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NEF-09-00209-NRC

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M
Washington, DC 20555-0001

Louisiana Energy Services, LLC
NRC Docket 70-3103

Subject: Louisiana Energy Services, LLC, National Enrichment Facility
Submittal of Comments on Proposed Rulemaking

Reference: 1) Federal Register Notice (FRN), Wednesday, June 24, 2009,
Page 30175

As identified in Reference 1, the U. S. Nuclear Regulatory Commission (NRC) has proposed rulemaking relative to safe disposal of unique waste streams including significant quantities of depleted uranium. The NRC staff has also invited comments on both the issues and questions presented in the FRN.

Louisiana Energy Services, LLC (LES) is hereby submitting written comments on the issues and questions discussed in the FRN. General comments on the issues and specific comments on the questions are included in Enclosure 1.

LES supported the recently held depleted uranium rulemaking workshops sponsored by the NRC, however, given the Performance Objectives in 10 CFR 61, Subpart C, LES does not believe additional rulemaking is necessary.

Furthermore, in regard to "unique waste streams", LES does not believe it practical or prudent to attempt to define unique waste streams at present or for the foreseeable future. LES supports a performance-based approach to waste streams using existing performance objectives to make determinations for regulatory compliance regarding disposal.

LES believes that the language involving "significant quantities" should be discontinued. NRC staff has not provided a proposed definition of the term, which leaves it open for interpretation. Previous industry experience with ambiguous regulatory language has resulted in numerous interpretations, confusion and a lack of consistent implementation.

*SUNSI Review Complete
Template - ADM-013*

*E-REDS - ADM-03
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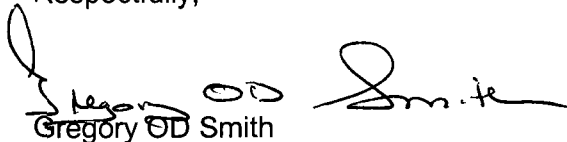
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Should you have any questions related to this submittal, please contact Mr. Stephen R. Cowne, Director, Quality and Regulatory Affairs at 575.394.5253.

Respectfully,

A handwritten signature in black ink, appearing to read "Gregory OD Smith". The signature is stylized with a large initial "G" and "S".

Gregory OD Smith
Chief Operating Officer and Chief Nuclear Officer

Enclosure: As stated

Enclosure 1

LES Comments Regarding Federal Register Notice, Wednesday June 24, 2009,
Page 30175

Issue General Comments

Issue General Comment Summary:

- LES believes that depleted uranium (DU), when not considered a resource, is properly characterized as a Class A low level radioactive waste.
- LES does not believe that rulemaking, even limited rulemaking, is necessary to ensure the Performance Objectives of 10 CFR 61 Subpart C are met to protect public health and safety.
- Rulemaking cannot occur in a vacuum. Cost-benefit analysis and backfit assessments must be integral parts considered for any new proposed rulemaking when the potential outcome of the rulemaking can impact financial and business models which precede the proposed rulemaking.
- The actual decision to proceed with a rulemaking, even one of limited scope, should follow and reflect careful consideration of stakeholder input from the public workshops and this Federal Register Notice (FRN) comment period—the Commission should be willing to reconsider the need for rulemaking based on the results of the comments received.
- LES is prepared to work with the NRC to engage and discuss the issues regarding depleted uranium.

Characterization of Depleted Uranium (DU)

LES believes the current NRC characterization of DU is correct:

- On March 18, 2009 a majority of the NRC Commissioners voted to retain the Class A low level radioactive waste classification of DU. This recent NRC action was not a change to the classification of DU. It has been regulated as Class A waste for decades. With its March 18 vote, the NRC merely reaffirmed the existing Class A classification.
- LES agrees with and supports the Commission characterization of depleted uranium as a Class A low level waste, when no longer considered a resource.
- LES appropriately retains the authority and responsibility to declare when depleted uranium is no longer considered a resource for the owner and is allowed to base those decisions on current and future market conditions.

Rulemaking

LES believes there is no need for additional rulemaking, even limited rulemaking, to address the issue of site-specific analysis for waste streams at present or for future waste streams for the following reasons:

- Rulemaking is not required as current regulations include appropriate Performance Objectives for maintaining public health and safety
- The Performance Objectives in 10 CFR 61, Subpart C identify current compliance requirements with regulations for land disposal of low level radioactive waste (LLW).
- The 10 CFR 61 Performance Objectives detail the required criteria for low level waste facilities with regards to protection of public health and safety.
- Current low level radioactive waste land disposal facilities must meet the 10 CFR 61 Performance Objectives.
- The fact that depleted uranium is classified as Class A waste only means that it is eligible for near-surface land disposal, and not that near-surface disposal may be appropriate for depleted uranium under all conditions. In order to dispose of Class A waste, a particular near surface disposal facility receiving the waste must currently meet the Performance Objectives and applicable technical standards in 10 CFR 61.
- In order to meet the Performance Objectives, analysis presumably must be currently performed to ensure that from both an incremental receipt shipment contribution and cumulative facility perspective, the Performance Objectives remain satisfied.
- Most of the technical issues discussed in the Federal Register Notice (74 Fed. Reg. 30175 (June 24, 2009)) could be addressed in an NRC guidance document and does not require rulemaking for implementation. This guidance approach would also allow the NRC more flexibility to adjust the guidance as new waste streams or new waste processing and disposal techniques arise without new rulemaking to implement rule revisions.
- An enhanced regulatory guidance document for Performance Objective compliance assurance for low level radioactive waste facilities may be valuable to the stakeholders. This could include scoping and assessment guidance for important attributes, such as climatic, hydrological, geotechnical and geochemical conditions regarding waste stream disposal and provide for a common and systematic assessment process.

- Bounding analyses could also be conducted for different applications and then applied to any particular set of circumstances, in a manner similar to a previously approved Generic/Programmatic Environmental Impact Statements. These scoping and analytical techniques can also be provided in a regulatory guidance document.
- Agreement States that are likely to receive depleted uranium as a low level radioactive waste, such as Utah and Texas, currently have the statutory and regulatory authority necessary to require additional analyses of depleted uranium waste streams to ensure public health and safety and protection of the environment.
- Additionally, prior to allowing a local licensed disposal site to accept depleted uranium, the State of Utah presumably determined that disposing of depleted uranium at the local licensed LLW disposal site met the Performance Objectives of 10 CFR 61. Further, the Utah Division of Radiological Control has not placed volume restrictions on the disposal of significant quantities of depleted uranium in oxide form (depleted U_3O_8) at the local licensed LLW disposal facility.

Cost-Benefit Analysis and Backfitting

LES believes this proposed rulemaking cannot occur in a vacuum. Cost-benefit analysis must be included as an integral part of rulemaking and is currently not addressed in this proposed rulemaking:

- Depleted uranium disposal costs are important financial variables in business modeling for uranium enrichment companies.
- Depleted uranium disposal costs are factored into decommissioning cost estimates and are translated into the decommissioning funding instruments required by regulations.
- Additional costs to uranium enrichment companies imposed by proposed rulemaking outputs must be considered relative to the analyzed benefit for those increased costs.
- Cost-benefit analysis related to avoided radiation dose is not a novel concept as cost-benefit models and equivalent dose cost assignments are currently prescribed for nuclear reactor radioactive waste management systems and equipment. In 10 CFR 50 Appendix I, cost-benefit analyses are performed for liquid and gaseous radioactive waste systems for reactor plants to determine the cost and benefit of additional radioactive waste processing equipment to compare dose reduction with capital, operating and maintenance costs. An assignment of \$1000 per total body man-rem and \$1000 per man-thyroid-rem is used in the analysis. The proposed rulemaking should require similar analysis to assess the cost and benefit

of any potential for avoided dose with respect to any increase in disposal costs and funding those costs through the decommissioning funding instruments.

Additionally, LES believes that a potential backfit issue exists with this proposed rulemaking and the Materials License issued to LES under, among other parts of the Code, 10 CFR 70.

- Any proposed new requirements for disposal of depleted uranium could raise a backfitting issue, and the NRC may need to prepare a backfitting analysis meeting the cost-benefit standards of 10 CFR 70.76.
- 10 CFR 70.76(a)(1) defines “backfitting” as “the modification of, or addition to, systems, structures, or components of a facility; or to the procedures or organization required to operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previous NRC staff position.”
- If the NRC imposes new requirements on the procedures by which licensed uranium enrichment facilities can dispose of depleted uranium, then the new requirements should invoke the backfitting rule and require the NRC to perform the cost-benefit analysis described in the regulation to justify any new disposal requirements.

General Comment Conclusions

- LES agrees that the characterization of depleted uranium, as defined in the current regulatory structure, is correct and appropriate.
- LES also believes that the current regulatory framework is sufficiently robust to not require additional rulemaking related to site-specific analysis for waste streams. This is due to the fact the existing 10 CFR 61 Subpart C Performance Objectives are, and will remain, the standard by which low level radioactive waste facilities are licensed and operated. These Performance Objectives are currently being satisfied through licensee assessment, thus making additional rulemaking unwarranted.
- Agreement States most likely to receive the depleted uranium as a waste stream currently have the authority to have site specific analysis performed and available for review by regulatory authorities in order to protect public health and safety. This eliminates the need for the proposed rulemaking suggested by the NRC.
- LES believes any proposed rulemaking effort must include a rigorous cost-benefit analysis. There is precedent in 10 CFR 50, Appendix I for evaluating radioactive waste systems and equipment against an avoided dose (which has been assigned a

cost from a man-rem perspective) to determine if additional waste treatment systems are warranted. Similar logic should prevail in this proposed rulemaking.

- LES believes this proposed rulemaking must be reviewed in light of backfit regulations and provisions in 10 CFR 70.76. Potential changes to waste stream disposal plans that can alter financial cost models for Material License holders must be evaluated using backfit regulations in 10 CFR 70. Backfit evaluations must be done in a clear, rigorous and repeatable fashion to ensure its credibility. Any nexus to public health and safety, or protection of the environment, must be clearly demonstrated.

FRN Question Comments

Issue II-1, Definition of Unique Waste Streams

Question II-1.1—Should the NRC propose a regulatory definition to

(a) specify general criteria that would capture both current and foreseeable unique waste streams; or

(b) limit the definition to a known set of current unique waste streams including significant quantities of depleted uranium? What characteristics should NRC propose as defining for unique waste streams?

LES Response:

LES does not believe it practical or prudent to attempt to define unique waste streams at present or for the foreseeable future. Attempts at identifying future unique waste streams will, at best, be speculative. LES supports a performance-based approach to waste streams by utilizing existing performance objectives to make determinations for regulatory compliance regarding disposal.

Question II-1.2—What waste streams containing radionuclides listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in quantities significantly greater than initially considered in the development of 10 CFR Part 61?

LES Response:

LES can provide no information regarding specific waste streams and potential increases in disposal quantities for those radionuclides listed in the waste classification tables in 10 CFR 61.55.

Question II-1.3—What waste streams containing radionuclides that are not listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in concentrations or quantities significantly greater than initially considered in the development of 10 CFR Part 61?

LES Response:

LES believes that there are no additional radionuclides that were not previously considered initially in the development of 10 CFR Part 61. LES believes that uranium (depleted uranium) was appropriately considered initially and the characterization of depleted uranium remains valid.

Question II-1.4—What waste streams that were not considered in the initial development of 10 CFR Part 61 should be considered under the definition of “unique waste streams”?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

Question II-1.5—Should the NRC consider waste streams that result from spent fuel reprocessing and are not high-level or greater-than-class C waste in the definition of “unique waste streams”?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

Question II-1.6—Are there other characteristics besides concentration and quantity that NRC should consider when defining “unique waste streams”?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

Issue II-2, Time Period of Performance

Question II-2.1—Should the NRC

- (a) specify a single time period to evaluate the performance of facilities disposing of all unique waste streams in the near-surface;
- (b) specify criteria requiring the consideration of how the hazard for each unique waste stream evolves over time; or
- (c) permit a licensee to justify a period of performance?

LES Response:

With the number of relevant variables needing to be considered for each licensee, LES believes NRC should not attempt to specify a single time period for performance of facilities. NRC and the industry should identify the criteria for evaluating the time period of performance in a regulatory guidance document and allow licensees to implement the criteria on a site-specific basis.

Question II-2.2—If NRC were to specify a single time period for site specific analysis of facilities disposing of unique waste streams in the near-surface, what would be an appropriate period? What factors should NRC consider in determining a single time period of performance?

LES Response:

As stated above, LES believes NRC should not attempt to specify a single time period for performance of facilities.

Question II-2.3—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time for each unique waste stream, what factors should NRC consider in determining these criteria?

LES Response:

As stated above, LES believes NRC should not attempt to specify a single time period for performance of facilities.

LES believes, however, that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. These regulations provide limits and performance time periods for uranium and thorium mill tailings. NRC staff is encouraged to utilize these

standards rather than create new ones with the possibility of introducing inconsistencies between different industry regulations for similar issues.

Question II-2.4—If NRC were to permit a licensee to justify a time period of performance, what factors should NRC consider when evaluating a licensee's justification?

LES Response:

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Question II-2.5—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a time period of performance, should the NRC consider limiting the maximum extent of the time period considered? If so, what factors should NRC consider when specifying a maximum period of performance?

LES Response:

LES believes that placing a limit to the maximum extent of the time period of performance for a licensee would be arbitrary and may have unintended consequences. Unless there is a rigorous process that both NRC and industry can endorse for determining a period of performance, such an arbitrary time limit may modify existing licenses and may impact types and amounts of acceptable waste at currently-licensed facilities. This impact can translate into additional transportation distances and time for radioactive waste to be shipped to the ultimate disposal site, which may actually increase hazards to the public.

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Question II-2.6—What other approaches might NRC consider when specifying criteria for a period of performance for facilities disposing of unique waste streams in the near-surface?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Issue II-3, Exposure Scenarios for Site-Specific Analysis

Question II-3.1—Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting members of the public for unique waste streams? What factors should NRC consider in specifying technical criteria or reviewing licensee justifications for exposure scenarios associated with members of the public?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Question II-3.2—Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting individuals from inadvertent intrusion for unique waste streams? What factors should NRC consider in specifying technical criteria, or reviewing licensee justifications, for inadvertent intruder exposure scenarios?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

LES believes that with the uncertainty associated with future activities at a particular site, NRC staff should consider providing guidance for inadvertent intruder exposure scenarios. This guidance should provide intruder scenario bounding criteria for consideration in a manner similar to the “design basis threat” concept utilized in security planning. Absent a bounding set of criteria, numerous different scenarios can be reasonably postulated thus requiring a reactive posture by a licensee or prospective licensee. This lack of regulatory predictability can result in increased costs to waste disposers.

Issue III-1, Definition of Significant Quantities

Question III-1.1—Should NRC specify a lower quantity limit in the definition of “significant quantities” for near-surface disposal? If so, what factors should NRC consider in setting an appropriate lower threshold for near-surface disposal?

LES Response:

LES believes that the language involving “significant quantities” should be discontinued. NRC staff has not provided a proposed definition of the term, which leaves it open for interpretation. Previous industry experience with ambiguous regulatory language has resulted in numerous interpretations, confusion and a lack of consistent implementation. This lack of specificity should not be re-introduced into the regulatory framework through this process.

LES believes utilization of the term “significant quantities” without a specific definition or criteria will introduce additional uncertainty and unpredictability into the regulatory process and should be avoided. Regulatory uncertainty and unpredictability may introduce additional costs for disposers.

Question III-1.2—Should NRC specify an upper quantity limit in the definition of “significant quantities”? If so, what factors should NRC consider in setting an appropriate upper threshold for near-surface disposal?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process.

Question III-1.3—Are there alternative methods NRC should consider when specifying criteria to define “significant quantities”?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process.

LES believes that, irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61. By compliance with the particular low level radioactive waste disposal site license conditions

and Performance Objectives, “significant quantities” need not exist in this regulatory structure.

Issue III-2, Time Period of Performance for a Site-Specific Analysis

Question III–2.1—If NRC were to specify a single time period for the site specific analysis of near-surface disposal of unique waste streams (see Question II.2.1), what factors associated with disposal of significant quantities of depleted uranium should NRC consider in determining a single time period of performance for unique waste streams, including significant quantities of depleted uranium?

LES Response:

With the number of relevant variables needing to be considered for each licensee, LES believes NRC should not attempt to specify a single time period for performance of facilities. NRC and the industry should identify the criteria for evaluating the time period of performance in a regulatory guidance document and allow licensees to implement the criteria on a site-specific basis.

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61

Question III–2.2—If NRC were to specify criteria requiring the consideration of hazards for each unique waste stream evolving over time (see Question II.2.1), what factors should NRC consider in determining these criteria for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–2.3—If NRC were to permit a licensee to justify a time period of performance (see Question II.2.1), what factors should NRC consider when evaluating a licensee’s justification for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–2.4—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a reasonable time period of performance (see Question II–2.1), should the NRC consider limiting the maximum extent of the time period considered for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider when specifying a maximum period of performance?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–2.5—What other approaches might NRC consider when specifying criteria for a period of performance for near-surface disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Issue III-3, Exposure Scenario(s) for a Site-Specific Analysis

Question III-3.1—What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee’s justification for exposure scenarios for protection of members of the public?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III-3.2—What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee’s justification for exposure scenarios for the protection of individuals from inadvertent intrusion?

LES Response:

LES believes that with the uncertainty associated with future activities at a particular site, NRC staff should consider providing guidance for inadvertent intruder exposure scenarios. This guidance should provide intruder scenario bounding criteria for consideration in a manner similar to the “design basis threat” concept utilized in security planning. Absence of a bounding set of criteria, numerous different scenarios can be reasonably postulated thus requiring a reactive posture by a licensee or prospective licensee. This lack of regulatory predictability can result in increased costs to waste disposers.

Issue III-4, Source Term Issues for a Site-Specific Analysis

Question III-4.1—Should NRC specify or permit licensees to propose physical or chemical forms (*e.g.*, UF₆, U₃O₈, metal) for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider in specifying criteria for or developing guidance to review an analysis of physical or chemical forms?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES believes the NRC should not be prescriptive when discussing physical or chemical forms for disposal of depleted uranium, regardless of amount or volume. To do so may unnecessarily limit implementation of advances in technology that may define a more suitable physical and/or chemical form for depleted uranium in the future. Producers of depleted uranium may have ability under their Materials License to de-convert depleted uranium hexafluoride (DUF₆) into a variety of chemical or physical forms, such as depleted uranium dioxide (DUO₂), depleted triuranium octaoxide (DU₃O₈), or depleted uranium tetrafluoride (DUF₄). Technology and business financial models used by uranium enrichment companies employ assumptions for DUF₆ de-conversion and disposal and prescriptive positions taken by NRC for ultimate waste disposal forms may not be consistent with those models.

LES believes that Materials Licensees are in the better position to determine the ultimate waste form, based on maintaining compliance with the 10 CFR 61 Performance Objectives, business financial modeling and available technology at the time when the licensee declares the DUF₆ no longer a resource and treats the DUF₆ as a Class A low level radioactive waste.

Question III-4.2—Should NRC specify criteria for, or permit licensees to justify, stabilizing admixtures (*e.g.*, grout) for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider in specifying criteria for, or developing guidance to review, an analysis of admixtures?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the NRC should not be prescriptive in specifying stabilizing admixtures criteria for any amount of depleted uranium, but should provide regulatory guidance to the industry, however, not in the form of rulemaking.

Question III–4.3—What other factors should NRC consider when specifying criteria, or developing technical guidance, regarding waste forms for disposal of significant quantities of depleted uranium in near-surface facilities?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the NRC should not be prescriptive in specifying stabilizing admixtures criteria for any amount of depleted uranium, but should provide regulatory guidance to the industry, however, not in the form of rulemaking.

Question III–4.4—Should NRC require a site-specific analysis to capture previously disposed quantities of depleted uranium? If so, what factors should NRC consider when specifying criteria, or developing technical guidance, regarding previously disposed quantities of depleted uranium?

LES Response:

LES believes that NRC should not require any site-specific analysis for previously disposed quantities of depleted uranium without performing both a cost-benefit analysis and backfitting evaluation to determine the impacts of such an analysis.

LES has no indication that previously disposed quantities of depleted uranium were not in compliance with all applicable laws, regulations, license conditions and 10 CFR 61 Performance Objectives. Therefore, any additional analysis is beyond the scope of existing regulations with a backfit evaluation.

LES believes that requiring a site-specific analysis to capture previously disposed quantities of depleted uranium without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Issue III-5, Modeling of Uranium Geochemistry in a Site-Specific Analysis

Question III–5.1—Should NRC specify regulatory criteria for, or permit licensees to justify, site-specific geochemical parameters for the analysis of disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium. If characterization of site-specific geochemical parameters is considered relevant to low level waste disposal facilities, then the requirement to perform the analysis should be embodied within the regulations for the initial licensing of a low level waste facility for all radionuclides and not be introduced as a requirement solely due to depleted uranium disposal, regardless of amount or volume of depleted uranium disposal.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Question III–5.2—If NRC should specify regulatory criteria, then what factors should NRC consider in developing criteria for geochemical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Question III-5.3—If NRC should permit licensees to justify site-specific geochemical parameters, then what factors should NRC consider when reviewing a licensee's justification?

LES Response:

As stated above, LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Question III-5.4—What new or alternative approaches should NRC consider regarding the incorporation of geochemical parameters in a site specific analysis for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Issue III-6, Modeling of Radon in the Environment in a Site-Specific Analysis

Question III-6.1—What new approaches for modeling radon emanation, migration, and exposure pathways, including the effects of differences in the physical and chemical properties between radon and its progeny, should NRC consider?

LES Response:

LES believes that the techniques for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. Since evaluation and monitoring techniques have been previously identified and embodied in Federal regulations, those criteria should be adequate for depleted uranium applications, regardless of disposed quantity or volume.

Question III-6.2—Should NRC require licensees to evaluate the effects of radon in a site-specific analysis for disposal of significant quantities of depleted uranium in near-surface facilities?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance. Prescriptive identification of needed evaluations need not be identified in order for licensees to maintain compliance with appropriate license conditions and Performance Objectives.

Question III-6.3—Should NRC specify by regulation, or develop guidance on, the technical parameters for evaluating radon emanation, migration, and exposure in a site-specific analysis of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process.

Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance.

LES believes that the technical parameters for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. Since evaluation and monitoring techniques have been previously identified and embodied in Federal regulations, those criteria should be adequate for depleted uranium applications, regardless of disposed quantity or volume.

Question III–6.4—If NRC should specify by regulation the technical parameters for evaluating radon emanation, migration, and exposure, what factors should NRC consider in specifying technical parameters for a site-specific analysis for significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance.

As stated above, LES believes that the techniques for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192.

Question III–6.5—If NRC should develop guidance on the technical parameters for evaluating radon emanation, migration, and exposures to accompany regulatory criteria, then what factors should NRC consider in the development of guidance for evaluating technical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance.

As stated above, LES believes that the techniques for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192.

Question III-6.6—What societal uncertainties should NRC consider when developing guidance for scenarios of exposure to radon gas released from the disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving “significant quantities” should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of “significant quantities” from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES can offer no substantive comments regarding this question, however, LES believes that NRC and industry should create a bounding set of criteria and limitations necessary to provide a clear framework for exposure scenarios. This is necessary to minimize ambiguity and issues with varying interpretations in the future. Absence of a bounding set of criteria, numerous different scenarios can be reasonably postulated thus requiring a reactive posture by a licensee or prospective licensee. This lack of regulatory predictability can result in increased costs to waste disposers.

Question III-6.7—What alternative methods should NRC consider when developing guidance on evaluating the impacts of radon gas exposures? For instance, U.S. Environmental Protection Agency standards at 40 CFR Part 192 for the control of residual radioactive materials from inactive uranium mill tailings sites specify that releases of radon-222 to the atmosphere will not exceed an average release rate of 20 picoCuries per square meter per second or increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than 0.5 picoCuries per liter.

LES Response:

LES believes that NRC standards and U. S. EPA standards should be consistent, where appropriate. However, this citation of 40 CFR 192 for radon-222 suggests an inconsistent application of this standard within the context of this FRN issues and questions. For example, 40 CFR 192.02 actually states that:

Control of residual radioactive materials and their listed constituents shall be designed¹ to:

- (a) Be effective for up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years, and,
- (b) Provide reasonable assurance that releases of radon-222 from residual radioactive material to the atmosphere will not:
 - (1) Exceed an average² release rate of 20 picocuries per square meter per second, or
 - (2) Increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than one-half picocurie per liter.

¹ Because the standard applies to design, monitoring after disposal is not required to demonstrate compliance with respect to § 192.02(a) and (b).

² This average shall apply over the entire surface of the disposal site and over at least a one-year period. Radon will come from both residual radioactive materials and from materials covering them. Radon emissions from the covering materials should be estimated as part of developing a remedial action plan for each site. The standard, however, applies only to emissions from residual radioactive materials to the atmosphere.

It is important to note that this standard is for design only, requires no monitoring after disposal to demonstrate compliance and the period of performance is up to one thousand years, to the extent reasonably achievable.

LES believes that regardless of depleted uranium amount and volume, low level radioactive waste disposal for depleted uranium and daughter products, such as radon-222, should be no more restrictive than existing regulations such as is contained in 40 CFR 192 and encourages NRC staff to utilize existing regulations where warranted.