OMY-12-073

ENCLOSURE 1

DECOMMISSIONING STUDY OF THE MAINE YANKEE INDEPENDENT SPENT FUEL STORAGE INSTALLATION

December 2012

Decommissioning Study of the Maine Yankee Independent Spent Fuel Storage Installation

Prepared for Maine Yankee Atomic Power Company

Knight Cost Engineering Services, LLC

December, 2012

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1.0 INTRODUCTION

The purpose of this study is to identify the costs associated with the decommissioning of the Maine Yankee (MY) Independent Spent Fuel Storage Installation (ISFSI). This estimate includes only the structures, systems and land within the NRC licensed area. The MY ISFSI is located within the site boundary of the former Maine Yankee nuclear power plant in the Town of Wiscasset, Maine. The site is approximately 1200 feet north of the former plant site in an area used as a vehicle parking lot. The NAC-UMS fuel storage and transport canister system chosen by MY is licensed by the NRC for both storage and transportation.

The ISFSI consists of the storage system and concrete storage pads, a Protected Area (PA) for spent fuel storage and a Security/Operations Building for equipment and staff. The PA contains 16 3 foot thick concrete pads, each 31 feet by 31 feet. There are 64 dry storage casks on the 16 pads, 60 for spent fuel and four for sections of the reactor vessel internals that are classified as Greater Than Class C (GTCC) waste. Each vertical concrete cask has a two and a half-inch steel liner surrounded by 24.25 inches of reinforced concrete.

2.0 SUMMARY

Decommissioning is the safe removal of a facility or site from service and the reduction of radioactivity to a level that permits either the release of the property for unrestricted use and NRC license termination; or a restricted release of the property and NRC license termination. This estimate includes all costs incurred to release the property for unrestricted use.

On June 17, 2011, the NRC published a final rule amending its regulations to improve decommissioning planning. The rule will become effective on December 17, 2012 and requires compliance by March 31, 2013. This rule will require licensees to report additional details in their decommissioning cost estimate. To assist in the implementation of the new rule, the NRC issued NUREG-1757, "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping and Timeliness."

NUREG-1757 does not apply to licensees under 10CFR Part 50 nor does it eliminate the need to follow Regulatory Guide 1.202 or NUREG-1713. It does provide additional information to support the development of the cost estimate. This cost estimate was prepared in accordance with the guidelines provided in RG 1.202 and NUREG-1713. In addition, it does take into account the guidelines identified in NUREG-1757.

NUREG-1757 specifies that a contingency of 25% is to be included in the estimate. This estimate takes exception to this contingency level for two reasons. First, the estimate is conservative in that the entire storage pad, concrete overpacks and overpack liners are assumed to be disposed of as potentially contaminated. Second, the MY site has recently been successfully decommissioned. Many of the key personnel involved in that project remain at the MY ISFSI. The lessons learned from that project will be incorporated in the MY ISFSI decommissioning. For this reason it is felt that a 10% contingency is adequate to cover unknown and unplanned occurrences.

The total cost including contingency is **$25.2** million, 20.4 million for radiological removal and $4.8 million for non-radiological removal. Table 2-1 provides a summary of costs. Cost details are provided in Appendix A

TABLE 2-1
SUMMARY OF COSTS

	Total Cost	Radiological Removal $	Non-radiological Removal $
Grand Total Building	**$25,170,039**	**$20,390,710**	**$4,779,329**
Tax on General Contractor	**$0**	**$0**	**$0**
General Contractor with contingency	**$16,796,626**	**$13,607,254**	**$3,189,372**

Site Costs with contingency			**$8,373,414**	**$6,783,456**	**$1,589,958**
General Contractor			**$15,269,660**	**$12,370,231**	**$2,899,429**
Site Costs			**$7,612,194**	**$6,166,778**	**$1,445,416**
MY ISFSI			**$22,881,854**	**$18,537,009**	**$4,344,845**
PERIOD DEPENDENT COSTS			$13,641,025	$11,050,844	$2,590,181
1.1		MY Site Costs	$7,612,194	$6,166,778	$1,445,416
	1.1.1	Project Management	$3,070,502		
	1.1.2	Security Staff	$2,047,193		
	1.1.3	Fees	$687,000	$556,551	$130,449
	1.1.4	Insurance	$604,500	$489,717	$114,783
	1.1.5	Legal	$200,000	$162,024	$37,976
	1.1.6	Property Taxes	$1,003,000	$812,549	$190,451
1.2		General Contractor	$6,028,831	$4,884,066	$1,144,765
	1.2.1	Decommissioning General Contractor	$3,163,249		
	1.2.2	Waste Packaging Crew	$999,410		
	1.2.3	Equipment & Materials	$1,866,172		
ACTIVITIES			$9,240,829	$7,486,165	$1,754,664
1.3		**Project Engineering**	$18,639	$15,099	$3,539
	1.3.1	Procedure Development and Review - Offsite	$9,319		
	1.3.2	Preparation of QA and Safety Documents - Offsite (in parallel with 1.2.1)	$9,319		
1.4		**Site Mobilization and General Employee Training (GET)**	$89,816	$72,761	$17,054
	1.4.1	Site Mobilization	$21,580		
	1.4.2	General Employee Training	$62,375		
	1.4.3	Site Specific Training	$5,860		
1.5		**Site Preparation - Performed by Staff**	$10,916	$8,843	$2,073
	1.5.1	Initial Site Survey			
	1.5.2	Setup work areas			
	1.5.3	Decontamination Readiness Review			
1.6		**Disconnect all utilities to work areas.**	$5,458	$4,422	$1,036
	1.6.1	Electrical	$2,729		
	1.6.2	Ventilation	$1,364		
	1.6.3	Piping	$1,364		
1.7		**Removal inside fences**	$7,851,986	$7,344,501	$507,484
	1.7.1	Remove compacted gravel	$370,409		$370,409
	1.7.2	Remove VCCs	$5,043,526	$5,043,526	$0
	1.7.2.1	Exterior Concrete	$3,195,666	$0	$0
	1.7.2.2	Steel liner	$1,847,861		
	1.7.3	Remove Concrete Pad	$2,300,975	$2,300,975	
	1.7.4	Remove Security Fence	$61,131		$61,131
	1.7.5	Remove Light Towers	$75,945		$75,945
1.8		**Removal outside fences**	$1,205,264		$1,205,264

1.8.1	Security/Operations Building	$549,008		$549,008
1.8.2	Remove paved area inside nuisance fence	$84,637		$84,637
1.8.3	Remove nuisance fence	$67,391		$67,391
1.8.4	Miscellaneous Pads	$76,849		$76,849
1.8.5	Miscellaneous structures	$126,572		$126,572
1.8.6	Remove buried utilities	$139,868		$139,868
1.8.7	SOB electrical service	$8,021		$8,021
1.8.8	Remove road inside licensed area	$137,895		$137,895
1.8.9	Remove vehicle barriers	$15,022		$15,022
1.9	**Final Site Survey Structure gone - By DGC Staff**	$25,000	$20,253	$4,747
1.9.1	Prepare Final Status Survey Plan			
1.9.2	Soil Sampling			
1.9.3	Direct Survey			
1.9.4	Sampling Analysis			
1.9.5	Prepare Final Status Survey Report			
1.10	**Orise Site Release Confirmation**			
1.11	**Outside areas**	$8,712		$8,712
1.11.1	Backfill, grade and seed	$8,712		$8,712
1.12	**Demolition Crew Demobilization**	$15,720	$12,735	$2,985
1.13	**Final Project Report - Offsite**	$9,319	$7,550	$1,770

3.0 DECOMMISSIONING COST ESTIMATING APPROACH

Two types of costs were determined in this estimate: activity costs and level of effort costs. The activity costs were developed utilizing a unit cost factor approach. Site material quantities for concrete, steel and equipment where developed from site specific drawings. Productivity factors were applied to these quantities to determine activity durations. Labor crews were developed and applied to the material quantities to determine labor costs and person-hours. The activity durations were used to develop a project schedule.

The level of effort costs such as equipment rental and the General Contractor (GC) staff were developed based on the project schedule duration. A rental equipment file was developed for the construction effort. The GC staff is assumed to be on-site for the duration of the project. The Oversight staff cost is another level of effort cost that is included in the cost estimate.

Bulk removal of the storage pad and concrete storage casks is assumed to be performed using an excavator with a hydraulic hammer attachment. The steel liner will be segmented utilizing torch cutters. All of this waste will be trucked off-site for processing. This leads to a large disposal volume; however, at a lower rate for bulk processing than for direct burial. In addition, there will be far less characterization and iterative decontamination. Clean structures will be demolished using mechanical means and disposed of at a local landfill.

In addition to the removal labor there is a dedicated waste packaging crew included in this estimate. This crew will consolidate, package and prepare containers for transportation. The waste packaging is estimated to remain on site for the duration of the project. This crew consists of 2 laborers; 1 Health Physics Technician; 1 Equipment Operator and 1 Foreman.

4.0 ASSUMPTIONS

Following is a list of assumptions developed by KCES in completing this study. These assumptions are based on the most current decommissioning methodologies and site-specific considerations.

1. **Component quantities** were developed from actual plant listings.

2. **Concrete volumes** were developed from plant drawings.

3. **The oversight staff** is assumed to be the similar size and configuration as it is currently.

4. **The oversight staff positions and costs** were supplied by the Company and represent July, 2012 salary and benefit data.

5. **Subcontractor base labor rates and fringe benefits** were taken directly from the 2012 R. S. Means Heavy Construction Cost Data and adjusted to Maine based on the City Cost Indexes for Augusta, ME.

6. **Activity labor** costs do not include any allowance for delays between activities, nor is there any cost allowance for craft labor retained on-site while waiting for work to become available.

7. All **skilled laborers** will be supplied locally and hired by the Decommissioning General Contractor (DGC).

8. The cost for **Utility personnel** assisting the DGC to develop decommissioning activity specifications is included in the Utility Staff costs.

9. **The separate DGC staff salaries**, including overhead and profit, were determined by KCES.

10. **Transportation** costs are based on actual mileage from MY to Memphis, TN processing facility utilized in the estimate.

11. **The ISFSI Concrete Pad, VCC exterior concrete and VCC liner steel** are assumed to be Class A waste. This waste will be disposed of at the Studsvik processing facility in Tennessee. A disposal rate of $0.13 per pound has been used in this estimate and is based on information provided by Studsvik.

12. **The following buildings are disposed of as Clean waste** in local landfill. A disposal rate of $91.80 per ton has been used in this estimate and is based on information provided in the 2012 R. S. Means Building Construction Cost Data.

    Compacted gravel around pads
    Security Fence

Light Towers
Security/Operations Building
Paved area inside nuisance fence
Nuisance fence
Miscellaneous Pads
Miscellaneous structures
Buried utilities
SOB electrical service
Road inside licensed area
Vehicle barriers

13. **All costs** used in these calculations were current on July, 2012.

14. The costs of all **required safety analyses and safety measures** for the protection of the general public, the environment, and decommissioning workers are included in the cost estimates.

15. It is assumed that all **UMS canisters containing both spent fuel and GTCC will have been removed from site** prior to the start of decommissioning.

16. **Property taxes** are included in the estimate at the current cost of $1,003,100 per year.

17. **Fees** are included in the estimate at the current cost of $687,000 per year.

18. **Insurance** costs are included in the estimate at the current cost of $604,500 per year.

19. **Legal** costs are included in the estimate at the current cost of $200,000 per year.

20. The decommissioning will be performed under the **current regulations.**

21. Removal of the pad and concrete overpacks will be performed in Tyvek coveralls. **Productivity rates** have been adjusted to account for this.

22. The removal of the **berm** is not included in the estimate.

23. No **subsurface material** is assumed to require remediation regarding radionuclides. This assumption is justified because: 1) the ISFSI area was confirmed to be clean of radiological contaminants prior to the construction of the ISFSI; 2) the ISFSI area will be maintained clean of loose radiological contaminants during the storage period; 3) the irradiated fuel and GTCC waste are stored in sealed canisters; 4) nuclear activation of the VCCs, VCCs liners, and ISFSI pad are anticipated; the activation products will remain fixed during the storage period; and 5) if contamination of subsurface material occurs during decommissioning activities, the contamination is expected to remain below the decommissioning criteria of 25 millirem per year Total Effective Dose Equivalent

5.0 SCHEDULE

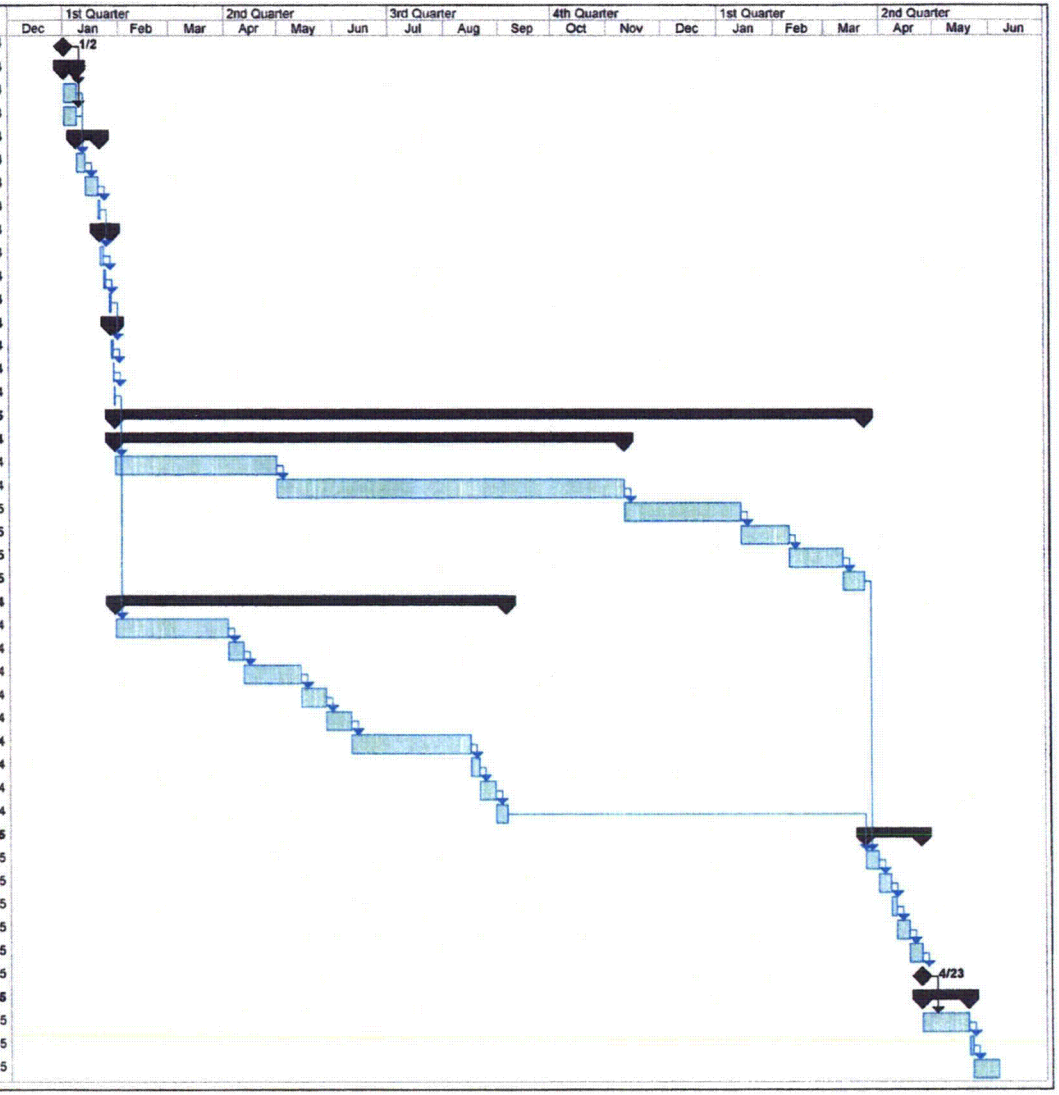
A scenario-specific schedule has been developed for estimate.

Activity durations were determined based on the unit cost factor approach. Plant material inventory quantities were developed from site specific material. Unit rates for cost, man hours and schedule hours were applied to the material quantities. From this calculation the removal or decontamination cost, total man hours and total schedule hours were determined for an activity. The schedule hours are then entered into the schedule to determine project duration. Two work crews are assumed for the concrete pad and concrete overpacks. All other work was assumed to be performed by one crew. Work outside of the security fence will be performed in parallel with the work inside the fence. The total project duration is 16.79 months.

Figure 5-1 provides the detailed decommissioning schedule.

Figure 5-1
Project Schedule

ID	Task Name	Duration	Start	Finish
1	Project Start	0 days	Thu 1/2/14	Thu 1/2/14
2	**Project Engineering**	**5 days**	**Thu 1/2/14**	**Wed 1/8/14**
3	Procedure Development and Review - Offsite	5 days	Thu 1/2/14	Wed 1/8/14
4	Preparation of QA and Safety Documents - Offsite	5 days	Thu 1/2/14	Wed 1/8/14
5	**Site Mobilization and General Employee Training (GET)**	**9 days**	**Thu 1/9/14**	**Tue 1/21/14**
6	Site Mobilization	3 days	Thu 1/9/14	Mon 1/13/14
7	General Employee Training	5 days	Tue 1/14/14	Mon 1/20/14
8	Site Specific Training	1 day	Tue 1/21/14	Tue 1/21/14
9	**Site Preparation - Performed by Staff**	**4 days**	**Wed 1/22/14**	**Mon 1/27/14**
10	Initial Site Survey	2 days	Wed 1/22/14	Thu 1/23/14
11	Setup work areas	1 day	Fri 1/24/14	Fri 1/24/14
12	Decontamination Readiness Review	1 day	Mon 1/27/14	Mon 1/27/14
13	**Disconnect all utilities to work areas.**	**2 days**	**Tue 1/28/14**	**Wed 1/29/14**
14	Electrical	1 day	Tue 1/28/14	Tue 1/28/14
15	Ventilation	0.5 days	Wed 1/29/14	Wed 1/29/14
16	Piping	0.5 days	Wed 1/29/14	Wed 1/29/14
17	**Removal inside fences**	**297.72 days**	**Thu 1/30/14**	**Mon 3/23/15**
18	**Remove VCCs**	**202.81 days**	**Thu 1/30/14**	**Mon 11/10/14**
19	Exterior Concrete	64.06 days	Thu 1/30/14	Wed 4/30/14
20	Steel liner	138.75 days	Wed 4/30/14	Mon 11/10/14
21	Remove Concrete Pad	46.13 days	Mon 11/10/14	Tue 1/13/15
22	Remove Security Fence	18.28 days	Tue 1/13/15	Mon 2/9/15
23	Remove Light Towers	22.5 days	Mon 2/9/15	Wed 3/11/15
24	Remove Compacted gravel	8 days	Wed 3/11/15	Mon 3/23/15
25	**Removal outside fences**	**156.06 days**	**Thu 1/30/14**	**Fri 9/5/14**
26	Security/Operations Building	44.54 days	Thu 1/30/14	Wed 4/2/14
27	Remove paved area inside nuisance fence	6.75 days	Wed 4/2/14	Fri 4/11/14
28	Remove nuisance fence	22.7 days	Fri 4/11/14	Tue 5/13/14
29	Miscellaneous Pads	9.43 days	Tue 5/13/14	Tue 5/27/14
30	Miscellaneous structures	9.62 days	Tue 5/27/14	Tue 6/10/14
31	Remove buried utilities	48.13 days	Tue 6/10/14	Fri 8/15/14
32	SOB electrical service	2.87 days	Fri 8/15/14	Wed 8/20/14
33	Remove road inside licensed area	7.83 days	Wed 8/20/14	Fri 8/29/14
34	Remove vehicle barriers	4.19 days	Fri 8/29/14	Fri 9/5/14
35	**Final Site Survey Structure gone - By DGC Staff**	**23 days**	**Mon 3/23/15**	**Thu 4/23/15**
36	Prepare Final Status Survey Plan	5 days	Mon 3/23/15	Mon 3/30/15
37	Soil Sampling	5 days	Mon 3/30/15	Mon 4/6/15
38	Direct Survey	3 days	Mon 4/6/15	Thu 4/9/15
39	Sampling Analysis	5 days	Thu 4/9/15	Thu 4/16/15
40	Prepare Final Status Survey Report	5 days	Thu 4/16/15	Thu 4/23/15
41	Orise Site Release Confirmation	0 days	Thu 4/23/15	Thu 4/23/15
42	**Outside areas**	**17.78 days**	**Thu 4/23/15**	**Tue 5/19/15**
43	Backfill, grade and seed	17.78 days	Thu 4/23/15	Tue 5/19/15
44	Demolition Crew Demobilization	2 days	Tue 5/19/15	Thu 5/21/15
45	Final Project Report - Offsite	10 days	Thu 5/21/15	Thu 6/4/15



6.0 PROJECT MANAGEMENT

There are three components to project management during decommissioning, Oversight Staff (staff), Decommissioning General Contractor Staff (DGC) and Security. The person levels for each are identified below.

6.1 OVERSIGHT STAFF

The staff size is currently at a level of 19 and is assumed to be maintained at this level and at a similar configuration during the decommissioning. In addition, one final status survey resource will be added and one licensing person will be added to assist in the decommissioning. The staff will provide DGC oversight as well as maintain license compliance. Table 7-1 provides a summary of this staff.

TABLE 6-1
OVERSIGHT STAFF

Staff	Number
Chief Nuclear Officer	1
Cask Relicensing Project Manager	1
Workers Concerns Manager	1
Business Manager	1
ISFSI Manager	2
ISFSI QA Manager	1
Regulatory Affairs	1
Public/Government Affairs	1
General Counsel	1
Business Administrator	1
Treasurer	1
Accountant	1
Benefits Manager	1
IT Services	1
ISFSI Operations Specialist	2
Program Manager	1
ISFSI Administrator	1
Licensing Engineer	1
Security Manager	1
	21

6.2 DECOMMISSIONING GENERAL CONTRACTOR

The DGC will be responsible for all of the physical work. The staff will oversee the work crews., schedule work and supply HP support. The DGC will be responsible for finishing the project on time and on budget. Table 7-2 provides a summary of the DGC staff.

TABLE 6-2
DGC STAFF

Position	2012 Base Salary	Person Level
Project Superintendent	$148,000	1.00
QA Auditor/Inspector	$70,000	1.00
Health & Safety Supervisor	$117,000	1.00
Packaging/Shipping Specialist	$70,000	1.00
Cost Control Accountant	$55,000	1.00
Scheduler II	$60,000	1.00
Demolition Specialist	$86,000	1.00
Industrial Safety	$86,000	1.00
Engineering Supervisor	$117,000	1.00
Project Supervisor	$79,000	1.00
Decontamination Tech	$55,000	2.00
Instrumentation Tech	$55,000	1.00
Tool Crib Attendant	$43,000	1.00
		14.00

6.3 SECURITY

Once spent fuel has been removed from the site the security force will be significantly reduced. This estimate assumes a force of 13 guards and one manager. This will allow a security person level of 5 guards during work time and two guards all other times. The guard force was assumed to consist of various levels of guards and the rate used has been adjusted accordingly.

7.0 References

1. R.S. Means, Inc, *Building Construction Cost Data*, Kingston, Massachusetts, 2012.

2. Regulatory Guide 1.202, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors"

3. NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors"

4. NUREG-1757, "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping and Timeliness"

APPENDIX A

			Crew	Unconnected Duration Qty. of Hours	Prod. Factor	Adjusted Duration	Man-hours	LSA Waste Disp. Vol (cf)	Hazardous Waste Vol (cf)	Ballast Volume (cf)	Mixed Waste Volume (cf)	Class Waste Volume (cf)	Lead Waste Volume (cf)	Activated Waste Volume (cf)	Materials, Consumables, & Equipment	Labor Cost	LSA Waste Cost	Hazardous Waste Cost	Mixed Waste Cost	Class Waste Cost	Total Cost	$1.01% Radiological Removal $	18.99% Non-radiological Removal $
Grand Total Building																					$28,170,039	$20,390,710	$4,778,329
Contingency =																					$2,259,185		
Tax on General Contractor		6.00%													$0	$0	$0			$0	$0	$0	$0
General Contractor with contingency		10.00%													$2,135,055	$7,053,290	$6,390,925			$1,247,350	$16,796,626	$13,607,254	$3,189,372
Site Costs with contingency															$2,743,950	$5,629,464	$0			$0	$8,373,414	$6,783,458	$1,589,956
General Contractor							95,845.03	151,482.56							$1,940,959	$8,412,082	$5,782,659			$1,133,960	$15,269,660	$12,370,231	$2,899,429
Site Costs							100,640.00	0.00							$2,494,500	$5,117,694	$0			$0	$7,612,194	$6,166,778	$1,445,416
MY ISFSI							196,485	151,483				3,763,254			$4,435,459	$11,529,776	$5,782,659			$1,133,960	$22,881,854	$18,537,009	$4,344,845
PERIOD DEPENDENT COSTS							156,060								$4,360,672	$9,280,353	$0			$0	$13,641,025	$11,050,844	$2,590,181
1.1	**MY Site Costs**						100,640								$2,494,500	$5,117,694					$7,612,194	$6,166,778	$1,445,416
	Project duration =		518.00	days/7days/wk =	74.00	17.08	months																
			370.00	working days																			
	Labor cost =	11,529,776	(Used to determine small tool costs and HP Supplies)																				
1.1.1	**Project Management**						62,160									$3,070,502					$3,070,502		
	Staff		Number	Rate	Duration, days*	Use Factor	Cost	Man-hours	FTEs														
	Chief Nuclear Officer		1	$80.53	370.00	100.00%	$238,395	2,960.00	1.00														
	Cask Relicensing Project Manager		1	$29.17	370.00	100.00%	$86,333	2,960.00	1.00														
	Workers Concerns Manager		1	$11.54	370.00	100.00%	$34,154	2,960.00	1.00														
	Business Manager		1	$26.67	370.00	100.00%	$78,941	2,960.00	1.00														
	ISFSI Manager	(includes add. LM)	2	$101.69	370.00	100.00%	$601,963	5,920.00	2.00														
	ISFSI QA Manager		1	$16.54	370.00	100.00%	$48,954	2,960.00	1.00														
	Regulatory Affairs		1	$20.06	370.00	100.00%	$59,366	2,960.00	1.00														
	Public/Government Affairs		1	$38.94	370.00	100.00%	$115,269	2,960.00	1.00														
	General Counsel		1	$25.64	370.00	100.00%	$75,897	2,960.00	1.00														
	Business Administrator		1	$24.35	370.00	100.00%	$72,070	2,960.00	1.00														
	Treasurer		1	$43.75	370.00	100.00%	$129,500	2,960.00	1.00														
	Accountant		1	$68.47	370.00	100.00%	$202,682	2,960.00	1.00														
	Benefits Manager		1	$13.85	370.00	100.00%	$40,995	2,960.00	1.00														
	IT Services		1	$57.69	370.00	100.00%	$170,769	2,960.00	1.00														
	ISFSI Operations Specialist	(includes 1 FSS Man	2	$55.65	370.00	100.00%	$329,837	5,920.00	2.00														
	Program Manager		1	$101.00	370.00	100.00%	$298,960	2,960.00	1.00														
	ISFSI Administrator		1	$43.47	370.00	100.00%	$128,664	2,960.00	1.00														
	Licensing Engineer		1	$49.50	370.00	100.00%	$146,520	2,960.00	1.00														
	Security Manager		1	$51.49	370.00	100.00%	$152,410	2,960.00	1.00														
			21				$3,070,502	62,160.00	21.00														
1.1.2	**Security Staff**						39,480.00									$2,047,193					$2,047,193		
	Project duration =		518.00	days/7days/wk =	74.00	weeks		17.02	Months														
	Staff		Number	Rate	Duration, weeks	Use Factor	Cost	Man-hours															
	Security Guards - blended rate		13	$40.64	74.00	100.00%	$1,563,627	39,480.00															
				$/month	Duration, Months	Use Factor	Cost																
	Medical			$16,338.00	17.02	30.00%	$83,417																
	Dental			$899.00	17.02	30.00%	$4,590																
	401K			$22,885.00	17.02	30.00%	$116,844																
	Ammo			$15,000.00	17.02	30.00%	$76,586																
	Uniforms			$39,550.00	17.02	30.00%	$201,930																
			13				$2,047,193	39,480.00															
1.1.3	**Fees**	$697,000.00	per year		1.00	years									$697,000						$697,000	$558,851	$130,449
1.1.4	**Insurance**	$604,500.00	per year		1.00	years									$604,500						$604,500	$484,717	$113,783
1.1.5	**Legal**	$200,000.00	per year		1.00	years									$200,000						$200,000	$162,024	$37,976
1.1.6	**Property Taxes**	$1,003,000.00	per year		1.00	years									$1,003,000						$1,003,000	$812,549	$190,451
1.2	**General Contractor**						55,420								$1,868,172	$4,162,659					$6,026,831	$4,884,066	$1,144,765
1.2.1	**Decommissioning General Contractor**						36,920.00									$3,163,249					$3,163,249		
	Project duration =		497.00	days/7days/wk =	71.00																		
			355.00	working days																			
	Staff		Number	Rate	Duration, days*	Use Factor	Cost	Man-hours															
	Project Superintendent		1	$133.27	355.00	100.00%	$378,474	2,840.00															
	QA Auditor/Inspector		1	$76.45	355.00	100.00%	$217,107	2,840.00															
	Health & Safety Supervisor		1	$111.30	355.00	100.00%	$316,084	2,840.00															
	Packaging/Shipping Specialist		1	$76.45	355.00	100.00%	$217,107	2,840.00															
	Cost Control Accountant		1	$65.34	355.00	100.00%	$185,573	2,840.00															
	Scheduler II		1	$68.97	355.00	100.00%	$195,864	2,840.00															
	Demolition Specialist		1	$88.40	355.00	100.00%	$251,063	2,840.00															
	Industrial Safety		1	$88.40	355.00	100.00%	$251,063	2,840.00															
	Engineering Supervisor		1	$111.30	355.00	100.00%	$316,084	2,840.00															
	Project Supervisor		1	$83.17	355.00	100.00%	$236,207	2,840.00															
	Decommissioning Tech		1	$89.37	355.00	100.00%	$253,823	2,840.00															
	Instrumentation Tech		1	$65.34	355.00	100.00%	$185,573	2,840.00															
	Tool Crib Attendant		1	$55.27	355.00	100.00%	$159,606	2,840.00															
			13				$3,163,249	36,920.00															
1.2.2	**Waste Packaging Crew**						18,500.00									$999,410					$999,410		
	Project duration =		497.00	days/7days/wk =	71.00	weeks		17.33	Months														
			355.00	working days																			
	Staff		Number	Rate	Duration, days	Use Factor	Cost	Man-hours															
	Laborers		2	$50.27	370.00	100.00%	$372,028	7,400.00															
	H.P. Tech.		1	$51.00	370.00	100.00%	$188,700	3,700.00															
	Load Oper.		1	$65.40	370.00	100.00%	$241,980	3,700.00															
	Foreman		1	$53.16	370.00	100.00%	$196,692	3,700.00															

			Crew	Unconnected Duration (No. of Hours)	Prod. Factor	Adjusted Duration	Man-hours	LSA Waste Dens. Vol (cf)	Hazardous Waste Vol (cf)	Ballast Volume (cf)	Mixed Waste Volume (cf)	Clean Waste Volume (cf)	Lead Waste Volume (cf)	Activated Waste Volume (cf)	Materials, Consumables, & Equipment	Labor Cost	LSA Waste Cost	Hazardous Waste Cost	Mixed Waste Cost	Clean Waste Cost	Total Cost	$1.01% Radiological Removal $	18.99% Non-radiological Removal $
		5			$989,410	18,500.00																	
1.2.3	Equipment & Materials														$1,666,172						$1,666,172		

Equipment	Quantity	Rate	Cost
Respirator	10	$321	$3,210
Reciprocating Saws	3	$1,309	$3,927
Pneumatic chipping hammers	2	$1,280	$2,560
Chipping hammer blades	20	$35	$709
Purchase an air compressor:	2	$1,369	$2,738
Jackhammer	2	$1,235	$2,469
Jackhammer Chisels	20	$30	$600
Safety glasses	100	$12	$1,199
Fall protection - harness	3	$142	$426
Fall protection - lanyard	3	$218	$654
Hardhats	30	$43	$1,275
Hard hat hearing protection	30	$40	$1,205
Trailer rental	2	$840	$28,205
Portable toilets	3	$180	$2,095
Torch Rental	2	$280	$3,313
Front end loader, wheeled	1	$7,349	$100,688
Hydraulic hammer for excavator	1	$9,698	$132,868
Excavator	1	$25,688	$351,941
Grapple for excavator	1	$2,350	$32,198
Hydraulic hammer for excavator	1	$9,698	$110,883
Excavator	1	$25,688	$293,708
Dump trucks excavation and backfill	1	$20,407	$279,586
Water tank Trailer	1	$3,418	$46,801
Dust Boss DB 60	1	$850	$11,645
Dust Boss DB 60 transport	1	$3,000	$3,000
Man lift	1	$2,775	$38,019
			$1,462,580

Project duration = 348.00 days/7days/wk = 49.71 weeks 11.43 Months
249.57 working days

Consumables	Quantity		Duration		# workers	quantity	Unit Qty	Unit Cost	Cost
Coveralls	2	/man/day	248.57	days	8.50	4,226	1	$6.58	$27,805.20
Shoe covers	4	/man/day	248.57	days	8.50	8,451	1	$1.98	$16,733.83
Latex gloves	4	/man/day	248.57	days	8.50	8,451	1	$1.20	$10,141.71
Rubber overshoes	0.01	/man/day	248.57	days	8.50	21	1	$35.50	$750.06
Gloves	0.5	/man/day	248.57	days	8.50	1,056	1	$1.63	$1,721.98
Dosimeters	1	/man/year	0.96	year	27.00	26	1	$195.69	$5,036.52
TLDs	1	/man/mo	11.43	month	27.00	309	1	$35.50	$10,959.06
Bioassays	2	/man/year	0.96	year	27.00	52	1	$250.00	$12,906.59
(Bioassays for exec, crew & management)									$26,922.19

Small Tools - 2% of total labor costs = $11,529,776 labor costs x 2.00% = $230,595

DOC OH &P on equipment and materials $1,797,184 6.00% = $143,775

ACTIVITIES				6,244		6,244	40,425	151,483	0	0	0	3,763,254	0	0	$74,787	$2,249,423	$5,782,659	$0	$0	$1,133,980	$9,240,829	$7,466,165	$1,754,664
1.3	Project Engineering			80		80	240	0	0	0	0	0	0	0	$0	$18,639	$0	$0	$0	$0	$18,639	$15,099	$3,539
1.3.1	Procedure Development and Review - Offsite			40	1.00	40	120									$9,319					$9,319		

Staff	Number	Rate	Duration	PLF	Cost	Man-hours
Project Specialist	2	$65.65	40	1.00	$5,252	80
Project Manager	1	$101.69	20	1.00	$2,034	20
Certified Health Physicist	1	$101.69	20	1.00	$2,034	20
	4		40		$9,319	120

1.3.2	Preparation of QA and Safety Documents - Offsite (in parallel with 1.2.1)			40	1.00	40	120									$9,319					$9,319		

Staff	Number	Rate	Duration	PLF	Cost	Man-hours
Project Specialist	2	$65.65	40	1.00	$5,252	80
Project Manager	1	$101.69	20	1.00	$2,034	20
Certified Health Physicist	1	$101.69	20	1.00	$2,034	20
	4		40		$9,319	120

1.4	Site Mobilization and General Employee Training (GET)			72	1.00	72	693								$37,075	$52,741					$89,816	$72,761	$17,054
1.4.1	Site Mobilization			24		24	312								$4,000	$17,580					$21,580		

Crew	Rate, $/hr	Cost, $/hr	
1 Project Superintendent		$0.00	With Period Dependent costs
1 QA Auditor/Inspector		$0.00	With Period Dependent costs
1 Health & Safety Supervisor		$0.00	With Period Dependent costs
1 Packaging/Shipping Specialist		$0.00	With Period Dependent costs
1 Cost Control Accountant		$0.00	With Period Dependent costs
1 Scheduler II		$0.00	With Period Dependent costs
1 Demolition Specialist		$0.00	With Period Dependent costs
1 Industrial Safety		$0.00	With Period Dependent costs
1 Engineering Supervisor		$0.00	With Period Dependent costs
1 Project Supervisor		$0.00	With Period Dependent costs
2 Decontamination Tech		$0.00	With Period Dependent costs
1 Instrumentation Tech		$0.00	With Period Dependent costs
1 Tool Crib Attendant		$0.00	With Period Dependent costs
2 Equip Oper	$65.40	$130.81	
7 Laborer	$50.27	$351.92	
2 Foreman	$53.16	$106.32	
2 Craftsman	$71.73	$143.47	
27		$732.51	

Travel to site	8	hr
Receipt of material and equipment	4	hr
Staging of equipment	4	hr
Set up office and amenities	4	hr
Familiarize staff with facility	4	hr
	24	hr

Labor Cost = 24 x $732.51 $17,580.26
Travel cost = 10 x $400.00 $4,000.00 For Contractor Management only

1.4.2	General Employee Training			40	1.00	40.00	135.00								$33,075	$29,300					$62,375		

Crew	Rate, $/hr	Cost, $/hr	
1 Project Superintendent	$0.00	$0.00	With Period Dependent costs

					Crew	Uncorrected Duration (No. of Hours)	Prod. Factor	Adjusted Duration	Man-hours	LSA Waste Disp. Vol (cf)	Hazardous Waste Vol (cf)	Ballast Volume (cf)	Mixed Waste Volume (cf)	Clean Waste Volume (cf)	Lead Waste Volume (cf)	Activated Waste Volume (cf)	Materials, Consumables, & Equipment	Labor Cost	LSA Waste Cost	Hazardous Waste Cost	Mixed Waste Cost	Clean Waste Cost	Total Cost	81.01% Radiological Removal $	18.99% Non-radiological Removal $
			1 QA Auditor/Inspector		$0.00	$0.00	With Period Dependent costs																		
			1 Health & Safety Supervisor		$0.00	$0.00	With Period Dependent costs																		
			1 Packaging/Shipping Specialist		$0.00	$0.00	With Period Dependent costs																		
			1 Cost Control Accountant		$0.00	$0.00	With Period Dependent costs																		
			1 Scheduler II		$0.00	$0.00	With Period Dependent costs																		
			1 Demolition Specialist		$0.00	$0.00	With Period Dependent costs																		
			1 Industrial Safety		$0.00	$0.00	With Period Dependent costs																		
			1 Engineering Supervisor		$0.00	$0.00	With Period Dependent costs																		
			1 Project Supervisor		$0.00	$0.00	With Period Dependent costs																		
			2 Decontamination Tech		$0.00	$0.00	With Period Dependent costs																		
			1 Instrumentation Tech		$0.00	$0.00	With Period Dependent costs																		
			1 Tool Crib Attendant		$0.00	$0.00	With Period Dependent costs																		
			2 Equip Oper		$65.40	$130.81																			
			7 Laborer		$50.27	$351.92																			
			2 Foreman		$53.16	$106.32																			
			2 Craftsman		$71.73	$143.47																			
			27			$732.51																			
						Unit Cost	Number Required	Test Cost	Labor Costs	Total Cost															
			In-Vivo			$600	27	$16,200.00		$16,200															
			In-Vitro			$350	27	$9,450.00		$9,450															
			Physical @	4	hour and	$150	27	$4,050.00	$2,930.04	$6,980															
			Blood Tests	1	hour and	$125	27	$3,375.00	$732.51	$4,108															
			OSHA recertification - assume all certified		hour				$0.00	$0															
				5				$33,075.00	$3,662.55	$38,738															
	1.4.3	Site Specific Training					8	1.00	8.00	216.00								$5,860					$5,860		
		Crew				Rate, $/hr	Cost, $/hr																		
			1 Project Manager			$0.00	$0.00	With Period Dependent costs																	
			1 QA Auditor/Inspector			$0.00	$0.00	With Period Dependent costs																	
			1 Health & Safety Supervisor			$0.00	$0.00	With Period Dependent costs																	
			1 Packaging/Shipping Specialist			$0.00	$0.00	With Period Dependent costs																	
			1 Cost Control Accountant			$0.00	$0.00	With Period Dependent costs																	
			1 Scheduler II			$0.00	$0.00	With Period Dependent costs																	
			1 Demolition Specialist			$0.00	$0.00	With Period Dependent costs																	
			1 Industrial Safety			$0.00	$0.00	With Period Dependent costs																	
			1 Engineering Supervisor			$0.00	$0.00	With Period Dependent costs																	
			1 Project Supervisor			$0.00	$0.00	With Period Dependent costs																	
			2 Decontamination Tech			$0.00	$0.00	With Period Dependent costs																	
			1 Instrumentation Tech			$0.00	$0.00	With Period Dependent costs																	
			1 Tool Crib Attendant			$0.00	$0.00	With Period Dependent costs																	
			2 Equip Oper			$65.40	$130.81																		
			7 Laborer			$50.27	$351.92																		
			2 Foreman			$53.16	$106.32																		
			2 Craftsman			$71.73	$143.47																		
			27				$732.51																		
1.5	Site Preparation - Performed by Staff						B	32.00	1.00	32.00	0.00								$10,918					$10,918	$8,843	$2,073
	1.5.1	Initial Site Survey						16.00	1.00	16.00														$0		
			Estimated Duration	16	hrs																					
	1.5.2	Setup work areas						8.00	1	8.00														$0		
	1.5.3	Decontamination Readiness Review						8.00	1.00	8.00														$0		
1.6	Disconnect all utilities to work areas.							16.00		16.00	96.00							$0	$5,458					$5,458	$4,422	$1,036
	1.6.1	Electrical					B	8.00	1.00	8.00	48								$2,729					$2,729		
	1.6.2	Ventilation					B	4.00	1.00	4.00	24								$1,364					$1,364		
	1.6.3	Piping					B	4.00	1.00	4.00	24								$1,364					$1,364		
1.7	Remove inside fences							4,373		4,373	30,612	151,483	0	0	0	58,444	0	0	$0	$1,714,765	$5,782,659	$0	$0	$354,561	$7,851,986	$7,344,501	$507,484
	1.7.1	Remove concreted gravel					A	64	1.00	63.72	446	0.00				55,916				$24,986	$0			$345,422	$370,409		$370,409
				Inventory		Number	Length, ft.	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes			PLF										
		Clean	Gravel				86,024	43012.00	6,451,800	-30.00%	55,916	179.22	200	cu. yd./day		1.00	63.72	2012 RS Means 31 23 16.13 0060								
											55915.60	179.22					63.72									
			Waste		Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean			55,915.60	179.22	$0.00	$49,284.58	$296,137.62	$345,422.20															
			Contaminated			0.00	0.00	$0.00	$0.00	$0.00	$0.00															
	1.7.2	Remove VCCs						3,245		2	3,245	22,715	91,516	0	0	0	0	0	0	$0	$1,272,440	$3,771,086	$0	$0	$0	$5,043,526	$5,043,526	
	1.7.2.1	Exterior Concrete					A	1,025	1.00	1025.02	7,175	83263.20					0				$401,931	$2,793,736			$0	$3,195,668		
		Contaminated	Inventory Remove concrete			Number 64	Area, sq. ft.	Volume, cu. Ft. 64,064.00	Weight, Lbs 9,609,600.00	Vol. Reduc. factor -30.00%	Adjusted Volume, cu. ft. 83263.20	# of boxes 266.93	25.00	cu. yd./day		PLF 1.35	1025.02	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.							
											83263.20	266.93					1025.02									
			Waste		Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean		0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00															
			Contaminated		9,609,600.00	83,263.20	266.93	$106,773.33	$1,437,713.61	$1,249,248.00	$2,793,734.94															
	1.7.2.2	Steel liner					A	2,220	1.00	2220.02	15,540	8232.96					0				$870,509	$977,351			$0	$1,847,861		
		Contaminated	Inventory Remove steel			Number 64	Area, sq. ft. 34,207	Volume, cu. Ft. 6,860.80	Weight, Lbs 3,361,792.00	Vol. Reduc. factor -20.00%	Adjusted Volume, cu. ft. 8232.96	# of boxes 93.38	0.06	hrs/sq. ft.		PLF 1.00	2220.02	Unit Cost factor #2.								
											8232.96	93.38					2220.02									
			Waste		Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean			0.00	0.00	$0.00	$0.00	$0.00	$0.00															
			Contaminated		3,361,792.00	8,232.96	93.38	$37,353.24	$502,985.17	$437,032.96	$977,351.38															
	1.7.3	Remove Concrete Pad					A	738	1.00	738.05	5,166	59068.40					0				$289,402	$2,011,573			$0	$2,300,975	$2,300,975	

						Crew	Uncorrected Duration Qty. of Hours)	Prod. Factor	Adjusted Duration	Man-hours	LSA Waste Disp. Vol (cf)	Hazardous Waste Vol (cf)	Ballast Volume (cf)	Mixed Waste Volume (cf)	Clean Waste Volume (cf)	Lead Waste Volume (cf)	Activated Waste Volume (cf)	Materials, Consumables, & Equipment	Labor Cost	LSA Waste Cost	Hazardous Waste Cost	Mixed Waste Cost	Clean Waste Cost	Total Cost	81.01% Radiological Removal $	18.99% Non-radiological Removal $
		Inventory			Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes			PLF												
	Contaminated	Remove concrete					46,128.00	6,919,200.00	-30.00%	59966.40	192.20	25.00	cu. yd./day	1.35	738.05	Use 2012 Means pg 50, 02 41 13 33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
										59966.40	192.20				738.05											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $	Diamond Wire cutting $/cuft	Diamond Wire cutting															
		Clean	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
		Contaminated	6,919,200.00	59,966.40	192.20	$76,830.00	$1,035,199.89	$899,496.00	$2,011,572.89																	
1.7.4	Remove Security Fence				A	146	1.00	146.22	1,024	0.00					1,395				$57,336	$0			$3,795	$61,131		$61,131
		Inventory	Number	Length, ft.	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF												
	Clean	Fence		1236		1236.00		0.00%	1236.00	1.53	445	ft/day		1.00	22.22	2012 RS Means 02 41 13.60 1700										
	Clean	Poles	124			67.05		0.00%	67	0	0.50	hrs/ea		1.00	62.00	Estimated										
	Clean	Footings	124			292.02	43,803.00	0.00%	292	0	0.50	hrs/ea		1.00	62.00	Estimated										
									1595.07	1.97					146.22											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $																	
		Clean		1,595.07	1.97	$0.00	$541.54	$3,253.94	$3,795.47																	
		Contaminated		0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
1.7.5	Remove Light Towers				A	180	1.00	180.05	1,260	0.00					933				$70,601	$0			$5,343	$75,945		$75,945
		Inventory	Number	Length, ft.	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF												
	Clean	Buried conduit, clean	3	1236		317		0.00%	317	0.39	100	L. F/day		1.00	98.88	2012 mean, p463, 22 05 5.10 2100										
	Clean	Excavate buried pipe				11,124		0.00%			200	cu. yd./day		1.00	16.48	2012 RS Means 31 23 16.13 0060										
		Backfill				11,124		0.00%			1,225	cu. yd./day		1.00	2.69	2012 RS Means 31 23 23.14 3020										
	Clean	Light tower	9			63.43		0.00%	63	0	2.00	hrs/ea		1.00	18.00	Estimated										
	Clean	Tower base	9			226.08	33,912.00	0.00%	226	1	2.00	hrs/ea		1.00	18.00	Estimated										
	Clean	Camera foundation	10			157.00	23,550.00	0.00%	157	1	1.00	hrs/ea		1.00	10.00	Estimated										
	Clean	Intrusion system	16			169.56	25,434.00	0.00%	170	1	1.00	hrs/ea		1.00	16.00	Estimated										
									933.05	2.77					160.05											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $																	
		Clean		933.05	2.77	$0.00	$762.39	$4,580.97	$5,343.36																	
		Contaminated		0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
1.8	Removal outside fences				A	1,248	1.00	1,248	7,491	0	0	0	0	0	3,704,811	0	0	$0	$425,885	$0	$0	$0	$779,399	$1,205,284		$1,205,284
1.8.1	Security/Operations Building				B	356	1.00	356.29	2,136	0.00					2,399,250				$121,537	$0			$427,471	$549,008		$549,008
		Inventory			Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes			PLF												
	Clean	Remove siding			0	0	0.00		0.00%	0.00	0.00	1300.00	sq ft/day	1.00	0.00	2012 Means pg 36, 02 42 10.20 2200.										
	Clean	Remove exterior concrete			1		7104.00	1,065,600.00	-30.00%	9235.20	29.60	25.00	cu. yd./day	1	84.30	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean	Remove interior concrete			1		8,891.00	1,333,650.00	-30.00%	11558.30	37.05	25.00	cu. yd./day	1	105.37	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean	Gross Building Volume			1		416880.00		70.00%	125964.00	155.14	20100.00	cu ft/day	1.00	166.72	2012 Means pg 30, 02 41 16.13 0100.										
										146457.50	221.79				356.29											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $																	
		Clean	146,457.50	2,399,250.00	221.79	$0.00	$60,991.31	$368,480.14	$427,471.44																	
		Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
1.8.2	Remove paved area inside nuisance fence				B	54	1.00	53.97	324	0.00					1,237,005				$18,410	$0			$56,226	$84,637		$84,637
		Inventory			Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes			PLF												
	Clean	Pavement				25,500	8,415	1,237,005	-30.00%	10939.50	34.36	420	S.Y./day	1.00	53.97	2012 RS Means 02 41 13.17 5050										
										10939.50	34.36				53.97											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $																	
		Clean	10,939.50	1,237,005.00	34.36	$0.00	$9,449.34	$58,778.53	$68,227.87																	
		Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
1.8.3	Remove nuisance fence				B	152	1.00	151.61	1,090	0.00					1,425				$61,952	$0			$5,439	$67,391		$67,391
		Inventory	Number	Length, ft.	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF												
	Clean	Fence		1536		1024.00		0.00%	1024.00	1.28	445	ft/day		1.00	27.61	2012 RS Means 02 41 13.60 1700										
	Clean	Poles	154			37.88		0.00%	38	0	0.50	hrs/ea		1.00	77.00	Estimated										
	Clean	Footings	154			362.67	54,400.50	0.00%	363	1.51	0.50	hrs/ea		1.00	77.00	Estimated										
									1424.55	2.82					181.61											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $																	
		Clean	54,400.50	1,424.55	2.82	$0.00	$776.06	$4,663.22	$5,439.30																	
		Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
1.8.4	Miscellaneous Pads				B	75	1.00	75.44	453	0.00					8,276				$25,733	$0			$51,116	$76,849		$76,849
		Inventory	Feet	Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF												
	Clean	Fabrication pad				6,000.00	900,000.00	-30.00%	7800.00	25.00	25.00	cu. yd./day		1	71.11	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean	Refueling pad				240.00	36,000.00	-30.00%	312.00	1.00	25.00	cu. yd./day		1	2.84	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean	Motocycle pad				125.00	18,750.00	-30.00%	162.50	0.52	25.00	cu. yd./day		1	1.48	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
									8274.50	26.52					76.44											
		Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $																	
		Clean	954,750.00	8,274.50	26.52	$0.00	$7,293.23	$43,823.03	$51,116.25																	
		Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00																	
1.8.5	Miscellaneous structures				B	77	1.00	76.95	462	0.00					35,298				$26,251	$0			$100,321	$126,572		$126,572
		Inventory	Feet	Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF												
	Clean	Quonset hut				9000		70.00%	2700.00	3.33	20100.00	cu ft/day		1.00	3.58	2012 Means pg 30, 02 41 16.13 0100.										
	Clean	Quonset hut pad			600	300	45,000.00	-30.00%	390.00	1.25	25.00	cu. yd./day		1	3.58	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean	Storage building				1200		70.00%	360.00	0.44	20100.00	cu ft/day		1.00	0.48	2012 Means pg 30, 02 41 16.13 0100.										
	Clean	Sand tent				14560		70.00%	4368.00	5.39	20100.00	cu ft/day		1.00	5.80	2012 Means pg 30, 02 41 16.13 0100.										
	Clean	Sand tent blocks				880	132,000.00	0.00%	880.00	3.67	8.00	hrs		1	8.00	Estimated										
	Clean	Maintenance/Storage Building (New)				80000		70.00%	24000.00	29.63	20100.00	cu ft/day		1.00	31.84	2012 Means pg 30, 02 41 16.13 0100.										
	Clean	Maintenance/Storage Building Pad (New)			4,000	2,000	300,000.00	-30.00%	2600.00	8.33	25.00	cu. yd./day		1	23.70	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										

					Crew	Decreased Duration (No. of Hours)	Prod. Factor	Adjusted Duration	Man-hours	LSA Waste Disp. Vol (cf)	Hazardous Waste Vol (cf)	Ballast Volume (cf)	Mixed Waste Volume (cf)	Clean Waste Volume (cf)	Lead Waste Volume (cf)	Activated Waste Volume (cf)	Materials, Consumables, & Equipment	Labor Cost	LSA Waste Cost	Hazardous Waste Cost	Mixed Waste Cost	Clean Waste Cost	Total Cost	81.01% Radiological Removal $	18.99% Non-radiological Removal $
									35296.00	52.05				76.95											
			Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean	477,000.00	35,298.00	52.05	$0.00	$14,313.75	$86,007.42	$100,321.17															
			Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00															
1.8.6	Remove buried utilities					B	365	1.00	365.07	2,310	0.00				3,576				$131,355	$0			$8,513	$139,868		$139,868
			Inventory	Feet	Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF											
	Clean		Excavate buried storm drain				14,940		0.00%	0.00	0.00	200	cu. yd./day	1.00	22.13	2012 RS Means 31 23 16.13 0060										
	Clean		Buried pipe, clean	1660			5,212		60.00%	2606.20	3.22	65	L. F/day	1.00	241.45	2012 mean, p463, 22 05 5.10 2155										
			Backfill				14,940		0.00%	0.00	0.00	1,225	cu. yd./day	1.00	3.61	2012 RS Means 31 23 23.14 3020										
	Clean		Excavate buried water main/sewer				5,834		0.00%	0.00	0.00	200	cu. yd./day	1.00	8.35	2012 RS Means 31 23 16.13 0060										
	Clean		Buried water main, cl	626			221		0.00%	220.59	0.27	100	L. F/day	1.00	50.08	2012 mean, p463, 22 05 5.10 2100										
	Clean		Buried sewer, clean	626			491		0.00%	491.41	0.61	100	L. F/day	1.00	50.08	2012 mean, p463, 22 05 5.10 2100										
			Backfill				5,834		0.00%	0.00	0.00	1,225	cu. yd./day	1.00	1.36	2012 RS Means 31 23 23.14 3020										
	Clean		Remove fire hydrants		2.00		4		0.00%	3.82	0.00	1.00	hr/ea	1.00	2.00	estimated										
	Clean		Remove pumping station		1.00		125		0.00%	125.00	0.16	2.00	hr/ea	1.00	2.00	estimated										
	Clean		Remove sewer vault		1.00		126		0.00%	126.00	0.16	4.00	hr/ea	1.00	4.00	estimated										
										3577.73	4.42				385.07											
			Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean	0.00	3,577.73	4.42	$0.00	$1,214.66	$7,298.58	$8,513.23															
			Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00															
1.8.7	SCB electrical service					B	23	1.00	22.92	136	0.00				85				$7,819	$0			$201	$8,021		$8,021
			Inventory	Feet	Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF											
	Clean		Excavate buried pipe				2,160		0.00%	0.00	0.00	200	cu. yd./day	1.00	3.20	2012 RS Means 31 23 16.13 0060										
	Clean		Buried pipe, clean	240			85		0.00%	84.57	0.10	100	L. F/day	1.00	19.2	2012 mean, p463, 22 05 5.10 2100										
			Backfill				2,160		0.00%	0.00	0.00	1,225	cu. yd./day	1.00	0.52	2012 RS Means 31 23 23.14 3020										
										84.57	0.10				22.92											
			Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean	0.00	84.57	0.10	$0.00	$28.71	$172.53	$201.24															
			Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00															
1.8.8	Remove road inside licensed area					B	63	1.00	62.67	376	0.00				19,247				$21,377	$0			$116,519	$137,895		$137,895
			Inventory		Number	Weight, lbs	Area, sq. ft.	Volume, cu. Ft.	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF											
	Clean		Pavement			2,176,335	29,610	14805.00	-30.00%	19246.50	60.45	420	S.Y./day	1.00	62.67	2012 RS Means 02 41 13.17 5050										
										19246.50	60.45				62.67											
			Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean		19,246.50	60.45	$0.00	$16,624.76	$99,893.78	$116,518.66															
			Contaminated		0.00	0.00	$0.00	$0.00	$0.00	$0.00															
1.8.9	Remove vehicle barriers					B	34	1.00	33.51	201					650				$11,433				$3,590	$15,022		$15,022
			Inventory	Feet	Number	Area, sq. ft.	Volume, cu. Ft.	Weight, Lbs	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of boxes				PLF											
			Barrier 1																							
	Clean		Foundation		1		45.00	6,750.00	-30.00%	58.50	0.19	25.00	cu. yd./day	1	0.53	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean		Slab		1		18.00	2,700.00	-30.00%	23.40	0.08	25.00	cu. yd./day	1	0.21	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean		Remove building				320.00		60.00%	64.00	0.08	4.00	hrs	1.00	4.00	estimated										
	Clean		Remove barricade					5,400.00	0.00%	0.00	0.15	8.00	hrs	1.00	8.00	estimated										
	Clean		Remove bollards				169.56	25,434.00	-30.00%	220.43	0.71	25.00	cu. yd./day	1	2.01	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean		MCCs, panels, etc		2		96		0.00%	96.00	0.12	1.2	crew hrs/boms	1.00	2.40	UCF 63 <300 lbs										
	Clean		Shed				144		60.00%	28.80	0.04	1.00	hrs	1.00	1.00	estimated										
	Clean		Conduit	100			10		0.00%	9.60	0.01	0.1	crew hrs/ft	1.00	10.00											
			Barrier 2																							
	Clean		Foundation				114.84	17,196.00	-30.00%	149.03	0.48	25.00	cu. yd./day	1	1.35	Use 2012 Means pg 50, 02 41 13.33 4320, 25 c. y. per day. This rate is for a slab on grade using hand tools, use the same rate for this work with hydraulic equipment.										
	Clean		Gate assembly					752.00	0.00%	0.00	0.02	4.00	hrs	1.00	4.00	estimated										
										649.76	1.86				33.51											
			Waste	Weight, lbs	Volume	No. of containers	Container, $	Transport, $	Disposal, $	Total, $															
			Clean	58,232.00	649.76	1.86	$0.00	$312.19	$3,077.58	$3,389.77															
			Contaminated	0.00	0.00	0.00	$0.00	$0.00	$0.00	$0.00															
1.9	Final Site Survey Structure gone - By DOC Staff						184.00	1.00	184.00	0								$25,000					$25,000	$20,253		$4,747
						Work hours		Schedule duration, days																		
	1.9.1	Prepare Final Status Survey Plan		45	days =	360	hrs	5	days - 40 days in parallel with decommissioning																	
	1.9.2	Soil Sampling		5	days =	40	hrs	5	days																	
	1.9.3	Direct Survey		3	days =	24	hrs	3	days																	
	1.9.4	Sampling Analysis		10	days =	0	hrs	5	days - 5 days in parallel to 1.16.2 & 1.16.3																	
	1.9.5	Prepare Final Status Survey Report		10	days =	80	hrs	5	days - five days overlap with 1.16.4																	
						504		23																		
	Sampling analysis		$500.00	per sample x	50	samples =	$25,000.00																			
1.10	Close Site Release Confirmation																							$0		$0
	This activity will occur in parallel with 1.8.																									
1.11	Outside areas					A	142.26	1.00	142.26	996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	$8,712	$0	$0	$0	$0	$0	$8,712		$8,712
	1.11.1	Backfill, grade and seed				A	142.26	1.00	142.26	996								$8,712					$8,712		$8,712
			Inventory		Width	Depth	Area, sq. ft.	Volume, cu. Ft.	Vol. Reduc. factor	Adjusted Volume, cu. ft.	# of 30 cu yd boxes				PLF											
			Grade				261,360		0.00%	0.00	0.00	16000	sq ft/8 hr day	1.00	115	2009 RS Means 31 22 16.10 0100										
			Seed				261,360		0.00%	0.00	0.00	80100	sq ft/8 hr day	1.00	26	2009 RS Means 32 92 19.13 1000										
										0.00	0.00				142.26											
			Waste	Area, sq. ft.	Installation, $/SF	Material, $/SY	Equipment, $/SY	Volume, cu. Ft.	Cost, $/cu. yd.	Total, $																

				Crew	Unconverted Duration (No. of Hours)	Prod. Factor	Adjusted Duration	Man-hours	LSA Waste Disp. Vol (cf)	Hazardous Waste Vol (cf)	Ballast Volume (cf)	Mixed Waste Volume (cf)	Clean Waste Volume (cf)	Lead Waste Volume (cf)	Activated Waste Volume (cf)	Materials, Consumables, & Equipment	Labor Cost	LSA Waste Cost	Hazardous Waste Cost	Mixed Waste Cost	Clean Waste Cost	Total Cost	81.01% Radiological Removal $	18.99% Non-radiological Removal $
	Seed and equipment	261,360.00		$0.20	$0.10			$8,712.00	2011 RS Means 32 92 19.13 1000															
	Structural (S)						$34.67	$0.00	2011 RS Means 31 05 16.10 0600 + 0900 & 31 23 23.24 0400															
								$8,712.00																
1.12	Demolition Crew Demobilization				16		16	208								$4,000	$11,720					$15,720	$12,735	$2,985
	Crew		Rate, $/hr	Cost, $/hr																				
	1 Project Superintendent			$0.00	With Period Dependent costs																			
	1 QA Audit/Inspector			$0.00	With Period Dependent costs																			
	1 Health & Safety Supervisor			$0.00	With Period Dependent costs																			
	1 Packaging/Shipping Specialist			$0.00	With Period Dependent costs																			
	1 Cost Control Accountant			$0.00	With Period Dependent costs																			
	1 Scheduler II			$0.00	With Period Dependent costs																			
	1 Demolition Specialist			$0.00	With Period Dependent costs																			
	1 Industrial Safety			$0.00	With Period Dependent costs																			
	1 Engineering Supervisor			$0.00	With Period Dependent costs																			
	1 Project Supervisor			$0.00	With Period Dependent costs																			
	2 Decontamination Tech			$0.00	With Period Dependent costs																			
	1 Instrumentation Tech			$0.00	With Period Dependent costs																			
	1 Tool Crib Attendant			$0.00	With Period Dependent costs																			
	2 Equip Oper		$65.40	$130.81																				
	7 Laborer		$50.27	$351.92																				
	2 Foreman		$53.16	$106.32																				
	2 Craftsman		$71.73	$143.47																				
	27			$732.51																				
	Return rented equipment, including trailers		4	hr																				
	Dispose of unused material		4	hr																				
	General site cleanup		4	hr																				
	Travel home		4																					
			16	hr																				
	Total Cost =	16	x	$732.51	$11,720.17																			
	Travel cost =	10	x	$400.00	$4,000.00	For Contractor Management only																		
1.13	Final Project Report - Offsite			A	80.00	1.00	80.00	120									$9,319					$9,319	$7,550	$1,770
	Staff		Number	Rate	Duration	PLF	Cost	Man-hours																
	Project Specialist		2	$63.65	40	1.00	$5,253	80																
	Project Manager		1	$101.69	20	1.00	$2,034	20																
	Certified Health Physicist		1	$101.69	20	1.00	$2,034	20																
			4		80		$9,319	120																

ENCLOSURE 2

CERTIFICATION OF FINANCIAL ASSURANCE

December 2012

CERTIFICATION OF FINANCIAL ASSURANCE

NRC Licensee:

Maine Yankee Atomic Power Company
Maine Yankee Independent Spent Fuel Storage Installation
NRC License No. DPR-36 (NRC Docket Nos. 50-309 and 72-30)
321 Old Ferry Road
Wiscasset, ME 04578-4922

Issued to: U.S. Nuclear Regulatory Commission

Certification:

I hereby certify that Maine Yankee Atomic Power Company is the licensee for the Maine Yankee Independent Spent Fuel Storage Installation (Maine Yankee ISFSI) and that I, the undersigned, am authorized to provide this Certification of Financial Assurance with respect to the radiological decommissioning of the Maine Yankee ISFSI.

During the operation of this ISFSI, spent nuclear fuel and Greater than Class C waste will be stored at the Maine Yankee ISFSI in storage casks licensed under 10 CFR 72. Pursuant to contracts with the Department of Energy the spent fuel and associated casks will ultimately be removed from the ISFSI location, and Maine Yankee will dispose of other radiological waste in accordance with NRC regulations, at which time the Maine Yankee ISFSI will be decommissioned in accordance with NRC regulations.

I further certify that financial assurance in an amount sufficient to fund Maine Yankee ISFSI radiological decommissioning at the time of such decommissioning has been provided, pursuant to 10 CFR 72.30, as described in Enclosure 1 to the letter to which this Certification is attached. That radiological decommissioning funding assurance is premised on a site-specific decommissioning cost estimate and funding methodology described therein, in the amount of:

Maine Yankee ISFSI	$ 20.4 million (inclusive of contingency)

On December 17, 2012, during the final review of this letter and the third-party DCE, a discrepancy in the assumption utilized regarding the thickness of the concrete of the Vertical Concrete Casks (VCCs) was identified. A Condition Report (12-176) was generated to investigate the issue. MY will submit a revised decommissioning funding plan, including a revised DCE, by January 9, 2013.

Carla M. Pizzella
Maine Yankee Atomic Power Company
Vice President, Chief Financial Officer, and Treasurer
Phone (860) 267-6426 x304

Corporate Seal

Date 12/17/12

OMY-12-073

ENCLOSURE 3

TOTAL COSTS ASSOCIATED WITH THE MAINE YANKEE ISFSI, INCLUDING COST ESTIMATE FOR MANAGING IRRADIATED FUEL AND GTCC WASTE

December 2012

Maine Yankee Atomic Power Company
Irradiated Fuel & GTCC Waste Management and ISFSI Decom Estimate
Represented in 2013 Dollars

	Data											
FERC Summary	**Sum of 2013**	**Sum of 2014**	**Sum of 2015**	**Sum of 2016**	**Sum of 2017**	**Sum of 2018**	**Sum of 2019**	**Sum of 2020**	**Sum of 2021**	**Sum of 2022**	**Sum of 2023**	**2013 - 2023**
Contingency	$429,920	$404,170	$411,670	$437,270	$436,670	$387,920	$411,670	$405,770	$1,252,363	$0	$409,020	$4,986,442
Insurance	$464,500	$464,500	$464,500	$464,500	$464,500	$464,500	$464,500	$464,500	$464,500	$0	$791,100	$4,971,600
Labor - Non-Manual	$1,712,250	$1,712,250	$1,712,250	$1,712,250	$1,712,250	$1,712,250	$1,712,250	$1,712,250	$1,757,250	$0	$629,500	$16,084,750
Labor - Security	$2,111,000	$2,111,000	$2,111,000	$2,111,000	$2,111,000	$2,111,000	$2,111,000	$2,111,000	$2,111,000	$0	$0	$18,999,000
Materials & Supplies	$112,547	$85,547	$85,547	$97,547	$85,547	$85,547	$85,547	$97,547	$85,547	$0	$17,500	$838,423
Miscellaneous	$105,000	$105,000	$105,000	$105,000	$105,000	$105,000	$105,000	$105,000	$105,000	$0	$54,000	$999,000
Outside Services - A&G	$570,000	$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	$0	$410,000	$5,140,000
Outside Services - Fuel Loading	$0	$0	$0	$0	$0	$0	$0	$0	$2,880,000	$0	$0	$2,880,000
Outside Services - ISFSI OP's	$743,000	$1,005,000	$905,000	$1,655,000	$1,655,000	$680,000	$655,000	$775,000	$655,000	$0	$75,000	$8,803,000
Outside Services - Legal	$900,000	$200,000	$450,000	$200,000	$200,000	$200,000	$700,000	$450,000	$200,000	$0	$1,300,000	$4,800,000
Outside Services - NON-RAD D&D of ISFSI	$0	$0	$0	$0	$0	$0	$0	$0		$4,898,812	$0	$4,898,812
Outside Services - RAD D&D of ISFSI	$0	$0	$0	$0	$0	$0	$0	$0	$7,175,000	$13,725,478	$0	$20,900,478
Property Taxes	$1,003,100	$1,003,100	$1,003,100	$1,003,100	$1,003,100	$1,003,100	$1,003,100	$1,003,100	$1,003,100	$0	$203,100	$9,231,000
Regulatory Fees	$767,000	$767,000	$767,000	$767,000	$767,000	$767,000	$767,000	$767,000	$1,222,000	$0	$585,000	$7,943,000
Utilities	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$150,000	$0	$25,000	$1,055,000
Grand Total	**$9,028,317**	**$8,487,567**	**$8,645,067**	**$9,182,667**	**$9,170,067**	**$8,146,317**	**$8,645,067**	**$8,521,167**	**$19,580,760**	**$18,624,290**	**$4,499,220**	**$112,530,505**

Note 1: The cost of management of irradiated fuel and GTCC waste is calculated as follows:

$112,530,505	Grand Total from Above
($4,898,812)	Non-Rad D&D ISFSI
($20,900,478)	Rad D&D ISFSI
$86,731,215	**Management of Irradiated Fuel and GTCC Waste**

Note 2: The cost of RAD and NON-RAD D&D of the ISFSI in 2013 dollars as provided in the columns labeled "Sum of 2021" and "Sum of 2022" is derived by escalating the value of the cost estimates provided in Enclosure 1 by 2.5%.