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Environmental Management & Support

Rich Dailey Senior Director

March 9,2009

Mr. Jim Dwyer
U. S. Nuclear Regulatory Commission Region 1
475 Allendale Rd
King of Prussia, PA 19406

Re: Request for Additional Information
General Licensee: Wal-Mart Stores, Inc.
Docket Number: 999-90001
Request Date: February 18, 2009

Dear Mr. Dwyer,

By email dated February 18, 2009, the U. S. Nuclear Regulatory Commission (NRC) submitted to Wal-Mart Stores, Inc. (Wal-Mart) several requests for additional information (RAIs) in connection with Wal-Mart's Tritium Exit Sign Inventory Project (TESIP) Final Report, dated January 29, 2009. The NRC also requested that Wal-Mart respond to the RAIs by formal letter. As such, this letter and attachments provide Wal-Mart's responses to the NRC's requests.

Wal-Mart understands that this response functions as a supplement to its TESIP Report. Please do not hesitate to contact me should you require additional information.

Sincerely,

Rich Dailey

Radiation Safety Officer
Wal-Mart Stores, Inc.

cc: Angela Washington Esq., Wal-Mart Stores, Inc.
Thomas Poindexter Esq., Morgan, Lewis & Bockius LLP

[Enclosures (Attachments 1 – 5)]

ATTACHMENT 1: RAI RESPONSES

NRC Question 1: *In* your TESIP Final Report, Section *III* (Inventory Program), you describe a critically damaged TES as "any sign in which the glass tubes were damaged, missing, did not glow, or the sign was crushed or punctured in a way that might cause the tubes to be broken, or the sign contents were in imminent danger of falling." Except for the case where the sign contents were in imminent danger of falling (and were not otherwise damaged) NRC would expect your critically damaged exit signs to be handled, decontamination be conducted and surveys be performed by someone specifically licensed by an Agreement State or NRC to do so. Please provide us with a list of your stores, by city and state, where critically damaged exit signs were identified and, for each store, provide: (1) the dates that the critically damaged signs were removed and packaged for shipment, decontamination was conducted or surveys were performed; and (2) the specific license under which this work was performed.

Response: Attachment C of the TESIP Report provides a list of stores, by city and state, where Wal-Mart and its consultants identified critically damaged exit signs. Attachment C also indicates, for each store, the date that Dade Moeller visited the store to package the critically damaged signs for shipment, perform associated surveys, and decontaminate areas, as necessary. An initial visit to a location is either indicated by a "Visit 1" designation (where multiple visits occurred) or no indication (where it was the only visit). Attachment C also documents those circumstances that required a return visit by a health physicist indicated as Visit 2 or Visit 3, as appropriate. Because these were return visits for further decontamination, no TES would have been packaged and shipped during those visits.

Attachment 2 to this response includes the information from Attachment C of the TESIP Report, as well as visit-specific information about the applicable license and/or reciprocity to that license under which the health physicist worked. Attachment 2 also includes, for each store visit, the name of the primary contact from the state regulatory agency from which Dade Moeller obtained a reciprocity agreement.

All health physics activities conducted by Dade Moeller, including responses to potential imminent damage hazards, were conducted under the Dade Moeller Maryland radioactive materials license (#MD-31-244-01) or reciprocity of that license with the appropriate agreement state or with the NRC. In one case (Palmdale, California, Store #2950), the service of Thomas Gray & Associates, Inc. (TGA) was employed to decontaminate an outside area where damaged TES caused elevated tritium levels to be present in a parking lot area. TGA conducted the decontamination activities under its State of California license (#2105-30). Dade Moeller coordinated this activity with the State of California and the County of Los Angeles regulatory authorities.

NRC Question 2: In your TESIP Final Report, Section *III* (Inventory Program, Footnote *6),* you sfated that Wal-Mart was able to gain access and inventory TES

in all but nine facilities that were no longer owned or occupied by Wal-Mart. Of those nine, you stated that three were demolished, two were destroyed by Hurricane Katrina, and access to four could not be obtained. Did you enter serial numbers from those locations in your TES Management System and were those TES included in the total TES determined to be lost? Also, please provide the current or previous physical address for those locations and the number of TES purchased for each of those locations.

Response: Wal-Mart did enter serial numbers into its TES Management System for TES associated with the nine Wal-Mart facilities in question, and included lost TES from those facilities in its total number of lost TES. The requested information is provided for each of the nine facilities in Attachment 3.

NRC Question 3: In your TESIP Final Report, Section V (Response to Damaged *TES),* you indicated on page 30 that the total *leachate* to be released in a year was 2500 cubic meters or *2.5E+9* liters. According to our calculations, the value should be *2.5E+6* liters. This assumes one cubic meter equals 7000 liters. If you agree with our assessment of *leachate* volume in liters, your calculated dose of *0.15* millirem per year is underestimated by a factor of 1000 and would exceed the EPA drinking water standard. You may wish to revisit your assumptions and revise your projections.

Response: As Wal-Mart was developing its answer to this question, it confirmed that the unit conversion from cubic meters to liters shown in the TESIP Report was in error. Using the correct value of 2.5 x 10^6 liters, as noted by the NRC, the resulting drinking water concentration would be 3,200,000 pCi/L, and the dose from ingestion for this hypothetical scenario would be 150 mrem/yr.

The corrected concentration value and estimated dose are inconsistent with the existing base of knowledge of the risk from TES, and as a result, are unreasonably high. In addition, the estimated landfill leachate concentration (64,000,000 pCi/L) is much higher than recent measurements of tritium concentration in landfill leachate. As a result, Wal-Mart and its consultant, Dade Moeller, have re-visited the bases of this hypothetical "maximum exposure" scenario.

Dade's scenario development process used a graded approach, which started with very conservative assumptions and progressively introduced more rigor into the calculation process to achieve more realistic results that provide a greater level of confidence. When the initial erroneous results showed the estimated drinking concentration to be very low and well below the drinking water standard, no additional calculations appeared to be necessary, thereby ending consideration of the next level of parameters. However, once the error was realized, it was apparent that additional analysis was required to develop more realistic estimates, for which there is confidence in the reasonableness of the approach and an appropriate level of conservatism in the calculations.

Application of this same graded approach, while retaining the basics of a generic "maximum exposure" scenario, resulted in a compete revision of Section V.D.6 (See Attachment 4). Each of the scenario parameters and assumptions is now indicated by a bulleted description. Bracketed text at the end of this bulleted description indicates if the parameter or assumption was changed or remains unchanged from the TESIP Report. Furthermore, intermediate and final calculation results are indicated by an arrow and text box, to allow the progression of the scenario calculation to be easily checked. Wal-Mart believes that the revised "maximum exposure" groundwater scenario is still conservative and continues to represent a level of public exposure that is very unlikely to occur.

NRC Question 4: *In your TESIP Final Report, Section V (Response to Damaged TES), you indicated that tritium removable and fixed contamination exceeded project action levels at two stores after follow-up activities were complete. Please provide the location of those stores and describe the removable and fixed contamination levels and circumstances leading to your conclusion that further remediation could* not *be justified* by *ALARA principles.*

Response: The first location, Store #1185 in Austin, Texas, had removable tritium contamination levels slightly above the project action level of 1000 dpm/100 cm^2 in two locations (plywood header and upper door jamb). The removable tritium 'contamination levels "as left" were 1184 and 1154 dpm/100 cm^2. On behalf of Wal-Mart, Dade Moeller provided to Mr. Art Tucker of the Texas Radiation Control Program, Department of State Health Services (DSHS), Wal-Mart's and Dade Moeller's technical basis for not reducing the levels to below the project action level. The final correspondence to Texas related to this issue is provided as Attachment 5. The Texas DSHS has not requested any further action with respect to this location.

For the second location, Store #5210 in Wylie, Texas, the area of contamination spanned several square meters with the highest value at approximately 2,000,000 dpm/100 cm^2. (The level of 3,700,000 dpm/100 cm^2, which was noted on page 22 of the TESIP Report, was in fact associated with a component of a damaged TES itself, and is not considered contamination of a work or facility surface. This component was packaged and returned with the damaged TES to Isolite.) After an extensive decontamination effort at the Wiley, Texas store, removable contamination levels were reduced to below project action levels of 1000 dpm/100 cm^2. Still, the fixed tritium contamination levels on the floor varied from below the project action level for fixed contamination (15,000 dpm/100 cm^2), to as high as 74,000 dpm/100 cm^2, with an average of 11,000 dpm/100 cm^2.

Dade Moeller exhausted all reasonable non-destructive decontamination options. Dade Moeller advised Wal-Mart that, at that point, further reduction was not justified based on its conclusion that the as-left condition was As-Low-As-Reasonably-Achievable(ALARA). This conclusion was based on Dade Moeller's belief that the fixed contamination embedded in hard surface structures do not

present a significant risk to public health and safety because all of the realistic exposure scenarios evaluated for this case were determined to result in less than 1 mrem effective dose equivalent (most likely 0.0 mrem). Accordingly, additional personnel risks and costs that would be incurred by any destructive decontamination were not warranted. Wal-Mart documented these activities and as-left contamination levels in the site visit report for Wylie, Texas (Store #5210) submitted to the Texas Radiation Control Program, Department of State Health Services (DSHS) on May 23, 2008. The Texas DSHS has not requested any further action with respect to this location.

NRC Question 5: *In your TESIP Final Report, Section V (Response to Damaged TES), you indicated that 82 persons were offered bioassay analysis and 40 accepted. For those who did not accept, please indicate whether any were directly and immediately involved in TES damage. If so, what would be their expected reasonable maximum exposure? Also, did Dade Moeller's health physicists undergo bioassay analysis after handling damaged signs and conducting decontamination activities? If so, did their results differ from the exposures included in the report?*

Response: None of the Wal-Mart Associates who declined to provide bioassay samples were known or believed to have been directly or immediately (upon breakage) exposed to a damaged TES. Dade Moeller health physicists were monitored in accordance with Dade Moeller's State of Maryland radioactive materials license. Pursuant to the requirements of that license, two of Dade Moeller's health physicists were sampled and their results were negative (*i.e.*, not differentiable from background). These results are consistent with the exposures discussed in the January 29,2009 TESIP Report.

NRC Question 6: *In your TESIP Final Report, Section V (Response to Damaged TES), you provide health and safety assessments for the following scenarios: a shopper or non-involved associate near a damaged TES; an associate involved with mechanical impact to TES and clean up; an associate directly and immediately involved in TES damage; TES placed in a store compactor; and inadvertent disposal of multiple TES in a municipal landfill. Please provide a health and safety assessment for the case where an individual is able to obtain and damage a TES, discarded or stolen from a Wal-Mart store or from a facility where the TES were transferred by your contractors, or tell us why this scenario or similar scenarios should not be considered.*

Response: Notwithstanding the event noted below, Wal-Mart does not believe that theft and intentional damage or abuse of a TES is a reasonable exposure scenario that should be included with the Wal-Mart-specific health and safety scenarios included in the TESIP report. Wal-Mart has no indication that such an exposure may have occurred.

ATTACHMENT 1: RAI RESPONSES

The EPA has provided on its *www.trainex.org* website, a description of an event involving an adolescent youth who found a discarded sign, dismantled it, and broke the tubes while eating sunflower seeds. With intervention measures (additional consumption of water), the dose to the youth was 80 rnrem. Without intervention, such a scenario could be expected to result in a dose of up to approximately 100 mrem. We believe this dose is representative of a TES theft and abuse scenario postulated by the NRC's question.

NRC Question 7: *In your TESIP Final Report, Section VI (TES Data Collection), you listed five likely reasons for missing TES. One involved the possibility of TES having been shipped back to Isolite or SRB. Did Wal-Mart request return shipment documentation from Isolite and SRB for data reconciliation? If not, does Wal-Mart intend to pursue this issue with both companies as part of its ongoing disposition and remediation plan?*

Response: Wal-Mart requested from both Isolite and SRB, all documentation that would assist Wal-Mart in identifying TES that were purchased and returned to the respective vendor, as part of its ongoing TES disposition efforts.

When Wal-Mart determined that Isolite was not providing requested information in a timely manner, Wal-Mart's representatives traveled to Isolite's headquarters in Berwyn, Pennsylvania, in order to understand Isolite's processes regarding the sale of TES to Wal-Mart and to review Isolite's records. During this visit, and numerous subsequent phone calls and e-mails, Wal-Mart's representatives obtained what Isolite purported to be a complete copy of all Isolite documentation pertaining to Isolite's contract with Wal-Mart. That documentation primarily included invoices, purchase orders, and email correspondence, but also included Credit or Return Merchandise Authorization documentation for TES returns in 29 states. Wal-Mart incorporated this information in its January 29, 2009 TESIP Report to the NRC.

Additionally, Wal-Mart and its representatives have made several attempts to retrieve relevant records from SRB. SRB was initially somewhat responsive, indicating that it would provide the requested information for a fee. When Wal-Mart indicated that it was willing to pay that fee, SRB ceased all communication with Wal-Mart for reasons unknown. As of this RAI response, SRB remains uncooperative and has not supplied any data or information to help Wal-Mart complete its inventory. Accordingly, it has not been possible for Wal-Mart to review any of SRB's return shipment documentation.

NRC Question 8: *In your TESIP Final Report, Section VI (TES Data Collection), you indicated that Kroll interviewed 22 general contractors among 36 identified in six Tier I states regarding their recollection of TES practices. Did Wal-Matt and Kroll consider identifying and interviewing contractors based upon number of TES lost versus number of TES purchased? Based upon NRC's review of lost TES reports for non-Agreement States, 39 of 189 stores had losses of 20 TES or*

more. This represents approximately 21% of stores and 61% of lost TES (1491 of 2439) in non-Agreement States. Also, did Wal-Mart investigate whether lost TES were shipped out of the country by Wal-Mart or contractors for use at other Wal-Mart locations or disposed of through companies other than Isolite?

Response: Wal-Mart determined that its sampling investigation would focus on the six states (Tier One States) that had among the highest percentage of unaccounted for TES. Wal-Mart did not specifically investigate whether TES may have been transferred from one of its stores to a location outside of the country. However, Kroll's review of available documentation did not reveal any information to suggest that TES were shipped from Wal-Mart's U.S. facilities to locations outside of the U.S. The only example that Wal-Mart could identify regarding its disposal of TES through a company other than Isolite involved two partially broken TES from Palmdale CA, which were disposed as radioactive waste by TGA.

Finally, Isolite assisted with Wal-Mart's formal TES removal program in connection with TESIP. Although Wal-Mart's contract with SRB included a provision that SRB would handle returns of TES for replacement or disposal, SRB has not participated in Wal-Mart's TESIP. While it is reasonable to conclude that SRB may have accepted returns of some TES prior to Wal-Mart's TESIP, we are unable to quantify the number of TES involved. Moreover, because Wal-Mart cannot confirm SRB's level of participation without records from the vendor, it did not report any shipments going to SRB. As of the date of this RAI response, SRB has not responded to any of requests for data from Wal-Mart or its representatives regarding any status of any TES it may have sold to Wal-Mart or received from Wal-Mart as a return.

NRC Question 9: Regarding the recently submitted lost TES reports for Agreement and non-Agreements States, the majority of entries listed device model number and curie content as "unknown." Considering that these lost TES have sequential serial numbers with known model numbers and curie content that may be included in purchase invoices or other documents, it appears feasible that Wal-Mart can establish model numbers and curie content for the majority of lost TES. Please explain why model numbers, curie content, and some serial numbers are listed as "unknown" for lost TES. Also, please provide the store number and estimated maximum curie content for TES lost at the store, where possible.

Response: Model numbers, curie content and serial numbers are listed as "unknown" for some lost TES because some of the vendor invoices obtained by Wal-Mart included only the total quantities of TES purchased or returned by Wal-Mart, and provided no other information. In other cases, documentation included the serial numbers of purchased or returned TES, but did not include information regarding model numbers or original curie content. Although Wal-Mart could extrapolate or make an educated guess of those entries based on existing

information, it could not verify or validate that information and thus did not provide it in its TESIP Report. Moreover, reporting initial TES curie content would not be appropriate because it would grossly overestimate the amount of curies actually lost due to a failure to consider the extent of isotope decay.

ATTACHMENT 2: RESPONSE TO RAI #1

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
329	Anniston	AL			07/01/08	MD*	David Turberville
355	Opelika	AL			06/11/08	MD	David Turberville
394	Moulton	AL			09/17/08	MD	David Turberville
731	Demopolis	AL	1	RRT	06/10/08	MD	David Turberville
731	Demopolis	AL	2		09/09/08	MD	David Turberville
740	Ozark	AL			07/23/08	MD	David Turberville
762	Birmingham	AL	1		09/03/08	MD	David Turberville
762	Birmingham	AL	2		10/01/08	MD	David Turberville
1101	Wetumpka	AL			06/12/08	MD	David Turberville
1158	Adamsville	AL		RRT	08/05/08	MD	David Turberville
1201	Gardendale	AL	1	RRT	07/16/08	MD	David Turberville
1201	Gardendale	AL	2		09/03/08	MD	David Turberville
1229	Hoover	AL		RRT	07/15/08	MD	David Turberville
2111	Hoover	AL			07/15/08	MD	David Turberville
2748	Gulf Shores	AL	1		06/12/08	MD	David Turberville
2748	Gulf Shores	AL	2		07/24/08	MD	David Turberville
4776	Huntsville	AL			09/17/08	MD	David Turberville
5113	Pell City	AL		RRT	07/02/08	MD	David Turberville
5126	Centre	AL			10/01/08	MD	David Turberville
5174	Semmes	AL			06/10/08	MD	David Turberville
5262	Pelham	AL		RRT	08/06/08	MD	David Turberville
8106	Montgomery	AL			09/10/08	MD	David Turberville
83	Magnolia	AR		RRT	07/01/08	MD	Steve Mack
1147	Flippin	AR			11/03/08	MD	Steve Mack
3331	Pine Bluff	AR		RRT	07/02/08	MD	Steve Mack
1218	Casa Grande	AZ			10/15/08	MD	Brian Goretzki/Philip Kearns
1299	Cottonwood	AZ	1	RRT	04/24/08	MD	Brian Goretzki/Philip Kearns
1299	Cottonwood	AZ	2	2 separate visits	10/02/08	MD	Brian Goretzki/Philip Kearns
1299	Cottonwood	AZ	3	additional signs	11/12/08	MD	Brian Goretzki/Philip Kearns
1512	Chandler	AZ			09/04/08	MD	Brian Goretzki/Philip Kearns
2113	Phoenix	AZ			10/14/08	MD	Brian Goretzki/Philip Kearns
3465	Glendale	AZ			10/15/08	MD	Brian Goretzki/Philip Kearns
3751	Queen Creek	AZ			11/10/08	MD	Brian Goretzki/Philip Kearns
5124	Glendale	AZ	1	2 separate visits	04/25/08	MD	Brian Goretzki/Philip Kearns
5124	Glendale	AZ	2	2 separate visits	07/08/08	MD	Brian Goretzki/Philip Kearns
5124	Glendale	AZ	3		09/04/08	MD	Brian Goretzki/Philip Kearns
5189	Phoenix	AZ		RRT	04/23/08	MD	Brian Goretzki/Philip Kearns
5190	Phoenix	AZ			10/14/08	MD	Brian Goretzki/Philip Kearns
5330	Phoenix	AZ			07/09/08	MD	Brian Goretzki/Philip Kearns
5331	Phoenix	AZ			09/03/08	MD	Brian Goretzki/Philip Kearns
6606	Phoenix	AZ			09/03/08	MD	Brian Goretzki/Philip Kearns
1554	Stockton	CA			10/02/08	MD	Peggy Kernan
1616	Susanville	CA			08/26/08	MD	Peggy Kernan
1645	Hanford	CA		RRT	11/06/08	MD	Peggy Kernan
1700	Poway	CA	1	RRT	03/25/08	MD	Peggy Kernan
1700	Poway	CA	2	RRT	05/05/08	MD	Peggy Kernan
1805	La Quinta	CA		RRT	04/10/08	MD	Peggy Kernan
1832	Palm Springs	CA			05/07/08	MD	Peggy Kernan
1853	Hemet	CA			09/24/08	MD	Peggy Kernan
1862	Rialto	CA	1	RRT	04/09/08	MD	Peggy Kernan
1862	Rialto	CA	2		09/03/08	MD	Peggy Kernan
1877	Porterville	CA			09/24/08	MD	Peggy Kernan
1879	Barstow	CA			10/22/08	MD	Peggy Kernan
1899	Riverside	CA			09/16/08	MD	Peggy Kernan
1903	Yuba City (Sacramento)	CA			05/21/08	MD	Peggy Kernan
1912	Corona	CA			09/17/08	MD	Peggy Kernan
1915	Yucca Valley	CA			04/15/08	MD	Peggy Kernan

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
1922	Rancho Cucamonga	CA			09/04/08	MD	Peggy Kernan
1988	Roseville	CA		RRT	09/23/08	MD	Peggy Kernan
2418	Placerville	CA		RRT	09/22/08	MD	Peggy Kernan
2950	Palmdale	CA	1	RRT	02/21/08	MD	Peggy Kernan
2950	Palmdale	CA	2		03/07/08	MD	Peggy Kernan
2950	Palmdale	CA	2	Decon Activity	03/07/08	CA**	Peggy Kernan
3464	Chino	CA			09/02/08	MD	Peggy Kernan
3522	Baldwin Park	CA	1	RRT	04/08/08	MD	Peggy Kernan
3522	Baldwin Park	CA	2		09/23/08	MD	Peggy Kernan
3587	Roseville	CA			09/23/08	MD	Peggy Kernan
4799	Citrus Heights	CA			09/24/08	MD	Peggy Kernan
4824	Santa Clarita	CA			09/24/08	MD	Peggy Kernan
5072	Torrance	CA			08/27/08	MD	Peggy Kernan
5096	Palm Desert	CA			05/06/08	MD	Peggy Kernan
5136	Marysville	CA			10/16/08	MD	Peggy Kernan
5139	Dixon	CA			09/30/08	MD	Peggy Kernan
5192	Antelope	CA	1	2 separate visits	04/15/08	MD	Peggy Kernan
5192	Antelope	CA	2		05/21/08	MD	Peggy Kernan
5192	Antelope	CA	3	2 separate visits	09/29/08	MD	Peggy Kernan
5193	Moreno Valley	CA	1		09/18/08	MD	Peggy Kernan
5193	Moreno Valley	CA	2		11/10/08	MD	Peggy Kernan
5305	Chula Vista	CA			09/25/08	MD	Peggy Kernan
5435	San Jose	CA		RRT	10/01/08	MD	Peggy Kernan
6378	Riverside	CA			09/16/08	MD	Peggy Kernan
1001	Pueblo	CO		RRT	08/12/08	MD	Steve Tarlton
1199	Avon	CO			09/23/08	MD	Steve Tarlton
1231	Thornton	CO			09/24/08	MD	Steve Tarlton
1689	Aurora	CO			08/06/08	MD	Steve Tarlton
2125	Lakewood	CO			08/14/08	MD	Steve Tarlton
2223	Westminster	CO			09/18/08	MD	Steve Tarlton
3313	Centennial	CO			09/23/08	MD	Steve Tarlton
3566	Aurora	CO		RRT	08/13/08	MD	Steve Tarlton
3582	Colorado Springs	CO			09/16/08	MD	Steve Tarlton
5049	Littleton	CO			09/17/08	MD	Steve Tarlton
5051	Greeley	CO		RRT	08/11/08	MD	Steve Tarlton
5099	Grand Junction	CO			10/01/08	MD	Steve Tarlton
5123	Colorado Springs	CO		RRT	09/15/08	MD	Steve Tarlton
5137	Aurora	CO			08/07/08	MD	Steve Tarlton
5232	Rifle	CO		RRT	10/28/08	MD	Steve Tarlton
5334	Aurora	CO			08/05/08	MD	Steve Tarlton
5341	Broomfield	CO		RRT	08/12/08	MD	Steve Tarlton
5370	Longmont	CO			09/24/08	MD	Steve Tarlton
2331	Waterford	CT			09/25/08	MD	Cheryl Villar (NRC)
2371	Wallingford	CT			09/24/08	MD	Cheryl Villar (NRC)
3546	New Milford	CT			08/18/08	MD	Cheryl Villar (NRC)
3548	Waterbury	CT		RRT	09/23/08	MD	Cheryl Villar (NRC)
718	Auburndale	FL			05/08/08	MD	Joy Stephenson
943	Casselberry	FL	1		07/23/08	MD	Joy Stephenson
943	Casselberry	FL	2		08/26/08	MD	Joy Stephenson
959	Bushnell	FL			08/13/08	MD	Joy Stephenson
967	Spring Hill	FL			04/29/08	MD	Joy Stephenson
1087	Stuart	FL		RRT	07/23/08	MD	Joy Stephenson
1090	Jacksonville	FL			07/16/08	MD	Joy Stephenson
1104	Inverness	FL			08/12/08	MD	Joy Stephenson
1173	Jacksonville	FL	1	RRT	07/17/08	MD	Joy Stephenson
1173	Jacksonville	FL	2		08/28/08	MD	Joy Stephenson
1223	Tallahassee	FL		RRT	04/02/08	MD	Joy Stephenson

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
1224	Pensacola	FL			10/01/08	MD	Joy Stephenson
1283	Starke	FL		RRT	08/07/08	MD	Joy Stephenson
1391	Daytona Beach	FL	1		05/06/08	MD	Joy Stephenson
1391	Daytona Beach	FL	2		07/01/08	MD	Joy Stephenson
1408	Tallahassee	FL			05/13/08	MD	Joy Stephenson
1541	W Palm Beach	FL			05/14/08	MD	Joy Stephenson
1874	Englewood	FL			06/11/08	MD	Joy Stephenson
2387	Brandon (west)	FL	1		05/02/08	MD	Joy Stephenson
2387	Brandon (west)	FL	2		06/10/08	MD	Joy Stephenson
2695	Clermont	FL	1	Urgent	04/30/08	MD	Joy Stephenson
2695	Clermont	FL	2	2 separate visits	08/05/08	MD	Joy Stephenson
2695	Clermont	FL	3		09/29/08	MD	Joy Stephenson
3207	Sanford	FL			07/22/08	MD	Joy Stephenson
3484	Pensacola	FL			06/11/08	MD	Joy Stephenson
3526	Brooksville (east)	FL	1		04/29/08	MD	Joy Stephenson
3526	Brooksville (east)	FL	2		06/09/08	MD	Joy Stephenson
3527	Port Lucie	FL			04/12/08	MD	Joy Stephenson
3538	Viera	FL			07/23/08	MD	Joy Stephenson
3617	Orlando	FL			06/11/08	MD	Joy Stephenson
3702	Jacksonville	FL			07/15/08	MD	Joy Stephenson
5035	Mulberry	FL	1		07/24/08	MD	Joy Stephenson
5035	Mulberry	FL	2		08/27/08	MD	Joy Stephenson
5054	Jacksonville	FL			05/15/08	MD	Joy Stephenson
5055	Naples	FL	1		10/15/08	MD	Joy Stephenson
5055	Naples	FL	2		11/11/08	MD	Joy Stephenson
5218	St. Petersburg	FL	1	RRT	08/07/08	MD	Joy Stephenson
5218	St. Petersburg	FL	2		09/30/08	MD	Joy Stephenson
5220	Tampa	FL			06/11/08	MD	Joy Stephenson
5250	Poinciana	FL	1		05/07/08	MD	Joy Stephenson
5250	W. Palm Beach	FL	2		07/02/08	MD	Joy Stephenson
5299	Clermont	FL		RRT	08/06/08	MD	Joy Stephenson
5301	W. Palm Beach	FL	1	RRT	04/12/08	MD	Joy Stephenson
5301	W. Palm Beach	FL	2	RRT	05/13/08	MD	Joy Stephenson
5301	W. Palm Beach	FL	3	2 separate visits	07/24/08	MD	Joy Stephenson
575	Woodstock	GA			06/18/08	MD	Kathaleen Hill
605	Savannah	GA			08/14/08	MD	Kathaleen Hill
614	La Grange	GA			07/08/08	MD	Kathaleen Hill
780	Monroe	GA			06/19/08	MD	Kathaleen Hill
787	Riverdale	GA	1	RRT	06/10/08	MD	Kathaleen Hill
787	Riverdale	GA	2		08/04/08	MD	Kathaleen Hill
899	Valdosta	GA	1		05/15/08	MD	Kathaleen Hill
899	Valdosta	GA	2		07/14/08	MD	Kathaleen Hill
932	Griffin	GA		RRT	08/05/08	MD	Kathaleen Hill
1018	Eastman	GA			08/07/08	MD	Kathaleen Hill
1047	Morrow	GA	1		06/10/08	MD	Kathaleen Hill
1070	East Ellijay	GA			06/17/08	MD	Kathaleen Hill
1111	Hartwell	GA			06/27/08	MD	Kathaleen Hill
1121	Milledgeville	GA			06/03/08	MD	Kathaleen Hill
1122	Toccoa	GA			08/13/08	MD	Kathaleen Hill
1143	Sandersville	GA			06/03/08	MD	Kathaleen Hill
1184	Stone Mountain	GA	1		04/29/08	MD	Kathaleen Hill
1184	Stone Mountain	GA	2		06/25/08	MD	Kathaleen Hill
1340	Lithonia	GA	1		04/28/08	MD	Kathaleen Hill
1340	Lithonia	GA	2		06/26/08	MD	Kathaleen Hill
1373	Lilburn	GA	1		04/30/08	MD	Kathaleen Hill
1373	Lilburn	GA	2		06/04/08	MD	Kathaleen Hill
1400	Athens	GA		RRT	06/05/08	MD	Kathaleen Hill

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
2154	Duluth	GA	1	RRT	04/21/08	MD	Kathaleen Hill
2154	Duluth	GA	2		06/17/08	MD	Kathaleen Hill
2793	Kernersville	GA			08/18/08	MD	Kathaleen Hill
2890	Macon	GA			07/07/08	MD	Kathaleen Hill
3461	Peachtree City	GA	1		06/19/08	MD	Kathaleen Hill
3461	Peachtree City	GA	2		07/09/08	MD	Kathaleen Hill
3750	Warner Robbins	GA		RRT	08/06/08	MD	Kathaleen Hill
4802	Hiram	GA			10/02/08	MD	Kathaleen Hill
5151	Rome	GA			06/11/08	MD	Kathaleen Hill
5173	Dalton	GA			06/18/08	MD	Kathaleen Hill
5252	Loganville	GA	1		06/17/08	MD	Kathaleen Hill
5252	Loganville	GA	2		08/07/08	MD	Kathaleen Hill
5390	Marietta	GA		RRT	06/03/08	MD	Kathaleen Hill
5422	Bainbridge	GA	1		05/14/08	MD	Kathaleen Hill
5422	Bainbridge	GA	2		06/05/08	MD	Kathaleen Hill
2314	Waipahu	HI			10/13/08	MD	Cheryl Villar (NRC)
5274	Pearl City	HI			10/14/08	MD	Cheryl Villar (NRC)
581	Marshalltown	IA		RRT	06/24/08	MD	Ramona Ubaldo
810	Mason City	IA		RRT	08/21/08	MD	Ramona Ubaldo
1005	Waverly	IA	1		07/16/08	MD	Ramona Ubaldo
1005	Waverly	IA	2		08/20/08	MD	Ramona Ubaldo
1285	Ottumwa	IA			06/25/08	MD	Ramona Ubaldo
1431	Keokuk	IA			06/26/08	MD	Ramona Ubaldo
1625	Le Mars	IA			08/19/08	MD	Ramona Ubaldo
3590	Sioux City	IA	1		06/10/08	MD	Ramona Ubaldo
3590	Sioux City	IA	2		08/18/08	MD	Ramona Ubaldo
3630	Marion	IA			07/01/08	MD	Ramona Ubaldo
603	Pekin	IL			09/04/08	MD	Daren Perrero
636	Princeton	IL			09/15/08	MD	Daren Perrero
2956	Joliet	IL			09/03/08	MD	Daren Perrero
3459	Bloomington	IL			06/24/08	MD	Daren Perrero
5044	Galena	IL	1		07/02/08	MD	Daren Perrero
5044	Galena	IL	2		08/05/08	MD	Daren Perrero
5199	Antioch	IL			06/26/08	MD	Daren Perrero
5399	Dixon	IL			06/25/08	MD	Daren Perrero
5403	Urbana	IL	1		06/23/08	MD	Daren Perrero
5403	Urbana	IL	2		07/17/08	MD	Daren Perrero
884	Shelbyville	IN			07/16/08	MD	Cheryl Villar (NRC)
1341	Evansville	IN			11/05/08	MD	Cheryl Villar (NRC)
1356	Martinsville	IN	1		07/24/08	MD	Cheryl Villar (NRC)
1356	Martinsville	IN	2		08/28/08	MD	Cheryl Villar (NRC)
1371	Columbus	IN			08/21/08	MD	Cheryl Villar (NRC)
1388	Kendallville	IN			09/30/08	MD	Cheryl Villar (NRC)
1557	Fishers	IN	1	2 separate visits	06/03/08	MD	Cheryl Villar (NRC)
1557	Fishers	IN	2		07/22/08	MD	Cheryl Villar (NRC)
1557	Fishers	IN	3	2 separate visits	11/05/08	MD	Cheryl Villar (NRC)
1618	Merrillville	IN			06/04/08	MD	Cheryl Villar (NRC)
1655	Crawfordsville	IN		RRT	07/15/08	MD	Cheryl Villar (NRC)
1978	Plymouth	IN	1	RRT	04/23/08	MD	Cheryl Villar (NRC)
1978	Plymouth	IN	2	2 separate visits	05/20/08	MD	Cheryl Villar (NRC)
1978	Plymouth	IN	3	2 separate visits	08/21/08	MD	Cheryl Villar (NRC)
3747	Muncie	IN			07/24/08	MD	Cheryl Villar (NRC)
4851	Clarksville	IN			05/07/08	MD	Cheryl Villar (NRC)
5443	Beech Grove	IN			07/23/08	MD	Cheryl Villar (NRC)
35	Manhattan	KS			06/30/08	MD	Jay Schalansky
72	Pittsburg	KS		RRT	07/16/08	MD	Jay Schalansky
186	El Dorado	KS			07/02/08	MD	Jay Schalansky

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
770	Great Bend	KS			09/04/08	MD	Jay Schalansky
794	Hutchinson	KS			10/31/08	MD	Jay Schalansky
993	McPherson	KS			07/01/08	MD	Jay Schalansky
1054	Atchison	KS			06/24/08	MD	Jay Schalansky
1099	Wichita	KS	1	RRT	07/01/08	MD	Jay Schalansky
1099	Wichita	KS	2		09/03/08	MD	Jay Schalansky
1053	La Grange	KY		RRT	05/06/08	MD	Nathan Garner/Brian Parsley
1233	Paintsville	KY	1		07/07/08	MD	Nathan Garner/Brian Parsley
1233	Paintsville	KY	2		09/16/08	MD	Nathan Garner/Brian Parsley
2967	Fort Wright	KY	1		07/15/08	MD	Nathan Garner/Brian Parsley
2967	Fort Wright	KY	2		08/20/08	MD	Nathan Garner/Brian Parsley
3362	Oak Grove	KY			07/10/08	MD	Nathan Garner/Brian Parsley
5236	Bowling Green	KY			10/29/08	MD	Nathan Garner/Brian Parsley
5417	Louisville	KY			10/30/08	MD	Nathan Garner/Brian Parsley
5418	Louisville	KY		RRT	10/30/08	MD	Nathan Garner/Brian Parsley
6449	Paducah	KY		RRT	07/09/08	MD	Nathan Garner/Brian Parsley
521	Lake Charles	LA		RRT	11/06/08	MD	Melanie Bauder/Brad Schexnayder
839	Baton Rouge	LA		RRT	07/23/08	MD	Melanie Bauder/Brad Schexnayder
911	Marrero	LA			09/30/08	MD	Melanie Bauder/Brad Schexnayder
961	La Place	LA			11/05/08	MD	Melanie Bauder/Brad Schexnayder
1102	Baker	LA	1	RRT	04/24/08	MD	Melanie Bauder/Brad Schexnayder
1102	Baker	LA	2		06/17/08	MD	Melanie Bauder/Brad Schexnayder
3288	Baton Rouge	LA	1	RRT	04/24/08	MD	Melanie Bauder/Brad Schexnayder
3288	Baton Rouge	LA	2		06/18/08	MD	Melanie Bauder/Brad Schexnayder
4775	Metairie	LA			11/04/08	MD	Melanie Bauder/Brad Schexnayder
5056	Prairieville	LA		RRT	07/24/08	MD	Melanie Bauder/Brad Schexnayder
2683	Hadley	MA			09/02/08	MD	Kenath Traegde
2901	Northampton	MA			10/06/08	MD	Kenath Traegde
3200	Weymouth	MA			10/07/08	MD	Kenath Traegde
1890	Salisbury	MD			08/28/08	MD	Roland Fletcher
3490	Hanover	MD			08/27/08	MD	Roland Fletcher
1939	Brunswick	ME			07/24/08	MD	Shawn Seeley
2013	Waterville	ME			07/08/08	MD	Shawn Seeley
8186	Scarborough	ME			07/09/08	MD	Shawn Seeley
1423	St. Johns	MI		RRT	06/10/08	MD	Cheryl Villar (NRC)
1542	Gaylord	MI			09/09/08	MD	Cheryl Villar (NRC)
1642	Charlotte	MI		RRT	08/14/08	MD	Cheryl Villar (NRC)
1752	Bay City	MI			06/17/08	MD	Cheryl Villar (NRC)
1791	Freemont	MI			06/20/08	MD	Cheryl Villar (NRC)
1942	Holland	MI	1	RRT	06/11/08	MD	Cheryl Villar (NRC)
1942	Holland	MI	2		06/20/08	MD	Cheryl Villar (NRC)
1987	Lapeer	MI			08/26/08	MD	Cheryl Villar (NRC)
2014	Houghton Lake	MI			06/17/08	MD	Cheryl Villar (NRC)
2062	Benton Harbor	MI			06/20/08	MD	Cheryl Villar (NRC)
2079	Marquette	MI			06/18/08	MD	Cheryl Villar (NRC)
2192	Houghton	MI			06/19/08	MD	Cheryl Villar (NRC)
2238	Muskegon	MI			07/29/08	MD	Cheryl Villar (NRC)
2417	Petoskey	MI	1		10/01/08	MD	Cheryl Villar (NRC)
2417	Petoskey	MI	2		10/28/08	MD	Cheryl Villar (NRC)
2522	Escanaba	MI		RRT	08/12/08	MD	Cheryl Villar (NRC)
4778	Auburn Hills	MI		RRT	08/26/08	MD	Cheryl Villar (NRC)
5048	New Hudson	MI		RRT	07/30/08	MD	Cheryl Villar (NRC)
5159	West Branch	MI		RRT	08/27/08	MD	Cheryl Villar (NRC)
1020	Albert Lea	MN	1	RRT	07/09/08	MD	George Johns
1020	Albert Lea	MN	2		08/21/08	MD	George Johns
1577	Buffalo	MN			07/02/08	MD	George Johns
1632	Alexandria	MN			11/11/08	MD	George Johns

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
2352	Cambridge	MN			09/16/08	MD	George Johns
2367	Pine City	MN			07/01/08	MD	George Johns
3624	Monticello	MN			11/12/08	MD	George Johns
6311	Shakopee	MN			10/16/08	MD	George Johns
30	Dexter	MO			08/18/08	MD	Cheryl Villar (NRC)
89	Camdenton	MO		RRT	10/08/08	MD	Cheryl Villar (NRC)
95	Desloge	MO		RRT	08/19/08	MD	Cheryl Villar (NRC)
250	Warsaw	MO		RRT	08/06/08	MD	Cheryl Villar (NRC)
444	Springfield	MO		RRT	08/21/08	MD	Cheryl Villar (NRC)
1009	Republic	MO			05/28/08	MD	Cheryl Villar (NRC)
5261	Pineville (Jane)	MO			02/18/08	MD	Cheryl Villar (NRC)
8163	Columbia	MO		RRT	08/20/08	MD	Cheryl Villar (NRC)
707	Clarksdale	MS			11/06/08	MD	Jayson Moak
1066	Pascagoula	MS			09/30/08	MD	Jayson Moak
1195	Waveland	MS			05/28/08	MD	Jayson Moak
2720	Madison	MS			08/27/08	MD	Jayson Moak
2084	Bozeman	MT			09/23/08	MD	Cheryl Villar
948	Hickory	NC			06/03/08	MD	Nicnolas Drive/Lee Cox
1133	Albemarle	NC	1		06/02/08	MD	Nicnolas Drive/Lee Cox
1133	Albemarle	NC	2		10/21/08	MD	Nicnolas Drive/Lee Cox
1191	Hillsboro	NC	1		06/18/08	MD	Nicnolas Drive/Lee Cox
1191	Hillsboro	NC	2		08/20/08	MD	Nicnolas Drive/Lee Cox
1255	Laurinburg	NC			06/04/08	MD	Nicnolas Drive/Lee Cox
1268	Whiteville	NC		RRT	10/14/08	MD	Nicnolas Drive/Lee Cox
1317	Asheville	NC	1		06/18/08	MD	Nicnolas Drive/Lee Cox
1317	Asheville	NC	2		10/22/08	MD	Nicnolas Drive/Lee Cox
1322	Lexington	NC			08/04/08	MD	Nicnolas Drive/Lee Cox
1502	Roanoke Rapids	NC			10/16/08	MD	Nicnolas Drive/Lee Cox
1552	Salisbury	NC			10/21/08	MD	Nicnolas Drive/Lee Cox
1558	Eden	NC			06/17/08	MD	Nicnolas Drive/Lee Cox
2058	Raleigh	NC			08/20/08	MD	Nicnolas Drive/Lee Cox
3305	Mayodan	NC	1	RRT	05/20/08	MD	Nicnolas Drive/Lee Cox
3305	Mayodan	NC	2	RRT	08/19/08	MD	Nicnolas Drive/Lee Cox
3503	Thomasville	NC		RRT	05/21/08	MD	Nicnolas Drive/Lee Cox
3700	Indian Trail	NC			10/20/08	MD	Nicnolas Drive/Lee Cox
5046	Clayton	NC			06/19/08	MD	Nicnolas Drive/Lee Cox
5254	Wake Forest	NC		RRT	10/15/08	MD	Nicnolas Drive/Lee Cox
5298	Gastonia	NC			06/27/08	MD	Nicnolas Drive/Lee Cox
5346	Mebane	NC			06/16/08	MD	Nicnolas Drive/Lee Cox
1534	Bismarck	ND		RRT	08/12/08	MD	Daniel E. Harman
4933	Bismarck	ND			09/11/08	MD	Daniel E. Harman
867	Scottsbluff	NE	1	RRT	03/27/08	MD	Howard Shuman
867	Scottsbluff	NE	2		05/13/08	MD	Howard Shuman
2142	Salem	NH			10/06/08	MD	Rick D'Alarcao/Twila M. Kenna
3535	Epping	NH			07/29/08	MD	Rick D'Alarcao/Twila M. Kenna
2518	Hamilton	NJ	1		05/22/08	MD	Cheryl Villar (NRC)
2518	Hamilton	NJ	2		10/15/08	MD	Cheryl Villar (NRC)
3520	Secaucus	NJ		RRT	10/14/08	MD	Cheryl Villar (NRC)
5384	Bridgeton	NJ			07/30/08	MD	Cheryl Villar (NRC)
611	Roswell	NM	1		07/02/08	MD	Santiago Rodriguez
611	Roswell	NM	2		08/19/08	MD	Santiago Rodriguez
831	Albuquerque	NM			07/01/08	MD	Santiago Rodriguez
4938	Albuquerque	NM			07/02/08	MD	Santiago Rodriguez
5430	Albuquerque	NM			07/01/08	MD	Santiago Rodriguez
1560	Las Vegas	NV			11/13/08	MD	Reginald Stewart/Dorothy Rink
2453	Fallon	NV		RRT	06/03/08	MD	Reginald Stewart/Dorothy Rink
2592	Las Vegas	NV			07/24/08	MD	Reginald Stewart/Dorothy Rink

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3847	Mesquite	NV			11/20/08	MD	Reginald Stewart/Dorothy Rink
5070	Las Vegas	NV			11/13/08	MD	Reginald Stewart/Dorothy Rink
5101	Pahrump	NV			07/23/08	MD	Reginald Stewart/Dorothy Rink
6257	Las Vegas	NV			09/30/08	MD	Reginald Stewart/Dorothy Rink
1926	Oswego	NY			07/17/08	MD	Daniel Sampson
1940	East Greenbush	NY	1	RRT	05/14/08	MD	Daniel Sampson
1940	East Greenbush	NY	2		07/22/08	MD	Daniel Sampson
2093	Utica	NY			08/20/08	MD	Daniel Sampson
2104	Newburgh	NY	1		07/10/08	MD	Daniel Sampson
2104	Newburgh	NY	2		08/19/08	MD	Daniel Sampson
2547	Monticello	NY			05/13/08	MD	Daniel Sampson
2915	South Setauket	NY	1		11/20/08	MD	Daniel Sampson
5497	LeRay	NY	1		07/16/08	MD	Daniel Sampson
5497	LeRay	NY	2	(Follow-Up)	09/03/08	MD	Daniel Sampson
5497	LeRay	NY	3	(Follow-Up)	11/07/08	MD	Daniel Sampson
6673	Cheektowaga	NY		RRT	07/23/08	MD	Daniel Sampson
8179	Henrietta	NY			07/15/08	MD	Daniel Sampson
1289	Wilmington	OH			07/07/08	MD	Stephen James
1416	Napoleon	OH			08/07/08	MD	Stephen James
1478	South Point	OH			10/29/08	MD	Stephen James
1503	Centerville	OH			10/28/08	MD	Stephen James
1628	Sandusky	OH			10/27/08	MD	Stephen James
1937	Coshocton	OH			07/17/08	MD	Stephen James
1986	Norwalk	OH			07/10/08	MD	Stephen James
2199	St. Clairsville	OH			11/06/08	MD	Stephen James
2359	Ashtabula	OH			08/27/08	MD	Stephen James
2426	Columbus	OH			09/19/08	MD	Stephen James
2441	Hamilton	OH			03/27/08	MD	Stephen James
3206	Lima	OH			11/04/08	MD	Stephen James
3515	Hillsboro	OH			07/09/08	MD	Stephen James
3571	Middletown	OH			07/10/08	MD	Stephen James
3581	Zanesville	OH	1		07/17/08	MD	Stephen James
3581	Zanesville	OH	2		09/08/08	MD	Stephen James
5203	London	OH		RRT	08/25/08	MD	Stephen James
5285	Canton	OH			08/26/08	MD	Stephen James
5466	Grove City	OH			07/08/08	MD	Stephen James
5471	Mansfield	OH			07/09/08	MD	Stephen James
8131	Cincinnati	OH		Urgent	07/15/08	MD	Stephen James
50	Vinita	OK			09/03/08	MD	Jerry Matthews
103	Shawnee	OK		RRT	10/22/08	MD	Jerry Matthews
113	Chickasha	OK			07/31/08	MD	Jerry Matthews
246	Skiatook	OK			09/23/08	MD	Jerry Matthews
499	Enid	OK	1	RRT	05/01/08	MD	Jerry Matthews
499	Enid	OK	2		05/30/08	MD	Jerry Matthews
743	Oklahoma City	OK	1		08/12/08	MD	Jerry Matthews
743	Oklahoma City	OK	2		10/23/08	MD	Jerry Matthews
838	Sand Springs	OK			08/27/08	MD	Jerry Matthews
975	Durant	OK	1		05/27/08	MD	Jerry Matthews
975	Durant	OK	2		10/20/08	MD	Jerry Matthews
1056	Newcastle	OK	1		08/12/08	MD	Jerry Matthews
1056	Newcastle	OK	2		10/21/08	MD	Jerry Matthews
3295	Broken Arrow	OK		RRT	08/26/08	MD	Jerry Matthews
5071	Lawton	OK			07/31/08	MD	Jerry Matthews
1772	Klamath Falls	OR			08/25/08	MD	Daryl Leon
1784	Salem	OR			05/13/08	MD	Daryl Leon
1793	Woodburn	OR			08/21/08	MD	Daryl Leon
1834	Grants Pass	OR			10/23/08	MD	Daryl Leon

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1880	Coos Bay	OR			08/18/08	MD	Daryl Leon
1886	Mechanicsburg	PA			10/07/08	MD	Ron Hamm
2064	Milford	PA	1		10/09/08	MD	Ron Hamm
2064	Milford	PA	2		11/18/08	MD	Ron Hamm
3223	Beaver Falls	PA			08/05/08	MD	Ron Hamm
3633	Waynesboro	PA	1	RRT	04/03/08	MD	Ron Hamm
3633	Waynesboro	PA	2	RRT	04/18/08	MD	Ron Hamm
5239	Bechtelsville	PA	1		08/05/08	MD	Ron Hamm
5239	Bechtelsville	PA	2	RRT	10/08/08	MD	Ron Hamm
6675	Erie	PA			08/06/08	MD	Ron Hamm
6677	Monroeville	PA			08/05/08	MD	Ron Hamm
2449	Caguas	PR			07/22/08	MD	Cheryl Villar (NRC)
4806	Carolina	PR			10/14/08	MD	Cheryl Villar (NRC)
1035	Spartanburg	SC		RRT	06/10/08	MD	James K. Peterson/Mark Windham
1281	Spartanburg	SC		RRT	06/11/08	MD	James K. Peterson/Mark Windham
1286	Columbia	SC			08/26/08	MD	James K. Peterson/Mark Windham
1358	Waterboro	SC		RRT	06/27/08	MD	James K. Peterson/Mark Windham
1748	Charleston	SC			08/21/08	MD	James K. Peterson/Mark Windham
3222	Central	SC	1	RRT	06/12/08	MD	James K. Peterson/Mark Windham
3222	Central	SC	2		08/14/08	MD	James K. Peterson/Mark Windham
5487	Traveler's Rest	SC	1	RRT	03/04/08	MD	James K. Peterson/Mark Windham
5487	Traveler's Rest	SC	2	RRT	03/13/08	MD	James K. Peterson/Mark Windham
5487	Traveler's Rest	SC	3	RRT	03/17/08	MD	James K. Peterson/Mark Windham
5487	Traveler's Rest	SC	4	(Follow-Up)	04/10/08	MD	James K. Peterson/Mark Windham
5487	Traveler's Rest	SC	5	(Follow-Up)	04/29/08	MD	James K. Peterson/Mark Windham
1535	Sioux Falls	SD			06/10/08	MD	Cheryl Villar (NRC)
1685	Pierre	SD	1		06/11/08	MD	Cheryl Villar (NRC)
1685	Pierre	SD	2		08/04/08	MD	Cheryl Villar (NRC)
64	Brownsville	TN		RRT	10/03/08	MD	Sabrina Roberson
104	Milan	TN			10/09/08	MD	Sabrina Roberson
192	Columbia	TN			11/05/08	MD	Sabrina Roberson
268	Savannah	TN		RRT	10/08/08	MD	Sabrina Roberson
304	Springfield	TN	1	RRT	04/29/08	MD	Sabrina Roberson
304	Springfield	TN	2		09/16/08	MD	Sabrina Roberson
393	Jackson	TN			09/16/08	MD	Sabrina Roberson
663	Athens	TN			09/09/08	MD	Sabrina Roberson
684	Lexington	TN			10/27/08	MD	Sabrina Roberson
690	Elizabethton (Johnson City)	TN			06/17/08	MD	Sabrina Roberson
710	Hermitage (Nashville)	TN	1		04/29/08	MD	Sabrina Roberson
710	Hermitage (Nashville)	TN	2		07/15/08	MD	Sabrina Roberson
738	Camden	TN			10/28/08	MD	Sabrina Roberson
1226	Ashland City	TN			04/29/08	MD	Sabrina Roberson
1318	Knoxville	TN	1		08/21/08	MD	Sabrina Roberson
1318	Knoxville	TN	2		11/04/08	MD	Sabrina Roberson
1320	Knoxville	TN	1		09/11/08	MD	Sabrina Roberson
1320	Knoxville	TN	2		09/25/08	MD	Sabrina Roberson
3495	Clarksville	TN		RRT	10/07/08	MD	Sabrina Roberson
3660	Chattanooga	TN			09/10/08	MD	Sabrina Roberson
5057	Murfreesboro	TN		RRT	10/02/08	MD	Sabrina Roberson
5058	Antioch (Nashville)	TN			04/29/08	MD	Sabrina Roberson
5119	Nashville	TN			04/29/08	MD	Sabrina Roberson
5251	Chattanooga	TN	1		06/19/08	MD	Sabrina Roberson
5251	Chattanooga	TN	2		08/21/08	MD	Sabrina Roberson
5263	Cleveland	TN	1	RRT	08/19/08	MD	Sabrina Roberson
5263	Cleveland	TN	2		10/06/08	MD	Sabrina Roberson
181	New Boston	TX		RRT	08/07/08	MD	Tony Gonzals/Ray Fleming/June Sanders
206	McKinney	TX			08/27/08	MD	Tony Gonzals/Ray Fleming/June Sanders

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
266	Grapevine	TX			11/11/08	MD	Tony Gonzals/Ray Fleming/June Sanders
399	Longview	TX			09/10/08	MD	Tony Gonzals/Ray Fleming/June Sanders
440	Rockport	TX		RRT	03/31/08	MD	Tony Gonzals/Ray Fleming/June Sanders
512	El Paso	TX		RRT	08/20/08	MD	Tony Gonzals/Ray Fleming/June Sanders
522	Crosby	TX			08/25/08	MD	Tony Gonzals/Ray Fleming/June Sanders
572	Kilgore	TX		RRT	09/09/08	MD	Tony Gonzals/Ray Fleming/June Sanders
590	Fort Worth	TX			10/29/08	MD	Tony Gonzals/Ray Fleming/June Sanders
600	Pampa	TX			07/30/08	MD	Tony Gonzals/Ray Fleming/June Sanders
752	Pasadena	TX		RRT	07/07/08	MD	Tony Gonzals/Ray Fleming/June Sanders
772	Houston	TX			07/08/08	MD	Tony Gonzals/Ray Fleming/June Sanders
872	Pearland	TX			10/29/08	MD	Tony Gonzals/Ray Fleming/June Sanders
880	Irving	TX			08/13/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1022	Tyler	TX		RRT	09/08/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1041	Weslaco	TX			05/14/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1055	Garland	TX	1		04/23/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1055	Garland	TX	2		12/22/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1126	Boerne	TX		RRT	05/16/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1185	Austin	TX			04/24/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1303	Georgetown	TX	1	RRT	04/16/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1303	Georgetown	TX	2		07/09/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1347	San Antonio	TX	1		07/10/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1347	San Antonio	TX	2		08/21/08	MD	Tony Gonzals/Ray Fleming/June Sanders
2066	Houston	TX	1	RRT	07/08/08	MD	Tony Gonzals/Ray Fleming/June Sanders
2066	Houston	TX	2		08/26/08	MD	Tony Gonzals/Ray Fleming/June Sanders
2086	Plano	TX	1		08/12/08	MD	Tony Gonzals/Ray Fleming/June Sanders
2086	Plano	TX	2		09/11/08	MD	Tony Gonzals/Ray Fleming/June Sanders
2105	Farmer's Branch	TX			08/13/08	MD	Tony Gonzals/Ray Fleming/June Sanders
3285	Cedar Hill	TX			11/11/08	MD	Tony Gonzals/Ray Fleming/June Sanders
3406	Dallas	TX			04/23/08	MD	Tony Gonzals/Ray Fleming/June Sanders
3542	Houston	TX			07/07/08	MD	Tony Gonzals/Ray Fleming/June Sanders
3591	Conroe	TX			07/09/08	MD	Tony Gonzals/Ray Fleming/June Sanders
3773	Fort Worth	TX	1		04/24/08	MD	Tony Gonzals/Ray Fleming/June Sanders
3773	Fort Worth	TX	2		06/26/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5045	Tomball	TX			07/09/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5091	Cypress	TX			05/02/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5108	El Paso	TX			11/06/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5146	San Antonio	TX			11/04/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5165	Alamo	TX			05/15/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5191	Forney	TX	1	RRT	04/21/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5191	Forney	TX	2		06/26/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5210	Wylie	TX	1		04/24/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5210	Wylie	TX	2	(Same visit)	04/28/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5210	Wylie	TX	3	(Follow-Up)	06/27/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5211	McKinney	TX	1		08/27/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5211	McKinney	TX	2		10/28/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5288	Seagoville	TX			08/12/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5359	Azle	TX			09/11/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5416	Arlington	TX			09/17/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5480	Round Rock	TX	1		04/25/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5480	Round Rock	TX	2		07/08/08	MD	Tony Gonzals/Ray Fleming/June Sanders
5493	Brownsville	TX		RRT	08/14/08	MD	Tony Gonzals/Ray Fleming/June Sanders
1708	Riverdale	UT	1		08/19/08	MD	Craig Jones
1708	Riverdale	UT	2		10/02/08	MD	Craig Jones
2511	American Fork	UT			10/02/08	MD	Craig Jones
3568	West Valley City	UT			10/02/08	MD	Craig Jones
3589	Salt Lake City	UT			08/20/08	MD	Craig Jones
5167	Payson	UT			10/23/08	MD	Craig Jones

Store No.	City	State	Visit	Notes	Date	State License	RegulatoryContact
5168	Richfield	UT			08/18/08	MD	Craig Jones
1424	Colonial Heights	VA		Urgent	05/20/08	MD	Cheryl Villar (NRC)
1524	Chester	VA			07/29/08	MD	Cheryl Villar (NRC)
1759	Gloucester	VA			07/30/08	MD	Cheryl Villar (NRC)
1934	South Hill	VA		RRT	07/22/08	MD	Cheryl Villar (NRC)
3219	Williamsburg	VA		RRT	07/23/08	MD	Cheryl Villar (NRC)
5253	Chesapeake	VA			10/30/08	MD	Cheryl Villar (NRC)
2249	Chehalis	WA		RRT	07/24/08	MD	Anine Grumbles/Pamela Walsh
2403	Puyallup	WA			10/01/08	MD	Anine Grumbles/Pamela Walsh
2476	College Place	WA			10/06/08	MD	Anine Grumbles/Pamela Walsh
2539	Spokane Valley	WA			08/05/08	MD	Anine Grumbles/Pamela Walsh
2595	Tulalip	WA		RRT	07/23/08	MD	Anine Grumbles/Pamela Walsh
4835	Renton	WA		RRT	10/02/08	MD	Anine Grumbles/Pamela Walsh
882	Prairie du Chien	WI			06/03/08	MD	Leola DeKock
1430	Oshkosh	WI			07/30/08	MD	Leola DeKock
1571	Mukwonago	WI	1		06/05/08	MD	Leola DeKock
1571	Mukwonago	WI	2		11/04/08	MD	Leola DeKock
1679	Onalaska	WI			09/10/08	MD	Leola DeKock
2271	Shawano	WI			05/08/08	MD	Leola DeKock
2421	St Croix Falls	WI		RRT	07/08/08	MD	Leola DeKock
2986	Neenah	WI	1		05/08/08	MD	Leola DeKock
2986	Neenah	WI	2		11/03/08	MD	Leola DeKock
3245	Hayward	WI			07/10/08	MD	Leola DeKock
3247	Delavan	WI			06/04/08	MD	Leola DeKock
3497	Plymouth	WI	1	RRT	05/06/08	MD	Leola DeKock
3497	Plymouth	WI	2		07/07/08	MD	Leola DeKock
1522	Elkins	WV			04/17/08	MD	Cheryl Villar (NRC)
2244	Huntington	WV	1		10/07/08	MD	Cheryl Villar (NRC)
2244	Huntington	WV	2		11/19/08	MD	Cheryl Villar (NRC)
5296	Barboursville	WV			11/06/08	MD	Cheryl Villar (NRC)
5319	MacArthur	WV	1	2 separate visits	05/21/08	MD	Cheryl Villar (NRC)
5319	MacArthur	WV	2		06/19/08	MD	Cheryl Villar (NRC)
5319	MacArthur	WV	3	2 separate visits	10/06/08	MD	Cheryl Villar (NRC)
1315	Cheyenne	WY	1	RRT	06/10/08	MD	Cheryl Villar (NRC)
1315	Cheyenne	WY	2		08/27/08	MD	Cheryl Villar (NRC)

*MD Dade Moeller& Associates license # MD-31-244-01
**CA Thomas Gray & Associates license # 2 2105-30 (State of California)

ATTACHMENT 3: RESPONSE TO RAI #2

Store #	Address where TES were Shipped (current or previous address)	Store Status	# TES Purchased	Serial Numbers of TES Purchased	#TES Ret'd *	# TES Lost	Serial Numbers of Lost TES
288	1121 S. Magolia Woodville, TX	Lease Expired	30	289378-289407	27	3	289388,289397, 289401
729	100 W. John Rowan Blvd. Bardstown, KY	Sold	63	280801-280863	41	22	280803,280807, 280808,280810, 280811, 280818, 280819,280821-26, 280828,280830-32, 280834-36, 280839-40
909	8101 W. Judge Perez Dr. Chalmette, LA	Damaged by Hurricane Katrina; still standing, but closed	67	307725-307791	0	67	307725-307791
1303	900 S. 1-35 Georgetown, TX	Lease Expired	8	243775-243782	0	8	243775-243782
2014	3451 W. Houghton Lake Dr. Houghton Lake, MI	Sold	63	280864-280926	54	9	280864, 280870, 280872,280874, 280878,280882-84, 280892
1863	34200 Vine Eastlake, OH	Demolished	52	296016-296061 and 306086-306091	47	5	296041, 306088-91
2581	3657 W. Genessee Camillus, NY	Terminated Lease	62	351715-351776	7	55	351715-21, 351725-47, 351749-55, 351758-59, 351761-76
2367	1100 Hillside Ave. Pine City, MN	Demolished	53	353484-353536	3	50	353484-90, 353492-94, 353496, 353498-343536
5079	1617 E. Beach Blvd. Pass Christian, MS	Destroyed by Hurricane Katrina	68	288799-288866	0	68	288799-288866

* These TES were listed in purchase documentation as shipped to the store address indicated, but were found at a different store location and subsequently returned to Isolite.

ATTACHMENT 4: RESPONSE TO RAI #3/REVISED SECTION V.D.6

6. Inadvertent Disposal of Multiple TES in a Municipal Landfill

This exposure scenario examines the potential impact to a member of the public from inadvertent disposal of TES in a municipal landfill. The discussion evaluates the associated potential dose to a landfill worker, as is the unlikely scenario of tritium from damaged TES being released from a landfill and entering an aquifer, where the tritium could be consumed in drinking water. As for the earlier scenarios, project-specific knowledge is used wherever possible and applicable.

Municipal Landfill Worker

The potential dose to a disposal truck driver or municipal landfill worker would be very small. The subject work area would include both the landfill area and transfer stations. Dose to these workers is conservatively characterized by the TES in store compactor scenario discussed in Section V.D.5. Due to the nature of their jobs, landfill workers would not be in the immediate vicinity of TES (*i.e.*, they are expected to be much more than 1 meter away) when TES were broken, and they would be in an open air environment where the tritium gas would be dispersed and diluted. Similarly, a worker operating compacting equipment in a landfill cell would most likely receive zero dose from a broken TES.

- Estimated Dose: Most likely: 0 mrem
  Reasonable maximum: 0.1 mrem

Groundwater Exposure Scenario

Modern municipal landfills are carefully located, scientifically-engineered facilities, built into or on the ground, that are designed to isolate waste from the environment. Such facilities typically include a series of disposal units, called "cells." Waste is isolated from the environment using engineered barriers, such as synthetic or clay liners, placed at the bottom of a landfill cell The cell liner is designed to collect any water (from rainfall or snowfall) that might pass through the waste during and after landfill operations. Water in a landfill cell, known as "leachate," will contain soluble or suspended materials from the waste that could contaminate ground water resources. Modern landfills have leachate collection systems that are designed to collect and remove leachate water from a waste cell, further limiting the potential for ground water contamination. A closure cap is used to cover waste when a cell is full, and is designed to prevent infiltration of water after disposal operations cease. By minimizing the water entering a closed landfill cell, the potential for ground water contamination from leachate water is also limited.

Operation of municipal landfills is regulated by the U.S. Environmental Protection Agency (EPA) through its Resource Conservation and Recovery Act (RCRA) Subtitle D regulations *(40* CFR Part *258).* The operational and post-closure performance of landfills is monitored through a series of ground water monitoring wells located in a buffer zone between the landfill cells and the site boundary. Monitoring wells are sampled for indication of liner systems failure; if detected, corrective actions are required to prevent contamination of ground water beyond the site boundary.

Most *Likely Exposure Scenario.*

Modern municipal landfills are controlled and monitored. Any inadvertent disposal of TES likely would have occurred during a time when both operating and closed landfills are required to be

monitored. Closed landfills would have caps in place to prevent infiltration of water. All of the landfills to which TES could have been disposed would have been RCRA Subtitle D-compliant. Because of the control and monitoring for radioactivity in landfill content, exposure to members of the public through ground water consumption following disposal of TES is a remote possibility, regardless of the number of TES disposed and the extent of TES damage. The below analysis presents some results of landfill leachate monitoring, demonstrating the control and monitoring that is being done. Although tritium is detected in leachate, none is released from the confines of the disposal cell and the leachate monitoring system. The most likely dose to a member of the public is zero.

- Estimated dose from "most likely" exposure scenario: 0 mrem

Reasonable Maximum Exposure Scenario.

Although unlikely, it is possible that older, smaller landfills, possibly those in rural areas, may not have the monitoring systems to provide effective control and monitoring of possible contaminants during operations and post-closure. These landfills are assumed to have a properly constructed liner but no cap. Tritium released from damaged TES could escape from the landfill disposal cell and enter a drinking water aquifer where it could be consumed by a member of the public. This scenario is a conservative representation of the reasonable maximum dose to a member of the public that might occur. No specific store or landfill is considered in this scenario and so no site-specific landfill characteristics are used. Simple, generic representations of the tritium source term, disposal cell release, aquifer transport, and public exposure are used in this drinking water scenario.[1] This approach conservatively represents the specific parameters that would be used in more sophisticated, site-specific modeling.

The bases of the scenario, including assumptions and parameter values, are presented in the following bullets. Intermediate and final calculation results are also shown, indicated by an arrow and text box outline. All values are limited to one or two significant figures, reflecting an appropriate level of uncertainty in this generic scenario. No additional significant figures are warranted.

- One hundred intact TES are inadvertently discarded from one store at the same time and disposed in a municipal landfill. One hundred discarded TES represents the 99.8th percentile of unaccounted for signs at one store. [parameter unchanged]
- The average activity per TES is 10 curies. The individual sign activity considers radioactive decay of the tritium while the signs were in stores and manufacturer differences in the initial sign activity. [parameter unchanged]

➢ Total disposed tritium activity: 1,000 curies

- All of the TES remain intact until the landfill daily soil cover is added and compaction occurs. During compaction of the waste and soil cover it is estimated that one-third (0.33) of the signs are damaged; in these damaged signs one-third (0.33) of the tritium-bearing tubes are broken and release tritium gas. These damaged fraction estimates of

[1] This basic scenario has been described and documented in a report prepared for the NRC, supporting license termination rulemaking (Kennedy and Strenge, 1992) and is consistent with the basis the EPA used to derive the tritium drinking water standard (EPA, 2000)

signs and tubes are conservative based on project observations of damage to signs following compaction in stores;[2] discarded signs are assumed to have frames and faceplates intact. [both parameters changed from 0.4]

- When the tubes are broken, 50% (0.5) of the tritium gas is captured in the soil and waste and oxidized to HTO (tritiated water or tritiated water vapor). This fraction depends on how deep the soil cover is when the signs are broken. For signs broken on the surface, most of the tritium gas would escape. However, a deep layer of soil cover would prevent much potential sign damage. This combination of the sign and tube damage ratios and tritium capture fraction is considered reasonably conservative. [parameter changed from 1.O]

➢ Activity of tritium available for release: 54 curies

- The disposal cell is 100 meters (328 feet) long by 100 meters (328 feet) wide with a depth of 10 meters (33 feet). Although these dimensions could vary, a single cell of these dimensions would contain about 100,000 tons of waste, which is representative of a smaller landfill (NSMWA, 2005). The surface area of the cell is 10,000 m^2. [parameter changed width from 50 m]
- One hundred percent of the precipitation incident on the disposal cell is assumed to be collected and remain in the cell. There is no leachate pumping or collection system, and there is no cap on a closed cell. Evaporation is not considered. [no change in this parameter, although not previously stated]
- The annual precipitation on the landfill is 0.5 meters (about 20 inches) per year. This value was selected since it is on the low side of average rainfall for most states. Additional precipitation would result in additional dilution with other assumptions remaining the same. [no parameter change]
- A total of five years of precipitation is accumulated in the landfill cell prior to closure. Under this generic scenario at least this much precipitation would be necessary to contact and transport the tritium from the sign location to a potential point of release in the failed liner system. This assumption provides adequate water to remove all the tritium yet avoid filling the disposal cell prior to liner failure. [parameter changed from 1 year, although not previously stated]

➢ *Disposal* cell *leachate* volume: *25,000* m^3

- The liner system fails after one half-life of tritium (12.3 years) following disposal of the tritium exit signs; all of the available tritium is immediately released from the disposal cell. As discussed at the beginning of this section, failure of the cell liner or leachate collection systems would not be anticipated until long after closure, if at all. [parameter changed from no hold-up]

➢ Cell *leachate* tritium concentration (point of release): *1,700,000 pCi/L*

➢ Activity of tritium released from cell: *27* curies

[2] TESIP observed a damage fraction of less than 0.1 for person-caused damage in dumpsters, and a damage fraction of zero for repeated compaction of signs in an hydraulic compactor. Intact signs in a flat position are reasonably robust; only direct impact to the face of the sign inside the frame is likely to cause damage. Considering activities and compaction likely to occur in a landfill, these damage estimates are reasonably conservative.

- Leachate is released from the disposal cell directly to a shallow aquifer used for drinking water. [no parameter change]
- The transport time of tritium in the shallow aquifer from the cell to a drinking water well is one half-life of tritium (12.3 years). Although this value is low (non-conservative) compared with most ground water systems when a buffer zone is considered, it should provide a conservative basis for the maximum reasonable dose from drinking water pathway analysis. [no parameter change]
- Dilution in the shallow aquifer reduces the tritium concentration by a factor of 20, to 5% of the release concentration. A factor of 20 is the default value for EPA Soil Screening Guidance for Radionuclides (EPA 2000b). [parameter changed from 10]

➢ ***Tritium concentration in drinking water: 27,000 pCi/L***

The calculated maximum drinking water concentration under this conservative generic exposure scenario is 27,000 picocuries per liter (pCi/L). Notwithstanding this conclusion, Wal-Mart acknowledges that this scenario results in an estimated concentration is greater than the EPA drinking water standard for tritium, which is 20,000 pCi/L. This would be the limiting condition for any regulatory comparison. However, Wal-Mart does not believe that the NRC should use this unlikely scenario as a basis for any regulatory conclusions regarding the TESIP.

EPA originally established this drinking water concentration limit based on a dose of 4 mremlyear. However, as the technical basis changed for calculating the tritium dose, EPA chose not to change the drinking water concentration standard. The radiation dose associated with this exposure scenario is provided below. The dose to the individual ingesting tritium in water is calculated using the following equation:

$$H = Q * DF * C * I$$

Where

H is the committed dose equivalent in mrem/year,
Q is the quality factor (set to 1.0 for beta radiation),
DF is the dose conversion factor for ingestion, in mrem/pCi,
C is the drinking water concentration (pCi/L), and
I is the adult drinking water intake of 730 L/year.

The dose conversion factor for tritium ingestion by an adult is 6.41 x 10^{-8} mrem/pCi ingested, from EPA's Federal Guidance Report No. 11 (Eckerman, et al., 1988). The values in Federal Guidance Report No. 11 are based on the recommendations of the International Commission on Radiological Protection (ICRP) in their Publications No. 26 and 30 (ICRP 1977; 1979-1988). The drinking water rate for an adult is based on consumption of 2 liters per day (Lid), corresponding to 730 L/year (NRC, 1977; Kennedy and Strenge, 1992).

➢ ***Dose from ingesting tritium in drinking water: 1.3 mrem/year***

The estimated maximum dose to an adult from drinking tritium in the well water of this scenario is 1.3 mrem per year, about 30% of the EPA drinking water standard of 4 mrem per year. The tritium ingestion dose conversion factor for a I-year-old child from ICRP Publication 67 (ICRP 1993) is higher at 1.8 x 10^{-7} mrem/pCi ingested. However, the water ingestion rate is lower at 330 L/year (0.9 L/d) for an infant (NRC 1977). This would result in a slightly higher dose of 1.6 mremlyear to an infant, if all drinking water were to be taken directly from such a well; this is somewhat higher than the estimated adult dose but still below the EPA drinking water dose limit.

- Estimated dose from "maximum" exposure scenario: 1.3 mrem

Comparison of Modeling Results to Measured Tritium Leachate Data.

The estimated leachate concentration from the maximum exposure scenario is compared to results of a project sponsored by the Pennsylvania Department of Environmental Protection, Bureau of Radiation Protection and the Bureau of Waste Management. The purpose of the Pennsylvania project was to investigate radioactive material potentially present in untreated landfill leachate (CEC, 2006). The project included all active and permitted landfills in the Commonwealth of Pennsylvania having a leachate collection system. A total of 54 of the 108 solid waste landfills in Pennsylvania (or half of the total) met this criterion in 2004. Samples of raw, untreated leachate were collected from these landfills, along with five quality control samples. The tritium data for the fall of 2004 indicated positive tritium results in 57 of the 59 leachate samples analyzed. The results ranged from 6.86 to 94,400 pCi/L, with a mean concentration of 25,200 pCi/L. There were 31 leachate samples (or 53% of the total number of samples) with tritium concentrations above the EPA drinking water standard of 20,000 pCi/L. The fall 2005 results showed positive tritium results in 55 of 59 leachate samples analyzed. The results ranged from -62 to 181,700 pCi/L, with a mean concentration of 20,900 pCi/L. There were 16 samples (or 27% of the total number of samples) with tritium concentrations above the EPA drinking water standard of 20,000 pCi/L (CEC, 2006). These results are summarized below and compared to the calculated result from the maximum exposure scenario.

Comparison to Pennsylvania Tritium Leachate Sampling Data

	Mean (pCi/L)	Maximum (pCi/L)
2004 Pennsylvania	25,200	94,400
2005 Pennsylvania	20,900	181,700
Maximum Exposure Scenario	n/a	1,100,000

The disposal cell leachate concentration estimated for this analysis is more than six times higher than the highest result measured in the Pennsylvania study, and more than 50 times the mean concentrations reported. Although there is uncertainty associated with the sources of tritium in the Pennsylvania landfills, this comparison would indicate that the modeling basis used in this study is conservative compared with actual data measured in the field.

The Commonwealth of Pennsylvania considers the EPA drinking water standard of 20,000 pCi/L as an applicable or relevant and appropriate requirement (ARAR) standard for leachates and any other waters at the point of intake to a drinking water supply. However, the Commonwealth concluded that, considering the treatment and discharge processes to which leachate is subject, and the dilution factors associated with human exposure scenarios involving drinking water, none of the fall 2004 or 2005 tritium sampling results would exceed the EPA criteria at the point of intake (CEC, 2006).

For the same reasons, it is also unlikely that the conservative assumptions used in Wal-Mart's generic "maximum exposure" scenario discussed in section 6.2 would result in the EPA drinking water concentration being exceeded for any member of the public.

ATTACHMENT 4: RESPONSE TO RAI #3/REVISED SECTION V.D.6

NEW REFERENCES:

1. U.S. Environmental Protection Agency. 2000b. Soil Screening Guidance for Radionuclides: Technical Background Document. EPA/540-R-00-006. October, 2000.
2. International Commission on Radiological Protection. 1993. Age-dependent Doses to Members of the Public from Intake of Radionuclides: Part 2 Ingestion Dose Coefficients. ICRP Publication 67. Pergamon Press, Oxford.

ATTACHMENT 5: RESPONSE TO RAI #4

"Saving ***People Money*** So ***They Can Live Better"***

Walmart

Environmental Services

Rich Dailey, **Sr. Director**

Radiation Safety Officer

1300 SE 8th Street, MS 0605
Bentonville. **AR** 72716-0605
Phone 479.204.9914
Rich.Dailey@wal-mart.com
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December 16,2008

Arthur Tucker
Radiation Control Program
Texas Department of State Health Services
1100 W. 49th Street
Austin, TX 78756

Dear Mr. Tucker;

Enclosed is our response to the questions you posed regarding potential residual tritium contamination from our broken tritium exit signs in Texas. The response was prepared by Dade Moeller, Inc., our health physics consultant on this project. I have reviewed Dade's summary and am in agreement with their conclusions. I have also enclosed an assessment of potential exposure and effective dose from tritium under two exposure scenarios that Dade provided to me.

Please let **me** know if you need any additional information or have any questions.

Sincerely,

Richard Dailey

Radiation Safety Officer
Wal-Mart Stores, Inc.

2 Enclosures

ATTACHMENT 5: RESPONSE TO RAI #4

This summary was prepared by Dade Moeller, Inc in response to your questions provided to Mi-. Rich Dailey of Wal-Mart on September 2, 2008 and the clarification in your October 17, 2008 email identifying the specific locations of concern to the State of Texas. All discussions pertain to tritium contalnination levels that originated from generally-licensed 'Tritium Exit Signs (TES).

With respect to the tritium contamination levels that may remain in Wal-Mart Store locations 0772,3591 and 1185, we would like to address those individually.

WalMart Store (#0772) 3506 S. Hwy 6 South, Houston, Texas (Ref August 12,2008 letter)

This location contained a contaminated plywood header where the damaged TES was mounted. Based on the high direct-reading instrument measurement (140,000 dpm/100 cm^2), this header was removed, packaged, and shipped for disposal. It is no longer in that store or within the State of Texas.

With regard to the direct readings, 'Table 1 of Attachment A to the August 12,2008 letter lists the measurement locations and results. As indicated in the report, the results were provided in units of disintegrations per minute (dpm) per 100 cm^2 and <u>include background</u>. When background (ranging from 1300 to 2700 dpm/100 cm^2 depending on the surface) is subtracted from these measurements, the results (other than for the removed header) are not statistically distinguishable from zero. Additionally, swipe tests of the floor area (Table 2) indicated no detectable contamination. Therefore, it can be concluded that thcrc is no detectable contamination remaining at the store.

WalMart Store (#3591) 18700 State Hwy. 105 **West, Conroe, Texas (Ref. August 12, 2008 letter)**

This location contained two contaminated plywood headers (1,500,000 dpm/100 cm^2 and 430,000 dpm/100 cm^2) where damaged TES were mounted. The contaminated portions of the headers were removed, packaged, and shipped for disposal. They are no longer in that store or within the State of Texas.

With respect to the direct readings, Tables 1 and 2 of Attachment A to the August 12, 2008 letter list the measurement locations and results. Similar to Store 0772, the reported results <u>include background</u>, and when background is subtracted (e.g., 3700 dpm/100 cm^2 tor the plywood) there is no significant activity remaining and none that exceed the Texas standard [TAC 289.202(ggg)(6)] for either total or removable containination. Additionally, swipe tests of the floor area (Tables 3 & 4) indicated no detectable contamination.

WalMart Store (#1185) 1030 Norwood Park Blvd, Austin, Texas (Ref. June 13,2008 letter)

This location contained a contaminated plywood header (14,000 dpm/100 cm^2 removable) where the damaged TES was mounted. This header was removed, packaged, and shipped for disposal. It is no longer in that store or within the State of Texas.

Swipe test results reported in Table 1 of Attachment **A** to the June 13, 2008 letter indicated that two isolated locations were slightly above the Texas removable contamination standard of 1000 dpm/100 cm^2. However, both results (1184 and 1154 dpm per 100 cm^2) were within the analytical margin of error. In addition, when averaging over an area up to 1 m^2 (as allowed by footnote 'c' to TAC 289.202 ggg 6), the average contamination levels are less than 500 dpm per 100 cm^2 in both cases, which is significantly below tltc release standard.

General Discussion

Although none of the locations discussed above have fixed contamination levels cxcccding the allowable levels in TAC 289.202(ggg)(6), if a situation were to exist at other Texas Wal-Mart locations where the remaining containination were to approach or slightly exceed TAC 289.202(ggg)(6) maximum or average levels, we would propose that no further action be taken based upon the following justifications:

- A risk assessment bounding these levels has already been complctcd as part of the NRC General License process and the impacts were found to be acceptable.
- Low-levels of fixed tritium contamination pose no internal or external radiological hazard.
- The TAC 289.202(ggg)(6) values are based on NRC Regulatory Guide 1.86, which are in turn based on the "worst-case" beta-gamma emitter, and tritium is at the opposite end of the spectrum..

As a basis for the statement that low-levels of tritium contamination pose little or no hazard to humans, I have attached a technical paper assessing dose from two likely scenarios involving damaged TES. The first involves an airborne exposure to HTO in a limited air volume. The second determines the amount of tritium contamination that must bc ingested/absorbed to cause an effective dose of 25 mrein. This value was determined to be 830,000,000 dpm. Our experience at recovering over 500 damaged TES across the nation to date indicates that contamination levels are several orders of magnitudc below this figure and that any remaining tritium surface contamination cannot cause an effective dose that would approach or exceed 1 mrem.

As a commitment to its employees and to the regulators, Wal-Mart intends to leave no removable contamination levels above the regulatory standards at any of its locations. With respect to fixed contamination levels remaining, we anticipate addressing those on a case-by-case basis as the only alternative may be destructive decontaniination methods.

At levels we have encountered (a few thousand dpm above the standard), destructive contamination methods that could be employed to remove the remaining fixed contamination would pose a greater risk than leaving the fixed contamination in place. These methods would also not be cost-effective and would not meet ALARA concept guidelines. Specifically, destructive decontamination would involve:

- Use of tools and equipment that pose increased occupational hazards to those performing decontamination activities
- Use of destructive decontamination methods that risk generating airborne contamination
- Greater costs to decontaminate these small areas that would not be cost-effective in avoiding the minimal potential doses, as noted above.

For these reasons, we state in each report the levels of any fixed tritium contamination remaining and our intention for no further action, if the levels warrant.

Estimate of Potential Dose from Immediate Exposure to Broken Tritium Exit Sign

The dose from a broken exit sign depends on the amount of tritium released, the fraction of the released amount that is in the form of tritiated water (HTO) vs. tritium gas, the volume of air in the room, the air turnover rate in the room, and the exposure time.

The comprehensive document "Tritium Radioluminescent Devices Health and Safety Manual" (PNL-10620) indicates that the dose to a person in proximity to a sign when it is broken is primarily attributable to inhaled water vapor, but is also associated with skin absorption. The total dose is represented by the equation:

$$H = Q * 1.33 * C * T,$$

Where H is the committed dose equivalent in rem, Q is the quality factor (dimensionless, assumed to be 1 for tritium), C is the air concentration of MTO in microcuries/milliliter (uCi/mL), and T is the exposure time in minutes.

As an extreme example, assume a person is in a small room (10 ft X 10 ft X 8ft) when a sign is broken, remains in the room for 1 hour, and there is no air turnover. Assume further that the release involves the full inventory of tritium in a light (20 Ci) and that 12.2% of the material is in the form of HTO. Note that these two assumptions overestimate the release because the value of 12.2% is the maximum reported in PNL-10620 and is associated with a 14-year-old sign, and the 30 Ci assumption represents the activity in a new sign.

Under the above conditions, the average concentration of HTO in the room would be 0.1 uCi/ml, and the dose would be 1.33 * 0.1 * 60 = 8 rem. This should be considered an upper bound dose, because the actual amount of HTO released from a damaged sign is likely to be less than assumed, the room would likely be larger, the air turnover rate would likely not be zero, and the person would not be likely to remain in the room for a full hour if a catastrophic event occurred resulting in the complete breakage of a sign. A more realistic estimate would result in a dose less than 10% of the upper bound, i.e., less than 1 rem. For comparison purposes, PNL-10620 estimated (in Table 6.6) a dose of 1.3 rem from a release of 0.5 Ci of HTO in a 1000 cubic foot room with an air turnover rate of once per hour and a stay time of 1 hour. In practice, bioassay results from personnel involved in breakage incidents indicate doses substantially less than 1 rem.

Estimate of Potential Dose from Surface Contamination

In some cases a light may be broken, but the light remains in place (e.g., on a wall or door) for an indefinite period of time because the breakage was not recognized immediately and/or the employee was not aware that action should be taken. In these cases, the area immediately surrounding the light can become contaminated, and this contamination may be present for months afterward. The potential doses from such residual contamination are substantially less than the potential doses associated with the initial air release. The question at hand is how much contamination would be needed to result in a dose of 25 mrem to an employee under bounding conditions, i.e., how much contamination warrants immediate action.

ATTACHMENT 5: RESPONSE TO RAI #4

Contaminated surfaces near a damaged tritium exit light could result in doses to personnel via primarily the ingestion or skin absorption pathways. The ingestion dose coefficient for HTO is 66 rem per Ci (PNL-10620), which translates to 3.0×10^{-8} millirem per disintegration per minute (mrem/dpm). The dose coefficient is essentially the same for HTO absorbed through the skin.

In order to receive a dose 01-25 mrem, a person would need to ingest (or absorb) $25/3.0 \times 10^{-8}$ = 830 million dpm of tritium. In other words, a person coming in contact with a contaminated wall would need to ingest or absorb all of the contamination on a 100 cm^2 surface contaminated to a level of 830 million dpm/100 cm^2, or all of the contamination on a 1 m^2 surface contaminated to a level of 83,000 dpm/100 cm^2. Under realistic contarnination transfer assumptions (i.e., 10% of the material is transferred to the hands, and 10% of the material on the hands is absorbed or ingested), the doses would be less than 1 mrem even at these contamination levels.

The above numbers compare favorably to the clearance (i.e., free release) levels of 600,000 dpm/100 cm^2 established for tritium in the ANSI/HPS standard "Surface and Volume Radioactivity Standards for Clearance" (ANSI/]-IPS N13.12-1999). This standard explains that the values in NRC Regulatory Guide 1.86 were not intended to apply to tritium. In fact, the NRC and most state regulatory agencies agree, which explains why tritium surface contamination Icvels exceeding the Regulatory Guide 1.86 values are typically allowed, on a case-by-case basis, by these agencies.

In conclusion, surface contamination rnay be detectable near exit signs broken four or more months in the past, but the associated contamination levels are not likely to result in doses of regulatory concern and would not warrant immediate action for health and safety reasons. Regulatory issues are the predominant concern, because the NRC and states do not formally recognize the ANSI/HPS N13.12 values except in case-by-case situations.

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