Table C-5. Detailed model output for thermal desorption off-Site.

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
Alternative 2.c—Implementability:									1.59
4.1 Implementability							4.814	33.00%	
4.1.1Technical feasibility					5.90	40.00%	2.36	13.20%	
4.1.1.1 Ability to construct and operate	Uniform (4,5)	4.5	34.85%	1.568				4.60%	
4.1.1.2 Reliability of the alternative	11	6.25	34.85%	2.178				4.60%	
4.1.1.3 Ease of additional remedial actions	6	8.4	15.15%	1.273				2.00%	
4.1.1.4 Monitoring considerations	6	5.8	15.15%	0.879				2.00%	
4.1.2 Administrative feasibility					5.50	20.00%	1.10	6.60%	
4.1.2 Administrative feasibility	2.25	5.5	100.00%	5.500				6.60%	
4.1.3 Availability of services and materials					3.39	40.00%	1.35	13.20%	
4.1.3.1a Availability of storage and disposal facilities	3.75	2.25	69.70%	1.568				9.20%	
4.1.3.1b Control factor	0							NA	
4.1.3.2 Availability of equipment and specialists	6	6	30.30%	1.818				4.00%	
Alternative 2.c—Short-Term Effectiveness:									1.03
4.2 Short-term effectiveness							4.124	25.00%	
4.2.1 Time to remediate					3.706	60.00%	2.22	15.10%	
4.2.1a Waste treatment	2	6.66	37.09%	2.470				5.60%	
4.2.1b ROD completion	5	2	62.91%	1.258				9.50%	
4.2.2 Community protection					2.00	15.00%	0.30	3.80%	

Table C-5. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.2.2 Community protection	2	2	100.00%	2				3.80%	
4.2.3 Worker protection					4.00	15.00%	0.60	3.80%	
4.2.3a Worker protection	4	4	100.00%	4				3.80%	
4.2.3b Worker protection correction factor	10							NA	
4.2.4 Environmental impacts					10.00	10.00%	1.00	2.30%	
4.2.4a Animal impact	10	10	50.00%	5.0				1.15%	
4.2.4b Plant impact	10	10	50.00%	5.0				1.15%	
Alternative 2.c—Long-Term Effectiveness and Permanence:									0.80
4.3 Long-term effectiveness and permanence							10.00	8.00%	
Residual risk					10.00	50.00%	5.00	4.00%	
4.3.1 Magnitude of residual risk	10	10	100.00%	10				4.00%	
Controls					10.00	50.00%	5.00	4.00%	
4.3.2 Adequacy and reliability of controls	10	10	100.00%	10				4.00%	
Alternative 2.c—Reduction of TMV:									1.05
4.4 Reduction of toxicity, mobility, or volume through treatment							6.188	17.00%	
4.4.1 Amount of hazardous material destroyed or treated					6.516	49.7%	3.24	8.45%	
4.4.1a Reduction of volume	2397	3.44	32.0%	1.101				2.70%	
4.4.1b TRU concentration	Lognormal (70.9,1)	8.323	22.5%	1.873				1.90%	
4.4.1c Cadmium concentration	Lognormal (0.0163,1)	4.146	7.58%	0.314				0.64%	
4.4.1d Lead concentration	Lognormal (2.270e-001,1)	2.595	7.58%	0.197				0.64%	

Table C-5. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.4.1e Mercury concentration	Lognormal (1.680e-004,1)	10	7.58%	0.758				0.64%	
4.4.1f PCB concentration	Lognormal (3.070e-007,1)	10	7.58%	0.758				0.64%	
4.4.1g TCE	0.00E+00	10	7.58%	0.758				0.64%	
4.4.1h BEHP	0.00E+00	10	7.58%	0.758				0.64%	
4.4.2 Amount of principal threat treated to reduce toxicity, mobility, or volume					5.00	30.00%	1.50	5.10%	
4.4.2 Principle threat Cs-137	2.33	5	100.00%	5				5.10%	
4.4.3 Irreversibility of treatment of CFTs					8.02	15.00%	1.20	2.60%	
4.4.3 Irreversibility	Triangular (1000, 2000, 5000)	8.01	100.00%	8.01				2.60%	
4.4.4 Treatment residuals					4.67	5.3%	0.25	0.9%	
4.4.4 Secondary waste	93.3	4.17	100.00%	4.67				0.9%	
Alternative 2.c—Cost:									0.46
4.5 Cost							3.572	13.00%	
Cost					3.572	100.00%	3.572	13.00%	
4.5 Life-cycle cost	Triangular (2.53e+7, 3.38e+7, 3.89e+7)	3.572	100.00%	3.572				13.00%	
Alternative 2.c—Other Waste Streams:									0.31

Table C-5. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.6 Application to other waste streams							7.66	4.00%	
Other applicability					7.67	100.00%	7.66	4.00%	
4.6a Applicability to ARA-16 waste	8	8	33.33%	2.667				1.33%	
4.6b Applicability to PM-2A waste	10	10	33.33%	3.333				1.33%	
4.6c Applicability to investigation-derived waste	5	5	33.33%	1.667				1.33%	
Total Score for Alternative 2.c									5.2

Table C-6. Detailed model output for in situ chemical oxidation/reduction followed by stabilization.

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
Alternative 3.a—Implementability:									2.34
4.1 Implementability							7.106	33.00%	
4.1.1 Technical feasibility					6.924	40.00%	2.77		
4.1.1.1 Ability to construct and operate	3	3	34.85%	1.045				4.60%	
4.1.1.2 Reliability of the alternative	8	10	34.85%	3.485				4.60%	
4.1.1.3 Ease of additional remedial actions	7	8.8	15.15%	1.333				2.00%	
4.1.1.4 Monitoring considerations	7.5	7	15.15%	1.061				2.00%	
4.1.2 Administrative feasibility					5.5	20.00%	1.10	6.60%	
4.1.2 Administrative feasibility	2.25	5.5	100.00%	5.5				6.60%	
4.1.3 Availability of services and materials					8.09	40.00%	3.24	13.20%	
4.1.3.1a Availability of storage and disposal facilities	10	9	69.70%	6.273				9.20%	
4.1.3.1b Control factor	7.5							NA	
4.1.3.2 Availability of equipment and specialists	6	6	30.30%	1.818				4.00%	
Alternative 3.a—Short-Term Effectiveness:									1.81
4.2 Short-term effectiveness:							7.254	25.00%	
4.2.1 Time to remediate					6.223	60.00%	3.73	15.10%	
4.2.1a Waste treatment	2	6.66	37.09%	2.470				5.60%	
4.2.1b ROD completion	3	6	62.91%	3.775				9.50%	
4.2.2 Community protection					8.0	15.00%	1.2	3.80%	
4.2.2 Community protection	8	8	100.00%	8.0				3.80%	
4.2.3 Worker protection					8.80	15.00%	1.32	3.80%	

Table C-6. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.2.3a Worker protection	3	8.8	100.00%	8.8				3.80%	
4.2.3b Worker protection correction factor	3							NA	
4.2.4 Environmental impacts					10.00	10.00%	1.00	2.30%	
4.2.4a Animal impact	10	10	50.00%	5.0				1.15%	
4.2.4b Plant impact	10	10	50.00%	5.0				1.15%	
Alternative 3.a—Long-Term Effectiveness and Permanence:									0.80
4.3 Long-term effectiveness and permanence							10.00	8.00%	
Residual risk					10.00	50.00%	5.00	4.00%	
4.3.1 Magnitude of residual risk	10	10	100.00%	10				4.00%	
Controls					10.00	50.00%	5.00	4.00%	
4.3.2 Adequacy and reliability of controls	10	10	100.00%	10				4.00%	
Alternative 3.a—Reduction of TMV:									0.99
4.4 Reduction of toxicity, mobility, or volume through treatment							5.818	17.00%	
4.4.1 Amount of hazardous material destroyed or treated					5.247	49.7%	2.6	8.45%	
4.4.1a Reduction of volume	2462	1.275	32.0%	0.408				2.70%	
4.4.1b TRU concentration	Lognormal (2.18,1)	10	22.5%	2.250				1.90%	
4.4.1c Cadmium concentration	Lognormal (1.140e-004,1)	10	7.58%	0.758				0.64%	
4.4.1d Lead concentration	Lognormal (1.570e-003,1)	10	7.58%	0.758				0.64%	

Table C-6. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.4.1e Mercury concentration	Lognormal (1.330e-003,1)	6.37	7.58%	0.483				0.64%	
4.4.1f PCB concentration	Lognormal (3.33,1)	2.388	7.58%	0.181				0.64%	
4.4.1g TCE	Lognormal (0.7,1)	4.663	7.58%	0.353				0.64%	
4.4.1h BEHP	Lognormal (20,1)	0.7306	7.58%	0.055				0.64%	
4.4.2 Amount of principal threat treated to reduce toxicity, mobility, or volume					5.00	30.00%	1.50	5.10%	
4.4.2 Principle threat Cs-137	2.33	5	100.00%	5				5.10%	
4.4.3 Irreversibility of treatment of CFTs					8.02	15.00%	1.20	2.60%	
4.4.3 Irreversibility	Triangular (1000, 2000, 5000)	8.01	100.00%	8.01				2.60%	
4.4.4 Treatment residuals					9.6	5.3%	0.51	0.9%	
4.4.4 Secondary waste	44	9.1	100.00%	9.6				0.9%	
Alternative 3.a—Cost:									0.79
4.5 Cost							6.068	13.00%	
Cost					6.068	100.00%	6.068	13.00%	
4.5 Life-cycle cost	Triangular (2.21e+7, 2.95e+7, 3.39e+7)	6.068	100.00%	6.068				13.00%	
Alternative 3.a—Other Waste Streams:									0.23
4.6 Application to other waste streams							5.66	4.00%	
Other applicability					5.67	100.00%	5.66	4.00%	
4.6a Applicability to ARA-16 waste	8	8	33.33%	2.667				1.33%	

Table C-6. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.6b Applicability to PM-2A waste	7	7	33.33%	2.333				1.33%	
4.6c Applicability to investigation-derived waste	2	2	33.33%	0.667				1.33%	
Total Score for Alternative 3.a									6.98

Table C-7. Detailed model output for ex situ chemical oxidation/reduction followed by stabilization.

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
Alternative 3.b—Implementability:									2.52
4.1 Implementability							7.629	33.00%	
4.1.1Technical feasibility					7.43	40.00%	2.97	13.20%	
4.1.1.1 Ability to construct and operate	5	5	34.85%	1.742				4.60%	
4.1.1.2 Reliability of the alternative	9	8.75	34.85%	3.049				4.60%	
4.1.1.3 Ease of additional remedial actions	8	9.2	15.15%	1.394				2.00%	
4.1.1.4 Monitoring considerations	8.5	8.2	15.15%	1.242				2.00%	
4.1.2 Administrative feasibility					6.50	20.00%	1.30	6.60%	
4.1.2 Administrative feasibility	1.75	6.5	100.00%	6.5				6.60%	
4.1.3 Availability of services and materials					8.394	40.00%	3.36	13.20%	
4.1.3.1a Availability of storage and disposal facilities	10	9	69.70%	6.273				9.20%	
4.1.3.1b Control factor	7.5							NA	
4.1.3.2 Availability of equipment and specialists	7	7	30.30%	2.121				4.00%	
Alternative 3.b—Short-Term Effectiveness:									1.80
4.2 Short-term effectiveness:							7.194	25.00%	
4.2.1 Time to remediate					6.223	60.00%	3.73	15.10%	
4.2.1a Waste treatment	2	6.66	37.09%	2.470				5.60%	
4.2.1b ROD completion	3	6	62.91%	3.775				9.50%	
4.2.2 Community protection					8.00	15.00%	1.20	3.80%	
4.2.2 Community protection	8	8	100.00%	8.0				3.80%	

Table C-7. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.2.3 Worker protection					8.40	15.00%	1.26	3.80%	
4.2.3a Worker protection	3	8.4	100.00%	8.4				3.80%	
4.2.3b Worker protection correction factor	4							NA	
4.2.4 Environmental impacts					10	10.00%	1.00	2.30%	
4.2.4a Animal impact	10	10	50.00%	5.0				1.15%	
4.2.4b Plant impact	10	10	50.00%	5.0				1.15%	
Alternative 3.b—Long-Term Effectiveness and Permanence:									0.80
4.3 Long-term effectiveness and permanence							10.00	8.00%	
Residual risk					10	50.00%	5.00	4.00%	
4.3.1 Magnitude of residual risk	10	10	100.00%	10				4.00%	
Controls					10	50.00%	5.00	4.00%	
4.3.2 Adequacy and reliability of controls	10	10	100.00%	10				4.00%	
Alternative 7—Reduction of 3.b TMV:									0.97
4.4 Reduction of toxicity, mobility, or volume through treatment							5.696	17.00%	
4.4.1 Amount of hazardous material destroyed or treated					5.172	49.7%	2.57	8.45%	
4.4.1a Reduction of volume	2469	1.042	32.0%	0.333				2.70%	
4.4.1b TRU concentration	Lognormal (2.18,1)	10	22.5%	2.250				1.90%	
4.4.1c Cadmium concentration	Lognormal (1.140e-004,1)	10	7.58%	0.758				0.64%	

Table C-7. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
4.4.1d Lead concentration	Lognormal (1.570e-003,1)	10	7.58%	0.758				0.64%	
4.4.1e Mercury concentration	Lognormal (1.330e-003,1)	6.37	7.58%	0.483				0.64%	
4.4.1f PCB concentration	Lognormal (3.33,1)	2.388	7.58%	0.181				0.64%	
4.4.1g TCE	Lognormal (0.7,1)	4.663	7.58%	0.353				0.64%	
4.4.1h BEHP	Lognormal (20,1)	0.7306	7.58%	0.055				0.64%	
4.4.2 Amount of principal threat treated to reduce toxicity, mobility, or volume					5.00	30.00%	1.50	5.10%	
4.4.2 Principle threat Cs-137	2.33	5	100.00%	5				5.10%	
4.4.3 Irreversibility of treatment of CFTs					8.02	15.00%	1.20	2.60%	
4.4.3 Irreversibility	Triangular (1000, 2000, 5000)	8.01	100.00%	8.01				2.60%	
4.4.4 Treatment residuals					8.00	5.3%	0.424	0.9%	
4.4.4 Secondary waste	60	8.0	100.00%	8.0				0.9%	
Alternative 3.b—Cost:									0.79
4.5 Cost							6.112	13.00%	
Cost					6.112	100.00%	6.112	13.00%	
4.5 Life-cycle cost	Triangular (2.21e+7, 2.94e+7, 3.38e+7)	6.112	100.00%	6.112				13.00%	

Table C-7. (continued).

Value Function	Input Parameter	Output Value	Relative Output Weight within Subcriteria	Weighted Contribution to Subcriteria Score	Subcriteria Score	Relative Subcriteria Weight	Criteria Score	Model Weight	Alternative Score
Alternative 3.b—Other Waste Streams:									0.23
4.6 Application to other waste streams							5.66	4.00%	
Other applicability					5.67	100.00%	5.66	4.00%	
4.6a Applicability to ARA-16 waste	8	8	33.33%	2.667				1.33%	
4.6b Applicability to PM-2A waste	7	7	33.33%	2.333				1.33%	
4.6c Applicability to investigation-derived waste	2	2	33.33%	0.667				1.33%	
Total Score for Alternative 3.b									7.1