

TCEQ License No. R05807

Application by  
Waste Control Specialists, LLC  
For New Radioactive  
Material License  
No. R05807

Before the  
Texas Commission on  
Environmental Quality

2008 MAR 14 AM 9:17

CHIEF CLERKS OFFICE

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**EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT**

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The Executive Director of the Texas Commission on Environmental Quality (TCEQ) files this Response to Public Comment on the application by Waste Control Specialists (WCS), LLC for a radioactive material license authorizing by-product material disposal.

As required by Title 30, Texas Administrative Code (TAC) §55.253, the Executive Director has prepared a response to public comments submitted on the WCS license application. The Office of the Chief Clerk received twenty-seven (27) comment letters.

Comments were received from the Honorable Johnnie M. White, Mayor of the City of Eunice; the Honorable Robert Zap, Mayor, and Glen E. Hackler, City Manager, City of Andrews; Jeffrey M. Skov on behalf of WCS, LLC; Wesley R. Burnett on behalf of the Andrews Economic Development Corporation; Rosa Rodriguez on behalf of the Andrews County Chamber of Commerce; David S. Mitchell, Superintendent of Andrews Independent School District; Edward Selig, General Manager of Advocates for Responsible Disposal in Texas (ARDT); Dr. Ken Kramer on behalf of the Sierra Club; Diane D'Arrigo on behalf of Nuclear Information and Resource Service (NIRS); Mark S. Pelizza, Vice President of URI, Inc.; Stephen F. Smith on behalf of Texas Mining and Reclamation Association (TMRA); Lloyd Eisenrich on his own behalf and on behalf of the Andrews Industrial Foundation; Wendy Inlow; Pete Francis; Jill Yarbrough; Fred and Delphina Ortiz; Tommie Williams; Victor Orozco; Bruce Cherryhomes; Victoria Longoria; Gilbert A. Cherryhomes; Anita Ireland; Jerry H. Cherryhomes, Barbara and John Hogan; Concerned Citizen of 1402 Avenue A, Eunice, NM 88231; and Concerned Citizen of 1307 Avenue G, Eunice, NM 88231 (the Executive Director was not able to read the signature on these comment letters).

If you would like more information about this application or about the licensing process, please call TCEQ's Office of Public Assistance at 1-800-687-4040. General information about TCEQ can be found at our Web site at [www.tceq.state.tx.us](http://www.tceq.state.tx.us).

### **I. Description of Facility**

WCS has applied to the TCEQ for a radioactive material license to authorize commercial disposal of by-product material. By-product material is radioactive tailings or wastes produced by or resulting from the extraction or concentration of uranium or thorium from ore processed for its source material content. WCS currently is authorized to provide hazardous waste management and disposal services and radioactive material management services. The by-product material disposal facility is proposed to be located at 9998 West Highway 176, approximately 30 miles west of the city of Andrews in Andrews County, Texas. The proposed facility is located approximately five miles east of the city of Eunice, New Mexico.

WCS currently possesses a TCEQ Radioactive Material License, L04971, authorizing commercial receipt, storage and processing of radioactive material at an existing adjacent facility. WCS also possesses a TCEQ Hazardous Waste Permit, No. 50358, authorizing storage, processing and disposal of hazardous and industrial waste at an existing adjacent facility. In addition, WCS has pending applications with the TCEQ for a separate Radioactive Material License and a separate Hazardous Waste Permit requesting authorization for a commercial disposal facility for low-level radioactive waste and mixed low-level radioactive waste at an adjacent location. These other applications are separate matters handled under separate proceedings; this Response to Comments addresses only the application for the Radioactive Material License R05807 (application) authorizing commercial by-product material disposal.

### **II. Procedural Background**

WCS originally submitted the application for the by-product material disposal license with the Texas Department of State Health Services (DSHS) on June 21, 2004. Responsibility for the regulatory program and review of the license application for by-

product material disposal was transferred from DSHS to TCEQ under Senate Bill (SB) 1604 of the 80<sup>th</sup> Legislature in June 2007. Under SB 1604, the WCS application is subject to the technical rules of the DSHS that were effective when SB 1604 was enacted. This response includes references to the applicable DSHS rules in 25 TAC Chapter 289. Notice of Completion of Technical Review for proposed Radioactive Material License No. R05807 was issued on October 24, 2007 and published in the *Andrews County News* newspaper on October 28, 2007. The Executive Director also issued supporting documentation for the completion of the technical review of the license application. The comment period ended on November 27, 2007.

Supporting documentation for the completion of the technical review included a draft Environmental Analysis (EA) and a draft license. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The draft EA documents the review performed through the technical review period, which began at the DSHS and ended at the TCEQ in October 2007. The EA is organized by review subject area, focusing on license application materials submitted by WCS and the related technical analysis of those materials. The draft EA was developed based on contributions of individual review areas. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. Importantly, the draft EA has not been modified because the derived draft license conditions are intended to address areas identified in the draft EA that warrant specific attention. An Errata sheet, included with this Response to Comment, has been prepared to correct any errors identified in the draft EA, though. Additionally, the draft license conditions increase the protection of public health and safety and the environment.

### **III. Access to Rules, Laws, and Records**

TCEQ rules are available at this link in the TCEQ website:

<http://www.tceq.state.tx.us/nav/rules/current.html>

The Health and Safety Code and the Water Code are available at the Texas Legislature online website:

<http://tlo2.tlc.state.tx.us/statutes/statutes.html>.

Other useful information is available at the TCEQ website:

<http://www.tceq.state.tx.us>.

TCEQ records on the proposed WCS facility and this application may be accessed at the TCEQ Office of Chief Clerk, Building F, 1<sup>st</sup> Floor, 12100 Park 35 Circle, Austin, Texas 78753, or by contacting TCEQ by phone at (512) 239-6204.

#### **IV. Requests for Public Meeting**

Approximately twelve requests for a public meeting were submitted. Eleven letters were submitted by individuals residing in or around Eunice, New Mexico using an identical form letter to request a public meeting in Eunice, New Mexico, and one additional request to conduct a public meeting was submitted by the Sierra Club which named two members residing in and around Eunice, New Mexico. There were no requests for a public meeting made by individuals residing in Andrews County, Texas where the facility will be located, or by groups on behalf of members who reside in Andrews County. Therefore, the Executive Director determined that there was not a significant degree of public interest in the application and decided against conducting a public meeting on the WCS application for a license authorizing by-product material disposal.

#### **V. Comments and Responses**

The Executive Director received extensive comments from WCS. WCS numbered its comments, and this response will use the same numbering system. Also, the Executive Director cites to both the Draft Environmental Analysis (draft EA) which is a technical assessment of the TCEQ staff review of the application and the draft license.

##### **WCS General Comments**

**Comment 1.1:** WCS agrees with the Executive Director's assessment that usable groundwater (Trujillo sand) is at sufficient depth that it will not be affected from the licensed activities.

**Response:** The Executive Director acknowledges the comment. The Trujillo formation, a water-bearing sandstone, is described in the application as being situated at an elevation

of 3,170 feet msl (mean sea level), approximately 300 to 400 feet below the 225-foot zone of the Dockum group (the 225-foot zone is a sandstone within the Cooper Canyon formation of the Dockum group approximately 225 feet below the surface). The Dockum group is described in the application as Triassic-aged sedimentary formations including: the Santa Rosa formation, a 200 to 250 foot thick sandstone/conglomerate at about 1140 to 1400 feet below the ground; the Tecovas formation, a 500 to 550 foot thick sequence of claystones and siltstones; the Trujillo formation, a 100 foot thick sandstone formation 600 feet below the surface; and the Cooper Canyon formation, the red bed claystones and sandstones/siltstones occurring from a depth of about 600 feet to within 10 feet of the ground surface. The application states that the 225-foot zone is the uppermost aquifer for regulatory purposes. The 225-foot zone is described in the application as continuously saturated under the proposed disposal facility. A formation is saturated when its pore space is filled with water. In addition, above the 225-foot zone, the application describes the 180-foot zone as saturated beneath a portion of the proposed disposal facility. Above the 180-zone, the 125-foot zone is described in the application as unsaturated in the immediate vicinity of the proposed disposal facility, but has been found to be saturated at locations in the general area. As a result of the Executive Director's comprehensive review of information in the WCS application concerning the Trujillo and the other formations of the Dockum group, the Executive Director recommends draft license conditions on water-bearing formations above the Trujillo (and closer to the proposed disposal facility). The draft license includes requirements to have wells in the 125-foot zone and the 225-foot zone to monitor for release of radioactive or hazardous constituents to ensure groundwater is not affected by licensed activities. Lastly, independent modeling studies conducted by the Executive Director and his consultants indicated that the disposal facility would contain and isolate by-product wastes for at least 200 years under conservative assumptions. No changes were made in response to this comment.

**Comment 1.2:** WCS maintains that their transport model demonstrates that by-product waste is effectively isolated from usable groundwater sources.

**Response:** The Executive Director acknowledges the comment. The Executive Director analyzed the modeling presented in the application and additional modeling presented as

an attachment to comments provided by WCS in the public comment period. Based on that modeling information, the Executive Director determined that radionuclide contamination will take longer than the minimum regulatory compliance period of 200 years to reach the 225-foot zone. The draft license also includes requirements to install and maintain monitor wells in formations above the 225-foot zone to monitor for the release of radioactive or hazardous constituents. No changes were made in response to this comment.

**Comment 2.1:** WCS comments that WCS agrees with the Executive Director's assessment that the WCS facility will operate within the applicable dose limits for site workers and the nearest resident. The WCS license application included dose models that included site specific data, multiple layers of conservatism, and bounding assumptions which showed that all doses would be well below regulatory limits. Moreover, TCEQ staff performed independent analyses of the information contained in the WCS license application, and used even more conservative assumptions and parameters to model a realistic worst case estimation of dose to the nearest theoretical site boundary resident. Using the more conservative assumptions, TCEQ staff calculated a dose to the public of 9.54 millirems per year, which is well below the annual 100 millirem standard of the Texas regulations. Similarly, the TCEQ staff utilized very conservative assumptions to calculate dose to the worker at the WCS by-product facility and concluded that estimated dose to a WCS worker of 1,320 millirem per year, which is considerably below the allowable worker dose of 5,000 millirem per year under 25 TAC §289.202(c)(2)(Draft Environmental Analysis, WCS, Page 79).

**Response:** The Executive Director acknowledges this comment. No changes were made in response to this comment.

**Comment 2.2:** In accordance with the analysis discussed in Comment 2.1, WCS agrees with the conclusion that the issuance of the license to dispose of by-product material will not be inimical to public health and safety and will control radiological hazards to the environment during the time period of regulatory concern as stated in pages 80-81 of the draft EA.

**Response:** The Executive Director acknowledges the comment. While the environmental health physics review referred to on pp. 80-81 of the draft EA confirmed the applicant's calculation of radiological impacts resulting from routine operations only, it did not include review of the radiological impacts for accidents or extreme weather conditions (i.e. high impact, low probability events). The impacts of high wind conditions were reviewed in the process engineering review as an extension of accident scenarios and extreme events. The analysis provided in the application used the environmental radiological dose model, RESRAD. This model was designed for assessing the impacts from residual radioactivity on the ground surface at reclaimed sites. As such, it simulates average air dispersion conditions and does not take into account the full spectrum of wind velocities that could occur nor does it model occurrences based on site specific parameters. Specifically, the RESRAD model uses one average wind velocity rather than a range of velocities that could occur at a given site location. In the agency's analysis, high impact, low probability events, like high wind velocities, were given consideration as potentially occurring at the site. Accordingly, the Executive Director has included a license condition prohibiting the disposal of bulk by-product material waste to ensure that licensed activities are not inimical to public health and safety. No changes were made in response to this comment.

**Comment 2.3:** In accordance with the findings of the Executive Director's staff discussed in Comments 2.1 and 2.2, WCS seeks authorization for the receipt and disposal of bulk by-product material waste into the proposed landfill in conformance with the plans, procedures, and specifications set forth in the License Application.

**Response:** The Executive Director does not agree with the comment. The conclusions referenced in WCS Comments 2.1 and 2.2 are based on modeling to demonstrate that anticipated doses to workers and off-site residents are lower than regulatory limits for normal facility operations. In addition to this demonstration, however, rules require exposure to ionizing radiation be maintained as low as reasonably achievable (ALARA) under 25 TAC §289.202(e)(2). The prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: 1) the need to ensure a comprehensive respiratory protection program, including specific written

respiratory protection procedures concerning the use of individual respiratory equipment; 2) the potential for wind dispersion of bulk by-product material and the necessity for implementing ALARA measures for working with potentially-dispersible bulk materials under defined conditions; and 3) the travel time of constituents to intersect groundwater. Moreover, the proposed use of respirators requires a compliant respiratory protection program. WCS did not provide specific procedures for the implementation of a respiratory protection program, that conformed to the requirements of 25 TAC §289.202(x)(1)(C)(iv), as further explained in response to comment EA-18. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety. The license is subject to amendment in accordance with 30 TAC §305.62, including the provision prohibiting the acceptance of non-containerized bulk waste. In addition to respiratory protection concerns, the prohibition on bulk by-product material disposal provides additional protection from wind dispersion of radioactive materials and will increase the travel time of constituents thereby reducing the potential for intersection of constituents with groundwater. No changes were made in response to this comment.

**Comment 3.1:** WCS comments that draft license conditions 14.C and 60.A propose the sampling of a random number of by-product material shipments in furtherance of the waste acceptance procedures set forth in the License Application. The principal purpose of the WCS waste acceptance procedures is to verify that the material received for disposal is in fact by-product material and conforms to the generator's characterization based on its radiological properties. WCS believes that this justification does not apply in the case of the Fernald silos 1 and 2 material, which has been accepted for storage by WCS under License L04971 and has been the subject of extensive characterization by the federal government, including the designation as by-product material by statute (Section 312 of Public Law 108-1-37, 2003).

Since these materials will be disposed in robust, sealed containers and sufficient data have been provided for storage under License L04971 to verify the contents, additional confirmatory sampling of these containers is not required and would not be in accordance with the guiding principle of keeping radiological exposures as-low-as-reasonably-

achievable (ALARA). Moreover, the extensive containerization of the Fernald material on behalf of the federal government for transportation and long-term storage/disposal renders it extremely difficult to perform a random sampling procedure consistent with ALARA. For these reasons, WCS proposes a narrow, one-time exception to the random sampling requirement.

**Response:** The Executive Director agrees with the comment. A condition has been added to the draft license to exclude the Fernald by-product material containers from the random sampling and analysis to verify the container contents comply with the authorization on the license in order to maintain ALARA for radiological exposures and to acknowledge the available documentation and data on the content of these containers.

**Comment 3.2:** WCS proposes to change the wording of the draft license condition related to revision of procedures to make it consistent with the license application, and 30 TAC §305.62. The proposed revision establishes a license condition that defines minor modifications to procedures, and specifies how minor changes can be made to approved procedures with notice and documentation to TCEQ without triggering a license amendment. WCS proposes revision to the license condition to clarify when procedure modification requires prior TCEQ approval. Also, the WCS proposed revision specifies that the Radiation Safety Officer must review and approve all procedures and modifications.

**Response:** The Executive Director does not agree with the proposed changes. Amendments, both major and minor, must be made in accordance with requirements in 30 TAC §305.62. With regard to minor modifications in §305.62, this procedure is limited to Texas Pollutant Discharge Elimination System permits. The process for making changes to a license is appropriately addressed in TCEQ rule, rather than by individual license condition. Accordingly, changes to the licensee's approved procedures must be made in accordance with requirements for amending the approved license in 30 TAC §305.62. However, Phase II Implementation of SB 1604, slated to be completed by the end of 2008, will include the review and revision, if appropriate, of rules related to by-product material. The Executive Director does recognize a desire by licensees to

adjust their practices and procedures, when appropriate, without the formal license amendment process. The Executive Director can consider making recommendations to amend TCEQ rules to allow a licensee's implementation of minor changes to operational procedures as part of future rulemaking. No changes were made in response to this comment.

**Comment 4.1:** In the draft EA, the TCEQ provides a detailed discussion of the pre-operational monitoring program conducted by WCS and concludes that this program satisfies the requirements of 25 TAC §§289.202 and 289.260(o)(28) (Draft EA, p. 63). WCS agrees with this conclusion. In its evaluation of the pre-operational data provided in the application, the TCEQ identified a few areas where additional monitoring data should be collected prior to facility operations to resolve potential ambiguities noted by TCEQ in the pre-operational monitoring data contained in the application. WCS intends to proceed with the collection of the additional pre-operational data as expeditiously as possible; as a result, WCS is suggesting revision of the draft license to specifically identify the elements of the additional pre-operational monitoring. WCS also proposes to modify the required non-radiological parameters to eliminate constituents that are not found in by-product materials (see WCS Comment EA-5 regarding Section 3.4.4 of the draft EA).

**Response:** The Executive Director agrees, in part, with the proposed changes to the draft license dealing with pre-operational monitoring requirements. The Executive Director has modified the draft license condition 92.E to specifically identify necessary elements of the pre-operational monitoring program. However, the Executive Director does not agree with the proposed changes to the monitoring requirements to eliminate non-radiological constituents (other than metals) that may be found in by-product material. This monitoring provision is necessary to determine any impact to groundwater from any adjacent facilities and to establish a baseline for any hazardous constituents that may be in future by-product waste, including both organic and inorganic contaminants.

**Comment 4.2:** In developing its environmental monitoring program for the by-product material disposal facility, WCS states in the license application that it consulted applicable guidance, including Texas Department of Health Regulatory Guide 1.1,

regarding the type, number, location, method, and frequency of sampling and analysis generally appropriate for inclusion in an environmental monitoring program of this nature. In addition, the WCS monitoring program, as described in the license application, considered natural site-specific conditions that must be considered for environmental monitoring that is appropriate for a given environmental media, as well as the fact that other facilities that manage radioactive materials currently exist or are proposed to exist within and in the vicinity of the WCS site. As noted by TCEQ, the WCS environmental monitoring program addresses the potential pathways by which radioactive contaminants could enter the environment for the pre-operational, operational, and post-operational periods of the facility's life (Draft EA, p. 60). In review of draft license condition 92.A, WCS noted differences between the monitoring specified in this condition and that contained in the WCS proposed environmental monitoring program in the License Application. In addition, WCS noted that there was no distinction made between operational monitoring and post-operational monitoring. WCS proposed changes to the wording of draft license condition 92.A to more closely align the environmental monitoring program specified in the draft license with the environmental monitoring program contained in the license application.

**Response:** The Executive Director has reviewed the proposed changes which WCS has recommended to draft license condition 92.A. and notes that specific changes to draft license condition 92.A. are addressed later in response to comments DL-57 and 92.A-1 through 92.A-10. While the Executive Director realizes the potential for a reduced level of environmental monitoring during the post-closure period, the draft license does not distinguish between operational and post-operational monitoring. The nature and extent of post-operational monitoring depends on the performance of the facility during the operational phase and also is dependent on the conditions at the site at the beginning of the post-closure period. Therefore, the draft license does not reduce levels of post-operational monitoring. Post-operational monitoring requirements will also be evaluated by the United States Department of Energy (DOE) at the time the facility ceases operations, because DOE has responsibility for post-closure monitoring once the licensee has placed the site in a stable condition. The results of previous environmental

monitoring at the time of site closure will need to be taken into account when developing the post-closure environmental monitoring program.

### WCS Table I Comments on Draft License

**Comment DL-1:** WCS comments that draft license condition 6.A should be modified to remove the requirement that by-product material be containerized.

**Response:** The Executive Director does not agree with the proposed revision to Condition 6.A. The prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: 1) the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material as discussed in response to comments 2.2 and DL-24; and 3) the travel time of constituents to intersect groundwater as discussed in response to comment 2.3. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment.

**Comment DL-2:** WCS comments that draft license condition 7.A. should be modified to increase the curie limit. WCS does not understand the basis for TCEQ's activity limit of 24,530 curies as this number cannot be duplicated based on the information in the License Application. WCS is also unclear as to how compliance with this limit is to be demonstrated. WCS offers the following information as to the waste stream specific and total curie data contained in the License Application:

1. Section 1 lists the potential waste streams identified for disposal at the By-product Facility and provides volume (when available) and radionuclide concentration data for each waste stream.

2. Section 5, Appendix 5.A uses the waste stream volume and radionuclide concentration information from Section 1 and augments them by including all radionuclides, regardless of half-life, associated with each Section 1 waste stream. This augmented list of

radionuclides and each radionuclide's associated activity and concentration is what was used in the assessment of compliance with TCEQ's regulatory requirements.

3. WCS used the augmented radionuclide source term to assess compliance with TCEQ regulatory requirements by constructing an upper bound long-term post-closure source term and an upper bound operations source term. For the long-term post-closure performance assessment (Section 4.0 of Appendix 5.A) WCS assumed the entire 1,169,000 cy by-product disposal unit was filled with Fernald silos 1 & 2 waste, in containers, having a total activity of 400,000 curies of radionuclides with half-lives greater than 30 days, or if short-lived radionuclide in equilibrium are included, a total activity of 1,200,000 curies. This is a very conservative upper bound long-term post-closure source term since the total inventory of Fernald silos 1 & 2 waste is only about 51,000 cy, 17,400 curies (Section 5, Table 5.2.1-1).

4. For assessment of compliance for the operational period WCS constructed the upper bound operations source term by assuming the by-product disposal unit contained 1,169,000 cy of Maywood waste in bulk form having a total activity of 12,200 curies of radionuclides with half-lives greater than 30 days, or if short-lived radionuclides in equilibrium are included, a total activity of 37,400 curies. This is also a very conservative upper bound operations source term since the actual Maywood waste volume is only about 227,000 cy (Section 5, Table 5.2.1-1).

Based on the analyses performed and included in the License Application WCS proposes to revise the draft license condition to provide: "a total activity for radionuclides with half-lives greater than 30 days as follows: 29,600 curies total, disposed curies for radionuclides with half-lives greater than 30 days, and 12,200 curies bulk material."

**Response:** The Executive Director does not agree with this comment. The Executive Director established the total radioactivity limit in the draft license based on the requested waste streams for receipt presented in the license application. In determining the total radioactivity limit, the Executive Director used the total curie content of the Fernald Silos 1 and 2 waste, along with a high average radioactivity from the GRUY-7B by-product material for the additional volume considered (as provided in TBRC EA-18, Texas

Department of Health. 1988. "Environmental Assessment and Proposed License Conditions Related to the Everest Exploration, Inc. Gruy-7B Project," Jim Hogg County, Texas TBRC Austin, Texas. June 30, 1988). It should be noted that the total curie content calculated by the Executive Director for the Fernald Silos 1 and 2 wastes, independently determined as part of staff's review of references (specifically, the DOE's Waste Characterization document) was 22,600 curies as opposed to the 17,400 curies estimated in the application by WCS. Additionally, to allow for some flexibility on the timing of receipt of specific waste streams, the total radioactivity limit in the draft license accounts for all requested waste streams for receipt presented in the license application throughout the entire facility design life, rather than a percentage of total radioactivity based on the ten-year license term. WCS will need to develop an appropriate method of tracking and reporting total radioactivity by radionuclide of waste buried at the proposed facility to comply with the total curies limit in the license. No changes were made in response to this comment.

**Comment DL-3:** WCS comments that draft license condition 11.B. should be modified to authorize the receipt of bulk, un-containerized by-product material in accordance with the License Application. WCS proposes that the definition of "bulk material" be revised to comport with the proposed revision to draft license condition 14.A.

**Response:** The Executive Director does not agree with the proposed revision to draft license condition 11.B. The prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: 1) the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material as discussed in response to comment 2.2 and DL-24; and 3) the travel time of constituents of by-product material to intersect groundwater as discussed in response to comment 2.3. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. Because the Executive Director

recommends that all waste be containerized, the definition of “bulk material” as provided in the draft license is essential. No changes were made in response to this comment.

**Comment DL-4:** WCS comments that draft license condition 11.E should be modified to delete that portion of the definition of a container in draft license condition 11.E which describes the performance requirements for containers of bulk by-product material that are placed in the disposal unit. This WCS comment is consistent with WCS Comment DL-1, which deletes the requirement in draft license condition 6 that all bulk by-product material waste be managed (received, handled, disposed) in containers.

**Response:** The Executive Director does not agree with this comment. Because the Executive Director recommends that the draft license prohibit disposal of non-containerized bulk material, draft license condition 11.E likewise serves as a corresponding direction on the proper management of containerized bulk by-product material waste. The prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: 1) the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material as discussed in response to comment 2.2 and DL-24; and 3) the travel time of constituents of by-product material to intersect groundwater as discussed in response to comment 2.3. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to this comment.

**Comment DL-5:** WCS comments that draft license condition 11.H should be modified so that the “restricted area” is defined by license condition 66.

**Response:** The Executive Director does not agree with the proposed revision to Condition 11.H. The WCS license application does not clearly specify a “restricted area” at the proposed by-product material disposal facility and uses the term “controlled area” interchangeably with “restricted area.” These are specifically defined regulatory terms

that have different meaning and whose designations have different purposes. The "restricted area" is defined as an area in which access is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. The "controlled area" is defined as the area, outside of a restricted area, but inside the site boundary, in which access is limited by the licensee for any reason. Due to the potential for exposure to ionizing radiation within the confines of the proposed by-product material disposal facility, all of the by-product material disposal facility within the security fence as described and depicted in the WCS application would comprise the restricted area. This designation of restricted area will provide a consistent, clearly understood description of what constitutes the area where radiation protection measures (e.g., postings, survey areas, use of personnel dosimetry, etc.) should be employed at the proposed facility. No changes were made in response to comment.

**Comment DL-6:** WCS comments that draft license condition 11.N. should be modified to clarify the definition of "operations" in the context of initiation of final closure of the last disposal cell.

**Response:** The Executive Director agrees with the comment and has modified the definition of "operations" in the draft license accordingly.

**Comment DL-7:** WCS comments that draft license condition 11.P. should be modified to clarify the definition of "excavation" so that it does not include structures not associated with the by-product material landfill disposal units.

**Response:** The Executive Director does not agree with the comment. The definition of excavation is intended to encompass all areas which will be modified in association with the handling and disposal of by-product material. All of the facility areas within the licensed facility comprise features of the by-product material disposal facility that will or may contact by-product material. As such, any and all of these features should be included in the definition of excavation regarding construction activities of the by-product material disposal facility. No changes were made in response to this comment.

**Comment DL-8:** WCS comments that draft license condition 12.E. should be clarified to make it consistent with draft license condition 53.

**Response:** The Executive Director does not agree with the proposed revision to License Condition 12.E. The Executive Directors contends that draft license conditions 12.E and 53 are consistent with the regulatory requirements for the individual serving as the responsible person on this license. Although WCS may have other duties and organizational lines in their business plan, the necessity for the regulatory responsibilities to be fulfilled by the Radiation Safety Officer (RSO) takes precedent in the draft license. The WCS application does not include an organization chart and description of duties and authorities indicating that the RSO has a direct line of communication to the president of the company on matters pertaining to radiation safety. Draft license condition 12.E requires the licensee to revise the organizational chart and the description of duties, responsibilities and authorities of the RSO to depict and specify that the designated RSO has a direct line of communication with the licensee's president on all matters pertaining to radiation safety and compliance with the conditions of the license and applicable rules. No changes were made in response to this comment.

**Comment DL-9:** WCS comments that draft license condition 12.F.(3) should be modified to provide a minimum of 40 hours of specialized training for the RSO relative to applicable uranium recovery, waste processing, or production because WCS was unable to locate commercially available training courses in these subjects that span four weeks.

**Response:** The Executive Director does not agree with the proposed revision to Condition 12.F. (3). The regulatory responsibilities to be fulfilled by the responsible person named by the draft license, the Radiation Safety Officer (RSO), are paramount to protection of worker and public health and safety at the proposed facility. A minimum of an accumulated four weeks of training as provided in the draft license is the minimum amount of specialized training for the RSO of a proposed facility for the disposal of by-product material. No changes were made in response to this comment.

**Comment DL-10:** WCS comments that draft license condition 13.B. should be modified to indicate that the license itself includes requirements that must be adhered to in the construction of the facility, in addition to the design information contained in the application at Section 3 of Volume I. WCS proposes to add the phrase "...and the conditions of this license."

**Response:** The Executive Director agrees with this comment and has modified the draft license to recognize that specific license conditions may also address facility construction requirements.

**Comment DL-11:** WCS comments that draft license condition 13.C. should be modified to state that modifications to the facility shall be authorized in accordance with 30 TAC § 305.62.

**Response:** The Executive Director does not agree with the proposed change, but has modified draft license condition 13.C in response to the comment. Amendments, both major and minor, must be made in accordance with requirements in 30 TAC §305.62. With regard to minor modifications in §305.62, this procedure is limited to Texas Pollutant Discharge Elimination System permits. The process for making changes to a license is appropriately addressed in TCEQ rule, rather than by individual license condition. Accordingly, changes to the licensee's approved facility must be made in accordance with requirements for amending the approved license in 30 TAC §305.62. However, Phase II Implementation of SB 1604, slated to be completed by the end of 2008, will include the review and revision, if appropriate, of rules related to by-product material. The Executive Director does recognize a desire by licensees to make changes to their facilities, when appropriate, without the formal license amendment process. The Executive Director can consider making recommendations to amend TCEQ rules to allow a licensee's implementation of minor changes to facilities as part of future rulemaking. The recommended rewording of draft license condition 13.C is:

"13.C. Any modification or deviation from the drawings, specifications, and references in Section 3 of Volume 1 of the application and the conditions of this license shall require approval by the commission by amendment of this license."

**Comment DL-12:** WCS comments that draft license condition 14 should be modified to authorize the disposal of non-containerized bulk material.

**Response:** The Executive Director does not agree with the comment to modify the draft license condition in order to authorize disposal of non-containerized bulk material. As discussed previously, the prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: 1) the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material as discussed in response to comment 2.2 and DL-24; and 3) the travel time of constituents of by-product material to intersect groundwater as discussed in response to comment 2.3. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to this comment.

**Comment DL-13:** WCS comments that draft license condition 14.A. should be deleted to authorize the disposal of non-containerized bulk material.

**Response:** As explained in response to Comment DL-12, the Executive Director does not recommend that the draft license authorize disposal of non-containerized bulk material. As discussed previously, the prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material as discussed in response to comments 2.2 and DL-24; and 3) the travel time of constituents of by-product material to intersect groundwater as discussed in response to comment 2.3. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and

public health and safety and the environment. No changes were made in response to this comment.

**Comment DL-14:** WCS comments that draft license condition 14.B. should be modified to indicate that containerized by-product material may be received by rail under License #04971, and then transferred to License No. R05807 for disposal.

**Response:** The Executive Director does not agree with the comment and the proposed revision to draft license condition 14.B. TCEQ Radioactive Material License L04971 authorizes commercial receipt, storage and processing of radioactive material at an existing facility adjacent to the proposed by-product material disposal facility. The Executive Director does not agree that License No. L04971 authorizes the receipt and unloading of radioactive materials at a railcar unloading facility. While previous L04971 license applications may have indicated on some maps that a railcar unloading facility exists on site, the licensee has not requested approval for receiving, unloading, and possessing radioactive materials at a railcar unloading facility and had not provided necessary technical information that would accompany such a request. Thus, TCEQ has not received or approved processes or procedures for receipt, unloading, and handling of radioactive materials from railcars. As part of the review of a request for receiving, unloading, and possessing radioactive materials entering the facility by rail, the TCEQ would review the processes and procedures and evaluate the potential health and safety impacts of the proposed activity. No changes have been made in response to this comment.

**Comment DL-15:** WCS comments that draft license condition 14.C (license condition 14.B. as recommended by WCS) should be modified to exempt the opening, sampling and verification of the steel canisters containing by-product material from Fernald silo 1 and 2. WCS comments that the Fernald material has already been thoroughly characterized and documented. WCS also comments that the draft license condition 14.C. should be modified to authorize disposal of non-containerized bulk material.

**Response:** The Executive Director agrees with the suggested change to exempt the Fernald by-product material from Silos 1 and 2 from the sampling requirement. Because

the Fernald material has been characterized and documented, additional exposure from the activities of opening, sampling, and verification of the Fernald material should be minimized. However, the Executive Director does not agree with the remainder of the comment and the proposed revision of draft license condition 14.C. The exemption of the Fernald by-product material from the sampling requirement will be done under another condition. Thus, the Executive Director recommends that draft license condition 14.C remain unchanged.

**Comment DL-16:** WCS comments that draft license condition 14.D (license condition 14.C. as recommended by WCS) should be modified to delete requirements for use of uncontaminated or “clean” grout, sand soil or other fill material for placement around containers.

**Response:** The Executive Director agrees with the suggested change in part. However, the Executive Director does not agree with the suggested change to remove the requirement for use of uncontaminated fill material. As explained previously, the Executive Director does not recommend authorization for disposal of non-containerized bulk by-product material. Thus, bulk radioactive by-product material should not be used as fill between or around disposal canisters. Additionally, the Executive Director cautions that the use of contaminated materials as fill material around and in between containers would require use of hand compaction techniques that would risk exposure to individual workers which is not consistent with ALARA principles. The Executive Director recommends changing the draft license condition to replace “between containers” with “around” and add “containers” after emplaced, and to add “and around emplaced non-bulk material” as indicated in the proposed change to the condition. However, the terms “uncontaminated or clean” shall remain as modifiers of “grout, sand or other flowable material” in the license condition. The Executive Director also recommends the deletion of soil as a suitable fill material and refers to the more general provision of “other suitable flowable material.” The recommended rewording of draft license 14.D is the following:

“14.D. The licensee shall use uncontaminated or clean grout, sand, or other suitable flowable material to fill void spaces and gaps around emplaced containers of by-product material, and around emplaced non-bulk material in the disposal unit.”

**Comment No. DL-17:** WCS comments that draft license condition 15 should be modified to provide the TCEQ with enforcement discretion.

**Response:** The Executive Director does not agree with the proposed change to the license condition. Draft license condition 15 is required in TCEQ permits and licenses in 30 TAC §305.125(1). No changes were made in response to this comment.

**Comment DL-18:** WCS comments that draft license condition 30.A. should be modified to remove language on the reporting of bankruptcy filings by Valhi, Inc. or WCS affiliates.

**Response:** The Executive Director does not agree with the proposed change. The proposed wording of condition 30.A. is taken directly from rules at 30 TAC §305.125(22). Valhi, Inc. (Valhi) is also specifically included in this license condition because Valhi has been identified as providing a parent company guarantee for financial assurance and for providing funding for proposed WCS projects. Because Valhi's solvency or bankruptcy filing could affect the ability of WCS to conduct licensed activity, the licensee is required to report a filing in bankruptcy by Valhi. No changes were made in response to this comment.

**Comment DL-19:** WCS comments that draft license condition 34 should be modified to add the word “substantial” before “conformance” for the Executive Director’s determination that the constructed facility is in conformance with the description, design, and construction described in the application in order to recognize that some minor field changes will necessarily be made during construction. WCS recommends a sentence requiring the Executive Director’s inspection and approval of financial assurance within 60 days of receiving certification of the facility’s completion by the licensee.

**Response:** The Executive Director does not agree with the suggested changes. The term “substantial” in this license provision is not necessary. The Executive Director may

consider minor changes in determining that the constructed facility conforms to the description, design, and construction described in the application. In addition, the Executive Director does not recommend a provision in the draft license to require the Executive Director's inspection and approval of financial assurance by a certain date. The Executive Director will review a request for inspection or approval of financial assurance in a timely manner. No changes were made in response to this comment.

**Comment DL-20:** WCS comments that draft license condition 36 should be revised to comport with 25 TAC §289.260(h)(19)(H) with respect to release of financial assurance and United States Nuclear Regulatory Commission (NRC) concurrence in license termination.

**Response:** The Executive Director agrees with this comment and has revised the draft license accordingly.

**Comment DL-21:** As an overall comment to the three-part provision of draft license condition 37, WCS proposes to delete two engineering studies, and substitute proposed monitoring for the hydraulic/water balance engineering study, and inspection for the corrosion and line-freezing engineering study. Regarding the third engineering study of wind erosion and dispersal, WCS has enclosed an independent study by Prince Environmental and proposes that it satisfies the third engineering study.

**Response:** The Executive Director does not agree with the comment. Proposing monitoring and inspection is not an appropriate substitute for actual engineering studies on the hydraulic/water balance and freezing/corrosion of lines, pipes, and tanks. A water balance analysis is a fundamental study used for engineering review of any proposed process or disposal activity. Additionally, a freezing/corrosion study is appropriate for the lines, pipes, and tanks exposed to the elements on the proposed facility. These engineering studies are prudent and necessary to demonstrate the appropriateness of the selected facility design features. The air dispersion study by Prince Environmental submitted as Attachment I to the WCS comments does not address possible high mass emissions rates of the wind erosion and transport/dispersal of soil-like by-product material waste if emplaced in the disposal unit as explained in response to comment DL-

24. The wind erosion and dispersal study appropriately should consider all wind condition data presented in the application and all wind conditions that are known to occur at the site. No changes were made in response to this comment.

**Comment DL-22:** WCS comments that draft license condition 37.A should be revised to delete the hydraulic/water mass balance study required by this provision. WCS proposes to substitute monitoring and recordkeeping of water volumes into and out of the two 500,000 gallon contact water storage tanks, with records being maintained onsite for a three-year period.

**Response:** The Executive Director does not agree with the comment to delete the requirement for the submission of the hydraulic/water balance study but does agree that monitoring over time and recordkeeping are useful tools. A water balance analysis is a fundamental study used for engineering review of any proposed process or disposal activity. Since contact with water could facilitate the transport of radioactive and hazardous constituents, it is critical that there is an accounting of all water in and out of the licensed site area. The WCS license application did not provide a complete hydraulic/water balance for the entire system, and this engineering study is needed to evaluate the capability of the proposed facilities to contain and control water and wastewaters. Proposing monitoring alone is not an appropriate substitute for an engineering study because the proposed monitoring does not evaluate the sufficiency of the proposed facilities. However, the Executive Director does agree with the proposed monitoring and recordkeeping requirements in addition to the submission of the engineering study. The draft license has been modified to provide:

“37.A ....The Licensee shall measure and record the volume of all contact water from all sources that is placed in the contact water holding tanks. Further, Licensee shall measure and record that volume of all contact water removed from the tanks and shall identify the disposition of the water. Records of the volumes of water collected and transferred shall be maintained at the facility for a period of three years and shall be available for inspection by the Executive Director at any time during normal business hours.”

**Comment DL-23:** WCS comments that draft license condition 37.B should be revised to delete the engineering study of potential corrosion rates of water pipelines, pumps, and tanks; and the potential for above-ground water pipeline freezing. WCS proposes to substitute inspections and recordkeeping relative to this equipment, with records being maintained onsite for a three-year rolling period.

**Response:** The Executive Director does not agree with the comment to delete the requirement for the submission of the engineering study on corrosion rates and freezing potential but does agree that monitoring over time and recordkeeping are useful tools. The WCS license application did not evaluate the corrosion potential for the materials of construction proposed for pipelines, pumps, and tanks in the contaminated water/wastewater handling system, and did not evaluate and provide for freeze protection of above-ground wastewater transfer lines. Since these design features will be exposed to the elements, it is prudent and necessary to demonstrate their appropriateness in this environment through all weather conditions. The inspection proposed by WCS as Table 38.A, Attachment A, while extensive and useful, is not an appropriate substitute for evaluating such information as part of the design of the facility in an engineering study. However, the Executive Director does agree with the inspection and recordkeeping requirements as a supplement to the engineering/design study. The draft license has been modified to provide:

“37.B ....The Licensee shall inspect the contact water collection, holding and transfer system in accordance with Table 37.B. Records of the inspections, results of the inspections, identification of leaks, remedial activities resulting from the inspections and identification of replaced/repared equipment shall be maintained at the facility for a period of three years and shall be available for inspection by the Executive Director any time during normal business hours.”

**Comment DL-24:** WCS comments that draft license condition 37.C should be revised to delete the requirement for the submission of a study of mass air emissions due to wind erosion and wind transport/dispersal, if soil-like by-product material waste were to be placed in the disposal unit as proposed in the application. It is noted that the draft license

requires all bulk by-product material waste to be containerized prior to placement in the disposal unit; and, given that fact, the study required by draft license condition 37.C addresses the potential future placement of non-containerized bulk waste, which would require an amendment to the license as issued in draft form. WCS has provided in Attachment I the engineering study "Engineering Controls for Particulate Air Emissions" prepared by Prince Environmental, which is stated as fulfilling the requirements for the engineering study required by Provision 37.C, thereby obviating the need for this provision in the license.

**Response:** The Executive Director agrees with the comment, in part. Attachment I to the WCS comments evaluates the potential for fugitive air emissions of by-product material waste from the disposal unit, assuming that disposal of non-containerized bulk waste is authorized during facility operation. The report "Engineering Controls for Particulate Air Emissions" is based on assumptions of: (1) a 50% emissions control credit for the below grade placement of waste, (2) a 95% emissions control credit for the use of "crusting agents" in the dust suppression water sprays, and (3) a wind speed of 10 miles per hour (mph) in the emissions rate equation accounting for wind erosion. The emission rate equation is taken from the U.S. Environmental Protection Agency (EPA) document AP-42 compendium at Section 11.9 ("Compilation of Air Pollutant Emission Factors, Volume I: Stationary and Area Sources," January 1995). The study does not demonstrate how appropriate and conservative assumptions are used to predict mass emission rates from wind erosion and dispersal. Further, the engineering report does not represent high wind conditions known to occur at the site and further presented as wind condition data in the application, or other site and design-specific conditions. The study appears to represent emissions control performance for subsurface placement and for the use of water spray with chemicals for dust suppression that are not substantiated with documentation that demonstrate performance under specific site conditions and for the proposed facility design. However, because the Executive Director recommends the prohibition of bulk material disposal, the study required in draft license condition 37. C. is not needed. The draft license has been revised to remove this requirement. If the licensee seeks to amend its license for bulk material disposal at some point in the future, a study like that required in draft license condition 37.C would be required.

**Comment DL-25:** WCS comments that draft license condition 38 should be deleted consistent with the WCS recommended change to draft license condition 40.

**Response:** The Executive Director does not agree with the comment to delete the requirement for verification studies during excavation and construction activities. The applicant did not excavate areas in the immediate footprint of the proposed disposal facility as part of the application process. Information on geotechnical characteristics provided in the application was based on sampling in other areas to be representative of the proposed facility location. Since soils are necessarily removed as part of excavation, it is prudent to analyze and verify that parameters on the actual footprint of the proposed disposal facility are as anticipated. Information in the application used to characterize subsurface features needs to be compared to information obtained about the subsurface features within the actual facility footprint during excavation. No changes were made in response to this comment.

**Comment DL-26:** WCS comments that draft license condition 40 should be revised to state that “measurements” rather than “geotechnical studies” shall be performed during excavation and construction of the disposal facility.

**Response:** The Executive Director does not agree with the comment to substitute measurements of geotechnical conditions with a requirement to perform geotechnical studies during excavation and construction activities. The applicant did not excavate areas in the immediate footprint of the proposed disposal facility as part of the application process. Information on geotechnical characteristics provided in the application was based on sampling in other areas to be representative of the proposed facility location. Geotechnical information in the application included the original site investigations conducted during the early 1990s but not for this specific proposed by-product material disposal location. Since soils are necessarily removed as part of excavation, it is prudent to analyze and verify that parameters on the actual footprint of the proposed disposal facility are as anticipated. Information in the application used to characterize subsurface features needs to be compared to information obtained about the subsurface features within the actual facility footprint during excavation. The verification of geotechnical

conditions during excavation and construction will determine if there are differences in subsurface conditions, such as moisture content, from those described in the application. No changes were made in response to this comment.

**Comment DL-27:** WCS comments that draft license condition 41 should be revised to require installation of wells after disposal facility construction and prior to receipt of waste.

**Response:** The Executive Director does not agree with the comment to install these wells after facility construction. Well installation should precede facility construction to verify the depth to saturation under the proposed facility prior to any disruption or possible effect of construction activities. The monitoring data from the required installation of wells will be used to verify the site conceptual model as presented in the license application and help to better define natural site conditions in anticipation of beginning facility construction. Since facility excavation and construction could affect the installed wells and resulting data, the timing of installation must allow for the ability to determine whether impacts can be mitigated during excavation and ongoing construction activities. The required installation of wells is fundamental to establishing a reliable monitoring point for facility compliance. Additionally, it will take some time from the initial period of well installation to establish data points for new well locations. No changes were made in response to this comment.

**Comment DL-28:** WCS comments that draft license condition 41. A should be revised to establish an ongoing monitoring requirement for soil moisture conditions, rather than a one time event.

**Response:** The Executive Director agrees with the comment and has revised the draft license accordingly.

**Comment DL-29:** WCS comments that draft license condition 41. B, requiring a resistivity survey, should be deleted as unnecessary, given the requirements of draft license condition 42.

**Response:** The Executive Director does not agree with the comment to delete the requirement of the resistivity survey in draft license condition 41. B. A resistivity survey measures the resistance to electrical conductance in an underground formation and can be used to indicate the presence of groundwater within the measured formation. A previous resistivity study performed on the site was not used in the application to define saturated conditions. The purpose of this license condition is to allow for an additional set of data to more accurately locate the Ogallala-Antlers-Gatuña (OAG) “dry line” in the vicinity of the proposed disposal facility. The piezometers required in draft license condition 42 will only provide information at the location of the well, and will not locate where the “dry line” may actually exist. No changes were made in response to this comment.

**Comment DL-30:** WCS comments that draft license condition 41. C, requiring verification of matric potential above the 180-foot Sandstone, should be deleted as unnecessary, given the requirements of draft license condition 41. A, requiring soil moisture monitoring.

**Response:** The Executive Director does not agree with the comment to delete the requirement for the determination of matric potential above the 180-foot sandstone (the 180-foot sandstone is a designated sandstone within the Cooper Canyon geologic formation of the Dockum group that is below the bottom of the proposed disposal facility). Matric potential should be determined to assess whether the 180-foot sandstone of the Dockum formation is near saturation. Matric potential is the absolute value of the gauge pressure head in an unsaturated material and indicates the degree of suction due to capillary action in the unsaturated material. Monitoring moisture content as required in license condition 41. A, alone, is not sufficient, as moisture content can vary with soil texture. Therefore, the draft license requires verification of matric potential in the Cooper Canyon formation as well as soil moisture monitoring. No changes were made in response to this comment.

**Comment DL-31:** WCS comments that draft license condition 43, requiring verification of matric potential of the subsurface Dockum, should be deleted as unnecessary, given the requirements of draft license condition 41. A, requiring soil moisture monitoring.

**Response:** The Executive Director does not agree with the comment to delete the requirement for the determination of matric potential in the Dockum formation. Matric potential should be determined to assess whether the Dockum near the anticipated base of the proposed facility prior to construction is near saturation. Matric potential is the absolute value of the gauge pressure head in an unsaturated material and indicates the degree of suction due to capillary action in the unsaturated material. Monitoring moisture content as required in license condition 41. A, alone, is not sufficient, as moisture content can vary with soil texture. Therefore, the draft license requires verification of matric potential of the subsurface Dockum formation as well as soil moisture monitoring. No changes were made in response to this comment.

**Comment DL-32:** WCS comments that draft license condition 45 should be revised, consistent with draft license condition 13. C, to require that a registered Texas Professional Engineer certify that the disposal facility has been constructed in accordance with the license application and conditions of the license.

**Response:** The Executive Director agrees with the comment. The draft license has been revised consistent with the WCS comment.

**Comment DL-33:** WCS comments that draft license condition 46. A should be revised to better reflect the geometry and sufficiency of the design.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 46. A because the proposed revision alters the intended purpose of the draft license condition. The vertical thickness of the OAG formation in the footprint of the proposed disposal facility will not be verified until it is exposed by excavation. Although an estimate of a three foot thickness can be made, the three foot height may be

inadequate to seal the entire vertical face of the OAG formation that may be exposed. No changes were made in response to this comment.

**Comment DL-34:** WCS comments that draft license condition 46. B should be revised to provide that use of water or other liquids for dust suppression must be in accordance with 25 TAC §289.260(o)(30)(C).

**Response:** The Executive Director does not agree with the WCS comment to revise draft license condition 46. B but does agree that clarification should be added. The proposal to remove the word “minimize” alters the intended meaning of the license condition. The addition of water into the disposal unit should be minimized since contact with water could facilitate the transport of radioactive and hazardous constituents. It is critical that there is an accounting of all water in and out of the licensed site area and that the intentional introduction of water into the system be minimized. However, the Executive Director does recommend additional provisions in this requirement to address dust suppression that may be allowed as follows:

“46.B The licensee shall minimize the use of water for the purpose of dust suppression in the disposal unit. General nuisance dust suppression within the by-product material waste disposal facility, and within the disposal unit itself as required, shall utilize only non-contact, uncontaminated water; may utilize performance enhancing additives approved by the Executive Director; and shall be limited to those reasonable spray application rates necessary to meet the requirements of 25 TAC §289.260(o)(30)(C).”

**Comment DL-35:** WCS comments that draft license condition 47. B (1) should be revised to clarify required monitoring for the presence of water in wells.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 47. B (1). Draft license condition 47.B(1) requires notification if water is detected. The proposed WCS language appears to address draft license condition 47.B(2), which requires sampling. Removing any water trapped in the well sump during well installation should eliminate any non-formation water. The proper installation of

wells is fundamental to establishing a reliable monitoring point for facility compliance. If the wells are properly constructed and installed, any water in the well bore would only derive from the formation. No changes were made in response to this comment.

**Comment DL-36:** WCS comments that draft license condition 48 should be revised to clarify which constituents are tested to determine the presence of non-radiological contaminants.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 48. Because there is no way to predict what non-radiological contaminants may be in waste streams over the next 30 years of operations, waste characterization information must provide the appropriate list of all non-radiological contaminants. No changes were made in response to this comment.

**Comment DL-37:** WCS comments that draft license condition 51 should be revised to reflect the current application for redirecting drainage for nearby spoil piles west of the proposed by-product disposal facility.

**Response:** The Executive Director agrees with the comment and has revised the draft license accordingly.

**Comment DL-38:** WCS comments that draft license condition 53. A should be revised to make it consistent with the license application for Radiation Safety Officer (RSO) oversight of standard operating procedures.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 53. A. Under listed RSO duties in 25 TAC §289.252(f)(3)(A), the RSO is required to establish and oversee operating, safety, emergency, and ALARA procedures. The Executive Director contends that the draft license is consistent with the regulatory requirements for the individual serving as the responsible person on this license. Although WCS may have other duties and organizational lines in their business plan, the necessity for the regulatory responsibilities to be fulfilled by the RSO takes precedent in the draft license. No changes were made in response to this comment.

**Comment DL-39:** WCS comments that draft license condition 53. B should be revised to make it consistent with the license application, and 30 TAC §305.62. WCS proposes language that would authorize the licensee to make minor modifications of procedures without prior approval of the commission.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 53. B. Amendments, both major and minor, must be made in accordance with requirements in 30 TAC §305.62. With regard to minor modifications in §305.62, this procedure is limited to Texas Pollutant Discharge Elimination System permits. The process for making changes to a license is appropriately addressed in TCEQ rule, rather than by individual license condition. Accordingly, changes to the licensee's approved procedures must be made in accordance with requirements for amending the approved license in 30 TAC §305.62. However, Phase II Implementation of SB 1604, slated to be completed by the end of 2008, will include the review and revision, if appropriate, of rules related to by-product material. The Executive Director does recognize a desire by licensees to adjust their practices and procedures, when appropriate, without the formal license amendment process. The Executive Director can consider making recommendations to amend TCEQ rules to allow a licensee's implementation of minor changes to operational procedures as part of future rulemaking. No changes were made in response to this comment. No changes were made in response to this comment.

**Comment DL-40:** WCS comments that draft license condition 54 should be revised to require the submission of plans and procedures demonstrating compliance with 25 TAC §289.202(x)(1)(C). WCS proposes language that would remove the requirement for submission of waste emplacement procedures.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 54 because the draft license condition for providing waste emplacement procedures must include proper handling and placement of containerized bulk by-product material waste and non-bulk waste in the disposal unit. The suggested substitution for compliance with 25 TAC §289.202(x)(1)(C) is misplaced as it addresses the respiratory protection program rather than waste emplacement procedures. Procedures are the

higher-tiered methods for facility operations. These operating standards comprise the unit operations that, in combination or used singly, make-up the sequence of work steps necessary for the formulation of a radiation work permit. Due to the nature of the standard methods provided in procedures, it is necessary for procedures to be reviewed for potential health and safety impacts. No changes were made in response to this comment.

**Comment DL-41:** WCS comments that draft license condition 60 should be revised, consistent with comment DL-15, to remove the Fernald Silos 1 and 2 waste streams and other waste streams approved by the Executive Director from requirements for random sampling of waste shipments.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 60 as recommended by WCS. However, the Executive Director does recommend a change to exclude the Fernald Silos 1 and 2 by-product waste from sampling requirements and has revised the draft license accordingly as addressed in response to comment DL-15. Due to the unique nature of the Fernald waste and the detailed documentation available for this waste stream, it is unlikely that similar conditions will exist for another by-product material waste stream. Furthermore, WCS has not requested the acceptance of, based on waste stream information in the application, any other waste stream that would deem similar treatment. Therefore, the Executive Director does not recommend a general exemption provision in the draft license for any other wastes approved by the Executive Director.

**Comment DL-42:** WCS comments that draft license condition 60.B should be revised to clarify that, at a minimum, gamma spectroscopy methods will be used in the facility's waste analysis program, and, that based on information from the waste generator, other analytical protocols may be applied to verify potential non-by-product material radionuclides.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 60. B. The use of gamma spectroscopy methods alone is not adequate to identify all radionuclides of interest. Both alpha and gamma spectroscopy analytical

methods should be employed in the analysis of samples due to the variety of radionuclides that are present at sites where by-product waste is generated. Not every radionuclide that is important to track can be detected and properly identified by gamma spectroscopy. No changes were made in response to this comment.

**Comment DL-43:** WCS comments that a new draft license condition 60.D should be added to provide that ALARA principles will apply when selecting containers for sampling.

**Response:** The Executive Director does not agree with the comment to add draft license condition 60. D. Under 25 TAC §289.202(e)(2), a licensee is already required by rule to use procedures and engineering controls based upon sound radiation protection principles to achieve occupation doses and public doses that are as low as reasonably achievable (ALARA). Adding the specific provision as proposed by WCS for this one area of operations, the selection of containers for sampling, should not call into question whether ALARA principles are required for consideration in all other procedures and engineering controls. The ALARA principle should be universally applied on all activities recommended for authorization under this draft license. No changes were made in response to this comment.

**Comment DL-44:** WCS comments that draft license condition 66 should be revised to clarify that the restricted area within a security fence surrounding the by-product landfill and decontamination building will be designated in accordance with 25 TAC §289.201(b)(90).

**Response:** The Executive Director does not agree with the comment to revise draft license condition 66. A restricted area is a designated area where the licensee is required to limit access for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. The WCS license application did not include specific information to identify the restricted area at the proposed by-product material disposal facility. Therefore, the Executive Director recommends that the draft license designate the restricted area as the entire by-product material disposal facility, as surrounded by the security fence proposed in the license application. Because by-product

material could be possessed at any location within the by-product material disposal facility, it is appropriate to designate all of the by-product material disposal facility as the restricted area for limiting access due to potential exposure to by-product material. No changes were made in response to this comment.

**Comment DL-45:** WCS comments that draft license condition 67 should be revised to clarify that the condition is the basis for demonstrating compliance with License Condition 7.A (relating to the limit of total Curies disposed) and the information tracked is only for radionuclides with half-lives greater than 30 days only.

**Response:** The Executive Director agrees in part to the proposed revision to draft license condition 67 and has revised the draft license accordingly. The addition of the phrase "To demonstrate compliance with License Condition 7.A" is appropriate for the purposes of clarifying the purpose of the condition. However, the inclusion of the parenthetical "(for radionuclides with half-lives greater than 30 days only)" is not appropriate. All radionuclides within the decay scheme for the by-product material received for disposal should be included in the determination of radioactivity of by-product material placed in the disposal facility. As by-product material is accepted into the proposed disposal facility, the entire inventory of radionuclides must be tracked and final deposition be recorded.

**Comment DL-46:** WCS comments that draft license condition 69 should be revised to clarify that airborne radioactivity areas will be designated in accordance with 25 TAC §289.201(b)(9).

**Response:** The Executive Director does not agree with the comment to revise draft license condition 69. The proposed revision reiterates what is already required by rule, and does not provide specific details as to how the licensee will comply with the rule. The draft license requires the licensee to designate an area as an airborne radiation area if the total airborne radioactivity, as determined by air sampling, exceeds  $5 \times 10^{-13}$  microcuries per milliliter total activity. The license application lacked specificity on how determination of the derived air concentration will be made. Since the application does not provide a specific value for the waste streams they are proposing to receive, that is,

those which could contain uranium or thorium and their decay progeny, the most limiting derived air concentration value of  $5 \text{ E-13}$  microcuries per milliliter for thorium-232, was selected. The limit is given at 25 TAC §289.202(ggg)(2)(F). No changes were made in response to this comment.

**Comment DL-47:** WCS comments that draft license condition 70 should be revised to clarify that monitoring for radon at the facility will be conducted in accordance with the Radiological Environmental Monitoring Program, the Radiation Safety Program, and applicable procedures.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 70. The WCS Radiological Environmental Monitoring Program, the Radiation Safety Program, and applicable procedures in the application did not address the methods and procedures for monitoring for radon in the worker environment. The measurement of radon in areas where workers may be present is prudent and necessary to determine if control measures are in compliance with ALARA or if mitigative measures should be taken. In addition to monitoring radon at the facility boundary, the draft license requires the development of procedures for monitoring radon in the worker environment and submission of those procedures for review by the Executive Director. No changes were made in response to this comment.

**Comment DL-48:** WCS comments that draft license condition 72. D should be revised to add the word "feet" because a unit of distance was omitted from the condition.

**Response:** The Executive Director agrees with the comment and has revised the draft license accordingly.

**Comment DL-49:** WCS comments that draft license condition 79. C should be deleted because all of the requirements of the condition are related only to personnel monitoring.

**Response:** The Executive Director does not agree with the comment to delete draft license condition 79. C. Unlike equipment for which surface contamination limits exist, there are no acceptable limits for contamination of personnel. Therefore, if any radioactivity above background is detected on personnel upon exiting the disposal

facility, it is indicative of contamination. The Executive Director does recommend a revision of draft license condition 79.C for clarification to indicate that the provision applies to surveys and monitoring of personnel.

**Comment DL-50:** WCS comments that draft license condition 80 should be revised to substitute "health physicist" for "dosimetrist" for the evaluation of bioassay data because there is no industry definition for "qualified dosimetrist."

**Response:** The Executive Director does not agree with the comment to revise draft license condition 80. A health physicist may not have appropriate qualifications and training to evaluate bioassay and whole body counting data. Internal dosimetry is a distinct sub-specialty within the field of health physics. As such, a qualified dosimetrist is a well-understood specialist and uniquely qualified to evaluate bioassay and whole body counting data to determine the dose to an individual. No changes were made in response to this comment.

**Comment DL-51:** WCS comments that draft license condition 92. E should be revised to more specifically identify the elements of the additional year of pre-operational monitoring and include the one-year non-radiological baseline monitoring requirements, located in Condition 92.I of the draft license. WCS also proposes to modify the required non-radiological parameters to eliminate constituents that are not found in by-product material (see WCS Comment EA-5 below regarding Section 3.4.4 of the Draft Environmental Analysis).

**Response:** The Executive Director agrees with the comment in part. The requested modification for air particulate sample analysis and the allowed burial of Fernald Silos 1 and 2 waste during the initial monitoring period can be accommodated, and the draft license has been revised accordingly. The modification to the air particulate sampling requirement provides appropriate analyses to ensure that all required baseline data is collected. The robust disposal container associated with the Fernald waste allows for special consideration, should the required initial air monitoring be incomplete at the time emplacement of the Fernald waste is scheduled to begin. The timing of the emplacement of the Fernald waste warrants flexibility because off-site and up-gradient air monitoring

stations and groundwater should be unaffected by the commencement of emplacement of the Fernald canisters in the disposal unit. However, the proposed modifications of groundwater monitoring frequencies from quarterly to annually and modifications of non-radiological contaminant monitoring requirements are not recommended. Quarterly monitoring of all wells identified in draft license condition 92. A is required to collect sufficient data to establish baseline characteristics for wells in all groundwater zones at the proposed site. Sampling and analysis in the pre-operational phase for hazardous constituents in all wells is to ensure no impacts from previous operations at the site have contaminated the different groundwater zones. This data also establishes a baseline for any future contamination of these zones (such as the OAG formation, the 125-foot, and 225-foot groundwater zones).

**Comment DL-52:** WCS comments that draft license condition 92. F should be revised to clarify the data evaluation process associated with the environmental media measurements that are to be made under License No. R05807.

**Response:** The Executive Director agrees with the comment in part. Some of the proposed clarifications to draft license condition 92. F improve the wording of the paragraph without altering the purpose of these requirements, and the draft license has been revised accordingly. The Executive Director has already reviewed the control charts and nonparametric prediction methods proposed in the application. Adding alternative procedures to evaluate trend as this comment implies are not recommended as part of the draft license. Compliance with the reviewed procedures in the application is specifically required in the draft license. Procedures are the higher-tiered methods for facility operations. Due to the nature of the standard methods provided in procedures, it is necessary for proposed changes to procedures to be reviewed for potential health and safety impacts. A licensee may request amendment of a license to change approved procedures under 30 TAC §305.62.

**Comment DL-53:** WCS comments that draft license condition 92. G should be revised to identify the required monitoring parameters in the provision and correct the table reference.

**Response:** The Executive Director agrees with the comment and has revised the draft license accordingly.

**Comment DL-54:** WCS comments that draft license condition 92. H should be revised to require the submittal of the existing fauna monitoring data. WCS states that these data were not included in the application based on the DSHS request to submit only by-product-specific data, and the fauna data are site-wide data.

**Response:** The Executive Director agrees with the comment in part. Fauna samples taken as part of an existing site-wide perimeter monitoring program should be appropriate for baseline data requirements. However, the Executive Director has not reviewed this information to determine if the appropriate methods, analyses, and data were actually used. Therefore, the submittal of this data for review would be appropriate. The Executive Director recommends a change to draft license condition 92.H in response to this comment.

**Comment DL-55:** WCS comments that draft license condition 92. I should be revised to delete the requirements for pre-operational and non-radiological contaminant monitoring in this provision because the requirements are in draft license condition 92. E and 92. A. WCS comments that draft license condition 92. I should be revised to include sampling requirements for leachate collection sumps.

**Response:** The Executive Director agrees with the comment in part. The draft license has been revised to include leachate sump sampling in draft license condition 37.B, and this license condition will also establish the same monitoring schedule for the leak detection system sumps. However, no changes are recommended to the pre-operational and non-radiological contaminants monitoring requirement listed in condition 92. I as these are necessary components of the monitoring program.

**Comment DL-56:** WCS comments that a new draft license condition 92. J should be created to address the meteorological operational monitoring requirements, currently located in condition 92.A.

**Response:** The Executive Director does not agree with the comment to create new draft license condition 92. J. Meteorological data is an important part of the annual environmental report and will need to remain a part of the draft license condition 92. A requirements. Meteorological monitoring and the resulting data are critical elements for decision-making in daily operations and for aiding assessment in accident conditions. No changes were made in response to this comment.

**Comment DL-57:** WCS comments that a new draft license condition 92. K should be created to add a separate condition, similar to Condition 92.A, that specifies a separate monitoring program for the post-operational monitoring period, consistent with the license application. WCS comments that because no active operations are taking place, a reduced level of environmental monitoring is appropriate.

**Response:** The Executive Director does not agree with the comment to create new draft license condition 92. K. The Executive Director recognizes that a reduced level of environmental monitoring for some media during the post-closure period may be justified at some point in the future. The nature and extent of post-operational monitoring depends on the performance of the facility during the operational phase and also is dependent on the conditions at the site at the beginning of the post-closure period. Therefore, the draft license does not reduce the levels of post-operational monitoring. Post-operational monitoring requirements will also be evaluated by the DOE at the time the facility ceases operations, because DOE has responsibility for post-closure monitoring once the licensee has placed the site in a stable condition. Monitoring of some environmental media, such as groundwater, might not be reduced during the post-operational period due to the potential risk of migration of contaminants. In addition, post-closure monitoring requirements will be dependent upon the effects of operations and any movement of radioactive material which may have been released during the site's operational history. The results of environmental monitoring at the time of site closure will need to be taken into account when developing the post-closure environmental monitoring program. No changes were made in response to this comment.

**Comment DL-58:** WCS comments that draft license condition 93 should be revised to require annual submission of settlement information, rather than on a quarterly basis.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 93. Quarterly surveying is appropriate to detect settlement of a facility after installation of the final cover and is consistent with settlement monitoring required in other radioactive material licenses. No changes were made in response to this comment.

**Comment DL-59:** WCS comments that draft license condition 94. B should be revised to substitute "by-product material landfill" for "tailings impoundment" in this draft license condition.

**Response:** The Executive Director agrees with the comment in part. The Executive Director recommends that draft license condition 94.B. refer to a "by-product material landfill."

#### **WCS Table II Comments on Draft License Condition 92.A**

**Comment 92.A-1:** WCS comments that draft license condition 92 should be revised to include a separate condition, similar to Condition 92.A, that specifies a separate monitoring program for the post-operational monitoring period, consistent with the License Application. WCS comments that because no active operations are taking place, a reduced level of environmental monitoring is appropriate.

**Response:** The Executive Director agrees with the comment in part. Draft license condition 92 states, "The licensee shall conduct the following radiological and non-radiological environmental monitoring program until the license is terminated." The Executive Director recognizes that a reduced level of environmental monitoring for some media during the post-closure period may be justified at some point in the future. The fact that operations have ceased, however, does not mean a release is less likely. Monitoring of groundwater, for example, might not be reduced during this period due to the potential risk of migration of contaminants in groundwater. The nature and extent of post-operational monitoring depends on the performance of the facility during the

operational phase and also is dependent on the conditions at the site at the beginning of the post-closure period. Therefore, the draft license does not reduce the levels of post-operational monitoring. Post-operations monitoring requirements should also be determined with input from the DOE, who will take responsibility for post-closure monitoring once the licensee has placed the site in a stable condition. In addition, post-closure monitoring requirements will be dependent upon the effects of operations and any movement of radioactive material which may have been released during the site's operational history. The results of environmental monitoring at the time of site closure will need to be taken into account when developing the post-closure environmental monitoring program. Therefore, the Executive Director does not recommend that the draft license reflect a reduced level of post-operational monitoring at this time.

However, several sampling locations, listed in License Condition 92.A, contain the words "operating period" or "future" in parentheses which could create confusion about when the sampling is required. The Executive Director has removed the table references to "operation period" or "future" in response to this comment.

**Comment 92.A-2:** WCS proposes to clarify the requirement for the use of high-volume air particulate samplers by specifying the minimum acceptable air volume; differentiate between those stations that are designated by-product material locations and those that are site-wide locations used as indicators of off-site conditions, consistent with the license application; remove the additional air station (P32) for operational monitoring north of the rail spur, as all radioactive waste that is received by rail under existing License L-04971, including by-product material, is within enclosed containers; and correct/clarify location descriptions.

**Response:** The Executive Director does not agree with the comment to revise the draft license condition as suggested in the comment but does agree to make changes for clarification. The requirements for high volume air sampler flow rates, as provided in the draft license, are appropriate for sampling of air particulates and do not require additional specification within the license.

Air monitoring station P32, located north of the rail road spur, is required due to the possibility that waste with radioactive constituents may be shipped by rail. Although rail acceptance of by-product material is not part of this license application, the railroad spur is used for the unloading and transfer of material that is handled at the permitted hazardous waste disposal facility. Some of this material may contain exempt quantities of naturally-occurring radioactive materials (NORM). Because there may be some of the same radionuclides (uranium, thorium and radium) in NORM and by-product material, it is important to monitor for potential emissions and identify the source of emissions detected by air particulate monitoring. However, the Executive Director does agree with the proposed change to air particulate "Type of Analysis" to specify the frequency of filter change outs and has revised the draft license accordingly. This clarification helps prevent possible confusion between requirements for changing out air filter samples and requirements for analyzing samples from the air filters.

**Comment 92.A-3:** WCS proposes to differentiate between those stations that are designated by-product material locations and those that are site-wide locations used as indicators of off-site conditions, consistent with the license application; remove the additional air station (P32) for operational monitoring north of the rail spur, as any radon emissions associated with operation of the storage and processing facility, including the rail unloading area, that may impact air quality at the by-product material disposal facility would be detected by air stations 3 and 4; and correct/clarify location descriptions.

**Response:** The Executive Director does not agree with the comment. Because of their close proximity, all stations could potentially be impacted by any one of the on-site disposal areas. Designating a station as "by-product," "RCRA" or "LLRW" would not reflect actual site conditions and does not determine whether a monitoring station could be affected by another activity authorized under this particular license. In addition, the license requirement to place an additional air station north of the rail spur is necessary to monitor potential airborne contamination in the prevailing wind direction from the railroad spur, not to monitor radon emissions from the by-product material disposal facility. Air stations 3 and 4, as currently presented, were not situated to effectively monitor the railroad spur. Therefore, air sampling, radon measurements and ambient

radiation measurements will be required at the P32 location as also discussed in response to Comment 92.A-2. No changes were made in response to this comment.

**Comment Condition 92.A-4:** WCS proposes to remove the requirement for quarterly sampling of sediment at the location of “standing water in the by-product waste pit” as this information is not indicative of a release from the unit, nor is it indicative of the contaminants of concern from a potential release of leachate.

**Response:** The Executive Director agrees with this comment and has revised the draft license accordingly.

**Comment Condition 92.A-5:** WCS proposes to reduce the frequency for sampling and analyses at all “225-foot zone” monitor wells from quarterly to annually, consistent with the license application and the existing RCRA permit, based on the travel time evaluations contained in the license application and the results of the additional ponding model included with these comments. WCS also proposes to change the quarterly sampling and analysis requirement for the OAG monitor wells to a quarterly inspection requirement for the presence of liquids, and an annual sampling and analysis requirement, based on the fact that the OAG overlies the redbeds in which waste disposal will occur. Additionally WCS proposes to change the quarterly sampling requirement for the vadose zone wells to a quarterly inspection for the presence of liquids, since the “125-foot zone” is typically dry (a sample would be collected if water is above the bottom of the well screen). Other proposed revisions include differentiating between those stations that are designated by-product material locations and those that are site-wide locations used as indicators of off-site conditions, consistent with the license application; deleting the entry for monitor well MW3A, as it is the same well as monitor well 3A; deleting the entry for well FWF-9, as the future well at this location is now called monitor well 11F; and adding explanatory language regarding the status of wells 11D through 11G.

**Response:** The Executive Director agrees in part with the comment to revise the draft license condition as suggested in the comment. The Executive Director determined quarterly sampling frequency for the 225-foot sand and the OAG formation is appropriate based on review of data submitted and detailed analysis. In draft license condition 47.B,

sampling of the vadose zone wells is required only if water is present. Water that occurs as a result of the installation and development of the well will be removed. If the wells are properly constructed and installed, any additional water encountered would be from the formation and so collecting a sample, even if water is at or below the bottom of the well screen, is appropriate. Differentiating between by-product wells and other site-wide wells for purposes of excluding certain samples during the post-operational period is not necessary and the new footnote, recommended in the comment to differentiate these wells, has not been added. However, the Executive Director agrees with deleting duplicate monitor wells MW3A and FWF-9 and has made the appropriate changes to the draft license.

**Comment 92.A-6:** WCS proposes to expand the description of sampling frequency to recognize that vegetation may not be sufficient for sampling (this is typically the case during all seasons with the exception of spring) and correct the Station 6 location description.

**Response:** The Executive Director agrees with this comment and has revised the draft license accordingly. WCS sampling procedure BP-EV-7.1.7 requires that 454 grams (one pound) of live vegetation be obtained within 200 feet of the air sampling station. If this area is devoid of vegetation then it would be appropriate to not require a vegetation sample. The Executive Director has added a footnote to draft license condition 92 in response to this comment.

**Comment 92.A-7:** WCS proposes to reduce the frequency for sampling and analyses of soils from quarterly to annually, based on the depositional modeling in the license application and the results of the additional depositional modeling included with these comments. In addition, WCS notes that quarterly monitoring is indicated in former DSHS Regulatory Guide 1.1 only for in situ uranium recovery facilities that have dryers, and that annual soil monitoring is indicated in NRC Regulatory Guide 4.14 (Radiological Effluent and Environmental Monitoring at Uranium Mills) and in DOE/LLW-13TG (Environmental Monitoring for Low Level Waste Disposal Sites).

**Response:** The Executive Director does not agree with the comment to revise the draft license condition as suggested in the comment. Due to the high winds in the area of the proposed disposal facility and the volume of relatively high radioactivity by-product waste which could potentially be received at this site, quarterly soil samples are appropriate. No changes were made in response to this comment.

**Comment 92.A-8:** WCS proposes to relocate three items relating to disposal unit sumps and meteorological sampling to separate conditions following the table, as these activities represent operational monitoring, rather than sampling and analysis of environmental media for potential contamination.

**Response:** The Executive Director agrees with this comment in part. The Executive Director agrees with the need to relocate the condition to sample the disposal unit sumps. Requirements for monitoring unit sumps and other systems have been added to draft license condition 37.A. However, because meteorological data is an important part of the annual environmental report, the meteorological information will need to remain a part of the draft license condition 92.A requirements.

**Comment 92.A-9:** WCS proposes to change the name of this section and other references to “direct radiation” to “ambient radiation” to distinguish this from contact radiation; to differentiate between those stations that are designated by-product material locations and those that are site-wide locations used as indicators of off-site conditions, consistent with the license application; remove the additional air station (P32) for operational monitoring north of the rail spur, as any ambient radiation associated with operation of the storage and processing facility, including the rail unloading area, that may impact air quality at the by-product material disposal facility would be detected by air stations 3 and 4; add Station 27 to the list of ambient air monitoring stations; and correct/clarify location descriptions.

**Response:** The Executive Director agrees with this comment in part. Changing the name of this section and other references from “direct radiation” to “ambient radiation” is appropriate, and the draft license has been revised accordingly. However, ambient

radiation monitoring at station P32 will still be required because of the possibility that waste with radioactive constituents may be shipped by rail.

**Comment 92.A-10:** WCS proposes to revise the footnotes as follows: (1) clarify Footnote 1 to more specifically identify when alpha isotopic analyses are required; (2) add a new Footnote 4 to distinguish well sump water from formation water and address prioritization of sample collection when the volume of water collected is insufficient for all analyses and renumber subsequent footnotes, as necessary; (3) delete current Footnote 8 as it applies to the meteorological data that is being moved to a separate condition following the table; (4) modify Footnote 9 to require filtration of samples for radiological analyses and to reference the applicable ASTM standard, which is a readily available, peer-reviewed document, in lieu of SWI No. 1.8; (5) modify Footnote 10 to eliminate constituents that are not found in by-product materials (see comment on Section 3.4.4 of the Draft Environmental Analysis); (6) add Footnote 11 to distinguish between those stations that are designated by-product material locations and those that are site-wide locations used as indicators of off-site conditions, consistent with the license application; and (7) add Footnote 12 to establish a quarterly water level measurement requirement for the OAG wells.

**Response:** The Executive Director agrees with this comment in part. Concerning each of the proposed modifications to the Environmental Monitoring table footnotes: (1) The Executive Director agrees with the proposed revision to Footnote 1 which allows for a reanalysis of gross alpha and beta prior to proceeding with time-consuming and expensive radionuclide speciation analyses; (2) The Executive Director does not agree with the proposed revision of Footnote 4. Water that may drain back in from installation and development of a well can be removed at time of well construction. Any additional water subsequently encountered would have to be from the formation, if the wells are properly constructed and installed. Therefore, the Executive Director does not recommend adding “water above the bottom of the well screen” to this provision. The Executive Director agrees with the revision for prioritization of sample collection; (3) The Executive Director does not agree with the deletion of Footnote 8 because meteorological data should remain in the table; (4) The Executive Director does not agree

with the proposed revision of Footnote 9. If these wells prove to be low volume producers, there would be insufficient groundwater for a sample after purging. For analysis of metals and radionuclides, the purge water itself would have to be part of the sample. Furthermore, the applicant should continue using the current sampling protocols to maintain comparable data; (5) The Executive Director does not agree with the proposed revision of Footnote 10 which would remove the requirement to sample for hazardous constituents other than metals. Because the nature of waste streams that might be disposed of over the next 30 years cannot be predicted, a waste characterization for each new waste stream will provide a complete list of compounds for non-radiological contaminant analysis; (6) The Executive Director does not agree with the proposed revision of Footnote 11 which distinguishes by-product facility monitoring locations and other facility monitoring locations. All stations could potentially be impacted by any of the on-site disposal areas. Designating a station as "by-product," "RCRA" or "LLRW" would not reflect actual site conditions and does not determine whether a monitoring station could be affected by activity authorized under this particular license; (7) The Executive Director agrees with the revision in Footnote 12 for quarterly monitoring for the OAG wells, but does not agree with maintaining the measurement records for only three years. The Executive Director recommends maintaining a continuous hydrograph for each well for the entire monitoring period.

In reviewing the requirements of draft license condition 92, the Executive Director recommends additional changes to the condition. These changes include: (1) deleting Footnote 2. Footnote 2 dealt with performing gamma isotopic analyses of long-lived and primordial isotopes. This footnote has been removed due to the need to identify and report all gamma-emitting radionuclides detected in samples; (2) adding MW3B to the list of monitoring wells requiring sampling; (3) adding license condition 92.J to sample monitoring wells in the 180-foot zone should there be indication of a release to the 125-foot monitoring zone; and (4) adding new license condition 92.K dealing with additional reporting requirements if a confirmed environmental monitoring station sample analysis exceeds an investigative and/or action level. Monitor well MW3B has been added to the list of groundwater monitoring wells because it is used to monitor the upper portion of the 225-foot sand, whereas monitoring well MW3A is used to monitor the lower portion

of the same unit. Both wells should be sampled to ensure complete coverage of the unit. New draft license condition 92.J has been added in the event that if the 125-foot zone indicates a release beneath the byproduct landfill, installation and monitoring of wells in the 180-Foot zone must occur. This would follow Executive Director review of a Licensee-proposed monitoring plan, submitted within 90 days of release detection. Finally, new License Condition 92.K adds reporting requirements if a confirmed environmental monitoring station sample analysis exceeds an investigative and/or action level. These license conditions have been added to help ensure that effluent release reporting and any associated mitigating actions will be completed in a timely manner.

### **WCS Table III Comments on draft Environmental Analysis**

**Comment EA-1:** WCS comments that the draft Environmental Analysis (EA) should be revised to make the by-product facility capacity of 1,169,000 cubic yards consistent with draft license condition 7.A. WCS also suggests the EA should increase the radioactivity limit to 28,370 for radionuclides with half-lives greater than 30 days.

**Response:** The Executive Director agrees with the comment in part. The by-product facility disposal capacity has been changed to 1,169,000 cubic yards in the draft license and EA. The Executive Director does not agree with increasing the radioactivity limit. Staff calculations indicate that the possession limit should be 24,530 curies for total radioactivity based on proposed waste streams as described in the license application. This limit applies to all radionuclides listed on a manifest for wastes shipped to the disposal facility and does not exclude short-lived radionuclides.

**Comment EA-2:** WCS comments that the draft EA should be revised so that references and dates of application revisions in the draft EA are consistent with the dates and references cited in the draft license condition 96.

**Response:** The Executive Director agrees with the comment, and the draft EA has been revised accordingly.

**Comment EA-3:** WCS comments that the draft EA should be revised so that the description of recommended license conditions refers to “monitoring” rather than

“verification of site characterization” to comport with determination of the second bullet of Section 1.3 of the Draft EA related to assessment of effect of the licensed activity on groundwater.

**Response:** The Executive Director does not agree with the comment. Certain conditions are recommended in the draft license to verify information provided in the license application, increase the overall safety of site operations, and improve long-term site performance. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to this comment.

**Comment EA-4:** WCS comments that the draft EA should be revised by replacing Chapter 2 of the draft EA with the text provided by WCS as Attachment B.

**Response:** The Executive Director does not agree with the comment. The draft EA was prepared under the requirements of Texas Health and Safety Code §401.263. The draft EA reflects the Executive Director’s staff assessment of the proposed application by WCS for a license to dispose of by-product material which began at DSHS and ended at the TCEQ in October 2007 upon the transfer of jurisdiction from DSHS as provided in SB 1604. The draft EA provides independent analysis of information in the application, including: an assessment of the radiological and nonradiological effects on the licensed activity on the public health; an assessment of any effect of the licensed activity on a waterway or groundwater; consideration of alternatives to the licensed activity; and consideration of decommissioning, decontamination, reclamation, and other long-term effects associated with the licensed activity. As a result of this analysis, draft license conditions were developed to address specific areas discussed in the draft EA as well as increase the protection of public health, safety, and the environment. The suggested revision to the draft EA does not provide an independent analysis of the proposed license activities. Rather, it summarizes the information on geology and hydrology as provided in the license application. Section 401.263(c) does require that the EA be available to the public for written comment. While the Executive Director does not agree to substitute Chapter 2 of the draft EA as provided by WCS, the WCS comment is included, with all

other comments, as part of the administrative record on the WCS application. No changes to Chapter 2 of the draft EA were made in response to this comment.

**Comment EA-5:** WCS comments that Section 3.4.4 of Chapter 3 of the draft EA on environmental health physics should be revised. WCS explains: "Section 4.0 of the application discusses the nature of by-product material wastes. This section notes that by-product wastes are primarily inorganic in nature and that trace organics contained in some of the legacy wastes are expected to represent an insignificant fraction of the landfilled wastes as a whole. It also enumerates a list of heavy metals that are appropriate for the groundwater monitoring program.

The subject paragraph in the draft EA references an EPA summary document about the Maywood Superfund Site (MSS). While this document notes that there are two separate CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) actions at the Maywood site, one being conducted by Stepan Company and the other being conducted by USACE (United States Army Corps of Engineers) under the FUSRAP (Formerly Utilized Sites Remedial Action Program) program, it does not make a distinction about the nature of the non-radiological contaminants in the areas covered by the separate actions. Table 1.7 of the application, which was obtained from the Baseline Risk Assessment performed for the FUSRAP MSS, identifies the non-radiological constituents detected in the soils and wastes to be remediated by USACE and the concentrations of these constituents used as the reasonable maximum exposure value for the Baseline Risk Assessment.

The concentrations of organics shown on Table 1.7 can be put into context through comparison of these values to the critical Tier 1 soil PCLs established for each of these constituents at a 30-acre commercial/industrial property under 30 TAC Chapter 350. All of the concentrations shown on Table 1.7 are less than these critical soil PCLs and are consistent with the statements in Section 4.0 of the application. Based on the information in the application, which is specific to the FUSRAP MSS, there are no non-radiological constituents of significance associated with the Maywood by-product wastes and therefore non-radiological monitoring is not indicated based on the Maywood waste

characterization. Consequently, WCS proposes the revision indicated to the third paragraph of Section 3.4.4 of the Draft Environmental Analysis.”

**Response:** The Executive Director does not agree with the comment. The complete characterization of all waste streams that might be disposed of over the next 30 years cannot be predicted. A waste characterization for each new waste stream will provide a complete list of compounds for non-radiological contaminant analysis. The draft EA is consistent with the Executive Director’s recommended draft license conditions requiring analysis of non-radiological contaminants. This provision is necessary to determine any impact to groundwater from any adjacent facilities and to establish a baseline for any hazardous constituents that may be in future by-product waste, including both organic and inorganic contaminants. No changes were made in response to this comment.

**Comment EA-6:** WCS comments that Section 3.4.8 of Chapter 3 of the draft EA on environmental health physics should be revised. WCS explains: “Volume 1 of the License Application, Section 4.0, Table 4.2, Pre-Operation Monitoring, first footnote, states ‘Fauna samples are not collected specifically for pre-operations monitoring at the by-product facility; however, they are collected annually as part of the site-wide perimeter monitoring program (see Section 4.2.2).’ Fauna have been collected during the timeframe of the study period; however the fauna do not stay in one area and are thus not specific to the by-product facility location.”

**Response:** The Executive Director agrees with the comment in part. The Executive Director does not recommend revising the draft EA because information on fauna samples has not been reviewed as part of the application or the environmental analysis. The Executive Director does agree that fauna samples taken as part of an existing site-wide perimeter monitoring program should be acceptable in meeting the baseline data requirements. However, the Executive Director has not reviewed this information to determine if the appropriate methods, analyses, and data were actually used. The Executive Director does recommend a change to draft license condition 92.H as described in response to WCS comment DL-54. No changes were made in response to this comment.

**Comment EA-7:** WCS comments that Section 3.6.1 of Chapter 3 of the draft EA on environmental health physics should be revised. WCS proposes that the language in this passage of the draft EA be revised to be consistent with 25 TAC §289.260(o)(16) and Section 3.6.8.2 of the draft EA.

**Response:** The Executive Director does not agree with the comment. Section 289.260(o)(16) does provide that “in disposing of by-product material, licensees shall place an earthen cover over the by-product material at the end of the facility’s operations and shall close the waste disposal area in accordance with a design that provides reasonable assurance of control of radiological hazards to the following: be effective for 1,000 years to the extent reasonably achievable and, in any case, for at least 200 years.” Although 25 TAC §289.260(o)(16) does address radiological hazards, a license must also be protective of non-radiological hazards. Licensed activities must also protect groundwater from non-radiological constituents, leachate, or contaminated rainwater under 25 TAC §289.260(o)(23). Because both radiological and non-radiological hazards are associated with by-product material, it is necessary for any disposal facility to control both types of hazards. No changes were made in response to this comment.

**Comment EA-8:** WCS comments that Section 4.2.2 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS states: “The last sentence of the 2<sup>nd</sup> paragraph of this section is factually incorrect. The description of coverage of rail car unloading under License No. L04971 was described in Section 5.1.1 of the Environmental Analysis and section 1.2 of RWAC-LC (Radioactive Waste Acceptance Criteria) of the approved license application. In addition, License No. L04971, License Condition 40.A states, in part, that “Except as specifically provided otherwise by this license, the licensee shall possess and use the radioactive material authorized by this license in accordance with the statements, representations and procedures contained in the following: application dated January 24, 1997 ...” Section 8.H, first paragraph, of the referenced license application describes the facility, which includes the rail car unloading facility. This facility was not excluded by another License Condition, and thus is part of the permitted facility under L04971.”

**Response:** The Executive Director does not agree with the comment. As discussed previously in the response to comments, the prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material; and 3) the travel time of constituents of by-product material to intersect groundwater. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. The Executive Director also recommends draft license conditions that establish requirements for monitoring of non-radiological constituents based on the waste profiles of actual waste disposed. Finally, the Executive Director does not agree that License No. L04971 authorizes the receipt and unloading of radioactive materials at a railcar unloading facility. While previous L04971 license applications may have indicated that there is a railcar unloading facility on site, no application has requested approval for receiving, unloading, and possessing licensed radioactive materials at a railcar unloading facility, and no specific procedures for receipt, unloading and handling radioactive materials from railcars have been provided, reviewed, or approved. No changes were made in response to this comment.

**Comment EA-9:** WCS comments that Section 4.2.2 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments that the draft EA should recognize authorization for disposal of non-containerized bulk by-product material and revise requirements for monitoring of non-radiological contaminants consistent with the WCS comments on the draft license.

WCS states: "In Section 3.6.4, Exposure Pathways, of the Draft Environmental Analysis, TCEQ concludes that, based on information provided in the License Application, Worker Dose and Nearest Resident Dose are all well within regulatory limits, even using TCEQ's highly conservative assumptions. These dose calculations include disposal of non-containerized bulk by-product material.

As regards potential for transfer of bulk material from the disposal cells to unrestricted areas, Appendix 3.10.A of the License Application describes the procedures that will be used to track movements of by-product materials on-site. The procedures described in the License Application provide more than adequate control to ensure that bulk by-product material will not be transferred from the disposal cells to unrestricted areas.

As regards to whether containerization may mitigate potential impacts to groundwater, the Applicant never proposed, nor took credit for in the analysis, that containerization of bulk material, in ridged containers, or semi-rigid containers such as "super-sacks" would act as protective barriers to potential impact to groundwater.

For these reasons WCS proposes that this passage be deleted from the Draft Environmental Assessment.”

**Response:** The Executive Director does not agree with the comment. As discussed previously in the response to comments, the prohibition of non-containerized bulk by-product material disposal in the draft license is based on three areas of concern: the need to ensure a comprehensive respiratory protection program, including specific written respiratory protection procedures concerning the use of individual respiratory equipment as discussed in response to comments 2.3 and EA-18; 2) the potential for wind dispersion of bulk by-product material; and 3) the travel time of constituents of by-product material to intersect groundwater. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. While the application does not take credit for containerization of radioactive materials when modeling the performance of the disposal facility, the Executive Director does believe that containerization will retard travel of radioactive contaminants to groundwater. The Executive Director also recommends draft license conditions that establish requirements for monitoring of non-radiological constituents based on the waste profiles of actual waste disposed. No changes were made in response to this comment.

**Comment EA-10:** WCS comments that Section 4.3.3 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: “Draft

Environmental Analysis, Section 4.4.3, Standard Operating Procedures (SOPs), states, in part "WCS also has procedures for development and revision of standard operating procedures (BP-ADM-1.1, Appendix 3.10.A, Vol. 4). The procedure for development and revision of standard operating procedures does not indicate that the Radiation Safety Officer (RSO) is involved in this process. Also, the procedure does not indicate that any new or revised standard operating procedure involving by-product material requires the approval of the Commission, by amendment of the radioactive material license, before implementation of the procedure."

WCS points out that procedure BP-ADM-1.1 in the License Application, Development and Revision of Standard Operating Procedures, section 5.2.3.4, states "The RSO's approval shall be obtained for any SOP changes that may potentially affect Radiation Safety or licensing commitments. The RSO shall review SOPS to ensure license requirements are properly addressed and sound As-Low-As Reasonably-Achievable (ALARA) principles are applied to process engineering controls, administrative controls, and personal protective equipment." Thus, BP-ADM-1.1 requires the RSO to be involved in the development and revision of standard operating procedures. Commitment to the RSO's involvement is demonstrated by the RSO's signature on all SOPs submitted in this license application, including BPADM-1.1.

BP-ADM-1.1 recognizes that certain procedure changes will require TCEQ approval. BP-ADM-1.1, section 5.2.3.6 states "Licensing and Regulatory Affairs shall review and approve proposed changes to regulator approved SOPs as needed to ensure that SOP revisions:

- Do not reduce radiation safety or administrative controls;
- Will not result in failure to adequately address licensing commitments; and
- Are placed on hold whenever required or appropriate until regulator approval is obtained."

Therefore, WCS proposes that the text of section 4.4.3 of the Draft Environmental Analysis be revised as indicated...."

**Response:** The Executive Director does not agree with the comment. While BP-ADM-1.1 does describe participation in the process for procedures revision by the RSO, the participation is not consistent with applicable rules because the described RSO responsibility is equivocal. The BP-ADM-1.1 limits the RSO's review of SOPs to process engineering controls, administrative controls and personal protective equipment. The RSO should also have the authority over all radiation safety related SOPs, not just the SOPs identified in the BP-ADM-1.1. Under listed RSO duties in 25 TAC §289.252(f)(3)(A), the RSO is required to establish and oversee operating, safety, emergency and ALARA procedures. Furthermore, any change to procedures that have been reviewed as part of the license application require commission approval under the process provided in 30 TAC §305.62. Amendments, both major and minor, must be made in accordance with requirements in 30 TAC §305.62. The process for making changes to a license is appropriately addressed in TCEQ rule, rather than by individual license condition. Accordingly, changes to the licensee's approved procedures must be made in accordance with requirements for amending the approved license in 30 TAC §305.62. However, Phase II Implementation of SB 1604, slated to be completed by the end of 2008, will include the review and revision, if appropriate, of rules related to by-product material. The Executive Director does recognize a desire by licensees to adjust their practices and procedures, when appropriate, without the formal license amendment process. The Executive Director can consider making recommendations to amend TCEQ rules to allow a licensee's implementation of minor changes to operational procedures as part of future rulemaking. No changes were made in response to this comment.

**Comment EA-11:** WCS comments that Section 4.4.4 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: "Section 4.4.4, Radiation Work Permits (RWPs), of the Draft Environmental Analysis states in part '...that an RWP is used when there is not a standard operating procedure.' WCS points out that the RWP is not a work instruction document, does not replace the need for a standard operating procedure, and it does not provide step-by-step work instructions. Rather, the RWP is the method used by Radiation Safety to capture the worker's dose information for a specific task. The RWP is also a method for informing

the worker of the radiation and safety hazards of a particular work area. Accordingly, WCS proposes to revise the text of Section 4.4.4 of the Draft Environmental Analysis....”

**Response:** The Executive Director acknowledges the comment, but does not recommend a change to the draft EA. The draft EA reflects the analysis of the Executive Director and his staff of the proposed license application and is not a summary of the application. The draft EA notes concern on the use of extended RWPs in lieu of approved procedures. Procedures are necessary to document and guide standard methods for facility operations. Although there is flexibility given in the procedures as allowed by the issuance and performance of radiation work permits, the activities covered under procedures are the collection of the basic operating standards. These operating standards comprise the unit operations that, in combination or used singly, make-up the sequence of work steps necessary for the formulation of a radiation work permit. Due to the nature of the standard methods provided in procedures, it is necessary for procedures to be reviewed for potential health and safety impacts. No changes were made in response to this comment.

**Comment EA-12:** WCS comments that Section 4.5.2.3 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: “WCS will determine the fraction of DAC (derived air concentration) for each radionuclide on a specific waste stream basis. This is real time, real acceptance data and not nebulous as suggested in this section of the Draft Environmental Analysis. This approach is much better than the suggestion of having provided appropriate DAC's for the waste streams that the facility anticipates receiving. Using a single value of  $5 \text{ E-13 } \mu\text{Ci/ml}$  total activity (the most restrictive DAC of any radionuclide anticipated to be received) is too restrictive and not consistent with the definition of airborne radioactivity area in 25 TAC §289.201(b)(9). Natural background concentrations for tritium and radon will exceed this value. The method for determining the need to post as an airborne radioactivity area in BP-RS-1.7.3 is consistent with the regulations, ALARA compliant, and a better real time, data-based methodology. Accordingly, WCS proposes the revisions to Section 4.5.2.3 of the Draft Environmental Analysis as indicated....”

**Response:** The Executive Director does not agree with the comment. As discussed previously in response to WCS comment DL-46, the proposed revision restates what is already required by rule, and does not provide appropriate details as to how the licensee will comply with the rule. The draft license requires the licensee to designate an area as an airborne radiation area if the total airborne radioactivity, as determined by air sampling, exceeds  $5 \times 10^{-13}$  microcuries per milliliter total activity. The license application lacked specificity on how determination of the DAC will be made. Since the application does not provide a specific value for the waste streams they are proposing to receive, that is, those which could contain uranium or thorium and their decay progeny, the most limiting derived air concentration value,  $5 \times 10^{-13}$  microcuries per milliliter for thorium-232, was selected. The limit is given at 25 TAC §289.202(ggg)(2)(F). No changes were made in response to this comment.

**Comment EA-13:** WCS comments that Section 4.5.3.2.1 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: "The correct reference for when whole body counting would be used to calculate the committed effective dose equivalent is procedure BP-RS-2.4.3, Internal Dose Assessment. The Draft Environmental Analysis referenced procedure, BPRS- 2.4.1, Internal Radiation Monitoring and Bioassay Samples, provides instruction for collection of bioassay samples and scheduling of whole body counts. The data gathered under BPRS-2.4.1 is used in BP-RS-2.4.3 to calculate the internal dose. For these reasons, WCS proposes to revise Section 4.5.3.2.1 of the Draft Environmental Analysis, as indicated...."

**Response:** The Executive Director acknowledges the WCS comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This particular section of the draft EA reflects the analysis of the methodology for whole body counting and determination of committed effective dose equivalent for the licensee's personnel and is not a summary of the application. To assess the manner in which the licensee will assess the internal dose component of the total dose received by employees, numerous procedures were reviewed as well as commitments to follow rules, instead of a single,

consolidated procedure that addresses the assessment of worker doses. Specific references in the affected procedures are necessary to ensure a synthesized procedure and appropriate determination for when a particular provision should be followed. The procedure, Internal Dose Assessment, made only limited reference to whole body counting, and did not clearly indicate when or how the data from the whole body counting would be used in determining the internal dose to employees. Therefore, the draft EA reflects the organization and implementation of the whole body counting procedure, as presented in the application, in the assessment of the internal dose component for radiation workers. No changes were made in response to this comment.

**Comment EA-14:** WCS comments that Section 4.5.3.2.2 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: “WCS will use NRC Regulatory Guide 8.9 and the referenced NRC Regulatory Guide 8.4 for dose assessments. The methodologies employed by the CINDY computer code used for dose assessments are considered consistent with the methodologies used in NRC Regulatory Guide 8.9. This NRC guide also allows for the use of computer codes, like CINDY, provided it is demonstrated through documented testing that the models and methods are consistent with the guidance (see Section 4.2, page 5 of NRC Regulatory Guide 8.9). CINDY has been used extensively through the nuclear industry and nuclear regulatory bodies and is a recognized standard tool for evaluating bioassay data. The code and its application will be verified to be consistent with the guidance of Regulatory Guide 8.9, revision 1. For these reasons, WCS proposes the revisions to Section 4.5.3.2.2 of the Draft Environmental Analysis indicated....”

**Response:** The Executive Director acknowledges the comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive Director’s staff review of the license application. This particular section of the draft EA reflects the analysis of the proposed CINDY computer modeling program to assess dose from bioassay data. As stated in the draft EA, inquiries were made to staff of the NRC as to the use of CINDY in the application of the by-product material disposal. As discussed in response to comment DL-50, the Executive Director recommends a draft license condition that requires the services of a qualified dosimetrist for use of bioassay data or

whole body counting data to derive the committed effective dose equivalent. Once the CINDY code and its application are documented for this use and verified to be consistent with the guidance of Regulatory Guide 8.9, the use of the CINDY program can be considered in lieu of this license condition. No changes were made in response to this comment.

**Comment EA-15:** WCS comments that Section 4.5.3.2.3 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: "Applicant disagrees with the Draft Environmental Analysis observation that BP-RSP-100 makes nebulous statements, because other procedures address in detail how the DAC is calculated.

The fourth bullet under 4.5.3.2.3, Air Sampling, states that the Canberra web site does not list an iSOLO 300G as a model number for a product – this is not correct. The Canberra web page, home page, products, iSOLO beta/gamma counting system, list the specifications for model 300g on page 4 under specifications, performance, background guarded.

Accordingly, WCS proposes to revise Section 4.5.3.2.3 of the Draft Environmental Analysis as indicated...."

**Response:** The Executive Director acknowledges the WCS comment, and recommends a change to the draft EA as part of the Errata sheet. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This particular section of the draft EA reflects the analysis of the proposed procedure for monitoring airborne radioactivity. Information from the Canberra web site was not available when the draft EA was prepared. Since the preparation of the draft EA, information on the Canberra site listing the iSOLO 300G model has been located.

**Comment EA-16:** WCS comments that Section 4.5.3.3 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: "Procedure BP-RS-2.5.1, Section 5.3.1, third paragraph, states "...an annual exposure summary of the total internal and external exposure at the WCS facility will be prepared,

approved by the RSO, and submitted to the Texas State Department of Health Services to meet reporting requirements required by TRCR, 25 TAC §289.202." The internal dose exposure is from all sources and radionuclides, including radon and the uranium decay chain. Accordingly, WCS proposes the revisions to Section 4.5.3.3 of the Draft Environmental Analysis as indicated...."

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This particular section of the draft EA reflects the analysis of the proposed reporting of radiation exposure. The license application did not contain an appropriate commitment to preparing an annual exposure summary for each individual radiation worker. Section 5.3.1 of BP-RS-2.5.1 does not specifically make a commitment to preparing an annual summary for each individual radiation worker. DSHS rule at 25 TAC §289.203(d)(1) requires the licensee to report radiation exposure annually. No changes were made in response to this comment.

**Comment EA-17:** WCS comments that Section 4.5.5.1 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: "The first paragraph omits BP-RS-1.6.1, Radiation Work Permits (RWP). Sections 5.1.6.12 and 5.1.6.13 of the procedure require that the RWP specify what personnel monitoring is to be performed and what instrumentation is to be used. The RWP form clearly has locations where this information is to be included. This procedure addresses the concerns stated by TCEQ in the first and third bullets under this section (when and how frisking is to be performed).

The second bullet of section 4.5.5.1 states that it is not clear from procedure BP-RS-3.6.1, "Personnel Contamination Monitoring," where frisking stations are located. The location of frisking stations is included in procedure BP-RS-1.7.1, "Radiological Area Access Controls," section 5.2. Section 5.2 states that locations for the specific frisking stations will be established at the exit to the controlled entry/exit point to the restricted area. BP-RS-3.6.4, Whole Body Frisk, section 2.3 also states that that frisking stations are located

at the exit point of a restricted area, and provides for limits on background radiation levels for the frisker station location.

The third bullet of section 4.5.5.1 stated that BP-RS-3.6.1 did not describe how frisking is to be performed. The correct reference for performance of whole body frisking is BP-RS-3.6.4; however, section 4.2.1 of BP-RS-3.6.1 does state that "frisking instructions should be conspicuously posted at each established self-monitoring station." Procedure BP-RS-3.6.4, Whole Body Frisk, describes instrumentation to be used when performing whole body frisking and provides specific instructions regarding proper frisking performance. Attachment A of BP-RS-3.6.1 includes the frisking instructions to be posted at each frisking station.

Accordingly, WCS proposes the revisions to Section 4.5.5.1 of the Draft Environmental Analysis as indicated....”

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director’s staff review of the license application. This particular section of the draft EA reflects the analysis of the proposed personnel monitoring program. In reviewing the proposed procedures for personnel monitoring, the Executive Director found instances where the procedures did not include appropriate references to other related procedures and did not appropriately instruct the person using the procedure on how to complete the particular task. No changes were made in response to this comment.

**Comment EA-18:** WCS comments that Section 4.5.6 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: “WCS asserts that the procedures for use of respirators in the License Application do indeed comply with the Requirements of 25 TAC §289.202(x)(1)(C). 25 TAC §289.202(x)(I)(C) does not require that all the requirements be implemented in a single procedure. The WCS License Application includes an integrated system of plans and procedures. **Attachment J** to these comments, Cross-Reference of 25 TAC §289.202 to WCS By-product Material Procedures Contained in License Application demonstrates

that the WCS respiratory protection program as submitted in the license application complies with all applicable elements of 25 TAC §289.202(x)(1)(C).

However, WCS recognizes that the integrated system of plans and procedures could be revised in areas to more clearly demonstrate conformance to 25 TAC §289.202(x)(1)(C). Accordingly, WCS proposes the revision to Section 4.5.6 of the Draft Environmental Analysis.... WCS has also proposed revisions to Condition 54 of Draft License R05807 to reflect this. Moreover, as explained previously in these comments, WCS is proposing changes to the conditions in Draft License R05807 to allow receipt of bulk by-product material.”

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director’s staff review of the license application. This particular section of the draft EA reflects the analysis of the proposed respiratory protection program. The Executive Director reviewed all submitted procedures for the proposed respiratory protection program to determine whether WCS procedures were in compliance with the requirements of 25 TAC §289.202(x)(1)(C)(iv). Procedures implementing a respiratory protection program are necessary to document and guide methods for using respirators during facility operations. The establishment of a comprehensive, clear respiratory protection program, along with associated procedures, is a fundamental element of worker protection. Although there is flexibility given in the procedures as allowed by the issuance and performance of radiation work permits, the activities covered under procedures are the collection of the basic operating standards. These operating standards comprise the unit operations that, in combination or used singly, make-up the sequence of work steps necessary for the formulation of a radiation work permit. Due to the nature of the standard methods provided in procedures, it is necessary for procedures to be reviewed for potential health and safety impacts.

Under 25 TAC §289.202(x)(1)(C)(iv), a respiratory protection program must include written procedures that address:

- (I) monitoring, including air sampling and bioassays;
- (II) supervision and training of respirator users;

- (III) fit testing;
- (IV) respirator selection;
- (V) breathing air quality;
- (VI) inventory and control;
- (VII) storage, issuance, maintenance, repair, testing, and quality assurance of respiratory protection equipment;
- (VIII) recordkeeping; and
- (IX) limitations on periods of respirator use and relief from respirator use.

The Executive Director reviewed the respiratory protection procedures provided in Section 10.7.3 (“Use of Respiratory Protection Equipment”) of Procedure BP-RSP-100 (“Radiation and Protection Program”) and BP-HS-2.24.1 (“Respiratory Protection”). Items (V), (VI), and (VIII) of 25 TAC §289.202(x)(1)(C)(iv) related to: breathing air quality; inventory and control; and recordkeeping are not discussed in the submitted respiratory protection procedures.

Neither Section 10.7.3 of BP-RSP-100 nor BP-HS-2.24.1 provide written procedures regarding monitoring, including air sampling and bioassays under 25 TAC §289.260(x)(1)(C)(iv)(I). While other procedures in the application do address §289.260(x)(1)(C)(iv)(I), there is no link or reference to those procedures within the respiratory protection procedures provided in BP-RSP-100 or BP-HS-2.24.1.

Section 4.1.1 of BP-HS-2.24.1 states that training will be provided and that the health and safety manager will certify that the training has been provided. Statements that training will be provided, without any details of how, when and what will be included in the training, are insufficient for evaluating the required training for respirator use.

Section 5.7 of BP-HS-2.24.1 commits to fit testing employees. However, no details are provided on how fit testing will be conducted to ensure that each employee using a respirator has one that fits properly.

Section 5.4 of BP-HS-2.24 states that the requirements for respiratory protection will be evaluated when generating a radiation work permit and discusses the selection of respirator cartridges. Section 5.4 of BP-HS-2.24.1 does not discuss the selection of the type of respirator (quarter-face, half-face, full-face, supplied air, etc.) appropriate for work conditions.

Section 5.3 of BP-HS-2.24.1 generally addresses inspection, maintenance and care of respirators. Specific procedures are not provided for storage, issuance, repair, testing, and quality assurance of respiratory protection equipment as required under 25 TAC §289.202(x)(1)(C)(iv)(VII).

Section 10.7.3 of BP-RSP-100 states that stay times will be established, and that respirators should not be worn for more than four consecutive hours without a one hour break, and for no more than six hours in one day. The submitted respiratory protection procedures do not cite or refer to 10.7.3 of BP-RSP-100. Further, the submitted procedures do not state that respirator users can get relief from respirator use at any time in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other conditions that might require such relief.

Accordingly, the Executive Director recommends a draft license condition that prohibits the disposal of non-containerized bulk by-product material so that bulk material does not present a respiratory hazard. No changes were made in response to this comment.

**Comment EA-19:** WCS comments that Section 4.7 of Chapter 4 of the draft EA on administrative and operational health physics should be revised. WCS comments: “The road from the west does not allow unimpeded access to the By-product Material Disposal Facility. The road that was observed during the tour is secured by a locked gate at the western edge of the property. The tour never proceeded down the road in question to allow visual observation of the security measures that are in place.”

**Response:** The Executive Director acknowledges the comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive

Director's staff review of the license application. The application does not discuss access or security measures on the road approaching the disposal facility from the west, and does depict a road with no apparent impediment to access the disposal facility. DSHS rule at 25 TAC §289.202(y) requires the licensee to secure radioactive material from unauthorized removal and access. No changes were made in response to this comment.

**Comment EA-20:** WCS comments that Chapter 5 of the draft EA on civil engineering should be revised. WCS comments that the text of the draft EA be changed to clarify that design revisions may occur as the project proceeds.

**Response:** The Executive Director acknowledges the comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This particular section of the draft EA reflects the analysis of the proposed design. As discussed previously, the Executive Director recommends various draft license conditions requiring further studies and verification of information submitted in the license application. This information could result in revisions in design as described in this section. Any changes to the facility as proposed in the license application are subject to the requirements of 30 TAC §305.62. No changes were made in response to this comment.

**Comment EA-21:** WCS comments that Chapter 5 of the draft EA on civil engineering should be revised. WCS proposes language intended to clarify the concept of active maintenance and references the requirements for termination of closure activities.

**Response:** The Executive Director acknowledges the WCS comment, but does not recommend a change to the draft EA. The draft EA reflects the analysis of the Executive Director and his staff of the proposed license application and is not a summary of the application. This particular section reflects the analysis of the facility maintenance that will be required after closure. The draft EA describes some potential maintenance issues that cannot be resolved at this stage of the project, such as possible subsidence after closure and disposition of the leachate and leak detection systems after closure. Although there is no applicable definition of "active maintenance" for the by-product disposal program, the Executive Director does agree that it is appropriate to consider the definition

in 30 TAC §336.702 when assessing the activities that could be considered “active maintenance.” No changes were made in response to comment.

**Comment EA-22:** WCS comments that Chapter 6 of the draft EA on process engineering should be revised. WCS comments that Chapter 6 of the draft EA would be clearer and relevant if organized to cite the requirements of 25 TAC §§289.252 and 289.260.

**Response:** The Executive Director acknowledges the comment, but does not recommend a change to the draft EA. The draft EA is required under Texas Health and Safety Code (THSC) Section 401.263 and must include the elements in §401.263(b). The draft EA is a technical assessment of the Executive Director’s staff review of the license application. While the license application is reviewed under the requirements of 25 TAC §§289.252 and 289.260, the draft EA must also consider the requirements of THSC §401.263. No changes were made in response to this comment.

**Comment EA-23:** WCS comments that Chapter 6 of the draft EA on process engineering should be revised. WCS proposes that this chapter should be revised to acknowledge that the by-product disposal facility will also be regulated by a TCEQ wastewater discharge permit and an air emissions permit.

**Response:** The Executive Director acknowledges the WCS comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive Director’s staff review of the license application. While the Executive Director does agree that the licensee will be subject to other applicable requirements under other permitting programs, the application did not provide a technical discussion of the referenced wastewater and air permits to include in the analysis of the application. No changes were made in response to this comment.

**Comment EA-24:** WCS comments that Chapter 6 of the draft EA on process engineering should be revised. WCS proposes to delete the discussion of the alternative of using waste disposal wells for non-hazardous wastewater management, because there is no rule requiring the study of wastewater disposal alternatives in 25 TAC §289.252 or §289.260.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The draft EA is required under Texas Health and Safety Code Section 401.263, and subsection 401.263(b)(3) requires the consideration of alternatives to the licensed activity, including alternative engineering methods. No changes were made in response to this comment.

**Comment EA-25:** WCS comments that Chapter 6 of the draft EA on process engineering should be revised. WCS proposes to rewrite the discussion of the applicable rules on surface impoundments and applicable rules on by-product landfills.

**Response:** The Executive Director acknowledges the WCS comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This section of the draft EA notes that requirements in 25 TAC §289.260, and derived from NRC requirements in 10 Code of Federal Regulations (CFR) Part 40, address the use of surface impoundments for disposal of by-product material at conventional uranium mining operations. The draft EA also notes that the applicable rules do not specifically address commercial landfills for by-product disposal. No changes were made in response to this comment.

**Comment EA-26:** WCS comments that Chapter 6 of the draft EA on process engineering should be revised. WCS proposes that the chapter should state that the proposed landfill is not a processing unit and to eliminate the discussion of processing unit evaluation.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. One of the purposes of Chapter 6 is to analyze the overall process system, with specific analysis of the proposed waste disposal operations. The Executive Director acknowledges that this license application is not for a waste processing operation that would be licensed under 25 TAC §289.254. The word "process" is being used to describe the way matter (wastes, water, air, etc.) is moved or moves about the proposed license area. No changes were made in response to this comment.

**Comment EA-27:** WCS comments that Section 6.1.1 of Chapter 6 of the draft EA on process engineering should be revised. WCS offers several revisions to the discussion of the proposed RCRA Subtitle C (Resource Conservation and Recovery Act requirements for hazardous waste disposal) landfill design.

**Response:** The Executive Director acknowledges the WCS comment, but does not recommend a change to the draft EA. The draft EA is a technical assessment of the Executive Director's staff review of the license application. WCS suggests revising the draft EA to indicate that the TCEQ directed WCS to use a design conforming to RCRA Subtitle C standards. While TCEQ staff did encourage the development of a design that utilizes a synthetic liner, the agency did not direct WCS to propose a design based on RCRA Subtitle C requirements. No changes were made in response to this comment.

**Comment EA-28:** WCS comments that Section 6.1.1 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes to add a rule citation, and substitute the word "demonstrated" for the word "claimed" in the context of the subsurface wind sheltering effect of the landfill design.

**Response:** The Executive Director does not agree with the comment. The draft EA reflects the analysis of the Executive Director and his staff of the proposed license application. The draft EA analyzed the submitted application materials. While the claims in the application can be reviewed, the actual wind sheltering effect cannot be demonstrated until the landfill is constructed. No changes were made in response to this comment.

**Comment EA-29:** WCS comments that Section 6.1.2.1 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes rewording the reference to the RCRA landfill design of the application.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. WCS suggests revising the draft EA to indicate that the TCEQ requested WCS to use a design conforming to RCRA Subtitle C standards. While TCEQ staff did encourage the

development of a design that utilizes a synthetic liner, the agency did not direct WCS to propose a design based on RCRA Subtitle C requirements. No changes were made in response to this comment.

**Comment EA-30:** WCS comments that Section 6.1.2.1 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes revisions of the draft EA with respect to landfill design and calculations of water run-off.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This particular section of the draft EA analyzes the calculations used in the application for determining the amount of water in the landfill due to run-off and incident rainfall. The suggested revisions do not reflect the Executive Director's analysis. No changes were made in response to this comment.

**Comment EA-31:** WCS comments that Section 6.1.2.1 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes language to clarify the bases of the rainfall calculations performed and included in the application.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The draft EA is not intended to clarify the bases for the license application materials. This particular section of the draft EA analyzes the calculations used in the application for determining the amount of water in the landfill and the two 500,000 gallon tanks. The suggested revisions do not reflect the Executive Director's analysis. As noted in response to WCS comment DL-22, the draft license requires the submission of study providing a complete hydraulic balance for the system. No changes were made in response to this comment.

**Comment EA-32:** WCS comments that Section 6.1.2.2 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes new language and modification of existing draft EA language to describe wastewater management in the two 500,000 gallon tanks.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The draft EA is based on analysis of the submitted license application. The Executive Director did not review any information in the application that addressed the applicant's plans for use of the two storage tanks and management of wastewater as indicated in the WCS comment. No changes were made in response to this comment.

**Comment EA-33:** WCS comments that Section 6.1.2.2 of Chapter 6 of the draft EA on process engineering should be revised. WCS suggests language changes to the discussion of the two 500,000 gallon tanks, and states that both the tanks and piping have corrosion resistant linings.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The Executive Director did not review any information in the application that stated that the carbon steel piping has a lining as indicated in the WCS comment. No changes were made in response to this comment.

**Comment EA-34:** WCS comments that Section 6.1.2.2 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes to delete the discussion in the draft EA on factory coating the tank weld panels, and burning-off of the coatings along the field welds.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The draft EA describes concerns with maintaining appropriate corrosion protection. The suggested revisions do not reflect the Executive Director's analysis. No changes were made in response to this comment.

**Comment EA-35:** WCS comments that Section 6.1.2.5 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes that the emplaced waste may be given a clean soil covering, and that foaming agents will also provide a durable cover.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. The draft EA analyzes the proposed cover as provided in the application. The WCS comment is not consistent with the license application which does not provide that a clean soil cover is to be used. Furthermore, the application provides no test results, use documentation, or other evidence that foaming agents can provide a wind-erosion-proof "cover" over soil-like by-product waste. Therefore, the suggested revisions do not reflect the Executive Director's analysis of the license application. However, because the draft license prohibits non-containerized bulk material disposal, the analysis on the use of soil covering and foaming agents on bulk by-product material would not apply to licensed activities. No changes were made in response to this comment.

**Comment EA-36:** WCS comments that Section 6.2.2 of Chapter 6 of the draft EA on process engineering should be revised. WCS proposes to delete the entire discussion relating to the accident analysis in the application and the co-management of RCRA and radioactive wastes on the site because existing licenses and permits have addressed potential accidents for activities covered by each license.

**Response:** The Executive Director does not agree with the comment. The draft EA is a technical assessment of the Executive Director's staff review of the license application. This particular section of the draft EA analyzes the accident scenarios presented in the application. While previous authorizations may have addressed accident scenarios covered by the authorization, a prior application did not necessarily address the additional activities covered under subsequent authorizations at the WCS complex. The suggested revisions do not reflect the Executive Director's analysis of the license application. Additionally, it is necessary as part of the license application review, to assess the potential impacts of adjacent facilities or operations that might mask or otherwise impair or inhibit the ability to monitor and detect for releases of radioactive and hazardous constituents from the proposed disposal facility based on groundwater protection and monitoring requirements in 25 TAC §289.260(o). No changes were made in response to this comment.

**Comment EA-37:** WCS comments that Section 7.2.4.3 of Chapter 7 of the draft EA on socioeconomic assessment should be revised. WCS wishes to modify Section 7.2.4.3 to strike out, "However, transportation effects will be considered in greater depth in the engineering sections of the Technical Report. Pending those findings, an environmental justice statement can be finalized by the staff."

**Response:** The Executive Director agrees with the comment in part. Portions of the draft EA were developed by staff at DSHS prior to transfer of SB 1604. Some portions of the analysis on socioeconomics contemplated plans at the DSHS for developing an environmental justice statement. Transportation effects were considered in Section 6.2.3 of the draft EA, but an environmental justice statement has not been prepared and is not required. The Executive Director recommends that the draft EA be revised to reflect that an environmental justice is not being developed. The Errata sheet for the draft EA will reflect the change.

**Comment EA-38:** WCS comments that Section 7.3.2 of Chapter 7 of the draft EA on socioeconomic assessment should be revised. WCS comments that communications were received from both the New Mexico and Texas Historical Commissions after completion of the socioeconomics report. Those communications determined that no historic properties will be affected by this project.

**Response:** The Executive Director agrees with the comment. Communications were received from both Historical Commissions stating that no historic properties will be affected by this project. The Errata sheet for the draft EA will reflect the change.

**Comment EA-39:** WCS comments that Section 7.3.2 of Chapter 7 of the draft EA on socioeconomic assessment should be revised. WCS again comments that both Historical Commissions have supplied the appropriate communications and that certain section numbering problems exist that need to be fixed.

**Response:** The Executive Director agrees with the comment. The Errata sheet for the draft EA will reflect the change.

**Comment EA-40:** WCS comments that Section 7.4.1 of Chapter 7 of the draft EA on socioeconomic assessment should be revised. WCS proposes to strike out, "...however, a full analysis of transportation will be done by civil engineers and reported in a separate Technical Report." WCS also wishes to strike out, "Presumably, cumulative..." and substitute "Cumulative..."

**Response:** The Executive Director agrees with the comment in part. Portions of the draft EA were developed by staff at DSHS prior to transfer of DSHS jurisdiction under SB 1604. Some sections of the chapter on socioeconomics were drafted before the review of the entire license application was finalized and the other sections of the draft EA developed. The analysis of transportation referenced in this comment is the analysis performed in other sections of the draft EA and not a separate Technical Report. The Executive Director recommends that the draft EA be revised to reflect that a separate Technical Report is not being developed. The Errata sheet for the draft EA will reflect the change.

#### **Sierra Club Comments**

The Executive Director received comments from the Lone Star Chapter of the Sierra Club (Sierra Club) dated November 27, 2007.

**The Sierra Club comments:** that a draft license should not have been issued because of the applicant's failure to accurately characterize the geology and hydrology of the proposed site.

**Response:** The Executive Director does not agree with the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site. Independent modeling studies conducted by the Executive Director and his consultants indicated that the disposal facility would contain and isolate by-product wastes for at least 200 years under conservative assumptions. No area's geology and hydrology can be known or characterized with 100 percent certainty. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical

issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license to verify site characterization information and increase the overall safety of site operations and long-term performance. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to comment.

**The Sierra Club comments:** that a draft license should not have been issued because of the applicant's failure to take into account severe weather events and their impacts - including high winds and high rain events.

**Response:** The Executive Director does not agree with the comment. The application provided adequate information on the characterization of the meteorology and climate of the proposed site, including wind and rain events. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several specific areas of concern that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis provided in the draft EA does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license to verify site characterization information and increase the overall safety of site operations and long-term performance. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. Wind dispersal and run-off containing radioactive and hazardous constituents should be minimized because the disposal of non-containerized bulk material is prohibited under the draft license. No changes were made in response to comment.

**The Sierra Club comments:** that a draft license should not have been issued because of the applicant's failure to consider the full range and impacts of traffic accidents.

**Response:** The Executive Director does not agree with the comment. The application adequately describes on-site and off-site vehicular accident scenarios. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. Transportation of all radioactive material to the site must comply with all applicable United States Department of Transportation requirements for packaging, shipping, and transport. Further, the draft license does not authorize the receipt of by-product material by rail. No changes were made in response to the comment.

**The Sierra Club comments:** that a draft license should not have been issued because of the applicant's failure to look at the potential impacts of the nearby RCRA hazardous waste landfill and the possible low-level radioactive waste permit.

**Response:** The Executive Director does not agree with the comment. The environmental monitoring and sampling program required in the draft license is sufficient for the purposes of monitoring the operational phase of the proposed by-product disposal facility and for assessment of potential impacts from adjacent operations such as the disposal of hazardous wastes or low-level radioactive wastes. Additional post-closure monitoring and sampling requirements may be implemented based on the operational history and performance of the by-product waste disposal facility and any effects from other operations at the WCS complex. No changes were made in responses to this comment.

**The Sierra Club comments:** that a draft license should not have been issued because of the applicant's failure to submit a more finalized design of the site, including the degree to which the site will use railroads to bring waste to the by-product disposal facility.

**Response:** The Executive Director does not agree with the comment. The design and construction of the proposed by-product disposal facility were reviewed by a professional engineer and were found to be satisfactory. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA.

The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis provided in the draft EA does not mean that the application does not meet the applicable requirement. While the railcar unloading facility may be mentioned in the license application, the draft license does not authorize the receipt, unloading, or handling of by-product shipped by rail. No changes were made in response to the comment.

**The Sierra Club comments:** that a draft license should not have been issued because of the applicant's failure to consider all alternatives to the burial of by-product materials using what is in essence a RCRA-like Subtitle C design.

**Response:** The Executive Director does not agree with the comment. The design and construction of the proposed by-product disposal facility was reviewed by a professional engineer and were found to be satisfactory. The design requirements are performance based—to provide reasonable assurance of control of radiological hazards effective for 1,000 years to the extent reasonably achievable, and in any case, for at least 200 years. The applicant satisfactorily addressed the requirements for an analysis of project alternatives. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. Identification of particular concerns in the review and analysis provided in the draft EA does not mean that the application does not meet the applicable requirement. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes that the applicant failed to provide basic information about fracture size when discussing the fractures found by boring logs in the red bed clays.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the

review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license as appropriate to verify site characterization information and increase the overall safety of site operations and long-term performance. The license application did provide information on fractures at the site and did consider fractures in the Dockum formation red bed clays beneath the proposed disposal facility in modeling used to assess the performance of the facility in protecting groundwater from migration of contaminants. The modeling performed by the applicant was based on a conservative assumption that one continuous fracture was open from the bottom of the disposal facility to the top of saturated groundwater. Independent modeling studies conducted by the Executive Director and his consultants were also based on conservative assumptions about the ability of a fracture to conduct contaminants. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes that the application did not address why the thickness of the Antlers formation is so varied.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license as appropriate to verify site characterization information and increase the overall safety of site operations and long-term performance. The draft EA describes the depositional environment of the Triassic-aged Dockum formation followed by a period of non-

deposition during the Jurassic period, resulting in an irregular unconformity surface on which the Cretaceous-aged Antlers formation was deposited. This creates some variability in thickness in the Antlers formation. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes contradictory information in the application is presented with respect to the 125-foot sand layer and notes confusion about the 125-foot and 185-foot sand layers.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site. No area's geology and hydrology can be known or characterized with 100 percent certainty. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license as appropriate to verify site characterization information and increase the overall safety of site operations and long-term performance. In addition to verification requirements, specific requirements to monitor the 125-foot sand zone are provided in the draft license. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes inconsistencies in application information on borehole data.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site. No area's geology and hydrology can be known or characterized with 100 percent certainty. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were

subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license as appropriate to verify site characterization information and increase the overall safety of site operations and long-term performance. In addition to verification requirements, specific requirements for additional borings are provided in the draft license. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes controversy on the origin of antitaxial gypsum in fractures with the Dockum clay and the relation of gypsum to salt dissolution and that the draft EA notes cross-sections provided in the application may indicate a depression caused by salt dissolution and that further study of subsidence and salt dissolution is needed.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site, including an analysis on salt dissolution and related subsidence. No area's geology and hydrology can be known or characterized with 100 percent certainty. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license as appropriate to verify site characterization information and increase the overall safety of site operations and long-term performance. No changes were made in response to this comment.

**The Sierra Club comments:** that data collection from an erosion pin array should have been provided as part of the one year of environmental monitoring data required before the license can be granted.

**Response:** The Executive Director acknowledges the comment. Erosion monitoring is not the type of environmental monitoring needed for pre-operational monitoring. The draft license includes a requirement for the installation of additional erosion pin array at the WCS complex to assess any erosion that may be occurring. This information would be used after years of data collection to determine if any changes are needed to proposed closure designs based on actual erosion measured on site. No changes were made in response to this comment.

**The Sierra Club comments:** that the license application should be resubmitted to take into account the largest earthquake, the magnitude 5.0 event recorded near Rattlesnake Canyon.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site, including seismic activity. No area's geology and hydrology can be known or characterized with 100 percent certainty. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. There is no information to indicate that the Rattlesnake Canyon earthquake resulted in surface expression of fault movement or would affect the ability of the proposed facility to meet the performance objectives. No changes were made in response to this comment.

**The Sierra Club comments:** that the application should follow the guidelines based on NUREG-1569 for evaluation of socioeconomic impacts on transient populations that come into contact with the site at certain times of the day.

**Response:** The Executive Director acknowledges the comment. The socioeconomic information in the application was evaluated under the guidance provided in NUREG-1569. No changes were made in response to this comment.

**The Sierra Club comments:** that the application provided an unacceptable pre-operational monitoring program to assure that contaminated groundwater can be cleaned up to background levels.

**Response:** The Executive Director does not agree with the comment. Pre-operational monitoring is not intended to provide background levels for groundwater cleanup. Groundwater contamination must be assessed and remediated under the groundwater protection requirements of 25 TAC §289.260(o)(9)-(12). Pre-operational monitoring is required to establish baseline data that can be used for assessing operational monitoring to evaluate compliance with applicable rules and license conditions, to evaluate performance of control systems and procedures, and to evaluate environmental impacts of operations, and to detect potential long-term effects. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes a number of problems related to the applicant's plans to monitor the dose of radiation to individual workers.

**Response:** The Executive Director acknowledges the comment. As discussed in response to WCS comment EA-16, the license application did not contain an appropriate commitment to preparing annual exposure summaries for each individual radiation worker. The licensee is required to report exposure annually under 25 TAC §289.203(d)(1). No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes unresolved issues on civil engineering and process engineering, including the lack of clarity on groundwater levels, calibration of the groundwater model to the site, failure to address wind speed in discussing airborne pollutants, and the failure to complete a final design.

**Response:** The Executive Director does not agree with the comment. The design and construction of the proposed by-product disposal facility were reviewed by a professional

engineer and were found to be satisfactory. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis provided in the draft EA does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license as appropriate to verify site characterization information and increase the overall safety of site operations and long-term performance. Wind dispersal and run-off of radioactive material should be minimized because the disposal of non-containerized bulk material is prohibited under the draft license. No changes were made in response to this comment.

**The Sierra Club comments:** that the applicant did not propose a design for water and wastewater management based on worst-case assumptions for rainfall.

**Response:** The Executive Director acknowledges the comment. The application does characterize meteorological and climate conditions of the proposed site including precipitation patterns, average rainfall, mean monthly precipitation and determination of the 24-hour, 100-year storm event. This information was used by the applicant in developing the design of the proposed disposal facility. The proposed design includes a run-on control berm to direct water away from the operating disposal facility, final grading after closure to direct run-off away from the closed facility, and drainage controls within the disposal facility. The Executive Director's staff reviewed and analyzed the weather data and proposed design presented in application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns with the assessment of worst case rain events does not mean that the application does not meet the applicable requirement. The Executive Director recommends a draft license condition to require the submission of an engineering report to provide a complete hydraulic balance

for the proposed by-product disposal facility and a draft license condition to require the licensee to measure and record the volume of contact water placed in the contact water holding tanks. No changes were made in response to this comment.

**The Sierra Club comments:** that the draft EA notes that the closure plan is more conceptual than an actual plan.

**Response:** The Executive Director acknowledges the comment. At this stage of the proposed project, all aspects of a closure plan cannot be known. Final details of a closure plan must be based on information gathered during the operation of the facility. A final closure plan will be required before decommissioning of the facility and release of the license. No changes were made in response to this comment.

**The Sierra Club comments:** that the decommissioning plan and level of financial assurance are not sufficient to ensure Sierra Club members living in the area that the facility will be properly decommissioned and cleaned up so that background groundwater and soils levels are maintained after operations.

**Response:** The Executive Director does not agree with the comment. The draft license includes requirements for providing financial assurance 60 days prior to the receipt of by-product material for disposal. The licensee must provide \$4,266,925 (2004 dollars) for decommissioning, \$72,505 (2004 dollars) for post-operational surveillance, and \$723,320 (2004 dollars) for long-term care. In addition, the license requires that the cost estimates upon which the financial assurance is based be reviewed annually. If on-going activities increase the cost estimates for decommissioning, additional financial assurance will be required. No changes were made in response to this comment.

**The Sierra Club comments:** that the applicant never considered alternatives other than below-ground disposal in a RCRA-style landfill.

**Response:** The Executive Director does not agree with the comment. Section 9 of the license application addresses site and project alternatives including an alternative design using an *in situ* liner and above ground disposal. No changes were made in response to this comment.

**The Sierra Club comments:** that the applicant failed to meet 25 TAC §§ 289.260(g)(2) and (3), 289.202(g)(3), 289.260(f)(1)(F), and 289.260(o)(2)(B).

**Response:** The Executive Director does not agree with the comment. 25 TAC § 289.260(g)(2) and (3) requires licenses to include requirements for licensee notification of releases of radiological material and spills. DSHS rule at 25 TAC §289.202(g)(3) requires a licensee to account for an intake of an occupationally exposed individual if the individual receives an intake of radionuclides by ingestion greater than 10 percent of the applicable annual limit on intake. DSHS rule at 25 TAC §289.260(f)(1)(F) requires an application to include information on the chemical and radioactive characteristics of the wastes to be received and detailed procedures for receiving and documenting incoming waste shipments. DSHS rule at 25 TAC §289.260(o)(2)(B) requires the consideration of hydrogeologic and other environmental conditions conducive to continued immobilization and isolation of contaminants from usable groundwater sources in judging the adequacy of a site. The Executive Director determined that the applicant's compliance with the draft license would meet all of the applicable requirements.

**The Sierra Club comments:** that the TCEQ should require WCS to meet the financial assurance requirements of Subchapter T as proposed by the Commission to implement SB 1604.

**Response:** The Executive Director acknowledges the comment. The Commission did not adopt its proposed revisions to Chapter 37 to establish financial assurance requirements for the licensing program for by-product disposal. The commission intends to address financial assurance requirements for by-product disposal in a future rulemaking. Under Section 33(d) of SB 1604, a rule of the DSHS related to a responsibility, duty, activity, function, or program transferred by SB 1604 is enforceable as a rule of the TCEQ until the commission adopts other rules. The TCEQ intends to apply the Department's financial assurance requirements in 25 TAC Chapter 289 to the WCS application and license until the commission adopts other rules. No changes were made in response to this comment.

**The Sierra Club comments:** that the applicant did not provide the adequate data on socioeconomic conditions.

**Response:** The Executive Director does not agree with the comment. The application included adequate socioeconomic information in Section 11.2.2 and Appendices 11.A and 11.B. The application included an environmental report including area and site characteristics, historical and cultural landmarks, and archaeology under 25 TAC §289.260(f)(1)(A)(ii). In addition, the remoteness of the proposed site from populated areas was considered under 25 TAC §289.260(o)(2)(A). No changes were made in response to this comment.

**The Sierra Club comments:** that the application should be denied under 25 TAC §289.252(d)(10).

**Response:** The Executive Director does not agree with the comment. Section 289.252(d)(10) provides that a license application may be denied for: any material false statement in the application or any statement of fact required under Chapter 401 of the Texas Health and Safety Code; conditions revealed by the applicant or statement of fact or any report, record, or inspection, or other means that would warrant the agency to refuse to grant a license on an application; or failure to clearly demonstrate how the requirements of 25 TAC Chapter 289 have been met. The Executive Director does not believe that the application includes a material false statement. The Executive Director is not aware of any conditions revealed in the application, or otherwise, that would warrant the agency to refuse to grant a license. Lastly, the Executive Director does not agree that application should be denied for failure to clearly demonstrate how the requirements of 25 TAC Chapter 289 have been addressed. The Executive Director reviewed the license application against all applicable requirements and determined that the issuance of the draft license will not be inimical to the health and safety of the public. No changes were made in response to this comment.

## Nuclear Information and Resource Service (NIRS)

**NIRS comments:** that the organization opposes the proposed license because of inadequate evaluation of transportation impacts.

**Response:** The Executive Director acknowledges the comment. The application adequately describes on-site and off-site vehicular accident scenarios. The TCEQ does not regulate the transportation of radioactive material. Transportation of all radioactive material to the site must comply with all applicable United States Department of Transportation requirements for packaging, shipping, and transport. In addition, the draft license does not authorize the receipt of by-product material by rail. No changes were made in response to this comment.

**NIRS comments:** that the organization opposes the proposed license because of inadequate knowledge and characterization of geological conditions, such as connection to the Ogallala Aquifer and other groundwater and potential for irreversible water contamination.

**Response:** The Executive Director acknowledges the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site to demonstrate the proposed activities would not impact the groundwater of the Pecos, Dockum and Ogallala aquifers. Independent modeling studies conducted by the Executive Director and his consultants indicated that the disposal facility would contain and isolate by-product wastes for at least 200 years under conservative assumptions. The draft license does include requirements to have wells in the 125-foot zone and the 225-foot zone of the Dockum formation to monitor for release of radioactive or hazardous constituents to ensure groundwater is not affected by licensed activities. No changes were made in response to this comment.

**NIRS comments:** that the organization opposes the proposed license because of incomplete characterization of the hazard, longevity and potential danger from the waste and disparate impact of the waste facility on low income communities and communities of color.

**Response:** The Executive Director acknowledges the comment. The TCEQ strives to ensure that agency programs operate according to the applicable laws and do not discriminate. The application did provide characterization of proposed waste, assess performance of the proposed disposal facility for releases of contaminants to the environment and evaluated socioeconomic impacts of the proposed facility. The application included adequate socioeconomic information in Section 11.2.2 and Appendices 11.A and 11.B. The application provided an environmental report including area and site characteristics, historical and cultural landmarks, and archaeology under 25 TAC §289.260(f)(1)(A)(ii). In addition, the remoteness of the proposed site from populated areas was considered under 25 TAC §289.260(o)(2)(A). After reviewing this information in the application, the Executive Director does not agree that the licensing of the proposed by-product disposal facility will produce a disparate impact on low income or minority communities, especially because the Executive Director's modeling indicated that there would be no detrimental impact to the nearest off-site resident. No changes were made in response to this comment.

**NIRS submits:** Attachment 1, Institute for Energy and Environmental Research's (IEER) criticism of the WCS performance assessment.

**Response:** The Executive Director acknowledges the comment. The submitted document appears to include portions of a report generated in the Nuclear Regulatory Commission's (NRC) licensing proceedings for the National Enrichment Facility in Lea County, New Mexico. The submitted material does not appear relevant to the consideration of a by-product disposal facility license application, authorized under 25 TAC §289.260 (rules which are compatible with the NRC's regulations in 10 CFR Part 40.) The NRC determined that the depleted uranium produced at the National Enrichment Facility is low-level radioactive waste and subject to the near surface land disposal requirements of 10 CFR Part 61. By-product material disposal and low-level radioactive waste disposal are subject to different technical requirements and different performance objectives. No changes were made in response to this comment.

## Individual Comment Letters

Eleven comment letters were submitted by residents of Eunice, New Mexico on an identical form letter. These will be referred to as “the Eunice citizens.” Barbara and John Hogan of Uvalde, Texas submitted a comment letter opposing the application.

**The Eunice citizens comment:** that the applicant failed to follow Texas law and adequately characterize the geology, hydrology and other site characteristics.

**Response:** The Executive Director does not agree with the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site. Independent modeling studies conducted by the Executive Director and his consultants indicated that the disposal facility would contain and isolate by-product wastes for at least 200 years under conservative assumptions. No area’s subsurface geology and hydrology can be known or characterized with 100 percent certainty: the assessment of subsurface conditions involves evaluation and inference of application data from wells, borings, geophysical logs, cross-sections, maps, aerial photographs, etc. The Executive Director’s staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license to verify site characterization information and increase the overall safety of site operations and long-term performance. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to comment.

**The Eunice citizens comment:** that the proposed activities will impact the groundwater of the Pecos, Dockum and Ogallala aquifers.

**Response:** The Executive Director does not agree with the comment. The application provided adequate information on the characterization of the geology and hydrology of the proposed site to demonstrate the proposed activities would not impact the groundwater of the Pecos, Dockum and Ogallala aquifers. Independent modeling studies conducted by the Executive Director and his consultants indicated that the disposal facility would contain and isolate by-product wastes for at least 200 years under conservative assumptions. No area's geology and hydrology can be known or characterized with 100 percent certainty; the assessment of subsurface conditions involves evaluation and inference of application data from wells, borings, geophysical logs, cross-sections, maps, aerial photographs, etc. The Executive Director's staff reviewed and analyzed the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license to verify site characterization information and monitor future conditions in the various subsurface formations to increase the overall safety of site operations and long-term performance. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to comment.

**The Eunice citizens comment:** that the applicant's modeling did not consider fissures on the impact of migration of leachate.

**Response:** The Executive Director does not agree with the comment. The applicant did provide information on fractures at the site and did consider fractures in the Dockum formation beneath the proposed disposal facility in modeling used to assess the performance of the facility in protecting groundwater from migration of contaminants. The modeling performed by the applicant was based on a conservative assumption that one continuous fracture was open from the bottom of the disposal facility to the top of

saturated groundwater. Independent modeling studies conducted by the Executive Director and his consultants were also based on conservative assumptions about the ability of a fracture to conduct contaminants. No changes were made in response to this comment.

**The Eunice citizens comment:** that the applicant failed to consider or model for high-wind conditions prevalent in West Texas around the site.

**Response:** The Executive Director acknowledges the comment. The application does provide characterization of air flow patterns, including prevailing winds and high-wind conditions. The application also includes modeling of the proposed design controls for assessing particulate air emissions from wind dispersion. The Executive Director's staff reviewed and analyzed the air dispersion modeling in the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns with the assessment of high wind events in the review and analysis process does not mean that the application does not meet the applicable requirement. License conditions were added to the draft license to increase the overall safety of site operations and long-term performance. The Executive Director recommends draft license conditions to prohibit disposal of bulk non-containerized by-product material to address, in part, the concerns about assessment of worst-case wind conditions. Under 25 TAC §289.252(w), the agency may incorporate license conditions appropriate or necessary to minimize danger to occupational and public health and safety and the environment. No changes were made in response to the comment.

**The Eunice citizens comment:** that the applicant failed to consider worst-case rain events and did not adequately model storm water run-off.

**Response:** The Executive Director does not agree with the comment. The application does characterize meteorological and climate conditions of the proposed site including precipitation patterns, average rainfall, mean monthly precipitation and determination of

the 24-hour, 100-year storm event. This information was used by the applicant in developing the design of the proposed disposal facility. The proposed design includes a run-on control berm to direct water away from the operating disposal facility, final grading after closure to direct run-off away from the closed facility, and drainage controls within the disposal facility. The Executive Director's staff reviewed and analyzed the weather data and proposed design presented in the application with appropriate critical scrutiny as described in the draft EA. The draft EA discusses the review and analysis of technical issues in several critical areas that were subsequently addressed in draft license conditions. The derived draft license conditions are intended to address specific areas of concern identified in the draft EA. Identification of particular concerns with the assessment of intense, high rain events does not mean that the application does not meet the applicable requirement. The Executive Director recommends a draft license condition to require the submission of an engineering report to provide a complete hydraulic balance for the proposed by-product disposal facility and a draft license condition to require the licensee to measure and record the volume of contact water placed in the contact water holding tanks. No changes were made in response to this comment.

**The Eunice citizens comment:** that they are concerned about transportation accidents at the site and in Lea County, New Mexico.

**Response:** The Executive Director acknowledges the comment. The application adequately describes on-site and off-site vehicular accident scenarios. The TCEQ does not regulate the transportation of radioactive material. Transportation of all radioactive material to the site must comply with all applicable United States Department of Transportation requirements for packaging, shipping, and transport. In addition, the draft license does not authorize the receipt of by-product material by rail. No changes were made in response to this comment.

**The Eunice citizens comment:** that financial assurance is inadequate.

**Response:** The Executive Director does not agree with the comment and that sufficient financial assurance is required in the draft license. The draft license includes

requirements for providing financial assurance 60 days prior to the receipt of by-product material for disposal. The licensee must provide \$4,266,925 (2004 dollars) for decommissioning, \$72,505 (2004 dollars) for post-operational surveillance, and \$723,320 (2004 dollars) for long-term care. In addition, the license requires that the cost estimates upon which the financial assurance is based be reviewed annually. If on-going activities increase the cost estimates for decommissioning, additional financial assurance will be required. No changes were made in response to this comment.

**The Eunice citizens comment:** that the proposed post-closure plan makes no mention of continued leachate collection and disposal of leachate.

**Response:** The Executive Director acknowledges the comment. The application post-closure plans did not address continued leachate collection and disposal of leachate because the applicant intends to remove the leachate collection system during closure. As noted in the draft EA and as discussed in response to comments on post-operational monitoring, not all of the post-closure requirements can be known at this time. Many post-operational activities depend on the operational history and performance of the facility. If conditions warrant continued leachate collection, the licensee may be required to delay closure or maintain leachate collection after closure. No changes were made in response to this comment.

**URI comments:** that the proposed license condition prohibiting disposal of bulk by-product material would require additional handling of the by-product material by generators, such as URI, and would increase the potential exposure from industrial accidents.

**Response:** The Executive Director acknowledges the comment. The Executive Director expects that potential customers would need to evaluate many different factors in deciding whether to send waste to a particular disposal facility. However, consideration of the factors affecting a by-product material generator is outside the scope of the license application and is not addressed under the applicable rules. As described previously, the Executive Director recommends that the draft license include provisions that prohibit the disposal of non-containerized bulk by-product material because of concerns at the WCS

site for respiratory protection, wind dispersal, and migration to groundwater. No changes were made in response to comments.

**URI comments:** that the proposed license condition prohibiting disposal of bulk by-product material would burden a generator, such as URI, for increased expenses of packaging, transportation, and disposal tipping fees.

**Response:** The Executive Director acknowledges the comment. The WCS license application and the Executive Director did not consider the expenses that potential WCS customers may expect in sending waste to the proposed facility. Consideration of financial costs to a by-product material generator is outside the scope of the license application and is not addressed under the applicable rules. No changes were made in response to comments.

**URI comments:** that the proposed license condition prohibiting disposal of bulk by-product material would prompt a generator, such as URI, to dispose of material at a more distant disposal facility, potentially increasing the chances for radiation exposure from motor vehicle accidents.

**Response:** The Executive Director acknowledges the comment. The WCS license application and the Executive Director did not consider the business and liability decisions that potential WCS customers may face in deciding to send waste to the proposed facility for disposal. No changes were made in response to comments.

**URI comments:** that the proposed license condition prohibiting disposal of bulk by-product material would make Texas uranium operators, such as URI, less competitive in world markets.

**Response:** The Executive Director acknowledges the comment. WCS and the Executive Director did not consider the global market conditions of potential WCS customers in reviewing the application. No changes were made in response to comments.

**URI comments:** that it encourages the TCEQ to delete license provision 14 prohibiting bulk material disposal.

**Response:** The Executive Director does not agree with the comment. As explained in response to WCS comment DL-1, the Executive Director recommends that the draft license include provisions that prohibit the disposal of non-containerized bulk by-product material. No changes were made in response to this comment.

**TMRA comments:** the prohibition of disposal of non-containerized bulk by-product material in the draft license would be detrimental to the uranium mining industry in Texas.

**Response:** The Executive Director acknowledges the comment. The Executive Director expects that potential customers would need to evaluate many different factors in deciding whether to send waste to a particular disposal facility. As described previously, the Executive Director recommends that the draft license include provisions that prohibit the disposal of non-containerized bulk by-product material because of concerns at the WCS site for respiratory protection, wind dispersal, and migration to groundwater. No changes were made in response to comments.

**TMRA comments:** that draft license condition 53(B) requiring a license amendment before WCS can implement or revise a standard operating procedure would overwhelm the agency with the review of administrative or minor changes that are inconsequential to the protection of the public.

**Response:** The Executive Director does not agree with the comment to revise draft license condition 53. B. Procedures in the license application have been reviewed by the Executive Director. Compliance with the reviewed procedures in the application is specifically required in the draft license. Changes to the licensee's approved procedures must be made in accordance with requirements for amending the approved license in 30 TAC §305.62. The Executive Director does recognize a desire by licensees to adjust their practices and procedures, when appropriate, without the formal license amendment process. The Executive Director can consider recommendations for changes to TCEQ rules to allow a licensee's implementation of minor changes to operational procedures as part of future rulemaking. No changes were made in response to this comment.

**Advocates for Responsible Disposal in Texas (ARDT) comments:** that it supports the requirements in the draft license regarding financial assurance and that the same level of financial assurance should be required for this site as the proposed adjacent low-level radioactive waste disposal site, given the close proximity of the two facilities.

**Response:** The Executive Director acknowledges the comment. Disposal of by-product material and LLRW are subject to different state statutes and rules and subject to different federal requirements. By-product material disposal is subject to Subchapter G of Texas Health and Safety Code Chapter 401, the rules of the DSHS in 25 TAC §289.260, and 10 Code of Federal Regulations Part 40. LLRW disposal is subject to Subchapter F of Texas Health and Safety Code Chapter 401, the rules of the TCEQ in subchapter H of 30 TAC Chapter 336, and 10 Code of Federal Regulations Part 61. These different programs have different financial assurance requirements for decontamination, decommissioning, reclamation, disposal, liability, institutional control, and corrective action. Further, the amount of financial assurance coverage is determined on a case-by-case basis by evaluating the cost estimates for the particular activity covered under the financial assurance. No changes were made in response to this comment.

**ARDT comments:** that the TCEQ should adopt the financial assurance requirements as originally proposed in the draft license and consistent with the rule revisions proposed by the TCEQ on September 7, 2007.

**Response:** The Executive Director acknowledges the comment. No changes have been made to the amount of financial assurance required in the draft license. The Commission did not adopt its proposed revisions to 30 TAC Chapter 37 to establish financial assurance requirements for the licensing program for by-product material disposal. The commission intends to address financial assurance requirements for by-product disposal in a future rulemaking. Under Section 33(d) of SB 1604, a rule of the DSHS related to a responsibility, duty, activity, function, or program transferred by SB 1604 is enforceable as a rule of the TCEQ until the commission adopts other rules. The TCEQ intends to apply the DSHS financial assurance requirements in 25 TAC Chapter 289 to the WCS

application and license until the commission adopts other rules. No changes were made in response to this comment.

**Comments in support of the application:** Andrews County Chamber of Commerce urges TCEQ to approve the by-product disposal license. Andrews Economic Development Corporation, Andrews Industrial Foundation, Inc., and the Andrews Independent School District support the WCS application for a license authorizing disposal of by-product material at its site in Andrews County. Mr. Pete Francis supports Waste Control Specialists and the application for a by-product disposal license. The City of Andrews supports the pending license for commercial disposal of by-product material in Andrews, County. The City of Eunice, New Mexico urges the approval of the WCS license application for commercial disposal of by-product disposal. Ms. Wendy Inlow of Southwest Realty urges approval of the WCS license application for commercial disposal of by-product material. Mr. Lloyd Eisenrich supports WCS and the application for a by-product disposal license.

**Response:** The Executive Director acknowledges these comments in support of the WCS application.

## **VI. CHANGES MADE IN RESPONSE TO COMMENT**

A revised draft license has been prepared in response to these comments as described above. Additionally, an errata sheet for the draft EA has been prepared in response to these comments as described above.

Respectfully submitted,

Texas Commission on Environmental  
Quality

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REPRESENTING THE  
EXECUTIVE DIRECTOR OF THE  
TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY

### CERTIFICATE OF SERVICE

I certify that on March 14, 2007, the foregoing Executive Director's Response to Comments was filed in the Office of the Chief Clerk of the Texas Commission on Environmental Quality and sent by first-class mail to all persons on the attached mailing list.

Don Redmond

Don Redmond

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Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

Pursuant to the Texas Radiation Control Act and the applicable rules of the Texas Commission on Environmental Quality (TCEQ, or Commission) regulations on radioactive materials, and in reliance on statements and representations heretofore made by the Licensee, a license is hereby issued authorizing the Licensee to receive, acquire, possess, transfer and dispose radioactive material listed herein; and to use such radioactive material for the purpose(s) and at the place(s) designated herein. This license is subject to all applicable rules, regulations and orders of the Texas Commission on Environmental Quality (Agency) now or hereafter in effect and to any conditions specified below.

<b>LICENSEE</b>		This license is issued in response to an original application	
<b>Customer Number</b>	<b>CN600616890</b>	dated: June 21, 2004	
1. Name	Waste Control Specialists LLC ATTN: Guy Crawford, Ph.D.	Signed by: Dean Kunihiro	
2. Address	P. O. Box 1129 Andrews, Texas 79714	3. License Number	Amendment Number
		R 05807	
		4a. License Expiration Date	
		10 Years from the Date of Issuance	

### RADIOACTIVE MATERIAL AUTHORIZED

5. Radioisotope	6. Form of Material	7. Maximum Activity	8. Authorized Use
A. By-product material, as defined in Title 25 of the Texas Administrative Code (25 TAC) Section (§) 289.260(c)(4)	A. Dry, discrete solid objects and containerized bulk by-product material.	A. Not to exceed a volume of 1,169,000 cubic yards and a total radioactivity of 24,530 curies.	A. Receipt of by-product material from other persons and disposal by shallow land burial.

9. This license authorizes the disposal of by-product material. No other material shall be accepted under this license. The receipt and/or disposal of low-level radioactive waste, mixed low-level radioactive waste, naturally-occurring radioactive material, hazardous waste, industrial solid waste, municipal solid waste, liquid waste, explosive or pyrophoric materials are specifically prohibited. By-product material shall be possessed and used only at:

<u>Site Number</u>	<u>Location</u>
000	Andrews – Approximately one and a half mile north of State Highway 176 at NW9999 on State Line Road, 250 feet east of the Texas and New Mexico State Line (30 miles west of Andrews, TX) <b>Regulated Entity No. RN104392790</b>

10. The Licensee shall comply with the provisions of Title 25 of the Texas Administrative Code (TAC) Section (§) 289.201, §289.202, §289.203, §289.204, §289.251, §289.252, §289.257, and §289.260 and provisions of Title 30 of the TAC.
11. The following words and terms when used in this license shall have the following meaning:
- A. Executive Director - The Executive Director of the Texas Commission on Environmental Quality



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

(TCEQ), or any authorized individual authorized to act for the Executive Director in the administration of the license and the rules of the TCEQ (for example, reporting, inspection, emergency response, etc.).

- B. Bulk Material – Material that is soil or soil-like in its physical form.
- C. By-product Material Disposal Facility – That area comprising approximately 36.39 acres and all the features supporting the disposal facility, including, but not limited to, the disposal units, decontamination building, contact water storage tanks and pad, incoming container storage pad, outgoing container storage area, guard house and counting lab, overhead inspection station, within the boundary circumscribed by the security fence as depicted in Figure 3.18 and 3.19 of Section 3 of Volume 1 of the application.
- D. Commission – The Commissioners of the Texas Commission on Environmental Quality acting in their official capacity.
- E. Container – A sealed, flexible or rigid drum, pail, box, sack, or similar container which does not tear, split, or rupture upon handling, placement, and compaction in the disposal unit; and which does not lose its structural strength and integrity when contacting water. Acceptable containers may include, but are not limited to, approved U.S. Department of Transportation containers. Containers to be placed in the disposal facility shall not contain free liquids, and shall have no more than 15% void volume.
- F. Containerized – To be confined within a container.
- G. Licensed site – – That area comprising approximately 36.39 acres and all the features supporting the disposal facility, including, but not limited to, the disposal units, decontamination building, contact water storage tanks and pad, incoming container storage pad, outgoing container storage area, guard house and counting lab, overhead inspection station, within the boundary circumscribed by the security fence as depicted in Figure 3.18 and 3.19 of Section 3 of Volume 1 of the application.
- H. Restricted Area – Has the same meaning as Licensed site.
- I. Site – Has the same meaning as Licensed site.
- J. Facility – Same meaning as Licensed site.
- K. Disposal Facility – Same meaning as Licensed site.
- L. Disposal area – The area containing by-product material to which the requirements of subsection 25 TAC §289.260(o)(16)-(27) apply.
- M. Disposal units – The features described in the application for the emplacement of by-product material.
- N. Operations - The receipt of by-product material for disposal from other persons and/or the emplacement of by-product material into a disposal unit and any other activities associated with the receipt and emplacement of by-product material. A disposal unit is in operation from the day that by-product material is first placed in it until the day that final closure of the last disposal unit begins.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- O. Construction – Those activities that execute the construction of the features of the Disposal Facility as described in the application.
- P. Excavation – Those subset of activities comprising Construction that involve the removal of native materials (e.g., soils) at the site for the construction of the Disposal Facility features, such as, the disposal units, receiving pad, contact water storage pad, and decontamination building.
12. The following are related to the designated Radiation Safety Officer under this license:
- A. The individual designated to perform the functions of Radiation Safety Officer (RSO) for activities covered by this license is Guy Crawford, Ph.D.
- B. The RSO shall be the primary contact between the Licensee and the TCEQ for all matters relating to this license and radiation safety.
- C. Any request for amendment of the license shall be submitted under the signature of the RSO.
- D. The Licensee shall provide a resolution from its board of directors, attested by the secretary of the corporation, that the Licensee has delegated to the radiation safety officer position the authority to act for and on behalf of the Licensee in all matters relating to radiation safety matters and this radioactive material license.
- E. The Licensee shall revise organizational chart and the description of the duties, responsibilities and authorities of the RSO submitted in the application to depict and specify that the designated RSO has a direct line of communication with the Licensee's President on all matters pertaining to radiation safety and compliance with the conditions of this license and the applicable rules.
- F. The Licensee shall require the following qualifications of any person to be designated to serve as the RSO for this license:
- (1) A bachelor's degree in the physical or biological sciences, industrial hygiene, or engineering from an accredited college or university or an equivalent combination of education and relevant experience in uranium recovery, waste processing or production facility radiation protection. Two years of relevant experience is considered equivalent to one (1) year of academic study.
  - (2) At least one (1) year of work experience relevant to uranium recovery, waste processing or production operations in applied health physics, radiation protection, industrial hygiene, or similar work. This experience should involve directly working with radiation detection and measurement equipment, not strictly administrative work. This experience should be in addition to any experience that is used to meet the educational requirement.
  - (3) At least four (4) weeks of specialized classroom training in health physics specifically applicable to uranium recovery, waste processing or production.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- (4) The RSO should attend refresher training on uranium recovery, waste processing or production facility health physics every two (2) years.
- G. The RSO shall ensure that the radiation safety program provides, as a minimum, the same qualifications and same training as is provided to radiation safety technicians for all other positions at the By-product Material Disposal Facility involved with the administration and/or execution of the radiation safety program.
13. A. The by-product material disposal facility must be located as described in Section 3 of Volume 1 of the application.
- B. The by-product material disposal facility must consist of the features as depicted in, and constructed in accordance with the drawings, specifications, and references contained in Section 3 of Volume 1 of the application, and the conditions of this license.
- C. Any modification or deviation from the drawings, specifications, and references in Section 3 of Volume 1 of the application and the conditions of this license shall require approval by the commission by amendment of this license.
14. The Licensee shall not accept or dispose of uncontainerized, bulk by-product material.
- A. Containers for the disposal of by-product material shall conform to the definition in condition 11.
- B. The Licensee shall not receive by-product material intended for disposal by rail.
- C. The Licensee shall not open or empty any container of bulk by-product material received at the by-product material disposal facility, except to obtain a sample from the container for verification purposes. The Licensee shall dispose of received bulk by-product material by placement of the intact container into the by-product material disposal unit.
- D. The Licensee shall use uncontaminated or clean grout, sand, or other suitable flowable material to fill void spaces and gaps around emplaced containers of by-product material, and around emplaced non-bulk material in the disposal unit.
15. The Licensee has a duty to comply with all license conditions. Failure to comply with any license condition is a violation of the license and statutes under which the license is issued and is grounds for enforcement action, for license amendment, revocation, or suspension, or for denial of a license renewal application or an application for a license or permit for another facility.
16. The Licensee must apply for an amendment or renewal before the expiration of the existing license in order to continue receipt and disposal of by-product material after the expiration of the license. Authorization to continue such activity terminates upon the effective denial of said application. Obligations or requirements for decommissioning, environmental monitoring, financial assurance, radiation safety, and control of entry to restricted areas continue in effect beyond the expiration date of this license until the Executive Director notifies the licensee in writing that the provisions of the license are no longer binding.
17. It is not a defense in an enforcement action that it would have been necessary to halt or reduce the licensed activity to maintain compliance with the license conditions.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

18. The Licensee shall take all reasonable steps to minimize or prevent any discharge, disposal, or other license violation which has a reasonable likelihood of adversely affecting human health or the environment.
19. The Licensee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) installed or used by the Licensee to achieve compliance with the license conditions.
20. The Licensee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending, or terminating the license, and copies of records required to be kept by the licensee.
21. The Licensee shall give notice to the Executive Director before physical alterations or additions to the licensed facility if such alterations or additions would require a license amendment or result in a violation of license requirements.
22. Authorization from the commission is required before beginning any change in the licensed facility or activity that would result in noncompliance with other license requirements.
23. Unless subject to a different reporting requirement in this license or under 30 TAC Section 336.335 (relating to Reporting Requirements for Incidents), the Licensee shall report any noncompliance to the Executive Director which may endanger human health or safety or the environment. Such information must be provided orally within 24 hours from the time the Licensee becomes aware of the noncompliance. A written submission must also be provided within five days of the time the Licensee becomes aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.
24. Inspection and entry by the Executive Director to the licensed site must be allowed under Texas Water Code, Chapters 26 - 28 and 32, Texas Health and Safety Code, §§361.032, 361.033, 361.037, 401.057(a), and 401.063, and Title 40 Code of Federal Regulations (CFR) §122.41(i). The statement in Texas Water Code, §26.014, that commission entry of a facility shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the facility, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.
25. This license may not be transferred except on approval of the commission.
26. All reports and other information requested by the Executive Director must be signed by the person and in the manner required by 30 TAC §305.128 of this title (relating to Signatories to Reports).
27. This license may be amended, suspended and reissued, or revoked for cause. The filing of a request by the Licensee for a license amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any license condition.
28. This license does not convey any property rights of any sort, or any exclusive privilege.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

29. Where the Licensee becomes aware that it failed to submit any relevant facts in a license application, or submitted incorrect information in an application, or in any report to the Executive Director, the Licensee shall promptly submit such facts or information.
30. A. The Licensee shall notify the Executive Director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
- (1) The Licensee;
  - (2) An entity (as that term is defined in 11 USC, §101(14)) controlling the Licensee or listing the license or Licensee as property of the estate;
  - (3) An affiliate (as that term is defined in 11 USC, §101(2)) of the Licensee; or
  - (4) Valhi, Inc.
- B. This notification must indicate:
- (1) The name of the Licensee;
  - (2) The license number(s);
  - (3) The bankruptcy court in which the petition for bankruptcy was filed; and
  - (4) The date of filing of the petition.
31. At any time before termination of the license, the Licensee shall submit written statements under oath upon request of the commission or Executive Director to enable the commission to determine whether or not the license should be modified, suspended or revoked.
32. The Licensee shall be subject to the applicable provisions of Texas Health and Safety Code, Chapter 401, also known as the Texas Radiation Control Act (TRCA) now or hereafter in effect and to applicable rules and orders of the commission. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to the TRCA or other applicable law, or by reason of rules and orders issued in accordance with terms of the TRCA.
33. Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of the TRCA, or because of conditions revealed by any application or statement of fact or any report, record, or inspection or other means that would warrant the commission to refuse to grant a license on the original application, or for failure to operate the facility in accordance with the terms of the license, or for any violation of or failure to observe any of the terms and conditions of the TRCA or other applicable law or the license or of any rule or order of the commission.
34. No by-product material may be disposed of until the Executive Director has inspected the facility and has found it to be in conformance with the description, design, and construction described in the application for the license. No by-product material may be received for disposal at the site until the Executive Director has approved financial assurance.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

35. The commission may incorporate in this license at the time of issuance, or thereafter, by appropriate rule or order, additional requirements and conditions with respect to the Licensee's receipt, possession, and disposal of by-product material as it deems appropriate or necessary in order to: (1) protect the health and safety of the public and the environment; or (2) require reports and recordkeeping and to provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of the TRCA and rules thereunder.
36. Financial security in an amount and form acceptable to the Executive Director must be provided by the Licensee and deemed acceptable by the Executive Director 60 days prior to the Licensee's receipt of by-product material for disposal. Financial security acceptable to the Executive Director in amount and form shall be maintained until license termination has been approved by the Executive Director, and the U.S. Nuclear Regulatory Commission (NRC) has concurred in that approval. The term "financial security" has the same meaning as "financial assurance."
- A. Financial security in an amount not less than \$4,266,925 (2004 dollars) for decommissioning, \$72,505 (2004 dollars) for five-years of post-operational surveillance, and \$724,310 (2004 dollars) for long-term care must be provided initially by the Licensee to the Executive Director 60 days prior to the receipt of by-product material. These amounts must be converted to current dollar amounts, by use of an inflation factor derived from the most recent annual Implicit Price Deflator for Gross National Product published by the United States Department of Commerce in its Survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.
- B. The Licensee shall reevaluate the decommissioning cost estimate on the anniversary date of this license each year and upon amendment to the license, and submit a revision of the decommissioning funding plan to the Executive Director for approval. Executive Director approval may be demonstrated by either amendment of this license to specify the current dollar amount, or a letter from the Director of the Radioactive Materials Division of the Texas Commission on Environmental Quality stating that the amount is acceptable. The licensee must provide any increase in the amount of financial security within 60 days of a determination of the cost estimate by the Executive Director.
37. The Licensee shall submit the following engineering reports to the Executive Director within 270 days of the issuance of this license, and no later than 60 days prior to the anticipated commencement of by-product material disposal operations:
- A. A complete hydraulic balance for the by-product material disposal facility utilizing all available data, including process flow diagrams showing all input and output streams from each disposal unit, disposal facility and storage tank inventory time charts, static liquid head over the primary disposal facility liner time charts, supporting calculations, assumptions, and data references for a full year of operations under the highest recorded rainfall scenarios for 24-hour, 10-day, and annual rainfalls assumed to occur in the single year studied. The basis for rainfall events are to be taken from National Weather Service (NWS) recorded data from the past 25 years for Midland/Odessa, Texas, and Hobbs, New Mexico, whichever station produces the larger rainfall amount for each time period. The Licensee shall measure and record the volume of all contact water from all sources that is placed in the contact water holding tanks. Further, the Licensee shall measure and record the volume of all contact water removed from the tanks and shall identify the disposition of the water. Records of the volumes of water collected and transferred shall be maintained at the facility for a period of three years and shall be available for inspection by the Executive Director at any time during normal business hours.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- B. An evaluation of the corrosion rates and predicted failure schedules for all actual pipelines, pumps, and tanks provided for the facility. The report must include an evaluation of pipeline freezing potential, and prevention, as applicable. The Licensee shall inspect the contact water collection, holding and transfer system in accordance with Table 37.B. Records of the inspections, results of the inspections, identification of leaks, remedial activities resulting from the inspections and identification of replaced/repaired equipment shall be maintained at the facility for a period of three years and shall be available for inspection by the Executive Director any time during normal business hours.

**Table 37.B - Inspection of Contact Water Collection, Holding and Transfer System**

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Tank Truck Loading/Unloading Areas	<ul style="list-style-type: none"> <li>• Check for evidence of spills</li> <li>• Check for removal of spill absorbent and cleanup materials</li> <li>• Check containment system base, sump, and curbs for cracks, damage</li> <li>• Check liquid levels in sumps</li> <li>• Inspect hoses, couplings, pumps, and valves for leakage</li> <li>• Inspect hoses, couplings, pumps, and valves for deterioration</li> </ul>	<p>Daily</p> <p>Daily</p> <p>Weekly</p> <p>Daily</p> <p>Daily</p> <p>Weekly</p>
Tank Containment Areas	<ul style="list-style-type: none"> <li>• Check for evidence of spilled materials</li> <li>• Check for gaps and cracks in base and walls/curbs</li> <li>• Check coating system for integrity</li> <li>• Check for evidence of seepage outside containment (e.g., discoloration)</li> <li>• Check for debris, cleanup residue, improperly stored equipment</li> <li>• Check for liquids in containment system</li> </ul>	<p>Daily</p> <p>Daily</p> <p>Weekly</p> <p>Daily</p> <p>Daily</p> <p>Daily</p>
Holding Tanks	<ul style="list-style-type: none"> <li>• Inspect tank exterior for cracks, leaks, discoloration, and obvious deformation</li> <li>• Check grounding wire for damage</li> <li>• Check tank wall thickness and integrity using appropriate methods</li> <li>• Conduct visual internal inspection</li> </ul>	<p>Daily</p> <p>Weekly</p> <p>2 years</p> <p>5 years</p>
Access Hatches and Vents	<ul style="list-style-type: none"> <li>• Check for leaks</li> <li>• Check for damage</li> </ul>	<p>Weekly</p> <p>Weekly</p>
Pumps and Piping	<ul style="list-style-type: none"> <li>• Inspect for leaks</li> <li>• Inspect for deterioration</li> </ul>	<p>Daily</p> <p>Weekly</p>
Temperature Gauges, Pressure Gauges	<ul style="list-style-type: none"> <li>• Check for operability</li> </ul>	<p>Daily</p>
Overflow System (switches, controllers, flow	<ul style="list-style-type: none"> <li>• Check for operability</li> </ul>	<p>Daily</p>
	<ul style="list-style-type: none"> <li>• Check tank liquid level indicators (overflow control monitors) for operability</li> </ul>	<p>Daily</p>



Texas Commission on Environmental Quality

# RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

control valves)		
Leak Detection and Leachate Collection Sumps	<ul style="list-style-type: none"> <li>Collect a liquid grab samples, if present</li> <li>Monitoring system sumps – wipe samples and record level in sumps and volume of any leachate pumped.</li> <li>Exterior surface of standpipe cover – wipe sample</li> </ul>	Monthly analyze liquid sample from each sump for: gross alpha, gross beta, alpha isotopic <sup>1</sup> , gamma isotopic, and liquid scintillation <sup>2</sup>

- Alpha isotopic analyses performed if confirmed gross alpha (initial result and re-analysis) exceeds natural background levels. Analyses will include radium, thorium, and uranium using the EPA and DOE modified analytical method used for the appropriate baseline analyses.
- Liquid scintillation analysis for primordial and man-made isotopes may be performed as designated by the RSO.

- The Licensee shall verify during excavation and construction of the disposal facility, by geotechnical sampling taken at the time of excavation and laboratory analysis, the original geotechnical soil design parameters and features including, but not limited to: soil moisture, bearing capacity, slope stability, and permeable soil stringers, as contained in the application. The Licensee shall cease excavation and construction when directed to do so by the Executive Director in order to sample, verify or test.
- During excavation and construction of the disposal facility, the Licensee shall provide weekly written reports and photographs to accommodate the Executive Director's inspection and observation of all excavation and construction activities. Particular attention must be directed to fractures, faults, any evidence of collapse features or groundwater flow, or unanticipated geologic features encountered. The Licensee shall cease excavation and construction when directed to do so by the Executive Director in order to sample, verify or test.
- During excavation and construction of the disposal facility, the Licensee shall perform geotechnical studies, and allow for observation by the Executive Director, to verify original geotechnical conditions by continuously monitoring parameters and features including, but not limited, to: soil moisture, bearing capacity, slope stability, and permeable soil stringers as construction progresses. The Licensee shall report verification results to the Executive Director and provide certification of geotechnical studies by a qualified geotechnical professional.
- Prior to facility construction, the Licensee shall perform and report the results for Executive Director review of the following verification and monitoring studies:
  - Install and monitor eight additional borings inside the licensed site, to monitor soil moisture conditions immediately outside the disposal unit. These borings must be located as follows: one at each corner of the proposed by-product disposal facility, and two additional borings evenly spaced along the western and northern edges to the top of the 180-Foot Sand. The north eastern-most of these borings should stop just above the sand layer, as it may be located in the confined portion of the zone.

The methods selected for monitoring shall allow for monitoring prior to waste acceptance and for annual monitoring, thereafter. Should any of these borings indicate soil saturation above the bottom of the disposal facility, disposal operations must cease to accommodate additional sampling, monitoring or testing.

- Resistivity survey verification of the previous resistivity line (T1) to re-establish as closely as



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

possible the original line, and extend to the south across the disposal facility location. A boring must be installed and logged to calibrate the resistivity survey. If the survey indicates the dry line has moved over the proposed facility, additional sampling, verification or testing must be proposed.

- C. Verification of matric potential above the 180-foot Sandstone to locate the top of the zone of saturation.
42. Prior to facility construction, the Licensee shall install five new Ogallala/Antlers/Gatuna (OAG) piezometers to the north and west of the by-product facility, between the facility and the OAG "dry line" as indicated in the application. The general locations will be: north of MW-4; east of the LSA pad; directly north of TP-42, but north of the Low-Specific Activity (LSA) pad; west of the northwest corner of the facility halfway between the facility and TP-31; in the vicinity of NMB-28; and in the general vicinity of NMB-24. The specific locations and manner for installation shall be determined by the Executive Director based upon local surface and subsurface conditions prior to installation.
  43. Prior to facility construction, the Licensee shall verify the matric potential of the subsurface Dockum formation, or red-bed formation, at the licensed site to locate the top of the zone of saturation. The Licensee must allow for observation by the Executive Director of any verification measurements or testing, provide data and interpretation of the results in a report to the Executive Director.
  44. The Licensee must conduct water level elevation measurements monthly on all wells completed in the OAG formation, and report, in writing, these elevations to the Executive Director within 10 days, to monitor potential movement in the mapped dry line. If the water level elevations are at or higher than the top of the Dockum formation at the facility, excavation shall cease in order to sample, verify or test.
  45. Thirty days prior to the receipt of by-product material for disposal, the Licensee shall provide a final geotechnical report and "as-built" construction drawings for review by the Executive Director. A Registered Professional Engineer licensed to practice in Texas shall certify that the disposal facility has been constructed in accordance with the license application and the conditions of this license.
  46. The Licensee shall minimize the potential for the introduction of water into the disposal facility.
    - A. The Licensee shall minimize the potential for the introduction of water into the Ogallala/Antlers/Gatuna (OAG) formation from the bench of the disposal unit. The Licensee must take precautions to minimize precipitation or runoff from the bench entering any active disposal unit. Exposed portions of the OAG formation shall be temporarily sealed by a 2-foot thick re-compacted clay liner of the same specifications as applied to the disposal facility liner. This temporary liner shall remain fully functional until the final cover is applied at which time the OAG and permeable layer of the cover shall be hydraulically connected.
    - B. The Licensee shall minimize the use of water or other liquid for the purpose of dust suppression in the disposal unit and on the licensed site. General nuisance dust suppression within the by-product material waste disposal facility, and within the disposal unit itself as required, shall utilize only non-contact, uncontaminated water; may utilize performance enhancing additives approved by the Executive Director; and shall be limited to those reasonable spray application rates necessary to meet the requirements of 25 TAC 289.260(o)(30)(C).
  47. The Licensee shall monitor the 125-Foot Sandstone in accordance with the following:
    - A. The Licensee shall install additional monitoring wells prior to disposal of by-product material,



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

constructed to the specifications required by the Executive Director at the time of installation. The monitor wells shall be spaced around the perimeter of the by-product material disposal facility every 200 feet.

- B. The Licensee shall monitor these wells quarterly for the presence of water and the water level elevation.
- (1) If water is detected in any well(s), the Licensee shall notify the Executive Director in writing within seven (7) days of the first occurrence of this condition, otherwise the reporting period must be quarterly.
  - (2) If sufficient water exists to take a sample, it shall be collected and analyzed in compliance with the by-product material disposal facility sampling plan for radiological constituents specified in the procedure entitled "Groundwater Sampling" and identified as BP-EV-7.1.8.
  - (3) Non-radiological contaminant concentration limits will fall under the jurisdiction of 30 TAC 350, the Texas Risk Reduction Program and the provisions of 25 TAC §289.260(o)(9) and (10) for hazardous constituents.
48. The Licensee shall monitor on-site wells quarterly for the presence of any non-radiological, hazardous constituents consistent with the received by-product material waste streams. The analytical results, including laboratory quality control summary data, must be reported in writing to the Executive Director within 30 days of receipt of the results.
49. The Licensee shall divert drainage of water away from areas of potential recharge for piezometers TP-42 and TP-43 within 60 days of the issuance of this license.
50. The licensee shall perform the following activities related to erosion and deposition monitoring:
- A. The Licensee shall install, maintain, and monitor an erosion pin array near the by-product material disposal facility to monitor local erosion. The location of the erosion pin array shall be in the drainage feature west of the by-product disposal facility just beyond the present spoil piles.
  - B. The Licensee shall measure erosion and deposition at the pin array and report the measurements in writing to the Executive Director on a quarterly basis.
51. In the event that the spoil piles west of the by-product disposal facility are removed by natural or man-made means, the Licensee must redirect the drainage away from the disposal facility. The intent of the realignment is to direct potential future erosion away from the by-product disposal facility. The proposed design must be submitted to and approved by the Executive Director prior to implementation.
52. Sixty days prior to the receipt of by-product material for disposal, the Licensee shall log the Central Industrial Well (also known as the great Western Drilling Company Scratch Royalty #1A), analyze the condition of the well and condition of the cement behind pipe to ensure and prevent the well bore from providing a conduit for contaminants to lower aquifers. Within 30 days of logging the wells and analyzing the conditions of the wells, the Licensee shall submit a report on the condition of the wells to the Executive Director. Based on the condition of the well or cement behind pipe, appropriate remedial action may be required by the Licensee.
53. The Licensee shall follow all procedures provided in the application, except as required in this license.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

The following requirements are related to standard operating procedures:

- A. The development or revision of a standard operating procedure involving by-product material shall be done with the oversight of the RSO.
  - B. Prior to implementing new or revised standard operating procedures that involve by-product material, the Licensee shall obtain approval of the commission by amendment of the license.
54. Sixty days prior to the receipt of by-product material for disposal, the Licensee shall submit waste emplacement procedures for the Executive Director's review.
55. The Licensee shall conduct audits and a review of the radiation safety program in accordance with the following:
- A. At intervals not to exceed 12 months;
  - B. Include all of the items listed in Section 5.1.2 of procedure BP-RS-1.2.1 as activities conducted to evaluate specific components of an audit; and
  - C. Include observation of the performance of radiation safety procedures as a part of an audit of the radiation safety program.
56. A. The Licensee shall require all persons (employees and/or contractors) who work in the By-product Material Disposal Facility to successfully complete the licensee's basic radiation safety training course, without exception.
- B. The Licensee shall provide training to radiation workers covering the topics indicated in Section 5.5 and Section 5.5.1, of the Licensee's BP-RSP-100 Radiation Safety Program, indicated to be for radiation workers and basic radiation safety training, respectively. A minimum of 16 hours of training shall be provided to each radiation worker.
57. The Licensee must comply with the following regarding personnel dosimetry:
- A. The Licensee must provide personnel dosimetry to all employees and contractors who enter the by-product material disposal facility.
  - B. The Licensee shall revise the Dosimeter User Instructions, identified in the application as BP-RS-2.1.1-4, to include an instruction to the users of personnel dosimetry that personnel dosimetry must be worn at all times in the By-product Material Disposal Facility.
  - C. The Licensee shall comply with the following regarding the storage of dosimeters issued to employees when the dosimeters are not in use:
    - (1) The Licensee shall provide a place for storage of dosimeters issued to personnel when personnel exit the restricted area;
    - (2) The place for storage of issued dosimeters (when not in use) shall be in an area determined to be of natural-background radiation;



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- (3) A control dosimeter shall be located in the issued dosimeter storage area; and
  - (4) The control dosimeter for the issued dosimeter storage area shall be exchanged and processed at the same frequency as the dosimeters issued to personnel.
58. The Licensee must comply with the following regarding training and operations:
- A. Visitors to By-product Material Disposal Facility shall be escorted by personnel trained in the facility's safety procedures. A maximum of five (5) visitors may be escorted by a single trained person.
  - B. All clerical and office support staff shall be given safety training which may be an abridged version of that given to operations personnel. If any one of these employees transfers to other duties, the employee shall be given appropriate radiation safety training for his or her new assignments.
  - C. All female employees shall be given instruction concerning prenatal radiation exposure.
  - D. The Licensee shall make a record of the training provided to all of the above. The record shall indicate the name of the individual receiving the training or instructions, the date the training or instruction is provided, the results of examinations for course material retention, and the name of the training course provider or instructor.
59. Prior to the receipt of by-product material for disposal, as part of the acceptance process, the Licensee shall require the generator/shipper of by-product material to provide a chemical constituent profile of any by-product material offered for disposal. The chemical constituent profile shall list the chemicals contained in the by-product material and their concentration.
60. The Licensee shall randomly sample shipments of by-product material received at the by-product material disposal facility to confirm that the material is as manifested and is consistent with the definition of by-product material in accordance with the following:
- A. Five (5) percent of the shipments received shall be sampled, that is, one (1) out of every twenty vehicles delivering by-product material for disposal to the by-product material disposal.
  - B. The samples shall be analyzed to ensure that only by-product material is received at the facility. The analysis shall consist of, at a minimum of, alpha and gamma spectroscopy to identify any radionuclides that do not fit within the decay schemes of uranium-238 and thorium-232.
  - C. The Licensee shall make a record of each sampling and analysis. The record shall indicate the following:
    - (1) Date(s) of sampling and analysis;
    - (2) Person performing the sampling;
    - (3) Method/procedures used to perform sampling;



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- (4) Results of the analysis;
- (5) Identity of the shipper; and
- (6) Actions taken if material is not consistent with manifest, or is not by-product material.

D. The Fernald Silos 1 and 2 – Stabilized Uranium Ore Processing Residues canisters, which were previously received for storage at the Licensee's site, are excluded from random sampling for verification that material is as manifested.

- 61. The Licensee shall perform and document visual inspection and radiation surveys of all incoming radioactive material packages in accordance with Procedure No. BP-RS-4.2.1, titled "Survey of Incoming and Outgoing Radioactive Materials." The Licensee shall wipe an area of 300 square centimeters to test for removable contamination, per the requirements of 25 TAC §289.202(ee)(4)(A).
- 62. The Licensee shall make available for inspection and review by the Executive Director immediately upon request, all records required by this license, the applicable rule (i.e., 25 TAC Chapter 289, or 30 TAC Chapter 336), statute, or committed to by the Licensee in the referenced application, procedures and correspondence.
- 63. The Licensee shall survey all equipment and vehicles immediately prior to leaving the restricted area as described in procedure BP-RS-4.2.2, titled "Transport Vehicle Release Surveys". The Licensee shall not allow any vehicle or equipment to leave the restricted area for release to unrestricted use until it is demonstrated to not exceed the surface contamination limits criteria specified at 25 TAC, §289.202(ggg)(6).
- 64. The License shall maintain operation of the leachate collection and leak detection systems through site closure.
- 65. The Licensee shall make a record of inspections performed daily and certified by a qualified person to verify the integrity of the by-product material retention systems per the requirements of 25 TAC §289.260(g)(1). The inspection records shall indicate the date of the inspection, the person making the inspection, list the items inspected and note the findings of the inspection with respect to the by-product material retention systems. In addition to the items listed in Section 3.11 of Volume 1 of the application, the Licensee shall daily inspect any containers of by-product material stored or staged on the receiving pad and the contact water tanks. The Licensee shall maintain the records of the inspections performed. The Licensee shall make the records of inspections performed available, immediately upon request, for inspection and review by the Executive Director.
- 66. The Licensee shall designate all of the area within the confines of the security fence surrounding the by-product material disposal facility as a restricted area for the purpose of controlling exposure to ionizing radiation.
- 67. To demonstrate compliance with License Condition 7.A, the Licensee shall record volume and radioactivity of each waste emplacement made into the disposal facility, the date and location of placement, the date of receipt at the by-product material disposal facility, and the name, address and radioactive material license number of the generator. The Licensee shall use a record keeping system that provides a running total of the volume and radioactivity of by-product material disposed.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

68. Eating, drinking, and/or smoking shall not be allowed within the restricted area or in any area where radioactive material is handled, transferred, or processed.
69. The Licensee shall designate any area where the total airborne radioactivity, as determined by air sampling, exceeds  $5 \times 10^{-13}$  microcuries per milliliter total activity as an airborne radioactivity area.
70. The Licensee shall monitor for radon at the facility. Procedures and monitoring locations must be submitted for the Executive Director's review prior to receipt of by-product material for disposal.
71. If historic or cultural properties are encountered during construction, operation, decommissioning, or any other activities, the Licensee shall cease work at the immediate vicinity of that site and shall notify the State Historical Preservation Officer, the Advisory Council on Historic Preservation, and the Executive Director. These agencies shall be afforded an opportunity to comment in accordance with Protection of Historic and Cultural Properties (Federal Register Notice, Vol. 44, No. 21, January 30, 1979).
72. The Licensee shall post the security fence enclosing the 36.39 acre by-product material disposal facility. The postings shall comply with the following:
  - A. The postings shall read: "Restricted Area, Unauthorized Entry is Prohibited."
  - B. The lettering on the posting shall be clearly visible and legible from a distance of 100 feet by a person with 20/20 vision.
  - C. The postings shall be spaced at intervals of not less than 200 feet around the circumference of the security fence.
  - D. The postings shall be placed at a height of between five (5) feet and six (6) feet above the surface of the ground.
73. The Licensee shall obtain all permits and licenses required by federal, State and/or local authorities prior to commencing any operations. Copies of all such permits, licenses, and their respective amendments shall be provided to the Executive Director within 30 days of their receipt by the Licensee.
74. The Licensee shall not begin any operations without the required Texas Commission on Environmental Quality (TCEQ) permit(s) and/or authorization(s) and shall abide by the requirements of any TCEQ permit, authorization, and/or rule. The Licensee shall notify the Executive Director of any proposed modifications to any TCEQ permit(s) and/or authorization(s) and of their final approval.
75. All records required by this license, the applicable rule (i.e., 25 TAC Chapter 289, or 30 TAC Chapter 336), statute, or committed to by the licensee in the referenced application, procedures and correspondence shall be made available immediately upon request for inspection and review by the Executive Director.
76. The Licensee shall maintain records of the following for review by the Executive Director: monitoring,



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

sampling, and analyses programs; transfer, shipments, and disposal of radioactive materials; program audits, inspections, surveys, and any other records required by this license, 25 TAC §289.201, §289.202, §289.203, §289.204, §289.205, §289.251, §289.252, §289.257, or §289.260.

77. The Licensee shall submit to the Executive Director each year, no later than September 1 for the period of January 1 through June 30 and March 1 for the period of July 1 through December 31, a report specifying the quantity of each principle radionuclide released to unrestricted areas in liquid and in gaseous effluents (including particulates) during the specified semi-annual period of operations.
78. During the first week of each quarter, the Licensee shall provide a report to the Executive Director that states any change in plans for the following quarter. Once operations as defined here are started, the RSO and/or other designated officials shall prepare an annual report on the following areas of the radiation safety program:
- A. health physics authority and responsibility;
  - B. operating procedures involving the handling, processing, and/or storage of radioactive materials;
  - C. control of airborne by-product material, and radon 222;
  - D. records of audits, inspections, and surveys conducted by the facility RSO (for timeliness and the resolution of any problems);
  - E. personnel radiation protection programs, including employee exposure records and internal dose assessment records (e.g., air sampling results, whole body counting results, bioassay procedures and results);
  - F. radiation safety training program and records;
  - G. respiratory protection program as specified in 25 TAC §289.202(x);
  - H. records of all required radiological surveys, sampling, wipe tests, inspections, and environmental monitoring;
  - I. facility and equipment and by-product material storage locations; and
  - J. compliance for the previous 12 months with the requirements of 25 TAC §289.201, §289.202, §289.203, §289.204, §289.205, §289.251, §289.252, §289.257, §289.260, any other applicable federal and state regulations, and the conditions of this license.
  - K. These reports shall be maintained by the Licensee for review by the Executive Director for a period of three (3) years.
79. The following requirements are related to personnel surveys and monitoring:



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- A. The licensee shall establish monitoring/frisking stations at all exits to the restricted area.
- B. All persons exiting the restricted area shall be surveyed/frisked for alpha and beta/gamma contamination.
- C. Any reading above background detected on personnel upon exiting shall be indicative of contamination.
- D. The Licensee shall make a record of all surveys. The record shall include as a minimum the following information:
- (1) Date,
  - (2) Identity of person being surveyed,
  - (3) Identity of person performing survey,
  - (4) Make, model and unique identification of instrument/probe used to perform the survey,
  - (5) Results of survey, and
  - (6) If contamination indicated, action taken.
80. If the Licensee uses bioassay data or whole body counting data to derive the committed effective dose equivalent (CEDE) for personnel, the Licensee shall engage the services of a qualified dosimetrist to evaluate the whole body counting data and/or bioassay data and calculate the CEDE. The calculation and supporting information are subject to review by the Executive Director.
81. The Licensee shall monitor for occupational exposure to radon and include the occupational exposure to radon in the calculation of the total effective dose equivalent for employees. The calculation and supporting information are subject to review by the Executive Director
82. The Licensee shall perform monthly surveys to determine the airborne concentration of radon-222 (Rn-222) and/or Rn-222 progeny in working areas where concentrations may exceed 10% of the limits in 25 TAC §289.202(ggg)(2) Table I, Column 3. If airborne concentrations exceed 10% of these limits, then surveys shall be performed weekly until four consecutive weekly samples are below 10% of the limits. These working areas shall include, as a minimum, the areas in the disposal units where by-product emplacement activities occur, and areas down-wind of the disposal units at the surface of the by-product material disposal facility where workers may be present.
83. In addition to calibration of the air samplers at intervals not to exceed six months, the Licensee must also calibrate air sampler flow meters after repairs or modifications to the air flow meter have occurred, or if the air flow meter is damaged.
84. Respirators made available for reissuance or reuse must show no removable contamination in excess of 100 dpm/100 cm<sup>2</sup> alpha, and/or in excess of 1,000 dpm/100 cm<sup>2</sup> beta gamma (as determined by standard wipe or smear techniques), and no fixed beta gamma contamination in excess of 0.2 mR/hr above background on contact.



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

85. Along with complying with all confined space entry requirements and before any work, including maintenance, repair, cleaning, dismantling or other such activities, is performed within closed tanks on the licensed facility which may contain or have contained radioactive materials, radiation work permits (or their equivalent) shall be submitted to the RSO. The RSO shall survey all tank interiors using radiological measuring and detection instruments and wipe methods to determine if contamination is present prior to any work being performed. If contamination exceeding 220,000 dpm/100 cm<sup>2</sup> is found or if the RSO does not perform such a survey, then protective clothing and respiratory protection shall be worn by employees during the performance of operations.
86. The Licensee must comply with the following regarding fixed and removable contamination:
- A. The Licensee shall conduct surveys for fixed and removable alpha contamination, by standard wipe or smear methods, at least monthly in all eating areas, shower and change areas, administrative areas, control rooms, and laboratories. Surfaces which have removable alpha contamination greater than the limits stated in 25 TAC §289.202(ggg)(6) shall be decontaminated.
  - B. Gamma surveys shall be conducted quarterly at all work stations and vessels which contain or have contained radioactive materials.
  - C. Each employee (including temporary and contract workers) shall be surveyed before leaving the restricted area. The worker's skin, clothing, and shoes shall be surveyed with a radiation detection instrument for removable external contamination. Removable external contamination on clothing or shoes exceeding the limits stated in 25 TAC §289.202(ggg)(6) shall be removed before the worker departs the restricted area. Results of all worker surveys shall be maintained in a log book at the survey location.
  - D. At least monthly, the RSO shall conduct an unannounced audit of each alpha survey location to ensure that workers follow the survey and administrative procedures.
87. All survey and monitoring program records shall be maintained for review by the Executive Director.
88. Any soil outside the disposal unit exceeding the following limits shall be removed and disposed of as by-product material, unless alternative methods of disposal and/or processing are authorized by the Executive Director:
- A. Radium-226 or radium-228 in soil, averaged over any 100 square meters (m<sup>2</sup>), shall not exceed the background level by more than 5 picocuries per gram (pCi/g) (0.185 becquerel per gram (Bq/g)), averaged over the first 15 centimeters (cm) of soil below the surface; and 15 pCi/g (0.555 Bq/g), averaged over 15 cm thick layers of soil more than 15 cm below the surface.
  - B. Natural uranium in soil, with no daughters present, averaged over any 100 m<sup>2</sup>, shall not exceed the background level by more than 30 pCi/g (1.11 Bq/g), averaged over the top 15 cm of soil below the surface; and 150 pCi/g (5.55 Bq/g), average concentration at depths greater than 15 cm below the surface so that no individual member of the public will receive an effective dose equivalent in excess



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

of 100 millirem (1 milliSieverts) per year.

- C. Where background radiation levels for soils were not established before the soil surface was disturbed, the background levels shall be established by sampling nearby locations which have not been disturbed by on-site by-product material transport, handling, processing, or disposal. The background levels established by this means are subject to approval by the Executive Director.
89. Solid by-product material intended for disposal shall not be stored for more than 60 days, without written permission from the Executive Director.
90. The Licensee shall include as a part of the decommissioning of the by-product material disposal facility for the management of any equipment, vehicle, structure or portion of a structure (including concrete foundations), or discrete solid objects such that they shall not be released from the facility for unrestricted use until it is demonstrated by survey that it does not exceed the surface contamination limits specified at 25 TAC §289.202(ggg)(6), or will be transferred to a person possessing a radioactive material license issued by either an Agreement State or the NRC authorizing the possession of the specific radionuclide(s) and activities contaminating the item, or will dispose of the item by placement into the last disposal unit, and will remove any soils at the facility that exceed the contamination limits specified at 25 TAC §289.202(eee)(4) and (6), that is, radium-226 or radium-228 concentration shall not exceed 5 pCi/g averaged over the first 15 cm of soil below the surface, and shall not exceed 15 pCi/g averaged over any 15 cm thick soil layer more than 15 cm below the surface of the soil, and shall not exceed 30 pCi/g of natural uranium averaged over the top 15 cm of soil below the surface, and 150 pCi/g average concentration at depths greater than 15 cm, so that no individual member of the public will receive an effective dose equivalent in excess of 100 millirem (1 milliSieverts) per year, and shall place those soils in the disposal unit.
91. Regarding interest in the mineral estate where the by-product material disposal facility is located, the Licensee shall comply with the following:
- A. The Licensee shall make a good faith effort to acquire fee simple title to all mineral rights underlying the disposal area. The Licensee shall report annually to the Executive Director all efforts to acquire outstanding mineral interests. The report must describe the efforts made during the proceeding year to acquire fee simple title to all mineral rights underlying the disposal area, must identify the owners and extent of mineral interests not yet acquired by the Licensee, and must state the amount of mineral interests underlying the disposal area owned by the Licensee. The Licensee shall maintain records of all conveyances and correspondence relating to the acquisition of mineral rights.
- B. The Licensee shall file notification in the public lands records of Andrews County of the fact that the land underlying the disposal area is being used for the disposal of radioactive material and is subject to a license prohibiting the disruption and disturbance of the radioactive material. Within 60 days of the first emplacement of by-product material in the disposal area, the Licensee shall provide to the Executive Director a certified copy of the filed notification.
92. A. The Licensee shall conduct the following radiological and non-radiological environmental



Texas Commission on Environmental Quality  
**RADIOACTIVE MATERIAL LICENSE**

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

monitoring program until the license is terminated.

Sample	Station Location Reference	Location <sup>7</sup>	Method	Frequency <sup>5</sup>	Type of Analysis
Air Particulate <sup>6</sup>	1	East of guard house	high-vol. Sampler	Continuous	Collect samples on a weekly or more frequent basis as required due to dust loading from each location and analyze monthly composite samples for: gross alpha, gross beta, Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
	3	Northwest of RCRA landfill			
	4	North of RCRA landfill			
	6	Northwest facility fence line			
	7	North fence line center of RCRA permit area			
	8	Southeast rail yard			
	9	Control station 3.5 mi. east of TX/NMex state line, south of Hwy 176			
	P11	East of by-product facility and west of Federal facility			
	26	About center of east edge of RCRA permit area (north of old ranch house)			
	27	Southeast of facility operational area (prevalent upwind direction)			
	P30	North of by-product facility			
	P31	Southwest of facility (approximately 1-4 0.25 mile west of Texas/New Mexico border			
P32	North of rail road spur				
Radon	1	East of guard house	track-etch detector	quarterly	radon
	3	Northwest of RCRA landfill			
	4	North of RCRA landfill			
	6	Northwest facility fence line			
	7	North fence line center of RCRA permit area			
	8	Southeast rail yard			
	9	Control station 3.5 mi. east of TX/NMex state line, south of Hwy 176			
	P11	East of by-product facility			
	26	About center of east edge of RCRA permit area (north of old ranch house)			
	27	Southeast of facility operational area (prevalent upwind direction)			
	P30	North of by-product facility			
	P31	Southwest of facility (approximately 0.25 mile west of Texas/New Mexico border			
P32	North of rail road spur				



Texas Commission on Environmental Quality  
**RADIOACTIVE MATERIAL LICENSE**

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

Sample	Station Location Reference	Location <sup>7</sup>	Method	Frequency <sup>5</sup>	Type of Analysis
Surface water	18	West of by-product facility (Baker Spring)	grab	semi-annual when sufficient water is present	Analyze samples from each location for: gross alpha, gross beta Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
Sediment	18	West of by-product facility (Baker Spring)	grab	annual	Analyze samples from each location for: gross alpha, gross beta Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
Ground water <sup>9</sup>	9	Control station 3.5 mi. east of TX/NMex state line, south of Hwy 176	grab	quarterly	Analyze samples from each location for <sup>4</sup> : gross alpha, gross beta, Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
	11A <sup>10</sup>	Well in the "225-foot zone" located southeast of by-product facility	grab	quarterly	
	11B <sup>10</sup>	Well in the "225-foot zone" located south of by-product facility	grab	quarterly	
	11C <sup>10</sup>	Well in the "225-foot zone" located southwest corner of by-product facility	grab	quarterly	
	11D <sup>10</sup>	Replacement well in the "225-foot zone" located west of by-product material landfill	grab	quarterly	
	11E-G <sup>10</sup>	East of by-product material landfill	grab	quarterly	
	3A <sup>10</sup>	North of by-product facility	grab	quarterly	
	3B <sup>10</sup>	North of by-product facility	grab	quarterly	
	A-16 <sup>11</sup>	OAG well located southeast of compact facility	grab	quarterly	
	A-22	Well in the "225-foot zone" located southeast of the compact facility and A-16	grab	annually	
	A-24	Well in the "225-foot zone" located southeast of the compact facility and east of A-22	grab	annually	
	5E-A	Well in the "225-foot zone" located south of the by-product facility	grab	annually	
	6B2	Well in the "225-foot zone" located in the northern perimeter of the federal facility	grab	annually	
DW35A	Well in the "225-foot zone" locate south of the RCRA landfill	grab	annually		
PM-01	OAG well located in northeast portion of RCRA permit area	grab	Annually <sup>12</sup>		



Texas Commission on Environmental Quality

# RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

Sample	Station Location Reference	Location <sup>7</sup>	Method	Frequency <sup>5</sup>	Type of Analysis
	PM-03	Well in the "225-foot zone" located in the northeast portion of RCRA permit area	grab	annually	
	PM-06	Well in the "225-foot zone" located northeast of compact facility	grab	annually	
	PM-07 <sup>11</sup>	OAG well located in eastern portion of RCRA permit area, northwest of old ranch house	grab	quarterly	
	TP-14 <sup>11</sup>	OAG well located northeast of federal facility	grab	quarterly	
	TP-18 <sup>11</sup>	OAG well located just outside the northeast corner of federal facility	grab	quarterly	
	TP-19 <sup>11</sup>	OAG well located north of the compact facility	grab	quarterly	
	TP-20 <sup>11</sup>	OAG well just north of RCRA permit area, between stations 7 and 16	grab	quarterly	
	TP-31 <sup>11</sup>	OAG well located at Bakers Springs	grab	quarterly	
	TP-46 <sup>11</sup>	OAG well located south of the federal facility	grab	quarterly	
	Vadose Zone Wells <sup>10</sup>	All wells completed in the "125-foot zone" located along all sides of the by-product landfill <sup>4</sup>	grab	quarterly	
Vegetation <sup>5</sup>	3 6 8 9	Northwest of RCRA landfill Northwest facility fence line Southeast rail yard Control station 3.5 mi. east of TX/NMex state line, south of Hwy 176	Grab	spring and autumn <sup>3</sup>	Analyze samples from each location for: gross alpha, gross beta, Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
Soil	3 6 8 9 22 26	Northwest of RCRA landfill Northwest facility fence line Southeast rail yard Control station 3.5 mi. east of TX/NMex state line, south of Hwy 176 Northwest corner, by-product facility fence line About center of east edge of RCRA permit area (north of old ranch house)	Grab	quarterly-	Analyze samples from each location for: gross alpha, gross beta, Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
Fauna	General Site Area	Primary herbivore	Grab	annually	Analyze samples from each location for: gross alpha, gross beta



Texas Commission on Environmental Quality  
**RADIOACTIVE MATERIAL LICENSE**

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

Sample	Station Location Reference	Location <sup>7</sup>	Method	Frequency <sup>5</sup>	Type of Analysis
					Alpha isotopic <sup>1</sup> , Gamma Isotopic, Liquid Scintillation <sup>2</sup>
Meteoro-logical	Onsite Met. Station	2 meters	reading	10 minute averages <sup>8</sup>	precipitation, barometric pressure, solar radiation scalar wind speed and direction, temperature, relative humidity, standard deviation scalar wind direction
Meteoro-logical	Onsite Met. Station	10 meters	reading	10 minute averages <sup>8</sup>	vector wind speed and direction, scalar wind speed and direction, temperature, relative humidity, standard deviation vector and standard deviation scalar wind direction
Ambient radiation	1 3 4 6 7 8 9 P11 12 13 14 15 16 17 18 19	East of guard house Northwest of RCRA landfill North of RCRA landfill Northwest facility fence line North fence line center of RCRA permit area Southeast rail yard Control station 3.5 mi. east of TX/NMex state line, south of Hwy 176 East of by-product facility and west of Federal facility Southwest of by-product facility on the Texas NM border) <sup>4</sup> Southwest corner of property line. Southwest of facility(approximately 0.5 mile west of TX/NM border) Northwest corner of Texas – NM border Northeast corner of RCRA permit area Southeast corner near Hwy 176 West of by-product facility (Baker Spring) North of proposed Federal facility	TLD (for all locations)	quarterly (for all locations)	Ambient gamma radiation measurements taken at each location.



Texas Commission on Environmental Quality  
**RADIOACTIVE MATERIAL LICENSE**

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

Sample	Station Location Reference	Location <sup>7</sup>	Method	Frequency <sup>5</sup>	Type of Analysis
	21	Northeast corner, by-product facility fence line.			
	22	Northwest corner, by-product facility fence line.			
	23	West of by-product facility			
	24	Southeast corner, by-product facility fence line.			
	25	Old ranch house on east edge of RCRA facility			
	26	About center of east edge of RCRA permit area (north of old ranch house)			
	27	Southeast of facilities operational area (prevalent upwind direction)			
	28	Approximately 1000 feet east of Station 8			
	P30	North of by-product facility			
	P31	Southwest of facility (approximately 0.25 mile west of Texas/New Mexico border)			
	P32	North of proposed rail road spur			

- Alpha isotopic analyses performed if confirmed gross alpha (initial result and re-analysis) exceeds investigation limit (IL). Analyses will include radium, thorium, and uranium using the EPA and DOE modified analytical method used for the appropriate baseline analyses.
- Liquid scintillation analysis for primordial and man-made isotopes may be performed as designated by the RSO.
- No vegetation sample is required if sufficient live vegetation can not be obtained within 200 feet of the air sampling station, as per WCS sampling procedure BP-EV-7.1.7.
- Compositing of groundwater from any and all 125 ft vadose zone wells is permitted to obtain a sufficient groundwater sample volume for analysis.
- Unless noted otherwise, analysis frequency is same as sample collection frequency.
- Air particulate filters shall be replaced weekly or more frequently if excessive loading develops.
- Refer to Figure 4.1, "By-product Disposal Facility Environmental Monitoring Locations." Some locations may vary due to construction of disposal units or other facility features.
- 90% data retrieval.
- Groundwater samples shall be collected in accordance with ASTM D 4448 – 85a (1992), "Standard Guide to Sampling Ground-Water Monitoring Wells" with the exception of using the well's purge water for the sample if insufficient water can be obtained through natural recharge of the well. Samples for analyses of radionuclides shall be filtered by the laboratory through a 0.45 µm membrane filter prior to analyses. Samples shall be analyzed according to the following prioritization criteria: i) gross alpha and beta, ii) gamma spectrometry, and iii) alpha spectrometry.
- The Licensee shall conduct operational non-radiological contaminant sampling and analysis, as required, as governed by the non-radiological hazardous constituents which are determined to be present in the by-product material which may be accepted for disposal in the by-product material disposal facility.
- OAG wells shall be inspected and measurements shall be made of the depth to liquid on a quarterly basis. Records of



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

these measurements shall be maintained in the facility operating record until the license is terminated and shall be made available for inspection by the Executive Director at any time during normal business hours.

- B. Duplicate Samples and Other Environmental Samples. The Licensee shall provide the Executive Director an opportunity to obtain duplicate samples concurrent with the Licensee's data collection schedule. In addition, the Licensee shall allow the Executive Director the ability to obtain any environmental media sample(s) the Executive Director deems necessary.
- C. Evaluation of Data. The Licensee shall evaluate monitoring data using a two-tiered environmental monitoring response system (i.e., investigation and action levels) as described in Volume 4, Appendix 4.B, Procedure BP-EV-1.1.0, Section VIII of the Licensee's application. The results of the evaluation must be included in the annual environmental monitoring report to the Executive Director.
- D. Transitional Monitoring Period. The Licensee shall provide for a transitional environmental monitoring period whenever program components, including sampling locations, equipment, techniques, or laboratories, are changed. This transitional monitoring period must include parallel monitoring with both the old and new conditions for at least one sampling period or as directed by the Executive Director.
- E. The Licensee shall collect, at a minimum, the following additional baseline environmental monitoring data for a minimum period of one year prior to disposal:
- (1) Air Particulate - Air particulate data shall be collected from all air particulate stations as specified in License Condition 92A, with the exception that analyses shall include, for all samples, alpha isotopic and liquid scintillation parameters.
  - (2) Groundwater. - Groundwater samples shall be collected on a quarterly basis from all existing wells identified in License Condition 92A; In addition to the gross alpha and gross beta analyses, these samples shall be analyzed for uranium and thorium isotopes, gross alpha, gamma isotopic, and liquid scintillation.
  - (3) Non-Radiological Contaminants: The Licensee shall conduct quarterly baseline non-radiological contaminant sampling and analysis of groundwater for a period of one year.

If one year of baseline environmental monitoring data has not been collected and analyzed prior to the completion of disposal unit construction, the emplacement of Fernald Silos 1 & 2 waste may begin.

Samples for non-radiological baseline monitoring shall be collected from groundwater monitoring wells identified in License Provision 92A where these wells yield sufficient groundwater for sampling. All samples shall be analyzed for hazardous constituents as discussed in License Condition 92.I.

- F. Data Evaluation Procedures. The Licensee shall develop control charts and/or nonparametric prediction limits for all environmental media measurements which will be used to determine whether contamination may be migrating from the site as seen by increasing trends in the periodic analyses. For whichever statistical monitoring method is used, a minimum of one year of data is



Texas Commission on Environmental Quality

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

required for each parameter under review. Prior to the disposal of by-product material, the Licensee shall submit a report to the Executive Director that includes the control charts, or prediction limits; the individual baseline measurements used to determine the control charts or prediction limits; and the analytical methods used for determining the control charts or prediction limits. The Licensee shall use the statistical evaluation values for determining whether contamination may be migrating from the disposal facility. (see WCS App., Vol. 4, Procedure BP-EV-1.1.0).

- G. Baker Spring Sampling Event. Prior to the disposal of by-product material, the Licensee shall conduct additional surface water and sediment sampling event of the Baker Spring surface water feature. These samples shall be analyzed for gross alpha, gross beta, alpha isotopic, gamma isotopic, and liquid scintillation parameters using all EPA and DOE Methods shown at the bottom of Table 2.28, "Pre-Operational Data for Baker Spring", included in the license application.-
- H. Pre-operational Fauna Samples. The Licensee shall submit, for review by the Executive Director, fauna sampling data from the existing site-wide perimeter monitoring program for determining whether this sample data can be used as a baseline for comparison with fauna samples taken during the site's operational period.
- I. Sampling of Non-Radiological Contaminants: The Licensee shall conduct quarterly baseline non-radiological contaminant sampling and analysis of all groundwater monitoring wells for a period of one year. All wells which yield sufficient water will be sampled for volatile and semi-volatile organic compounds, pesticides, polychlorinated biphenyls, cyanide, and metals. The Licensee shall conduct operational non-radiological contaminant sampling and analysis, as required, as governed by the non-radiological hazardous constituents which are determined to be present in the by-product material which may be accepted for disposal in the by-product material disposal facility. Samples for these non-radiological constituents shall be performed in all 125-foot and 225-foot monitoring wells which are located at the perimeter of the by-product material disposal facility.
- J. In the event that the 125 Foot zone indicates a release beneath the by-product disposal facility, installation and monitoring of wells in the 180 Foot zone must occur. This would follow Executive Director approval of a proposed monitoring plan, submitted within 90 days of release detection.
- K. Reporting Investigative and Action Level Exceedances: The Licensee shall immediately report any confirmed environmental investigative and/or action level exceedances to the Executive Director, in addition to the reporting requirements of 25 TAC §§289.220(xx), 25 TAC §§289.220(yy), and 25 TAC §289.260(g)(2)(A). Release of effluents to unrestricted areas in this case would include releases of leachate to any groundwater surrounding the by-product facility. The Licensee shall submit immediate notification within four (4) hours of confirmation of the analysis results using either facsimile, electronic mail, or other acceptable written or electronic form and shall include, to the extent that the information is available at the time of notification, the following information:
- (1) the caller's name and call back telephone number;
  - (2) a description of the event, including date and time;
  - (3) the exact location of the event;
  - (4) the isotopes, quantities, and chemical and physical form of the radioactive material involved;
  - (5) a description of the event, including the probable cause and the manufacturer and model number (if applicable) of any equipment that failed or malfunctioned;
  - (6) corrective actions taken or planned and the results of any evaluations or assessments; and



Texas Commission on Environmental Quality

# RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

- (7) the extent of exposure of individuals to radioactive materials without identification of individuals by name.

The Licensee will follow-up with a written report within 30 days which, in addition to the immediate notification information, shall include:

- (1) determination, as to the amount of radioactive material released, likely sources of radioactive releases, possible location, size, and cause of any radioactive releases, and short-term actions taken and planned;
- (2) determine to the extent practicable the location, size, and cause of any radioactive releases;
- (3) determine whether any waste should be removed from the unit for inspection, repairs, or controls;
- (4) determine any other short-term and longer-term actions to be taken to mitigate or stop any effluent releases; and
- (5) the results of any remedial actions taken to date.

93. As the installation of final cover is completed, the Licensee must install settlement monitors on a 50 yard by 50 yard grid on the disposal facility final cover to allow monitoring of settlement. The location and elevations of these monitors and their respective benchmarks must be surveyed by a Texas Registered Professional Land Surveyor. Their location and elevations must be reported to at least the nearest 0.01 foot. Settlement reports (data and plots) sealed by a Texas Registered Professional Land Surveyor must be submitted to the Executive Director on a quarterly basis once a monitor is established.

94. A. The Licensee shall complete closure of the by-product material disposal unit(s) as expeditiously as practicable, considering technological feasibility, in accordance with the Closure Plan submitted with the application dated January 12, 2007.

B. Prior to requesting termination of this license, the Licensee shall complete monumentation of the by-product material disposal facility. The monument shall bear an inscription similar to the following:

Prior to requesting termination of this license, the Licensee shall complete monumentation of the tailings impoundment. The monument shall bear an inscription similar to the following:

WASTE CONTROL SPECIALISTS LLC BY-PRODUCT MATERIAL DISPOSAL SITE  
 XXX ACRES CONTAIN BY-PRODUCT MATERIAL  
 DATE OF CLOSURE: XXX  
 TONS OF CONTAINED BY-PRODUCT MATERIAL: XXX  
 CURIES/BECQUERELS OF CONTAINED RADIOACTIVITY: XXX  
 DO NOT DISTURB  
 SITE CONTAINS BURIED RADIOACTIVE BY-PRODUCT MATERIAL  
 CONTACT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

XXX = Information to be provided by Licensee

95. All written submissions to the Executive Director as required by this license shall be made to the



Texas Commission on Environmental Quality

# RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
R 05807	

following:

A. For submissions by U. S. Postal Service:

Attn: Susan Jablonski, P.E., Director  
 Radioactive Materials Division  
 Texas Commission on Environmental Quality  
 Mail Code – 233  
 P. O. Box 13087  
 Austin, Texas 78711-3087

B. For Submissions by facsimile transmission the transmission should be addressed to the attention of the Uranium and Technical Assessments Section, Radioactive Materials Division and sent to the following number:

(512) 239-6464

C. For submission of portable document file (pdf) documents by electronic mail, address to the following:

[sjablons@tceq.state.tx.us](mailto:sjablons@tceq.state.tx.us)

96. Except as specifically provided otherwise by this license, the Licensee shall possess and use the radioactive material authorized by this license in accordance with statements, representations, and procedures contained in the following:

Application dated: January 12, 2007;

Letters dated: February 27, 2007, with Attachments A and B; May 4, 2007; May 18, 2007, including revisions to the application and a Procedures Manual dated May 2007; and June 4, 2007, with revisions to the application.

If there is a conflict between a condition of this license, statements contained in the application materials, applicable provisions of Title 25 TAC Chapter 289, or Title 30 of TAC, the most stringent provision shall prevail.

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FOR THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Date \_\_\_\_\_

# ERRATA



**Draft Environmental Analysis: License Application Review for By-Product Waste Disposal from Waste Control Specialists LLC in Andrews County, Texas, License No. R 05807, October 2007**

EA-1. Facility capacity is 1,169,000 cubic yards. Possession limit should be 24,530 curies, no change.

EA-2. The following should be substituted in Section 1 of the Introduction, first paragraph, last sentence. Application Dated: January 12, 2007. Letters dated: February 27, 2007, with Attachments A and B; May 4, 2007, including revisions to the application and a Procedures Manual dated May 2007; and June 4, 2007, with revisions to the application.

EA-15. Section 4.5.3.2.3 of the EA, first paragraph, fourth bullet, remove the second sentence, that is, "The Canberra web site does not list an SOLO 300G as a model number for a product." And, change the following sentence to read "There are several types or series of PIPS detectors."

EA-18. Section 4.5.6 of the EA, third paragraph, change "BP-HS-1.24.1" to "BP-HS-2.24.1"

EA-37. Section 7.2.4.3 of the EA, third paragraph, last 2 lines, delete: "However, transportation effects will be considered in greater depth in the engineering sections of the Technical Report. Pending those findings, an environmental justice statement can be finalized by the staff." and substitute "Transportation effects will be considered in greater depth in the engineering sections of the EA, but no environmental justice statement is required or being developed."

EA-38. The following should be added to section 7.3.2 Historic Resources, 2nd paragraph: Communications were received from both Historical Commissions stating that no historic properties will be affected by this project. Letters containing that information are found in Appendix H of Appendix 11A, Socioeconomic Report, of the License Application, Volume 6.

EA-39. Numbering for the following sections in the EA should be changed from X to Y:

HISTORIC, ARCHITECTURAL AND SCENIC RESOURCES should be changed from 7.4 to 7.3

Architectural Resources should be changed from 7.3.2 to 7.3.3

Scenic Resources should be changed from 7.3.2 to 7.3.4

Conclusion should be changed from 7.3.2 to 7.3.5

References should be changed from 7.3.2 to 7.3.6

EA-40. Section 7.4.1 of the EA, second paragraph, second line to the end, delete: "For the transportation corridors through which wastes might travel to the complex from potential clients, demographic characteristics will be quite different from the Region and highly variable between specific corridors, and it is assumed that impacts will be distributed rather evenly; however, a full analysis of transportation will be done by civil engineers and reported in a separate Technical Report. Presumably, cumulative effects on government services and infrastructure will be offset by tax revenues from the WCS complex growth and development." and substitute "For the transportation corridors through which wastes might travel to the complex from potential clients, demographic characteristics will be quite different from the Region and highly variable between specific corridors, and it is assumed that impacts will be distributed rather evenly. However, transportation issues will be reviewed in engineering sections of the EA. Cumulative effects on government services and infrastructure will be offset by tax revenues from the WCS complex growth and development

Section 4.5.3.2.1 of the Environmental Analysis, last sentence, change "date" to "data."