter to DOE (Tom Isaacs) of November 7, 1991

DETAILED COMMENTS ON THE OFFICE OF CIVILIAN WASTE MANAGEMENT MISSION PLAN

1. The waste management system depicted on page 3 of the mission plan indicates storage sites for defense high-level waste (HLW), and commercial HLW that do not feed the MRS. This assumption is an unfounded assumption and will lead to extra costs associated with storage of defense and commercial wastes. In addition no provision is indicated for commercial and defense spent fuel considered to be waste and stored on an interim basis at a site separate from the reactor site. Such commercial spent fuel storage sites now exist near at least two commercial reactors, for example, the Surrey Reactor. (The 2100 metric tons of N-Reactor fuel now in storage at Hanford is an example of such defense spent fuel.) The management system should be modified to resolve the concerns noted herein.

2a. The second objective in Chapter 2, page 5, requires timely and adequate waste acceptance of spent fuel and high-level radioactive waste. This objective should be resolved by identifying the use of self-shielded, dry storage casks for both spent fuel and defense high-level radioactive waste (HLW). The technology for such storage already exists and is in use at various commercial reactors in this country and abroad for spent fuel. This technology is readily adaptable to the storage of HLW.

Development of the MRS need not consider the development of fuel or HLW handling facilities. In this regard the NRC has licensed the storage of spent fuel at reactor sites. This licensing process should be closely followed in the preparation of a license application for the MRS. Because of the simplicity of MRS's as suggested above, several smaller regional sites should be planned to minimize the transportation costs and transportation fatalities.

Although not clear in the discussion of the mission plan objectives, an explicit discussion of the plan for accepting and managing defense high-level wastes and spent fuel at a MRS should be included in chapter 2. The discussion on page 7 under "Provide facilities for the timely acceptance of spent fuel" should be expanded in this regard to include HLW as well as spent fuel.

In this regard it is a distinct possibility that at least 2100 tons of spent N-Reactor currently in storage at Hanford will not be reprocessed and will be disposed of without modification in an acceptable waste package or stored at an MRS.

2b. Chapter 2 includes an objective to "Ensure that funds are spent in a cost-effective manner." This section should include the consideration on the impacts of the OCRWM on the defense waste cleanup and disposal entities as well as the effect on utilities. (The comments in the forwarding letter for this Attachment also address this issue.) For example, the effect of considering only the use of small canisters and a single waste form for the disposal of defense HLW is unfounded and leading to extreme costs for the disposal of HLW. The specification of the use of small canisters lead to the identification of an $85 billion cost associated with the disposal of single shell tank wastes involving preparation of ceramic pellets. This cost was identified in recent engineering studies conducted by Westinghouse Hanford Corp. relative to the disposal of single shell tank wastes at Hanford.

Clearly, the provision for larger containers to accommodate other waste forms, for example, calcine or ceramic wastes forms, would reduce costs significantly. In any case, the maximum cost associated with the disposal of HLW and defense spent fuel should not exceed about 10% of the overall repository cost, given the minimal requirements for repository space required to accommodate the low heat output of the defense wastes. Repository handling facilities should be sized to handle heavy casks, for example, 100 tons, to provide for cost effective options for the overall management of wastes. DOE should integrate the systems analyses of the repository and the defense wastes as recommended in the forwarding letter for this Attachment.

The YIN considers such integration will rationally be required by the forthcoming PEIS being prepared by the DOE for defense waste management. The discussion at the bottom of page 24 regarding the management systems improvement strategy (MSIS) should be expanded to reflect this integration.

3. The concern regarding evaluation of the potential impact on public confidence should cause the elimination of any action that suggests that it is acceptable to dispose of the low activity fraction of defense HLW in near surface burial grounds. This was not considered acceptable at the West Valley facility and should not be tolerated at Hanford or other defense facilities.

The Nuclear Waste Policy Act (NWPA) mandates that HLW be disposed of in a deep geological repository. The conceptual design for waste processing and disposal being considered by the DOE which leaves millions of curies of HLW in grout vaults at Hanford is inconsistent with the intent of the NWPA in this regard, and it is contributing to the further destruction of public confidence in the actions of DOE, including OCRWM.

The Yakima Indian Nation (YIN) strongly disagrees with this plan of DOE's and requests that OCRWM anticipate and develop options for the MRS and the deep repository that economically provides for management and disposal of all defense HLW and spent fuel, deemed to be waste, in a deep geological repository. (The YIN is currently interacting with the DOE (Duffy) on this matter and has recommended alternative waste management plans that expedites cleanup, minimizes costs, promotes reduction and/or destruction of toxic and radioactive substances and establishes options that allow subsequent preparation of superior waste forms if required for long-term, million year, performance assessment.

4. The comments above concerning the consideration of defense wastes and spent fuel should be reflected in the paragraphs on page 8 concerning "diminishing uncertainties related to the spent fuel management by the utilities" and "providing alternatives and contingency plans."

A particular objective of eliminating the concerns associated with the problematic repository design environment associated with radiolysis at the waste package boundary should be resolved by including alternatives for self shielded containers for fuel and HLW. (Options for such containers for defense HLW and spent fuel are discussed in later comments.)

5. In Chapter 4, page 31 there is a discussion of the submittal of a license application to the Nuclear Regulatory Commission for authorization to construct the repository. It is our understanding that a construction authorization application, not a license or permit application is what is required by Part 60. It is our understanding that Part 60 does not require a license application for possession and handling nuclear materials until the operational phase is to begin. DOE should confirm that the description of the NRC submittals on page 31 and elsewhere in the Mission Plan is accurate. It should be recognized that the license application initiates a formal interaction with the NRC and the implementation of 10 CFR 21 and other rules controlling the conduct of activities by DOE and its contractors.

6. Chapter 5 regarding the design of an MRS facility should include plans for the storage of defense HLW and defense spent fuel, for example, spent N-Reactor fuel from Hanford, discussed above.

7. In Chapter 6 the funding identified on page 103 for technical assistance in training the public safety officials of local governments and Indian Tribes should be made directly to the Tribal governments wanting assistance rather than to the State government with subsequent distribution to the Indian governments. The cost associated with the State handling of funds is wasteful and

unwarranted. The DOE is committed to dealing with the Indian governments on a government-to-government basis, not through an another entity such as a State government.

8. In Chapter 8, page 162 it is indicated that self assessment will involve external parties in the assessment program through a variety of mechanisms. These mechanisms should be specified in the Mission Plan. It is requested that the OCRWM involve the YIN in this assessment in the future. Such action would consistent with YIN interest in the design development of the repository and the MRS derived from the effect these facilities will have on the United States Government execution of waste management and environmental remediation at Hanford.

9. It is requested that the self-assessment management plan described on page 163 be forwarded to the YIN for information.

10. The definition of criticality on page 180 is restrictive since it only applies to a reactor. Criticality is generally associated with nuclear conditions in any assemblage of special nuclear materials, for example, such as may occur in a repository or in the waste tanks at Hanford. No reactor is involved in these facilities where criticality is a concern. The usage on page 116 reflects the wider meaning suggested by this comment and is inconsistent with the definition on page 180.

#2 ATTACHMENT TO LETTER, Subject: REMOVAL OF SPENT FUEL FROM HANFORD K-BASINS STABILIZATION AND STORAGE OF FUEL FOR UP TO 40 YEARS; ENVIRONMENTAL IMPACT STATEMENT; COMMENTS ON-DATED 4/20/95

September 23, 1994

Tara O'Toole, Assistant Secretary
Environment, Safety and Health
U. S. Department of Energy
1000 Independence Avenue SW.,
Washington, DC 20585

Subject: LONG-TERM STORAGE AND DISPOSITION OF WEAPONS-USABLE FISSILE MATERIALS; SCOPE OF PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS); COMMENTS ON--

Dear Ms. O'Toole:

The following comments apply to the scope of the subject Programmatic Environmental Impact Statement (PEIS).

1. DISPOSAL ALTERNATIVE--The permanent disposition of excess plutonium (Pu) and spent fuel with enriched uranium (U) at places like the Hanford Plutonium Finishing Plant or the INEL should be evaluated by the PEIS. The indefinite storage of plutonium residues and other forms without any identified uses is not the only possible alternative for such material. Considering that long-term indefinite storage cannot be accomplished without security, safety and environmental risks and at large costs, other lower impact alternatives, for example disposal, should be considered.

1a. INTERIM STORAGE--Interim storage waiting disposal should also be considered in the PEIS for plutonium containing materials, since this is the most logical scenario and may entail the lowest impact. This alternative parallels the scenario considered applicable to the large quantities of commercial fuel which contain plutonium. (We note that indefinite storage of spent fuel without reasonable assurance that disposal is possible is not an acceptable scenario in the United States.) Thus, common interim storage modes for commercial spent fuel and Pu should be considered. In particular an alternative that provides for modifying, "denaturing" the plutonium residues and other plutonium forms such that they are, 1. not easily transported; 2. are made highly dangerous for handling without elaborate shielded facilities; and 3. are readily detectable, should be evaluated in the PEIS. The intent should be to reduce the need for high levels of security to guard the plutonium wastes and to eliminate associated risks and costs.

An indefinite storage of materials without a foreseeable use does not appear to be a reasonable alternative for the PEIS consideration. In this regard a logical conclusion stemming from the potential assumption of no identified future use is, that there would be no positive benefits to off set the negative impacts associated with long-term storage. If use in weapons or for fueling power reactors were to be considered as an alternative future use, then impacts associated with these uses should be assessed in the PEIS, with an appropriate expansion of the scope to provide consideration of alternative material sources for those uses.

1b. STORAGE MODES COMMON WITH SPENT FUEL--Options for storage similar to the dry storage of commercial spent fuel in robust casks should be considered to discourage transportation and/or theft. Such modification of the plutonium form and storage schemes can eliminate the significant security provisions associated with interim storage of unmodified plutonium forms. In addition waste forms suitable for disposal can be fabricated which are readily storable in such casks.

2. DENATURING PROCESS--A process for "denaturing" plutonium in an operation at Hanford should be evaluated. Specifically the production of glass canisters doped with Cs and Sr, currently in storage at Hanford is hereby proposed as a concept for consideration. The canisters could then be held in storage in shield casks or other storage facility together with stabilized high-level radioactive wastes, spent fuel and greater-than-class-C wastes. The glass making process would be fairly flexible in its acceptance of various forms of Pu. (Separate preprocessing before the dilution with glass makers and vitrification to convert the to an oxide form should not be necessary.) Only minimal processing for real and immediate safety concerns should be considered for the Pu in storage at Hanford.

2a. IN-CAN VITRIFICATION USING EXISTING TECHNOLOGY--Vitrification could be accomplished by the in-can melting process perfected at Hanford in the early 70's for high-level radioactive wastes. Existing hot cell facilities at FMEM or in the PUREX facility should be considered for installation of the in-can melting process equipment on a scale that would handle the Pu at Hanford and also be available for other small scale production of waste glass at Hanford to facilitate waste management there. (The form of the glass so produced should be suitable for storage in dry self-shielded casks or other reasonable common storage mode for wastes or other materials requiring significant shielding.)

3. COORDINATE WITH OTHER NEPA PEIS'S AND EIS'S CONSIDERING WASTE MANAGEMENT ALTERNATIVES--Considering the costs associated with

interim storage of high specific activity wastes requiring shielded facilities, interim and long-term storage (disposal) design concepts should be considered that standardize facility designs and modes of disposal and integrate use and reuse of facilities and materials. (See comments 6 and 7 below.) Such coordination should extend to commercial fuel and high-level radioactive waste management, as well as, DOE waste actions for transuranic (TRU) wastes and defense spent fuel, including Naval Reactors fuel and research reactors. (Yakama Nation comments on the spent fuel EIS are attached and are pertinent to this coordination.)

4. REPROCESSING OF PU AS AN ALTERNATIVE--If it is decided to utilize Pu in power reactors in this country in the future, the recovery of the Pu, which would be dispersed in the glass forms proposed in comment 2. above, could be accomplished at the same facility that commercial fuel was reprocessed to recover the Pu it holds. However, it follows logically that without a firm national commitment to reprocess commercial spent fuel, which has by far represented the largest inventory of Pu when compared to the defense stores of Pu, it is unreasonable to consider the use of defense Pu for commercial purposes, given the political and security issues involved with proliferation of the use of Pu commercially.

5. RECOVERY OF ENRICHED URANIUM--Alternatives concerning use of the enriched uranium in cores under DOE's cognizance should also be considered to allow comparison of impacts associated with the interim storage and permanent disposal alternatives proposed above in comments 1 and 2. Such comparison should include evaluation of the following issues: 1. Special security because of its potential use in weapons, and 2. Other foreseeable uses.

Thus, the disposition of old spare unirradiated naval reactor cores with no potential future usage in ships or old army reactor cores with no foreseeable use should be considered by the PEIS evaluation process. The objective should be to decide on future management strategies for all potentially useful materials for weapons under the DOE's cognizance.

6. CRITERIA FOR USE IN DEVELOPING CONCEPTUAL ALTERNATIVES--In establishing a range of alternative actions for consideration, principles and values should form the basis for conceptualizing features of facility designs and action strategies as follows:

a. Minimize production of hazardous wastes, especially long-lived nuclear wastes, heavy metals and other long-lived chemical wastes that cannot be treated to eliminate the hazard. In addition assure disposal plans provide permanent isolation, similar to that provided by a deep geologic repository for long-lived wastes.

b. Minimize the new land required for facilities necessary for any given alternative, including disposal facilities for waste materials stemming from operations and decontamination and decommissioning the facilities at the end of their design life. The goal should be to recycle all materials and reuse existing facilities.

c. Integrate the conceptual design of systems under the subject PEIS with the concepts and designs of other DOE materials storage or disposal facilities, for example, the deep geological repository and the monitored retrieval storage facilities under the Office of Civilian Radioactive Waste Management, the Waste Isolation Pilot Project (WIPP) and/or other DOE Environmental Restoration/Waste Management Program facilities, including those going into transition and being considered for decontamination and decommissioning.

7. USE OTHER WASTE MATERIALS TO ACCOMPLISH GOALS--The use of other waste material such as the concentrated radioactive cesium in capsules at Hanford should be considered for blending with residual plutonium to spike it with a significant gamma source, making it more difficult to handle and divert. This action could be part of the action to modify the plutonium discussed in comment 2 above.

8. ANTICIPATE ADDITIONAL REGULATION OF ACTIVITIES--Alternatives considered should include the complete regulation/licensing of facilities and actions relative to environmental and health and safety matters, including nuclear matters, and cultural/religious matters of concern to the Yakama Nation. The Department of Energy should no longer consider self-regulation with respect to nuclear issues as the only option in NEPA evaluations and should include consideration of Indian Nation regulation as committed and agreed to by DOE management.

Sincerely,

Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakima Indian Nation

cc: K. Clarke, DOE/RL
J. Mecca DOE/RL
M. Riveland, WA Ecol.
G. Emison, U.S. EPA Reg. 10
T. Grumbly, DOE/EM
H. Canter, DOE/HQRS
R. DeGrasse, DOE/HQRS
Washington Governor M. Lowry
U.S. Congressman J. Inslee
U.S. Senator P. Murray
DNFSB