WCS Compact Waste Facility
Disposal Capacity Report

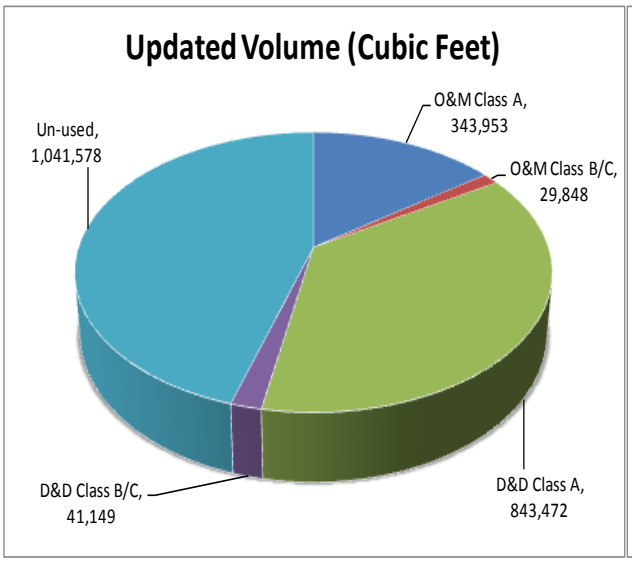
February 2012

Executive Summary

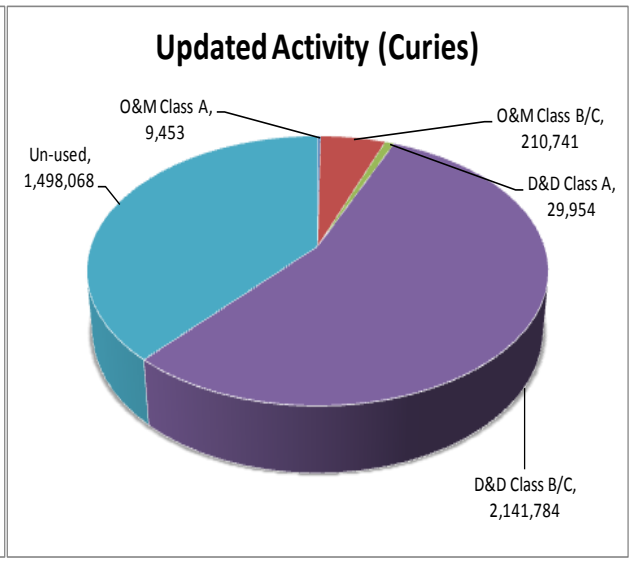
The Compact Waste Disposal Facility (CWF) is currently licensed for 2.3 million cubic feet and 3.89 million curies for a 15-year license term. These licensed volumes and radioactive source term have been thoroughly reviewed and are protective of human health and the environment. The results of our analysis indicate more than adequate disposal capacity for 1) operational low-level radioactive waste (LLRW) generated by the Texas Low-Level Radioactive Disposal Compact (Texas Compact) nuclear utilities and small generators, 2) decommissioning LLRW as estimated by the Texas Compact nuclear utilities, and 3) excess capacity of approximately 1.0 million cubic feet and 1.5 million curies for non-Texas Compact generators.

Figure 1 depicts the required and unused volume and radioactivity by the class of waste and the Texas Compact generating activity based on the licensed 15 year capacity of 2.3 million (M) cubic feet and 3.9M curies.

Figure 1 Comparison of 15-year Licensed Capacity to Estimated Waste Generation Rates



Source: Compact Generator Analysis Update, 2009 TCC Reports



Source: DOE MIMS for Operational Waste, LA for D&D Waste

Purpose

The purpose of this report is to update the previously issued WCS Compact Waste Facility Disposal Capacity Supplemental Report issued in December 2010 and provide additional information concerning Texas Compact waste generation. The additional information is derived from annual reports filed by the Texas Compact nuclear utilities with the Nuclear Regulatory Commission (NRC). This update supports the conclusions contained in the December 2010

report and demonstrates that the previous report is conservative from a Texas Compact generator perspective.

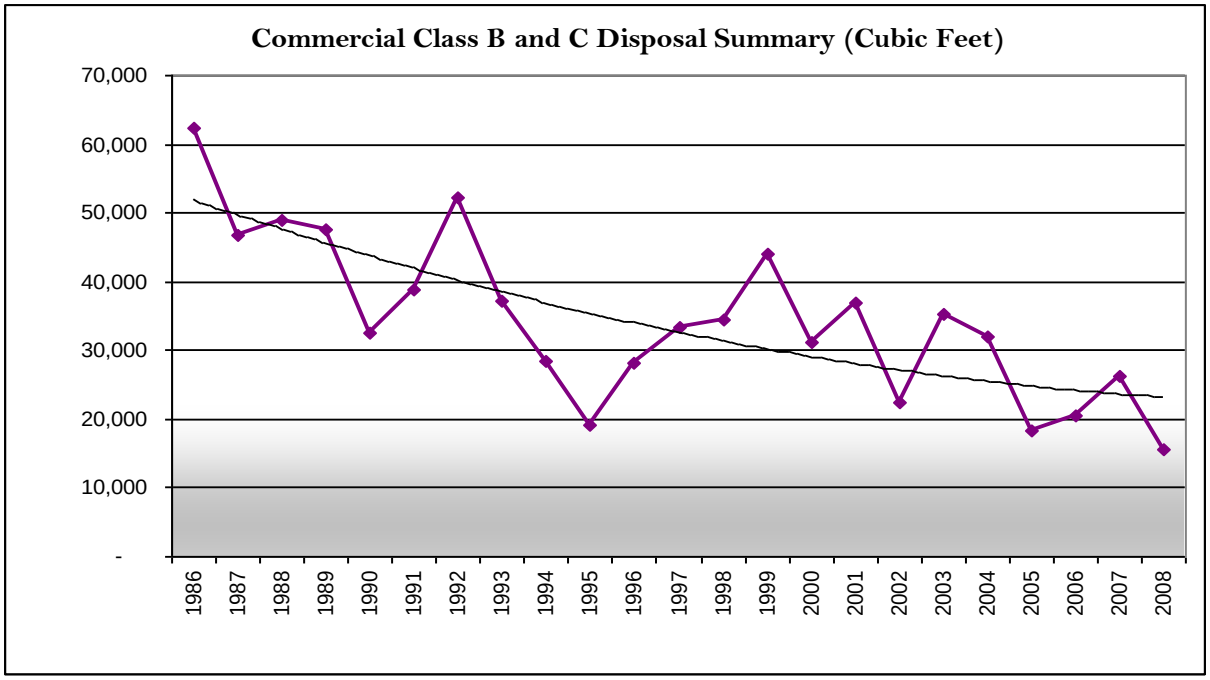
Background Information

The Texas Commission on Environmental Quality (TCEQ) issued the CWF license. As a part of the pre-licensing and licensing activity, the Texas Natural Resource Conservation Commission (a predecessor agency to TCEQ) generated a report - *Texas Compact Low-Level Radioactive Waste Generation Trends and Management Alternatives Study, 2000, Rogers & Associates Engineering Branch URS Corporation* (2000 Study). The 2000 Study provided the necessary foundation for licensing, design, and operations of the CWF in order to meet the needs of the Compact generators in Texas and Vermont. The report was completed in 2000 and relied on LLRW volume and radioactivity estimates from Compact generators, as well as previous studies conducted in the late 1980s and early 1990s. Where survey data were not provided for later reports, the estimates of volume and radioactivity were derived from the earlier studies.

WCS provided an update in December 2010 to the disposal capacity expected to be needed by Compact generators as 10 years had passed since the last 2000 Study and up to 25 years had passed since some of the estimates were developed. Additionally, WCS is required to provide the Texas Compact Commission a recommended total annual volume to be imported for disposal to the CWF and certify that the disposal of imported LLRW will not reduce capacity for Texas Compact generated LLRW. The December 2010 volume and curie estimates are still valid and have been included as Attachment A & B to this report.

Historical trends over the past 25-years have shown a decrease in disposal volumes. Figure 2 below depicts the Department of Energy's data on disposal volumes of Class B and C waste over the last 25 years, and illustrates the dramatic reductions in waste volumes. Disposal volumes have been reduced by approximately 77% since 1986 and by more than 50% since the 2000 Study waste volume estimates were completed. These reductions in waste generation volumes are primarily the result of operational enhancements and better practices at the LLRW generating facilities. Additionally, many advances in waste volume reduction, characterization, and sorting and segregating activities are being effectively employed to further reduce disposal volumes.

Figure 2 Commercial Class B and C Disposal Volume



Source: U.S.DOE MIMS database

Update

WCS has revisited the Texas Compact generator waste volume and radioactivity projections. Our updated analysis indicates that the volumes and activities estimated in the 2000 study and used in our license application are overestimated based on the current practices in radioactive waste management.

The December 2010 report was based on a wide array of data from independent sources, such as the Department of Energy's Manifest Information Management System (MIMS) database, updated decommissioning reports from the Texas Compact utilities that were provided to the NRC, utility reports to the Compact Commission, market data, and the WCS license application. For the February 2012 update, WCS has reviewed the utility generated "*Annual Radioactive Effluent Report*" (NRC Effluent Report) filed with the NRC by the Texas Compact utilities. These reports are published annually as required by 10 CFR Part 50.36a, and include data on descriptions of all shipments of low-level radioactive waste.

NRC Regulatory Guide 1.21, Revision 2, Table A-3 requires reporting of solid waste shipped offsite for burial or disposal. Solid waste volumes and curies must be reported by the following waste types:

a. Spent resins, filter sludges, evaporator bottoms, etc.
b. Dry compressible waste, contaminated equipment, etc.
c. Irradiated components, components, etc.
d. Other (please describe)

Estimates of major nuclide composition by waste type, number of shipments, transportation mode, and destination are also required. Revision 1, published in 1974 did not require reporting by waste class. Revision 2, published in 2009 requires waste type volumes and curies to be reported by waste class.

The Texas Compact utilities provided no distinction between Class A, B, or C type waste in the NRC Effluent Reports, unless only one class of waste was shipped. You can typically determine if LLRW was sent directly for disposal or through a processor from the destinations and curie content listed in the reports. Beginning in 2009 (first full year after Barnwell closed) only Class A was shipped off-site. No off-site shipments of Class B or C have been made since 2008 and this is clearly demonstrated by the curie content in the reports.

Full copies can be obtained from the NRC website http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html. Radioactive waste portions of the reports from Vermont Yankee, Comanche Peak, and South Texas for the years from 2005 to 2010 are attached to this report. The above information and in-depth contract negotiations with generators have substantially confirmed the December 2010 report and support the position that excess capacity is available for importation.

Table 1 shows the detailed information on waste generation as reported by the Texas Compact utilities for the period between 2005 and 2010. Both volumes shipped from the generating station and final burial volume is shown. The significant difference between generated volume and disposed volume is attributed to the fact that the Texas utilities have relied upon processors in recent years. In contrast to the historic volume reduction ratios shown (8 to 1, average), WCS has assumed a conservative 3 to 1 volume reduction in its capacity reports for dry active waste (DAW) and no volume reduction for resins, filters or irradiated hardware.

Table 1 Effluent Report Data

		2005		2006		2007		2008		2009		2010		TOTAL	
		Shipped	Buried	Shipped	Buried	Shipped	Buried	Shipped	Buried	Shipped	Buried	Shipped	Buried	Shipped	Buried
Comanche Peak	cubic feet	14,336	682	11,437	597	49,794	6,361	12,765	1,434	5,932	1,006	16,818	2,316	111,082	12,396
	Curies	201	249	373	369	652	474	383	558	0.2	28	19	19	1,628	1,697
South Texas	cubic feet	22,846	1,280	19,357	5,945	23,538	2,835	27,270	8,241	23,498	8,460	20,702	5,600	137,210	32,362
	Curies	278	280	394	391	568	569	632	744	19	19	1.1	0.7	1,894	2,002
Vermont Yankee	cubic feet	0	20,388	0	1,977	0	10,380	0	3,236	0	5,982	0	5,155	0	47,118
	Curies	0	229	0	907	0	635	0	464	0	267	0	148	0	2,650
TOTALS	cubic feet	37,181	22,350	30,794	8,519	73,332	19,576	40,034	12,912	29,430	15,448	37,520	13,072	248,292	91,876
	Curies	479	757	768	1,666	1,220	1,678	1,015	1,766	20	313	20	168	3,522	6,349

The Texas Compact NRC Effluent Reports show that the utilities buried 91,876 cubic feet of waste containing 6,349 curies in six years (2005 through 2010) for an average of 15,313 cubic feet and 1,058 Curies per year. Over the initial 15-year license term, this may be extrapolated to an estimated 230,000 cubic feet and 16,000 curies. Waste in storage, due to the Barnwell closure to Texas Compact waste and anticipated opening of the WCS facility may add an estimated 5,000 cubic feet and 2,800 curies. This results in a 15-year estimate of 235,000 cubic feet and 18,800 curies from the Texas Compact utilities.

Summary Comparison 15 year License

Table 2 below provides a comparison of the non-decommissioning Texas Compact utility 15-year waste volume and curie estimates made in the 2010 Capacity Report to the estimates made from the NRC Effluent Reports.

Table 2 Comparison of 15-Year Waste Generation Rates

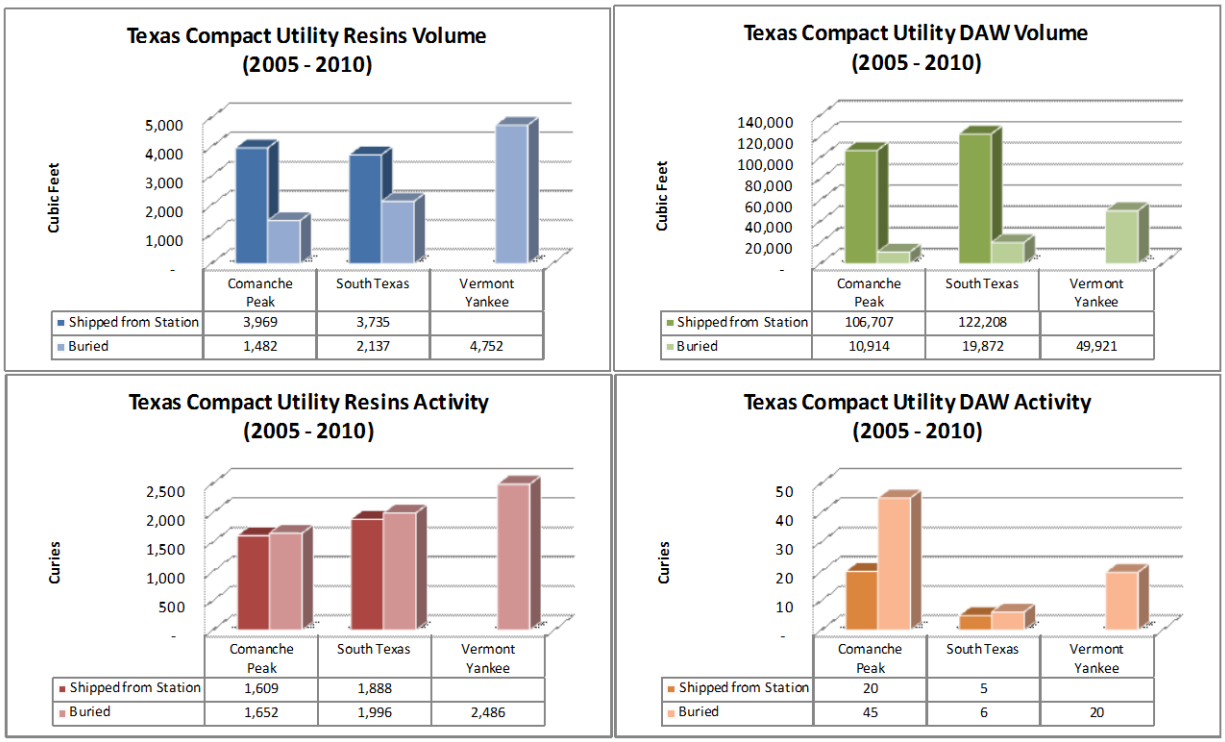
	Volume (cubic feet)	**Activity (Curies)**
2010 Capacity Report, 15-year Utility estimates	295,000	200,000
NRC Effluent Reports (extended to 15 years)	230,000	16,000
Storage of LLRW due to Barnwell Closure	5,000	2,800
NRC Effluent Reports plus storage estimate	**235,000**	**18,800**
Excess Amounts in 2010 Capacity Report	**60,000**	**181,200**

Table 2 shows that the WCS disposal volumes used in this report are higher (295,000 cubic feet) than actual disposal volumes (235,000 cubic feet) per the NRC Effluent Reports, and WCS curie estimates (200,000) are much higher than actual disposal curies (18,800) per the NRC Effluent Reports, even after correcting for the lack of disposal for Class B/C waste and extrapolating over our 15-year license period. We should also note that only 13 years remain our license period, as the license will expire in September 2024 unless it is renewed.

Additional Information from Annual Effluent Reports

Generally, the NRC Effluent Reports serve to substantiate earlier assessments and reports that were relied on for the December 2010 capacity report. The reports also provided a clearer picture on the use of processors for volume reduction, shipped versus buried total curie anomalies, and provided more confidence in our excess capacity estimates. Figure 4 shows the performance of each of the utilities generated volume and curies contrasting between shipments leaving the individual station to a processor and the resultant burial volume and curies. The information is depicted by Resins/Others and DAW due to the magnitude differences.

Figure 3 Comparisons of Waste Shipments and Burial Amounts – Cumulative [1]



[1] Vermont Yankee does not report shipment volumes and curies from the plant to the processor, only the resultant burial volumes. They only report number of shipments to the processor.

Volume Reduction

DAW volumes are generated at about 20 times the volume of resins and other wastes. This waste is typically comprised of "rags and bags" and other operational and maintenance waste. It has very low density and is not efficiently packaged at the plants. The utilities utilize processors to sort and segregate this waste. After sorting, some waste may be released as non-radioactive while the rest is graded into treatment categories. Depending on the type of waste, further methods are used, such as incineration and compaction, to achieve greater packaging efficiencies. Volume reduction averages between 5 to 1 and 10 to 1.

By contrast, volume reduction averages only 2 to 1 for the resins/other waste streams. This is attributed to the ALARA concerns and increased cost on the processor to handle the hotter waste as well as the homogeneous physical form and higher natural density of the waste. It can also be efficiently packaged at the generating station and sent directly to disposal.

As stated earlier, the nuclear industry has a long-term trend of reducing the volumes of LLRW being generated and increasing the packaging efficiencies to better compact the LLRW. The generator NRC Effluent Reports increase confidence that these trends should be taken into consideration.

Activity (Curie) Anomalies

Unanticipated anomalies are shown in the data provided by the utilities in the NRC Effluent Reports . One would expect that the number of curies being buried would be the same as the amount shipped from the utility. Both Comanche Peak and South Texas show higher curie content being buried than being shipped. Vermont Yankee does not provide volume and curie data leaving the station, so no similar comparison was done for Vermont Yankee.

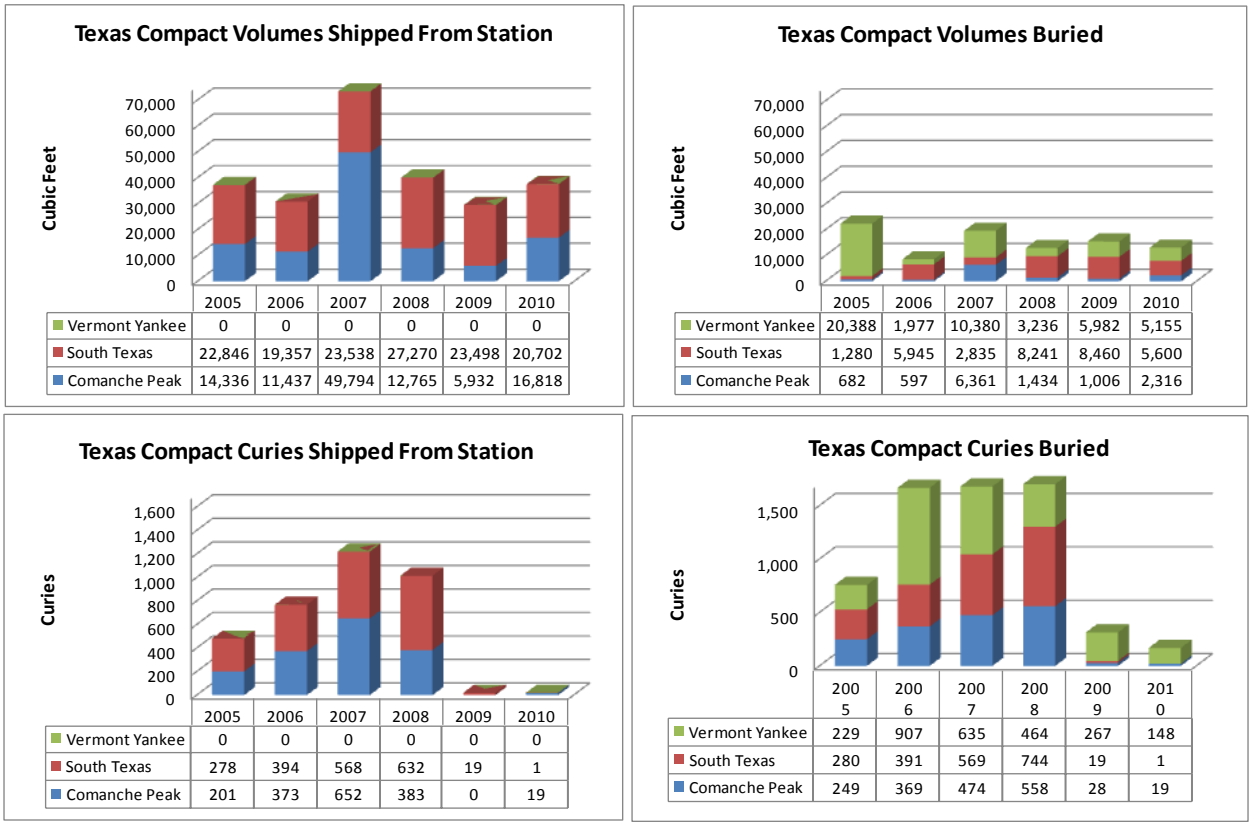
Curie capacity must be considered along with volumetric capacity. The most likely explanation of the increase in curies is the methods being used to allocate or "attribute" radioactivity by the processors. Another probable explanation is that the increase is associated with conservatism in the characterization techniques used by the processors.

The activity increases are not overly concerning given the magnitude and the fact that the burial activity is higher and therefore more conservative.

Capacity Report Data Confidence

Figure 4 depicts the annual shipped and burial volumes and curies from each station. These data reinforce the estimates that WCS provided in the December 2010 report. It is expected that the amount of curies shipped off-site would be greatly reduced as Barnwell is no longer available for disposal. The overall volume needs are stable and correlate very well with earlier information. Further, the magnitude of the curies shipped by the Texas Compact utilities while Barnwell was still open are much lower than estimated in our December 2010 report.

Figure 4 Comparisons of Waste Shipped and Burial Amounts – Annual [1]



[1] Vermont Yankee does not report shipment volumes and curies from the plant to the processor, only the resultant burial volumes. Vermont Yankee reports number of shipments to processors, without indicating volumes and curies shipped offsite.

Key Assumptions for the Analysis Update

The following are key assumptions in this update:

1. Utility operations and maintenance waste types and volumes were revised based upon updates from the three Texas Compact utilities. Consistent with the WCS license application, disposal volumes are used as the most appropriate measure of disposal capacity needed.
2. All five reactors are assumed to be operational until 2030 at which time they all shutdown and begin prompt decommissioning over the next 15 years.
3. This update used the most conservative case for both volume and radioactivity.
4. Decommissioning projections:
    a. Vermont Yankee (VY), South Texas Plant (STP) and Comanche Peak (CP) projected volumes are based on 2009 information provided by the utilities to the Texas Compact Commission. VY volumes have significantly increased over the 2000 Study. STP volumes are significantly reduced, and along with CP volumes are consistent with the guidance in the NRC Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors (NUREG-1713).

Significant advances have been made with the completion of decommissioning of the first reactors during the last ten years. This actual decommissioning experience has been incorporated in the NRC guidance, representing a much more realistic and consistent expectation versus the 2000 Study.

b. These updates result in higher waste volumes from VY, slightly reduced volumes from CP, and significantly reduced volumes from STP decommissioning as compared to the WCS license application.

5. Volumes and activity attributed to non-utility generators have not been changed in this updated projection as the original information appears consistent with historical data and no detailed updates are available.

6. Two significant changes drive the updates to the amount of curies expected from the Texas Compact generators:

   a. Approximately 2,500 cubic feet waste with 1.3M curies was projected in the WCS license application to be disposed of by VY in the first three years of CWF operations. These waste volumes and curies were replaced with current estimates from VY, which are significantly less.

   b. Almost 2M cubic feet and associated curies were projected in the WCS license application from decommissioning. The utilities updated estimates reduced the volume by more than half with corresponding reductions in curies.

Risk and Contingency

WCS also identified potential risk factors that could result in variances with the updated projected volumes and curies. The assumptions used in the disposal capacity update describe the current licensed operating life of STP and CP and assume that VY will operate an additional 20 years. The update also assumes decommissioning of all five currently operating Texas Compact reactors within the 35-year life of the CWF. This is the most conservative case to describe capacity needs during the 35-year life assumed by WCS in its license application. We also assumed 15-years of operating waste and all of the decommissioning waste during our initial license that expires in 2024, which is the most conservative case for that time period.

Additional operating and decommissioning volumes and curies from newly constructed reactors are not included because waste streams generated from new reactors were not considered at the time of the application. A license amendment will be needed to add disposal capacity and curies for any additional reactors that are built.

Several potential changes could affect the updated projections, resulting in positive variances of more volume and curies available for disposal. The possible changes are summarized below:

1. Continued nuclear industry trend of lower waste generation rates for both operational and decommissioning LLRW. All evidence supports the notion that small and large

generators will continue to implement methods and technologies to reduce the amount of waste generated. **The effect would be increased capacity.**

2. License amendment or renewal requests. License amendments or renewals could allow for more efficient disposal methods, expand physical capacity, and allow additional radioactivity. **The effect would be significant increased capacity.**
3. Use of actual data collected from CWF disposal operations to perform modeling and analysis. The actual volume and curies disposed of will be tracked and used to continually update the models used to demonstrate protectiveness of the CWF to health, the environment, and the public. It is anticipated that the actual data will be more favorable than the assumptions in the WCS license application due to the conservatism used to demonstrate protectiveness during the WCS license application process. **The effect would be increased capacity**.
4. Decommissioning of the reactors is delayed as is currently projected by each of the utilities. Delay may allow for decay of short-lived isotopes and use less of the radioactive source term (curie limit) making additional curies available. This could also allow some of the LLRW to be exempt and disposed of in a hazardous waste landfill. South Texas Project currently exempts certain LLRW and disposes of it in a non-LLRW landfill, which reduced the volumes of LLRW for disposal in a LLRW landfill. **The effect would be increased capacity.**

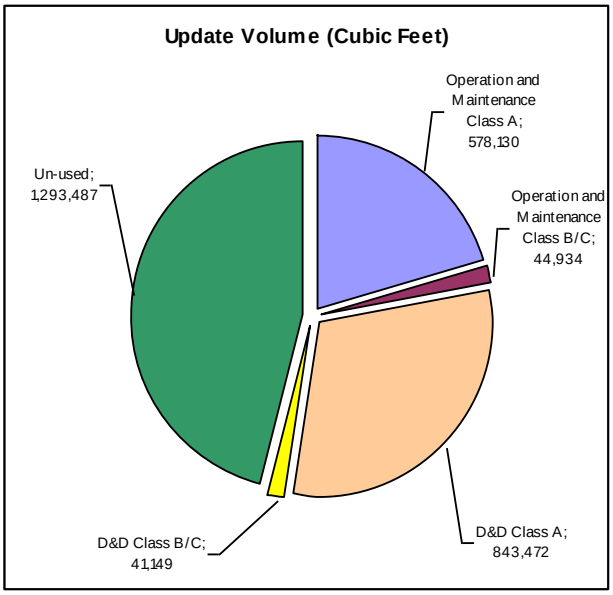
Variance from 2000 Study

The total projected need for the analyzed 35-year life of the CWF from Texas Compact Generators is updated to an estimated 1.5M cubic feet and 2.5M curies under the most conservative assumptions. This is compared to the original estimated 35-year capacity of 2.8M cubic feet and 4.6M curies as analyzed in the WCS license application, which results in about 1.3M cubic feet and 1.8M curies of unused capacity over the life of the facility. Data comparison for the WCS license application and the 2012 update are presented in Attachments A and B.

For the 15-year license term, the updated need for Texas Compact generators is 1.2M cubic feet and 2.4M curies with a full decommissioning reserve included in the estimates. When compared to the existing license (2.3M cubic feet and 3.9M curies), this results in about 1.0M cubic feet and 1.5M curies of unused capacity in the current license.

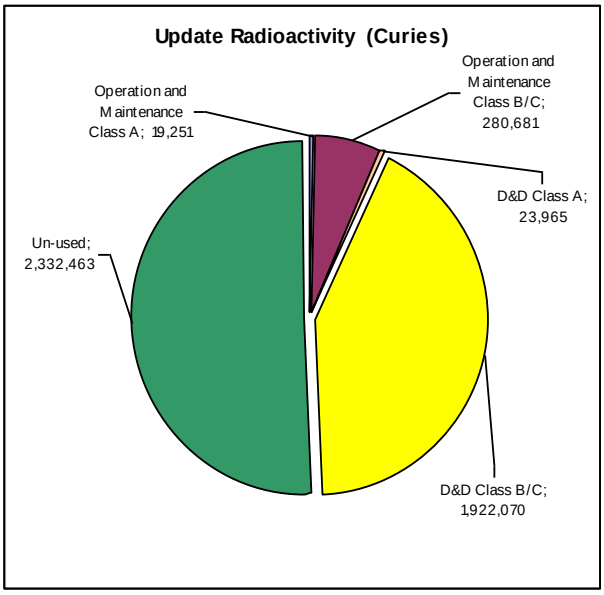
Figures 5 and 6 depict the required and unused volume and radioactivity by the class of waste and the generating activity based on an estimated 35-year capacity of 2.8M cubic feet and 4.6M curies.

Figure 5 Update Volume



Source: Compact Generator Analysis Update, 2009 TCC Reports

Figure 6 Update Radioactivity



Source: DOE MIMS for Operational Waste, LA for D&D Waste

Conclusion

WCS has determined that adequate disposal capacity, measured in both volumes and curies, exists to allow for the importation of up to 1.0 million cubic feet and 1.5 million curies over the remaining term of our license. Additional capacity, measured in both volumes and curies, is also available over the expected life of our Compact Waste Disposal Facility.

WCS recommends that the Texas Compact Commission approve 50,000 cubic feet and 220,000 curies for importation for disposal in the Compact Waste Disposal Facility in its first year of operations.

Attachments:

Attachment A: License Application and 2012 Update Volumes
Attachment B: License Application and 2012 Update Curies
Attachment C: 2005 through 2010 *South Texas Plant Annual Effluent Report* excerpts
Attachment D: 2005 through 2010 *Comanche Peak Plant Annual Effluent Report* excerpts
Attachment E: 2005 through 2010 *Vermont Yankee Plant Annual Effluent Report* excerpts

Attachment A

License Application and 2010 Update Volumes

WCS CWF Disposal Capacity Report February 2012

Annual Volumes In Application

Generator Class	Stream	Class	TOTAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Non Utility	ABSLIQD	A	22,400	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640
Non Utility	BIOWAST	A	9,450	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
Non Utility	COTRASH	A	33,600	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
Non Utility	HIGHACT	A	5,600	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Non Utility	LOWASTE	A	6,300	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
Non Utility	NCTRASH	A	87,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Non Utility	NCTRASH	B	2,030	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Non Utility	SOURCES	A	10,850	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
Non Utility	SOURCES	B	2,065	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Non Utility	SOURCES	C	4,550	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
Utility	CONFDSL	A	36,000	12,000	12,000	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	CONFDSL	B	27,600	9,200	9,200	9,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	COTRASH	A	54,480	14,000	14,000	14,000	4,700	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	240	240	240	240	240	-	-	-	-	-	-	-	-	-	-	-	-
Utility	DECONRS	A	1,350	450	450	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FLDRFSL	A	3,355	270	270	270	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	89	89	89	89	89	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	A	228	76	76	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	C	450	150	150	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NCTRASH	A	498,500	53,000	53,000	53,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	7,900	7,900	7,900	7,900	7,900	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NFRCOMP	C	2,550	850	850	850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	PROCFIL	C	19,340	1,800	1,800	1,800	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	88	88	88	88	88	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWCUPRS	B	174	58	58	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	A	11,550	1,100	1,100	1,100	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	390	390	390	390	390	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	B	24,550	2,200	2,200	2,200	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	290	290	290	290	290	-	-	-	-	-	-	-	-	-	-	-	-
Utility	SSYSRES	A	23,400	2,300	2,300	2,300	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	D&D	A	1,698,000	-	-	-	13,000	13,000	13,000	13,000	13,000	13,000	-	-	-	-	-	-	-	-	-	170,000	170,000	170,000	220,000	220,000	220,000	220,000	46,000	46,000	46,000	46,000	46,000	-	-	-	-	-
Utility	D&D	B	210,200	-	-	-	950	950	950	950	950	950	-	-	-	-	-	-	-	-	-	24,000	24,000	24,000	28,000	28,000	28,000	28,000	4,100	4,100	4,100	4,100	4,100	-	-	-	-	-
Utility	D&D	C	5,100	-	-	-	220	220	220	220	220	220	-	-	-	-	-	-	-	-	-	270	270	270	480	480	480	480	210	210	210	210	210	-	-	-	-	-
TOTAL			2,801,172	102,721	102,721	102,721	47,797	43,567	43,567	43,567	43,567	43,567	29,397	29,397	29,397	29,397	29,397	29,397	29,397	29,397	29,397	208,534	208,534	208,534	262,744	262,744	253,747	253,747	55,577	55,577	55,577	55,577	55,577	5,267	5,267	5,267	5,267	5,267

2010 Annual Volume Update With Decommissioning Volumes

Generator Class	Stream	Class	TOTAL	2010*	2011**	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Non Utility	ABSLIQD	A	21,760	-	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640
Non Utility	BIOWAST	A	9,180	-	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
Non Utility	COTRASH	A	32,640	-	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
Non Utility	HIGHACT	A	5,440	-	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Non Utility	LOWASTE	A	6,120	-	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
Non Utility	NCTRASH	A	85,000	-	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Non Utility	NCTRASH	B	1,972	-	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Non Utility	SOURCES	A	10,540	-	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
Non Utility	SOURCES	B	2,006	-	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Non Utility	SOURCES	C	4,420	-	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
Utility	CONFDSL	A	3,841	-	549	3,292	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	CONFDSL	B	2,945	-	421	2,524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	COTRASH	A	14,540	-	640	3,841	3,607	473	480	378	378	378	378	378	378	378	378	367	367	367	367	503	503	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	DECONRS	A	144	-	21	123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FLDRFSL	A	2,189	-	12	74	107	141	143	113	113	113	113	113	113	113	113	109	109	109	109	187	187	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	A	24	-	3	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	C	48	-	7	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NCTRASH	A	297,155	-	2,423	14,540	15,349	20,134	20,407	16,080	16,080	16,080	16,080	16,080	16,080	16,080	16,080	15,634	15,634	15,634	15,634	16,563	16,563	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NFRCOMP	C	272	-	39	233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	PROCFIL	C	12,063	-	82	494	691	906	918	724	724	724	724	724	724	724	724	704	704	704	704	184	184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWCUPRS	B	19	-	3	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	A	7,176	-	50	302	322	423	429	338	338	338	338	338	338	338	338	328	328	328	328	818	818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	B	15,509	-	101	604	844	1,107	1,122	884	884	884	884	884	884	884	884	860	860	860	860	608	608	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	SSYSRES	A	14,325	-	105	631	844	1,107	1,122	884	884	884	884	884	884	884	884	860	860	860	860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	D&D	A	843,472	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65,352	65,352	65,352	65,352	65,352	61,804	61,804	61,804	61,804	61,804	41,538	41,538	41,538	41,538	41,538
Utility	D&D	B	37,935	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	814	814	814	814	814	1,698	1,698	1,698	1,698	1,698	5,075	5,075	5,075	5,075	5,075
Utility	D&D	C	3,214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115	115	115	115	115	344	344	344	344	344	184	184	184	184	184
TOTAL			1,433,947	-	9,723	32,003	27,032	29,559	29,888	24,667	24,667	24,667	24,667	24,667	24,667	24,667	24,667	24,130	24,130	24,130	24,130	24,130	24,130	71,548	71,548	71,548	71,548	71,548	69,113	69,113	69,113	69,113	69,113	52,064	52,064	52,064	52,064	52,064

Attachment B

License Application and 2010 Update Radioactivity Detail

Annual Radioactivity (Ci) In Application

Generator Class	Stream	Class	TOTAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Non Utility	ABSLIQD	A	5,600	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Non Utility	BIOWAST	A	49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Non Utility	COTRASH	A	525	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Non Utility	HIGHACT	A	385	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Non Utility	LOWASTE	A	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Utility	NCTRASH	A	770	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Non Utility	NCTRASH	B	525	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Non Utility	SOURCES	A	8,750	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Non Utility	SOURCES	B	2,345	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
Non Utility	SOURCES	C	25,550	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730
Utility	CONFDSL	A	390	130	130	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	CONFDSL	B	177	59	59	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	COTRASH	A	219	63	63	63	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Utility	DECONRS	A	1,290	430	430	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FLDRFSL	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	A	26	9	9	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	C	165	55	55	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NCTRASH	A	2,480	260	260	260	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	40	40	40	40	40	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NFRCOMP	C	1,350,000	450,000	450,000	450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	PROCFIL	C	55,900	5,200	5,200	5,200	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	260	260	260	260	260	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWCUPRS	B	63	21	21	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	A	3,100	250	250	250	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	110	110	110	110	110	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	B	37,550	3,300	3,300	3,300	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	430	430	430	430	430	-	-	-	-	-	-	-	-	-	-	-	-
Utility	SSYSRES	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	D&D	A	41,160	-	-	-	120	-	-	120	120	120	-	-	-	-	-	-	-	-	-	3,400	3,400	3,400	4,400	4,400	4,400	4,400	4,400	9,200	920	920	920	920	-	-	-	-	-
Utility	D&D	B	959,400	-	-	-	2,400	2,400	2,400	2,400	2,400	2,400	-	-	-	-	-	-	-	-	-	110,000	110,000	110,000	130,000	130,000	130,000	130,000	130,000	19,000	19,000	19,000	19,000	19,000	-	-	-	-	-
Utility	D&D	C	2,082,000	-	-	-	68,000	-	-	68,000	68,000	68,000	-	-	-	-	-	-	-	-	-	130,000	130,000	130,000	230,000	230,000	230,000	230,000	230,000	100,000	100,000	100,000	100,000	100,000	-	-	-	-	-
TOTAL			4,578,429	461,048	461,048	461,048	76,313	8,193	8,193	76,313	76,313	76,313	5,793	5,793	5,793	5,793	5,793	5,793	5,793	5,793	5,793	245,513	245,513	245,513	366,513	366,513	365,672	365,672	129,472	121,192	121,192	121,192	121,192	1,272	1,272	1,272	1,272	1,272
UTILITY ONLY TOTAL				459,777	459,777	459,777	75,042	6,922	6,922	75,042	75,042	75,042	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	244,241	244,241	244,241	365,241	365,241	364,400	364,400	128,200	119,920	119,920	119,920	119,920	-	-	-	-	-

2010 Annual Curie Update With Decommissioning Curies

Generator Class	Stream	Class	TOTAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Non Utility	ABSLIQD	A	5,440	-	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Non Utility	BIOWAST	A	48	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Non Utility	COTRASH	A	510	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Non Utility	HIGHACT	A	374	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Non Utility	LOWASTE	A	10	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Utility	NCTRASH	A	748	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Non Utility	NCTRASH	B	510	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Non Utility	SOURCES	A	8,500	-	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Non Utility	SOURCES	B	2,278	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
Non Utility	SOURCES	C	24,820	-	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730
Utility	CONFDSL	A	411	-	59	353	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	CONFDSL	B	1,264	-	181	1,083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	COTRASH	A	5	-	0.22	1.31	1.23	0.16	0.16	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.17	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	DECONRS	A	15	-	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FLDRFSL	A	235	-	1	8	12	15	15	12	12	12	12	12	12	12	12	12	12	12	12	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	A	3	-	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	FPFILSL	C	252	-	36	216	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NCTRASH	A	101	-	1	5	5	7	7	5	5	5	5	5	5	5	5	5	5	5	5	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	NFRCOMP	C	77,136	-	11,019	66,116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	PROCFIL	C	63,271	-	432	2,590	3,623	4,752	4,817	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,690	3,690	3,690	3,690	968	968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWCUPRS	B	8	-	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	A	769	-	5	32	35	45	46	36	36	36	36	36	36	36	36	36	35	35	35	35	35	88	88	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	RWDMRES	B	81,344	-	528	3,166	4,428	5,808	5,887	4,639	4,639	4,639	4,639	4,639	4,639	4,639	4,639	4,639	4,510	4,510	4,510	4,510	4,510	3,189	3,189	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	SSYSRES	A	1,535	-	11	68	90	119	120	95	95	95	95	95	95	95	95	95	92	92	92	92	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility	D&D	A	29,954	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,321	2,321	2,321	2,321	2,321	2,195	2,195	2,195	2,195	2,195	1,475	1,475	1,475	1,475	1,475
Utility	D&D	B	213,384	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,580	4,580	4,580	4,580	4,580	9,549	9,549	9,549	9,549	9,549	28,548	28,548	28,548	28,548	28,548
Utility	D&D	C	1,928,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68,880	68,880	68,880	68,880	68,880	206,640	206,640	206,640	206,640	206,640	110,160	110,160	110,160	110,160	110,160
TOTAL			2,441,324	-	13,548	74,932	9,465	12,018	12,164	9,854	9,854	9,854	9,854	9,854	9,854	9,854	9,854	9,617	9,617	9,617	9,617	5,542	5,542	77,052	77,052	77,052	77,052	77,052	219,656	219,656	219,656	219,656	219,656	141,455	141,455	141,455	141,455	141,455
UTILITY ONLY TOTAL				-	12,277	73,660	8,194	10,747	10,892	8,582	8,582	8,582	8,582	8,582	8,582	8,582	8,582	8,345	8,345	8,345	8,345	4,270	4,270	75,781	75,781	75,781	75,781	75,781	218,384	218,384	218,384	218,384	218,384	140,183	140,183	140,183	140,183	140,183

Attachment C

2005 through 2010 *South Texas Plant Annual Effluent Report* excerpts

Attachment E

2005 through 2010 *Vermont Yankee Plant Annual Effluent Report* excerpts

2010
Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
April 2011

Authored by: Kim W. Reynolds
Effluent Chemist
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Technical Review: Gordon E. Williams, CHP
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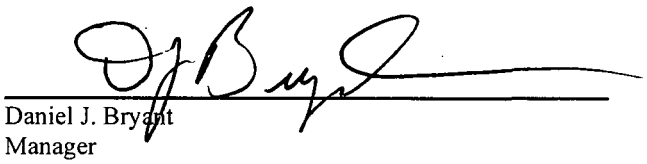
Health Physics Division

Approved by: 
Daniel J. Bryant
Manager
Chemistry Division

0PGP03ZX0007, Preparation of the Radioactive Effluent Release Report
South Texas Identification (STI): 3285313

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	None	None	N/A	N/A
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	5.17E+02 1.09E+00	9.38E+01 6.61E-01	-1.00E+00 -6.60E+01	1.00E+00 2.00E+02
c. Irradiated components, control rods, etc.	m^3 Ci	None	None	N/A	N/A
d. Other (low level secondary resin, sludge, oil and oily sludge).	m^3 Ci	6.93E+01 1.38E-04	6.48E+01 1.28E-04	-1.00E+00 -5.00E+01	1.00E+00 1.00E+02

2. Estimate of major nuclide composition (by type of waste)		
a. Spent resins, filter sludges, evaporator bottoms, etc.	None	N/A
b. Dry compressible waste, contaminated equip., etc.	Shipped Curie (Ci)	Percent (%)
Iron-55	0.57107	52.6%
Cobalt-60	0.19986	18.4%
Nickel-63	0.10923	10.1%
Chromium-51	0.08821	8.1%
Cobalt-58	0.07900	7.3%
Manganese-54	0.01543	1.4%
Niobium-95	0.00845	0.8%
Zirconium-95	0.00699	0.6%
Iron-59	0.00256	0.2%
Antimony-125	0.00192	0.2%
Cobalt-57	0.00060	0.1%
Cesium-137	0.00105	0.1%
c. Irradiated components, control rods, etc.	None	N/A
d. Other (low level secondary resin, sludge, oil and oily sludge).	Shipped Curie (Ci)	Percent (%)
H-3	0.00012906	93.85%
Iron-55	0.00000486	3.53%
Cobalt-60	0.00000207	1.50%
Nickel-63	0.00000074	0.54%
Beryllium-7	0.00000067	0.54%
Cesium-137	0.000000007	0.01%

3. Solid Waste Disposition Number of Shipments	Mode of Transportation	Destination
11	Truck	Energy Solutions - Duratek Services 1560 Bear Creek Road Oak Ridge, TN 37830
3	Truck	Republic Services * Blueridge Landfill 220 FM 521 Fresno, Texas 77545
3	Truck	Republic Services * Gulf West Landfill 2601 South Jenkins Road Anahuac, Texas 77514

Note: *Shipped per Texas Commission on Environmental Quality exemption to industrial landfill.

4. Class of Solid Waste:
   A

5. Type of Containers Used for Shipment:
   IP-1, General Design

6. Solidifying Agent:
   N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
   No shipments made during this period.

2009

Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
March 2010

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Approved by: _____
Daniel J. Bryant
Manager
Chemistry Division

0PGP03ZX0007, Preparation of the Radioactive Effluent Release Report
South Texas Identification (STI): 32620399

INTRODUCTION

This Radioactive Effluent Release Report is submitted for the period January 1, 2009, through December 31, 2009, in accordance with Appendix A of License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 2009. Liquid effluents are discharged to the on-site Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the South Texas Project Electric Generating Station Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. Table 1-1 lists a brief summary of the radioactive effluents and solid waste attributable to the station.

Table 1-1

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	6.0E+09[2]	6.5E+00
PARTICULATE AND IODINES	GAS	OFFSITE	6.0E+09[2]	4.0E-04
TRITIUM	GAS	OFFSITE	6.0E+09[2]	1.3E+02
TRITIUM	LIQUID	OFFSITE	4.8E+06[3]	3.1E+02[5]
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06[3]	3.2E-04[5]
TRITIUM	LIQUID	ON-SITE	2.8E+04[4]	2.3E+03
FISSION AND ACTIVATION PRODUCTS[1]	LIQUID	ON-SITE	2.8E+04[4]	2.3E-02
SPENT RESINS AND FILTERS	SOLID	FOR BURIAL	1.2E+01	1.8E+01
DRY COMPRESSIBLE WASTE	SOLID	FOR BURIAL	1.2E+02	3.2E-01
OTHER WASTE (LOW LEVEL SECONDARY RESIN, AND SLUDGE)	SOLID	FOR BURIAL	1.1E+02	0.0E+00

[1]Excludes dissolved and entrained gases.
[2]Unit Vent Release Volume for Units 1 and 2.
[3]Estimated MCR seepage to identified receptors.
[4]Total volume of liquid radioactive effluents discharged to the MCR.
[5]Reference ODCM, Table B4-1 for Matagorda Bay.

Tritium was the largest contributor to the offsite doses from radioactive effluents both liquid and gaseous. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (620 millirem).

Estimate of Total Error

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The **error** associated with determining the volume of solid radioactive waste shipments is estimated to be ± 1%. The **error** associated with determining the filter media, spent primary resins, and spent secondary resins radioactivity and radioactivity from other solid radioactive waste shipments is estimated to be within a factor of two of the real value and is due primarily to waste stream sampling uncertainty. The **error** associated with determining the radioactivity of dry active solid radioactive waste shipments is estimated to be within a factor of three of the real value.

Solid Waste Shipments

A total of thirteen shipments of radioactive filter media, spent resins, dry active and other wastes were made during the reporting period. A summary of the data is provided in Section 6, Solid Waste and Irradiated Fuel Shipments. This data is based upon waste generated from units one and two.

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	9.48E+00 1.82E+01	1.16E+01 1.82E+01	-1.00E+00 -5.00E+01	1.00E+00 1.00E+02
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	5.45E+02 6.18E-01	1.17E+02 3.16E-01	-1.00E+00 -6.60E+01	1.00E+00 2.00E+02
c. Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A
d. Other (low level secondary resin, sludge, oil and oily sludge).	m^3 Ci	1.11E+02 5.31E-01	1.11E+02 0.00E+00	-1.00E+00 -5.00E+01	1.00E+00 1.00E+02

2. Estimate of major nuclide composition (by type of waste)

a. Spent resins, filters, evaporator bottoms, etc.		
Nickel-63	%	6.71 E+01
Iron-55	%	1.48 E+01
Cobalt-60	%	8.90 E+00
Hydrogen-3	%	7.30 E+00
Cesium-137	%	7.00 E-01
Manganese-54	%	6.00 E-01
Antimony-125	%	1.00 E-01
Cesium-134	%	1.00 E-01
Cobalt-58	%	1.00 E-01

b. Dry compressible waste, contaminated equip., etc.		
Iron-55	%	2.49 E+01
Cobalt-60	%	2.06 E+01
Cobalt-58	%	1.80 E+01
Nickel-63	%	1.39 E+01
Chromium-51	%	9.30 E+00
Cesium-137	%	5.40 E+00
Cerium-144	%	1.00 E+00
Niobium-95	%	9.00 E-01
Zirconium-95	%	6.00 E-01
Antimony-124	%	6.00 E-01
Cobalt-57	%	3.00 E-01
Iron-59	%	3.00 E-01

c. N/A	N/A	N/A

d. Other (secondary resins, sludges and oily waste)		
Tritium	%	9.78 E+01
Cobalt-60	%	1.00 E+00
Cesium-134	%	1.00 E-01
Cesium-137	%	1.10 E+00

3. Solid Waste Disposition:

Number of Shipments	Mode of Transportation	Destination
11	Truck	Energy Solutions - Duratek Services 1560 Bear Creek Road Oak Ridge, TN 37830
2	Truck	Energy Solutions – Clive Disposal Facility Interstate 80, Exit 49 Clive, UT 84029

4. Class of Solid Waste:
   A

5. Type of Containers Used for Shipment:
   General Design, High-Integrity Containers, Type A casks.

6. Solidifying Agent:
   N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
   No shipments made during this period.

2008
Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
April 2009

Authored by: Kim W. Reynolds
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Daniel J. Bryant
Manager
Chemistry Division

0PGP03ZX0007, Preparation of the Radioactive Effluent Release Report
South Texas Identification (STI): 32462776

INTRODUCTION

This Radioactive Effluent Release Report is submitted for the period January 1, 2008, through December 31, 2008, in accordance with Appendix A of License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 2008. Liquid effluents are discharged to the on-site Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the South Texas Project Electric Generating Station Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. Table 1-1 lists a brief summary of the radioactive effluents and solid waste attributable to the station.

Table 1-1

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	6.0E+09	3.6E+01
PARTICULATE AND IODINES	GAS	OFFSITE	6.0E+09	3.5E-03
TRITIUM	GAS	OFFSITE	6.0E+09	9.1E+01
TRITIUM	LIQUID	OFFSITE	4.8E+06	2.7E+02
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06	1.9E-04
TRITIUM	LIQUID	ON-SITE	5.8E+04	2.1E+03
FISSION AND ACTIVATION PRODUCTS[1]	LIQUID	ON-SITE	5.8E+04	2.3E-02
SPENT RESINS AND FILTERS	SOLID	FOR BURIAL	2.3E+01	7.4E+02
DRY COMPRESSIBLE WASTE	SOLID	FOR BURIAL	9.6E+01	1.6E+00
OTHER WASTE (LOW LEVEL SECONDARY RESIN, AND SLUDGE)	SOLID	FOR BURIAL	1.2E+02	2.8E-04

[1]Excludes dissolved and entrained gases.

Tritium was the largest contributor to the offsite doses from radioactive effluents both liquid and gaseous. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (620 millirem).

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The **error** associated with determining the volume of solid radioactive waste shipments is estimated to be ± 1%. The **error** associated with determining the filter media, spent primary resins, and spent secondary resins radioactivity is estimated to be within a factor of two of the real value and is due primarily to waste stream sampling uncertainty. The **error** associated with determining the radioactivity of other solid radioactive waste shipments is estimated to be within a factor of three of the real value.

Solid Waste Shipments

A total of thirty shipments of radioactive filter media, spent resins, dry active and other wastes were made during the reporting period. A summary of the data is provided in the Section 6, Solid Waste and Irradiated Fuel Shipments. This data is based upon waste generated from units one and two.

Radiological Impact on Man

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	3.33E+01 6.30E+02	2.29E+01 7.42E+02	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	6.23E+02 1.86E+00	9.55E+01 1.58E+00	-1.0E+00 -6.6E+01	+1.0E+00 +2.0E+02
c. Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A
d. Other (low level secondary resin, sludge, oil and oily sludge).	m^3 Ci	1.16E+02 2.81E-04	1.15E+02 2.80E-04	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02

2. Estimate of major nuclide composition (by type of waste)

a. Spent resins, filters, evaporator bottoms, etc.		
Nickel-63	%	5.28 E+01
Iron-55	%	2.50 E+01
Cobalt - 60	%	1.19 E+01
Cesium-137	%	2.50 E+00
Manganese-54	%	2.30 E+00
Cobalt-58	%	2.10 E+00
Tritium	%	1.70 E+00
Cesium-134	%	7.00 E-01

b. Dry compressible waste, contaminated equip., etc.		
Iron-55	%	3.55 E+01
Cobalt-60	%	2.05 E+01
Cobalt-58	%	1.38 E+01
Nickel-63	%	1.35 E+01
Chromium-51	%	7.40 E+00
Antimony-125	%	2.80 E+00
Cesium-137	%	1.60 E+00
Manganese-54	%	1.50 E+00
Cesium-134	%	7.00 E-01
Niobium-95	%	7.00 E-01
Zirconium-95	%	5.00 E-01
Antimony-124	%	5.00 E-01

c. N/A	N/A	N/A

d. Other (secondary resins, sludges and oily waste)		
Tritium	%	9.93 E+01
Cobalt-60	%	3.00 E-01
Iron-55	%	2.00 E-01
Cesium-137	%	1.00 E-01

3. Solid Waste Disposition:

Number of Shipments	Mode of Transportation	Destination
8	Truck	Studsvik Processing Facility, LLC 151 TC Runnion Rd. Erwin, Tn 37650
12	Truck	Energy Solutions - Duratek Services 1560 Bear Creek Road Oak Ridge, TN 37830
4	Truck	Energy Solutions – Clive Disposal Facility Interstate 80, Exit 49 Clive, UT 84029
4	Truck	Allied Waste Industries, Inc. * Gulf West Landfill 2601 South Jenkins Road Anahuac, TX 77514
2	Truck	Allied Waste Industries, Inc. * Blueridge Landfill 220 FM 521 Fresno, TX 77545

4. Class of Solid Waste:
   A, B & C

5. Type of Containers Used for Shipment:
   General Design, High-Integrity Containers, Type A casks and Type B casks

6. Solidifying Agent:
   N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
   No shipments made during this period.

NOTE: * Shipped per Texas Commission on Environmental Quality exemption to industrial landfill.

2007

Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
April 2008

Authored by:

Kim W. Reynolds
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Technical Review:

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Health Physicist
Health Physics Division

Approved by:

Daniel J. Bryant
Manager
Chemistry Division

0PGP03ZX0007, Preparation of the Radioactive Effluent Release Report
South Texas Identification (STI): 32299292

INTRODUCTION

This Radioactive Effluent Release Report is submitted for the period January 1, 2007, through December 31, 2007, in accordance with Appendix A of License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 2007. Liquid effluents are discharged to the on-site Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the South Texas Project Electric Generating Station Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. Table 1-1 lists a brief summary of the radioactive effluents and solid waste attributable to the station.

Table 1-1

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	6.0E+09	5.2E+01
PARTICULATE AND IODINES	GAS	OFFSITE	6.0E+09	9.1E-04
TRITIUM	GAS	OFFSITE	6.0E+09	6.3E+01
TRITIUM	LIQUID	OFFSITE	4.8E+06	1.9E+02
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06	3.1E-04
TRITIUM	LIQUID	ON-SITE	3.5E+04	1.4E+03
FISSION AND ACTIVATION PRODUCTS[1]	LIQUID	ON-SITE	3.5E+04	4.5E-02
SPENT RESINS AND FILTERS	SOLID	FOR BURIAL	1.5E+01	5.7E+02
DRY COMPRESSIBLE WASTE	SOLID	FOR BURIAL	6.5E+01	3.8E-01
OTHER WASTE (LOW LEVEL SECONDARY RESIN, AND SLUDGE)	SOLID	FOR BURIAL	0.0E+00	0.0E+00

[1]Excludes 7.6E-03 curies of dissolved and entrained gases.

Tritium was the largest contributor to the offsite doses from radioactive effluents both liquid and gaseous. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (360 millirem).

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The **error** associated with determining the volume of solid radioactive waste shipments is estimated to be ± 1%. The **error** associated with determining the filter media, spent primary resins, and spent secondary resins radioactivity is estimated to be within a factor of two of the real value and is due primarily to waste stream sampling uncertainty. The **error** associated with determining the radioactivity of other solid radioactive waste shipments is estimated to be within a factor of three of the real value.

Solid Waste Shipments

A total of twenty-three shipments of radioactive filter media, spent resins, dry active and other wastes were made during the reporting period. A summary of the data is provided in the Section 6, Solid Waste and Irradiated Fuel Shipments.

Radiological Impact on Man

The data for the period January 1, 2007, through December 31, 2007, is provided in the Dose Accumulation (Section 7) and the Summary of Direct Radiation Table 8-1 (Section 8). The

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	2.46E+01 5.68E+02	1.49E+01 5.69E+02	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	6.42E+02 4.45E-01	6.54E+01 3.84E-01	-1.0E+00 -6.6E+01	+1.0E+00 +2.0E+02
c. Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A
d. Other (low level secondary resin, sludge)	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A

2. Estimate of major nuclide composition (by type of waste)

a. Spent resins, filters, evaporator bottoms, etc.		
Nickel-63	%	4.57 E+01
Iron-55	%	3.31 E+01
Cobalt - 60	%	1.37 E+01
Cesium-137	%	2.51 E+00
Tritium	%	1.69 E+00
Manganese-54	%	1.28 E+00
Cesium-134	%	6.10 E-01
Cobalt - 58	%	4.40 E-01
Antimony - 125	%	2.50 E-01
Zinc - 65	%	2.30 E-01

b. Dry compressible waste, contaminated equip., etc.		
Cobalt-58	%	5.06 E+01
Chromium-51	%	2.14 E+01
Iron-55	%	1.15 E+01
Cobalt-60	%	4.40 E+00
Niobium-95	%	3.08 E+00
Manganese-54	%	1.86 E+00
Nickel-63	%	1.73 E+00
Antimony-124	%	1.61 E+00
Zirconium-95	%	1.55 E+00
Iron-59	%	6.70 E-01
Antimony-125	%	5.60 E-01
Silver-110m	%	4.60 E-01

c. N/A	N/A	N/A

d. Other (secondary resins, sludges and oily waste)	N/A	N/A

3. Solid Waste Disposition:

Number of Shipments	Mode of Transportation	Destination
8	Truck	Studsvik Processing Facility, LLC 151 TC Runnion Rd. Erwin, Tn 37650
11	Truck	Duratek Services 1560 Bear Creek Road Oak Ridge, TN 37830
1	Truck	Chem-Nuclear Systems Barnwell Waste Management Facility 740 Osborn Rd. Barnwell, SC 29812
2	Truck	Duratek Services Gallaher Road Facility 628 Gallaher Rd. Kingston, TN 37763
1	Truck	Energy Solutions, LLC Clive Disposal Site – Containerized Waste Facility Interstate 80, Exit 49 Clive, UT 84029

4. Class of Solid Waste:
   A, B & C

5. Type of Containers Used for Shipment:
   General Design, High-Integrity Containers, Type A casks, and Type B casks

6. Solidifying Agent:
   N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
   No shipments made during this period.

2006
Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
April 2007

Authored by:

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INTRODUCTION

This Radioactive Effluent Release Report is submitted for the period January 1, 2006, through December 31, 2006, in accordance with Appendix A of License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 2006. Liquid effluents are discharged to the on-site Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the South Texas Project Electric Generating Station Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. The following table is a brief summary of the radioactive effluents and solid waste attributable to the station.

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	6.0E+09	1.3E+02
PARTICULATE AND IODINES	GAS	OFFSITE	6.0E+09	8.9E-04
TRITIUM	GAS	OFFSITE	6.0E+09	8.6E+01
TRITIUM	LIQUID	OFFSITE	4.8E+06	2.9E+02
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06	3.3E-04
TRITIUM	LIQUID	ON-SITE	5.3E+04	2.2E+03
FISSION AND ACTIVATION PRODUCTS[1]	LIQUID	ON-SITE	5.3E+04	4.4E-02
SPENT RESINS AND FILTERS	SOLID	FOR BURIAL	4.4E+00	3.9E+02
DRY COMPRESSIBLE WASTE	SOLID	FOR BURIAL	1.6E+02	6.0E-01
OTHER WASTE (SECONDARY RESIN, CHARCOAL, AND MISCELLANOUS EXPENDABLE MATERIALS)	SOLID	FOR BURIAL	0.0E+00	0.0E+00

[1]Excludes 7.5e-03 curies of dissolved and entrained gases.

Tritium was the largest contributor to the offsite doses from radioactive effluents both liquid and gaseous. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (360 millirem).

Estimate of Total Error

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The **error** associated with determining the volume of solid radioactive waste shipments is estimated to be ± 1%. The **error** associated with determining the filter media, spent primary resins, and spent secondary resins radioactivity is estimated to be within a factor of two of the real value and is due primarily to waste stream sampling uncertainty. The **error** associated with determining the radioactivity of other solid radioactive waste shipments is estimated to be within a factor of three of the real value.

Solid Waste Shipments

A total of nineteen shipments of radioactive filter media, spent resins, dry active and other wastes were made during the reporting period. A summary of the data is provided in the Section 6, Solid Waste and Irradiated Fuel Shipments.

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	2.55E+01 3.94E+02	4.36E+00 3.90E+02	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	5.15E+02 4.63E-01	1.64E+02 6.02E-01	-1.0E+00 -6.6E+01	+1.0E+00 +2.0E+02
c. Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A
d. Other (low level secondary resin, sludge, oily waste, and miscellaneous expendable materials)	m^3 Ci	7.70E+00 1.54E-04	0.00E+00 0.00E+00	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02

2. Estimate of major nuclide composition (by type of waste)

a. Spent resins, filters, evaporator bottoms, etc.		
Nickel-63	%	5.47E+01
Cesium-137	%	1.48E+01
Iron-55	%	1.20E+01
Cobalt-60	%	9.17E+00
Cesium-134	%	5.97E+00
Manganese-54	%	1.82E+00
Tritium	%	7.60E-01
Antimony-125	%	2.70E-01
Cobalt-58	%	2.20E-01

b. Dry compressible waste, contaminated equip., etc.		
Cobalt-58	%	4.69 E+01
Chromium-51	%	2.49 E+01
Iron-55	%	1.06 E+01
Cobalt-60	%	4.00 E+00
Niobium-95	%	3.93 E+00
Nickel-63	%	2.49 E+00
Antimony-124	%	1.84 E+00
Zirconium-95	%	1.74 E+00
Manganese-54	%	1.44 E+00
Iron-59	%	7.80 E-01
Antimony-125	%	5.60 E-01
Silver-110m	%	4.80 E-01

c. N/A	N/A	N/A

d. Other (secondary resins, sludge, oily waste, and miscellaneous expendable materials)		
Iron-55	%	4.23E+01
Cobalt-60	%	1.67E+01
Cesium-137	%	1.40E+01
Nickel-63	%	1.29E+01
Cerium-144	%	1.01E+01
Cesium-134	%	3.68E+00
Manganese-54	%	1.40E-01
Cobalt-58	%	1.20E-01

3. Solid Waste Disposition:

Number of Shipments	Mode of Transportation	Destination
9	Truck	Studsvik Processing Facility, LLC 151 TC Runnion Rd. Erwin, Tn 37650
9	Truck	GTS-Duratek 1560 Bear Creek Road Oak Ridge, TN 37830
0	Truck	Chem-Nuclear Systems Barnwell Waste Management Facility 740 Osborn Rd. Barnwell, SC 29812
1	Truck	GTS-Duratek Gallaher Road Facility 628 Gallaher Rd. Kingston, TN 37763

4. Class of Solid Waste:
A,B, & C

5. Type of Containers Used for Shipment:
General Design, High-Integrity Containers, and Type A casks

6. Solidifying Agent:
N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
No shipments made during this period.

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
April 2006

Authored by:

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2005
Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

INTRODUCTION

This Radioactive Effluent Release Report is submitted for the period January 1, 2005, through December 31, 2005, in accordance with Appendix A of License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 2005. Liquid effluents are discharged to the on-site Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the South Texas Project Electric Generating Station Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. The following table is a brief summary of the radioactive effluents and solid waste attributable to the station.

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	6.0E+09	1.4E+02
PARTICULATE AND IODINES	GAS	OFFSITE	6.0E+09	4.3E-03
TRITIUM	GAS	OFFSITE	6.0E+09	2.1E+02
TRITIUM	LIQUID	OFFSITE	4.8E+06	2.5E+02
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06	4.3E-04
TRITIUM	LIQUID	ON-SITE	5.3E+04	1.9E+03
FISSION AND ACTIVATION PRODUCTS[1]	LIQUID	ON-SITE	5.3E+04	7.6E-02
SPENT RESINS AND FILTERS	SOLID	FOR BURIAL	6.8E+00	2.8E+02
DRY COMPRESSIBLE WASTE	SOLID	FOR BURIAL	2.7E+01	2.6E+00
OTHER WASTE (SECONDARY RESIN, CHARCOAL, AND FILTER CAKE)	SOLID	FOR BURIAL	2.4E+00	1.1E-04

[1] Excludes 1.3 curies of dissolved and entrained gases.

Tritium was the largest contributor to the offsite doses from radioactive effluents both liquid and gaseous. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (360 millirem).

Estimate of Total Error

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The **error** associated with determining the volume of solid radioactive waste shipments is estimated to be ± 1%. The **error** associated with determining the filter media, spent primary resins, and spent secondary resins radioactivity is estimated to be within a factor of two of the real value and is due primarily to waste stream sampling uncertainty. The **error** associated with determining the radioactivity of other solid radioactive waste shipments is estimated to be within a factor of three of the real value.

Solid Waste Shipments

A total of eighteen shipments of radioactive filter media, spent resins, dry active and other wastes were made during the reporting period. A summary of the data is provided in the Section 6, Solid Waste and Irradiated Fuel Shipments.

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	1.29E+01 2.78E+02	6.77E+00 2.77E+02	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	6.19E+02 4.94E-01	2.71E+01 2.63E+00	-1.0E+00 -6.6E+01	+1.0E+00 +2.0E+02
c. Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A
d. Other (low level secondary resin, sludge)	m^3 Ci	1.51E+01 1.64E-04	2.38E+00 1.14E-04	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02

2. Estimate of major nuclide composition (by type of waste)

a. Spent resins, filters, evaporator bottoms, etc.		
Nickel-63	%	4.66 E+01
Iron-55	%	2.44 E+01
Cobalt-60	%	1.07 E+01
Cesium-137	%	7.10 E+00
Tritium	%	5.60 E+00
Cesium-134	%	3.50 E+00
Manganese-54	%	9.70 E-01
Antimony-125	%	4.00 E-01
Cobalt-58	%	3.00 E-01

b. Dry compressible waste, contaminated equip., etc.		
Cobalt-58	%	4.30 E+01
Chromium-51	%	2.77 E+01
Iron-55	%	1.10 E+01
Niobium-95	%	4.10 E+00
Cobalt-60	%	3.82 E+00
Nickel-63	%	2.96 E+00
Antimony-124	%	1.95 E+00
Zirconium-95	%	1.85 E+00
Manganese-54	%	1.27 E+00
Iron-59	%	8.30 E-01
Antimony-125	%	5.60 E-01
Silver-110m	%	4.80 E-01

c. N/A	N/A	N/A

d. Other (secondary DE and HVAC charcoal)		
Tritium	%	3.06 E+01
Iron-55	%	2.53 E+01
Cesium-137	%	9.38 E+00
Cobalt-60	%	9.23 E+00

d. Other (secondary DE and HVAC charcoal)		
Cerium-144	%	8.57 E+00
Nickel-63	%	7.58 E+00
Cobalt-58	%	3.47 E+00
Cesium-134	%	2.63 E+00
Manganese-54	%	1.65 E+00
Antimony-125	%	1.40 E+00

3. Solid Waste Disposition:

Number of Shipments	Mode of Transportation	Destination
4	Truck	Studsvik Processing Facility, LLC 151 TC Runnion Rd. Erwin, Tn 37650
12	Truck	GTS-Duratek 1560 Bear Creek Road Oak Ridge, TN 37830
1	Truck	Chem-Nuclear Systems Barnwell Waste Management Facility 740 Osborn Rd. Barnwell, SC 29812
1	Truck	GTS-Duratek Gallaher Road Facility 628 Gallaher Rd. Kingston, TN 37763

4. Class of Solid Waste:
A, B & C

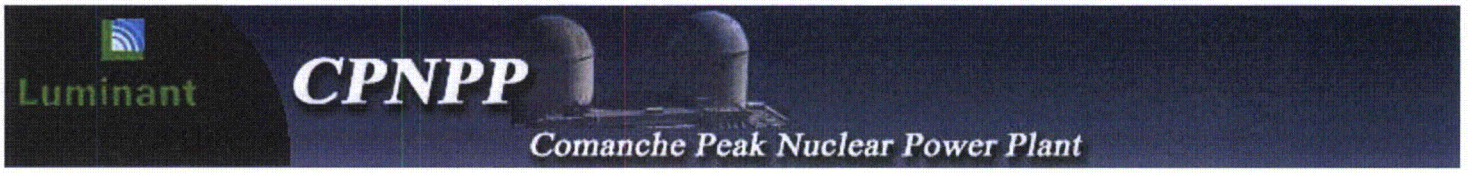
5. Type of Containers Used for Shipment:
General Design, High-Integrity Containers, and Type A casks

6. Solidifying Agent:
N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
No shipments made during this period.

Attachment D

2005 through 2010 *Comanche Peak Plant Annual Effluent Report* excerpts



2010 RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2010 - December 31, 2010

Prepared By: David Valentine Date: 3/28/11

Reviewed By: Jim Stevens Date: 3/28/11

Approved By: Bill Moore Date: 3/28/11

TABLE 9.10
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2010

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Shipped M^3	Shipped Ci	Buried m^3	Buried Ci	Percent Error
a. Spent resins/filters	2.33E+01	1.85E+01	2.33E+01	1.85E+01	+/- 25%
b. Dry active waste	4.53E+02	4.01E-01	4.23E+01	3.91E-01	+/- 25%
c. Irradiated components	-0-	-0-	-0-	-0-	N/A
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-	-0-	N/A
TOTAL	4.76E+02	1.89E+01	6.56+01	1.89+01	+/- 25%

Note: Shipped volumes and curies are not always equal to the buried volumes and curies since some disposal occurs outside the twelve month time period in which shipments occurred.

Dry active waste also includes some low-level radioactive resins, tank sediments and filters that are handled and processed in a manner that is consistent with this waste stream.

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
a. Spent resins/filters	Ni-63	41.22	7.63E+00
	Fe-55	22.13	4.10E+00
	Cs-137	10.94	2.02E+00
	H-3	9.42	1.74E+00
	Co-60	7.78	1.44E+00
	Cs-134	6.70	1.24E+00
	C-14	0.17	3.22E-02
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	1.64	3.03EE-01
	Total	100.00	1.85E+01

Nuclides representing <1% of total shipped activity: Mn-54,Co-57,Co-58,Fe-59,Zn-65,Sr-90,Nb-95,ZR-95,Ag-110m,Sn-113,Sb-125,Ce-144,Pu-238,Pu-239/240,Am-241,Pu-241,Cm-242,Cm-243/244.

TABLE 9.10 (cont.)
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2010

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel) cont

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
b. Dry active waste	Fe-55	41.18	1.65E-01
	Ni-63	26.98	1.08E-01
	Co-58	15.02	6.02E-02
	Co-60	13.65	5.47eE-02
	H-3	0.09	3.45E-04
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	3.08	1.24E-02
	Total	100.00	4.01E-01

*Nuclides representing <1% of total shipped activity: Cr-51,Mn-54,Co-57,Nb-95,ZR-95,Sb-125,Cs-134,Cs-137,Ce-144,Pu-238,Pu-239/240,Am-241,Cm-242,Cm-243/244.

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-

3. Solid Waste Disposition (Mode of Transportation: Truck)				
Waste Type	Waste Class	Container Type	Number of Shipments	Destination
a. Resin/filters	A	Type A	4	Energy Solutions Clive, UT
b. Dry active waste	A	General Design	7	Energy Solutions Oak Ridge, TN

B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

2009 RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2009 - December 31, 2009

Prepared By: David Valentine Date: 3/25/2010

Reviewed By: Randy Walsh Date: 3/30/2010

Approved By: Bill Moore Date: 4/4/2010

Solid Waste

Summary of the solid waste production

Total Waste	2009	2008	% Error	Comments
Shipped (m3)	168	362	25%	
Shipped (Ci)	.175	383	25%	1
Buried (m3)	28.5	40.6	25%	
Buried (Ci)	2.34	559	25%	1

Comments

1. The large decrease in Ci shipped was due to clearing our backlog of B & C Class (high activity) waste last year prior to Barnwell closing.

Overall, the radioactive effluent monitoring program has been conducted in an appropriate manner to ensure the activity released and associated dose to the public has been maintained as low as reasonably achievable (ALARA).

Groundwater Tritium

CR-2009-001351-00 documented some positive indications of tritium in the seepage sump near the water plant and in the A and C Waste Monitoring Basins. All of these samples were well below the state reportable criteria of 20,000 pCi/L. None of these positive tritium values were released to the environment.

See section 8.8 for details.

TABLE 9.10
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2009

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Shipped M^3	Shipped Ci	Buried m^3	Buried Ci	Percent Error
a. Spent resins/filters	-0-	-0-	7.02E-01	2.08E+00	+/- 25%
b. Dry active waste	1.68E+02	1.75E-01	2.78E+01	2.57E+01	+/- 25%
c. Irradiated components	-0-	-0-	-0-	-0-	N/A
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-	-0-	N/A
TOTAL	1.68E+02	1.75E-01	2.85E+01	2.34E+00	+/- 25%

Note:Shipped volumes and curies are not always equal to the buried volumes and curies since some disposal occurs outside the twelve month time period in which shipments occurred.

Dry active waste also includes some low-level radioactive resins tank sediments and filters that are handled and processed in a manner that is consistent with this waste stream.

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
a. Spent resins/filters	-0-	NA	-0-
b. Dry active waste	Fe-55	53.35	9.36E-02
	Ni-63	22.65	3.97E-02
	Co-60	16.70	2.93E-02
	Co-58	4.76	8.35E-03
	H-3	0.21	3.75E-04
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	2.33	4.08E-03
	Total	100.00	1.75E-01
d. Other (oil/miscellaneous liquids sent to processor for volume reduction) NA	-0-	-0-	-0-

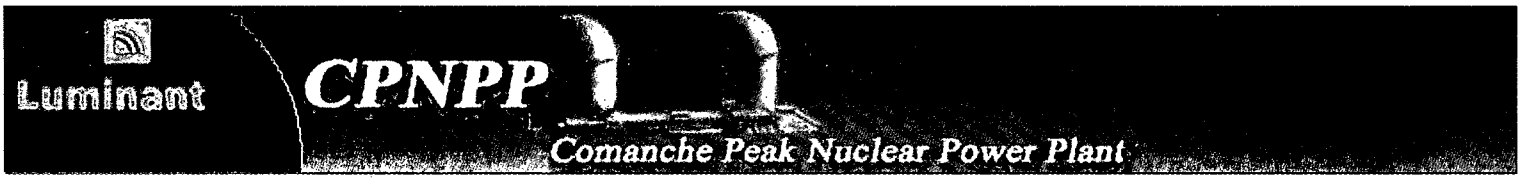
Nuclides representing <1% of total shipped activity: Cr-51,Mn-54,Co-57,Nb-95,ZR-95,Sb-125,Cs-134,Cs-137,Ce-144,Pu-238,Pu-239/240,Am-241,Cm-242,Cm-243/244.

TABLE 9.10 (cont.)
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2009

3. Solid Waste Disposition (Mode of Transportation: Truck)				
Waste Type	Waste Class	Container Type	Number of Shipments	Destination
a. Resin/filters	NA	NA	0	NA
b. Dry active waste	A	General Design	3	Energy Solutions Oak Ridge, TN

B. **Irradiated Fuel Shipments (Disposition)**

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A



2008 RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2008 - December 31, 2008

Prepared By: David Valentine Date: 4/09/08

Reviewed By: Randy Walsh Date: 4/15/08

Approved By: Terry Marsh Date: 4/20/08

TABLE 7.10
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2008

A. **Solid Waste Shipped Offsite for Burial or Disposal**
(Not Irradiated Fuel)

1. **Type of Waste**	Shipped M^3	Shipped Ci	Buried m^3	Buried Ci	Percent Error
a. Spent resins/filters	1.95E+01	3.83E+02	3.52E+00	5.43E+02	25%
b. Dry active waste	3.42E+02	3.16E-01	3.71E+01	1.52E+01	25%
c. Irradiated components	-0-	-0-	-0-	-0-	N/A
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-	-0-	N/A
TOTAL	3.62E+02	3.83E+02	4.06E+01	5.59E+02	25%

Note: Shipped volumes and curies are not always equal to the buried volumes and curies since some disposal occurs outside the twelve month time period in which shipments occurred.

Dry active waste also includes some low-level radioactive resins tank sediments and filters that are handled and processed in a manner that is consistent with this waste stream.

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
a. Spent resins/filters	Fe-55	34.50	1.32E+02
	NI-63	23.88	9.14E+01
	CS-137	10.49	4.01E+01
	Co-58	9.20	3.52E+01
	Co-60	8.79	3.36E+01
	Cs-134	8.02	3.07E+01
	H-3	2.23	8.52E+00
	MN-54	1.77	6.77E+00
	C-14	0.14	5.27E-01
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	0.98	3.76E+00
	Total	100.00	3.3.83E+02

Nuclides representing <1% of total shipped activity: Cr-51,Co-57,Fe-59,Zn-65,Sr-90,Zr-95,Nb-95,Ag-110m,Sn-113,Sn-117m,Sb-122,SB-124,Sb-125,I-131,Cs-136,Ba-140,Ce-144,Pu-238,Pu-239/240,Pu-241,Am-241,Cm-242,Cm-243/244.

TABLE 7.10 (Cont)
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2008

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
b. Dry active waste	Fe-55	58.25	1.84E-01
	Ni-63	17.30	5.47E-02
	Co-60	17.05	5.39E-02
	Co-58	2.89	9.13E-03
	CR-51	1.57	4.96E-03
	H-3	0.27	8.59E-04
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	2.67	8.47E-03
	Total	100.00	3.16E-01

Nuclides representing <1% of total shipped activity: Mn-54,Co-57,Nb-95,ZR-95,Sb-125,Cs-134,Cs-137,Ce-144,Pu-238,Pu-239/240,Am-241,Cm-242,Cm-243/244.

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-

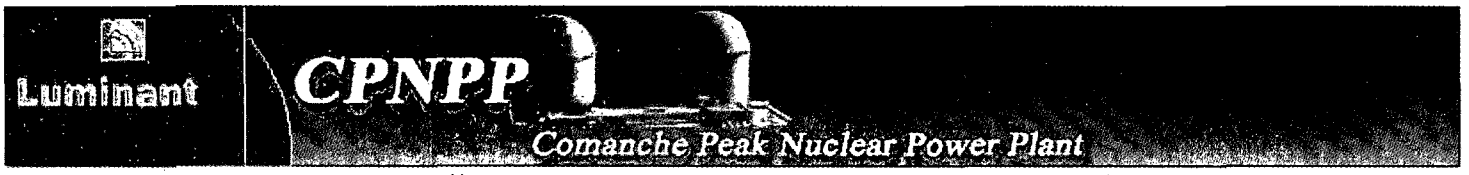
TABLE 7.13 (Cont)
SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2008

3. Solid Waste Disposition (Mode of Transportation: Truck)				
Waste Type	Waste Class	Container Type	Number of Shipments	Destination
a. Resin/filters	A	Poly HIC*	1	Studsvik Erwin, TN
	B	Poly HIC*	3	Studsvik Erwin, TN
	C	Poly HIC*	1	Studsvik Erwin, TN
b. Dry active waste	A	General Design	5	Energy Solutions Oak Ridge, TN

* High Integrity Container

B. **Irradiated Fuel Shipments (Disposition)**

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A



2007 RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2007 - December 31, 2007

Prepared By: Don Rebstock/Randy Walsh Date: 4/10/08

Reviewed By: David Valentine/Scott Bradley Date: 4/28/08

Approved By: Terry Marsh Date: 4/28/08

TABLE 7.10

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2007

A. **Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)**

1. **Type of Waste**	Shipped M^3	Shipped Ci	Buried m^3	Buried Ci	Percent Error
a. Spent resins/filters	1.02E+01	6.36E+02	3.14E+00	4.73E+02	25%
b. Dry active waste	1.40E+03	1.57E+01	1.77E+02	1.42E+00	25%
c. Irradiated components	-0-	-0-	-0-	-0-	N/A
d. Other-oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-	-0-	N/A
TOTAL	1.41E+03	6.52E+02	1.80E+02	4.75E+02	25%

Note: Shipped volumes and curies are not always equal to the buried volumes and curies since some disposal occurs outside the twelve month time period in which shipments occurred.

Dry active waste also includes some low-level radioactive resins tank sediments and filters that are handled and processed in a manner that is consistent with this waste stream.

TABLE 7.10 (Continued)

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
a. Spent resins/filters	Ni-63	47.13	3.00E+02
	Fe-55	18.73	1.19E+02
	Co-60	9.00	5.72E+01
	CS-134	8.79	5.59E+01
	CS-137	8.78	5.58E+01
	Co-58	5.30	3.37E+01
	Mn-54	1.26	8.04E+00
	H-3	0.01	4.54E-02
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	1.00	6.29E+00
	Total	100.00	6.36E+02

Nuclides representing <1% of total shipped activity: Co-57,Ni-59, Sr-90,Sb-122,Sb-125,Ce-144,Pu-238,Pu-239/240,Pu-241, Am-241,Cm-242,Cm-243/244.

TABLE 7.10 (Continued)

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2007

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
b. Dry active waste	Fe-55	59.88	9.38E 00
	Ni-63	18.80	2.95E 00
	Co-60	15.58	2.44E 00
	CO-58	3.80	5.96E-01
	Cs-137	0.09	1.44E-02
	H-3	0.05	8.24E-03
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	1.80	2.82E-01
	Total	100.00	1.57E+01

Nuclides representing <1% of total shipped activity: Cr-51, Mn-54, Co-57, Ni-59, Sr-90, Nb-95, Zr-95, Sb-125, Cs-134, Ce-144, Pu-238, Pu-239/240, Pu-241, Am-241, Cm-242, Cm-243/244.

2. **Estimate of Major Nuclide Composition (by type of waste)**	Nuclide	% Abund.	Activity (Ci)
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)			
-0-	-0-	-0-	-0-

TABLE 7.10 (Continued)

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2007

3. **Solid Waste Disposition** (Mode of Transportation: Truck)				
Waste Type	Waste Class	Container Type	Number of Shipments	Destination
a. Resin/filters	B	Poly *HIC	1	Studsvik Erwin, TN.
	C	Poly *HIC	2	Studsvik Erwin, TN.
b. Dry active waste	A	General Design	23	Energy Solutions Oak Ridge,TN.
	A/B**	General Design	1	Energy Solutions Oak Ridge,TN.

* High Integrity Container

** One shipment included both Class A and B waste.

B. **Irradiated Fuel Shipments (Disposition)**

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

COMANCHE PEAK STEAM ELECTRIC STATION

UNITS 1 AND 2

RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2006 - December 31, 2006

Prepared By: _____ Date: 4-26-07
R. L. Ramsour
Radiation Protection Technician

Reviewed By: _____ Date: 4/26/07
W. O. Knowles
Radiation Protection Supervisor

Approved By: _____ Date: 4/26/07
S. E. Bradley
Radiation Protection Manager

TABLE 7.13

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2006

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Shipped M^3	Shipped Ci	Buried m^3	Buried Ci	Percent Error
a. Spent resins/filters	3.04E+01	3.72E+02	5.90E+00	3.68E+02	±25%
b. Dry active waste	2.82E+02	1.42E+00	1.10E+01	6.28E-01	±25%
c. Irradiated components	-0-	-0-	-0-	-0-	N/A
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	1.15E+01	3.67E-03	-0-	-0-	N/A
TOTAL	3.24E+02	3.73E+02	1.69+01	3.69E+02	±25%

Note: Shipped volumes and curies are not always equal to the buried volumes and curies since some disposal occurs outside the twelve month time period in which shipments occurred.

Dry active waste also includes some low-level radioactive resins and filters that are handled and processed in a manner that is consistent with this waste stream.

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
a. Spent resins/filters	Fe-55	45.37	1.69E+02
	Ni-63	29.53	1.10E+02
	Co-60	18.47	6.86E+01
	Co-58	1.91	7.10E+00
	Mn-54	1.69	6.29E+00
	H-3	0.08	2.90E-01
	C-14	0.00	4.18E-03
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	2.95	1.10E+01
	Total	100.00	3.72E+02

* Nuclides representing <1% of total shipped activity: Be-7, Cr-51, Co-57, Ni-59,Zn-65,Sr-90,Nb-95,Zr-95,Ag-110m, Sn-113, Sb-125, Cs-134, Cs-137, Ba-140, Ce-144,Pu-238,Pu-239/40, Pu-241,Am-241,Cm-242,Cm-243/244.

TABLE 7.13 (Continued)

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2006

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
b. Dry active waste	Fe-55	49.32	6.99E-01
	Ni-63	23.62	3.35E-01
	Co-60	16.94	2.40E-01
	Cs-137	3.31	4.68E-02
	H-3	4.07	5.76E-02
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	2.74	3.89E-02
	Total	100.00	1.42E+00

* Nuclides representing <1% of total shipped activity: Cr-51,Mn-54, Co-57,Co-58,Fe-59,Sr-90,Nb-95,ZR-95,Sn-113,Sb-125,Cs-134,Ce-144, Pu-238,Pu-239/40,Pu-241,Am-241,Cm-243/244.

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	Fe-55	52.01	1.91E-03
	Ni-63	17.68	6.48E-04
	Co-60	14.25	5.22E-04
	Co-58	3.67	1.35E-04
	Cr-51	2.89	1.06E-04
	Cs-137	2.55	9.35E-05
	Zr-95	1.13	4.15E-05
	Nb-95	1.09	4.00E-05
	H-3	2.65	9.70E-05
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Other*	2.08	7.59E-05
	Total	100.00	3.67E-03

* Nuclides representing <1% of total shipped activity: Mn-54, Co-57, Fe-59,Sr-90,Sn-113,Sb-125,Cs-134,Ce-144,Pu-238,Pu-239/40, Pu-241,Am-241,Cm-242,Cm-243/244.

TABLE 7.13 (Continued)

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2006

3. **Solid Waste Disposition** (Mode of Transportation: Truck)				
Waste Type	Waste Class	Container Type	Number of Shipments	Destination
a. Resin/filters	A	Poly *HIC - Drums	3	Studsvik Erwin, TN.
	B	Poly *HIC	5	Studsvik Erwin, TN.
b. Dry active waste	A	General Design	5	Energy Solutions Oak Ridge,TN.

* High Integrity Container

Note: One class A shipment that also included oil, was shipped to Energy Solutions and included in that total.

B. **Irradiated Fuel Shipments (Disposition)**

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

COMANCHE PEAK STEAM ELECTRIC STATION

UNITS 1 AND 2

RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2005 - December 31, 2005

Prepared By: Ed T Floyd Date: 4-11-06
E. T. Floyd
Radiation Protection Technician

Reviewed By: Scott E. Bradley Date: 4/17/06
Scott E. Bradley
Health Physics Supervisor

Approved By: John R. Curtis Date: 4/17/06
J. R. Curtis
Radiation Protection Manager

TABLE 7.13

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2005

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Shipped m^3	Shipped Ci	Buried m^3	Buried Ci	Percent Error
a. Spent resins/filters	2.90E+01	1.99E+02	5.41E+00	2.47E+02	±25%
b. Dry active waste	3.77E+02	1.97E+00	1.39E+01	1.68E+00	±25%
c. Irradiated components	-0-	-0-	-0-	-0-	N/A
d. Other (oil/miscellaneous liquids sent to processor for volume reduction)	-0-	-0-	-0-	-0-	N/A
TOTAL	4.06E+02	2.01E+02	1.93E+01	2.49E+02	±25%

Note: Shipped volumes and curies are not always equal to the buried volumes and curies since some disposal occurs outside the twelve month time period in which shipments occurred.

Dry active waste also includes some low-level radioactive resins and filters that are handled and processed in a manner that is consistent with this waste stream.

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
a. Spent resins/filters	Fe-55	54.14	1.08E+02
	Ni-63	20.71	4.13E+01
	Co-60	17.65	3.52E+01
	Mn-54	3.71	7.39E+00
	Co-58	1.57	3.13E+00
	H-3	0.32	6.46E-01
	C-14	0.02	4.65E-02
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Others*	1.88	3.74E+00
	TOTAL	100.00	1.99E+02

* Nuclides representing <1% of total shipped activity: Cr-51, Co-57, Fe-59,Ni-59,Zn-65, Sr-90, Nb-95, Zr-95, Sn-113,Sb-124, Sb-125, Cs-134, Cs-137,Ce-144,Hf-181,Pu-238,Pu-239/240,Pu-241,Am-241, Cm-242, Cm-243/244

TABLE 7.13 (Continued)

SOLID RADWASTE AND IRRADIATED FUEL SHIPMENTS -2005

2. Estimate of Major Nuclide Composition (by type of waste)	Nuclide	% Abund.	Activity (Ci)
b. Dry active waste	Fe-55	48.13	9.46E-01
	Ni-63	21.73	4.27E-01
	Co-60	16.24	3.19E-01
	Cs-137	4.11	8.08E-02
	Co-58	2.02	3.96E-02
	H-3	5.11	1.00E-01
	C-14	LLD	-0-
	Tc-99	LLD	-0-
	I-129	LLD	-0-
	Others*	2.66	5.24E-02
	Total	100.00	1.97E+00

* Nuclides representing <1% of total shipped activity: Cr-51, Mn-54, Co-57,Fe-59,Sr-90,Nb-95,Zr-95,Sn-113,Sb-125,Cs-134, Ce-144, Pu-238, Pu-239/240, Pu-241, Am-241, Cm-242, Cm-243/244.

3. Solid Waste Disposition (Mode of Transportation: Truck)				
Waste Type	Waste Class	Container Type	Number of Shipments	Destination
a. Resin/filters	A	Poly *HIC	2	Studsvik Erwin, TN.
	B	Poly *HIC	1	Studsvik Erwin, TN.
	C	Poly *HIC	2	Studsvik Erwin, TN.
b. Dry active waste	A	General Design	7	GTS Duratek Oak Ridge,TN.

* High Integrity Container
Note: One class A shipment that also included filters was shipped to Duratek and included in that total.

B. **Irradiated Fuel Shipments (Disposition)**

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

Attachment E

2005 through 2010 *Vermont Yankee Plant Annual Effluent Report* excerpts

RADIOACTIVE EFFLUENT RELEASE REPORT FOR 2010 INCLUDING ANNUAL RADIOLOGICAL IMPACT ON MAN

Entergy Nuclear Vermont Yankee, LLC
Docket No. 50-271
License No. DPR-28

Prepared by: Edward R. Cumming 5/9/2011
Edward R. Cumming, CHP, Advisory Scientist, AREVA, Inc. Date

Preparation coordinated by: Stephen P. Skibniowsky 5/10/2011
Stephen P. Skibniowsky, Senior Environmental Specialist (REMP) Date

Reviewed by: Stephen C. McAvoy 5/10/11
Stephen C. McAvoy, Chemistry Supervisor Date

Approved for Distribution: JAH 5-10-2011
Jeffery A. Hardy, Chemistry Manager Date

TABLE 3

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2010
Solid Waste and Irradiated Fuel Shipments

A.. Solid Waste Shipped Off-Site for Burial or Disposal (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01
b.Dry Compressable waste,equipment,etc	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01
c. Irradiated components,control rods,etc	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	11.47	+/- 2.50 E+01
	Ci	3.4500E+01	+/- 2.50 E+01
b.Dry Compressable waste,equipment,etc	m3	48.94	+/- 2.50 E+01
	Ci	7.4623E-01	+/- 2.50 E+01
c. Irradiated components,control rods,etc	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins filter sludges		b.Dry Compressable waste,equip..etc		c. Irradiated components, control rods, etc	
Nuclide	Percent (1)	Nuclide	Percent	Nuclide	Percent
Mn-54	7.84%	Cr-51	2.26%	na	na
Fe-55	40.70%	Mn-54	7.38%		
Co-60	21.53%	Fe-55	7.01%		
Ni-63	4.12%	Co-58	1.04%		
Zn-65	20.26%	Co-60	53.88%		
Cs-137	4.77%	Zn-65	27.59%		
C-14	0.13%	Fe-59	0.42%		
Co-58	0.81%	Cs-137	0.25%		

(1) includes only those nuclides that are greater than 0.1% of the total activity

3. Disposition of Solid Waste Shipments (1st & 2nd Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
0	X		truck		Energy Solutions, Clive UT
4	X		truck	EfS-GR / BCO, TN	
0	X		truck	Studsvik-Memphis, TN	
22		EfS-GR / BCO, TN	truck		Energy Solutions, Clive UT
0		Studsvik-Memphis, TN	truck		Energy Solutions, Clive UT

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st & 2nd Quarters)

Supplimental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU	none	AU
Type of Containers Used	GDC	none	GDC, Type A
Solidification Agent or Absorbent Used	none	none	none

TABLE 3
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2010
Solid Waste and Irradiated Fuel Shipments

A.. Solid Waste Shipped Off-Site for Burial or Disposal (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01
b.Dry Compressable waste,equipment,etc	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01
c. Irradiated components,control rods,etc	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	22.01	+/- 2.50 E+01
	Ci	1.1337E+02	+/- 2.50 E+01
b.Dry Compressable waste,equipment,etc	m3	63.62	+/- 2.50 E+01
	Ci	1.3687E-01	+/- 2.50 E+01
c. Irradiated components,control rods,etc	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins filter sludges		b.Dry Compressable waste,equip.,etc		c. Irradiated components, control rods, etc	
Nuclide	Percent (1)	Nuclide	Percent	Nuclide	Percent
Mn-54	7.64%	Cr-51	2.26%	na	na
Fe-55	40.70%	Mn-54	7.38%		
Co-60	21.53%	Fe-55	7.01%		
Ni-63	4.12%	Co-58	1.04%		
Zn-65	20.26%	Co-60	53.88%		
Cs-137	4.77%	Zn-65	27.59%		
C-14	0.13%	Fe-59	0.42%		
Co-58	0.81%	Cs-137	0.25%		

(1) includes only those nuclides that are greater than 0.1% of the total activity

3. Disposition of Solid Waste Shipments (3rd & 4th Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
0	X		truck		Energy Solutions, Clive UT
10	X		truck	E/S-GR / BCO, TN	
0	X		truck	Studsvik-Memphis, TN	
17		E/S-GR / BCO, TN	truck		Energy Solutions, Clive UT
0		Studsvik-Memphis TN	truck		Energy Solutions, Clive UT

B. Irradiated Shipments (Disposition): None

C. Additional Data (3rd & 4th Quarters)

Supplimental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU	na	AU
Type of Containers Used	GDC	na	GDC, Type A
Solidification Agent or Absorbent Used	none	none	none

RADIOACTIVE EFFLUENT RELEASE REPORT FOR 2009 INCLUDING ANNUAL RADIOLOGICAL IMPACT ON MAN

Entergy Nuclear Vermont Yankee, LLC
Docket No. 50-271
License No. DPR-28

Prepared by: Edward R. Cumming / 5/5/2010
Edward R. Cumming, CHP, Advisory Scientist, AREVA NP — Date

Preparation coordinated by: Stephen P. Skibniowsky / 5/5/2010
Stephen P. Skibniowsky, Senior Environmental Specialist (REMP) — Date

Reviewed by: Stephen C. McAvoy / 5/5/10
Stephen C. McAvoy, Chemistry Supervisor — Date

Approved for Distribution: JAH / 5-5-2010
Jeffery A. Hardy, Chemistry Manager — Date

TABLE 3

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2009
Solid Waste and Irradiated Fuel Shipments

A.. Solid Waste Shipped Off-Site for Burial or Disposal (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	30.55	+/- 2.50 E+01
	Ci	2.268E+02	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	27.67	+/- 2.50 E+01
	Ci	1.898E+00	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. spent resins filter sludges		b. Dry Compactable waste, equipment		c. irradiated components, control rods, etc.	
Isotope	Percent (1)	Isotope	Percent (1)	Isotope	Percent
Cr-51	9.3%	Cr-51	6.2%	na	na
Mn-54	6.3%	Mn-54	4.1%		
Fe-55	26.8%	Fe-55	52.4%		
Co-58	0.5%	Fe-59	0.7%		
Co-60	16.7%	Co-58	0.8%		
Ni-63	7.3%	Co-60	23.1%		
Zn-65	34.3%	Ni-63	0.4%		
Cs-137	5.5%	Zn-65	10.9%		
		Zr-95	0.9%		
		Cs-137	0.3%		

(1) Includes only those nuclides that are greater than 0.1% of the total activity

3. Disposition of Solid Waste Shipments (1st & 2nd Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
0	X		truck		Energy Solutions, Clive UT
16	X		truck	E/S-Bear Creek TN	
0	X		truck	Studsvik-Erwin, TN	
23		E/S-Bear Creek TN	truck		Energy Solutions, Clive UT
0		Studsvik-Memphis TN	truck		Energy Solutions, Clive UT
0		Studsvik-Erwin TN	truck		E/S -Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st & 2nd Quarters)

Supplimental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU	none	AU
Type of Containers Used	General Design	none	GDC, Type A
Solidification Agent or Absorbent Used	none	none	none

TABLE 3
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2009
Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Shipped Off-Site for Burial or Disposal (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	11.52	+/- 2.50 E+01
	Ci	3.225E+01	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	99.55	+/- 2.50 E+01
	Ci	5.716E+03	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	3.89	+/- 2.50 E+01
	Ci	1.405E-04	+/- 2.50 E+01

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. spent resins filter sludges		b. Dry Compactable waste, equipment		c. Irradiated components, control rods, etc.	
Isotope	Percent (1)	Isotope	Percent (1)	Isotope	Percent (1)
Cr-51	0.3%	Cr-51	6.2%	H-3	1.4%
Mn-54	6.3%	Mn-54	4.1%	Fe-55	48.5%
Fe-55	28.8%	Fe-55	52.4%	Co-60	38.8%
Co-58	0.5%	Fe-59	0.7%	Ni-63	5.5%
Co-60	16.7%	Co-58	0.8%	Rb-87	2.3%
Ni-63	7.3%	Co-60	23.1%	Eu-152	3.4%
Zn-65	34.3%	Ni-63	0.4%		
Cs-137	5.5%	Zn-65	10.3%		
		Zr-95	0.5%		
		Cs-137	0.3%		

(1) includes only those nuclides that are greater than 0.1% of the total activity

3. Disposition of Solid Waste Shipments (3rd & 4th Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
6	X		truck		E/S - Barnwell SC
9	X		truck	E/S - Oak Ridge TN	
6	X		truck	Studsvik-Erwin, TN	
20		E/S - Bear Creek TN	truck		Energy Solutions, Clive UT
1		E/S - Bear Creek TN	truck		RETURN TO Vermont
6		Studsvik-Erwin TN	truck		E/S - Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (3rd & 4th Quarters)

Supplemental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU	na	AU
Type of Containers Used	General Design	na	GDC, Type A
Solidification Agent or Absorbent Used	none	none	none

Docket No. 50-271
BVY 09-037

Attachment 1

Vermont Yankee Nuclear Power Station

2008 Radioactive Effluent Release Report

TABLE 3

Entergy Nuclear Vermont Yankee

Effluent and Waste Disposal Annual Report
First and Second Quarters for 2008
Solid Waste and Irradiated Fuel Shipments

A.. Solid Waste Shipped Off-Site for Burial or Disposal (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	0.00	+/- 2.50 E+01
	Ci	0.0000E+00	+/- 2.50 E+01
c. Irradiated components, control rods, etc,	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	2.67	+/- 2.50 E+01
	Ci	3.6670E+02	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	44.22	+/- 2.50 E+01
	Ci	7.6274E-01	+/- 2.50 E+01
c. Irradiated components, control rods, etc,	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. spent resins filter sludges		b. Dry Compactable waste, equipment		c. Irradiated components, control rods, etc,	
Isotope	Percent (1)	Isotope	Percent	Isotope	Percent
Co-60	20.95%	Cr-51	9.65%	na	na
Fe-55	35.81%	Mn-54	3.89%		
Zn-65	19.17%	Fe-55	55.79%		
Ni-63	9.63%	Fe-59	0.91%		
Mn-54	5.87%	Co-58	0.99%		
Cs-137	7.70%	Co-60	16.74%		
		Zn-65	10.05%		
		Zr-95	1.13%		

(1) includes only those nuclides that are greater than 1% of the total activity

3. Disposition of Solid Waste Shipments (1st & 2nd Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
	X		truck / rail		Energy Solutions, Clive UT
10	X		truck	E/S-Oak Ridge TN	
5	X		truck	Studsvik-Erwin, TN	
18		E/S-Bear Creek TN	truck		Energy Solutions, Clive UT
1		Studsvik-Memphis TN	truck		Energy Solutions, Clive UT
8		Studsvik-Erwin TN	truck		E/S -Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st & 2nd Quarters)

Supplimental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU, B	AU,B	AU, A, B, C
Type of Containers Used	STC/Type A	STC	STC, Type A, Type B
Solidification Agent or Absorbent Used	none	none	none

Completed By: Mark J Vanstab 4-1-09

Reviewed By: [signature] 4/1/09

TABLE 3

Entergy Nuclear Vermont Yankee

Effluent and Waste Disposal Annual Report
Third and Fourth Quarters for 2008
Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Shipped Off-Site for Burial or Disposal (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	13.71	+/- 2.50 E+01
	Ci	9.1100E+01	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	31.07	+/- 2.50 E+01
	Ci	5.2247E+00	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. spent resins filter sludges		b. Dry Compactable waste, equipment		c. Irradiated components, control rods, etc,	
Isotope	Percent (1)	Isotope	Percent	Isotope	Percent
Co-60	20.95%	Cr-51	9.65%	na	na
Fe-55	35.81%	Mn-54	3.89%		
Zn-65	19.17%	Fe-55	55.79%		
Ni-63	9.63%	Fe-59	0.91%		
Mn-54	5.87%	Co-58	0.99%		
Cs-137	7.70%	Co-60	16.74%		
		Zn-65	10.05%		
		Zr-95	1.13%		

(1) includes only those nuclides that are greater than 1% of the total activity

3. Disposition of Solid Waste Shipments (3rd & 4th Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
1	X		truck	E/S - Barnwell Proc.	
14	X		truck	E/S - Oak Ridge TN	
0	X		truck	Studsvik-Erwin, TN	
1		E/S - Barnwell Proc.	truck		Energy Solutions, Clive UT
21		E/S - Bear Creek TN	truck		Energy Solutions, Clive UT
0		Studsvik-Memphis TN	truck		Energy Solutions, Clive UT
0		Studsvik-Erwin TN	truck		E/S - Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (3rd & 4th Quarters)

Supplimental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	A,AU		A, C
Type of Containers Used	STC/Type A		STC, Type A & B
Solidification Agent or Absorbent Used	none		none

Completed By: 3/31/09

Reviewed By: 3/31/09

Docket No. 50-271
BVY 08-029

Attachment 1

Vermont Yankee Nuclear Power Station

2007 Radioactive Effluent Release Report

TABLE 3

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2007
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	1ST and 2ND Quarters 2007	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	None	N/A
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	2.14E+02 1.20E-04	+/- 2.50E+01 +/- 2.50E+01
c. Irradiated components, control rods, etc.:	m^3 Ci	None	N/A

Shipped from Processor(s) for Burial or Disposal	Unit	1ST and 2ND Quarters 2007	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	4.83E+00 5.51E+02	± 2.5E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	1.22E+00 1.16E+00	± 2.5E+01
c. Irradiated components, control rods, etc.:	m^3 Ci	None	N/A

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins, filter sludge, evaporator bottoms, etc.		b. Dry compressible waste, contaminated equipment, etc.	
Isotope	Percent (1)	Isotope	Percent (1)
Cobalt-60	26.50%	Iron-55	77.33%
Iron-55	51.15%	Cobalt-60	11.41%
Zinc-65	11.67%	Zinc-65	4.28%
Nickel-63	1.42%	Manganese-54	5.14%
Manganese-54	4.68%		
Cesium-137	1.60%		
Cobalt-58	1.32%		

(1) Includes only those nuclides that are greater than 1% of the total activity.

Note: Sections A.1 and A.2 above do not include the data for the waste shipments from VY to the processors. The data for this waste will be included in the report that covers the year that this waste is shipped from the processor for burial or disposal.

TABLE 3
(Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2007
Solid Waste and Irradiated Fuel Shipments

3. Disposition of solid waste shipments (1st and 2nd Quarters)

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	Burial or Disposal
11	X		truck / rail		Energy Solutions, Clive UT
7	X		truck	Duratek-Oak Ridge TN	
5	X		truck	Studsvik-Erwin, TN	
4		Studsvik-Erwin, TN	truck		Energy Solutions, Clive UT
14		Studsvik-Erwin, TN	truck		Duratek -Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st and 2nd Quarters)

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	AU, B	AU, B	AU, A, B, C
Type of containers used	Strong Tight, Type A	Strong Tight	Strong Tight , Type A, Type B
Solidification agent or absorbent	None	None	None

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2007
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	3rd and 4th Quarters 2007	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	None	N/A
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	None	N/A
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A

Shipped from Processor(s) for Burial or Disposal	Unit	3rd and 4th Quarters 2007	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	2.41E+00 8.10E+01	±2.50E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	7.15E+01 1.48E+00	±2.50E+01
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins, filter sludge, evaporator bottoms, etc.		b. Dry compressible waste, contaminated equipment, etc.		c. Irradiated components, control rods, etc.	
Isotope	Percent (1)	Isotope	Percent (1)	Isotope	Percent (1)
Iron-55	46.32%	Iron-55	77.05%	N/A	N/A
Cobalt-60	17.20%	Cobalt-60	11.33%		
Zinc-65	13.04%	Manganese-54	5.21%		
Manganese-54	5.69%	Zinc-65	4.37%		
Cesium-137	5.09%				
Nickel-63	9.47%				
Chromium-51	1.12%				

(1) Includes only those nuclides that are greater than 1% of the total activity.

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2007
Solid Waste and Irradiated Fuel Shipments

3. Disposition of Solid Waste Shipments (3rd and 4th Quarters)

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	Burial or Disposal
2	X		truck	Duratek-Oak Ridge TN	
5	X		truck	Studsvik-Erwin, TN	
6		Duratek-Oak Ridge TN	truck		Energy Solutions, Clive UT
4		Studsvik-Erwin, TN	truck		Energy Solutions, Clive UT
10		Studsvik-Erwin, TN	truck		Duratek -Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (3rd and 4th Quarters)

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	A, AU	None	A, B, C
Type of containers used	Strong Tight Type A	None	Strong Tight, Type A, Type B
Solidification agent or absorbent	None	None	None

Table 3 Review Mark T. Vandale 4-28-08
Mark Vandale, RP Specialist Date

Docket No. 50-271
BVY 07-037

Attachment 1

Vermont Yankee Nuclear Power Station

2006 Radioactive Effluent Release Report

TABLE 3

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2006
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	**Unit**	**1ST and 2ND Quarters 2006**	**Est. Total Error, %**
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	None	N/A
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	None	N/A
c. Irradiated components, control rods, etc.:	m^3 Ci	None	N/A

Shipped from Processor(s) for Burial or Disposal	**Unit**	**1ST and 2ND Quarters 2006**	**Est. Total Error, %**
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	3.30 E+00 1.37 E+02	± 2.5 E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	1.49 E+01 7.00 E-01	± 2.5 E+01
c. Irradiated components, control rods, etc.:	m^3 Ci	None	N/A

TABLE 3
(Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2006
Solid Waste and Irradiated Fuel Shipments

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins, filter sludge, evaporator bottoms, etc.		**b. Dry compressible waste, contaminated equipment, etc.**	
Isotope	**Percent (1)**	**Isotope**	**Percent (1)**
Cobalt-60	27.81%	Iron-55	61.56%
Iron-55	25.00%	Cobalt-60	19.74%
Zinc-65	18.43%	Zinc-65	8.47%
Nickel-63	9.27%	Manganese-54	5.28%
Manganese-54	7.97%	Cerium-144	2.90%
Cesium-137	7.79%	Cesium-137	1.41%
Cobalt-58	1.09%		

(1) Includes only those nuclides that are greater than 1% of the total activity.

Note: Sections A.1 and A.2 above do not include the data for the waste shipments from VY to the processors. The data for this waste will be included in the report that covers the year that this waste is shipped from the processor for burial or disposal.

TABLE 3
(Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2006
Solid Waste and Irradiated Fuel Shipments

3. Disposition of solid waste shipments (1st and 2nd Quarters)

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	Burial or Disposal
6	X		Truck	Duratek Oak Ridge, TN	
5	X		Truck	Studsvik, Erwin, TN	
30		X	Truck	Duratek Oak Ridge, TN	Energy Solutions Clive, UT
2		X	Truck	Studsvik Erwin, TN	Energy Solutions Clive, UT
7		X	Truck	Studsvik Erwin, TN	Duratek Barnwell, SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st and 2nd Quarters)

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	AU, B	None	AU, A, B, C
Type of containers used	Strong Tight, Type A	None	Strong Tight , Type A, Type B
Solidification agent or absorbent	None	None	None

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2006
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	3rd and 4th Quarters 2006	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	None	N/A
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	None	N/A
c. Irradiated components, control rods, etc.	m^3 Ci	4.96 E+00 1.79 E+04	±2.50 E+01

Shipped from Processor(s) for Burial or Disposal	Unit	3rd and 4th Quarters 2006	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	5.70 E+00 7.58 E+02	±2.50 E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	3.21 E+01 1.10 E+00	±2.50 E+01
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2006
Solid Waste and Irradiated Fuel Shipments

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins, filter sludge, evaporator bottoms, etc.		**b. Dry compressible waste, contaminated equipment, etc.**		**c. Irradiated components, control rods, etc.**	
Isotope	**Percent (1)**	**Isotope**	**Percent (1)**	**Isotope**	**Percent (1)**
Iron-55	52.34%	Iron-55	77.46%	Iron-55	49.54%
Cobalt-60	27.14%	Cobalt-60	11.45%	Cobalt-60	44.14%
Zinc-65	11.32%	Manganese-54	5.11%	Nickel-63	5.36%
Manganese-54	4.75%	Zinc-65	4.24%		
Cesium-137	1.94%				
Nickel-63	1.40%				

(1) Includes only those nuclides that are greater than 1% of the total activity.

3. Disposition of Solid Waste Shipments (3rd and 4th Quarters)

Number of Shipments	**From VY**	**From Processor**	**Mode of Transportation**	**Destination**	
				Processor	**Burial or Disposal**
2	X		Truck		Duratek Barnwell, SC
2	X		Truck	Duratek Oak Ridge, TN	
8	X		Truck	Studsvik Erwin, TN	
19		X	Truck	Duratek Oak Ridge, TN	Energy Solutions, Clive, UT
8		X	Truck	Studsvik Erwin, TN	Energy Solutions, Clive, UT
15		X	Truck	Studsvik Erwin, TN	Duratek Barnwell, SC

B. Irradiated Fuel Shipments (Disposition): None

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2006
Solid Waste and Irradiated Fuel Shipments

C. Additional Data (3rd and 4th Quarters)

Supplemental Information	**Shipments from VY to Processors**	**Shipments from VY for Burial or Disposal**	**Shipments from Processors for Burial or Disposal**
Class of solid waste shipped	AU, B	C	AU,B, C
Type of containers used	Strong Tight Type A	Type A	Strong Tight, Type B
Solidification agent or absorbent	None	None	None

Table 3 Review Mark T. Vandale / 5-3-07
Mark Vandale, ENVY Radwaste Supervisor Date

RADIOACTIVE EFFLUENT RELEASE REPORT FOR 2005 INCLUDING ANNUAL RADIOLOGICAL IMPACT ON MAN

Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

Prepared by Mark Strum / 5-9-06
Mark Strum, Lead Rad. Eng., AREVA NP — Date

Preparation coordinated by: Stephen P. Skibniowsky / 5-10-06
Stephen P. Skibniowsky, Env. Specialist (NUC) — Date

Reviewed by: Stephen C. McAvoy / 5/10/06
Stephen C.McAvoy, Chemistry Supervisor — Date

Approved for Distribution: S. Wender / 5/10/06
Samuel A.Wender IV, Chem. Supt. — Date

TABLE 3

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2005
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	1ST and 2ND Quarters 2005	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	None	N/A
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	None	N/A
c. Irradiated components, control rods, etc.:	m^3 Ci	None	N/A

Shipped from Processor(s) for Burial or Disposal	Unit	1ST and 2ND Quarters 2005	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	3.50 E+00 9.31 E+01	± 2.5 E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	0.0 0.0	± 2.5 E+01
c. Irradiated components, control rods, etc.:	m^3 Ci	None	N/A

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins, filter sludge, evaporator bottoms, etc.		b. Dry compressible waste, contaminated equipment, etc.	
Isotope	Percent (1)	Isotope	Percent (1)
Zinc-65	3.38 E+01 %	Iron-55	6.51 E+01 %
Cobalt-60	2.11 E+01 %	Cobalt-60	1.75 E+01 %
Cesium-137	1.36 E+01 %	Zinc-65	4.94 E+00 %
Iron-55	1.09 E+01 %	Manganese-54	4.16 E+00 %
Nickel-63	9.72 E+00 %	Cerium-144	3.27 E+00 %
Manganese-54	4.60 E+00 %	Cesium-137	2.18 E+00 %
Cesium-134	1.43 E+00 %		

(1) Includes only those nuclides that are greater than 1% of the total activity.

Note: Sections A.1 and A.2 above do not include the data for the waste shipments from VY to the processors. The data for this waste will be included in the report that covers the year that this waste is shipped from the processor for burial or disposal.

TABLE 3
(Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2005
Solid Waste and Irradiated Fuel Shipments

3. Disposition of solid waste shipments (1st and 2nd Quarters)

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	Burial or Disposal
1	X		Truck	Duratek Oak Ridge, TN	
4	X		Truck	Studsvik, Erwin, TN	
1		X	Truck	Duratek Oak Ridge, TN	Envirocare Clive, UT
8		X	Truck	Studvik Erwin, TN	Duratek Barnwell, SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st and 2nd Quarters)

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	AU, B	None	AU, B, C
Type of containers used	Strong Tight, Type A	None	Strong Tight (quantity of containers not required), Type B
Solidification agent or absorbent	None	None	None

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2005
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	3rd and 4th Quarters 2005	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	None	±2.50 E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	None	N/A
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A

Shipped from VY to Processor	Unit	3rd and 4th Quarters 2005	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	2.29 E+01 1.35 E+02	±2.50 E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	5.51 E+02 8.00 E-01	±2.50 E+01
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A

Shipped from Processor(s) for Burial or Disposal	Unit	3rd and 4th Quarters 2005	Est. Total Error, %
a. Spent resins, filter sludge, evaporator bottoms, etc.	m^3 Ci	4.80 E+00 1.09 E+02	±2.50 E+01
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	5.27 E+01 5.20 E+00	±2.50 E+01
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2005
Solid Waste and Irradiated Fuel Shipments

2. Estimate of Major Nuclide Composition (By Type of Waste)

a. Spent resins, filter sludge, evaporator bottoms, etc.		b. Dry compressible waste, contaminated equipment, etc.		c. Irradiated components, control rods, etc.	
Isotope	**Percent (1)**	**Isotope**	**Percent (1)**	**Isotope**	**Percent (1)**
Cobalt-60	2.34 E+01 %	Iron-55	6.12 E+01 %	N/A	N/A
Zinc-65	2.18 E+01 %	Cobalt-60	1.95 E+01 %		
Iron-55	2.11 E+01 %	Zinc-65	8.85 E+00 %		
Cesium-137	1.18 E+01 %	Manganese-54	5.45 E+00 %		
Nickel-63	7.74 E+00 %	Cesium-137	1.28 E+00 %		
Manganese-54	6.55 E+00 %	Cerium-144	3.01 E+00 %		
Chromium-51	3.27 E+00 %	Chromium-51	1.38 E+00 %		
Cesium-134	1.11 E+00 %				
Cobalt-58	1.09 E+00 %				

(1) Includes only those nuclides that are greater than 1% of the total activity.

3. Disposition of Solid Waste Shipments (3rd and 4th Quarters)

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	**Burial or Disposal**
6	X		Truck	Duratek Oak Ridge, TN	
6	X		Truck	Studsvik Erwin, TN	
5	X		Truck	RACE Memphis, TN	
13		X	Truck	Duratek Oak Ridge, TN and RACE Memphis, TN	Envirocare Clive, UT
10		X	Truck	Studsvik Erwin, TN	Duratek Barnwell, SC
1		X	Truck	Studsvik Erwin, TN	Envirocare Clive, UT

B. Irradiated Fuel Shipments (Disposition): None

TABLE 3 (Continued)

Entergy Nuclear Northeast Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2005
Solid Waste and Irradiated Fuel Shipments

C. Additional Data (3rd and 4th Quarters)

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	AU, B	None	AU,B, C (quantity of containers not required)
Type of containers used	Strong Tight Type A	None	Strong Tight, Type B (quantity of containers not required)
Solidification agent or absorbent	None	None	None