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DEPARTMENT OF ECOLOGY

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May 16, 1996

Ms. Marilyn B. Reeves, Chair
Hanford Advisory Board
Suite 342
800 NW Sixth Avenue
Portland, OR 997209-3715

Dear Ms. Reeves:

We want to share the state of Washington's comments on the Department of Energy's Draft Waste Management Programmatic Environmental Impact Statement (WM-PEIS) with the Hanford Advisory Board. We believe that these comments are generally consistent with the principles incorporated in the Board's Advice #38.

We believe three points are particularly important:

- ▶ The Department of Energy should deal with all wastes and nuclear materials resulting from the production of nuclear weapons in the context of a national equity dialogue, so viable and acceptable solutions can be found. The WM-PEIS does not provide the information needed to support such a dialogue.
- ▶ The draft WM-PEIS does not provide consistent, current data on all waste forms and on cumulative impacts.
- ▶ The WM-PEIS does not provide an adequate basis to select sites for specific waste disposal configurations. Much more complete site-specific analysis will be needed before any site selections can be made.

We believe these points caught the sense of the Board's advice, and that many of our specific comments reflect the principles contained in Advice #38.

Again, we appreciate the work of the Board in dealing with these complex topics. Hopefully these comments will be of some help to the Board and its constituent organizations as you press the case for the national equity dialogue.

Sincerely,

Dan Silver
Assistant Director
Waste Management Division

Enclosure





STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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February 16, 1996

Mr. David Hoel
WM PEIS Project Manager
U.S. Department of Energy
WM PEIS Comments
P.O. Box 3790
Gaithersburg, MD 20885-3790

Dear Mr. Hoel:

The Washington Department of Ecology acknowledges the significant work the U.S. Department of Energy (USDOE) has put forward in its Waste Management Programmatic Environmental Impact Statement (PEIS). For the first time, citizens have available to them, in one document, a great deal of information about the wastes contained in the nation's nuclear weapons production complex and the options for treating and disposing of those wastes. This is a major step toward public understanding and public involvement in decision-making.

We in Washington State believe that sound, lasting decisions must be made about disposing of the legacy of nuclear weapons production. We have called for a national dialogue to deal with the wastes included in the PEIS and other radioactive wastes and materials. Such a dialogue will include citizens and elected officials who must wrestle with questions of equity in sharing the benefits and burdens of our Cold War legacy.

The Department of Ecology has reviewed the Draft Programmatic EIS in some detail. Our major conclusions are:

- 1) **The draft PEIS fails to provide the whole picture.** While we understand all decisions cannot be bundled into a single EIS, the draft does not provide enough information about environmental cleanup wastes, surplus weapons materials, and radioactive and mixed wastes already disposed at USDOE sites to determine the real burden at each site and nationwide. The analysis of cumulative impacts and the discussion on the PEIS's relationship with other EISs are incomplete and lacking in substance.
- 2) **The PEIS, if revised to take care of this weakness, will provide an adequate basis for selecting conceptual approaches to treat, store, or dispose of each of the five classes of wastes.** If the relationships between other wastes, materials and actions are better understood, and if other information deficiencies are dealt with, the PEIS will enable USDOE to decide among no action, decentralized, regionalized and centralized

Washington State Department of Ecology
Specific Comments on the
USDOE Waste Management Programmatic EIS

General: The WM-PEIS is deficient in consideration of use or reuse of existing infrastructure and facilities for waste management purposes. The document should be revised to reflect present budgetary constraints on site infrastructure and present options for use of existing facilities. The WM-PEIS's assumption that new facilities will be built appears overly optimistic in light of current funding. USDOE is in the process of "transitioning" older facilities that may prove useful but currently have no foreseen mission. USDOE needs to develop a five-to-ten year rolling strategic plan to make more efficient use of existing facilities and new construction.

General: Privatization of Hanford's Tank Waste Remediation System (TWRS) is one example of how the federal government is shifting toward private companies performing a service formerly undertaken by government itself. The potential for privatization of key waste management activities or facilities throughout the USDOE weapons complex is not addressed in the WM-PEIS. This is a major concern because the WM-PEIS does not, therefore, reflect present conditions. The costs of some of the alternatives may vary considerably if private companies are given an opportunity to build projects with private capital to perform waste management services.

The WM-PEIS document should, at a minimum, discuss privatization and address it fully where it is presently considered to be an option, such as TWRS and the Waste Receiving and Processing (WRAP2A) facility at Hanford. Failure to do so may distort comparative costs of one alternative or another.

General: Air quality will be affected mainly by major facilities and operations. All other activities will not add significantly to air pollution. From a regulatory point of view, these major facilities and operations will have to file *Notice of Construction* and/or *Prevention of Significant Deterioration* permit applications before startup. During the permitting processes, acceptable air quality levels will be assured to protect the public, even if redesign is needed. Therefore, exceeding regulatory limits, as stated in the PEIS, is not an acceptable option. This position must be rewritten and stated clearly for all proposed alternatives.

General: There are many uncertainties and arbitrary assumptions used for the risk assessment. These factors include waste load, transportation scenarios, meteorological conditions, analytical methods and codes, control designs, mitigation measures, accident frequencies, conservative justifications, etc. The risk assessment applied degrees of

conservatism for each alternative in an arbitrary fashion. By doing so, it is difficult to compare alternatives according to their potential risk. Unless "degree of conservatism" can be handled on an equitable basis (i.e., best-estimate, or 95/95 approach for fair comparison), risk comparison should not be attempted.

General: Air quality, as well as risks, can be treated with better procedures, enhanced designs, and/or more cost. This philosophy is not mentioned in the PEIS. It is better to compare costs for proposed alternatives based on equal risk. When both costs and risks are being compared, results are often inconclusive and subject to interpretation.

General: When the analysis highlights environmental problems within alternatives, those problems should be used to eliminate the alternative, or to tag it as less desirable. Instead, the statement is made that the problems can be mitigated, with little explanation of how such mitigation might be accomplished, or the impacts of carrying out the mitigation. If environmental criteria are not used to discriminate between alternatives, this PEIS is of very little use. (For example, see comments regarding groundwater quality exceedances on pages 6-77, 7-74)

General: It is not logical to attempt to discriminate between alternatives when the same assumptions are made for each site. If the exact same assumptions are used, the risk is always the same and the analysis is useless. The correct method is to make site-specific assumptions, then use the same analysis method to determine relative risk. For an example of the incorrect method, see page C-49 where air quality impacts from worker cars are discussed.

General: State regulations are not considered in the analysis. State regulations, which will apply to discharges, etc., will impact cost and schedule.

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approaches for each of the waste streams. Moreover, we believe a national dialogue, based on the improved PEIS, will clarify the role equity must play in selecting conceptual conclusions.

- 3) **The PEIS is not adequate to select sites within a conceptual alternative.** The PEIS does not contain adequate data to support selecting specific sites for regionalized or centralized facilities. There are insufficient data about each of the major sites under consideration. Out-of-date and inaccurate data are used. Analytic methods are often so generic as to provide no real basis to choose among sites. Again, cumulative effects--taking account of other wastes and materials not included in these five categories--are not accounted for on a site-by-site basis.

We strongly recommend that USDOE use the final Programmatic EIS only to support decisions about strategies for dealing with each waste type. Decisions about the configuration of sites within the strategies adopted for each of the waste types should be supported by a second level of environmental impact analysis. That analysis should allow USDOE and the public to evaluate costs and benefits of locating facilities at specific sites.

Enclosed please find our detailed comments on the PEIS. As the agency designated to coordinate Washington State's comments on NEPA documents, we have also enclosed the comments of the Washington State Departments of Health, and Fish & Wildlife. If you have any questions on these comments, please call Geoff Tallent with the Department of Ecology at (360) 407-7112, Ed Bricker with the Department of Health at (360) 586-8947, or Jay McConnaughey with the Department of Fish & Wildlife at (509) 736-3095.

Sincerely,

Ty Hussamen
for
Mary Riveland
Director

Enclosures (3)

Ch.	Pg.	Comment
1	23	Third paragraph: In attempting to explain why Environmental Restoration (ER) was dropped from the scope of the PEIS, USDOE acknowledges the need for a national approach to ER. This suggests that programmatic decisions on Waste Management (WM) must be made with a programmatic understanding of ER. This EIS does not do that.
1	24	Table 1.6-2: This table should use current data. If this table is limited to WM waste it should state so.
1	25	Lines 4-18: The discussion of relocating facilities within a site is so general that it obscures several issues. First, the paragraph seems to imply that impacts on geology and soils, noise and visual/aesthetic impacts, habitat impacts, environmental justice, offsite land use, and cultural resources can be understood without specific information about specific sites. Second, the statement appears to imply that such impacts can be mitigated merely by moving a facility around within the perimeter of a (presumably large) site. The conclusion seems simplistic for several reasons. First, such factors as visual openness, distribution of populations on the perimeter of a site, and groundwater formations are likely to confound the simplistic linear notion stated here. Second, the assumption ignores existing commitments for future uses. For example, the Hanford Future Site Uses Working Group's scenarios would restrict all but the Central Plateau from new waste disposal facilities. Finally, it is not clear that this statement is consistent with the environmental impact criterion stated on p. 1-41. The statement on p. 1-25 appears to say that these impacts can be mitigated, so will not be used as a basis for decisions.
1	31	Table 1.7-1 overlooks the Hanford Remedial Action EIS which will make significant decisions on Hanford Site cleanup. The table also overlooks both the Fissile Materials and Pantex EISs which include options affecting the Hanford site.
1	40	Line 2: The EIS is inadequate to support the second element of the decision -- assignment of sites.
2	2	Section 2.2: Protection of the environment should be an element of USDOE's purpose and need and should be reflected throughout the PEIS.
3	12	Section 3.9: Other sites (including commercial sites) are reasonable alternatives. USDOE has already shown its intention to use such sites through various privatization initiatives. For example, portions of Low Level Mixed Waste treatment, originally to be performed on the Hanford Site, will now be performed by an off-site contractor.

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4	14	Lines 8 & 9: Using 1992 as a baseline year suggests a large body of information is dated.
4	18	Table 4-5: This partial list overlooks important contaminants the reader should be aware of. Chromium and nitrates are major contaminants in sediments and groundwater, respectively, at Hanford.
4	20	Section 4.3.5: There is no discussion of the land area that constitutes habitat for threatened and endangered species. The land area involved may be quite extensive.
4	22	Table 4-6: The number of threatened and endangered species at each site is an inadequate basis for the decision maker to compare siting options. There are many more facets to Ecological Resources. The Hanford Site also supports habitats that are more biologically diverse than the surrounding landscape due to protection from grazing, farming and development. The Hanford Site contains more State Priority Species of Concern than any other area of the State. In a recent Biodiversity Inventory of the Hanford Site performed by The Nature Conservancy, scientists discovered three plant and seven insects species new to science. This is a significant discovery. Table 4-6 fails to mention these significant findings. It also fails to mention how much of the Site contains State priority habitats. Approximately 80 percent of the Site contains priority habitat (cliffs, riparian, shrub steppe and wetlands).
4	25	Table 4-7 has no description.
4	26	Table 4-8: Where did the area 14,496 acres for waste management facilities originate? This figure is 140 percent above the Hanford Future Site Uses Working Group recommendation, which was 6,000 acres on the Central Plateau for waste management. Please refer to The Future for Hanford: Uses and Cleanup, The Final Report of the Hanford Future Site Uses Working Group, December, 1992. If this additional acreage is located on the Central Plateau, then waste management activities will have significant effects on State Priority Habitat (shrub steppe) and Priority Species, which may lead to listing for several shrub steppe dependent species.
4	26	Section 4.3.9: Infrastructure age as well as capacity should be considered when calculating impacts of proposed additional loads.
4	26	Table 4-8: The basis for these numbers is questionable. The reference appears to be USDOE 1995 (see comment on reference) but it is not clearly cited. In examining the only Hanford land use information found in the administrative record (which did not match the reference), no basis for these numbers was found. Understanding these numbers is important because they form the basis for later screening criteria.

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4	34	Table 4-12 fails to note that archeological surveys have been completed for only a fraction of the site.
4	50-56	Section 4.4.4 is not sufficient to understand the affected environment. It completely ignores the nature and extent of contamination and wastes currently on site. It is also overly brief in attempting to explain the environment and its significance (i.e. there is no mention of the regional significance of the Columbia River).
4	51	Water resources. This section should include the amount of annual precipitation for the Site, approximately 16.5 centimeters on Central Hanford.
4	52	Map in Figure 4-5 contains numerous deficiencies in labeling and an inaccurate site boundary.
4	53	Fifth bullet: The statement four major plumes enter the Columbia River in at least three locations is an extreme simplification. Four major contaminant plumes (Sr, Cr, U, and tritium) enter the Columbia River in more than four locations. Sr enters the river at the N, F and H Areas, Cr enters the river at H, D, and K Areas, U enters the river at the 300 Area, and tritium enters the river in the vicinity of the old Hanford townsite and the 300 Area. In addition, small TCE plumes enter the river at the F and 300 Areas. The carbon tetrachloride plume, which is one of the most extensive at the site, may enter the river at relatively high concentrations in approximately 100 years. Referencing only plumes currently entering the Columbia River minimizes potential problems stemming from waste management activities.
4	53	Geology and Soils: Although this is a relatively accurate description of site stratigraphy, this section is very general and lacks any detail with respect to soil variation. There are not enough Hanford specific geology and soil data. Also, too much relevant data are left out in regards to hydrogeological systems.
4	53	Geology and Soils, fifth bullet: The statement that soils vary from sand to silty sand and sandy loam, but are predominantly sandy loams is true only for surficial soils. In many parts of the site near the Columbia River, the Hanford Formation, a deposit of coarse-grained soils ranging in size from fine gravels to boulders, comprises most of the soil column above the basalt.
4	54	Ecological Resources, first bullet. Propose first sentence read "The Hanford Site contains the largest tract of undisturbed native shrub steppe remaining in the State of Washington, and is six linear miles from the second largest tract in the State, the Yakima Training Center." Suggest following with: "The National Biological Service

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has listed native shrub and grassland steppe in Washington and Oregon as an endangered ecosystem. (Biological Report #28, USFWS)."

In the Third sentence, the number 10 is incorrect. There are 24 plant communities present on the Hanford Site. Reference Biodiversity Inventory and Analysis of the Hanford Site, 1994 Annual Report, May 1995, prepared by The Nature Conservancy of Washington for the USDOE.

- 4 54 Ecological Resources, third bullet, last sentence. Propose sentence read "Of ecological importance, the Hanford Reach is the only significant mainstream spawning habitat remaining for Fall Chinook salmon." In addition, please add the following: "The Hanford Reach comprises the only significant remaining section of the inland Columbia River where white sturgeon are able to spawn (Status and Propagation of Chinook Salmon in the Mid-Columbia River through 1985. USFWS, Washington D.C.)." and "Three plant and seven insect species new to science have been discovered on the Hanford Site since 1994 indicating a unique ecosystem exists at the Hanford Site."
- 4 55 Land Use, first bullet, second sentence. The number 160,000 is incorrect. Only 77,000 acres was set aside as an arid land ecology reserve; referred to as ALE. Another 89,000 acres (Wahluke Slope) is managed by the U.S. Fish & Wildlife Service and Washington Department of Fish & Wildlife as a National Wildlife Refuge and Wildlife Area, respectively. Last sentence: See previous comment for Table 4-8 regarding 14,496 acres.
- 4 55 Land use, third bullet: The Yakima Firing Range should be referred to as the Yakima Training Center. Please correct.
- 4 141 USDOE 1995, *Affected Environment for the Waste Management Programmatic Environmental Impact Statement Department of Energy Sites* is an elusive document. It is loosely cited throughout chapter 4. Much of the site-specific information appears to be contained in it. In turn, many of the land-related impacts are dismissed based on it. It is cited as a draft document and could not be found at the Lacey, WA, administrative record. A similarly named document with an earlier date and different document number was found, but did not support much of the cited information.
- 5 1 Section 5.1: The PEIS fails to include specific information on ER wastes at Hanford.
- 5 3 Section 5.1.2 illustrates the heavy reliance on assumptions, generic cases, and conceptual models. It leaves the reader wondering whether anything is real in this EIS

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5	3	Section 5.1.2: Again, it is difficult to assess the accuracy of this approach as ER waste was not included. The inputs that were included in phase 1, the most important of which appears to be fuel use and emissions from mobile sources, misses the point. There is significant text devoted to fuel consumption, consideration of Hanford being situated within a non-attainment area, and the potential impact of mobile sources (backhoes, trucks, etc.) contributing significantly to air pollution. There is no consideration given to the possible air contaminant contribution that may result from actually remediating waste.
5	7	Table 5.1-1, box 1: Although not directly related to the analysis, the acronym ALOHA should not be used for a computer program. The use of this sacred Hawaiian greeting is akin to Shalom in Judeo-Christian culture. We are talking about a computer programmer's poison gas model
5	7	Sections 5.2 & 5.3: Another way to approach design and output would be to use "building fixed facilities" and "privatization" as paths forward in parallel. In the first scenario, collect detailed information of all available facilities existing in the USDOE complex and make clear how many new facilities are going to be needed in each alternative. In the second scenario, explore the benefits and limitations of the privatization option. Finally, compare the two scenarios and select portions of the WM more suitable to each option.
5	9	Lines 3-5: Summarily dismissing ER wastes because they are difficult to predict is inadequate.
5	12	First bullet: This is not a sufficient time period. At the Hanford Site, waste will be generated for much longer than 20 years.
5	13	Section 5.3.3, line 9: "Only the O&M costs were estimated for those existing facilities." Decontamination costs should also be included for existing facilities.
5	17	Line 25: It appears that land requirements below 5.4 square miles at Hanford are not "displayed in the waste-type chapters." If so, this would seem to be a substantial portion of land to be disregarding.
5	25	Table 5.4-1: The disposal phase should include "accidental" releases due to such things as earthquakes, floods, etc.

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5	49	Section 5.4.4 ties the impacts to Ecological Resources to an inadequate concept for land use impact thresholds (see comment on Section 5.4.8). In the subsequent analysis, this concept does not allow discrimination between alternatives.
5	51	Effects on Sensitive Species: Simply listing the threatened and endangered species while stating that potential impacts to them can not be predicted is not an adequate method for comparing alternatives.
5	59	Section 5.4.8 establishes a concept for land use impact evaluation and a threshold screening criteria that, when applied in the latter analysis, does not discriminate between alternatives.
5	64	Section 5.4.11: The PEIS is too general, and does not contain the needed site specific geological and hydrogeological information required to make an adequate analysis of the impacts of waste management at Hanford, or for that matter, at any other site.
5	64	Third paragraph: Seismic characteristics at Hanford were supposed to have been taken into account in the health risk assessment by evaluating accident scenarios in which the population was exposed to chemical and radiological waste constituents. The section on health impact analysis does not contain an explicit reference to seismic factors, therefore the health impact analyses may have been summarized too briefly.
5	65	Section 5.4.13, the first paragraph only mentions cumulative impacts from the waste management program. It excludes cumulative impacts from other actions such as environmental restoration, which may have considerable impacts to a site. All past, present and future remedial actions at a site should be considered in the cumulative impact section.
6	75	Section 6.6.2: For water quality impacts, USDOE only used USDOE or EPA standards. Washington State standards in some cases are more stringent than EPA standards and in most cases are more stringent than DOE standards. State standards should be taken into account for all states where they exceed those of the USDOE or EPA. Tables 6.6-3 and 6.6-4 are examples of where this should be noted. Comment also applies to related sections in chapters 7, 8 & 9
6	83	Sections 6.7.1 & 6.7.2: These sections fail to mention the impacts of site clearing on habitat. Site clearing causes fragmentation of wildlife corridors and blocks of habitat, thus diminishing habitat value for sensitive flora and fauna. In arid climates such as that at the Hanford Site, site clearing allows the invasion of exotic plant species, further degrading additional habitat surrounding a site. Comment also applies to relevant sections of chapters 7, 8, 9 & 10.

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6	97	Second sentence: Please provide a table with the listed suitable acreage for each site. It is not stated nor referenced in any data table.
6	115	Last two lines: Land use should be considered a factor. Waste Management Actions will destroy important habitat at some sites. At Hanford, mature shrub steppe habitat will be impacted. The National Biological Services has listed shrub and grassland steppe ecosystems in Washington and Oregon as endangered. Less than 40 percent of the original shrub steppe in the state of Washington remains. A large percentage of that has been degraded by grazing. The portion within the Hanford Site is of high quality. Several proposed sites are located in arid climates which receive low amounts of precipitation making restoration/mitigation extremely difficult. Comment also applies to Chapter 7.
7	14	Table 7.3-2: and following tables show the percentage (in parentheses) that shipped-in waste represents compared to locally-generated waste. This method of delineating the effect is biased against large sites, such as Hanford, that have large quantities of generated waste.
7	50	First paragraph: The analysis technique discounting USDOE Order 5820.2A and assuming a generic size of disposal unit could markedly underestimate disposal unit requirements and, therefore, the land required for disposal. USDOE Order 5820.2A <u>will</u> be the method by which disposal units are defined since Performance Assessments will be conducted under that order.
7	61	Table 7.4-15: Under Centralized Alternative 5, at Hanford an Offsite Population Dose of 0.1 person-rem is predicted to cause 5 cancer fatalities while a Worker Dose of 1,500 person-rem only leads to 0.6 cancer deaths. There seems to be a disconnect in those figures.
7	66	Last paragraph: The analysis has not adequately considered all ramifications of the Hanford Tri-Party Agreement (TPA) requirements and regionalized or centralized alternatives. We currently require thermal treatment of waste which will require large units for Hanford waste alone. Currently one commercial thermal treatment unit may be constructed just off-site and others are under consideration. Please evaluate for Hanford specific circumstances.
7	99	Lines 10 - 13: This is an admission of insufficient basis for "effective" analyses due to decisions about locations not having yet been made.
7	116	Table 7.16-1: Under "Groundwater Impacts from Disposal," the total of entries under the columns "# of sites that meet standards" and "# of sites that require additional

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constraints to meet standards" should be the number of disposal sites needed for each alternative.

- 8 51 Section 8.7.2: Analysis showed acreage required for TRUW facilities was 0.17 percent at Hanford. It is unclear whether this is based on 14,496 available acres referenced elsewhere in the document. The available acreage should be based on the 6,000 acres recommended by the Hanford Future Uses Working Group.
- 8 59 Section 8.10: Several reuses of the term "significant" within the section are accompanied by restatement of questionable assumptions related to transportation (randomness, probability).
- 8 72 Last 2 lines: This logic seems based on the assumption that cultural resources are equally distributed throughout all USDOE sites being considered, which is not true.
- 9 20 Section 9.3.5, The Centralized Alternative assumes that prior to the repository opening, in the year 2015, all HLW canisters would be shipped to Hanford for centralized storage. Canisters generated after 2015 at SRS and INEL would go directly to Yucca Mountain Nevada. In the past, Nevada has indicated that they do not want the HLW. Hanford could become a permanent centralized storage site under the Centralized Alternative. All of WIPP's 300 canisters would be shipped to Hanford because WIPP would generate all of its canisters prior to 2015. If acceptance of the HLW at the geological repository is delayed past 2015, all canisters from WVDP, SRS and INEL could be shipped to Hanford for storage prior to shipping to Yucca Mountain Nevada. Nevada may never accept these canisters, leaving Hanford as a permanent storage site. (TPA is impacted and MOD required.)
- 9 55 Table 9.13-2: This is based on the simplistic assumption of uniform distribution. The table on 9-55 is followed by a footnote worth noting: "Hanford's land requirements for HLW will increase by eight acres if the repository isn't taking wastes by 2015."
- 11 In general, Cumulative Impacts must address all past, present and future actions. This EIS fails to do so. It appears to address only Waste Management programmatic impacts.
- 11 17 Section 11.4: Cumulative impacts at Hanford do not appear to consider several waste categories -- most notably ER waste. While the text mentions all wastes, the discussion on calculating the cumulative impacts only cites two EISs as the basis. The PEIS also fails to mention impacts from other environmental actions such as the Environmental Restoration Disposal Facility (165 acres minimum; potentially impacting 1,024 acres), Safe Interim Storage EIS (74 acres), The 240 Access Road (18 acres), Solid Waste

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		Retrieval Complex (46 acres), and the Tank Waste Remediation System EIS (148 acres). If the maximum acreage of Waste Management impacted land is added to the maximum from other impacts, the total would be 1,489 acres (25%) of the 6,000 acres designated by the Hanford Future Site Uses Working Group. Much of this acreage has been designated as Priority Habitat by the Washington Department of Fish and Wildlife.
11	22	Table 11-9: Footnote "a" only cites three Hanford actions as "other actions." There are other impacts at Hanford - most notably ER programs.
11	23	Line 8: Other actions that will affect the 70 acres mentioned in the second paragraph should be described.
12	7	Table 12-1: There is no mention of compensatory mitigation. Mitigation appears to be premised on the ability to avoid and minimize impacts. In cases where that can not be accomplished, some form of compensatory mitigation is an option.
12	9	Habitats, second to last sentence: Please refer to comments on section 6.7.1, page 6-83.
B	1	Section B-1 erroneously leads the reader to the conclusion that all ER wastes complex-wide, and their cumulative impacts, are analyzed to determine their impacts on USDOE waste management decisions. In fact, this sensitivity analysis only looks at a small portion of ER wastes.
B	3	Sections B.1, 2, and 3 include a somewhat inaccurate description of the CERCLA process for evaluating and proceeding with remediation. References to RCRA could not be found. Beyond this, quantities given for the volumes present on a complex wide basis are then caveated by the statement that land use determinations, USDOE installations, and field offices will effect volume estimates. The estimates are virtually useless.
B	4	It is erroneous to assume CERCLA actions, or treatment in-place produce no wastes requiring treatment and disposal.
B	4	Section B.4 states the volume estimates do not include areas of contamination determined to be prohibitively expensive to clean up. There are two examples given. However, the criteria "prohibitively expensive" is not defined. Are there sites at Hanford which fell under this criteria, or did all of Hanford fall under this criteria? There are no volumes given for the Hanford site on Table B.5-1.

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B	7	Table B.4-2, Third bullet: Disposal volumes are generally not estimated at 1:1 ratio. A 30% fluff factor has been used in the volume estimates in the 100 Areas. Last bullet: Generation of ER wastes is said to occur over a 30 year period from 2003 to 2033. This does not match the TPA (2018) or DOE/RL long range plan (2047).
B	8	Table B.5-1: Neither the discussion, nor the table, allow the reader to reconstruct how these numbers were arrived at. No clear references are cited. Screening all Hanford ER wastes against the assumptions in appendix B, it is hard to believe that Hanford has no ER wastes which may be appropriate for WM treatment and disposal.
C	2	Figure C.1-1: Why were facility discharges (outputs) not analyzed against Environmental Justice, Land Use, and Cultural Resources?
C	47	C.4.2.1.2.2.2: "Facility fuel use values during the operations period were supplied in pounds of natural gas and gallons of liquid fuel." Natural gas is not used on the Hanford Site, apparently because it is not readily available. It is not clear from the discussion if it was assumed that all the sites used natural gas and fuel oil, or if the analysis used the type of fuel available at each site.
C	49	C.4.2.1.2.2.2: It was assumed that Hanford is the only site where a significant amount of carpooling occurs. Hanford's worker-trips were reduced by 19 percent to account for this ridesharing. This results in a inequitable comparison. Hanford will be ranked as more desirable for accepting waste because its employees are actively working to decrease impacts on the environment. In addition, the same mileage figures per day (40 miles round trip) are used for all site. These mileage figures are much too low for Hanford. A 40 mile one way trip would be more accurate. If Hanford's numbers are to be reduced to account for ridesharing, they should first be increased to account for the increased distance from the population centers to the available space for waste management activities. The mileage figures used should be site-specific. If the same figures are used for all alternatives, the relative impact will be the same and the analysis is useless.
C	58	C.4.3.2: In describing the water quality regulations considered, no mention is made of state regulations. Washington State has groundwater quality regulations that are more stringent than either EPA or USDOE regulations. These should be considered, as should regulations in other states.
C	60	C.4.3.3: "During normal operations, no untreated sanitary or process wastewater would be discharged to surface or groundwaters at any site. Wastewater would be recycled to the extent possible, would be treated, and then discharged to existing

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process or sanitary treatment plants, as appropriate. After the additional treatment, wastewater would be discharged from these plants in compliance with all NPDES and industrial wastewater discharge permits." This assumption is not valid for the Hanford Site. Existing sanitary treatment plants do not have the capacity to treat additional sanitary waste. Existing process treatment plants may not be able to treat the wastewater generated by these treatment facilities (depending upon flow rates and constituents.) In addition, state regulations are not considered.

- C 60 C.4.3.3: Page C-60 "Surface water resources would not be affected by effluent discharges at Hanford . . . because wastewaters are not discharged to natural-flowing surface water bodies." Page C-61 "During normal operation of waste treatment facilities, no releases directly to groundwater would occur. Therefore, groundwater quality would not be affected." According to these two statements, wastewaters would not be discharged to surface water or to groundwater. Since the construction of evaporation facilities is not mentioned, it appears these discharges were inadvertently ignored.
- C 63 C.4.3.4: Under impacts that were not evaluated in detail because they are considered to be minor, it states, "Sanitary wastes by definition are non-hazardous and would be discharged to existing wastewater treatment facilities." It also states, "Therefore, impacts from these activities (sanitary waste disposal) are not expected to be major, and should not influence the choice of alternatives." At the Hanford Site, existing wastewater treatment facilities do not have the capacity to treat this waste. Due to the large plumes of contaminated groundwater, the treatment of choice is evaporation lagoons. These are very large facilities (in the 10s or 100s of acres). The destruction of this much habitat would undoubtedly be a major impact which conceivably could influence the choice of alternatives. These impacts should be considered.
- C 64 C.4.3.4: The discharge of process wastewater is considered to be essentially the same throughout the alternatives and therefore is not expected to influence the choice of alternatives. However, state regulations vary from site to site. Therefore, similar wastewater may not comply with state regulations at all sites. This difference should be evaluated and considered.
- C 65 C.4.3.4: The section "Impacts from Transportation Accidents" concludes the impacts are minimal because of the low probability of long-term impacts to water quality. However, long-term impacts to water quality are not the only possible impacts from transportation accidents. Short term impacts and air quality impacts should be considered.

Ch.	Pg.	Comment
C	70	Table C.4-9: The water quality comparison criteria used are only EPA and USDOE criteria. No EPA contaminant levels are included for radionuclides because they are proposed regulations. The State of Washington has criteria for radionuclides that in many cases are more stringent than USDOE criteria. These criteria should be considered for alternatives involving Hanford. Appropriate state regulations should be considered for other sites.
C	75	C.4.4.1.2: Under "Habitat Effects Data Sources", it states that the total disturbed area includes 10-foot buffer zones around the facilities. However, for construction, it was assumed that a 25-foot laydown area around the facilities was used (Page C-18). This laydown area will not be usable habitat.
C	82	C.4.5.2: "Quantitative Effects" The economic analysis only considers increases in spending. What about decreases in spending as activities are shifted from the individual sites to a regional or central site?
C	120	Last three lines: If cultural resources impacts are not evaluated within the PEIS, how will such information be used in subsequent decisions?
C	120	Table C.4-19: Is the wastewater capacity shown here for sanitary or process wastewater? How were the numbers obtained? For most of the Hanford Site, the capacity for sanitary wastewater is much less than the current demand. Thus, the numbers shown here are misleading.
C	121	C.4.10.1.2: The description seems applicable to ALL of Hanford according to reserved rights with local tribes under the Treaty of 1855.
C	122	Line 22: Would a "historic property" as described include B Reactor? Would its preservation be balanced against use of other Hanford lands more culturally important to Native American tribes?
C	123	Line 22: How will such "unknowns" affect the decision to be made?
C	123	Line 12: Such "out of character" elements would seem to preclude any uses if the interpretation of C-121/14 were accepted.
C	124	Line 3: Chapter 4 contains sparse information leading to unknowns (above).
E		General: We appreciate the thorough transportation analysis done for the PEIS. In particular, we commend USDOE for including estimates of dose from severity category VIII accidents.

Ch. Pg. Comment

- E General: There is a counter-intuitive result in this section that, unless explained carefully, is likely to create serious credibility problems. While the larger total population doses for routine transport of LLW and TRUW, compared to HLW, can be explained in terms of volumes (cf. tables E-10, E-11, E-15, E-16, E-21, and E-22), the much higher doses associated with LLW and TRUW severe accidents, compared to the HLW accident, (cf. tables E-14, E-19, and E-26) is surprising. Table E-7 indicates that, for class VIII severity accidents, both LLW and HLW assume no package retention, though the availability of release from the TRUPACT II is much less. One assumes the major factor driving the differences relates to Table E-8, "Aerosolize and Respirable Material Releases". If so, the assumptions used to categorize waste inventories and to apply the factors in Table E-8 need to be discussed. Perhaps the "sensitivity analysis" in Section E.8.4 can be expanded to deal with this issue.
- E 2 It's not clear why USDOE says the analysis done for the PEIS is NOT to replace results of previous transportation analyses, given that the PEIS includes both new ICRP factors and new data on waste inventories.
- E 10 The transportation risk assessment does not examine traffic or infrastructure impacts. At the extreme (vol. 1, p.11-84) there could be 295,000 truck shipments, or 106,000 rail shipments, to Yucca Mountain/Nevada Test Site, or 56 truck, or 21 rail shipments, per day. These appear to be at a level that may well create additional risks due to traffic increases or infrastructure deterioration. These impacts need to be dealt with somewhere.
- E 11 The statement that "For some severe accident scenarios analyzed, it is possible the doses to individuals would have short term effects" needs elaboration, since such effects are not considered in the analysis. Are the acute doses in some cases sufficiently high that there are predictable effects? I.e., are there any doses of 300 to 500 rem possible?
- E 12 Two assumptions made here probably do not affect the relative impacts of alternatives within each waste category, but likely would affect the overall levels of risk/safety achieved. By making them, the PEIS is less useful for making programmatic decisions between modes of transport. One is the assumption that wastes carried by rail will not use special or dedicated trains. This is a conservative assumption, in that risks to both transportation workers and to the public near stops and railyards can be reduced by dedicated trains. Dedicated train use would increase the lower-risk advantage of rail over highway transport. The assumption of no intermodal transfers is convenient for consistency in comparisons, but probably not realistic. Clearly, intermodal containerized shipment is increasingly common. Its risk implications are not clear, but

Ch.	Pg.	Comment
		deserve to be explored.
E	17	In discussing the single-canister truck cask, there is no reference to USDOE's development of spent fuel casks, nor to the EIS on Multi-Purpose Canister systems. Is there any linkage between EM's high level waste program and these other efforts?
E	33	The statement at the bottom of p. E.-33 is potentially misleading. The population densities are route-specific by state only insofar as the routes are divided into rural, suburban, and urban. Average density data are used for these three categories (see p. E-41), not route-specific or state-specific data.
E	35	It would be very helpful to local emergency responders, who will be particularly interested in Appendix E, to relate the "MEI" in accident conditions to the risks associated with initial emergency response.
E	43	Is there any data to corroborate or alter NUREG 0710 (almost 20 years old) in terms of the fractional occurrences of accidents by accident severity category?
E	92	A minor point, given that on-link population doses account for only 5 percent of rail population doses, but one of some interest: Do rail calculations consider the additional risks of those alternatives that result in significant shipments in corridors where commuter rail service exists? Or is passenger rail density averaged for urban and/or suburban links?
E	94	We welcome the acknowledgement of the WIPP protocols as "representative" of those likely to be adopted for future USDOE shipping campaigns.
E	94	The last paragraph is incomplete. It fails to identify the costs and other impacts that may be borne by state, local and tribal governments to maintain the levels of emergency planning and preparedness associated with the major shipping campaigns that some alternatives contemplate.
E	26	The description of INTERLINE is inadequate. It should indicate the factors that actually determine routing.
H	6	The "national" baseline technology for organic destruction is incineration, according to 40 CFR 268.42. Hanford has not used incineration as an option for organic destruction due to political, public acceptability, or technical reasons. It may be difficult to evaluate incineration for Hanford wastes as a baseline when "Hanford costs" have not been confirmed or maybe not even calculable.

Ch.	Pg.	Comment
H	26	DNAPLs investigation is a high priority cleanup activity at Hanford. This PEIS suggests using a cone penetrometer for DNAPL investigations. However, at Hanford, cone penetrometer use may not be suitable for DNAPL characterization due to the depth of the groundwater and aquifer thickness.
H	27	The PEIS states that ground-penetrating radar shows the most promise for detecting shallow pockets of DNAPLs. At Hanford, this technique would have limited capacities for delineation of DNAPLs due to the depth of expected DNAPLs.
H	29	The applicability of the heated steam technology for inorganics or organics at Hanford is unconfirmed. Many of these contaminants are located at depths greater than 200 feet.
H	48	It is noted in the PEIS that new methods need to be developed for removal of 99Tc from groundwater. At Hanford, 99Tc removal was successful, to non-detect levels, in the 200-BP-5 and - UP-1 Operable Units using ion-exchange resins.
I		I-1.33 table: This analysis should address ecological impacts (e.g. habitat destruction, degradation) The arid climate sites will be affected much more than sites which receive adequate precipitation.

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DEPARTMENT OF ECOLOGY
ENVIRONMENTAL REVIEW

State of Washington
DEPARTMENT OF FISH AND WILDLIFE

1701 S. 24th Ave., Yakima, WA 98902-5720 Tel. (509) 575-2740
c/o Department of Ecology
1315 W 4th Ave, Kennewick, WA 99336

15 November, 1995

Ms. Barbara Ritchie, NEPA Coordinator
Environmental Review Section
State of Washington
Department of Ecology
P.O. Box 47703
Olympia, WA 98504-7703

Dear Ms. Ritchie:

Subject: Comments on the *Draft Waste Management Programmatic Environmental Impact Statement for managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, document DOE/EIS-0200-D.

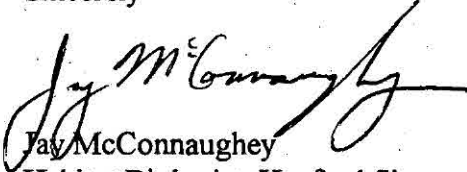
Washington Department of Fish and Wildlife has reviewed the aforementioned document and is providing comments to Washington Department of Ecology for incorporation into the Governor's response. Our agency mainly concentrated on the ecological sections of the document. The enclosure consists of 4 pages.

Postmark Date
11/16/95

Ms. Ritchie
15 November, 1995
Page 2 of 2

Thank you for the opportunity to comment on this EIS. If you have any questions regarding these comments, please contact me at (509) 736-3095.

Sincerely



Jay McConnaughey
Habitat Biologist, Hanford Site

jlm

Enclosure

cc: Washington Department of Ecology
Dave Lundstrom
Max Power
Geoff Tallent
Washington Department of Fish and Wildlife
Ted Clausing
Gordon Zillges

Programmatic EIS

Sect.	Pg.	Line	Comments
4.3.5	4-21		The Hanford Site also supports habitats that are more biological diverse than the surrounding landscape due to protection from grazing, farming and development. The Hanford Site contains more State Priority Species of Concern than any other area of the State. In a recent Biodiversity Inventory of the Hanford Site performed by The Nature Conservancy, scientists discovered 3 plant and 7 insects species new to science. This is a significant discovery. Table 4-6 fails to mention these significant findings. It also fails to mention how much of the Site contains State priority Habitats. Approximately 80% of the Site contains Priority Habitat (Cliffs, Riparian, Shrub Steppe, and Wetlands). Shrub steppe being the dominant.
4.3.8	4-26		Table 4-8, Hanford Site, Available acres. Washington Department of Fish and Wildlife (WDFW) is confused on where the 14,496 acres for waste management facilities originated. WDFW is unaware of any published document by USDOE-Richland Operation Office that cites this 14,496 acres. This figure is 140% above the Hanford Future Uses Working Group recommendation which was 6000 acres on the Central Plateau for waste management. Please refer to the document titled <i>The Future for Hanford: Uses and Cleanup, The Final Report of the Hanford Future Site Uses Working Group, December, 1992</i> . This 140% level well exceeds the 10% accuracy mentioned in the text above. Where is this additional acreage located? If it is on the Central Plateau, then yes, the waste management activities will have significant effects on State Priority Habitat (shrub steppe) and Priority Species which may cause listing for several shrub steppe dependent species.
4.4.4	4-51		Water resources. This section should include the amount of annual precipitation for the Site. The amount is approximately 16.5 cm of precipitation on Central Hanford.
4.4.4	4-54		Ecological Resources, first bullet. Propose sentence read "The Hanford Site contains the largest tract of undisturbed native shrub steppe remaining in the State of Washington, and is 6 linear miles from the second largest tract in the State, the Yakima Training Center."
4.4.4	4-54		Ecological Resources, first bullet, second sentence. Suggest following that sentence with the following: "The National Biological Service has listed native shrub and grassland steppe in Washington and Oregon as an endangered ecosystem" (Biological Report #28, USFWS)
4.4.4	4-54		Ecological Resources, first bullet, third sentence. The

			number 10 is incorrect. There are 24 plant communities present on the Hanford Site. Please correct this error. Reference <i>Biodiversity Inventory and Analysis of the Hanford Site, 1994 Annual Report, May 1995</i> . prepared by The Nature Conservancy of Washington for the USDOE.
4.4.4	4-54		Ecological Resources, third bullet, last sentence. Propose sentence read "Of ecological importance, the Hanford Reach is the only significant mainstream spawning habitat remaining for Fall Chinook salmon." In addition please add the following: "The Hanford Reach comprises the only significant remaining section of the Inland Columbia River where white sturgeon are able to spawn" (<i>Status and Propagation of Chinook Salmon in the Mid-Columbia River through 1985</i> . USFWS, Washington D.C.).
4.4.4	4-54		Ecological Resources, third bullet. Please insert the following sentence at the end of bullet "Three plant and 7 insect species new to science have been discovered on the Hanford Site since 1994 indicating a very high quality ecosystem exists at the Hanford Site."
4.4.4	4-55		Land Use, first bullet, second sentence. The number 160,000 is incorrect. Only 77,000 acres was set aside as a arid land ecology reserve; referred to as ALE. Another 89,000 acres (Wahluke Slope) is managed by the USFWS and WDFW as a National Wildlife Refuge and Wildlife Area, respectively.
4.4.4	4-55		Land Use, first bullet, last sentence. See previous comment for section 4.3.8 pg 4-26, regarding 14,500 acres.
4.4.4	4-55		Land use, third bullet. The Yakima Firing Range is referred to as the Yakima Training Center. Please correct.
5.4.13	5-65		first paragraph. This paragraph only mentions cumulative impacts from the waste management program. It excludes cumulative impacts from other actions (e.g. environmental restoration) which may have considerable impacts to a site. WDFW requests that all actions (NEPA/CERCLA; past present and future) at a site be considered in the cumulative impact section.
6.7.1	6-83		This section fails to mention impacts of site clearing on habitat. Site clearing will impact habitat by causing fragmentation of wildlife corridors and/or small/large blocks of habitat thus diminishing habitat value for sensitive flora and fauna. In arid climates such as that at the Hanford Site, site clearing will allow the invasion of exotic plant species further degrading additional habitat surrounding a site.
x.7.1			The previous comment (6.7.1). Applies also to relevant section of chapters 7, 8, 9, and 10.
6.11	6-97		second sentence. please provide a table with the listed suitable

			acreage for each site. It is not stated nor referenced in any data table.
x.11			Previous comment (6.11). Comment applies also to relevant section of chapters 7, 8, 9, and 10.
6.16	6-117		Land use should be considered a factor. Waste Management Actions will destroy important habitat at some of the sites. At Hanford, mature shrub steppe habitat will be impacted. The National Biological Services has listed shrub and grassland steppe ecosystems in Washington and Oregon as endangered. Less than 40% of shrub steppe in the State of Washington remains. A large percentage of that has been degraded by grazing. What is within the Hanford Site is of high quality. This is supported by the fact that 3 plant and 7 insects species new to science have been discovered since 1994. Several proposed sites are located in arid climates which receive low amounts of precipitation making restoration/mitigation extremely difficult.
x.16			Previous comment (6.16). Comment also applies to relevant section of chapters 7, 8, 9, and 10 as well.
8.7.2	8-51		Analysis showed acreage required for TRUW facilities was 0.17% at Hanford. It is unclear whether this is based on 14,496 acres referenced elsewhere in the document. WDFW believes this available acreage should be based on the 6000 acres recommended by the Hanford Future Uses Working Group.
CH 11			In general, Cumulative impacts must address all past, present and future actions. This EIS fails to do so. It appears to address only Waste Management programmatic impacts.
11.4	11-23		Hanford Site. This EIS fails to mention impacts from other environmental actions such as the Environmental Restoration Disposal Facility (165 acres min.; potentially impacting 1024 acres), Safe Interim Storage EIS (74 acres), 240 access road (18 acres), Solid Waste Retrieval Complex (46 acres), Tank Waste Remediation System EIS (148 acres). If the maximum acreage of Waste Management impacted land is added to the maximum from other impacts, the total would be 1489 acres (25%) of the 6000 acres designated by the Hanford Future Uses Working Group. Most of this habitat has been designated as Priority Habitat by the Washington Department of Fish and Wildlife.
11.4	11-23		It is unclear whether the 70 acres mentioned in the second paragraph is related to Waste Management actions or not. Please clarify this?
12.2	12-9		Habitat, second to last sentence. Please refer to comments on section 6.7.1, page 6-83.
TableII	3		This analysis should address ecological impacts (e.g. habitat

-1.3			destruction, degradation) The arid climate Sites will be affected much more than Sites which receive adequate precipitation.



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STATE OF WASHINGTON

DEPARTMENT OF HEALTH

DIVISION OF RADIATION PROTECTION

Airustrial Center, Bldg. 5 • P.O. Box 47827 • Olympia, Washington 98504-7827

January 4, 1996

TO: Barbara Ritchie
Central Programs
Department of Ecology

FROM: Al Conklin, Head *Al Conklin for*
Air Emissions and Defense Waste Section

SUBJECT: **USDOE - DRAFT WASTE MANAGEMENT PROGRAMMATIC
ENVIRONMENTAL IMPACT STATEMENT**

I am sending comments that my staff provided me on the Department of Energy's Draft Waste Management Programmatic Environmental Impact Statement. We appreciate the opportunity to present our concerns on this very important topic.

As stated, this Waste Management Programmatic Environmental Impact Statement (WMPEIS) is a nationwide study examining the environmental impacts of managing five types of radioactive and hazardous wastes that resulted primarily from nuclear defense activities, and the production of weapons grade material.

The Washington State Department of Health, Division of Radiation Protection, administers, regulates and enforces state and federal laws as they relate to radioactive hazardous air pollutants. On page three of the WMPEIS under Section 1.2 "Understanding the Applicable Laws and Regulation Guiding DOE's PEIS Process" we note that no mention is given to Washington State laws and regulations as they relate to this Draft EIS. After review of this document this oversight appears to be too generic in nature and in fact, that could be a very good description of this EIS, it is very generic. It does not mention Washington State DOH WAC 246 - 247, "Rules and Regulations for Radiation Protection" or any state or local regulations. For example on page 13 of the summary the DOE says in paragraph four that of the criteria DOE "may use" to screen, evaluate and narrow the current alternatives for each waste type, regulatory compliance and all

Barbara Ritchie
January 4, 1996
Page Two

regulations are mentioned as a possible qualifier. This use of the wording "may use" in paragraph four again is indicative of the attitude of this EIS towards Washington State Regulations. The wording should be changed to "shall use" and the EIS should list all state and federal regulations for clarification.

The following items are problem areas that our department feels need correcting:

1. This EIS is too generic for states to be able to evaluate proposed alternatives as they relate to their individual programs.
2. There is no specific mention of state regulations.
3. The EIS skirts the issue of whether state regulations will be used as qualifying factors for selection of considered waste types. Reference page 13, paragraph 4.
4. Page 42 of the summary under 5.3.2 states that emissions of radionuclides were estimated to be below the applicable standards at every site. Previously in the same paragraph the EIS notes that adverse air quality impacts could result at two facilities (Paducah and Nevada) that appear to have less low-level waste than at Hanford? (Reference: page 36) Whose standards are they referring to and will air quality be impacted? Why will the standards be violated more at NTS and Paducah than at Hanford which has more LLW waste?

I hope our comments have been helpful. Please contact Ed Bricker of my staff at (360) 586-8947 if you have any further questions regarding this EIS.

AWC/EB/jr

cc: John Erickson