APPENDIX B:

STAKEHOLDER COMMENTS AND DOE RESPONSES

Title of Document: ***Environmental Assessment on the Implementation of the Authorized Limits Process for Waste Acceptance at the C-746-U Landfill, Paducah Gaseous Diffusion Plant, Paducah, Kentucky***
Document number or other identifier: DOE/EA 1414
Comments Received: April 23, 2001

Name of Commentor:	**John Hamilton, Project Officer**
Organization of Commentor:	**U.S. Environmental Protection Agency, Office of Environmental Assessment (OEA), Region IV**

Comment No.	Page/Reference	Comment	Response
		Comments	
1	Site Ownership and Management, Section 1.1	Section 1.1 indicated that authorized limits are approved by DOE *to permit the release of property under DOE control* (italics added) consistent with radiation protect standards for general employees, members of the public, and the environment. Although this clause referencing releases of property does not appear elsewhere in the document, it is not clear if DOE intends to dispose of the C-746-U Landfill, operate it through the contractor-based management plan, or privatize the site for commercial uses, presumably as a landfill. The document should clearly indicate DOE's future ownership/management plans for the site.	DOE has no current plans to either transfer, or privatize, the landfill for commercial use. DOE's current plans are to continue to operate the C-746-U Landfill as a DOE-owned contractor-operated facility indefinitely. The proposed action to implement the authorized limits process presumes continued DOE ownership of the facility. The authorized limits process may be applied to the release of real or non-real property (including waste) that contains low levels of residual radioactive materials. Release may be unrestricted or may be restricted to a specified disposition (e.g., disposal at an onsite DOE landfill, disposal at a non-DOE offsite landfill). Under the proposed action, each waste stream would be released specifically for disposal at the C-746-U Landfill.

Comment No.	Page/Reference	Comment	Response
2	Waste Material Sources and Volumes Page 4, Section 2.2	The Preferred Alternative discussion indicated that "... [O]nly off-site waste generated as a result of PDGP operations and activities would be accepted from off-site for disposal in the C-746-U Landfill (e.g., concrete rubble from Wag 17)." This statement requires clarification, for it is unclear at how many waste streams are generated in the process from mining, transport, and enrichment "operations and activities" might entail. The average citizen reading this EA has no way to determine how and where off-site wastes might be generated requiring transportation to and disposal in the C-746-U Landfill. The document should clarify potential materials and volumes of wastes that are generated off-site, and to what extent other off-site waste streams will be disposed in the landfill.	The statement has been clarified to indicate that only waste at the PGDP and generated as a result of cleanup activities in the immediate vicinity of the PGDP would be disposed of at the C-746-U Landfill. This EA does not consider disposition of specific waste streams. Rather, it considers implementation of the authorized limits process at the C-746-U Landfill.
3	Geologic Features Section 4.3	Accident scenario describes potential damage of the composite liner as a result of seismic event and that the Paducah Site is in an area of high seismic risk, such as earth tremors. We are aware of other seismic events: portions of Kentucky are underlain with karst formations - subterranean fissures, sinkholes, caves, and discontinuities created by eroding limestone - that may collapse or subside due to groundwater erosion of the sub-surface limestone. The collapse of a karst feature beneath the landfill - assuming one were to exist - could place radioactive materials in contact with groundwater and thereby spread to surface waters. The document should indicate if the site were examined for potential karst features and evaluate the risk for collapse.	The accident scenario described in the EA was considered a worst case scenario, i.e., complete failure of the landfill containment. No additional seismic evaluations were included because the worst case "catastrophic failure of the landfill containment system" is an upper bound of the worst case event, seismic or otherwise.

Comment No.	Page/Reference	Comment	Response
4	NEPA Process	The distribution of the EA to the public was minimal to unsatisfactory. Other than federal and state agencies, it appears that only five persons - the mayor of Paducah, the wildlife manager, a citizen's board and two citizens - were provided with a copy of the document. It is suggested that the document achieve a much wider distribution and be submitted to libraries, environmental interest groups, and local news print press more thoroughly meet the intent of NEPA to disclose to the public a government action.	The document was more widely distributed than described in this comment. The general public was informed about the issuance and availability of the draft EA through local press announcements, specifically in the Paducah Sun. Additionally copies of the draft EA were distributed to the McCracken County Public Library in Paducah, KY; the Environmental Information Center in Kevil, KY ; the DOE Reading Room in Oak Ridge, TN; individuals who have requested to be included on the PGDP mailing list; and also was available to download from the internet.

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Name of Commentor:	**Jon Richards, Regional Radiation Expert**
Organization of Commentor:	**U.S. Environmental Protection Agency, Office of Technical Services, Region IV**

Comment No.	Page/Reference	Comment	Response
		General Comment	
1		... concern for DOE not being completely "open" or clear about levels of residual radioactivity being below their levels of concern without acknowledging CERCLA risk ranges of concern. And, applying their DOE orders as the criteria for decision making for DOE operated activity, yet on an NPL site, is not discussed clearly either.	Germane risk levels are presented in Section 4.2.1, page 22 of the EA. CERCLA risk ranges are not relevant for purposes of the EA since the C-746-U Landfill is not the subject of a CERCLA action. A major purpose of this EA is to ensure openness and clarity about the process used to evaluate what levels of residual radioactive materials are acceptable for disposal at the C-746-U landfill. The process for this evaluation is the authorized limit process prescribed in DOE Order 5400.5 and associated guidance.

Comment No.	Page/Reference	Comment	Response
		Specific Comments	
1	Page 1, Section 1.1	"for the purposes of AEA" - need AEA reference for what's considered "below authorized limits." Is this specific to each site, or general or what? Page 33 - What about for purposes of CERCLA? What does this level compare to the risk range, e.g., 1 mrem/yr ~ 10^{-5} risk?	As the EA discusses the standards for determining what is considered below authorized limits are set forth in DOE Order 5400.5. The EA discusses the requirements for the application of those standards. By definition, levels of residual radioactive materials below authorized limits for a specified waste stream and disposition do not require control as radioactive waste under the AEA. The authorized limits must be established for each waste stream and disposition, in this case the C-746-U landfill. While the CERCLA target risk range is not directly pertinent to the authorized limits process, the dose constraint selected for the C-746-U landfill of 1 mrem/yr is well within this target risk range as noted in Section 4.2.1.
2	Page 2, 2d paragraph	Understanding the limitations given in Sec. 2.2.1, ignoring the volumetric levels of non-uranium radionuclides, like ^{99}Tc can severely underestimate the source term potential for the performance of the landfill, for e.g., ~1000 yrs. It will be crucial to analyze the waste removed from the N-S ditch, for e.g., to get an accurate estimate of the future source term put in it.	As discussed in the EA, implementation of the authorized limits process would include limits for all applicable radionuclides, not just uranium. The evaluation of future specific waste streams would take into consideration specific radionuclides contained in those waste streams.

Comment No.	Page/Reference	Comment	Response
3	Page 3, Section 1.3	Don't understand why Alt. 2 is the only option, and not one that might consider performance of a low-level or residual radioactive waste landfill, like 10 CFR 61 or KY's equivalent? Oak Ridge is using 1^{-5} for first 1,000 yrs, and 1^{-4} for post-1,000 yrs. Have you considered being consistent with their CERCLA landfill?	The current EA considers only the operation of the C-746-U Landfill, which is a permitted solid waste contained landfill. Specifically, this EA considers the implementation of the authorized limits process for evaluating wastes for potential disposal at this facility. Criteria for approval of authorized limits are specified in DOE Order 5400.5 and associated guidance. The Oak Ridge facility referenced in the comment is dissimilar from the C-746-U landfill in that it is designed for disposal of radioactive and/or hazardous wastes.
4	Page 4, Section 2.2	Who's the "local approval?" KY? Need to be specific on who has the authorization and who's determining levels below levels of DOE, EPA, and KY's concern. Also, where this dose is to be applied is questionable: worst case scenarios of several waste streams being close to the 1 mrem/yr limit vs what is calculated at the "compliance point" vs MCLs, for e.g., need to be discussed here.	Local approval refers to the DOE Field Office. DOE is authorized to make this determination under the AEA as discussed in Section 1.2 of the EA. The meaning of this portion of the comment is unclear.

Comment No.	Page/Reference	Comment	Response
5	Page 6, Section 2.2.2	"The applicable Federal and state requirements" need to be at least referenced here, as well it would be appropriate to include here the primary driver, i.e., MCLs [40 CFR 141].	Comment Noted: Applicable laws and regulations include 401 KAR 48:300, "Surface and Groundwater Monitoring and Corrective Action." This regulatory requirement addresses standards for solid waste facilities requiring a groundwater monitoring plan and design requirements for groundwater monitoring systems. This is the regulatory driver for groundwater monitoring at the C-746-U contained Landfill. Applicable MCLs are referenced in the above referenced regulations. Reference to KAR 48:300 has been added to the EA.
6	Page 7, top sentence	To avoid future "unnecessary" surveys or remediation of this landfill, precaution and examples from other DOE sites should be followed, whether other low-level radioactive waste disposal sites or other remediation burial sites under CERCLA.	Any remediation levels ultimately developed for the Paducah site and other similar sites would be considered in the evaluation of authorized limits for a specific waste stream.
7	Page 20, Section 4.1.1	This discussion on relative radiation doses to the public should be included separately in an appendix or the glossary, not here under the alternatives. This is inappropriate to the discussion of the alternatives and the actions proposed. Also, the dose/risk discussion in Section 4.2.1 similarly should be moved to the back.	Comment noted.
8	Page 33, Glossary	Need to add definitions for "residual radioactivity" and "radioactive contamination." Also, the definition for "radioactive waste" should not be from a RCRA CFR reference. Use a DOE or NRC definition/reference.	"Residual radioactivity" has been added to the Glossary. No definition for was added for "radioactive contamination."

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Comments Received: April 23, 2001

Name of Commentor:	**Jeffery Crane, Senior**
Organization of Commentor:	**U.S. Environmental Protection Agency, Federal Facilities Branch, Region IV**

Comment No.	**Page/Reference**	**Comment**	**Response**
Comments			

Comment No.	Page/Reference	Comment	Response
1	Section 1.2	This section should provide a more thorough description of the expected waste streams. Specifically, describe whether the landfill expects to receive wastes from CERCLA response actions and RCRA corrective actions. A more thorough description of anticipated waste streams, volumes, hazardous substances, waste form, etc., should be provided.	The scope of the EA is appropriate for the proposed action, which is the implementation of the authorized limits process per DOE Order 5400.5 at the C-746-U Landfill. Any effects that would result from the disposition of future waste streams would be bounded by the 1 mrem/yr effective dose equivalent (EDE) standard that is proposed for determining authorized limits at the C-746-U Landfill. It is not a foregone conclusion that CERCLA-derived materials will be disposed in the C-746-U Landfill. Decisions pertaining to the potential disposal of such materials will be addressed through future CERCLA decision documents and in accordance with applicable permit, regulatory, and statutory requirements and are beyond the scope of the proposed action discussed in this assessment. However, while the determination of whether to place CERCLA-derived materials in the landfill is beyond the scope of the proposed action, potential impacts

Comment No.	Page/Reference	Comment	Response
1 continued			associated with the potential disposition of CERCLA-derived materials are properly considered within the scope of the cumulative impacts analysis since such disposition may in fact occur. Thus, potential for disposal of CERCLA-derived materials is considered in the Cumulative Impacts portion of this EA.
2	Sections 1.1 and 1.4	The purpose of DOE Order 5400.5, as stated in Section 1.1 is to "... establish standards and requirements for operation of the DOE and DOE contractors with respect to protection of members of the public and the environment against undue risk from radiation." The purpose of the proposed action is to implement the Authorized Limits Process to demonstrate the C-746-U Landfill operations are protective of human health and the environment for "residual" radioactivity. This process appears to be consistent with the intent of the performance assessment process being conducted for the CERCLA repository for radionuclides and would be a necessary evaluation to demonstrate the long-term protectiveness of the landfill operations, specifically for radionuclides.	Performance assessments are conducted for disposal facilities that accept radioactive waste. DOE is not proposing that the C-746-U Landfill accept radioactive waste (see pp 1 and 4 in the EA).

Comment No.	Page/Reference	Comment	Response
2 (continued)		The Authorized Limits Process does not address non-radioactive hazardous substances. If DOE confirms its intent to use the C-746-U Landfill for disposal of wastes derived from CERCLA remedial actions and RCRA corrective actions in response to Comment 1 above, DOE should agree to assess the long-term protectiveness of the C-746-U Landfill operations for hazardous substances and not limit the technical evaluation to radionuclides. EPA believes that any consideration for programmatic use of the C-746-U Landfill for on-site disposal of CERCLA and RCRA cleanup wastes must be defended with a performance assessment that demonstrates the long-term protectiveness of the landfill operations for key hazardous substances, including both radionuclides and chemicals. Fortunately, the level of effort to conduct this assessment can be reduced by coordinating a C-746-U Landfill performance assessment with the performance assessment for the CERCLA Repository. The C-746-U Landfill operations and waste streams that differ from the CERCLA Repository design and waste inventory can be accounted for in the model assumptions (e.g., single liner, geologic setting, waste source concentrations, etc.).	The scope of the EA is the implementation of the authorized limits process per DOE Order 5400.5 at the C-746-U Landfill. The waste streams that would be accepted at the C-746-U Landfill would be non-hazardous under RCRA (page 4 of the EA). Accordingly, the EA addresses residual radioactivity that could be present in non-hazardous and in waste that is not classified as radioactive waste. As noted in the response to the previous comment, performance assessments (PAs) are conducted for radioactive waste disposal facilities, under the requirements of DOE Order 435.1. Since the C-746-U landfill does not accept radioactive waste, no PA is required for this facility. However, please note that the analysis conducted under the authorized limits process is similar in many respects to the PA process.

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Comments Received: April 27, 2001

Name of Commentor:	**Tuss Taylor for Robert H. Daniell**
Organization of Commentor:	**Division of Waste Management for the Kentucky Natural Resources and Environmental Protection Cabinet, Comments for the Solid and Hazardous Waste Branches**

Comment No.	Page/Reference	Comment	Response
General Comments			

Comment No.	Page/Reference	Comment	Response
GC-1		This document, along with the 1995 Environmental Assessment (EA) for the C-746-U Landfill, fails to provide an adequate assessment for the proposed disposition of site remediation wastes. The scope of the document should be expanded to assess the environmental consequences caused by disposition of site remediation wastes in the U-Landfill.	The scope of the EA is appropriate for the proposed action, which is the implementation of the authorized limits process per DOE Order 5400.5 at the C-746-U Landfill. Decisions pertaining to the potential disposal of CERCLA-derived materials will be addressed through future CERCLA decision documents and in accordance with applicable permit, regulatory, and statutory requirements and are beyond the scope of the proposed action discussed in this assessment. However, while the determination of whether to place CERCLA-derived materials in the landfill is beyond the scope of the proposed action, potential impacts associated with the potential disposition of CERCLA-derived materials are properly considered within the scope of the cumulative impacts analysis since such disposition may in fact occur.
Specific Comments			
Hazardous Waste Branch			

Comment No.	Page/Reference	Comment	Response
HW-1	Page 3, Section 1.3	The Kentucky Division of Waste Management does not agree with DOE's approach to the evaluation and assessment of the C-746-U Landfill under the NEPA process. Specifically, the Department does not believe that "tiering under and supplementing" (as DOE describes this assessment on page 3) a fundamentally flawed 1995 EA for the C-746-U Landfill accomplishes the intent of NEPA. The 1995 EA for the C-746-U Landfill did not adequately address the remediation wastes that DOE, according to recent draft decision and budget planning documents, intends to place in this landfill. This assessment fails to even attempt to quantify the contaminated material associated with this proposed action or the potential environmental releases associated with such an action.	Please see response to GC-1. DOE believes that the document is NEPA compliant.
HW-2	Page 3, Section 1.4	The statement of purpose and need does not relate to the broad requirement of DOE action, instead it relates only to one specific proposal, (the authorized limits process). Expand this section and, for that matter, the entire document to address the wastes proposed for disposal in the C-746-U Landfill and the environmental impact of this proposed action.	The statement of purpose accurately reflects the proposed action, which is the implementation of the authorized limits process per DOE Order 5400.5 at the C-746-U Landfill. Decisions pertaining to the potential disposal of CERCLA-derived materials will be addressed through future CERCLA decision documents and in accordance with applicable permit, regulatory, and statutory requirements and are beyond the scope of the proposed action discussed in this assessment. However, while the determination of whether to place CERCLA-derived materials in the landfill is beyond the scope of the proposed action, potential impacts associated with the potential disposition of CERCLA-derived materials are properly considered within the scope of the cumulative impacts analysis since such disposition may in fact occur.

Comment No.	Page/Reference	Comment	Response
HW-3	Page 4, Section 2.2	This alternative should be expanded to fully address the wastes proposed for disposal in the C-746-U Landfill.	The discussion of the alternatives properly reflects scope of the proposed action, which is the implementation of the authorized limits process per DOE Order 5400.5 at the C-746-U Landfill. See also responses to GC-1 and HW-2.
HW-4	Page 19, Section 4.0	This section should be expanded to include the potential for releases from all hazardous substances associated with the planned disposition of remediation wastes in the C-746-U Landfill.	This EA properly addresses potential effects, given the alternatives presented in the EA. Specifically, the EA discusses: potential effects to workers, the public, biota, water quality and air quality resulting from radiological exposures; potential for radiological releases to surface and groundwater and air, and potential indirect effects related to cost-effectiveness of landfill operations. See also responses to General Comment 1 and Specific Comment 2.

Comment No.	Page/Reference	Comment	Response
		Solid Waste Branch Comments	
SW-1		The C-746-U Landfill is permitted and regulated under numerous statutes and regulations in addition to 401 KAR Chapter 48, which was the only solid waste regulation cited in the subject document (see Page 2, Paragraph 4). Applicable statutes and regulations include (but are not limited to) KRS Chapter 224 and 401 KAR Chapters 30, 40, 47, 48, and 49.	Comment noted.
SW-2		According to the Environmental Assessment, DOE Order 5400.5 applies to the "establishment of authorized limits for the disposal of DOE waste streams containing residual radioactive materials at DOE on-site landfills and *at non-DOE off-site landfills*." If this is so, can this waste be taken to any contained landfill?	The proposed action only addresses implementation of DOE Order 5400.5's authorized limits process for waste potentially destined for disposal at the onsite C-746-U Landfill. Authorized limits must be developed and approved for the specific waste stream and disposal facility, and in this case would be specific to the C-746-U landfill.
SW-3		The C-746-U Landfill's liner may not be ideal for the emplacement of conventional municipal solid waste, much less low level radioactive waste and/or CERCLA cleanup waste. The liner design of the C-746-U Landfill was determined to meet the generic minimum requirements of the Kentucky Administrative Regulations at the time the initial construction permit was issued. However, meeting the generic minimum of the requirements of the regulations is not necessarily equivalent to being protective of human health and the environment. The design inadequacies include: (1) Subgrade instability and lack of underdrain, (2) Seismic hazards, (3) Frost penetration of the primary clay liner, and (4) Waste-specificity of the design. A discussion of each of these factors follows.	As noted, the Commonwealth has determined that the C-746-U Landfill was constructed in compliance with the regulatory requirements pertaining to solid waste landfills that were in effect at the time the C-746-U Landfill was built. No low-level radiological waste would be placed in the landfill. Any CERCLA cleanup waste destined for the C-746-U Landfill would have to be properly addressed in appropriate CERCLA documentation, meet CERCLA's requirement to comply with ARARs, and would also have to meet the C-746-U Landfill waste acceptance criteria and permit requirements. The Commonwealth's comments regarding perceived potential "design inadequacies" are addressed below.

Comment No.	Page/Reference	Comment	Response
a	Page 14, Paragraph 7	Subgrade instability and lack of underdrain: The C-746-U Landfill subgrade repeatedly failed proofroll tests because of high groundwater table in the Upper Continental Recharge System (UCRS) beneath the site. (The seasonal high groundwater level in the UCRS is approximately five feet beneath the bottom of the excavation). A "bridge lift" of granular material (i.e., gravel) had to be emplaced to enhance the subgrade to meet minimum regulatory requirements. Ideally, although not required by regulation, an underdrain system should have been installed. First, an underdrain system would have allowed dewatering of the shallow subsurface materials under the landfill, increasing the structural stability of the liner. Second, the underdrain system would have provided an additional groundwater monitoring point beneath the landfill in a geologic medium that has groundwater flow with a strong downward gradient. An underdrain system would effectively rectify the difficulty of monitoring groundwater in the UCRS that was noted in Page 14, Paragraph 7 of the EA. Finally, the underdrain system would have aided in the remediation of any potential releases of contaminants from the landfill by providing an additional pump-and-treat contaminant extraction source.	The Commonwealth has determined that the C-746-U Landfill was constructed in compliance with the regulatory requirements pertaining to solid waste landfills that were in effect at the time the C-746-U Landfill was built. As noted by the commentor, an underdrain system is not required by regulations.

Comment No.	Page/Reference	Comment	Response
b	Page 13, paragraph 2	Seismic Hazards: In the EA , DOE states that "the potential for releases of contaminants from the Paducah site resulting from potential seismic events have not been quantified to date." Such an evaluation is critical to the WAC development process. The C-746-U Landfill is located approximately twenty miles from the northern segment of the New Madrid Seismic Zone, and has the greatest seismic hazard of any contained landfill in the Commonwealth of Kentucky. The seismic hazards at PGDP are so severe that landfill liner and leachate collection system damage due to earthquakes is possible, if not probable. As presently constructed, this landfill probably does not meet the present seismic design standards for contained landfills in 401 KAR 48:070 and 40 CFR Chapter 1 (258.14). The present USGS seismic hazard maps indicate a three-fold increase in the Peak Ground Acceleration (PGA) at the site compared to the maps used in the original design of the C-746-U Landfill. Furthermore, the effects of local seismicity and faulting have been largely ignored. At a minimum, the seismic hazards to the C-746-U Landfill should be reevaluated using methods presently employed to evaluate the seismic hazards to the potential CERCLA cell.	The language quoted in this comment appears in the Affected Environment section of the EA. The Environmental Consequences section of the EA specifically addresses and considers seismic issues potentially associated with the proposed action. The proposed action does not include development of waste acceptance criteria (WAC) for the C-746-U Landfill. The purpose of the proposed action is to implement the authorized limits process at the C-746-U Landfill on a waste stream specific basis. Finally, the DOE notes that the Commonwealth's concerns regarding seismic issues at the C-746-U Landfill are currently being discussed in the context of a modification to the C-746-U Landfill operating permit.
c		Frost penetration of the primary liner: The construction contractor for the C-746-U Landfill allowed the primary clay liner in construction phases 1 and 2 to undergo frost penetration over the winter, in violation of approved plans and best engineering practices. The clay had to be dug up, recompacted, and retested.	As noted in the comment, the clay liner was dug up, reinstalled, and retested to ensure that it was structurally sound. Any concerns regarding the landfill's clay liner were addressed in consultation with the Commonwealth at the time the landfill was constructed.

Comment No.	Page/Reference	Comment	Response
d		Waste-specificity of design: The C-746-U Landfill was designed and constructed on anticipation of its use for the emplacement of conventional municipal solid waste and specific types of industrial waste. The waste now intended for the landfill do not possess the same properties that the original waste streams possessed. The density, fluid content, chemical composition, organic content, porosity, permeability, compaction potential, and seismic response could differ considerably from those of the original waste streams. Permit modification will be necessary to change waste types and volumes intended for this landfill, and construction/operation modifications may be necessary.	The scope of the EA is the implementation of the authorized limits process per DOE Order 5400.5 at the C-746-U Landfill. The physical and chemical characteristics of the waste to be placed in the landfill are not expected to be affected by the proposed action.
No comments numbered 4, 5, or 6 were submitted by the Division of Solid Waste			
SW-7		The C-746-U Landfill is in groundwater contamination assessment as required by 401 KAR 48:300 Section 8 for both MCL and statistical exceedences of volatile organic compounds, metals, and radionuclides. Because of the total failure of the groundwater monitoring system at this landfill, we cannot assume that the samples collected from these wells accurately reflect aquifer conditions at the site. Therefore, it is effectively impossible to determine whether the landfill leachate containment systems (i.e., the liner and leachate collection systems) at the C-746-U Landfill have failed. Before an accurate understanding of the groundwater contamination situation at this landfill may be achieved, it will be necessary to install new monitoring wells constructed of the proper materials, and to collect a statistically significant amount of groundwater data from the new wells (i.e., one initial sampling event plus eight quarterly samples). Thus, it may be as much as three years before we actually know if the leachate containment systems at the C-746-U Landfill have failed. However, when a landfill is in groundwater	DOE does not agree with the Commonwealth's statement that "the landfill has a failed monitoring system" and the suggestion that "the landfill may already be leaking". No evidence of failure of the liner or leachate collection system has been observed to date, and activities are underway to improve the groundwater monitoring system in compliance with Commonwealth requirements. Individual components of the landfill liner and leachate collection system provide redundancy for containing the landfill leachate and reducing potential for migration of contaminants in the event of failure of one component of the composite system. Even in the unlikely case where containment of the disposed waste may be lost, the physical characteristics of the waste in the landfill (e.g., soils, construction debris) would generally preclude rapid release and transport of contaminants into environmental media.

Comment No.	Page/Reference	Comment	Response
7 (continued)		contamination assessment, the general assumption is that the leachate containment systems have failed, and that the contaminants from the landfill will be released into the groundwater and surface water. It is difficult to understand how DOE could determine that the increased radioactive WAC would have no significant impact on the environment when the landfill has a failed monitoring system, and the landfill may already be leaking.	The proposed action under this EA is to implement the authorized limits process under DOE Order 5400.5 in the evaluation of wastes for disposal at the C-746-U landfill. Authorized limits for wastes to be managed at this landfill would be established such that no member of the public would be exposed to a radiation dose in excess of 1 mrem/ year. This evaluation includes the estimation of potential radiation doses under various scenarios for future land use at the C-746-U Landfill site. Potential impacts from use of groundwater at both onsite and offsite locations is considered in this analysis. DOE's determination that the implementation of the authorized limits process as discussed in the EA would not be expected to have an impact on the environment is based on these considerations, as well as the other considerations discussed in Sections 4.2.1, 4.2.2, and 5.0 of the EA. (See also to response to Comment 8)

Comment No.	Page/Reference	Comment	Response
SW-8		The implementation of the Authorized Limits process and the limits obtained through this process appear to be based largely upon hypothetical doses to humans either working at or visiting the landfill site. The effects of potential releases from the landfill upon the terrestrial and aquatic biota have not been adequately evaluated in the EA. A proper evaluation of the environmental effects is critical in developing a WAC for the C-746-U Landfill.	Informal consultations for threatened and endangered species were conducted with respect to the proposed action. Both the Commonwealth of Kentucky Department of Fish and the Wildlife Resources and the U.S. Fish & Wildlife Service (FWS) have concurred that adverse effects to Threatened and Endangered species would be unlikely to result from taking the proposed action. A Biological Assessment that considered any potential impacts to the Indiana bat was prepared as a part of the consultations with the FWS (Appendix A of the EA). The proposed action is not expected to have an adverse impact on biota at the C-746-U landfill. Radiological standards for biota have not been established. DOE (DOE Order 5400.5) and the NCRP (NCRP Report No. 109) specify a limit on the maximum acceptable dose rate to natural populations of aquatic biota at 1 rad/day. While no similar limits for terrestrial biota have been formally established to date, DOE has issued an interim technical standard, based on recommendations of the International Atomic Energy Agency (IAEA), which specifies the following dose limits for exposure to radiation or radioactive material: 1 rad/day to aquatic animals, 1 rad/day to terrestrial plants, and 0.1 rad/day to terrestrial animals.

Comment No.	**Page/Reference**	**Comment**	**Response**
8 (continued)			This recommended dose limit to terrestrial fauna of 0.1 rad/day may be compared with the dose limit established for the proposed action at the C-746-U landfill of 1 mrem/year to humans. The limit of 0.1 rad/day equates to 36,500 to 730,000 mrem/year, or more than 4 to 5 orders of magnitude greater than the 1 mrem/year dose limit established for the proposed action. Thus, attainment of the dose limit of 1 mrem/year for humans would also provide protection for terrestrial biota, with a substantial margin of safety. The International Commission on Radiological Protection (ICRP Publication 60) also has reached a similar conclusion: "...if man is adequately protected, then other living things are also likely to be sufficiently protected." Appropriate language will be added to the EA.
SW-9	*Page 17, paragraph 6*	*In the EA, DOE asserts that "no federally-listed" endangered or threatened species were identified in the original EA for the C-746-U Landfill. The Identification and Screening of Candidate Sites for a Potential Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Waste Disposal Facility at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (Report DOE/OR/07 1939 & D1) states that five Indiana Bats were captured near the PGDP in 1999. Potential exposure pathways, doses, and effects upon all threatened and endangered species must be considered.*	The EA was amended to include these sightings. Consultations for threatened and endangered species were conducted, and a Biological Assessment that considered any potential impacts to the Indiana bat was prepared (Appendix A of the EA).

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Comments Received: April 23, 2001

Name of Commentor:	**Kristi Hanson**
Organization of Commentor:	**private citizen**

Comment No.	Page/Reference	Comment	Response
		General Comments	
1		I oppose DOE allowing the C-746-U Landfill acceptance of residual radioactive waste.	Comment noted.
2		There should not be a landfill in this location in the first place, and adding residual radioactive waste is even worse in the event of an earthquake which is inevitable. It is in an area with a seismic risk rating of 3, the most severe earthquake potential, and as stated on pg 13 of the draft EA "the potential for release of contaminates from the Paducah site has not been quantified to date." The potential is horrifying . The determination is obvious. The earthquake that is inevitable will rip, crack, and swallow up this landfill and send it down the Ohio River.	As stated in Section 2.1 of the EA, no radioactive waste would be placed in the landfill as a result of the proposed action. The language quoted in this comment appears in the Affected Environment section of the EA. The Environmental Consequences section of the EA specifically addresses and considers seismic issues potentially associated with the proposed action. Seismic issues are also currently being discussed in the context of a modification to the C-746-U Landfill operating permit.
3		In the event of an earthquake, much if not all of the infrastructure will be destroyed. Roads, bridges, electricity, and phones will be gone. There will be no way to get to the landfill much less find out what's going on or fixing any damage.	As explained in Section 4.3 of the EA, the potential radiological exposures that might result from a release of materials disposed of at the C-746-U Landfill would be within acceptable levels even in the event of an earthquake.

Comment No.	Page/Reference	Comment	Response
4		The site itself is terrible being so near little Bayou Creek. The EA even states it is in its drainage basin. PGDP has already destroyed the creek by dumping into it. This is unacceptable. It is not PGDPs sewer.	The term "drainage basin" refers to the natural direction of un-intercepted surface water flow given the surface topography and other factors of any site. The term is commonly used to describe surface water resources and watersheds. It does not refer to a liklihood that any liquids from the landfill site would reach the tributary through either surface or sub-surface flow. The C-746-U Landfill does not discharge any liquids to any surface waters, including the Little Bayou Creek.
5		All waste at PGDP should be contained in above ground buildings that can be monitored above, inside, and underneath.	Comment noted.
6		Our future as well as those coming after us is at stake. Please do not expand this landfill and up the radioactive waste to be accepted.	As stated in Section 2.1 of the EA, no radioactive waste would be placed in the landfill as a result of the proposed action.
Specific Comments			
1	Page 3	The 1995 EA did not address the acceptance of materials containing residual radioactivity when sited. This leaves doubts of the site to handle the residual radioactive material.	The current EA has been prepared specifically to address the potential consequences of disposing of materials containing residual radioactivity.

Comment No.	Page/Reference	Comment	Response
2	Page 14	The EA states on pg.14 that "the sands in the UCD near the landfill typically do not offer potential for groundwater monitoring..... groundwater monitoring would not detect a release from the landfill base.....monitoring from these wells could not be relied upon" This landfill may presently be leaking and we have no way of knowing.	The landfill's leachate collection system provides a mechanism for detecting leaks before any leachate is released to the environment. Individual components of the liner and leachate collection system provide redundancy for containing the landfill leachate and reducing potential for migration of contaminants in the event of failure of a component within the composite system. No evidence of failure of the liner or leachate collection system has been observed to date. Even in the unlikely case where containment of the disposed waste may be lost, the physical characteristics of the waste in the landfill (e.g., soils, construction debris) would generally preclude rapid release and transport of contaminants into environmental media. Activities are also underway to improve the groundwater monitoring system in compliance with Commonwealth requirements.
3	Page 27	The cumulative impact statement in the draft EA is wrong. Everyone knows an earthquake is in our future. The statement in the draft EA pg 27 does not consider the release of residual radioactivity as well as the other pollutants that are in the landfill from an earthquake.	The potential consequences that could result from an earthquake are discussed in Section 4.3.

Title of Document: ***Environmental Assessment on the Implementation of the Authorized Limits Process for Waste Acceptance at the C-746-U Landfill, Paducah Gaseous Diffusion Plant, Paducah, Kentucky***
Document number or other identifier: DOE/EA-1414
Comments Received: April 23, 2001

Name of Commentor:	**Mark Donham** **Kristi Hanson**
Organization of Commentor:	**Regional Association of Concerned Environmentalists (RACE)/Heartwood** **Coalition for Nuclear Justice,(CNJ) a project of RACE**

Comment No.	Page/Reference	Comment	Response
		General Comments	
1		The proposed action, according to the proposal, would allow the Paducah site to dispose of certain substances within the C-746U sanitary landfill, which it currently is not allowed to do under the current regulatory scheme.	As explained in Section 1.2 of the EA the current regulatory scheme at the C-746-U Landfill includes state solid waste requirements and Atomic Energy Act (AEA) requirements. The EA in no way proposes or authorizes deviation from those requirements. The C-746-U Landfill must continue to operate in accordance with the above requirements, regardless of the proposed action. DOE Order 5400.5 requires the use of the authorized limits process for release of materials containing residual radioactive materials.
		First, we don't believe the EA can be adequate if it doesn't disclose and analyze the effects of each individual waste stream "authorized limit." As of now, the only disclosure and analysis which the agency purports to have to disclose and analyze is the sum standard of all the individual standards.	As the EA discusses in Section 2.2 , the standard against which any limits for future individual waste streams at the C-746-U Landfill would be evaluated is 1 mrem/yr effective dose equivalent (EDE). Not all future, individual waste streams are known at this time. However, any effects from waste streams proposed for disposal in the C-746-U Landfill would
2 (continued)			be bounded by the 1 mrem/yr EDE for the collective waste streams that would be used when developing approved, authorized limits on a waste stream-specific basis at the landfill.

Comment No.	Page/Reference	Comment	Response
3		We don't believe this complies with the site-specific requirement of NEPA, and it does not make environmental information available to the public and to decision makers prior to the decision. This simply does not meet NEPA's requirements	DOE believes that the EA meets NEPA requirements.
4		We have an ongoing concern about the lack of a real NEPA cumulative impacts analysis at the site. Right now there are at least 2 if not more NEPA analysis ongoing which affect this very same issue. The same wastes are being looked at supposedly in this EA and in the Waste Disposition EA. Yet different alternatives for the waste are being looked at in two separate EAs, and this was admitted by the agency at the public meeting. This is the classic example of NEPA segmentation. We one more time call for a site-wide EIS to help the agency and the public understand and get a grip upon the whole site-wide situation.	No segmentation of action is occurring. The comment incorrectly characterizes the scope of the two EAs referenced. The EA on the Implementation of the Authorized Limits Process for Waste Acceptance at the C-746-U Landfill does not address wastes being addressed under the EA "Waste Disposition Activities at the Paducah Gaseous Diffusion Plant." The EA for Authorized Limits address implementation of DOE Order 5400.5 Authorized Limits process as it relates to solid waste disposal activities at the C-746-U Landfill. The Waste Disposition EA addresses hazardous and radioactive wastes.
5		We believe that there should be formal consultation with the Fish and Wildlife Service pursuant to the Endangered Species Act, as this clearly is taking place within an area where Indiana bats have been found to be present. There could be direct and indirect effects upon the species which are adverse and which would require an incidental take permit or statement to authorize such taking.	Consultations for threatened and endangered species were conducted, and a Biological Assessment that considered any potential impacts to the Indiana bat was prepared (Appendix A of the EA).

Comment No.	Page/Reference	Comment	Response
6		There were concerns raised in the public meeting which we would like addressed involving some of the proposed predisposal treatments and how they might affect the determination and measurement of whether or not a batch of waste actually meets or exceeds "authorized limits." The example given was the grinding of surface contaminated concrete chunks and then measuring the residual radioactivity in the power to determine whether or not the batch exceeds authorized limits. We would like to have a statutory or regulatory citation to your authority for doing this.	All waste management activities will be conducted in compliance with applicable regulatory and statutory requirements.
7		We are concerned about the lack of a sound monitoring program. A comprehensive monitoring program, both for the incoming waste and for the environment around the facility, is necessary to insure that impacts are kept to a minimal level. This clearly would constitute a mitigation measure, and this, and all mitigation measures must be supported in the record as to their efficiency of they cannot be relied upon to support a FONSI. We see no such support for mitigation in the draft EA.	The comment's reference to monitoring is unclear. A comprehensive groundwater monitoring program exists at the landfill site in accordance with the requirements of 401 KAR 48:300; installation of replacement wells is in the planning phase and is expected to be completed in the fall of 2001. In addition, operating procedures at the landfill require that all incoming wastes must be adequately characterized by the waste generator and certified to meet waste acceptance criteria; landfill personnel monitoring incoming wastes to ensure that waste certification documentation is complete using a detailed checklist. Moreover, since the scope of the proposed action is limited to the implementation of the authorized limits process at the C-746-U landfill, only monitoring to confirm that incoming wastes meet authorized limits would be potentially pertinent to this action; this activity is one component of the waste certification program for the landfill. In each case, these monitoring activities are designed to meet regulatory and operational requirements, and are not considered mitigation measures in support of this EA.

Comment No.	Page/Reference	Comment	Response
7 (continued)			No mitigation measures are required for the proposed action.
8		We question whether establishing these “authorized limits” meets the ALARA requirements in the DOE order 5400.4. Especially considering that the agency is studying an alternative which must be feasible to ship them off site.	Meeting ALARA requirements is an intrinsic component of the authorized limits process in DOE Order 5400.5. The ALARA requirements must be met for the authorized limits to be approved. ALARA requirements under DOE Order 5400.5 are discussed in Sections 2.2.1 and 2.2.2 of the EA.
9		Finally, we are concerned about the process in general to establish these limits. The NRC has been trying to establish “de minimis” levels of radioactivity in materials for many years, and has not had the public support to do so. What is different between this proposal and the NRC attempted rulemakings to do the same thing - rulemakings which have not been able to establish de minimis levels.	Authorized limits established under DOE Order 5400.5 guidelines do not constitute rulemaking processes to establish generic”de minimis” values. The process for establishing authorized limits set forth in DOE Order 5400.5 requires site-specific and waste-stream-specific determinations taking into consideration those standards set forth in the order.
10		We urge you to hold off on this until you prepare a site-wide EIS and look at the cumulative impacts and the alternatives for cleaning up the entire site, and not just continue to piecemeal this cleanup a little at a time, without ever completely informing yourself or the public about the true scope of the problems at the Paducah site.	No sitewide EIS is required.