

**WASTE CONTROL  
SPECIALISTS LLC**

January 25, 2008

Mr. Dan Eden  
Deputy Director, Office of Permitting, Remediation, and Registration  
Texas Commission on Environmental Quality  
12100 Park 35 Circle, MC-122  
Austin, Texas 78753

Reference: Radioactive Material License No. L04971

Subject: **Licensing Action Plan for a New Facility to Store Processed Resins  
and Other Types of Low-Level Radioactive Waste Generated at  
Commercial Nuclear Power Plants**

Dear Mr. Eden:

Waste Control Specialists LLC (WCS) has prepared the enclosed Licensing Action Plan to support construction and operation of a new storage facility at our site in Andrews County, Texas. This facility will be used to store Class B/C Low-Level Radioactive Waste (LLW) generated by commercial nuclear power plants across the country. The bulk of the materials are expected to be processed at a facility owned and operated by Studsvik Inc., located in Erwin, Tennessee, and then shipped to WCS for storage.

As you are aware, WCS and Studsvik have a teaming agreement for this initiative, which will provide a centralized storage option to the commercial nuclear power industry. This option is needed since waste generators in 36 states may have no alternative but to store their Class B/C LLW at their own facilities when the Atlantic Interstate Low-Level Radioactive Waste Management Compact closes its disposal facility in Barnwell, South Carolina, on July 1, 2008.

Due to the limited options for disposal of this material by waste generators upon the closure of Barnwell, we believe it is important to identify a plan that would allow for the timely approval of this request as a stand-alone amendment not coupled with other licensing actions for Radioactive Material License No. L04971.

The purpose of the Licensing Action Plan is to provide an overview of the licensing approach we wish to pursue, describe the design and safety basis of the new facility, and identify issues that need resolution with the Texas Commission on Environmental Quality (TCEQ). WCS believes that early resolution of safety and regulatory issues is crucial to the timely implementation of this plan.

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WCS requests a meeting with TCEQ to discuss this Licensing Action Plan on February 11, 2008. At this meeting, we will share additional details about the design, safety basis and contents of the license amendment request that will be formally submitted to TCEQ for review and approval by February 20, 2008.

Should you have any questions regarding this Licensing Action Plan, please contact me at (972) 450-4233 or Mr. Jeffrey Skov, Vice President of Licensing and Regulatory Affairs, at (972) 448-1483.

Respectfully,



J. Scott Kirk, CHP  
Director of Licensing and Corporate Compliance

Enclosure

cc: Stephanie Bergeron Perdue, TCEQ  
Susan Jablonski, P.E., TCEQ  
Linda Beach, Vice President and General Manager  
Jeffrey M. Skov, Vice President of Licensing and Regulatory Affairs  
Tim Greene, Radiation Safety Officer (RSO)  
William Dornsife, Corporate RSO





## 2.0 LICENSING ANALYSIS

WCS performed a license analysis to determine if any of the current license conditions or requirements would need to be amended to allow storage of Class B/C LLW at locations already authorized for storage. To support this analysis, information on the types, characteristics and volumes expected to be processed at the Studsvik facility was collected and analyzed. The analysis focused on how the waste that would be sent to WCS could be safely stored. It also assessed whether the types of accidents that could occur at this facility were bounded by existing accident analyses, and covered by one or more of the financial assurance mechanisms (as approved by the TCEQ) specified in Title 30 of the Texas Administrative Code (TAC), Section 37.9050.

### 2.1 Facility Design

Figure 1 illustrates the preliminary design for the vault storage facility. The vault storage facility will include a pre-engineered metal building approximately 50' by 100' serviced by a remotely operated overhead bridge crane. (Note: a modular design is being created to allow linear expansion for increased capacity if required). At the front of the building is a 50' by 25' truck bay which will allow a transport truck to enter from one side and exit through the other side via roll-up doors. The vault area takes up the remaining 50' by 75' of the building. Within this footprint are 15 vaults in a three-by-five array. Each vault is deep enough to hold two storage containers (liners), one on top of the other. A metal retainer will be installed after the first liner is placed inside the vault, such that the second liner placed within the vault will not sit nor place weight on the lower container.

Below grade vaults will be constructed in the storage facility and operational equipment will be used to safely store the liners or other types of waste such as irradiated hardware. This facility and vaults will be designed and constructed in accordance with the 2006 International Building Code and the relevant referenced codes contained therein and in accordance with requirements of the TCEQ. The tops of the vaults will be sufficiently above surrounding ground elevations such that inundation will be prevented in the event the building integrity is compromised by storm events beyond the design standards. Construction of the storage facility in accordance with applicable codes with backup safeguards will ensure that accidents related to natural phenomena do not adversely impact human health and the environment.

The facility design will allow for two liners to be stacked and placed into each of the 15 vaults. However, metal separation lifts will be installed in each vault to ensure that the liners do not contact each other and to facilitate removing each liner as needed. The liners will be lifted from the transport cask while the cask is still on the transport vehicle with the lifting arrangement described below. The lower liner in each vault will sit on a steel plate with liner location tabs to ensure that the liner is placed in the center of the vault. The steel plate will be elevated approximately two inches off of the floor of the vault to ensure that any condensation or other moisture will not come in contact with the liner. When the first liner is in place, a second reinforced steel plate with legs that are taller than the liner will be lowered into the vault. The legs will fit into receivers in the

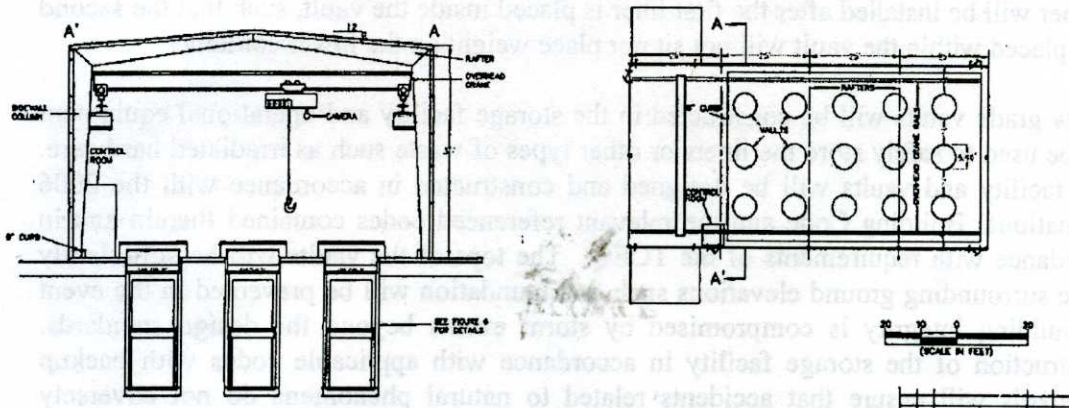


lower steel plate to ensure that the legs do not contact the lower liner when in place. When a second liner is placed in the vault, it will be placed on the upper steel plate, which likewise, will have location tabs to ensure that the liner is centered in the vault.

Storage of combustible materials is expected to be limited and will be administratively controlled. Additionally, in accordance with applicable fire codes and insurance requirements, fire suppression controls in the facility will be installed based on an appropriately designed system for waste storage. The storage facility will also have engineered controls to prevent run-on water from outside the facility and run-off of any potential fluids that could develop inside the facility. Additionally, leak detection systems will be installed in the vaults to detect any water that could possibly accumulate.

Radiation safety systems that will be employed include alarming, low-volume air monitoring systems to provide early detection of potential airborne contaminants. Additionally, once the liners are placed in the below grade vault, use of alarmed interlocks and closed circuit cameras will prevent unauthorized access to these sources of radiation.

**Figure 1 – Preliminary Design - Vault Storage Facility.**



## 2.2 Site Operations to Place Liners in Shielded Containers

All work will be conducted in accordance with approved operating procedures and Radiation Work Permits (RWPs) following an ALARA (As Low As is Reasonably Achievable) review that is approved by the Radiation Safety Officer.

Once a shipment arrives at our facility, waste acceptance procedures will be followed and Radiation Safety Technicians will perform radiation surveys on the cask. Trucks will enter the storage facility through one of the roll-up doors and the doors will then be closed to control personnel access and minimize exposure to radiation.



Operators will first connect and move both the lead plug and the concrete cap of the vault. After the vault is opened, Operators will loosen and remove impact limiter ratcheted tie-downs and then connect rigging equipment from the bridge crane to the impact limiter to lift and remove it. Operators will then place the limiter on cribbing and set it off to one side. Operators will loosen and remove the bolts which secure the primary cask lid, connect rigging from the lid to the overhead crane, remove the primary lid and place it within a temporary contamination area to be surveyed by the Radiation Safety Technicians.

Once complete, Operators will move the overhead crane over the vault in which the liner is to be placed and connect rigging from the overhead crane to the concrete cap. From within the shielded control area, Operators using cameras mounted on the overhead crane, will lift and remove the concrete cap. Operators will then disconnect the rigging from the cap and connect it to the lead plug within the vault. Again, Operators from within the shielded control area will remove the lead plug and set it aside.

At this point the rigging will be disconnected and Operators will move the crane back over the transport vehicle. With the use of remote handling tools (mirrors and curvilinear tools to prevent Operators from breaking the top plane of the cask), they will connect the crane to the liner. Once all personnel are clear of the area, using the overhead crane remote controls, Operators will move the liner from the transport cask into the identified vault. Operators will then connect and move both the lead plug and the concrete cap back into position shielding the high dose rate container.

Finally Radiation Safety Technicians will enter the area to complete and document radiation and contamination surveys on top of the vault, adjacent area, transport truck, trailer and the cask. The work area will be properly controlled and posted at all times to ensure the occupational radiation exposures are maintained ALARA in accordance with approved written procedures.

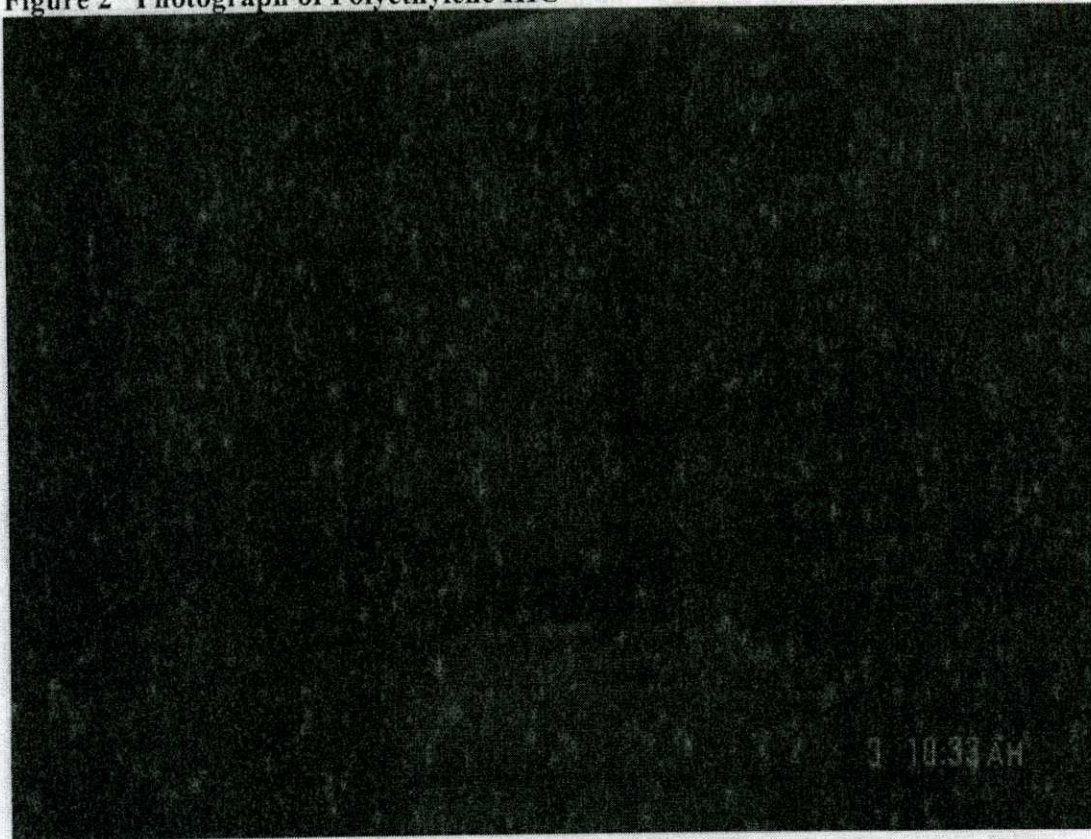
### **2.3 Design Basis of Liners**

All liners proposed for storage at WCS will be cross-linked Polyethylene HICs (High Integrity Containers) manufactured in accordance with designs approved by the South Carolina Department Health and Environmental Control for packaging final residues for disposal at the Barnwell Disposal facility. This package is the currently accepted package technology for LLW disposal. A photograph of a typical liner is included as Figure 2 and the HIC design details are included in Attachment 1, "Guide for High Integrity Container Topical Report Application". Additionally, a material safety data sheet for the liners is contained in Attachment 2.

The HICs are vertical upright cylinders, with polyethylene screw-in type lids designed to withstand 30-foot drops without losing their contents and are compatible with both raw waste and reformed waste residue from the Studsvik process. The HICs are designed to meet the stabilization requirements listed in 10 CFR Part 61 which requires each container to withstand radioactivity to enable safe storage for at least 300 years.



Figure 2 "Photograph of Polyethylene HIC"



Important attributes and specifications of liners that will be stored at WCS are provided in Table 1.

Table 1 "Attributes and Specifications of the Liners"

HIC Type	CoC*	Height (inches)	Diameter (inches)	Maximum Weight (lbs)	Typical Weight (lbs)
PL 8-120	DHEC-HIC-PL-001	73.5"	60"	10,000	7,500
PL 10-160	DHEC-HIC-PL-001	76.25"	67.25"	9,500	8,000
NUHIC 120	DHEC-HIC-PL-010	73"	61"	11,865	7,500
A-120	Pending	74"	60.5"	10,000	7,500

\* Certificate of Compliance

#### 2.4 Type and Volume Considerations

The waste material will be primarily Class B/C LLW in the form of resins and other wastes from commercial nuclear power plants that have been processed at the Studsvik facility in Erwin, Tennessee. After these materials have been processed they will be transported for storage to the WCS facility in Andrews County, Texas. WCS anticipates storing approximately 30 liners per year with a nominal waste volume of 100 cubic feet



each. The thermal treatment process removes all organic constituents and liquids resulting in a stable waste form highly suitable for storage and disposal.

Radiological constituents include typical, primarily short-lived activation products and fission products with small quantities of special nuclear material. A complete listing of radionuclides that could be present as "worst case" in these liners, including the curie content and expected concentrations, is presented in Appendix A.

## **2.5 Radiation and Industrial Safety**

WCS has the appropriate, approved radiation and industrial safety procedures in place to assure that the receipt, handling, and storage of this waste can be performed safely and maintain radiation doses ALARA. A radiation work permit (RWP) will be required that includes a review and implementation of all the necessary safety requirements, as well as an ALARA review. This RWP will be reviewed and approved by the Radiation Safety Committee. Appropriate training and preplanning, including mock-ups, will be provided to all involved workers. It should be noted that WCS has safely received, handled, and stored several high activity waste streams and has maintained doses ALARA using the existing procedures.

This waste will be received and handled in sealed containers approved by the U.S. Department of Transportation (DOT), so external exposure will be the only radiation hazard under normal operating conditions. The waste will be transferred to shielded units for storage to minimize area radiation exposure. The anticipated dose rates from these liners is expected to range from 20 to 50 R/hour on contact although dose rates up to 200 R/hr have been measured on an unshielded liner.

WCS will ensure that workers are properly trained and that radiological controls and postings are in place prior to performing work. Additionally, a pre-job ALARA review of the work activities planned to remove the liners from the shipping casks into the vault will be required. Operators moving the liners will use specially designed long-handled tools to rig the liners and facilitate transfer of the liners into the vaults. Operators will be located in a shielded control booth to remotely transfer and place the liners into the vault using an overhead crane.

The detailed designs for the facility, control booth and vault storage area will ensure worker protection and maintain radiation doses ALARA. As such, radiological engineering analyses have been conducted using Microshield<sup>®</sup> to design the facility and estimate the dose rate to a worker within the control booth that will be constructed in the facility. This analysis was conducted to ensure that radiation exposures are maintained ALARA and within WCS' administrative radiation exposure limits for the site. Based on the preliminary analysis that was conducted the maximum radiation exposure to workers involved in these operations is well below the occupational radiation standard limit of 5000 millirem/year.



A similar analysis was conducted to support the safety basis of the facility design and estimate the radiation dose rate at the top of the shielded vaults holding the liners containing the processed waste. This analysis was performed using a "worst case" source term. The preliminary results of this analysis estimated that the contact dose rate at the top of the shielded below grade vaults are well below the radiation protection standard limit for members of the public, and therefore, will not be harmful to human health or the environment.

Unauthorized access to the liners will be prevented using interlocks and closed circuit cameras once the waste is placed into the vaults. Additionally, the radiation hazard at the vaults will be properly posted to ensure that personnel are aware of the radiation hazard present.

## **2.6 Accident Analysis**

The total activity of wastes to be stored will be well within WCS' current license possession limits. These limits were most recently increased by License Amendment 29 to Radioactive Material License No. L04971, dated March 11, 2004. This amendment required that WCS implement an approved emergency plan.

All of the liners will meet the design criteria, summarized in Attachment 1, including corrosive, chemical and ultraviolet degradation, minimum design life, horizontal and vertical design strength, thermal loading, radiation stability and biodegradation. In addition the liners will meet the requirements for a Type A package specified in 49 CFR 173.411, 173.412 and 173.465 and the free drop test requirements in 10 CFR 71.71.

The accident analysis previously conducted to support License Amendment 29 ensured that WCS' facility was designed with safety features and emergency equipment to prevent or mitigate adverse health consequences for credible types of accidents postulated for the site. The worst case accident scenario identified was a large fire involving 2000 containers of transuranic and high activity radionuclides. The radiological consequences postulated for that type of accident will be evaluated to determine if it bounds any potential accident that could affect a liner containing the worst case source term from processed wastes.

## **2.7 Security**

WCS has an approved security plan and the necessary procedures in place to safeguard waste that would be shipped and stored at WCS. These wastes will be securely stored with access controls in a restricted area that will be monitored by closed circuit cameras. Additionally, access to the facility will be tightly controlled by WCS' security force. As such, WCS has the necessary security measures in place to safeguard these wastes from theft and malevolent acts.



## **2.8 Transportation**

The waste will be safely transported to the WCS facility in DOT and U.S. Nuclear Regulatory Commission (NRC) approved containers using shielded casks. Each conveyance will be inspected prior to shipment and before receipt at WCS using approved procedures to insure that all DOT requirements are met. Any deficiencies will be considered a non-compliant shipment and must be resolved prior to acceptance at the WCS facility.

## **3.0 PROPOSED LICENSING ACTIONS**

During preparation of the licensing analysis, several issues in addition to the design and operation of the new facility were identified that will require approval by TCEQ before storing this waste at WCS. To streamline the licensing process, WCS has identified the issues needing resolution, evaluated alternative approaches, and recommended a path forward.

In review of this LAP, WCS requests the TCEQ to evaluate the recommended path forward and comment on the appropriateness of the licensing approach proposed.

### **3.1 Special Nuclear Material Sampling**

Based on process knowledge and radioanalytical data, Class B/C LLW generated by the commercial nuclear power industry may contain minute quantities of SNM. The maximum concentration of SNM that could be present in the liners containing waste does not pose a nuclear criticality concern. The "worst case" radioanalytical data presented in Appendix A indicates that no detectable fissile uranium is present in the Class B/C LLW expected to be shipped by Studsvik to WCS. Additionally, only very small quantities of <sup>239</sup>Pu and <sup>241</sup>Pu were detected in these two "worst case" waste streams. As such, empirical data indicate that the concentration of SNM is over five orders of magnitude ( $8 \times 10^{-5}$ ) less than unity as specified in Radioactive Material License No. L04971, License Condition (LC) 19.

However, the concentration of SNM present in these wastes must currently be assessed to determine if they comply with the following restrictions contained in LC 19.

19. A. In accordance with the Order (Docket No. 70-7005), dated November 5, 2004, Issued by the United States Nuclear Regulatory Commission (NRC), the Licensee may possess special nuclear material (SNM) within the restricted area of the Licensee's facility provided that:
  - (1) Concentration of SNM in individual waste containers and/or during processing must not exceed the following values:



SNM Radionuclide	Operational Limit (gram SNM/gram waste)	Measurement Uncertainty (gram SNM/gram waste)
U-233	4.7 E - 4	7.1 E - 5
U-235 (10 percent enriched)	9.9 E - 4	1.5 E - 4
U-235 (100 percent enriched)	6.2 E - 4	9.3 E - 5
Pu-239	2.8 E - 4	4.2 E - 5
Pu-241	2.2 E - 4	3.2 E - 5

When mixtures of these SNM radionuclides are present in the waste, the sum-of-the-fractions rule, as illustrated below, should be used.

$$\frac{U-233 \text{ conc}}{U-233 \text{ lim}} + \frac{100\text{wt}\%U-235 \text{ conc}}{100\text{wt}\%U-235 \text{ lim}} + \frac{10\text{wt}\%U-235 \text{ conc}}{10\text{wt}\%U-235 \text{ lim}} + \frac{Pu-239 \text{ conc}}{Pu-239 \text{ lim}} +$$

$$\frac{Pu-241 \text{ conc}}{Pu-241 \text{ lim}} \leq 1$$

Given the very high concentrations of activation and fission products present in these liners which typically measure over 20 R/hr on contact, sampling of the wastes is not feasible.

As an alternative to performing confirmatory sampling of the waste upon receipt of the liners, WCS proposes to rely on the process knowledge of the generator and radioanalytical data provided by Studsvik to demonstrate compliance with LC 19. WCS selected this alternative given the inherent radiation safety issues associated with sampling and analyzing the very low concentrations of SNM known to exist in these types of waste streams.

WCS has submitted a written request to the NRC<sup>1</sup> asking for written approval to use this alternative to sampling in order to comply with LC 19. Once this approval is obtained from the NRC, WCS will request an amendment to LC 19 from TCEQ to rely on process information and radioanalytical data from Studsvik. This is the approved methodology used by all current disposal sites for wastes received in shielded casks.

### 3.2 Financial Assurance

WCS will submit a decommissioning cost estimate for TCEQ review and approval. This cost estimate will include the cost to decommission the storage facility and the cost to transport and dispose of the Class B/C LLW at the facility located in Barnwell, South Carolina<sup>2</sup>.

<sup>1</sup> See Letter from William P. Dornisife to Scott C. Flanders, dated December 10, 2007.

<sup>2</sup> The current cost for disposal of these types of Class B/C LLW at Barnwell, South Carolina is \$3146.00 per ft<sup>3</sup>.



Studsvik will take title to the waste after processing and will create a Waste Management Fund (WMF) by depositing \$3146 per cubic foot of processed waste into an interest bearing account earmarked exclusively for waste disposal or return. The WMF will be available to the State of Texas, the State of Tennessee, or the final disposal entity for the sole purpose of disposing of the waste or returning the waste to Studsvik.

### **3.3 One-Year Storage Limit**

WCS is currently required to place radioactive waste in its possession into interim storage or transfer it to an authorized recipient within 365 days from the date of receipt under LC 25.B. Under LC 15.C, WCS is authorized to place radioactive waste packaged in DOT approved shipping containers received from Studsvik into interim storage since Studsvik meets the current waste acceptance criteria at the disposal facility located at Barnwell, South Carolina. However, South Carolina has announced that states which do not belong to the Atlantic Interstate Low-Level Radioactive Waste Management Compact will no longer have access to this disposal facility on July 1, 2008. As such, WCS will request approval to place this waste in interim storage in accordance with Radioactive Material License No. L04971.

This interim storage approach is intended to be a bridging solution until the nation can resolve the Class B/C LLW disposal issue.

### **3.4 Commingling of Waste**

Studsvik may elect to process waste from different waste generators that will subsequently be placed into the liners and shipped to WCS for storage. Commingling of waste from more than one generator for the purpose of storage is permissible under the current regulatory framework in Texas. However, WCS recognizes that only waste generated in Texas and Vermont could be disposed of at WCS' Compact LLW facility without approval of the Texas Compact Commission, should TCEQ issue a license for that facility in the future.

## **4.0 PROPOSED APPROACH FOR LICENSE REVIEW**

WCS has provided a summary of the types of information that will be contained in the license amendment request and a proposed process intended to enhance communications between WCS' staff and the licensing reviewers at TCEQ. This summary is provided given the importance of the successful completion of this licensing review to certain waste generators that do not belong to the Atlantic Interstate Low-Level Radioactive Waste Management Compact.



## 4.2 Early and Prompt Outreach to TCEQ Staff

To assist TCEQ staff in understanding the safety basis of the design and operations of the storage facility, WCS will present an overview of the facility design, work activities, radiological analysis, and financial assurance instrument. The purpose of this overview is to identify potential issues that may arise regarding the safe operations of the facility early in the licensing process. Additionally, this overview will provide a preview of the safety basis with the purpose of eliminating the need for multiple requests for additional information regarding the license amendment. Because this licensing action is critical to maintaining the overall operational schedule, WCS requests timely feedback from TCEQ regarding issues that needs to be addressed.

## 4.3 Review Meetings

Approximately one month after submittal of the license amendment request, WCS will request working level meetings with the TCEQ licensing review team to discuss the safety basis of the facility design and operations. The purpose of these meetings is for early resolution of issues that have been identified by TCEQ staff. WCS will submit meeting summaries to document issues raised and actions needed for early resolution. WCS will make its staff readily available for monthly follow-up meetings to enhance communications with TCEQ until the timely and successful completion of the project.

## 5.0 SCHEDULE

By February 20, 2008, WCS will submit a license amendment requesting authorization to construct and operate the new storage facility as described herein. To provide a solution to waste generators which do not belong to the Atlantic Interstate Low-Level Radioactive Waste Management Compact, WCS requests that TCEQ complete their review of the license amendment request by September 1, 2008.



Buddy Garcia, *Chairman*  
Larry R. Soward, *Commissioner*  
Bryan W. Shaw, Ph.D., *Commissioner*  
Mark R. Vickery, P.G., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

May 20, 2009

Waste Control Specialists LLC  
Jeffrey M. Skov, Vice President, Licensing and Regulatory Affairs  
5430 LBJ Freeway, Ste. 1700  
Dallas TX 75240

*Via facsimile (972)448-1419*

Re: Information Related to Receipt and Storage of Studsvik Waste under Radioactive  
Material License R04971

Dear Mr. Skov:

I am in receipt of your May 11, 2009 submission of information in which Waste Control Specialists LLC (WCS) sets forth its analysis on how receipt and storage of Class B/C Low-Level Radioactive Waste from Studsvik Processing Facility LLC in Erwin, Tennessee (Studsvik Waste) is authorized at WCS' Storage and Processing facility (LN R04971). Staff is currently reviewing WCS' submission.

As discussed with WCS representatives on May 4, 2009, the Texas Commission on Environmental Quality (TCEQ) has not made a determination that acceptance of the Studsvik Waste is authorized under WCS' existing storage and processing license. Please understand that WCS may be subject to enforcement for the receipt of any waste material not authorized in its license.

Additionally, in accordance with License Condition 29.B, WCS is required to notify the executive director in writing at least three working days in advance of initial receipt of waste. The TCEQ urges WCS to promptly notify the TCEQ in accordance with this license condition. Prompt notification will allow TCEQ to advise WCS of its evaluation of WCS' submission prior to any shipment of the Studsvik Waste.



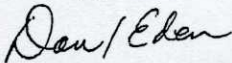
Waste Control Specialist

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May 20, 2009

I appreciate your attention and cooperation on this important regulatory issue. Should you have any questions, you may contact me at (512)239-5537 or Stephanie Bergeron Perdue, Deputy Director for the Office of Legal Services, at (512)239-0615.

Sincerely,



Dan Eden, Deputy Director  
Office of Permitting and Registration  
Texas Commission on Environmental Quality

cc: Mike Woodward, Hance Scarborough, LLP, 111 Congress Avenue, Suite 500,  
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Stephanie Bergeron Perdue, Deputy Director, Office of Legal Services, Texas  
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June 2, 2009

Mr. Mark Vickery, P.G.  
Executive Director  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087

**COPY**

Re: Waste Control Specialists LLC; License No. R04971 (Currently Amendment No. 47)

Dear Mr. Vickery:

As we have previously discussed, Waste Control Specialists LLC (WCS) has entered into an arrangement with the Tennessee-based waste processor, Studsvik, Inc., to accept for interim storage thermally processed Class B and Class C low-level radioactive waste. This waste is the end-product of Studsvik's processing of ion exchange resins originating at nuclear power plants throughout the country. Studsvik provides a valuable national service because its patented processes reduce the volume of low-level radioactive waste necessary for disposal by more than 80%, thus preserving future valuable landfill utilization. Studsvik will transport the waste to WCS for interim storage at WCS' radioactive material storage and processing facility authorized under License No. R04971.

WCS received a letter from Mr. Dan Eden of TCEQ dated May 20, 2009 commenting that; (i) the TCEQ staff had not yet completed its review regarding WCS' interim storage of the Studsvik material and (ii) TCEQ's interpretation of License Condition 29.B is that WCS must notify the Executive Director within three business days of the initial receipt of waste, which WCS assumes that TCEQ believes would include the Studsvik waste. Based on conversations with you, it appears staff's primary question regarding the interim storage of the Studsvik waste is, "Does WCS have authority to receive the waste for interim storage under License No. R04971?"

Based on a review of the license and the underlying regulations, it is clear that:

- (1) WCS has the authority to accept the Studsvik waste into interim storage, for a period of time that could exceed 365 days, pursuant to License No. R04971.
- (2) Under past practices and prior investigations and audits of WCS by TCEQ and the Department of Health and Human Services, the three day notice requirement found at License Condition 29.B. only applied to the first receipt of waste at the storage facility in 1998, and is therefore not applicable to the receipt of Studsvik waste.



Mr. Mark Vickery, Executive Director

June 2, 2009

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### Path Forward

Now that WCS has received a final order for a low-level radioactive waste disposal license, the company fully intends to seek authorization from the Texas Low Level Radioactive Waste Disposal Compact Commission (Compact Commission) to permanently dispose of the Studsvik waste at the appropriate time. While the interim storage of the Studsvik material is authorized under the 1997 license, permanent disposal at the Compact disposal facility must be approved by the Compact Commission.

WCS is well aware that importation of waste for permanent disposal in the Compact Waste Disposal Facility is subject to the agreement of the Compact Commission. The company is already taking steps to inform the Compact Commission that it will begin interim storage of the waste on June 8, 2009. WCS is also informing the Compact Commission that once all license conditions of its low-level disposal license are met, the company will be seeking authorization to permanently dispose the Studsvik waste in the Compact Waste Disposal Facility in Andrews.

The ability to store low-level radioactive waste at a central storage facility and then dispose of it at a separate disposal facility near that storage site is in the best interests of all parties. It will reduce the burden on generators of the waste that do not have storage facilities designed for this type of waste and will allow the waste to be processed into a very safe form for storage. It will also minimize public transportation of the Studsvik waste as it will be shipped from generators to Studsvik and then to one location for storage and possible eventual disposal instead of back to generators across the nation.

### Background

In 1997, WCS was issued License No. R04971 by the Texas Department of Health (TDH), now the Texas Department of State Health Services (DSHS), authorizing the storage and treatment of radioactive materials, including Class A, B, C and "Greater Than Class C" (GTCC) low-level radioactive waste and byproduct material. WCS operated the storage and processing facility for approximately a decade before the Texas legislature transferred the jurisdiction over these operations to TCEQ. Since the facility's opening, WCS has provided extremely valuable storage and treatment services to the nation's generators of low-level radioactive waste and byproduct material, including the Department of Energy and the State of Texas. WCS is currently providing secure storage for GTCC waste recovered from the Gulf Nuclear site in Webster, Texas, near Houston.

On January 25, 2008, WCS submitted a Licensing Action Plan to Mr. Eden seeking authorizations for upgrading WCS' facilities for the storage of the Studsvik material. A meeting was held between representatives of WCS and TCEQ on February 12, 2008 to discuss the Licensing Action Plan. During this meeting, it was suggested, and WCS agreed, that it made sense to seek the various license amendments outlined in the Plan in a staged approach. Accordingly, WCS submitted a license amendment request on May 14, 2008 to; (i) establish modified financial assurances for the storage initiative and (ii) authorize an unrestricted term of storage for the material.



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Pursuant to the original Licensing Action Plan, WCS believed that the license amendments could be processed by TCEQ and the facility placed into service in a timely fashion which would enable Studsvik to continue to keep its processing facility open and not have to downsize its workforce.<sup>1</sup> Additionally, based on initial data from Studsvik, the original Plan contained dose rate assumptions that have since turned out to be at the absolute upper range. Accordingly, the facility upgrades that were originally proposed in the Licensing Action Plan, which were designed to address the higher dose rate and potential ALARA (As Low As Is Reasonably Achievable) concerns regarding worker exposure, were no longer necessary.

During the summer of 2008, several meetings were held between and among representatives of WCS, Studsvik and the TCEQ regarding the project. Also during this timeframe, WCS obtained additional detailed information from Studsvik regarding the projected waste streams and the expected lower dose rates. Based on this information, WCS determined that the storage initiative could move forward under the existing authority of License No. R04971 and license amendments were not necessary. Studsvik and WCS determined that the material could be placed into interim storage on the low specific activity (LSA) pad in Secure Environmental Enclosures (SECs<sup>TM</sup>) manufactured by Dufrane Nuclear Shielding, Inc. that provided sufficient shielding to protect workers from exposure. The decision to place the Studsvik material into interim storage at WCS was made the first week of October 2008 and was immediately conveyed to you.

Since that time, Studsvik has moved forward on securing contracts to process waste under its amended license issued by the State of Tennessee on October 1, 2008, with plans to send the processed material to WCS for interim storage.

#### Authority to Store under License No. R04971 and Plan for Storage of Processed Material

WCS recently provided TCEQ with an analysis regarding the authority to receive and store the processed waste from Studsvik under existing License No. R04971. The analysis concludes that the processed waste clearly meets all of the required criteria concerning form, volume and level of activity for receipt and storage at the WCS facility pursuant to its existing license. There is no question that WCS is currently authorized to receive and store the processed waste.

WCS' proposal is to place the material into interim storage in accordance with License Condition 23.B. This license condition requires that "all waste be placed into interim storage or transferred to an authorized recipient within 365 days of the initial date of receipt." "Interim storage" is defined in License Condition 15.C. as waste packaged in accordance with Title 49 Code of Federal Regulations (CFR), as amended, and that meets current or stated acceptance requirements for an authorized disposal facility or an authorized federal agency. When read together, it is clear that WCS can store materials for longer than 365 days if the material is placed into "interim storage." My legal interpretation of the license based on my understanding of the processed material from Studsvik is that the material will "meet the current or stated

<sup>1</sup> Due to the decision of the Atlantic States Compact to restrict the disposal facility in Barnwell, South Carolina, to receipt from generators in member states only after July 1, 2008, the Studsvik processing facility in Erwin, Tennessee, was faced with the prospect of laying off more than 100 persons and mothballing the facility until a path forward could be located for its processed material.



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acceptance requirements for an authorized disposal facility or an authorized federal agency" and, therefore, can be placed into "interim storage" without any restriction of the 365 day holding time limit.

However, even if the material were to be subject to the 365 day holding time limit, which it is not, WCS intends to petition the Compact Commission for the Studsvik material to be imported into the Compact Waste Disposal Facility for permanent disposal. WCS expects this petition will be ruled on by the Compact Commission within 365 days of WCS' acceptance of the material. If the Compact Commission were to agree to accept the Studsvik material for disposal into the Compact Waste Disposal Facility, the WCS site would be an authorized disposal facility meeting the 365 day holding time limit requirement. If the Compact Commission were to deny acceptance of the waste for disposal, Studsvik has a take-back agreement with the State of Tennessee and the waste could be shipped back to Studsvik. In either event, the 365 day time limit could be met.

#### Origin of Waste

WCS is cognizant of the restrictions in the Texas Compact pertaining to the "management" of out of compact waste. However, with the recent Federal court decision in the Energy Solutions litigation involving the Northwest Interstate Compact, it is apparent that the Compact Commission may only regulate the disposal of waste at the Compact Waste Disposal Facility and not the storage and processing of such waste at a separate facility other than the designated regional disposal facility. Nevertheless, WCS intends to inform the Compact Commission by letter and at its next meeting on June 5, 2009 that WCS will receive low-level radioactive waste from Studsvik for interim storage beginning on June 8, 2009.

#### Discussion - License Condition 29.B

As a courtesy, WCS is pleased to inform you that the first shipment of Studsvik waste will be received at the WCS site for interim storage on Monday, June 8, 2009.

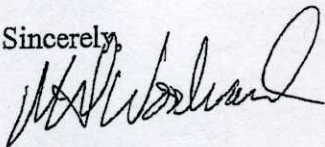
The requirement to notify the Executive Director at least three business days prior to the receipt of waste has been interpreted by DSHS as only applying to the very first waste shipment received by WCS on February 20, 1998. In a DSHS (then TDH) inspection report dated June 8, 1998, WCS received an alleged violation for failure to provide this notification. WCS provided evidence that the original notification was submitted as required by the license with the first waste received on February 20, 1998 and the alleged violation was withdrawn. In annual inspections of WCS' waste receipt records by both DSHS and TCEQ since 1998, no subsequent notification violations were reported or proposed. This is consistent with WCS' interpretation and implementation of this license condition that no notification to the Executive Director at least three business days prior to the receipt of waste for each waste stream is required. Only notification three business days prior to the receipt of the very first waste for the storage and processing facility was required.

Thank you for your attention to these important matters.



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June 2, 2009  
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Sincerely,

A handwritten signature in black ink, appearing to read "Michael L. Woodward". The signature is fluid and cursive, with a large, stylized initial "M".

Michael L. Woodward

cc: Mr. Bill Lindquist, WCS  
Mr. Dan Eden, TCEQ  
Ms. Stephanie Bergeron Perdue, TCEQ