SOLID WASTE AND MATERIALS SYSTEMS ALTERNATIVES STUDY

VOLUME IV

APPENDIX B

Detailed Cost Estimate

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APPENDIX B

B.1 Alternative 1 Detailed Cost Estimate

B.2 Alternative 2 Detailed Cost Estimate

B.3 Alternative 3 Detailed Cost Estimate

B.4 Alternative 4 Detailed Cost Estimate

B.5 Alternative 5 Detailed Cost Estimate

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SOLID WASTE AND MATERIALS SYSTEMS ALTERNATIVES STUDY

VOLUME IV

APPENDIX B.1

Alternative 1 Detailed Cost Estimate

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SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	233,193,000	60,588,093	293,781,093	88,134,328	381,915,420
CONSTRUCTION	777,310,000	274,848,276	1,052,158,276	420,863,310	1,473,021,586
CONSTRUCTION MGMT	62,185,000	22,612,539	84,797,539	25,439,262	110,236,800
WHC PROJ MGMT	54,412,000	15,243,133	69,655,133	20,896,540	90,551,673
TEC	**1,127,100,000**	**373,292,040**	**1,500,392,040**	**555,333,440**	**2,055,725,480**
OTHER PROJECT COST	450,840,000	108,933,462	559,773,462	167,932,039	727,705,501
OM&R LCC	839,630,000	729,503,222	1,569,133,222	470,739,967	2,039,873,189
D & D	282,809,000	699,073,104	981,882,104	400,360,995	1,382,243,100
TOTAL PROJECT COST (TPC)	**2,700,379,000**	**1,910,801,829**	**4,611,180,829**	**1,594,366,440**	**6,205,547,269**

ENGINEERING

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	45,073,000	7,162,100	52,235,100	15,670,530	67,905,630
CY 2000	39,810,000	7,846,551	47,656,551	14,296,965	61,953,516
CY 2001	39,176,000	9,269,042	48,445,042	14,533,512	62,978,554
CY 2002	39,176,000	10,871,340	50,047,340	15,014,202	65,061,542
CY 2003	23,319,000	7,452,752	30,771,752	9,231,526	40,003,278
CY 2004	23,320,000	8,469,824	31,789,824	9,536,947	41,326,771
CY 2005	23,319,000	9,516,484	32,835,484	9,850,645	42,686,129
TOTAL	**233,193,000**	**60,588,093**	**293,781,093**	**88,134,328**	**381,915,420**

CONSTRUCTION

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2003	377,310,000	120,588,276	497,898,276	199,159,310	697,057,586
CY 2004	200,000,000	72,640,000	272,640,000	109,056,000	381,696,000
CY 2005	200,000,000	81,620,000	281,620,000	112,648,000	394,268,000
TOTAL	777,310,000	274,848,276	1,052,158,276	420,863,310	1,473,021,586

CONSTR-MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2003	20,728,334	6,624,776	27,353,110	8,205,933	35,559,042
CY 2004	20,728,333	7,528,531	28,256,864	8,477,059	36,733,923
CY 2005	20,728,333	8,459,233	29,187,566	8,756,270	37,943,835
TOTAL	62,185,000	22,612,539	84,797,539	25,439,262	110,236,800

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2029	38,364,706	79,391,923	117,756,629	52,990,483	170,747,111
CY 2030	38,364,706	94,787,679	133,152,385	59,918,573	193,070,958
CY 2031	38,364,706	87,291,216	125,655,922	56,545,165	182,201,086
CY 2032	38,364,706	91,438,440	129,803,146	58,411,416	188,214,562
CY 2033	26,699,464	66,615,163	93,314,627	38,725,570	132,040,197
CY 2034	34,216,904	89,319,806	123,536,710	43,237,849	166,774,559
CY 2035	34,216,904	93,395,039	127,611,943	44,664,180	172,276,124
CY 2036	34,216,904	96,833,838	131,050,742	45,867,760	176,918,502
TOTAL	**282,809,000**	**699,073,104**	**981,882,104**	**400,360,995**	**1,382,243,100**

WHCPM

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	7,773,143	1,235,152	9,008,295	2,702,489	11,710,784
CY 2000	7,773,143	1,532,086	9,305,229	2,791,569	12,096,798
CY 2001	7,773,143	1,839,126	9,612,269	2,883,681	12,495,949
CY 2002	7,773,143	2,157,047	9,930,190	2,979,057	12,909,247
CY 2003	7,773,143	2,484,297	10,257,440	3,077,232	13,334,671
CY 2004	7,773,143	2,823,206	10,596,349	3,178,905	13,775,253
CY 2005	7,773,142	3,172,219	10,945,361	3,283,608	14,228,970
TOTAL	**54,412,000**	**15,243,133**	**69,655,133**	**20,896,540**	**90,551,673**

OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	7,878,000	73,265	7,951,265	2,385,380	10,336,645
CY 1996	65,000,000	2,496,000	67,496,000	20,248,800	87,744,800
CY 1997	65,000,000	4,504,500	69,504,500	20,851,350	90,355,850
CY 1998	65,000,000	6,591,000	71,591,000	21,477,300	93,068,300
CY 1999	6,440,572	866,257	7,306,829	2,192,049	9,498,878
CY 2000	6,440,572	1,085,236	7,525,808	2,257,743	9,783,551
CY 2001	6,440,572	1,310,656	7,751,228	2,325,369	10,076,597
CY 2002	6,440,571	1,543,161	7,983,732	2,395,120	10,378,851
CY 2003	6,440,571	1,782,750	8,223,321	2,466,996	10,690,317
CY 2004	6,440,571	2,029,424	8,469,995	2,540,998	11,010,993
CY 2005	6,440,571	2,283,826	8,724,397	2,617,319	11,341,717
CY 2006	102,878,000	40,657,386	143,535,386	43,060,616	186,596,001
CY 2007	100,000,000	43,710,000	143,710,000	43,113,000	186,823,000
TOTAL	450,840,000	108,933,462	559,773,462	167,932,039	727,705,501

LCC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2005	18,090,000	6,414,714	24,504,714	7,351,414	31,856,128
CY 2006	41,430,000	16,373,136	57,803,136	17,340,941	75,144,077
CY 2007	41,430,000	18,109,053	59,539,053	17,861,716	77,400,769
CY 2008	41,430,000	19,894,686	61,324,686	18,397,406	79,722,092
CY 2009	41,430,000	21,734,178	63,164,178	18,949,253	82,113,431
CY 2010	41,430,000	23,627,529	65,057,529	19,517,259	84,574,788
CY 2011	41,430,000	25,578,882	67,008,882	20,102,665	87,111,547
CY 2012	41,430,000	27,592,380	69,022,380	20,706,714	89,729,094
CY 2013	41,430,000	29,663,880	71,093,880	21,328,164	92,422,044
CY 2014	41,430,000	31,793,382	73,223,382	21,967,015	95,190,397
CY 2015	41,430,000	33,993,315	75,423,315	22,626,995	98,050,310
CY 2016	41,430,000	36,255,393	77,685,393	23,305,618	100,991,011
CY 2017	41,430,000	38,583,759	80,013,759	24,004,128	104,017,887
CY 2018	41,430,000	40,986,699	82,416,699	24,725,010	107,141,709
CY 2019	41,430,000	43,455,927	84,885,927	25,465,778	110,351,705
CY 2020	41,430,000	46,003,872	87,433,872	26,230,162	113,664,034
CY 2021	41,430,000	48,626,391	90,056,391	27,016,917	117,073,308
CY 2022	41,430,000	51,327,627	92,757,627	27,827,288	120,584,915
CY 2023	41,430,000	54,111,723	95,541,723	28,662,517	124,204,240
CY 2024	15,160,000	20,849,548	36,009,548	10,802,864	46,812,412
CY 2025	15,160,000	21,928,940	37,088,940	11,126,682	48,215,622
CY 2026	15,160,000	23,041,684	38,201,684	11,460,505	49,662,189
CY 2027	15,160,000	24,187,780	39,347,780	11,804,334	51,152,114
CY 2028	15,160,000	25,368,744	40,528,744	12,158,623	52,687,367
TOTAL	839,630,000	729,503,222	1,569,133,222	470,739,967	2,039,873,189

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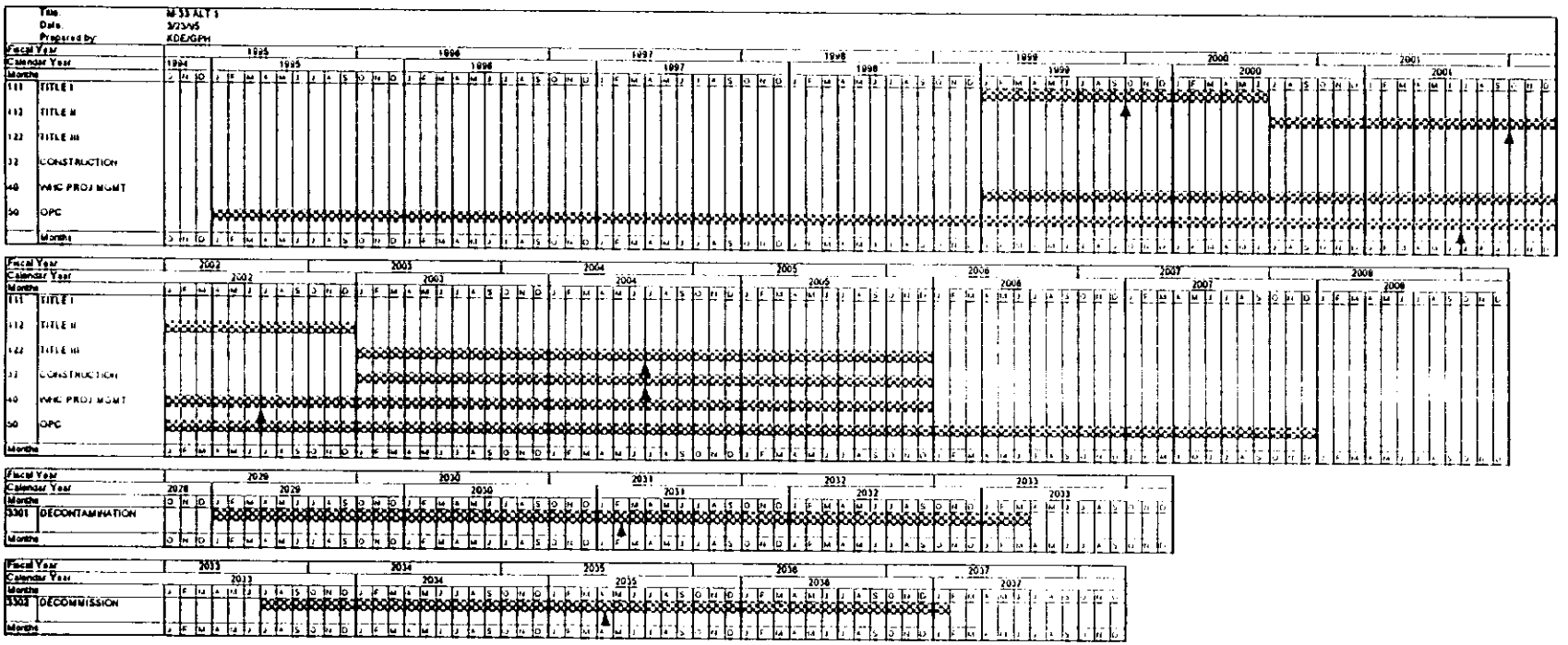
ESCALATION ANALYSIS SCHEDULE



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID PONT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	1999	OCT	18 63
112	TITLE II	2001	OCT	24 07
122	TITLE III	2004	JULY	34 32
32	CONSTRUCTION	2004	JULY	34 32
3301	DECONTAMINATION	2031	FEB	273 13
3302	DECOMMISSION	2035	APRIL	289 84
40	WHC PROJ MGMT	2003	JULY	27 75
50	OPC	2001	JULY	20 35

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.08	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.64	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.28	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.60
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.46	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3/27/95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

SUMMARY OF DIRECT COSTS FOR ALT. 1

	DIRECT DOLLARS	DIRECT LCC DOLLARS	TOTAL DIRECT DOLLARS
CY 1995	7,878,000	0	7,878,000
CY 1996	65,000,000	0	65,000,000
CY 1997	65,000,000	0	65,000,000
CY 1998	65,000,000	0	65,000,000
CY 1999	59,286,715	0	59,286,715
CY 2000	54,023,715	0	54,023,715
CY 2001	53,389,715	0	53,389,715
CY 2002	53,389,714	0	53,389,714
CY 2003	435,571,048	0	435,571,048
CY 2004	258,262,047	0	258,262,047
CY 2005	258,261,046	18,090,000	276,351,046
CY 2006	102,878,000	41,430,000	144,308,000
CY 2007	100,000,000	41,430,000	141,430,000
CY 2008	0	41,430,000	41,430,000
CY 2009	0	41,430,000	41,430,000
CY 2010	0	41,430,000	41,430,000
CY 2011	0	41,430,000	41,430,000
CY 2012	0	41,430,000	41,430,000
CY 2013	0	41,430,000	41,430,000
CY 2014	0	41,430,000	41,430,000
CY 2015	0	41,430,000	41,430,000
CY 2016	0	41,430,000	41,430,000
CY 2017	0	41,430,000	41,430,000
CY 2018	0	41,430,000	41,430,000
CY 2019	0	41,430,000	41,430,000
CY 2020	0	41,430,000	41,430,000
CY 2021	0	41,430,000	41,430,000
CY 2022	0	41,430,000	41,430,000
CY 2023	0	41,430,000	41,430,000
CY 2024	0	15,160,000	15,160,000
CY 2025	0	15,160,000	15,160,000
CY 2026	0	15,160,000	15,160,000
CY 2027	0	15,160,000	15,160,000
CY 2028	0	15,160,000	15,160,000
CY 2029	38,364,706	0	38,364,706
CY 2030	38,364,706	0	38,364,706
CY 2031	38,364,706	0	38,364,706
CY 2032	38,364,706	0	38,364,706
CY 2033	26,699,464	0	26,699,464
CY 2034	34,216,904	0	34,216,904
CY 2035	34,216,904	0	34,216,904
CY 2036	34,216,904	0	34,216,904
TOTAL DIRECT COST	1,860,749,000	839,630,000	2,700,379,000

5/23/95 M33A1003.XLS

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1
FILE NO. M33A1003

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/23/95 09:31:00
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	76,283	30	22,885	99,168
020	TITLE II	122,103	30	36,631	158,734
030	TITLE III	95,367	30	28,610	123,977
501	BUILDINGS	1,213,911	39	470,136	1,684,047
810	DECONTAMINATE & DECOMMISSION	969,899	40	392,152	1,362,051
900	OTHER PROJECT COST	542,586	30	162,776	705,362
	PROJECT TOTAL	3,020,149	37	1,113,190	4,133,339

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 23, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. 1 - SINGLE FACILITY

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1
FILE NO. M33A1003

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/23/95 09:31:05
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	65294	0	65294	16.83	10989	76283	30	22885	99168
112100	TITLE II	97941	0	97941	24.67	24162	122103	30	36631	158734
SUBTOTAL 11	DEFINITIVE DESIGN	163235	0	163235	21.53	35151	198386	30	59516	257902
122000	TITLE III	69958	0	69958	36.32	25409	95367	30	28610	123977
SUBTOTAL 12	ENGINEERING/INSPECTION	69958	0	69958	36.32	25409	95367	30	28610	123977
SUBTOTAL 1	ENGINEERING	233193	0	233193	25.97	60560	293753	30	88126	381879
320002	BLDG STRUCTURE	777310	0	777310	36.32	282319	1059629	40	423852	1483481
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	777310	0	777310	36.32	282319	1059629	40	423852	1483481
321000	CONSTRUCTION MANAGEMENT	62185	0	62185	36.32	22586	84771	30	25431	110202
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	839495	0	839495	36.32	304905	1144400	39	449283	1593683
330100	DECONTAMINATION	163050	0	163050	223.13	363813	526863	45	237089	763952
330200	DECOMMISSION	119759	0	119759	269.94	323277	443036	35	155063	598099
SUBTOTAL 33	D & D	282809	0	282809	242.95	687090	969899	40	392152	1362051
SUBTOTAL 3	CONSTRUCTION	1122304	0	1122304	88.39	991995	2114299	40	841435	2955734
400000	WHC PROJ MGMT	54412	0	54412	27.75	15099	69511	30	20853	90365
SUBTOTAL 4	PROJECT MANAGEMENT	54412	0	54412	27.75	15099	69511	30	20853	90365
500000	OTHER PROJECT COST	450840	0	450840	20.35	91746	542586	30	162776	705362
SUBTOTAL 5	OTHER PROJECT COST	450840	0	450840	20.35	91746	542586	30	162776	705362

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1
FILE NO. M33A1003

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/23/95 09:31:05
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
	PROJECT TOTAL	1,860,749	0	1,860,749	62.31	1,159,400	3,020,149	37	1,113,190	4,133,340

1. DOCUMENTS AND DRAWINGS

DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES

A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10 01 94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012).
B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS

(WHC FUNDED EXPENSE)
A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)
B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL:

5. ESCALATION

ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE I-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE I-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS

A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THE ESTIMATED COST FOR THE PROCESS PORTIONS OF THE FACILITY WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST-C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDING. THE ESTIMATED COST FOR THE STORAGE PORTION OF THE BUILDING WAS PROVIDED BY WHC.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SOFT COST FOR SIMILAR FACILITIES.
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICF-KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1
FILE NO. M33A1003

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/23/95 09:31:11
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	65294	0	65294	16.83	10989	76283	30	22885	99168
TOTAL 010	TITLE I	65294	0	65294	16.83	10989	76283	30	22885	99168
020	TITLE II									
112100	TITLE II	97941	0	97941	24.67	24162	122103	30	36631	158734
TOTAL 020	TITLE II	97941	0	97941	24.67	24162	122103	30	36631	158734
030	TITLE III									
122000	TITLE III	69958	0	69958	36.32	25409	95367	30	28610	123977
TOTAL 030	TITLE III	69958	0	69958	36.32	25409	95367	30	28610	123977
501	BUILDINGS									
320002	BLDG STRUCTURE	777310	0	777310	36.32	282319	1059629	40	423852	1483481
321000	CONSTRUCTION MANAGEMENT	62185	0	62185	36.32	22586	84771	30	25431	110202
400000	WHC PROJ MGMT	54412	0	54412	27.75	15099	69511	30	20853	90365
TOTAL 501	BUILDINGS	893907	0	893907	35.80	320004	1213911	39	470136	1684048
810	DECONTAMINATE & DECOMMISSION									
330100	DECONTAMINATION	163050	0	163050	223.13	363813	526863	45	237089	763952
330200	DECOMMISSION	119759	0	119759	269.94	323277	443036	35	155063	598099
TOTAL 810	DECONTAMINATE & DECOMMISSION	282809	0	282809	242.95	687090	969899	40	392152	1362051
900	OTHER PROJECT COST									

KAISER ENGINEERS HANFORD
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FILE NO. M33A1003

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE R04 - COST CODE ACCOUNT SUMMARY

DATE 05/23/95 09:31:11
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	450840	0	450840	20.35	91746	542586	30	162776	705362
TOTAL 900	OTHER PROJECT COST	450840	0	450840	20.35	91746	542586	30	162776	705362
PROJECT TOTAL		1,860,749	0	1,860,749	62.31	1,159,400	3,020,149	37	1,113,190	4,133,340

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1
FILE NO. M33A1003

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

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DATE 05/23/95 09:31:17
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	295378	0	295378	28.15	83146	378524	30	113557	492081
01	GENERAL REQUIRMENTS	282809	0	282809	242.95	687090	969899	40	392152	1362051
13	SPECIAL CONSTRUCTION	777310	0	777310	36.32	282319	1059629	40	423852	1483481
19	PROJECT MANAGEMENT	54412	0	54412	27.75	15099	69511	30	20853	90365
20	OTHER PROJECT COST	450840	0	450840	20.35	91746	542586	30	162776	705362
TOTAL CONSTRUCTION			0			1,159,400			1,113,190	
		1,860,749		1,860,749	62.31		3,020,149	37		4,133,340
PROJECT TOTAL			0			1,159,400			1,113,190	
		1,860,749		1,860,749	62.31		3,020,149	37		4,133,340

REFERENCE: ESTIMATE BASIS SHEET PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPEIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 40%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 37%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1
FILE NO. M33A1003

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/23/95 09:31:23
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT ADMINISTRATION %	CONTRACT ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	65294	0.00	0	0	0	0
112100	TITLE II	97941	0.00	0	0	0	0
122000	TITLE III	69958	0.00	0	0	0	0
320002	BLDG STRUCTURE	777310	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	62185	0.00	0	0	0	0
330100	DECONTAMINATION	163050	0.00	0	0	0	0
330200	DECOMMISSION	119759	0.00	0	0	0	0
400000	WHC PROJ MGMT	54412	0.00	0	0	0	0
500000	OTHER PROJECT COST	450840	0.00	0	0	0	0
PROJECT TOTAL		1,860,749		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/23/95 09:31:29
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST CAT 1 46,639,000 6% CAT 2 116,597,000 15%. 40% OF 1&2 =163,235,000 TITLE I	010	1 LS	0	0	0	0	65294	0	0	65294
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	65,294	0	0	65,294
TOTAL	COST CODE 01000 WBS 111200 (ESCALATION 16.83% CONTINGENCY 30.00 %)			0	0	0	0	65,294	0	0	65,294
TOTAL WBS 111200 TITLE I				0	0	0	0	65,294	0	0	65,294

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	97941	0	0	97941
	CAT 1 46,639,000 6%										
	CAT 2 116,597,000 15%. 60%										
	OF 1&2 =163,235,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	97,941	0	0	97,941
TOTAL	COST CODE 02000			0	0	0	0	97,941	0	0	97,941
	WBS 112100										
	(ESCALATION 24.67% CONTINGENCY		30.00 %)								
TOTAL WBS 112100 TITLE II				0	0	0	0	97,941	0	0	97,941

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST SAME AS TITLE III	030	1 LS	0	0	0	0	69958	0	0	69958
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	69,958	0	0	69,958
TOTAL	COST CODE 03000 WBS 122000 (ESCALATION 36.32% - CONTINGENCY 30.00 %)			0	0	0	0	69,958	0	0	69,958
TOTAL WBS 122000 TITLE III				0	0	0	0	69,958	0	0	69,958

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 4
DATE 05/23/95 09:31:30
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR A MULTI-FUNCTION 536,452 SF BLDG IS FROM THE PARAMETRIC EST.	501	1 LS	0	0	0	0	745669	0	0	745669
320002.1300004	COST FOR A 316,412 SF STORAGE BLDG. COST PROVIDED BY WHC	501	1 LS	0	0	0	0	31641	0	0	31641
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	777,310	0	0	777,310
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 36.32% - CONTINGENCY 40.00 %)			0	0	0	0	777,310	0	0	777,310
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	777,310	0	0	777,310

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	62185	0	0	62185
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	62,185	0	0	62,185
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 36.32% - CONTINGENCY 30.00 %)			0	0	0	0	62,185	0	0	62,185
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	62,185	0	0	62,185

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330100	DECONTAMINATION										
330100.01	GENERAL REQUIREMENTS										
330100.0100002	DECONTAMINATION	810	1 LS	0	0	0	0	163050	0	0	163050
SUBTOTAL	GENERAL REQUIREMENTS			0	0	0	0	163,050	0	0	163,050
TOTAL	COST CODE 81001 WBS 330100 (ESCALATION 223.13% CONTINGENCY 45.00 %)			0	0	0	0	163,050	0	0	163,050
TOTAL WBS 330100 DECONTAMINATION				0	0	0	0	163,050	0	0	163,050

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	119759	0	0	119759
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	119,759	0	0	119,759
TOTAL	COST CODE 81001 WBS 330200 (ESCALATION 269.94% - CONTINGENCY 35.00 %)			0	0	0	0	119,759	0	0	119,759
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	119,759	0	0	119,759

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	54412	0	0	54412
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	54,412	0	0	54,412
TOTAL	COST CODE 50119 WBS 400000 (ESCALATION 27.75% - CONTINGENCY 30.00 %)			0	0	0	0	54,412	0	0	54,412
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	54,412	0	0	54,412

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE ANS IS APROX 40% OF THE TEC 1,127,100,000	900	1 LS	0	0	0	0	450840	0	0	450840
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	450,840	0	0	450,840
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 20.35% - CONTINGENCY 30.00 %)			0	0	0	0	450,840	0	0	450,840
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	450,840	0	0	450,840

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/ALT 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 1 SUPPORT FACILITY
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	1,860,749	0	0	1,860,749

SOLID WASTE AND MATERIALS SYSTEMS ALTERNATIVES STUDY

VOLUME IV

APPENDIX B.2

Alternative 2 Detailed Cost Estimate

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Detailed Cost Estimate for Alternative 2 - Building 1

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	9,331,000	2,800,625	12,131,625	3,639,488	15,771,113
CONSTRUCTION	31,105,000	11,394,258	42,499,258	16,999,703	59,498,961
CONSTRUCTION MGMT	2,488,000	936,021	3,424,021	1,027,206	4,451,228
WHC PROJ MGMT	2,177,000	698,817	2,875,817	862,745	3,738,562
TEC	**45,101,000**	**15,829,721**	**60,930,721**	**22,529,142**	**83,459,864**
OTHER PROJECT COST	18,041,000	4,861,579	22,902,579	6,870,774	29,773,352
OM&R LCC	0	0	0	0	0
D & D	48,397,000	78,647,083	127,044,083	56,599,192	183,643,274
TOTAL PROJECT COST (TPC)	**111,539,000**	**99,338,383**	**210,877,383**	**85,999,107**	**296,876,490**

5/16/95 M33A2012.XLS

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	2,613,000	618,236	3,231,236	969,371	4,200,607
CY 2002	2,612,667	725,015	3,337,682	1,001,305	4,338,987
CY 2003	1,905,333	608,944	2,514,277	754,283	3,268,561
CY 2004	1,100,000	399,520	1,499,520	449,856	1,949,376
CY 2005	1,100,000	448,910	1,548,910	464,673	2,013,583
TOTAL	9,331,000	2,800,625	12,131,625	3,639,488	15,771,113

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2003	9,105,000	2,909,958	12,014,958	4,805,983	16,820,941
CY 2004	11,000,000	3,995,200	14,995,200	5,998,080	20,993,280
CY 2005	11,000,000	4,489,100	15,489,100	6,195,640	21,684,740
TOTAL	**31,105,000**	**11,394,258**	**42,499,258**	**16,999,703**	**59,498,961**

CONSTR-MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2003	355,428	113,595	469,023	140,707	609,730
CY 2004	1,066,286	387,275	1,453,561	436,068	1,889,629
CY 2005	1,066,286	435,151	1,501,437	450,431	1,951,869
TOTAL	2,488,000	936,021	3,424,021	1,027,206	4,451,228

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2023	15,000,000	22,891,500	37,891,500	17,051,175	54,942,675
CY 2024	15,000,000	24,142,500	39,142,500	17,614,125	56,756,625
CY 2025	15,855,000	26,883,738	42,738,738	19,232,432	61,971,170
CY 2026	1,000,000	1,784,500	2,784,500	1,131,064	3,915,564
CY 2027	1,000,000	1,876,400	2,876,400	1,006,740	3,883,140
CY 2028	542,000	1,068,445	1,610,445	563,656	2,174,100
TOTAL	48,397,000	78,647,083	127,044,083	56,599,192	183,643,274

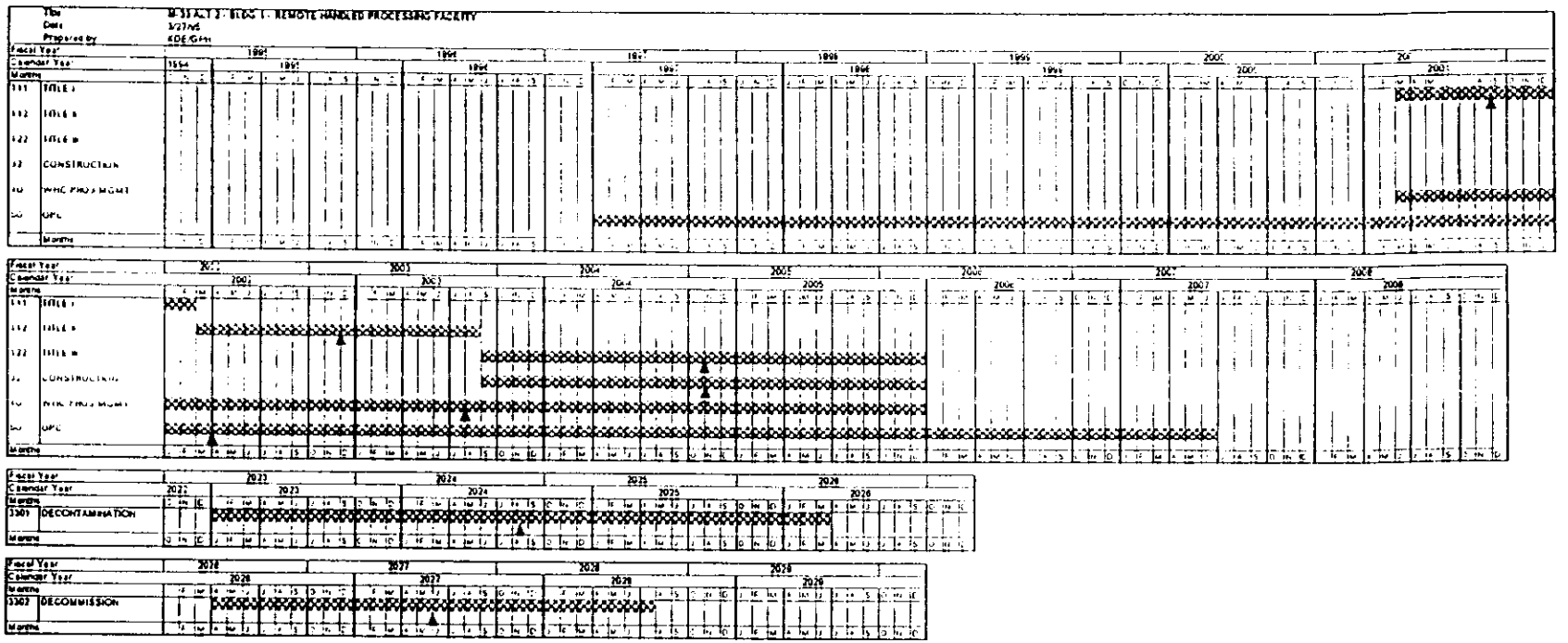
	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	435,400	103,016	538,416	161,525	699,940
CY 2002	435,400	120,824	556,224	166,867	723,091
CY 2003	435,400	139,154	574,554	172,366	746,920
CY 2004	435,400	158,137	593,537	178,061	771,598
CY 2005	435,400	177,687	613,087	183,926	797,013
TOTAL	**2,177,000**	**698,817**	**2,875,817**	**862,745**	**3,738,562**

OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1997	1,118,450	77,509	1,195,959	358,788	1,554,746
CY 1998	2,333,333	236,600	2,569,933	770,980	3,340,913
CY 1999	2,333,333	313,833	2,647,166	794,150	3,441,316
CY 2000	2,333,334	393,167	2,726,501	817,950	3,544,451
CY 2001	360,820	73,427	434,247	130,274	564,521
CY 2002	360,820	86,452	447,272	134,182	581,454
CY 2003	360,820	99,875	460,695	138,208	598,903
CY 2004	360,820	113,694	474,514	142,354	616,869
CY 2005	360,820	127,947	488,767	146,630	635,397
CY 2006	5,000,000	1,976,000	6,976,000	2,092,800	9,068,800
CY 2007	3,118,450	1,363,074	4,481,524	1,344,457	5,825,982
TOTAL	18,041,000	4,861,579	22,902,579	6,870,774	29,773,352

ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID POINT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	2001	SEPT	24 34
112	TITLE II	2002	DEC	28 48
122	TITLE III	2004	NOV	37 80
32	CONSTRUCTION	2004	NOV	37 80
3301	DECONTAMINATION	2024	SEPT	103 34
3302	DECOMMISSION	2027	APRIL	186 88
40	WHC PROJ MGMT	2003	AUG	32 37
50	OPC	2002	APRIL	23 05

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.38	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.54	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.68	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3/27/95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

1/23/95

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1
FILE NO. M33A2012

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/16/95 12:36:31
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	3,249	30	975	4,224
020	TITLE II	5,075	30	1,522	6,597
030	TITLE III	3,857	30	1,157	5,014
501	BUILDINGS	49,171	39	19,038	68,209
810	DECONTAMINATE & DECOMMISSION	123,326	45	55,194	178,520
900	OTHER PROJECT COST	22,199	30	6,660	28,859
	PROJECT TOTAL	206,877	41	84,546	291,423

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 16, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. #2 - BLDG 1 - REMOTE HANDLED PROCESSING FACILITY

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1
FILE NO. M33A2012

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

PAGE 2 OF 10
DATE 05/16/95 12:36:37
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	2613	0	2613	24.34	636	3249	30	975	4224
112100	TITLE II	3919	0	3919	29.50	1156	5075	30	1522	6597
SUBTOTAL 11	DEFINITIVE DESIGN	6532	0	6532	27.43	1792	8324	30	2497	10821
122000	TITLE III	2799	0	2799	37.80	1058	3857	30	1157	5014
SUBTOTAL 12	ENGINEERING/INSPECTION	2799	0	2799	37.80	1058	3857	30	1157	5014
SUBTOTAL 1	ENGINEERING	9331	0	9331	30.54	2850	12181	30	3654	15835
320002	BLDG STRUCTURE	18268	0	18268	37.80	6905	25173	40	10069	35243
320003	HVAC	2447	0	2447	37.80	925	3372	40	1349	4721
320004	ELEC/MECH	10390	0	10390	37.80	3927	14317	40	5727	20044
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	31105	0	31105	37.80	11757	42862	40	17145	60008
321000	CONSTRUCTION MANAGEMENT	2488	0	2488	37.78	940	3428	30	1029	4457
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	33593	0	33593	37.80	12697	46290	39	18174	64465
330100	DECONTAMINATION	45855	0	45855	162.36	74450	120305	45	54137	174443
330200	DECOMMISSION	2542	0	2542	18.84	479	3021	35	1057	4079
SUBTOTAL 33	D & D	48397	0	48397	154.82	74929	123326	45	55194	178522
SUBTOTAL 3	CONSTRUCTION	81990	0	81990	106.87	87626	169616	43	73368	242987
400000	WHC PROJ MGMT	2177	0	2177	32.34	704	2881	30	864	3745
SUBTOTAL 4	PROJECT MANAGEMENT	2177	0	2177	32.34	704	2881	30	864	3745
500000	OTHER PROJECT COST	18041	0	18041	23.05	4158	22199	30	6660	28859
SUBTOTAL 5	OTHER PROJECT COST	18041	0	18041	23.05	4158	22199	30	6660	28859

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1
FILE NO. M33A2012

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/16/95 12:36:37
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
PROJECT TOTAL		111,539	0	111,539	85.48	95,338	206,877	41	84,546	291,426

1. DOCUMENTS AND DRAWINGS
   ==========
   DOCUMENTS: NONE

   DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES
   ==========
   UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES
   ==========
   A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10-01-94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012)
   B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS
   ==========
   (WHC FUNDED EXPENSE)
   A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

   (WHC FUNDED CAPITAL)
   B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

   C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

   D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL;

5. ESCALATION
   ==========
   ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE 1-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE 1-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS

A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST-C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDINGS.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SQFT COST FOR SIMILAR FACILITIES.
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICF-KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1
FILE NO. M33A2012

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/16/95 12:36:41
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	2613	0	2613	24.34	636	3249	30	975	4224
TOTAL 010	TITLE I	2613	0	2613	24.34	636	3249	30	975	4224
020	TITLE II									
112100	TITLE II	3919	0	3919	29.50	1156	5075	30	1522	6597
TOTAL 020	TITLE II	3919	0	3919	29.50	1156	5075	30	1522	6597
030	TITLE III									
122000	TITLE III	2799	0	2799	37.80	1058	3857	30	1157	5014
TOTAL 030	TITLE III	2799	0	2799	37.80	1058	3857	30	1157	5014
501	BUILDINGS									
320002	BLDG STRUCTURE	18268	0	18268	37.80	6905	25173	40	10069	35243
320003	HVAC	2447	0	2447	37.80	925	3372	40	1349	4721
320004	ELEC/MECH	10390	0	10390	37.80	3927	14317	40	5727	20044
321000	CONSTRUCTION MANAGEMENT	2488	0	2488	37.78	940	3428	30	1029	4457
400000	WHC PROJ MGMT	2177	0	2177	32.34	704	2881	30	864	3745
TOTAL 501	BUILDINGS	35770	0	35770	37.46	13401	49171	39	19038	68210
810	DECONTAMINATE & DECOMMISSION									
330100	DECONTAMINATION	45855	0	45855	162.36	74450	120305	45	54137	174443
330200	DECOMMISSION	2542	0	2542	18.84	479	3021	35	1057	4079
TOTAL 810	DECONTAMINATE & DECOMMISSION	48397	0	48397	154.82	74929	123326	45	55194	178522
900	OTHER PROJECT COST									

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/16/95 12:36:42
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	18041	0	18041	23.05	4158	22199	30	6660	28859
TOTAL 900	OTHER PROJECT COST	18041	0	18041	23.05	4158	22199	30	6660	28859
PROJECT TOTAL		111,539	0	111,539	85.48	95,338	206,877	41	84,546	291,426

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1
FILE NO. M33A2012

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/16/95 12:36:47
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	11819	0	11819	32.07	3790	15609	30	4683	20292
01	GENERAL REQUIRMENTS	48397	0	48397	154.82	74929	123326	45	55194	178522
13	SPECIAL CONSTRUCTION	18268	0	18268	37.80	6905	25173	40	10069	35243
15	MECHANICAL	2447	0	2447	37.80	925	3372	40	1349	4721
16	ELECTRICAL	10390	0	10390	37.80	3927	14317	40	5727	20044
19	PROJECT MANAGEMENT	2177	0	2177	32.34	704	2881	30	864	3745
20	OTHER PROJECT COST	18041	0	18041	23.05	4158	22199	30	6660	28859
TOTAL CONSTRUCTION			0			95,338			84,546	
		111,539		111,539	85.48		206,877	41		291,426
PROJECT TOTAL			0			95,338			84,546	
		111,539		111,539	85.48		206,877	41		291,426

REFERENCE: ESTIMATE BASIS SHEET — PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY — PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPETMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 43%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 38%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1
FILE NO. M33A2012

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/16/95 12:36:53
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT %	ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	2613	0.00	0	0	0	0
112100	TITLE II	3919	0.00	0	0	0	0
122000	TITLE III	2799	0.00	0	0	0	0
320002	BLDG STRUCTURE	18268	0.00	0	0	0	0
320003	HVAC	2447	0.00	0	0	0	0
320004	ELEC/MECH	10390	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	2488	0.00	0	0	0	0
330100	DECONTAMINATION	45855	0.00	0	0	0	0
330200	DECOMMISSION	2542	0.00	0	0	0	0
400000	WHC PROJ MGMT	2177	0.00	0	0	0	0
500000	OTHER PROJECT COST	18041	0.00	0	0	0	0
PROJECT TOTAL		111,539		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/16/95 12:37:00
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	2613	0	0	2613
	CAT 1 1,866,000 6%										
	CAT 2 4,666,000 15%. 40%										
	OF 1&2 = 6,532,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,613	0	0	2,613
TOTAL	COST CODE 01000			0	0	0	0	2,613	0	0	2,613
	WBS 111200										
	(ESCALATION 24.34% - CONTINGENCY 30.00 %)										
TOTAL WBS 111200 TITLE I				0	0	0	0	2,613	0	0	2,613

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/16/95 12:37:01
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	3919	0	0	3919
	CAT 1 1,866,000 6%										
	CAT 2 4,666,000 15%. 60%										
	OF 1&2 = 6,532,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	3,919	0	0	3,919
TOTAL	COST CODE 02000			0	0	0	0	3,919	0	0	3,919
	WBS 112100										
	(ESCALATION 29.49% - CONTINGENCY		30.00 %)								
TOTAL WBS 112100 TITLE II				0	0	0	0	3,919	0	0	3,919

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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DATE 05/16/95 12:37:01
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST	030	1 LS	0	0	0	0	2799	0	0	2799
	SAME AS TITLE III										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,799	0	0	2,799
TOTAL	COST CODE 03000			0	0	0	0	2,799	0	0	2,799
	WBS 122000										
	(ESCALATION 37.80% - CONTINGENCY		30.00 %)								
TOTAL WBS 122000 TITLE III				0	0	0	0	2,799	0	0	2,799

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 4
DATE 05/16/95 12:37:01
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR STRUCTURE OF THE 18,101 SF BLDG IS FROM THE PARAMETRIC EST. AND COVERS CSI 03-13 (EXCLUDES EQUIP.)	501	1 LS	0	0	0	0	12476	0	0	12476
320002.1300004	COST FOR EQUIPMENT IS AN ALLOWANCE BASED ON SIMILAR PROJECTS & REPRESENTS 23% OF CONST. COST OR @320. PER SF.	501	1 LS	0	0	0	0	5792	0	0	5792
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	18,268	0	0	18,268
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 37.80% - CONTINGENCY 40.00 %)			0	0	0	0	18,268	0	0	18,268
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	18,268	0	0	18,268

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 5
DATE 05/16/95 12:37:01
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320003	HVAC										
320003.15	MECHANICAL										
320003.1500002	THIS IS COST FOR HVAC OF THE 18,101 SF BLDG IT IS THE PARAMETRIC EST. AND COVERS CSI 15.	501	1 LS	0	0	0	0	2447	0	0	2447
SUBTOTAL	MECHANICAL			0	0	0	0	2,447	0	0	2,447
TOTAL	COST CODE 50115			0	0	0	0	2,447	0	0	2,447
	WBS 320003										
	(ESCALATION 37.80% - CONTINGENCY 40.00 %)										
TOTAL WBS 320003 HVAC				0	0	0	0	2,447	0	0	2,447

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320004	ELEC/MECH										
320004.16	ELECTRICAL										
320004.1600002	THE PARMETRIC EST. COMBINES EST 16 AND 15 (PIPING) THE COST REPRESENTS ELEC/MECH FOR THE 18,101 SQFT BLDG.	501	1 LS	0	0	0	0	10390	0	0	10390
SUBTOTAL	ELECTRICAL			0	0	0	0	10,390	0	0	10,390
TOTAL	COST CODE 50116 WBS 320004 (ESCALATION 37.80% - CONTINGENCY 40.00 %)			0	0	0	0	10,390	0	0	10,390
TOTAL WBS 320004 ELEC/MECH				0	0	0	0	10,390	0	0	10,390

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	2488	0	0	2488
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,488	0	0	2,488
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 37.80% - CONTINGENCY 30.00 %)			0	0	0	0	2,488	0	0	2,488
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	2,488	0	0	2,488

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DDE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330100	DECONTAMINATION										
330100.01	GENERAL REQUIRMENTS										
330100.0100002	DECONTAMINATION	810	1 LS	0	0	0	0	45855	0	0	45855
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	45,855	0	0	45,855
TOTAL	COST CODE 81001			0	0	0	0	45,855	0	0	45,855
	WBS 330100										
	(ESCALATION 162.36% - CONTINGENCY	45.00 %)									
TOTAL WBS 330100 DECONTAMINATION				0	0	0	0	45,855	0	0	45,855

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIREMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	2542	0	0	2542
SUBTOTAL	GENERAL REQUIREMENTS			0	0	0	0	2,542	0	0	2,542
TOTAL	COST CODE 81001 WBS 330200 (ESCALATION 18.86% - CONTINGENCY 35.00 %)			0	0	0	0	2,542	0	0	2,542
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	2,542	0	0	2,542

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	2177	0	0	2177
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	2,177	0	0	2,177
TOTAL	COST CODE 50119			0	0	0	0	2,177	0	0	2,177
	WBS 400000										
	(ESCALATION 32.32% - CONTINGENCY 30.00 %)										
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	2,177	0	0	2,177

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE ANS IS APROX 40% OF THE TEC 45,102,000	900	1 LS	0	0	0	0	18041	0	0	18041
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	18,041	0	0	18,041
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 23.05% - CONTINGENCY 30.00 %)			0	0	0	0	18,041	0	0	18,041
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	18,041	0	0	18,041

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 1

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RHPF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	111,539	0	0	111,539

Detailed Cost Estimate for Alternative 2 - Building 2

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	10,667,000	2,305,062	12,972,062	3,891,619	16,863,681
CONSTRUCTION	35,557,000	9,599,552	45,156,552	18,062,621	63,219,173
CONSTRUCTION MGMT	2,844,000	790,063	3,634,063	1,090,219	4,724,282
WHC PROJ MGMT	2,489,000	569,649	3,058,649	917,595	3,976,244
TEC	**51,557,000**	**13,264,327**	**64,821,327**	**23,962,053**	**88,783,380**
OTHER PROJECT COST	20,622,000	3,662,167	24,284,167	7,285,250	31,569,416
OM&R LCC	0	0	0	0	0
D & D	55,734,000	95,371,093	151,105,093	67,228,733	218,333,826
TOTAL PROJECT COST (TPC)	**127,913,000**	**112,297,586**	**240,210,586**	**98,476,036**	**338,686,622**

5/17/95 M33A2022.XLS

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	2,987,000	474,634	3,461,634	1,038,490	4,500,125
CY 2000	3,000,000	591,300	3,591,300	1,077,390	4,668,690
CY 2001	2,280,000	539,448	2,819,448	845,834	3,665,282
CY 2002	1,600,000	444,000	2,044,000	613,200	2,657,200
CY 2003	800,000	255,680	1,055,680	316,704	1,372,384
TOTAL	10,667,000	2,305,062	12,972,062	3,891,619	16,863,681

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	13,953,250	3,301,339	17,254,589	6,901,836	24,156,425
CY 2002	14,402,500	3,996,694	18,399,194	7,359,678	25,758,871
CY 2003	7,201,250	2,301,520	9,502,770	3,801,108	13,303,877
TOTAL	35,557,000	9,599,552	45,156,552	18,062,621	63,219,173

CONSTR MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	711,000	168,223	879,223	263,767	1,142,989
CY 2002	1,422,000	394,605	1,816,605	544,982	2,361,587
CY 2003	711,000	227,236	938,236	281,471	1,219,706
TOTAL	2,844,000	790,063	3,634,063	1,090,219	4,724,282

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2024	17,590,334	28,311,643	45,901,977	20,655,889	66,557,866
CY 2025	17,590,333	29,826,169	47,416,502	21,337,426	68,753,927
CY 2026	17,590,333	31,389,949	48,980,282	22,041,127	71,021,409
CY 2027	740,750	1,389,943	2,130,693	857,817	2,988,510
CY 2028	1,481,500	2,920,481	4,401,981	1,540,693	5,942,674
CY 2029	740,750	1,532,908	2,273,658	795,780	3,069,438
TOTAL	55,734,000	95,371,093	151,105,093	67,228,733	218,333,826

WHC-PM

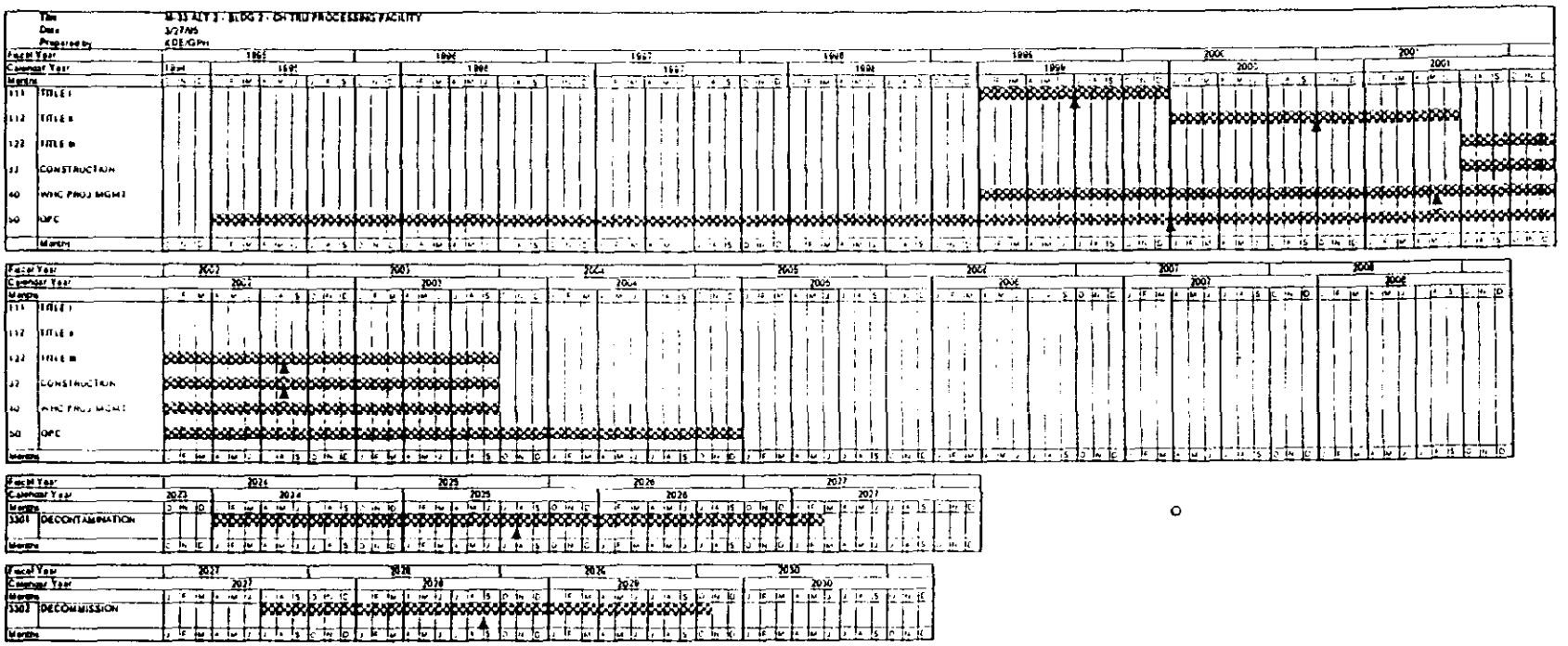
	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	553,111	87,889	641,000	192,300	833,300
CY 2000	553,111	109,018	662,129	198,639	860,768
CY 2001	553,111	130,866	683,977	205,193	889,170
CY 2002	553,111	153,488	706,599	211,980	918,579
CY 2003	276,556	88,387	364,943	109,483	474,426
TOTAL	2,489,000	569,649	3,058,649	917,595	3,976,244

OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	1,779,900	16,553	1,796,453	538,936	2,335,389
CY 1996	2,500,000	96,000	2,596,000	778,800	3,374,800
CY 1997	2,500,000	173,250	2,673,250	801,975	3,475,225
CY 1998	2,500,000	253,500	2,753,500	826,050	3,579,550
CY 1999	500,000	67,250	567,250	170,175	737,425
CY 2000	500,000	84,250	584,250	175,275	759,525
CY 2001	500,000	101,750	601,750	180,525	782,275
CY 2002	500,000	119,800	619,800	185,940	805,740
CY 2003	5,062,200	1,401,217	6,463,417	1,939,025	8,402,442
CY 2004	4,279,900	1,348,596	5,628,496	1,688,549	7,317,045
TOTAL	**20,622,000**	**3,662,167**	**24,284,167**	**7,285,250**	**31,569,416**

ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID POINT YEAR	MID POINT MONTH	ESCAL. RATE
111	TITLE I	1999	MAY	15 00
112	TITLE II	2000	OCT	20 00
122	TITLE III	2001	SEPT	26 64
22	CONSTRUCTION	2001	SEPT	26 44
3301	DECONTAMINATION	2025	AUG	176 76
3302	DECOMMISSION	2029	SEPT	198 75
40	WHC PROJ MGMT	2001	JUNE	23 33
50	OPC	2000	JAN	15 15

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.54	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.16
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.46	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	146.20	145.87	146.53	147.20	147.87
2023	148.64	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.66	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.66
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3/27/95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

3 27 95

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2
FILE NO. M33A2022

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/16/95 14:34:10
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	3,462	30	1,038	4,500
020	TITLE II	5,407	30	1,622	7,029
030	TITLE III	4,110	30	1,233	5,343
501	BUILDINGS	52,393	39	20,285	72,678
810	DECONTAMINATE & DECOMMISSION	151,487	44	67,284	218,771
900	OTHER PROJECT COST	23,742	30	7,123	30,865
	PROJECT TOTAL	240,601	41	98,585	339,186

TYPE OF ESTIMATE: ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 16, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. #2 - BLDG 2 - CH TRU PROCESSING FACILITY

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2
FILE NO. M33A2022

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

PAGE 2 OF 10
DATE 05/16/95 14:34:15
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	2987	0	2987	15.90	475	3462	30	1038	4500
112100	TITLE II	4480	0	4480	20.69	927	5407	30	1622	7029
SUBTOTAL 11	DEFINITIVE DESIGN	7467	0	7467	18.78	1402	8869	30	2660	11529
122000	TITLE III	3200	0	3200	28.44	910	4110	30	1233	5343
SUBTOTAL 12	ENGINEERING/INSPECTION	3200	0	3200	28.44	910	4110	30	1233	5343
SUBTOTAL 1	ENGINEERING	10667	0	10667	21.67	2312	12979	30	3893	16872
320002	BLDG STRUCTURE	20949	0	20949	28.44	5958	26907	40	10763	37670
320003	HVAC	2784	0	2784	28.45	792	3576	40	1430	5006
320004	ELEC/MECH	11824	0	11824	28.44	3363	15187	40	6075	21261
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	35557	0	35557	28.44	10113	45670	40	18268	63937
321000	CONSTRUCTION MANAGEMENT	2844	0	2844	28.45	809	3653	30	1096	4749
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	38401	0	38401	28.44	10922	49323	39	19364	68686
330100	DECONTAMINATION	52771	0	52771	170.29	89864	142635	45	64186	206820
330200	DECOMMISSION	2963	0	2963	198.75	5889	8852	35	3098	11950
SUBTOTAL 33	D & D	55734	0	55734	171.80	95753	151487	44	67284	218770
SUBTOTAL 3	CONSTRUCTION	94135	0	94135	113.32	106675	200810	43	86648	287456
400000	WHC PROJ MGMT	2489	0	2489	23.34	581	3070	30	921	3991
SUBTOTAL 4	PROJECT MANAGEMENT	2489	0	2489	23.34	581	3070	30	921	3991
500000	OTHER PROJECT COST	20622	0	20622	15.13	3120	23742	30	7123	30865
SUBTOTAL 5	OTHER PROJECT COST	20622	0	20622	15.13	3120	23742	30	7123	30865

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2
FILE NO. M33A2022

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/16/95 14:34:15
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
PROJECT TOTAL		127,913	0	127,913	88.10	112,688	240,601	41	98,585	339,184

1. DOCUMENTS AND DRAWINGS
   ==========
   DOCUMENTS: NONE

   DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES
   ==========
   UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES
   ==========
   A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10-01-94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB70123).
   B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS
   ==========
   (WHC FUNDED EXPENSE)
   A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

   (WHC FUNDED CAPITAL)
   B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

   C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

   D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL:

5. ESCALATION
   ==========
   ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING
==========

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE 1-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE 1-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS
=======

A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDINGS.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SOFT COST FOR SIMILAR FACILITIES.
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICF-KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2
FILE NO. M33A2022

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/16/95 14:34:20
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	2987	0	2987	15.90	475	3462	30	1038	4500
TOTAL 010	TITLE I	2987	0	2987	15.90	475	3462	30	1038	4500
020	TITLE II									
112100	TITLE II	4480	0	4480	20.69	927	5407	30	1622	7029
TOTAL 020	TITLE II	4480	0	4480	20.69	927	5407	30	1622	7029
030	TITLE III									
122000	TITLE III	3200	0	3200	28.44	910	4110	30	1233	5343
TOTAL 030	TITLE III	3200	0	3200	28.44	910	4110	30	1233	5343
501	BUILDINGS									
320002	BLDG STRUCTURE	20949	0	20949	28.44	5958	26907	40	10763	37670
320003	HVAC	2784	0	2784	28.45	792	3576	40	1430	5006
320004	ELEC/MECH	11824	0	11824	28.44	3363	15187	40	6075	21261
321000	CONSTRUCTION MANAGEMENT	2844	0	2844	28.45	809	3653	30	1096	4749
400000	WHC PROJ MGMT	2489	0	2489	23.34	581	3070	30	921	3991
TOTAL 501	BUILDINGS	40890	0	40890	28.13	11503	52393	39	20285	72677
810	DECONTAMINATE & DECOMMISSION									
330100	DECONTAMINATION	52771	0	52771	170.29	89864	142635	45	64186	206820
330200	DECOMMISSION	2963	0	2963	198.75	5889	8852	35	3098	11950
TOTAL 810	DECONTAMINATE & DECOMMISSION	55734	0	55734	171.80	95753	151487	44	67284	218770
900	OTHER PROJECT COST									

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. H33/BLDG 2
FILE NO. H33A2022

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 05/16/95 14:34:20
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	20622	0	20622	15.13	3120	23742	30	7123	30865
TOTAL 900	OTHER PROJECT COST	20622	0	20622	15.13	3120	23742	30	7123	30865
PROJECT TOTAL		127,913	0	127,913	88.10	112,688	240,601	41	98,585	339,184

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2
FILE NO. M33A2022

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/16/95 14:34:25
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	13511	0	13511	23.10	3121	16632	30	4989	21621
01	GENERAL REQUIREMENTS	55734	0	55734	171.80	95753	151487	44	67284	218770
13	SPECIAL CONSTRUCTION	20949	0	20949	28.44	5958	26907	40	10763	37670
15	MECHANICAL	2784	0	2784	28.45	792	3576	40	1430	5006
16	ELECTRICAL	11824	0	11824	28.44	3363	15187	40	6075	21261
19	PROJECT MANAGEMENT	2489	0	2489	23.34	581	3070	30	921	3991
20	OTHER PROJECT COST	20622	0	20622	15.13	3120	23742	30	7123	30865
TOTAL CONSTRUCTION		127,913	0	127,913	88.10	112,688	240,601	41	98,585	339,184
PROJECT TOTAL		127,913	0	127,913	88.10	112,688	240,601	41	98,585	339,184

REFERENCE: ESTIMATE BASIS SHEET — PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY — PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPERIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 43%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 41%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2
FILE NO. M33A2022

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/16/95 14:34:32
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT %	ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	2987	0.00	0	0	0	0
112100	TITLE II	4480	0.00	0	0	0	0
122000	TITLE III	3200	0.00	0	0	0	0
320002	BLDG STRUCTURE	20949	0.00	0	0	0	0
320003	HVAC	2784	0.00	0	0	0	0
320004	ELEC/MECH	11824	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	2844	0.00	0	0	0	0
330100	DECONTAMINATION	52771	0.00	0	0	0	0
330200	DECOMMISSION	2963	0.00	0	0	0	0
400000	WHC PROJ MGMT	2489	0.00	0	0	0	0
500000	OTHER PROJECT COST	20622	0.00	0	0	0	0
PROJECT TOTAL		127,913		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/16/95 14:34:39
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	2987	0	0	2987
	CAT 1 2,133,000 6%										
	CAT 2 5,333,000 15%. 40%										
	OF 1&2 = 7,467,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,987	0	0	2,987
TOTAL	COST CODE 01000			0	0	0	0	2,987	0	0	2,987
	WBS 111200										
	(ESCALATION 15.89% - CONTINGENCY 30.00 %)										
TOTAL WBS 111200 TITLE I				0	0	0	0	2,987	0	0	2,987

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/16/95 14:34:39
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	4480	0	0	4480
	CAT 1 2,133,000 6%										
	CAT 2 5,333,000 15%. 60%										
	OF 1&2 = 7,467,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	4,480	0	0	4,480
TOTAL	COST CODE 02000			0	0	0	0	4,480	0	0	4,480
	WBS 112100										
	(ESCALATION 20.69% - CONTINGENCY 30.00 %)										
TOTAL WBS 112100 TITLE II				0	0	0	0	4,480	0	0	4,480

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST	030	1 LS	0	0	0	0	3200	0	0	3200
	SAME AS TITLE III										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	3,200	0	0	3,200
TOTAL	COST CODE 03000			0	0	0	0	3,200	0	0	3,200
	WBS 122000										
	(ESCALATION 28.44% - CONTINGENCY		30.00 %)								
TOTAL WBS 122000 TITLE III				0	0	0	0	3,200	0	0	3,200

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 4
DATE 05/16/95 14:34:39
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR STRUCTURE OF THE 21,099 SF BLDG IS FROM THE PARAMETRIC EST. AND COVERS CSI 03-13 (EXCLUDES EQUIP.)	501	1 LS	0	0	0	0	14197	0	0	14197
320002.1300004	COST FOR EQUIPMENT IS AN ALLOWANCE BASED ON SIMILAR PROJECTS & REPRESENTS 23% OF CONST. COST OR @320. PER SF.	501	1 LS	0	0	0	0	6752	0	0	6752
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	20,949	0	0	20,949
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 28.44% - CONTINGENCY 40.00 %)			0	0	0	0	20,949	0	0	20,949
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	20,949	0	0	20,949

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320003	HVAC										
320003.15	MECHANICAL										
320003.1500002	THIS IS COST FOR HVAC OF THE 21,099 SF BLDG II IS THE PARAMETRIC EST. AND COVERS CSI 15.	501	1 LS	0	0	0	0	2784	0	0	2784
SUBTOTAL	MECHANICAL			0	0	0	0	2,784	0	0	2,784
TOTAL	COST CODE 50115			0	0	0	0	2,784	0	0	2,784
	WBS 320003										
	(ESCALATION 28.44% - CONTINGENCY 40.00 %)										
TOTAL WBS 320003 HVAC				0	0	0	0	2,784	0	0	2,784

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320004	ELEC/MECH										
320004.16	ELECTRICAL										
320004.1600002	THE PARMETRIC EST. COMBINES CSI 16 AND 15 (PIPING) THE COST REPRESENTS ELEC/MECH FOR THE 21,099 SQFT BLDG.	501	1 LS	0	0	0	0	11824	0	0	11824
SUBTOTAL	ELECTRICAL			0	0	0	0	11,824	0	0	11,824
TOTAL	COST CODE 50116 WBS 320004 (ESCALATION 28.44% - CONTINGENCY 40 00 %)			0	0	0	0	11,824	0	0	11,824
TOTAL WBS 320004 ELEC/MECH				0	0	0	0	11,824	0	0	11,824

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	2844	0	0	2844
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,844	0	0	2,844
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 28.44% - CONTINGENCY 30.00 %)			0	0	0	0	2,844	0	0	2,844
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	2,844	0	0	2,844

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330100	DECONTAMINATION										
330100.01	GENERAL REQUIREMENTS										
330100.0100002	DECONTAMINATION	810	1 LS	0	0	0	0	52771	0	0	52771
SUBTOTAL	GENERAL REQUIREMENTS			0	0	0	0	52,771	0	0	52,771
TOTAL	COST CODE 81001 WBS 330100 (ESCALATION 170.29% - CONTINGENCY 45.00 %)			0	0	0	0	52,771	0	0	52,771
TOTAL WBS 330100 DECONTAMINATION				0	0	0	0	52,771	0	0	52,771

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DDE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	2963	0	0	2963
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	2,963	0	0	2,963
TOTAL	COST CODE B1001			0	0	0	0	2,963	0	0	2,963
	WBS 330200										
	(ESCALATION 198.75% - CONTINGENCY		35.00 %)								
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	2,963	0	0	2,963

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	2489	0	0	2489
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	2,489	0	0	2,489
TOTAL	COST CODE 50119			0	0	0	0	2,489	0	0	2,489
	WBS 400000										
	(ESCALATION 23.33% - CONTINGENCY		30.00 %)								
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	2,489	0	0	2,489

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 2

** JEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH TRU PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE ANS IS APROX 40% OF THE TEC 51,556,000	900	1 LS	0	0	0	0	20622	0	0	20622
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	20,622	0	0	20,622
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 15.13% - CONTINGENCY 30 00 %)			0	0	0	0	20,622	0	0	20,622
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	20,622	0	0	20,622

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	127,913	0	0	127,913

Detailed Cost Estimate for Alternative 2 - Building 3

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	19,565,000	4,228,901	23,793,901	7,138,170	30,932,072
CONSTRUCTION	65,218,000	17,575,904	82,793,904	33,117,562	115,911,466
CONSTRUCTION MGMT	5,217,000	1,449,283	6,666,283	1,999,885	8,666,167
WHC PROJ MGMT	4,565,000	1,066,576	5,631,576	1,689,473	7,321,049
TEC	**94,565,000**	**24,320,664**	**118,885,664**	**43,945,090**	**162,830,754**
OTHER PROJECT COST	37,826,000	6,784,289	44,610,289	13,383,087	57,993,376
OM&R LCC	0	0	0	0	0
D & D	102,977,000	195,651,068	298,628,068	132,869,451	431,497,519
TOTAL PROJECT COST (TPC)	**235,368,000**	**226,756,021**	**462,124,021**	**190,197,628**	**652,321,648**

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	5,478,000	870,454	6,348,454	1,904,536	8,252,990
CY 2000	5,478,000	1,079,714	6,557,714	1,967,314	8,525,028
CY 2001	4,206,500	995,258	5,201,758	1,560,527	6,762,285
CY 2002	2,935,000	814,463	3,749,463	1,124,839	4,874,301
CY 2003	1,467,500	469,013	1,936,513	580,954	2,517,467
TOTAL	19,565,000	4,228,901	23,793,901	7,138,170	30,932,072

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	26,164,750	6,190,580	32,355,330	12,942,132	45,297,462
CY 2002	26,035,500	7,224,851	33,260,351	13,304,141	46,564,492
CY 2003	13,017,750	4,160,473	17,178,223	6,871,289	24,049,512
TOTAL	65,218,000	17,575,904	82,793,904	33,117,562	115,911,466

CONSTR MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	1,304,250	308,586	1,612,836	483,851	2,096,686
CY 2002	2,608,500	723,859	3,332,359	999,708	4,332,066
CY 2003	1,304,250	416,838	1,721,088	516,326	2,237,415
TOTAL	5,217,000	1,449,283	6,666,283	1,999,885	8,666,167

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2026	32,402,667	57,822,559	90,225,226	40,601,352	130,826,578
CY 2027	32,402,667	60,800,364	93,203,031	41,941,364	135,144,395
CY 2028	32,402,666	63,875,375	96,278,041	43,325,119	139,603,160
CY 2029	1,769,000	3,660,769	5,429,769	2,279,417	7,709,185
CY 2030	2,000,000	4,941,400	6,941,400	2,429,490	9,370,890
CY 2031	2,000,000	4,550,600	6,550,600	2,292,710	8,843,310
TOTAL	102,977,000	195,651,068	298,628,068	132,869,451	431,497,519

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	961,053	152,711	1,113,764	334,129	1,447,894
CY 2000	961,053	189,424	1,150,477	345,143	1,495,620
CY 2001	961,053	227,385	1,188,438	356,531	1,544,970
CY 2002	961,053	266,692	1,227,745	368,324	1,596,069
CY 2003	720,788	230,364	951,152	285,346	1,236,497
TOTAL	4,565,000	1,066,576	5,631,576	1,689,473	7,321,049

OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	4,255,425	39,575	4,295,000	1,288,500	5,583,501
CY 1996	4,255,425	163,408	4,418,833	1,325,650	5,744,483
CY 1997	4,255,425	294,901	4,550,326	1,365,098	5,915,424
CY 1998	4,255,425	431,500	4,686,925	1,406,078	6,093,003
CY 1999	796,337	107,107	903,444	271,033	1,174,478
CY 2000	796,337	134,183	930,520	279,156	1,209,676
CY 2001	796,337	162,055	958,392	287,517	1,245,909
CY 2002	796,337	190,802	987,139	296,142	1,283,281
CY 2003	7,597,252	2,102,919	9,700,171	2,910,051	12,610,223
CY 2004	10,021,700	3,157,838	13,179,538	3,953,861	17,133,399
TOTAL	37,826,000	6,784,289	44,610,289	13,383,087	57,993,376

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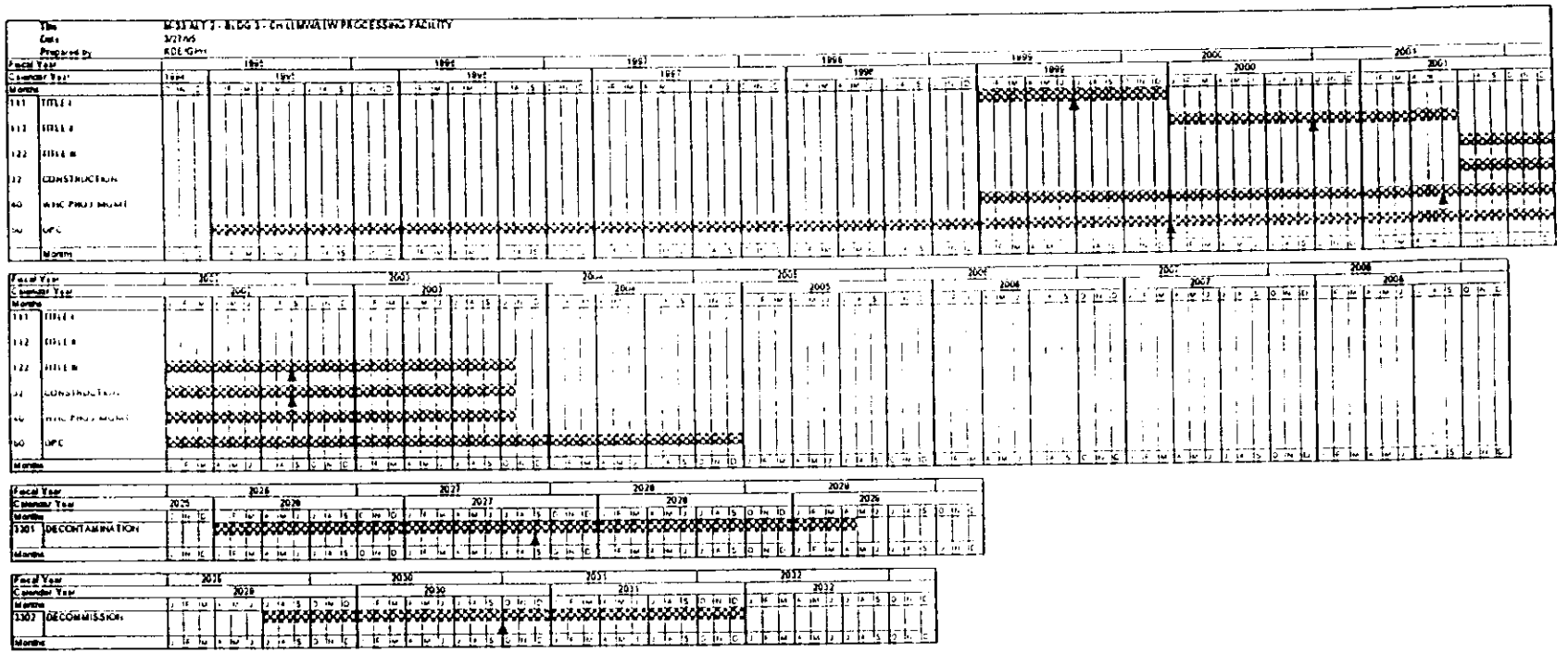
ESCALATION ANALYSIS SCHEDULE



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID POINT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	1999	MAY	15.00
112	TITLE II	2000	OCT	30.00
122	TITLE III	2003	SEPT	28.44
32	CONSTRUCTION	2002	SEPT	28.44
3301	DECONTAMINATION	2027	SEPT	189.20
3302	DECOMMISSION	2030	OCT	219.85
40	WHC PROJ MGMT	2001	APR	23.33
50	OPC	2000	JAN	15.13

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.28	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.64	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.29	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.58	85.08
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.73	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	99.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	129.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.38	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.66	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.65	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.48	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3 27 95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3
FILE NO. M33A2032

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/17/95 07:14:33
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	6,348	30	1,905	8,253
020	TITLE II	9,917	30	2,975	12,892
030	TITLE III	7,539	30	2,262	9,801
501	BUILDINGS	96,097	39	37,206	133,303
810	DECONTAMINATE & DECOMMISSION	299,567	44	132,960	432,527
900	OTHER PROJECT COST	43,549	30	13,065	56,614
	PROJECT TOTAL	463,017	41	190,373	653,390

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 17, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. #2 - BLDG 3 - CH LLMW/LLW PROCESSING FACILITY

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3
FILE NO. M33A2032

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LEMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/17/95 07:14:39
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	5478	0	5478	15.88	870	6348	30	1905	8253
112100	TITLE II	8217	0	8217	20.69	1700	9917	30	2975	12892
SUBTOTAL 11	DEFINITIVE DESIGN	13695	0	13695	18.77	2570	16265	30	4880	21145
122000	TITLE III	5870	0	5870	28.43	1669	7539	30	2262	9801
SUBTOTAL 12	ENGINEERING/INSPECTION	5870	0	5870	28.43	1669	7539	30	2262	9801
SUBTOTAL 1	ENGINEERING	19565	0	19565	21.67	4239	23804	30	7142	30946
320002	BLDG STRUCTURE	38811	0	38811	28.44	11038	49849	40	19940	69788
320003	HVAC	5033	0	5033	28.43	1431	6464	40	2586	9050
320004	ELEC/MECH	21374	0	21374	28.44	6079	27453	40	10981	38434
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	65218	0	65218	28.44	18548	83766	40	33507	117272
321000	CONSTRUCTION MANAGEMENT	5217	0	5217	28.45	1484	6701	30	2010	8711
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	70435	0	70435	28.44	20032	90467	39	35517	125983
330100	DECONTAMINATION	97208	0	97208	189.20	183918	281126	45	126506	407632
330200	DECOMMISSION	5769	0	5769	219.66	12672	18441	35	6454	24895
SUBTOTAL 33	D & D	102977	0	102977	190.91	196590	299567	44	132960	432527
SUBTOTAL 3	CONSTRUCTION	173412	0	173412	124.92	216622	390034	43	168477	558510
400000	WHC PROJ MGMT	4565	0	4565	23.33	1065	5630	30	1689	7319
SUBTOTAL 4	PROJECT MANAGEMENT	4565	0	4565	23.33	1065	5630	30	1689	7319
500000	OTHER PROJECT COST	37826	0	37826	15.13	5723	43549	30	13065	56614
SUBTOTAL 5	OTHER PROJECT COST	37826	0	37826	15.13	5723	43549	30	13065	56614

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3
FILE NO. M33A2032

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/17/95 07:14:39
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
PROJECT TOTAL		235,368	0	235,368	96.72	227,649	463,017	41	190,373	653,389

1. DOCUMENTS AND DRAWINGS

DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES

A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10 01 94). SEE ALSO THE FY 1995 PLANNING RATES " (REPORT BGHB7012).
B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES " (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS

(WHC FUNDED EXPENSE)
A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)
B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL:

5. ESCALATION

ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE 1-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE 1-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS

A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST-C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDINGS.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SOFT COST FOR SIMILAR FACILITIES.
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICF KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3
FILE NO. M33A2032

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

PAGE 6 OF 10
DATE 05/17/95 07:14:44
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010 TITLE I										
111200	TITLE I	5478	0	5478	15.88	870	6348	30	1905	8253
TOTAL 010	TITLE I	5478	0	5478	15.88	870	6348	30	1905	8253
020 TITLE II										
112100	TITLE II	8217	0	8217	20.69	1700	9917	30	2975	12892
TOTAL 020	TITLE II	8217	0	8217	20.69	1700	9917	30	2975	12892
030 TITLE III										
122000	TITLE III	5870	0	5870	28.43	1669	7539	30	2262	9801
TOTAL 030	TITLE III	5870	0	5870	28.43	1669	7539	30	2262	9801
501 BUILDINGS										
320002	BLDG STRUCTURE	38811	0	38811	28.44	11038	49849	40	19940	69788
320003	HVAC	5033	0	5033	28.43	1431	6464	40	2586	9050
320004	ELEC/MECH	21374	0	21374	28.44	6079	27453	40	10981	38434
321000	CONSTRUCTION MANAGEMENT	5217	0	5217	28.45	1484	6701	30	2010	8711
400000	WHC PROJ MGMT	4565	0	4565	23.33	1065	5630	30	1689	7319
TOTAL 501	BUILDINGS	75000	0	75000	28.13	21097	96097	39	37206	133302
810 DECONTAMINATE & DECOMMISSION										
330100	DECONTAMINATION	97208	0	97208	189.20	183918	281126	45	126506	407632
330200	DECOMMISSION	5769	0	5769	219.66	12672	18441	35	6454	24895
TOTAL 810	DECONTAMINATE & DECOMMISSION	102977	0	102977	190.91	196590	299567	44	132960	432527
900 OTHER PROJECT COST										

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

PAGE 7 OF 10
DATE 05/17/95 07:14:44
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	37826	0	37826	15.13	5723	43549	30	13065	56614
TOTAL 900	OTHER PROJECT COST	37826	0	37826	15.13	5723	43549	30	13065	56614
PROJECT TOTAL		235,368	0	235,368	96.72	227,649	463,017	41	190,373	653,389

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3
FILE NO. M33A2032

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/17/95 07:14:48
BY GPN

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	24782	0	24782	23.09	5723	30505	30	9152	39657
01	GENERAL REQUIRMENTS	102977	0	102977	190.91	196590	299567	44	132960	432527
13	SPECIAL CONSTRUCTION	38811	0	38811	28.44	11038	49849	40	19940	69788
15	MECHANICAL	5033	0	5033	28.43	1431	6464	40	2586	9050
16	ELECTRICAL	21374	0	21374	28.44	6079	27453	40	10981	38434
19	PROJECT MANAGEMENT	4565	0	4565	23.33	1065	5630	30	1689	7319
20	OTHER PROJECT COST	37826	0	37826	15.13	5723	43549	30	13065	56614
	TOTAL CONSTRUCTION	235,368	0	235,368	96.72	227,649	463,017	41	190,373	653,389
	PROJECT TOTAL	235,368	0	235,368	96.72	227,649	463,017	41	190,373	653,389

REFERENCE: ESTIMATE BASIS SHEET — PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY — PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPEIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 43%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 41%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3
FILE NO. M33A2032

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/17/95 07:14:53
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT ADMINISTRATION %	CONTRACT ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	5478	0.00	0	0	0	0
112100	TITLE II	8217	0.00	0	0	0	0
122000	TITLE III	5870	0.00	0	0	0	0
320002	BLDG STRUCTURE	38811	0.00	0	0	0	0
320003	HVAC	5033	0.00	0	0	0	0
320004	ELEC/MECH	21374	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	5217	0.00	0	0	0	0
330100	DECONTAMINATION	97208	0.00	0	0	0	0
330200	DECOMMISSION	5769	0.00	0	0	0	0
400000	WHC PROJ MGMT	4565	0.00	0	0	0	0
500000	OTHER PROJECT COST	37826	0.00	0	0	0	0
PROJECT TOTAL		235,368		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/17/95 07:14:58
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	5478	0	0	5478
	CAT 1 3,913,000 6%										
	CAT 2 9,783,000 15%. 40%										
	OF 1&2 = 13,696,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	5,478	0	0	5,478
TOTAL	COST CODE 01000			0	0	0	0	5,478	0	0	5,478
	WBS 111200										
	(ESCALATION 15.89% CONTINGENCY 30.00 %)										
TOTAL WBS 111200 TITLE I				0	0	0	0	5,478	0	0	5,478

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/17/95 07:14:58
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	8217	0	0	8217
	CAT 1 3,913,000 6%										
	CAT 2 9,783,000 15%. 60%										
	OF 1&2 =13,696,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	8,217	0	0	8,217
TOTAL	COST CODE 02000			0	0	0	0	8,217	0	0	8,217
	WBS 112100										
	(ESCALATION 20.69% CONTINGENCY		30.00 %)								
TOTAL WBS 112100 TITLE II				0	0	0	0	8,217	0	0	8,217

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 3
DATE 05/17/95 07:14:58
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST	030	1 LS	0	0	0	0	5870	0	0	5870
	SAME AS TITLE III										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	5,870	0	0	5,870
TOTAL	COST CODE 03000			0	0	0	0	5,870	0	0	5,870
	WBS 122000										
	(ESCALATION 28.44% - CONTINGENCY		30.00 %)								
TOTAL WBS 122000 TITLE III				0	0	0	0	5,870	0	0	5,870

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR STRUCTURE OF THE 41,085 SF BLDG IS FROM THE PARAMETRIC EST. AND COVERS CSI 03-13 (EXCLUDES EQUIP.)	501	1 LS	0	0	0	0	25664	0	0	25664
320002.1300004	COST FOR EQUIPMENT IS AN ALLOWANCE BASED ON SIMILAR PROJECTS & REPRESENTS 23% OF CONST. COST OR @320. PER SF.	501	1 LS	0	0	0	0	13147	0	0	13147
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	38,811	0	0	38,811
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 28.44% - CONTINGENCY 40.00 %)			0	0	0	0	38,811	0	0	38,811
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	38,811	0	0	38,811

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320003	HVAC										
320003.15	MECHANICAL										
320003.1500002	THIS IS COST FOR HVAC OF THE 41,085 SF BLDG 11 IS THE PARAMETRIC EST. AND COVERS CSI 15.	501	1 LS	0	0	0	0	5033	0	0	5033
SUBTOTAL	MECHANICAL			0	0	0	0	5,033	0	0	5,033
TOTAL	COST CODE 50115 WBS 320003 (ESCALATION 28.44% CONTINGENCY 40.00 %)			0	0	0	0	5,033	0	0	5,033
TOTAL WBS 320003 HVAC				0	0	0	0	5,033	0	0	5,033

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320004	ELEC/MECH										
320004.16	ELECTRICAL										
320004.1600002	THE PARMETRIC EST. COMBINES CSI 16 AND 15 (PIPING) THE COST REPRESENTS ELEC/MECH FOR THE 41,085 SQFT BLDG.	501	1 LS	0	0	0	0	21374	0	0	21374
SUBTOTAL	ELECTRICAL			0	0	0	0	21,374	0	0	21,374
TOTAL	COST CODE 50116 WBS 320004 (ESCALATION 28.44% - CONTINGENCY 40.00 %)			0	0	0	0	21,374	0	0	21,374
TOTAL WBS 320004 ELEC/MECH				0	0	0	0	21,374	0	0	21,374

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	5217	0	0	5217
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	5,217	0	0	5,217
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 28.44% CONTINGENCY 30.00 %)			0	0	0	0	5,217	0	0	5,217
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	5,217	0	0	5,217

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330100	DECONTAMINATION										
330100.01	GENERAL REQUIRMENTS										
330100.0100002	DECONTAMINATION	810	1 LS	0	0	0	0	97208	0	0	97208
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	97,208	0	0	97,208
TOTAL	COST CODE 81001 WBS 330100 (ESCALATION 189.20% - CONTINGENCY 45.00 %)			0	0	0	0	97,208	0	0	97,208
TOTAL WBS 330100 DECONTAMINATION				0	0	0	0	97,208	0	0	97,208

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CR LEMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	5769	0	0	5769
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	5,769	0	0	5,769
TOTAL	COST CODE 81001 WBS 330200 (ESCALATION 219.65% - CONTINGENCY 35.00 %)			0	0	0	0	5,769	0	0	5,769
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	5,769	0	0	5,769

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	4565	0	0	4565
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	4,565	0	0	4,565
TOTAL	COST CODE 50119 WBS 400000 (ESCALATION 23.33% - CONTINGENCY 30.00 %)			0	0	0	0	4,565	0	0	4,565
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	4,565	0	0	4,565

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 3

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CH LLMW/PF)
PARAMETRIC R.O.M. ESTIMATE
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	235,368	0	0	235,368

Detailed Cost Estimate for Alternative 2 - Building 5

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	117,903,000	57,224,265	175,127,265	52,538,179	227,665,444
CONSTRUCTION	393,011,000	220,087,329	613,098,329	245,239,331	858,337,660
CONSTRUCTION MGMT	31,441,000	17,903,903	49,344,903	14,803,471	64,148,374
WHC PROJ MGMT	27,511,000	13,870,496	41,381,496	12,414,449	53,795,945
TEC	**569,866,000**	**309,085,992**	**878,951,992**	**324,995,431**	**1,203,947,423**
OTHER PROJECT COST	227,946,000	93,661,169	321,607,169	96,482,151	418,089,320
OM&R LCC	0	0	0	0	0
D & D	23,928,000	50,111,910	74,039,910	25,913,968	99,953,878
TOTAL PROJECT COST (TPC)	**821,740,000**	**452,859,071**	**1,274,599,071**	**447,391,550**	**1,721,990,621**

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2005	33,013,000	13,472,605	46,485,605	13,945,682	60,431,287
CY 2006	24,759,500	11,255,669	36,015,169	10,804,551	46,819,719
CY 2007	29,759,500	14,957,125	44,716,625	13,414,987	58,131,612
CY 2008	15,371,000	8,487,866	23,858,866	7,157,660	31,016,526
CY 2009	15,000,000	9,051,000	24,051,000	7,215,300	31,266,300
TOTAL	**117,903,000**	**57,224,265**	**175,127,265**	**52,538,179**	**227,665,444**

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2007	93,011,000	46,747,329	139,758,329	55,903,331	195,661,660
CY 2008	150,000,000	82,830,000	232,830,000	93,132,000	325,962,000
CY 2009	150,000,000	90,510,000	240,510,000	96,204,000	336,714,000
TOTAL	**393,011,000**	**220,087,329**	**613,098,329**	**245,239,331**	**858,337,660**

CONSTR MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2007	3,493,444	1,755,805	5,249,249	1,574,775	6,824,024
CY 2008	13,973,778	7,716,320	21,690,098	6,507,029	28,197,128
CY 2009	13,973,778	8,431,778	22,405,556	6,721,667	29,127,222
TOTAL	31,441,000	17,903,903	49,344,903	14,803,471	64,148,374

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2028	10,000,000	19,713,000	29,713,000	10,399,550	40,112,550
CY 2029	10,000,000	20,694,000	30,694,000	10,742,900	41,436,900
CY 2030	3,928,000	9,704,910	13,632,910	4,771,518	18,404,428
TOTAL	23,928,000	50,111,910	74,039,910	25,913,968	99,953,878

WHC-PM

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2005	5,502,200	2,245,448	7,747,648	2,324,294	10,071,942
CY 2006	5,502,200	2,501,300	8,003,500	2,401,050	10,404,550
CY 2007	5,502,200	2,765,406	8,267,606	2,480,282	10,747,887
CY 2008	5,502,200	3,038,315	8,540,515	2,562,154	11,102,669
CY 2009	5,502,200	3,320,027	8,822,227	2,646,668	11,468,896
TOTAL	27,511,000	13,870,496	41,381,496	12,414,449	53,795,945

5/17/95 M33A2052.XLS

OPC

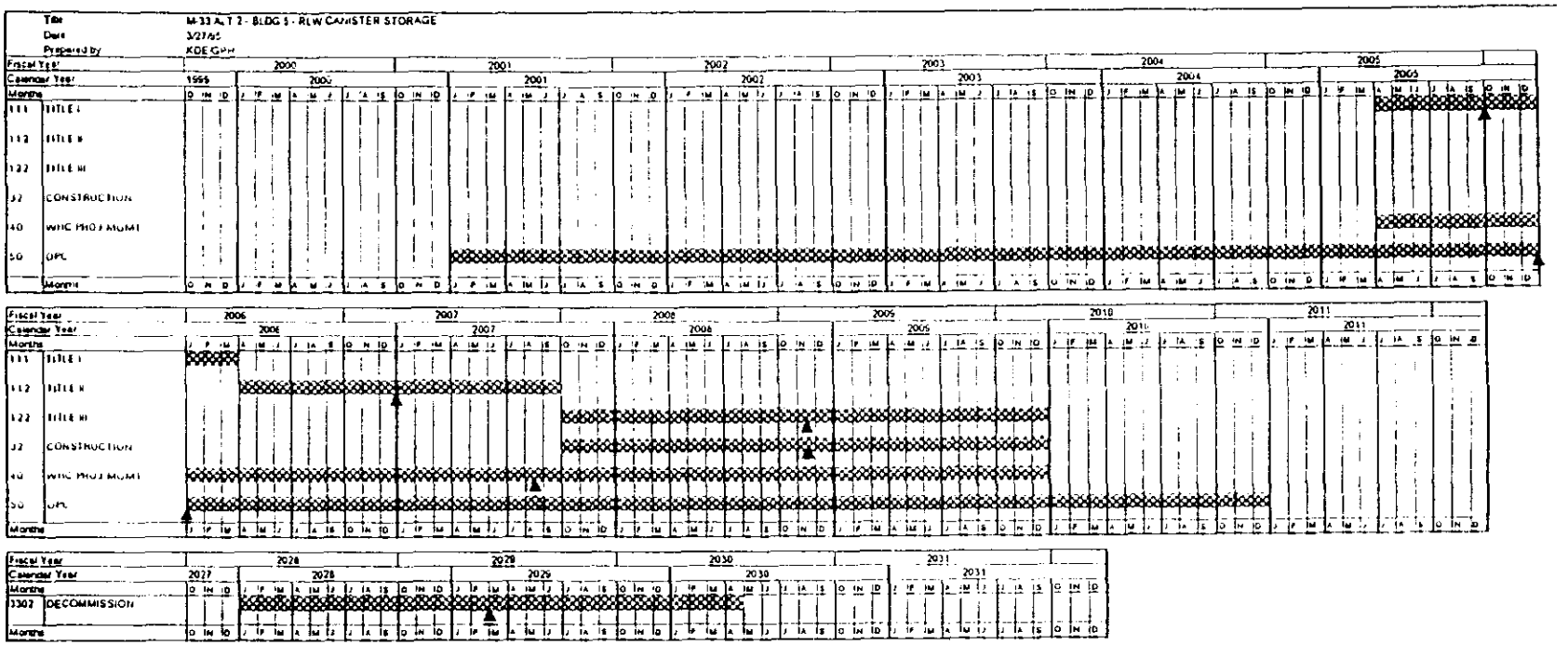
	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	25,643,925	5,218,539	30,862,464	9,258,739	40,121,203
CY 2002	25,643,925	6,144,284	31,788,209	9,536,463	41,324,672
CY 2003	25,643,925	7,098,238	32,742,163	9,822,649	42,564,812
CY 2004	25,643,925	8,080,401	33,724,326	10,117,298	43,841,623
CY 2005	4,558,920	1,616,593	6,175,513	1,852,654	8,028,167
CY 2006	4,558,920	1,801,685	6,360,605	1,908,182	8,268,787
CY 2007	4,558,920	1,992,704	6,551,624	1,965,487	8,517,111
CY 2008	4,558,920	2,189,193	6,748,113	2,024,434	8,772,547
CY 2009	34,558,920	18,129,609	52,688,529	15,806,559	68,495,088
CY 2010	72,575,700	41,389,922	113,965,622	34,189,687	148,155,308
TOTAL	**227,946,000**	**93,661,169**	**321,607,169**	**96,482,151**	**418,089,320**

5/17/95 M33A2052.XLS

ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE

Title: M-33 ALT 2 - BLDG 5 - RLW CANISTER STORAGE
Date: 3/27/95
Prepared by: KDE GPH



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID PONT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	2005	OCT	41.86
112	TITLE II	2007	JAN	47.84
122	TITLE III	2006	DEC	57.33
32	CONSTRUCTION	2008	DEC	57.33
3302	DECOMMISSION	2029	MARCH	203.64
40	WHC PROJ MGMT	2007	SEPT	51.08
50	OPC	2006	JAN	37.48

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.64	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.65	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.66
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.28	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.96	272.95	273.98	274.98	275.99	277.01	278.03

BY PERCENT

3/27/95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

3/27/95

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5
FILE NO. M33A2052

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/17/95 11:20:04
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	46,865	30	14,060	60,925
020	TITLE II	73,209	30	21,963	95,172
030	TITLE III	55,649	30	16,695	72,344
501	BUILDINGS	709,354	39	274,639	983,993
810	DECONTAMINATE & DECOMMISSION	72,655	35	25,429	98,084
900	OTHER PROJECT COST	313,380	30	94,014	407,394
	PROJECT TOTAL	1,271,112	35	446,800	1,717,912

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 17, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. #2 - BLDG 5 - RLW CANISTER STORAGE

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5
FILE NO. M33A2052

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/17/95 11:20:26
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	33013	0	33013	41.96	13852	46865	30	14060	60925
112100	TITLE II	49519	0	49519	47.84	23690	73209	30	21963	95172
SUBTOTAL 11	DEFINITIVE DESIGN	82532	0	82532	45.49	37542	120074	30	36023	156097
122000	TITLE III	35371	0	35371	57.33	20278	55649	30	16695	72344
SUBTOTAL 12	ENGINEERING/INSPECTION	35371	0	35371	57.33	20278	55649	30	16695	72344
SUBTOTAL 1	ENGINEERING	117903	0	117903	49.04	57820	175723	30	52718	228441
320002	BLDG STRUCTURE	159481	0	159481	57.33	91430	250911	40	100365	351276
320003	HVAC	20582	0	20582	57.33	11800	32382	40	12953	45334
320004	ELEC/MECH	212948	0	212948	57.33	122083	335031	40	134012	469044
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	393011	0	393011	57.33	225313	618324	40	247330	865654
321000	CONSTRUCTION MANAGEMENT	31441	0	31441	57.33	18025	49466	30	14840	64306
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	424452	0	424452	57.33	243338	667790	39	262170	929960
330200	DECOMMISSION	23928	0	23928	203.64	48727	72655	35	25429	98084
SUBTOTAL 33	D & D	23928	0	23928	203.64	48727	72655	35	25429	98084
SUBTOTAL 3	CONSTRUCTION	448380	0	448380	65.14	292065	740445	39	287599	1028044
400000	WHC PROJ MGMT	27511	0	27511	51.08	14053	41564	30	12469	54033
SUBTOTAL 4	PROJECT MANAGEMENT	27511	0	27511	51.08	14053	41564	30	12469	54033
500000	OTHER PROJECT COST	227946	0	227946	37.48	85434	313380	30	94014	407394
SUBTOTAL 5	OTHER PROJECT COST	227946	0	227946	37.48	85434	313380	30	94014	407394

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5
FILE NO. M33A2052

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

PAGE 3 OF 10
DATE 05/17/95 10:20:26
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
PROJECT TOTAL		821,740	0	821,740	54.69	449,372	1,271,112	35	446,800	1,717,912

1. DOCUMENTS AND DRAWINGS

DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES

A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET EQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10-01-94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012).

B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS

(WHC FUNDED EXPENSE)

A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)

B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL:

5. ESCALATION

ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE 1-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE 1-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS

A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST-C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDINGS.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SQFT COST FOR SIMILAR FACILITIES.
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICE-KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5
FILE NO. M33A2052

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 05/17/95 11:20:36
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010 TITLE I										
111200	TITLE I	33013	0	33013	41.96	13852	46865	30	14060	60925
TOTAL 010	TITLE I	33013	0	33013	41.96	13852	46865	30	14060	60925
020 TITLE II										
112100	TITLE II	49519	0	49519	47.84	23690	73209	30	21963	95172
TOTAL 020	TITLE II	49519	0	49519	47.84	23690	73209	30	21963	95172
030 TITLE III										
122000	TITLE III	35371	0	35371	57.33	20278	55649	30	16695	72344
TOTAL 030	TITLE III	35371	0	35371	57.33	20278	55649	30	16695	72344
501 BUILDINGS										
320002	BLDG STRUCTURE	159481	0	159481	57.33	91430	250911	40	100365	351276
320003	HVAC	20582	0	20582	57.33	11800	32382	40	12953	45334
320004	ELEC/MECH	212948	0	212948	57.33	122083	335031	40	134012	469044
321000	CONSTRUCTION MANAGEMENT	31441	0	31441	57.33	18025	49466	30	14840	64306
400000	WHC PROJ MGMT	27511	0	27511	51.08	14053	41564	30	12469	54033
TOTAL 501	BUILDINGS	451963	0	451963	56.95	257391	709354	39	274639	983993
810 DECONTAMINATE & DECOMMISSION										
330200	DECOMMISSION	23928	0	23928	203.64	48727	72655	35	25429	98084
TOTAL 810	DECONTAMINATE & DECOMMISSION	23928	0	23928	203.64	48727	72655	35	25429	98084
900 OTHER PROJECT COST										

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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FILE NO. M33A2052

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 05/17/95 11:20:36
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	227946	0	227946	37.48	85434	313380	30	94014	407394
TOTAL 900	OTHER PROJECT COST	227946	0	227946	37.48	85434	313380	30	94014	407394
PROJECT TOTAL		821,740	0	821,740	54.69	449,372	1,271,112	35	446,800	1,717,912

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5
FILE NO. M33A2052

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

PAGE 8 OF 10
DATE 05/17/95 11:20:47
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	149344	0	149344	50.79	75845	225189	30	67558	292747
01	GENERAL REQUIRMENTS	23928	0	23928	203.64	48727	72655	35	25429	98084
13	SPECIAL CONSTRUCTION	159481	0	159481	57.33	91430	250911	40	100365	351276
15	MECHANICAL	20582	0	20582	57.33	11800	32382	40	12953	45334
16	ELECTRICAL	212948	0	212948	57.33	122083	335031	40	134012	469044
19	PROJECT MANAGEMENT	27511	0	27511	51.08	14053	41564	30	12469	54033
20	OTHER PROJECT COST	227946	0	227946	37.48	85434	313380	30	94014	407394
TOTAL CONSTRUCTION			0			449,372			446,800	
		821,740		821,740	54.69		1,271,112	35		1,717,912
PROJECT TOTAL			0			449,372			446,800	
		821,740		821,740	54.69		1,271,112	35		1,717,912

REFERENCE: ESTIMATE BASIS SHEET — PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY — PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPERIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 39%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 35%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5
FILE NO. M33A2052

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/17/95 11:20:54
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT %	ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	33013	0.00	0	0	0	0
112100	TITLE II	49519	0.00	0	0	0	0
122000	TITLE III	35371	0.00	0	0	0	0
320002	BLDG STRUCTURE	159481	0.00	0	0	0	0
320003	HVAC	20582	0.00	0	0	0	0
320004	ELEC/MECH	212948	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	31441	0.00	0	0	0	0
330200	DECOMMISSION	23928	0.00	0	0	0	0
400000	WHC PROJ MGMT	27511	0.00	0	0	0	0
500000	OTHER PROJECT COST	227946	0.00	0	0	0	0
PROJECT TOTAL		821,740		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/17/95 11:21:02
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	33013	0	0	33013
	CAT 1 23,581,000 6%										
	CAT 2 58,952,000 15%, 40%										
	OF 1&2 = 82,532,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	33,013	0	0	33,013
TOTAL	COST CODE 01000			0	0	0	0	33,013	0	0	33,013
	WBS 111200										
	(ESCALATION 41.96% - CONTINGENCY 30.00 %)										
TOTAL WBS 111200 TITLE I				0	0	0	0	33,013	0	0	33,013

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/17/95 11:21:03
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	49519	0	0	49519
	CAT 1 23,581,000 6%										
	CAT 2 58,952,000 15%. 60%										
	OF 1&2 =82,532,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	49,519	0	0	49,519
TOTAL	COST CODE 02000			0	0	0	0	49,519	0	0	49,519
	WBS 112100										
	(ESCALATION 47.84% CONTINGENCY 30.00 %)										
TOTAL WBS 112100 TITLE II				0	0	0	0	49,519	0	0	49,519

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 3
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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST	030	1 LS	0	0	0	0	35371	0	0	35371
	SAME AS TITLE III										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	35,371	0	0	35,371
TOTAL	COST CODE 03000			0	0	0	0	35,371	0	0	35,371
	WBS 122000										
	(ESCALATION 57.33% - CONTINGENCY		30.00 %)								
TOTAL WBS 122000 TITLE III				0	0	0	0	35,371	0	0	35,371

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 5

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RLW CS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR STRUCTURE OF THE 170,400 SF BLDG IS FROM THE PARAMETRIC EST. AND COVERS CSI 03-13 (EXCLUDES EQUIP.)	501	1 LS	0	0	0	0	104953	0	0	104953
320002.1300004	COST FOR EQUIPMENT IS AN ALLOWANCE BASED ON SIMILAR PROJECTS & REPRESENTS 23% OF CONST. COST OR @320. PER SF.	501	1 LS	0	0	0	0	54528	0	0	54528
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	159,481	0	0	159,481
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 57.33% - CONTINGENCY 40.00 %)			0	0	0	0	159,481	0	0	159,481
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	159,481	0	0	159,481

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320003	HVAC										
320003.15	MECHANICAL										
320003.1500002	THIS IS COST FOR HVAC OF THE 170,400 SF BLDG IT IS THE PARAMETRIC EST. AND COVERS CSI 15.	501	1 LS	0	0	0	0	20582	0	0	20582
SUBTOTAL	MECHANICAL			0	0	0	0	20,582	0	0	20,582
TOTAL	COST CODE 50115			0	0	0	0	20,582	0	0	20,582
	WBS 320003										
	(ESCALATION 57.33% - CONTINGENCY 40.00 %)										
TOTAL WBS 320003 HVAC				0	0	0	0	20,582	0	0	20,582

KAISER ENGINEERS HANFORD
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320004	ELEC/MECH										
320004.16	ELECTRICAL										
320004.1600002	THE PARMETRIC EST. COMBINES CSI 16 AND 15 (PIPING) THE COST REPRESENTS ELEC/MECH FOR THE 170,400 SQFT BLDG.	501	1 LS	0	0	0	0	212948	0	0	212948
SUBTOTAL	ELECTRICAL			0	0	0	0	212,948	0	0	212,948
TOTAL	COST CODE 50116 WBS 320004 (ESCALATION 57.33% CONTINGENCY 40.00 %)			0	0	0	0	212,948	0	0	212,948
TOTAL WBS 320004 ELEC/MECH				0	0	0	0	212,948	0	0	212,948

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	31441	0	0	31441
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	31,441	0	0	31,441
TOTAL	COST CODE 50100			0	0	0	0	31,441	0	0	31,441
	WBS 321000										
	(ESCALATION 57.33% - CONTINGENCY 30.00 %)										
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	31,441	0	0	31,441

KAISER ENGINEERS HANFORD
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIREMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	23928	0	0	23928
SUBTOTAL	GENERAL REQUIREMENTS			0	0	0	0	23,928	0	0	23,928
TOTAL	COST CODE 81001			0	0	0	0	23,928	0	0	23,928
	WBS 330200										
	(ESCALATION 203.64% - CONTINGENCY		35.00 %)								
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	23,928	0	0	23,928

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WESTINGHOUSE HANFORD COMPANY
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	27511	0	0	27511
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	27,511	0	0	27,511
TOTAL	COST CODE 50119 WBS 400000 (ESCALATION 51.08% - CONTINGENCY 30.00 %)			0	0	0	0	27,511	0	0	27,511
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	27,511	0	0	27,511

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE ANS IS APROX 40% OF THE TEC 569,866,000	900	1 LS	0	0	0	0	227946	0	0	227946
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	227,946	0	0	227,946
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 37.48% - CONTINGENCY 30.00 %)			0	0	0	0	227,946	0	0	227,946
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	227,946	0	0	227,946

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** TEST - INTERACTIVE ESTIMATING **
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	821,740	0	0	821,740

Detailed Cost Estimate for Alternative 2 - Building 6, 7, 8, & 10

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	136,573,000	29,519,464	166,092,464	49,827,739	215,920,203
CONSTRUCTION	455,243,000	122,513,530	577,756,530	231,102,612	808,859,142
CONSTRUCTION MGMT	36,419,000	10,117,198	46,536,198	13,960,859	60,497,058
WHC PROJ MGMT	31,867,000	7,293,294	39,160,294	11,748,088	50,908,382
TEC	660,102,000	169,443,486	829,545,486	306,639,299	1,136,184,785
OTHER PROJECT COST	264,041,000	47,811,760	311,852,760	93,555,828	405,408,588
OM&R LCC	0	0	0	0	0
D & D	42,102,000	78,251,619	120,353,619	42,123,767	162,477,386
TOTAL PROJECT COST (TPC)	966,245,000	295,506,866	1,261,751,866	442,318,894	1,704,070,759

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	38,240,000	6,076,336	44,316,336	13,294,901	57,611,237
CY 2000	38,240,667	7,537,235	45,777,902	13,733,371	59,511,273
CY 2001	29,363,333	6,947,365	36,310,698	10,893,209	47,203,907
CY 2002	20,486,000	5,684,865	26,170,865	7,851,260	34,022,125
CY 2003	10,243,000	3,273,663	13,516,663	4,054,999	17,571,662
TOTAL	**136,573,000**	**29,519,464**	**166,092,464**	**49,827,739**	**215,920,203**

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	185,770,250	43,953,241	229,723,491	91,889,396	321,612,888
CY 2002	179,648,500	49,852,459	229,500,959	91,800,384	321,301,342
CY 2003	89,824,250	28,707,830	118,532,080	47,412,832	165,944,912
TOTAL	455,243,000	122,513,530	577,756,530	231,102,612	808,859,142

CONSTR-MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	9,104,750	2,154,184	11,258,934	3,377,680	14,636,614
CY 2002	18,209,500	5,053,136	23,262,636	6,978,791	30,241,427
CY 2003	9,104,750	2,909,878	12,014,628	3,604,388	15,619,017
TOTAL	36,419,000	10,117,198	46,536,198	13,960,859	60,497,058

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2026	16,840,800	30,052,408	46,893,208	16,412,623	63,305,830
CY 2027	16,840,800	31,600,077	48,440,877	16,954,307	65,395,184
CY 2028	8,420,400	16,599,135	25,019,535	8,756,837	33,776,372
TOTAL	42,102,000	78,251,619	120,353,619	42,123,767	162,477,386

WHC-PM

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	7,081,556	1,125,259	8,206,815	2,462,045	10,668,860
CY 2000	7,081,556	1,395,775	8,477,331	2,543,199	11,020,530
CY 2001	7,081,556	1,675,496	8,757,052	2,627,116	11,384,168
CY 2002	7,081,556	1,965,132	9,046,688	2,714,006	11,760,694
CY 2003	3,540,776	1,131,632	4,672,408	1,401,722	6,074,130
TOTAL	31,867,000	7,293,294	39,160,294	11,748,088	50,908,382

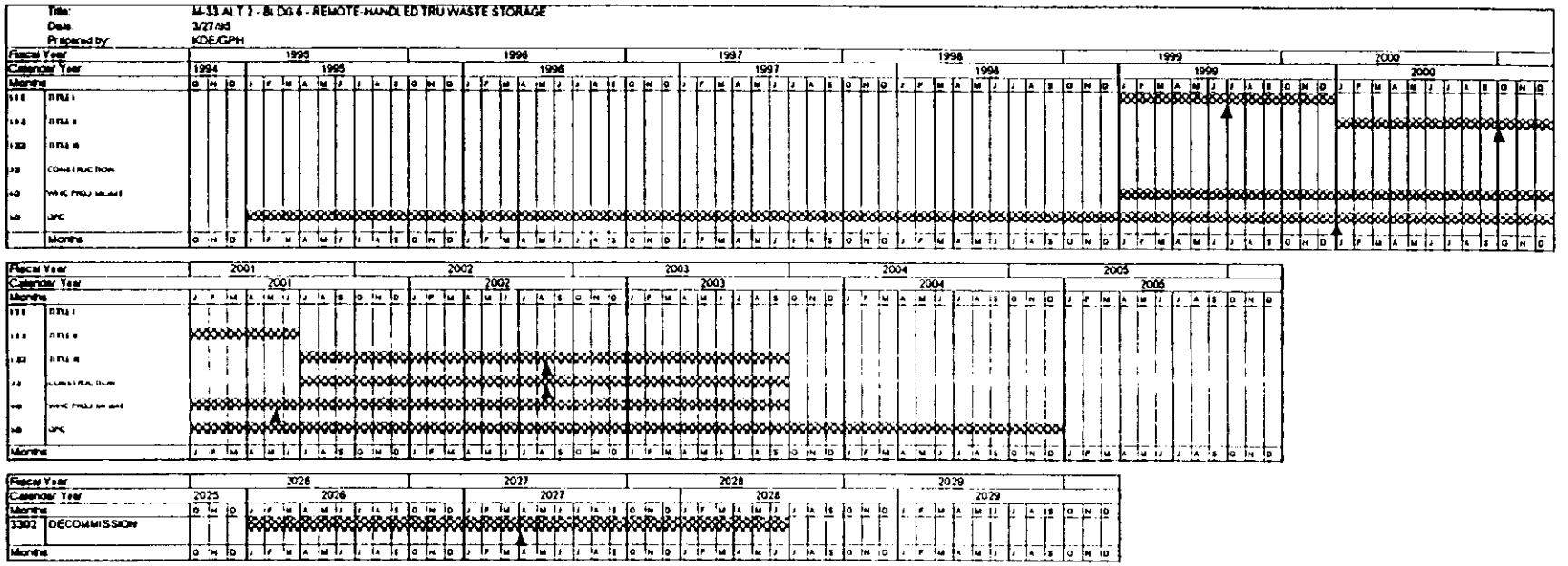
OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	18,818,450	175,012	18,993,462	5,698,038	24,691,500
CY 1996	33,333,333	1,280,000	34,613,333	10,384,000	44,997,333
CY 1997	33,333,333	2,310,000	35,643,333	10,693,000	46,336,333
CY 1998	33,333,333	3,380,000	36,713,333	11,014,000	47,727,333
CY 1999	6,000,000	807,000	6,807,000	2,042,100	8,849,100
CY 2000	6,000,001	1,011,000	7,011,001	2,103,300	9,114,302
CY 2001	6,000,000	1,221,000	7,221,000	2,166,300	9,387,300
CY 2002	6,000,000	1,437,600	7,437,600	2,231,280	9,668,880
CY 2003	52,404,100	14,505,455	66,909,555	20,072,866	86,982,421
CY 2004	68,818,450	21,684,694	90,503,144	27,150,943	117,654,087
TOTAL	264,041,000	47,811,760	311,852,760	93,555,828	405,408,588

ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE

Title: M-33 ALT 2 - BLDG 6 - REMOTE-HANDLED TRU WASTE STORAGE
Date: 3/27/95
Prepared by: KDE/GPH



—TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS				
		MID PONT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	1999	JULY	15.89
112	TITLE II	2000	OCT	20.69
122	TITLE III	2002	SEPT	28.44
32	CONSTRUCTION	2002	SEPT	28.44
3302	DECOMMISSION	2027	APRIL	185.32
40	WHC PROJ MGMT	2001	JUNE	23.33
50	OPC	2000	JAN	15.13

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.38	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.64	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.64	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.46	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3/27/95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10
FILE NO. M33A2062

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/17/95 12:43:58
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	44,316	30	13,295	57,611
020	TITLE II	69,229	30	20,769	89,998
030	TITLE III	52,624	30	15,787	68,411
501	BUILDINGS	670,792	39	259,708	930,500
810	DECONTAMINATE & DECOMMISSION	120,125	35	42,044	162,169
900	OTHER PROJECT COST	303,990	30	91,197	395 187
	PROJECT TOTAL	1,261,076	35	442,800	1,703,876

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 17, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. #2 - BLDG 6,7,8&10 - REMOTE-HANDLED TRU WASTE STORAGE
- REMOTE-HANDLED LLMW STORAGE
- REMOTE-HANDLED GTC3 LLW STORAGE
- MISCELLANEOUS RH SOURCES

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10
FILE NO. M33A2062

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/17/95 12:44:03
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	38240	0	38240	15.89	6076	44316	30	13295	57611
112100	TITLE II	57361	0	57361	20.69	11868	69229	30	20769	89998
SUBTOTAL 11	DEFINITIVE DESIGN	95601	0	95601	18.77	17944	113545	30	34064	147609
122000	TITLE III	40972	0	40972	28.44	11652	52624	30	15787	68412
SUBTOTAL 12	ENGINEERING/INSPECTION	40972	0	40972	28.44	11652	52624	30	15787	68412
SUBTOTAL 1	ENGINEERING	136573	0	136573	21.67	29596	166169	30	49851	216021
320002	BLDG STRUCTURE	272164	0	272164	28.44	77403	349567	40	139827	489394
320003	HVAC	36366	0	36366	28.44	10342	46708	40	18683	65392
320004	ELEC/MECH	146713	0	146713	28.44	41725	188438	40	75375	263813
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	455243	0	455243	28.44	129470	584713	40	233885	818599
321000	CONSTRUCTION MANAGEMENT	36419	0	36419	28.44	10358	46777	30	14033	60810
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	491662	0	491662	28.44	139828	631490	39	247918	879409
330200	DECOMMISSION	42102	0	42102	185.32	78023	120125	35	42044	162169
SUBTOTAL 33	D & D	42102	0	42102	185.32	78023	120125	35	42044	162169
SUBTOTAL 3	CONSTRUCTION	533764	0	533764	40.81	217851	751615	39	289962	1041578
400000	WHC PROJ MGMT	31867	0	31867	23.33	7435	39302	30	11790	51092
SUBTOTAL 4	PROJECT MANAGEMENT	31867	0	31867	23.33	7435	39302	30	11790	51092
500000	OTHER PROJECT COST	264041	0	264041	15.13	39949	303990	30	91197	395188
SUBTOTAL 5	OTHER PROJECT COST	264041	0	264041	15.13	39949	303990	30	91197	395188

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10
FILE NO. M33A2062

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/17/95 12:44:03
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
PROJECT TOTAL		966,245	0	966,245	30.51	294,831	1,261,076	35	442,800	1,703,879

1. DOCUMENTS AND DRAWINGS

DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES

A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10-01-94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012).
B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS

(WHC FUNDED EXPENSE)
A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)
B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL:

5. ESCALATION

ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE I-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE I-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS

A.) ENGINEERING FOR TITLE 1, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST-C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDINGS.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SQFT COST FOR SIMILAR FACILITIES.
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICF KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10
FILE NO. M33A2062

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/17/95 12:44:09
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	38240	0	38240	15.89	6076	44316	30	13295	57611
TOTAL 010	TITLE I	38240	0	38240	15.89	6076	44316	30	13295	57611
020	TITLE II									
112100	TITLE II	57361	0	57361	20.69	11868	69229	30	20769	89998
TOTAL 020	TITLE II	57361	0	57361	20.69	11868	69229	30	20769	89998
030	TITLE III									
122000	TITLE III	40972	0	40972	28.44	11652	52624	30	15787	68412
TOTAL 030	TITLE III	40972	0	40972	28.44	11652	52624	30	15787	68412
501	BUILDINGS									
320002	BLDG STRUCTURE	272164	0	272164	28.44	77403	349567	40	139827	489394
320003	HVAC	36366	0	36366	28.44	10342	46708	40	18683	65392
320004	ELEC/MECH	146713	0	146713	28.44	41725	188438	40	75375	263813
321000	CONSTRUCTION MANAGEMENT	36419	0	36419	28.44	10358	46777	30	14033	60810
400000	WHC PROJ MGMT	31867	0	31867	23.33	7435	39302	30	11790	51092
TOTAL 501	BUILDINGS	523529	0	523529	28.13	147263	670792	39	259708	930501
810	DECONTAMINATE & DECOMMISSION									
330200	DECOMMISSION	42102	0	42102	185.32	78023	120125	35	42044	162169
TOTAL 810	DECONTAMINATE & DECOMMISSION	42102	0	42102	185.32	78023	120125	35	42044	162169
900	OTHER PROJECT COST									

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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FILE NO. M33A2062

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/17/95 12:44:09
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	264041	0	264041	15.13	39949	303990	30	91197	395188
TOTAL 900	OTHER PROJECT COST	264041	0	264041	15.13	39949	303990	30	91197	395188
PROJECT TOTAL		966,245	0	966,245	30.51	294,831	1,261,076	35	442,800	1,703,879

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10
FILE NO. M33A2062

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROS - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/17/95 12:44:13
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	172992	0	172992	23.10	39954	212946	30	63884	276831
01	GENERAL REQUIRMENTS	42102	0	42102	185.32	78023	120125	35	42044	162169
13	SPECIAL CONSTRUCTION	272164	0	272164	28.44	77403	349567	40	139827	489394
15	MECHANICAL	36366	0	36366	28.44	10342	46708	40	18683	65392
16	ELECTRICAL	146713	0	146713	28.44	41725	188438	40	75375	263813
19	PROJECT MANAGEMENT	31867	0	31867	23.33	7435	39302	30	11790	51092
20	OTHER PROJECT COST	264041	0	264041	15.13	39949	303990	30	91197	395188
TOTAL CONSTRUCTION			0			294,831			442,800	
		966,245		966,245	30.51		1,261,076	35		1,703,879
PROJECT TOTAL			0			294,831			442,800	
		966,245		966,245	30.51		1,261,076	35		1,703,879

REFERENCE: ESTIMATE BASIS SHEET PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPEIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 39%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 35%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10
FILE NO. M33A2062

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/17/95 12:44:18
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT ADMINISTRATION %	CONTRACT ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	38240	0.00	0	0	0	0
112100	TITLE II	57361	0.00	0	0	0	0
122000	TITLE III	40972	0.00	0	0	0	0
320002	BLDG STRUCTURE	272164	0.00	0	0	0	0
320003	HVAC	36366	0.00	0	0	0	0
320004	ELEC/MECH	146713	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	36419	0.00	0	0	0	0
330200	DECOMMISSION	42102	0.00	0	0	0	0
400000	WHC PROJ MGMT	31867	0.00	0	0	0	0
500000	OTHER PROJECT COST	264041	0.00	0	0	0	0
PROJECT TOTAL		966,245		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BL06,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/17/95 12:44:23
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	38240	0	0	38240
	CAT 1 27,315,000 6%										
	CAT 2 68,286,000 15%, 40%										
	OF 1&2 = 95,601,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	38,240	0	0	38,240
TOTAL	COST CODE 01000			0	0	0	0	38,240	0	0	38,240
	WBS 111200										
	(ESCALATION 15.89% - CONTINGENCY 30.00 %)										
TOTAL WBS 111200 TITLE I				0	0	0	0	38,240	0	0	38,240

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/17/95 12:44:24
BY GPN

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	57361	0	0	57361
	CAT 1 27,315,000 6%										
	CAT 2 68,286,000 15%. 60%										
	OF 1&2 =95,601,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	57,361	0	0	57,361
TOTAL	COST CODE 02000			0	0	0	0	57,361	0	0	57,361
	WBS 112100										
	(ESCALATION 20.69% - CONTINGENCY 50.00 %)										
TOTAL WBS 112100 TITLE II				0	0	0	0	57,361	0	0	57,361

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST SAME AS TITLE III	030	1 LS	0	0	0	0	40972	0	0	40972
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	40,972	0	0	40,972
TOTAL	COST CODE 03000 WBS 122000 (ESCALATION 28.44% - CONTINGENCY 30.00 %)			0	0	0	0	40,972	0	0	40,972
TOTAL WBS 122000 TITLE III				0	0	0	0	40,972	0	0	40,972

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. H33/BLD6,7,8,10

** IEST - INTERACTIVE ESTIMATING **
H-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR STRUCTURE OF THE 299,830 SF BLDG IS FROM THE PARAMETRIC EST. AND COVERS CSI 03-13 (EXCLUDES EQUIP.)	501	1 LS	0	0	0	0	176218	0	0	176218
320002.1300004	COST FOR EQUIPMENT IS AN ALLOWANCE BASED ON SIMILAR PROJECTS & REPRESENTS 23% OF CONST. COST OR @320. PER SF.	501	1 LS	0	0	0	0	95946	0	0	95946
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	272,164	0	0	272,164
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 28.44% - CONTINGENCY 40.00 %)			0	0	0	0	272,164	0	0	272,164
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	272,164	0	0	272,164

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320003	HVAC										
320003.15	MECHANICAL										
320003.1500002	THIS IS COST FOR HVAC OF THE 299,830 SF BLDG IT IS THE PARAMETRIC EST. AND COVERS CSI 15.	501	1 LS	0	0	0	0	36366	0	0	36366
SUBTOTAL	MECHANICAL			0	0	0	0	36,366	0	0	36,366
TOTAL	COST CODE 50115 WBS 320003 (ESCALATION 28.44% CONTINGENCY 40.00 %)			0	0	0	0	36,366	0	0	36,366
TOTAL WBS 320003 HVAC				0	0	0	0	36,366	0	0	36,366

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320004	ELEC/MECH										
320004.16	ELECTRICAL										
320004.1600002	THE PARMETRIC EST. COMBINES CSI 16 AND 15 (PIPING) THE COST REPRESENTS ELEC/MECH FOR THE 299,830 SQFT BLDG.	501	1 LS	0	0	0	0	146713	0	0	146713
SUBTOTAL	ELECTRICAL			0	0	0	0	146,713	0	0	146,713
TOTAL	COST CODE 50116 WBS 320004 (ESCALATION 28 44% - CONTINGENCY 40 00 %)			0	0	0	0	146,713	0	0	146,713
TOTAL WBS 320004 ELEC/MECH				0	0	0	0	146,713	0	0	146,713

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE 28% OF CONST.	501	1 LS	0	0	0	0	36419	0	0	36419
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	36,419	0	0	36,419
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 28.44% - CONTINGENCY 30.00 %)			0	0	0	0	36,419	0	0	36,419
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	36,419	0	0	36,419

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	42102	0	0	42102
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	42,102	0	0	42,102
TOTAL	COST CODE 81001			0	0	0	0	42,102	0	0	42,102
	WBS 330200										
	(ESCALATION 185.32% - CONTINGENCY 35.00 %)										
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	42,102	0	0	42,102

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	31867	0	0	31867
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	31,867	0	0	31,867
TOTAL	COST CODE 50119			0	0	0	0	31,867	0	0	31,867
	WBS 400000										
	(ESCALATION 23.33% - CONTINGENCY 30.00 %)										
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	31,867	0	0	31,867

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE ANS IS APROX 40% OF THE TEC 660,102,000	900	1 LS	0	0	0	0	264041	0	0	264041
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	264,041	0	0	264,041
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 15.13% CONTINGENCY 30.00 %)			0	0	0	0	264,041	0	0	264,041
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	264,041	0	0	264,041

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLD6,7,8,10

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (RH STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	966,245	0	0	966,245

Detailed Cost Estimate for Alternative 2 - Building 9

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	722,000	142,491	864,491	259,347	1,123,838
CONSTRUCTION	2,407,000	610,396	3,017,396	1,206,958	4,224,355
CONSTRUCTION MGMT	193,000	48,936	241,936	72,581	314,517
WHC PROJ MGMT	169,000	35,314	204,314	61,294	265,608
TEC	**3,491,000**	**837,137**	**4,328,137**	**1,600,181**	**5,928,317**
OTHER PROJECT COST	1,397,000	223,893	1,620,893	486,268	2,107,161
OM&R LCC	0	0	0	0	0
D & D	158,000	390,371	548,371	191,930	740,300
TOTAL PROJECT COST (TPC)	**5,046,000**	**1,451,400**	**6,497,400**	**2,278,378**	**8,775,778**

5/17/95 M33A2092 XLS

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	302,000	47,988	349,988	104,996	454,984
CY 2000	203,000	40,011	243,011	72,903	315,915
CY 2001	140,000	33,124	173,124	51,937	225,061
CY 2002	77,000	21,368	98,368	29,510	127,878
TOTAL	**722,000**	**142,491**	**864,491**	**259,347**	**1,123,838**

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	1,407,000	332,896	1,739,896	695,958	2,435,855
CY 2002	1,000,000	277,500	1,277,500	511,000	1,788,500
TOTAL	**2,407,000**	**610,396**	**3,017,396**	**1,206,958**	**4,224,355**

CONSTR-MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	113,000	26,736	139,736	41,921	181,657
CY 2002	80,000	22,200	102,200	30,660	132,860
TOTAL	**193,000**	**48,936**	**241,936**	**72,581**	**314,517**

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2030	158,000	390,371	548,371	191,930	740,300
CY 2031	0	0	0	0	0
TOTAL	**158,000**	**390,371**	**548,371**	**191,930**	**740,300**

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	48,285	7,672	55,957	16,787	72,745
CY 2000	48,285	9,517	57,802	17,341	75,143
CY 2001	48,285	11,424	59,709	17,913	77,622
CY 2002	24,145	6,700	30,845	9,254	40,099
TOTAL	**169,000**	**35,314**	**204,314**	**61,294**	**265,608**

OPC

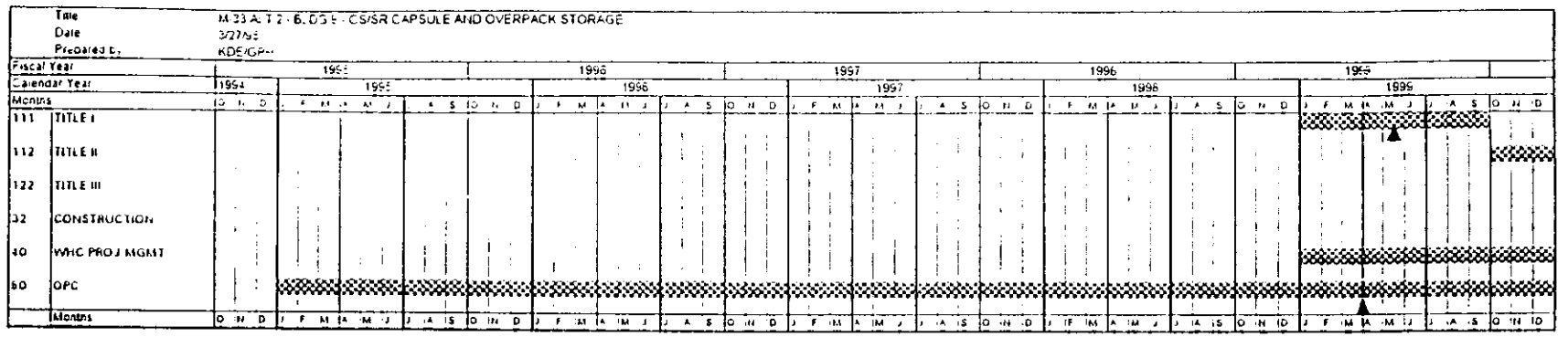
	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	100,000	930	100,930	30,279	131,209
CY 1996	176,217	6,767	182,984	54,895	237,879
CY 1997	176,217	12,212	188,429	56,529	244,957
CY 1998	176,217	17,868	194,085	58,226	252,311
CY 1999	46,567	6,263	52,830	15,849	68,679
CY 2000	46,565	7,846	54,411	16,323	70,735
CY 2001	46,567	9,476	56,043	16,813	72,856
CY 2002	308,600	73,941	382,541	114,762	497,303
CY 2003	320,050	88,590	408,640	122,592	531,232
TOTAL	1,397,000	223,893	1,620,893	486,268	2,107,161

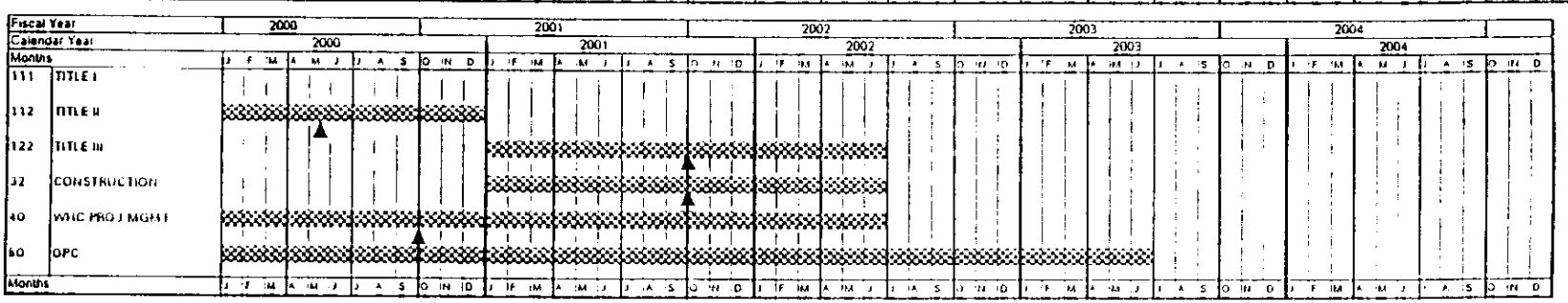
5/17/95 M33A2092.XLS

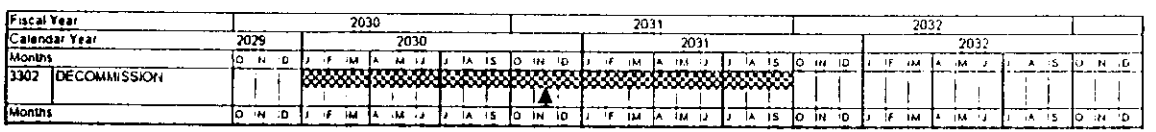
ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE

Title: M-33 ALT 2 - 6, DG 9 - CS/SR CAPSULE AND OVERPACK STORAGE
Date: 3/27/95
Prepared by: KDE/GPH







**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS				
		MID POINT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	1999	JUNE	15.58
112	TITLE II	2000	JUNE	19.39
122	TITLE III	2001	OCT	24.67
32	CONSTRUCTION	2001	OCT	24.67
3302	DECOMMISSION	2030	DEC	221.39
40	WHC PROJ MGMT	2000	OCT	20.69
50	OPC	1999	APRIL	12.61

M33A2082.XLS

Revision 1 (04-28-93)

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.64	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3-27-95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9
FILE NO. M33A2092

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

PAGE 1 OF 10
DATE 05/17/95 12:52:19
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	233	30	70	303
020	TITLE II	362	30	109	471
030	TITLE III	271	30	81	352
501	BUILDINGS	3,446	39	1,333	4,779
810	DECONTAMINATE & DECOMMISSION	508	35	178	686
900	OTHER PROJECT COST	1,573	30	472	2,045
	PROJECT TOTAL	6,393	35	2,243	8,636

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 17, 1995

ARCHITECT ENGINEER

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT #2 - BLDG 9 - CS/SR CAPSULE AND OVERPACK STORAGE

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9
FILE NO. M33A2092

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/17/95 12:52:23
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	202	0	202	15.35	31	233	30	70	304
112100	TITLE II	303	0	303	19.47	59	362	30	109	470
SUBTOTAL 11	DEFINITIVE DESIGN	505	0	505	17.82	90	595	30	179	774
122000	TITLE III	217	0	217	24.88	54	271	30	81	352
SUBTOTAL 12	ENGINEERING/INSPECTION	217	0	217	24.88	54	271	30	81	352
SUBTOTAL 1	ENGINEERING	722	0	722	19.94	144	866	30	260	1126
320002	BLDG STRUCTURE	1333	0	1333	24.68	329	1662	40	665	2327
320003	HVAC	203	0	203	24.63	50	253	40	101	354
320004	ELEC/MECH	871	0	871	24.68	215	1086	40	434	1520
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	2407	0	2407	24.68	594	3001	40	1200	4201
321000	CONSTRUCTION MANAGEMENT	193	0	193	24.87	48	241	30	72	313
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	2600	0	2600	24.69	642	3242	39	1272	4514
330200	DECOMMISSION	158	0	158	221.52	350	508	35	178	686
SUBTOTAL 33	D & D	158	0	158	221.52	350	508	35	178	686
SUBTOTAL 3	CONSTRUCTION	2758	0	2758	35.97	992	3750	39	1450	5200
400000	WHC PROJ MGMT	169	0	169	20.71	35	204	30	61	265
SUBTOTAL 4	PROJECT MANAGEMENT	169	0	169	20.71	35	204	30	61	265
500000	OTHER PROJECT COST	1397	0	1397	12.60	176	1573	30	472	2045
SUBTOTAL 5	OTHER PROJECT COST	1397	0	1397	12.60	176	1573	30	472	2045

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KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9
FILE NO. M33A2092

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

PAGE 3 OF 10
DATE 05/17/95 12:52:23
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
	PROJECT TOTAL	5,046	0	5,046	26.69	1,347	6,393	35	2,243	8,636

1. DOCUMENTS AND DRAWINGS

DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES

A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10-01-94) SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012).
B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS

(WHC FUNDED EXPENSE)
A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)
B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL.

5. ESCALATION

ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

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WHC-SD-WM-ES-341, Rev 0

6. ROUNDING
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U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE 1-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE 1-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS
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A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE PARAMETRIC TECHNIQUES OF THE FAST-C MODEL OF THE FREIMAN PARAMETRIC SYSTEM FOR THE CONSTRUCTION OF THE BUILDINGS.
D.) THE EQUIPMENT COSTS WERE BASED ON THE AVERAGE SQFT COST FOR SIMILAR FACILITIES
E.) THE PARAMETRIC VALUES FOR THIS ESTIMATE WERE DEVELOPED FROM SIMILAR FACILITIES AND THE ICF-KH REFERENCE LIBRARY.
F.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
G.) ESCALATION IS BASED ON ASSUMED START DATES.
H.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
I.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
J.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9
FILE NO. M33A2092

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 05/17/95 12:52:27
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	202	0	202	15.35	31	233	30	70	304
TOTAL 010	TITLE I	202	0	202	15.35	31	233	30	70	304
020	TITLE II									
112100	TITLE II	303	0	303	19.47	59	362	30	109	470
TOTAL 020	TITLE II	303	0	303	19.47	59	362	30	109	470
030	TITLE III									
122000	TITLE III	217	0	217	24.88	54	271	30	81	352
TOTAL 030	TITLE III	217	0	217	24.88	54	271	30	81	352
501	BUILDINGS									
320002	BLDG STRUCTURE	1333	0	1333	24.68	329	1662	40	665	2327
320003	HVAC	203	0	203	24.63	50	253	40	101	354
320004	ELEC/MECH	871	0	871	24.68	215	1086	40	434	1520
321000	CONSTRUCTION MANAGEMENT	193	0	193	24.87	48	241	30	72	313
400000	WHC PROJ MGMT	169	0	169	20.71	35	204	30	61	265
TOTAL 501	BUILDINGS	2769	0	2769	24.45	677	3446	39	1333	4779
810	DECONTAMINATE & DECOMMISSION									
330200	DECOMMISSION	158	0	158	221.52	350	508	35	178	686
TOTAL 810	DECONTAMINATE & DECOMMISSION	158	0	158	221.52	350	508	35	178	686
900	OTHER PROJECT COST									

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&O STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/17/95 12:52:27
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
500000	OTHER PROJECT COST	1397	0	1397	12.60	176	1573	30	472	2045
TOTAL 900	OTHER PROJECT COST	1397	0	1397	12.60	176	1573	30	472	2045
PROJECT TOTAL		5,046	0	5,046	26.69	1,347	6,393	35	2,243	8,636

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9
FILE NO. M33A2092

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/17/95 12:52:31
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	915	0	915	20.98	192	1107	30	332	1439
01	GENERAL REQUIRMENTS	158	0	158	221.52	350	508	35	178	686
13	SPECIAL CONSTRUCTION	1333	0	1333	24.68	329	1662	40	665	2327
15	MECHANICAL	203	0	203	24.63	50	253	40	101	354
16	ELECTRICAL	871	0	871	24.68	215	1086	40	434	1520
19	PROJECT MANAGEMENT	169	0	169	20.71	35	204	30	61	265
20	OTHER PROJECT COST	1397	0	1397	12.60	176	1573	30	472	2045
TOTAL CONSTRUCTION		5,046	0	5,046	26.69	1,347	6,393	35	2,243	8,636
PROJECT TOTAL		5,046	0	5,046	26.69	1,347	6,393	35	2,243	8,636

REFERENCE: ESTIMATE BASIS SHEET — PAGE 4, 5 OF 10
COST CODE ACCOUNT SUMMARY — PAGE 6, 7 OF 10

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPEIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 39%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 35%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&O STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/17/95 12:52:37
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT ADMINISTRATION %	CONTRACT ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	202	0.00	0	0	0	0
112100	TITLE II	303	0.00	0	0	0	0
122000	TITLE III	217	0.00	0	0	0	0
320002	BLDG STRUCTURE	1333	0.00	0	0	0	0
320003	HVAC	203	0.00	0	0	0	0
320004	ELEC/MECH	871	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	193	0.00	0	0	0	0
330200	DECOMMISSION	158	0.00	0	0	0	0
400000	WHC PROJ MGMT	169	0.00	0	0	0	0
500000	OTHER PROJECT COST	1397	0.00	0	0	0	0
PROJECT TOTAL		5,046		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/17/95 12:52:42
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	202	0	0	202
	CAT 1 144,000 6%										
	CAT 2 361,000 15%, 40%										
	OF 1&2 = 506,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	202	0	0	202
TOTAL	COST CODE 01000			0	0	0	0	202	0	0	202
	WBS 111200										
	(ESCALATION 15.58% - CONTINGENCY		30.00 %)								
TOTAL WBS 111200 TITLE I				0	0	0	0	202	0	0	202

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/17/95 12:52:43
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	303	0	0	303
	CAT 1 144,000 6%										
	CAT 2 361,000 15%. 60%										
	OF 1&2 = 506,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	303	0	0	303
TOTAL	COST CODE 02000			0	0	0	0	303	0	0	303
	WBS 112100										
	(ESCALATION 19.39% - CONTINGENCY 30 00 %)										
TOTAL WBS 112100 TITLE II				0	0	0	0	303	0	0	303

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 3
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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST SAME AS TITLE III	030	1 LS	0	0	0	0	217	0	0	217
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	217	0	0	217
TOTAL	COST CODE 03000 WBS 122000 (ESCALATION 24.67% - CONTINGENCY 30.00 %)			0	0	0	0	217	0	0	217
TOTAL WBS 122000 TITLE III				0	0	0	0	217	0	0	217

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&O STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	COST FOR STRUCTURE OF THE 1,128 SF BLDG IS FROM THE PARAMETRIC EST. AND COVERS CSI 03-13 (EXCLUDES EQUIP.)	501	1 LS	0	0	0	0	972	0	0	972
320002.1300004	COST FOR EQUIPMENT IS AN ALLOWANCE BASED ON SIMILAR PROJECTS & REPRESENTS 23% OF CONST. COST OR @320. PER SF.	501	1 LS	0	0	0	0	361	0	0	361
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	1,333	0	0	1,333
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 24.67% - CONTINGENCY 40.00 %)			0	0	0	0	1,333	0	0	1,333
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	1,333	0	0	1,333

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. H33/BLDG 9

** TEST - INTERACTIVE ESTIMATING **
H-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320003	HVAC										
320003.15	MECHANICAL										
320003.1500002	THIS IS COST FOR HVAC OF THE 1,128 SF BLDG IT IS THE PARAMETRIC EST. AND COVERS CSI 15.	501	1 LS	0	0	0	0	203	0	0	203
SUBTOTAL	MECHANICAL			0	0	0	0	203	0	0	203
TOTAL	COST CODE 50115 WBS 320003 (ESCALATION 24.67% CONTINGENCY 40.00 %)			0	0	0	0	203	0	0	203
TOTAL WBS 320003 HVAC				0	0	0	0	203	0	0	203

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&O STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320004	ELEC/MECH										
320004.16	ELECTRICAL										
320004.1600002	THE PARMETRIC EST. COMBINES CSI 16 AND 15 (PIPING) THE COST REPRESENTS ELEC/MECH FOR THE 1,128 SQFT BLDG.	501	1 LS	0	0	0	0	871	0	0	871
SUBTOTAL	ELECTRICAL			0	0	0	0	871	0	0	871
TOTAL	COST CODE 50116 WBS 320004 (ESCALATION 24.67% - CONTINGENCY 40.00 %)			0	0	0	0	871	0	0	871
TOTAL WBS 320004 ELEC/MECH				0	0	0	0	871	0	0	871

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	193	0	0	193
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	193	0	0	193
TOTAL	COST CODE 50100			0	0	0	0	193	0	0	193
	WBS 321000										
	(ESCALATION 24.67% - CONTINGENCY 30.00 %)										
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	193	0	0	193

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** IEST - INTERACTIVE ESTIMATING **
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	158	0	0	158
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	158	0	0	158
TOTAL	COST CODE 81001			0	0	0	0	158	0	0	158
	WBS 330200										
	(ESCALATION 221.39% - CONTINGENCY		35.00 %)								
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	158	0	0	158

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&D STOR)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OM&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	169	0	0	169
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	169	0	0	169
TOTAL	COST CODE 50119			0	0	0	0	169	0	0	169
	WBS 400000										
	(ESCALATION 20.69% - CONTINGENCY 30.00 %)										
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	169	0	0	169

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 9

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (CS/SR C&O STOR)
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OHAP / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE ANS IS APROX 40% OF THE TEC 3,492,000	900	1 LS	0	0	0	0	1397	0	0	1397
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	1,397	0	0	1,397
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 12.61% - CONTINGENCY 30.00 %)			0	0	0	0	1,397	0	0	1,397
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	1,397	0	0	1,397

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
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** IEST - INTERACTIVE ESTIMATING **
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PARAMETRIC R.O.M. ESTIMATE
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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	5,046	0	0	5,046

Detailed Cost Estimate for Alternative 2 - Building 11

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	9,039,000	1,926,375	10,965,375	3,289,612	14,254,987
CONSTRUCTION	30,128,000	8,162,196	38,290,196	15,316,078	53,606,274
CONSTRUCTION MGMT	2,410,000	656,931	3,066,931	920,079	3,987,010
WHC PROJ MGMT	2,109,000	469,886	2,578,886	773,666	3,352,552
TEC	**43,686,000**	**11,215,388**	**54,901,388**	**20,299,436**	**75,200,823**
OTHER PROJECT COST	17,474,000	3,138,732	20,612,732	6,183,820	26,796,552
OM&R LCC	0	0	0	0	0
D & D	42,306,000	77,439,018	119,745,018	41,910,756	161,655,774
TOTAL PROJECT COST (TPC)	**103,466,000**	**91,793,137**	**195,259,137**	**68,394,012**	**263,653,149**

5/22/95 M33A2113.XLS

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	2,531,000	402,176	2,933,176	879,953	3,813,129
CY 2000	2,500,000	492,750	2,992,750	897,825	3,890,575
CY 2001	2,296,000	543,234	2,839,234	851,770	3,691,004
CY 2002	1,400,000	388,500	1,788,500	536,550	2,325,050
CY 2003	312,000	99,715	411,715	123,515	535,230
TOTAL	**9,039,000**	**1,926,375**	**10,965,375**	**3,289,612**	**14,254,987**

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	10,041,000	2,375,701	12,416,701	4,966,680	17,383,381
CY 2002	15,043,000	4,174,433	19,217,433	7,686,973	26,904,406
CY 2003	5,044,000	1,612,062	6,656,062	2,662,425	9,318,487
TOTAL	**30,128,000**	**8,162,196**	**38,290,196**	**15,316,078**	**53,606,274**

CONSTR MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	655,000	154,973	809,973	242,992	1,052,965
CY 2002	1,400,000	388,500	1,788,500	536,550	2,325,050
CY 2003	355,000	113,458	468,458	140,537	608,995
TOTAL	**2,410,000**	**656,931**	**3,066,931**	**920,079**	**3,987,010**

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2026	21,153,000	37,747,529	58,900,529	20,615,185	79,515,713
CY 2027	21,153,000	39,691,489	60,844,489	21,295,571	82,140,060
TOTAL	42,306,000	77,439,018	119,745,018	41,910,756	161,655,774

WHC PM

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	500,000	79,450	579,450	173,835	753,285
CY 2000	500,000	98,550	598,550	179,565	778,115
CY 2001	500,000	118,300	618,300	185,490	803,790
CY 2002	500,000	138,750	638,750	191,625	830,375
CY 2003	109,000	34,836	143,836	43,151	186,987
TOTAL	2,109,000	469,886	2,578,886	773,666	3,352,552

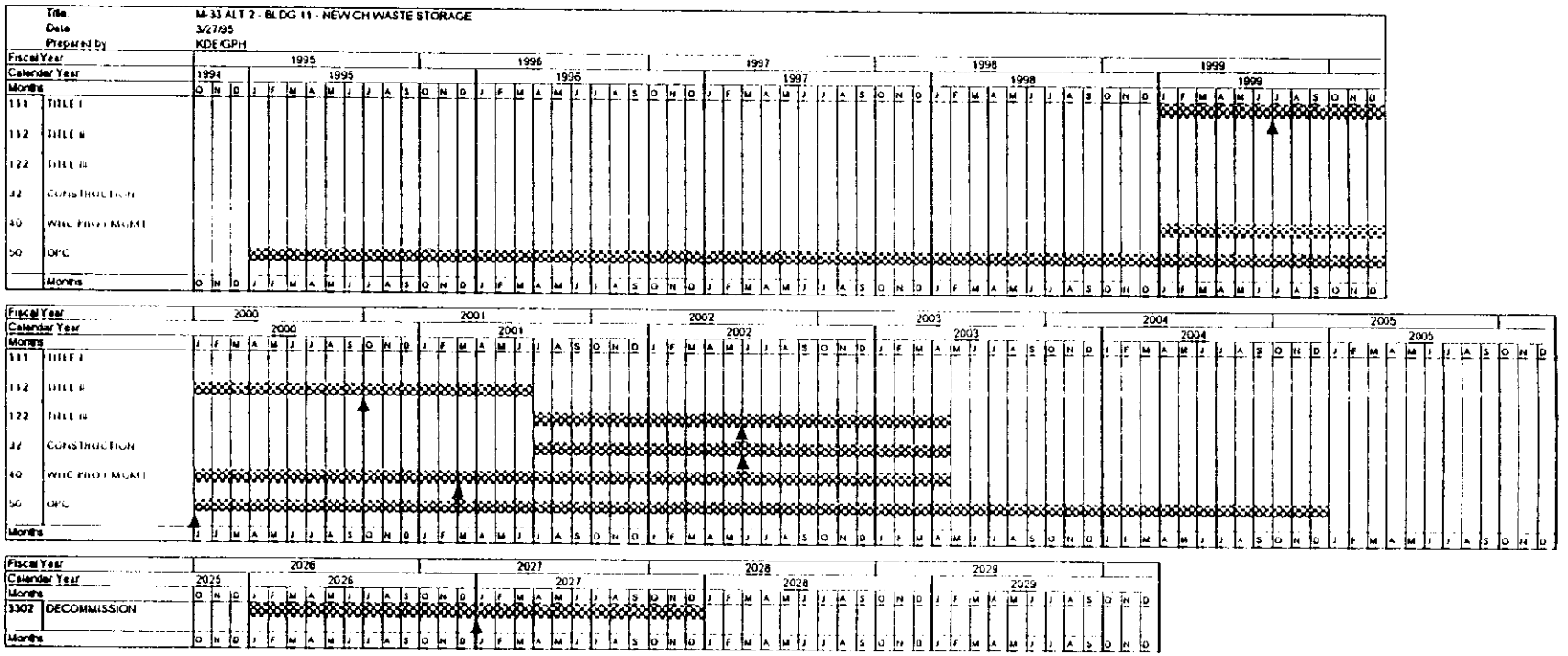
OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	963,300	8,959	972,259	291,678	1,263,936
CY 1996	2,300,000	88,320	2,388,320	716,496	3,104,816
CY 1997	2,300,000	159,390	2,459,390	737,817	3,197,207
CY 1998	2,300,000	233,220	2,533,220	759,966	3,293,186
CY 1999	436,850	58,756	495,606	148,682	644,288
CY 2000	436,850	73,609	510,459	153,138	663,597
CY 2001	436,850	88,899	525,749	157,725	683,474
CY 2002	436,850	104,669	541,519	162,456	703,975
CY 2003	4,042,200	1,118,881	5,161,081	1,548,324	6,709,405
CY 2004	3,821,100	1,204,029	5,025,129	1,507,539	6,532,667
TOTAL	**17,474,000**	**3,138,732**	**20,612,732**	**6,183,820**	**26,796,552**

ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE

Title: M-33 ALT 2 - BLDG 11 - NEW CH WASTE STORAGE
Date: 3/27/95
Prepared by: KDE/GPH



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES FOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID PONT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	1999	JULY	15 89
112	TITLE II	2000	OCT	20 69
122	TITLE III	2002	JUNE	27 40
32	CONSTRUCTION	2002	JUNE	27 40
3302	DECOMMISSION	2027	JAN	183 01
40	WHC PROJ MGMT	2001	MAY	23 00
50	OPC	2000	JAN	15 13

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.54	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.28	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.15
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	88.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	99.02	98.55	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3-22-95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

2013	69.06	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11
FILE NO. M33A2113

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/22/95 11:03:49
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	2,933	30	880	3,813
020	TITLE II	4,581	30	1,374	5,955
030	TITLE III	3,455	30	1,037	4,492
501	BUILDINGS	44,047	39	17,052	61,099
810	DECONTAMINATE & DECOMMISSION	119,730	35	41,906	161,636
900	OTHER PROJECT COST	20,118	30	6,035	26,153
	PROJECT TOTAL	194,864	35	68,284	263,148

TYPE OF ESTIMATE ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 22, 1995

ARCHITECT ENGINEER LGH

OPERATING CONTRACTOR

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. 2 - BLDG 11 - NEW CH WASTE STORAGE

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11
FILE NO. M33A2113

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 05/22/95 11:03:54
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	2531	0	2531	15.88	402	2933	30	880	3813
112100	TITLE II	3796	0	3796	20.68	785	4581	30	1374	5956
SUBTOTAL 11	DEFINITIVE DESIGN	6327	0	6327	18.76	1187	7514	30	2254	9769
122000	TITLE III	2712	0	2712	27.40	743	3455	30	1037	4492
SUBTOTAL 12	ENGINEERING/INSPECTION	2712	0	2712	27.40	743	3455	30	1037	4492
SUBTOTAL 1	ENGINEERING	9039	0	9039	21.35	1930	10969	30	3291	14261
320002	BLDG STRUCTURE	30128	0	30128	27.40	8255	38383	40	15353	53736
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	30128	0	30128	27.40	8255	38383	40	15353	53736
321000	CONSTRUCTION MANAGEMENT	2410	0	2410	27.39	660	3070	30	921	3991
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	32538	0	32538	27.40	8915	41453	39	16274	57727
330200	DECOMMISSION	42306	0	42306	183.01	77424	119730	35	41906	161636
SUBTOTAL 33	D & D	42306	0	42306	183.01	77424	119730	35	41906	161636
SUBTOTAL 3	CONSTRUCTION	74844	0	74844	115.36	86339	161183	36	58180	219363
400000	WHC PROJ MGMT	2109	0	2109	23.00	485	2594	30	778	3372
SUBTOTAL 4	PROJECT MANAGEMENT	2109	0	2109	23.00	485	2594	30	778	3372
500000	OTHER PROJECT COST	17474	0	17474	15.13	2644	20118	30	6035	26153
SUBTOTAL 5	OTHER PROJECT COST	17474	0	17474	15.13	2644	20118	30	6035	26153
PROJECT TOTAL		103,466	0	103,466	88.34	91,398	194,864	35	68,284	263,149

1. DOCUMENTS AND DRAWINGS

DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES

A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET (LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10-01-94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012).
B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS

(WHC FUNDED EXPENSE)
A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)
B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL:

5. ESCALATION

ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING
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U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE 1-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE 1-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS
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A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE DIRECT CONSTRUCTION COSTS THAT WERE PROVIDED BY WHC.
D.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
E.) ESCALATION IS BASED ON ASSUMED START DATES.
F.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
G.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
H.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11
FILE NO. M33A2113

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 05/22/95 11:04:00
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	2531	0	2531	15.88	402	2933	30	880	3813
TOTAL 010	TITLE I	2531	0	2531	15.88	402	2933	30	880	3813
020	TITLE II									
112100	TITLE II	3796	0	3796	20.68	785	4581	30	1374	5956
TOTAL 020	TITLE II	3796	0	3796	20.68	785	4581	30	1374	5956
030	TITLE III									
122000	TITLE III	2712	0	2712	27.40	743	3455	30	1037	4492
TOTAL 030	TITLE III	2712	0	2712	27.40	743	3455	30	1037	4492
501	BUILDINGS									
320002	BLDG STRUCTURE	30128	0	30128	27.40	8255	38383	40	15353	53736
321000	CONSTRUCTION MANAGEMENT	2410	0	2410	27.39	660	3070	30	921	3991
400000	WHC PROJ MGMT	2109	0	2109	23.00	485	2594	30	778	3372
TOTAL 501	BUILDINGS	34647	0	34647	27.13	9400	44047	39	17052	61099
810	DECONTAMINATE & DECOMMISSION									
330200	DECOMMISSION	42306	0	42306	183.01	77424	119730	35	41906	161636
TOTAL 810	DECONTAMINATE & DECOMMISSION	42306	0	42306	183.01	77424	119730	35	41906	161636
900	OTHER PROJECT COST									
500000	OTHER PROJECT COST	17474	0	17474	15.13	2644	20118	30	6035	26153

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11
FILE NO. M33A2113

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/22/95 11:04:00
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
TOTAL 900	OTHER PROJECT COST	17474	0	17474	15.13	2644	20118	30	6035	26153
PROJECT TOTAL		103,466	0	103,466	88.34	91,398	194,864	35	68,284	263,149

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11
FILE NO. M33A2113

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/22/95 11:04:05
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	11449	0	11449	22.62	2590	14039	30	4212	18252
01	GENERAL REQUIREMENTS	42306	0	42306	183.01	77424	119730	35	41906	161636
13	SPECIAL CONSTRUCTION	30128	0	30128	27.40	8255	38383	40	15353	53736
19	PROJECT MANAGEMENT	2109	0	2109	23.00	485	2594	30	778	3372
20	OTHER PROJECT COST	17474	0	17474	15.13	2644	20118	30	6035	26153
TOTAL CONSTRUCTION		103,466	0	103,466	88.34	91,398	194,864	35	68,284	263,149
PROJECT TOTAL		103,466	0	103,466	88.34	91,398	194,864	35	68,284	263,149

REFERENCE: ESTIMATE BASIS SHEET PAGE 3, 4 OF 9
COST CODE ACCOUNT SUMMARY PAGE 5, 6 OF 9

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPEIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12. TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32 A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40 A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33 A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 36%

OTHER PROJECT COST

COST CODE 900
WBS 50. A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 35%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11
FILE NO. M33A2113

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

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DATE 05/22/95 11:04:11
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT ADMINISTRATION %	CONTRACT ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	2531	0.00	0	0	0	0
112100	TITLE II	3796	0.00	0	0	0	0
122000	TITLE III	2712	0.00	0	0	0	0
320002	BLDG STRUCTURE	30128	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	2410	0.00	0	0	0	0
330200	DECOMMISSION	42306	0.00	0	0	0	0
400000	WHC PROJ MGMT	2109	0.00	0	0	0	0
500000	OTHER PROJECT COST	17474	0.00	0	0	0	0
PROJECT TOTAL		103,466		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/22/95 11:04:17
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONSI	010	1 LS	0	0	0	0	2531	0	0	2531
	CAT 1 1,808,000 6%										
	CAT 2 4,519,000 15%. 40%										
	OF 1&2 = 6,327,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,531	0	0	2,531
TOTAL	COST CODE 01000			0	0	0	0	2,531	0	0	2,531
	WBS 111200										
	(ESCALATION 15.89% - CONTINGENCY		30.00 %)								
TOTAL WBS 111200 TITLE I				0	0	0	0	2,531	0	0	2,531

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/22/95 11:04:17
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	3796	0	0	3796
	CAT 1 1,808,000 6%										
	CAT 2 4,519,000 15%. 60%										
	OF 1&2 = 6,327,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	3,796	0	0	3,796
TOTAL	COST CODE 02000			0	0	0	0	3,796	0	0	3,796
	WBS 112100										
	(ESCALATION 20.69% - CONTINGENCY 30.00 %)										
TOTAL WBS 112100 TITLE II				0	0	0	0	3,796	0	0	3,796

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 3
DATE 05/22/95 11:04:17
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST SAME AS TITLE III	030	1 LS	0	0	0	0	2712	0	0	2712
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,712	0	0	2,712
TOTAL	COST CODE 03000 WBS 122000 (ESCALATION 27.40% CONTINGENCY 30.00 %)			0	0	0	0	2,712	0	0	2,712
TOTAL WBS 122000 TITLE III				0	0	0	0	2,712	0	0	2,712

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 4
DATE 05/22/95 11:04:17
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	DIRECT COST FOR COMPLETE 301,280 SF BLDG. PROVIDED BY WHC.	501	1 LS	0	0	0	0	30128	0	0	30128
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	30,128	0	0	30,128
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 27.40% - CONTINGENCY 40.00 %)			0	0	0	0	30,128	0	0	30,128
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	30,128	0	0	30,128

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	2410	0	0	2410
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	2,410	0	0	2,410
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 27.40% - CONTINGENCY 30.00 %)			0	0	0	0	2,410	0	0	2,410
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	2,410	0	0	2,410

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPN

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	42306	0	0	42306
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	42,306	0	0	42,306
TOTAL	COST CODE 81001			0	0	0	0	42,306	0	0	42,306
	WBS 330200										
	(ESCALATION 183.01% - CONTINGENCY		35.00 %)								
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	42,306	0	0	42,306

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	2109	0	0	2109
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	2,109	0	0	2,109
TOTAL	COST CODE 50119			0	0	0	0	2,109	0	0	2,109
	WBS 400000										
	(ESCALATION 23.00% - CONTINGENCY 30.00 %)										
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	2,109	0	0	2,109

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE AND IS APROX 40% OF THE TEC 43,686,000	900	1 LS	0	0	0	0	17474	0	0	17474
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	17,474	0	0	17,474
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 15.13% - CONTINGENCY 30.00 %)			0	0	0	0	17,474	0	0	17,474
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	17,474	0	0	17,474

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 11

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (NEW CH WS)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	103,466	0	0	103,466

Detailed Cost Estimate for Alternative 2 - Building 12

SUMMARY

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
ENGINEERING	720,000	142,016	862,016	258,605	1,120,621
CONSTRUCTION	2,400,000	600,560	3,000,560	1,200,224	4,200,784
CONSTRUCTION MGMT	192,000	47,963	239,963	71,989	311,952
WHC PROJ MGMT	168,000	35,105	203,105	60,931	264,036
TEC	**3,480,000**	**825,644**	**4,305,644**	**1,591,749**	**5,897,393**
OTHER PROJECT COST	1,392,000	225,206	1,617,206	485,162	2,102,368
OM&R LCC	0	0	0	0	0
D & D	3,370,000	8,106,760	11,476,760	4,016,866	15,493,626
TOTAL PROJECT COST (TPC)	**8,242,000**	**9,157,610**	**17,399,610**	**6,093,777**	**23,493,386**

ENGR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1999	302,000	47,988	349,988	104,996	454,984
CY 2000	202,000	39,814	241,814	72,544	314,358
CY 2001	140,000	33,124	173,124	51,937	225,061
CY 2002	76,000	21,090	97,090	29,127	126,217
TOTAL	720,000	142,016	862,016	258,605	1,120,621

CONSTR

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	1,600,000	378,560	1,978,560	791,424	2,769,984
CY 2002	800,000	222,000	1,022,000	408,800	1,430,800
TOTAL	**2,400,000**	**600,560**	**3,000,560**	**1,200,224**	**4,200,784**

CONSTR-MGMT

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2001	130,000	30,758	160,758	48,227	208,985
CY 2002	62,000	17,205	79,205	23,762	102,967
TOTAL	192,000	47,963	239,963	71,989	311,952

5/22/95 M33A2123.XLS

D&D

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 2030	2,246,667	5,550,840	7,797,507	2,729,128	10,526,635
CY 2031	1,123,333	2,555,920	3,679,253	1,287,738	4,966,991
TOTAL	**3,370,000**	**8,106,760**	**11,476,760**	**4,016,866**	**15,493,626**

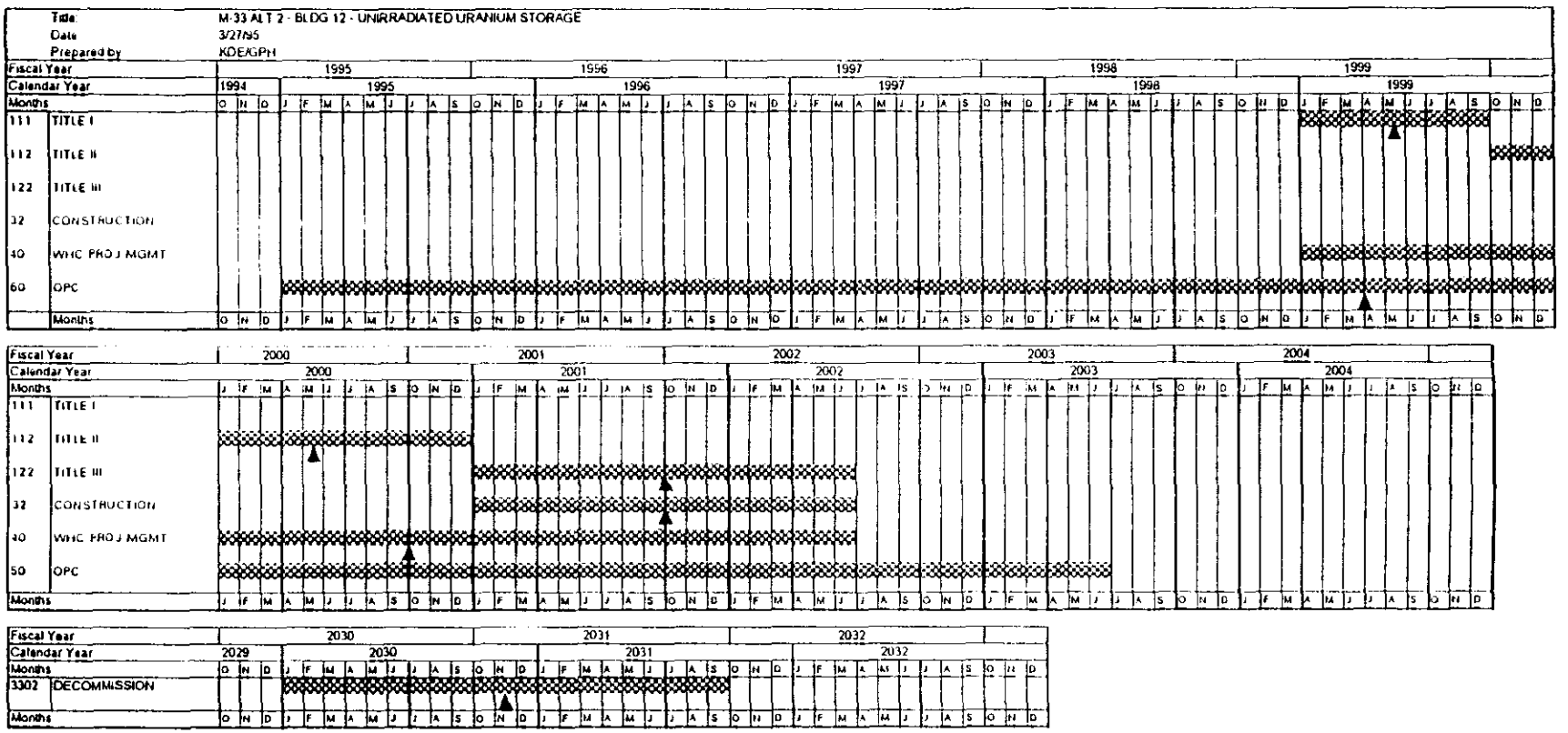
OPC

	DIRECT DOLLARS	ESCALATION TOTAL	ESCALATED DOLLARS	CONTINGENCY DOLLARS	TOTAL DOLLARS
CY 1995	86,400	804	87,204	26,161	113,365
CY 1996	180,000	6,912	186,912	56,074	242,986
CY 1997	180,000	12,474	192,474	57,742	250,216
CY 1998	180,000	18,252	198,252	59,476	257,728
CY 1999	39,771	5,349	45,120	13,536	58,656
CY 2000	39,771	6,701	46,472	13,942	60,414
CY 2001	39,771	8,093	47,864	14,359	62,224
CY 2002	329,887	79,041	408,928	122,678	531,606
CY 2003	316,400	87,580	403,980	121,194	525,173
TOTAL	1,392,000	225,206	1,617,206	485,162	2,102,368

ICF KAISER HANFORD

ESCALATION ANALYSIS SCHEDULE

Title: M-33 ALT 2 - BLDG 12 - UNIRRADIATED URANIUM STORAGE
Date: 3/27/95
Prepared by: KDE/GPH



**TASKS ARE SHOWN AS FORECASTED WORK AND DO NOT REPRESENT APPROVED SCHEDULES NOR MANPOWER ASSIGNMENTS

ESCALATION RATES PER WBS NUMBERS		MID PONT		ESCAL
		YEAR	MONTH	RATE
111	TITLE I	1999	JUNE	15 58
112	TITLE II	2000	JUNE	19 39
122	TITLE III	2001	OCT	24 67
32	CONSTRUCTION	2001	OCT	24 67
3302	DECOMMISSION	2030	DEC	221 39
40	WHC PROJ MGMT	2000	OCT	20 69
50	OPC	1999	APRIL	12 61

BY PERCENT

COMPOSITE LABOR & MATERIALS
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.29	0.58	0.86	1.15	1.44	1.74	2.03	2.32	2.61
1996	2.91	3.20	3.50	3.80	4.10	4.39	4.69	4.99	5.30	5.60	5.90	6.21
1997	6.51	6.82	7.12	7.43	7.74	8.05	8.36	8.67	8.98	9.29	9.61	9.92
1998	10.24	10.55	10.87	11.19	11.51	11.83	12.15	12.47	12.80	13.10	13.41	13.72
1999	14.02	14.33	14.64	14.95	15.26	15.58	15.89	16.20	16.52	16.83	17.15	17.47
2000	17.79	18.11	18.43	18.75	19.07	19.39	19.71	20.04	20.36	20.69	21.02	21.34
2001	21.67	22.00	22.33	22.66	23.00	23.33	23.66	24.00	24.34	24.67	25.01	25.35
2002	25.69	26.03	26.37	26.71	27.06	27.40	27.75	28.09	28.44	28.79	29.14	29.49
2003	29.84	30.19	30.54	30.89	31.25	31.60	31.96	32.32	32.68	33.04	33.40	33.76
2004	34.12	34.48	34.85	35.21	35.58	35.95	36.32	36.68	37.06	37.43	37.80	38.17
2005	38.55	38.92	39.30	39.68	40.05	40.43	40.81	41.20	41.58	41.96	42.35	42.73
2006	43.12	43.51	43.89	44.28	44.68	45.07	45.46	45.85	46.25	46.65	47.04	47.44
2007	47.84	48.24	48.64	49.05	49.45	49.85	50.26	50.67	51.08	51.49	51.90	52.31
2008	52.72	53.13	53.55	53.96	54.38	54.80	55.22	55.64	56.06	56.48	56.91	57.33
2009	57.76	58.19	58.62	59.05	59.48	59.91	60.34	60.78	61.21	61.65	62.09	62.53
2010	62.97	63.41	63.85	64.29	64.74	65.19	65.63	66.08	66.53	66.98	67.44	67.89
2011	68.34	68.80	69.26	69.72	70.18	70.64	71.10	71.56	72.03	72.49	72.96	73.43
2012	73.90	74.37	74.84	75.32	75.79	76.27	76.75	77.22	77.70	78.19	78.67	79.16
2013	79.64	80.12	80.61	81.10	81.59	82.08	82.58	83.07	83.57	84.07	84.56	85.06
2014	85.57	86.07	86.57	87.08	87.58	88.09	89.60	89.11	89.63	90.14	90.65	91.17

BY PERCENT

2015	91.69	92.21	92.73	93.25	93.78	94.30	94.83	95.35	95.88	96.41	96.95	97.48
2016	98.02	98.56	99.09	99.63	100.17	100.71	101.26	101.80	102.35	102.90	103.45	104.00
2017	104.55	105.10	105.66	106.22	106.78	107.34	107.90	108.46	109.03	109.59	110.16	110.73
2018	111.30	111.87	112.45	113.02	113.60	114.18	114.76	115.34	115.92	116.51	117.09	117.68
2019	118.27	118.86	119.46	120.05	120.65	121.25	121.84	122.45	123.05	123.65	124.26	124.87
2020	125.48	126.09	126.70	127.31	127.93	128.55	129.17	129.79	130.41	131.03	131.66	132.29
2021	132.92	133.55	134.18	134.81	135.45	136.09	136.73	137.37	138.01	138.66	139.30	139.95
2022	140.60	141.25	141.91	142.56	143.22	143.88	144.54	145.20	145.87	146.53	147.20	147.87
2023	148.54	149.22	149.89	150.57	151.25	151.93	152.61	153.29	153.98	154.67	155.36	156.05
2024	156.74	157.44	158.14	158.84	159.54	160.24	160.95	161.65	162.36	163.07	163.79	164.50
2025	165.22	165.94	166.66	167.38	168.10	168.83	169.56	170.29	171.02	171.75	172.49	173.23
2026	173.97	174.71	175.46	176.20	176.95	177.70	178.45	179.21	179.96	180.72	181.48	182.25
2027	183.01	183.78	184.55	185.32	186.09	186.86	187.64	188.42	189.20	189.99	190.77	191.56
2028	192.35	193.14	193.94	194.73	195.53	196.33	197.13	197.94	198.75	199.56	200.37	201.18
2029	202.00	202.81	203.64	204.46	205.28	206.11	206.94	207.77	208.60	209.44	210.28	211.12
2030	211.96	212.81	213.66	214.50	215.36	216.21	217.07	217.93	218.79	219.65	220.52	221.39
2031	222.26	223.13	224.01	224.88	225.76	226.65	227.53	228.42	229.31	230.20	231.10	231.99
2032	232.89	233.79	234.70	235.60	236.51	237.43	238.34	239.26	240.18	241.10	242.02	242.95
2033	243.88	244.81	245.74	246.68	247.62	248.56	249.50	250.45	251.40	252.35	253.31	254.27
2034	255.22	256.19	257.15	258.12	259.09	260.06	261.04	262.02	263.00	263.98	264.97	265.96
2035	266.947	267.94	268.94	269.94	270.94	271.95	272.95	273.96	274.98	275.99	277.01	278.03

BY PERCENT

3/27/95

OPC ESCALATION RATES
USE FOR MAR-95

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1995				0.23	0.46	0.69	0.93	1.16	1.39	1.63	1.88	2.12
1996	2.36	2.61	2.85	3.10	3.34	3.59	3.84	4.08	4.33	4.59	4.85	5.11
1997	5.36	5.62	5.88	6.15	6.41	6.67	6.93	7.20	7.46	7.73	7.99	8.26
1998	8.53	8.79	9.06	9.33	9.60	9.87	10.14	10.41	10.68	10.96	11.23	11.51
1999	11.78	12.06	12.33	12.61	12.89	13.17	13.45	13.72	14.01	14.29	14.57	14.85
2000	15.13	15.42	15.70	15.99	16.27	16.56	16.85	17.14	17.43	17.72	18.01	18.30
2001	18.59	18.88	19.17	19.47	19.76	20.06	20.35	20.65	20.95	21.25	21.55	21.85
2002	22.15	22.45	22.75	23.05	23.36	23.66	23.96	24.27	24.58	24.88	25.19	25.50
2003	25.81	26.12	26.43	26.74	27.06	27.37	27.68	28.00	28.31	28.63	28.95	29.27
2004	29.58	29.90	30.22	30.55	30.87	31.19	31.51	31.84	32.16	32.49	32.82	33.14
2005	33.47	33.80	34.13	34.46	34.79	35.13	35.46	35.79	36.13	36.46	36.80	37.14
2006	37.48	37.82	38.15	38.50	38.84	39.18	39.52	39.87	40.21	40.56	40.90	41.25
2007	41.60	41.95	42.30	42.65	43.00	43.35	43.71	44.06	44.42	44.77	45.13	45.49
2008	45.85	46.21	46.57	46.93	47.29	47.66	48.02	48.38	48.75	49.12	49.49	49.85
2009	50.22	50.59	50.97	51.34	51.71	52.09	52.46	52.84	53.21	53.59	53.97	54.35
2010	54.73	55.11	55.49	55.88	56.26	56.65	57.03	57.42	57.81	58.20	58.59	58.98
2011	59.37	59.77	60.16	60.55	60.95	61.35	61.74	62.14	62.54	62.94	63.35	63.75
2012	64.15	64.56	64.96	65.37	65.78	66.19	66.60	67.01	67.42	67.83	68.25	68.66

BY PERCENT

3/27/95

2013	69.08	69.49	69.91	70.33	70.75	71.17	71.60	72.02	72.44	72.87	73.29	73.72
2014	74.15	74.58	75.01	75.44	75.87	76.31	76.74	77.18	77.62	78.05	78.49	78.93
2015	79.37	79.82	80.26	80.70	81.15	81.60	82.05	82.49	82.94	83.40	83.85	84.30
2016	84.76	85.21	85.67	86.13	86.58	87.05	87.51	87.97	88.43	88.90	89.36	89.83
2017	90.30	90.77	91.24	91.71	92.18	92.66	93.13	93.61	94.09	94.56	95.04	95.52
2018	96.01	96.49	96.98	97.46	97.95	98.44	98.93	99.42	99.91	100.40	100.90	101.39
2019	101.89	102.39	102.88	103.38	103.89	104.39	104.89	105.40	105.91	106.41	106.92	107.43
2020	107.94	108.46	108.97	109.49	110.00	110.52	111.04	111.56	112.08	112.61	113.13	113.66
2021	114.18	114.71	115.24	115.77	116.30	116.84	117.37	117.91	118.44	118.98	119.52	120.06
2022	120.61	121.15	121.70	122.24	122.79	123.34	123.89	124.44	125.00	125.55	126.11	126.67
2023	127.23	127.79	128.35	128.91	129.48	130.04	130.61	131.18	131.75	132.32	132.89	133.47
2024	134.04	134.62	135.20	135.78	136.36	136.94	137.53	138.11	138.70	139.29	139.88	140.47
2025	141.06	141.66	142.25	142.85	143.45	144.05	144.65	145.26	145.86	146.47	147.08	147.68
2026	148.30	148.91	149.52	150.14	150.75	151.37	151.99	152.61	153.24	153.86	154.49	155.11
2027	155.74	156.37	157.01	157.64	158.28	158.91	159.55	160.19	160.83	161.48	162.12	162.77
2028	163.42	164.07	164.72	165.37	166.02	166.68	167.34	168.00	168.66	169.32	169.99	170.65
2029	171.32	171.99	172.66	173.33	174.01	174.68	175.36	176.04	176.72	177.40	178.08	178.77
2030	179.46	180.15	180.84	181.53	182.23	182.92	183.62	184.32	185.02	185.72	186.43	187.13
2031	187.84	188.55	189.26	189.98	190.69	191.41	192.13	192.85	193.57	194.29	195.02	195.75
2032	196.48	197.21	197.94	198.68	199.41	200.15	200.89	201.63	202.38	203.12	203.87	204.62
2033	205.37	206.12	206.88	207.64	208.39	209.16	209.92	210.68	211.45	212.22	212.99	213.76
2034	214.53	215.31	216.09	216.87	217.65	218.43	219.22	220.00	220.79	221.58	222.38	223.17
2035	223.97	224.77	225.57	226.37	227.18	227.98	228.79	229.60	230.42	231.23	232.05	232.87

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12
FILE NO. M33A2123

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (DU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R01 - PROJECT COST SUMMARY

DATE 05/22/95 11:10:28
BY GPH

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I	233	30	70	303
020	TITLE II	361	30	108	469
030	TITLE III	269	30	81	350
501	BUILDINGS	3,434	39	1,330	4,764
810	DECONTAMINATE & DECOMMISSION	10,831	35	3,791	14,622
900	OTHER PROJECT COST	1,568	30	470	2,038
	PROJECT TOTAL	16,696	35	5,850	22,546

TYPE OF ESTIMATE: ROUGH ORDER OF MAGNITUDE ESTIMATE MAY 22, 1995

ARCHITECT ENGINEER: LGH

OPERATING CONTRACTOR:

REMARKS: COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

ALT. 1 - BLDG 12 - UNIRRADIATED URANIUM STORAGE

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12
FILE NO. M33A2123

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (OU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

PAGE 2 OF 9
DATE 05/22/95 11:10:34
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
111200	TITLE I	202	0	202	15.35	31	233	30	70	304
112100	TITLE II	302	0	302	19.54	59	361	30	108	469
SUBTOTAL 11	DEFINITIVE DESIGN	504	0	504	17.86	90	594	30	178	773
122000	TITLE III	216	0	216	24.54	53	269	30	81	350
SUBTOTAL 12	ENGINEERING/INSPECTION	216	0	216	24.54	53	269	30	81	350
SUBTOTAL 1	ENGINEERING	720	0	720	19.86	143	863	30	259	1123
320002	BLDG STRUCTURE	2400	0	2400	24.67	592	2992	40	1197	4189
SUBTOTAL 320	CONSTRUCTION-FIXED PRICE	2400	0	2400	24.67	592	2992	40	1197	4189
321000	CONSTRUCTION MANAGEMENT	192	0	192	24.48	47	239	30	72	311
SUBTOTAL 32	CONSTRUCTION-FIXED PRICE	2592	0	2592	24.65	639	3231	39	1269	4500
330200	DECOMMISSION	3370	0	3370	221.39	7461	10831	35	3791	14622
SUBTOTAL 33	D & D	3370	0	3370	221.39	7461	10831	35	3791	14622
SUBTOTAL 3	CONSTRUCTION	5962	0	5962	135.86	8100	14062	36	5060	19122
400000	WHC PROJ MGMT	168	0	168	20.83	35	203	30	61	264
SUBTOTAL 4	PROJECT MANAGEMENT	168	0	168	20.83	35	203	30	61	264
500000	OTHER PROJECT COST	1392	0	1392	12.64	176	1568	30	470	2038
SUBTOTAL 5	OTHER PROJECT COST	1392	0	1392	12.64	176	1568	30	470	2038
PROJECT TOTAL		8,242	0	8,242	102.57	8,454	16,696	35	5,850	22,547

1. DOCUMENTS AND DRAWINGS
==========
DOCUMENTS: NONE

DRAWINGS: REDUCED SKETCH OF MODULE LAYOUTS.

2. MATERIAL PRICES
==========
UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL.

3. LABOR RATES
==========
A.) ICF-KH HOURLY RATES ARE BASED ON THE 1995 FISCAL YEAR BUDGET LIQUIDATION RATES AS ISSUED BY KEH FINANCE (EFFECTIVE 10 01-94). SEE ALSO THE FY 1995 PLANNING RATES * (REPORT BGHB7012).
B.) WHC HOURLY RATES ARE BASED UPON THE FY 1995 PLANNING RATES * (REPORT BGHB2001).

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES/OVERHEADS
==========
(WHC FUNDED EXPENSE)
A.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94. THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 78% FOR SHOP WORK AND 120% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

(WHC FUNDED CAPITAL)
B.) ONSITE CONSTRUCTION FORCES GENERAL REQUIREMENTS, TECHNICAL SERVICES AND CRAFT OVERHEAD COSTS ARE INCLUDED AS A COMPOSITE PERCENTAGE BASED ON THE ICF-KH ESTIMATING FACTOR, REVISION 1, FY95, DATED 1/18/94 THE TOTAL COMPOSITE PERCENTAGE APPLIED TO ONSITE CONSTRUCTION FORCES LABOR, FOR THIS PROJECT, IS 71% FOR SHOP WORK AND 111% FOR FIELD WORK, WHICH IS REFLECTED IN THE "OH&P/B&I" COLUMN OF THE ESTIMATE DETAIL.

C.) ONSITE CONTRACT ADMINISTRATION AND CONSTRUCTION MANAGEMENT COSTS, ASSOCIATED WITH THE OVERALL MANAGEMENT OF THE FIXED PRICE CONTRACTS, ARE INCLUDED AS A COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE (FOR BID PACKAGE PREP) BASED ON THE ESTIMATING FACTOR/BILLING SCHEDULE. THE TOTAL COMPOSITE PERCENTAGE AND LUMP SUM ALLOWANCE ARE APPLIED AGAINST THE TOTAL FIXED PRICE CONTRACT AMOUNT WHICH IS REFLECTED ON THE KEH SUMMARY REPORT DOE_R07, INCLUDED WITH THIS ESTIMATE. (FINAL ESTIMATES MAY BE PARTIALLY MANLOADED AND INCLUDED WITHIN THE ESTIMATE DETAIL)

D.) FIXED PRICE CONTRACTOR OVERHEAD, PROFIT, BOND AND INSURANCE COSTS HAVE BEEN APPLIED AND ARE INCLUDED IN THE DIRECT DOLLARS OF THE ESTIMATE DETAIL.

5. ESCALATION
==========
ESCALATION PERCENTAGES WERE CALCULATED FROM THE AUGUST 1994 UPDATE OF THE ECONOMIC ESCALATION PRICE CHANGE INDICES FOR DOE CONSTRUCTION PROJECTS AS PUBLISHED BY THE "OFFICE OF INFRASTRUCTURE AQUISITION" FM-50.

6. ROUNDING
==========

U.S. DEPARTMENT OF ENERGY - DOE ORDER 5100.4 PAGE I-32 SUBPARAGRAPH (M), REQUIRES ROUNDING OF ALL GENERAL PLANT PROJECTS (GPP'S) AND LINE ITEM (LI) COST ESTIMATES. REFERENCE: DOE 5100.4, FIGURE I-11, DATED 10-31-84. FOR THIS EFFORT DOLLARS HAVE NOT BEEN ROUNDED.

7. REMARKS
=======

A.) ENGINEERING FOR TITLE I, TITLE II, AND TITLE III ARE BASED ON BENCH MARKS AND ARE DEVELOPED AS A PERCENTAGE OF CONSTRUCTION COST.
B.) SITEWORK AND UTILITIES HAVE NOT BEEN INCLUDED IN THIS ESTIMATE. THE ESTIMATE ASSUMES THAT ALL NECESSARY UTILITIES ARE AVAILABLE AND IN PLACE.
C.) THIS ESTIMATE WAS PREPARED USING THE DIRECT COSTS FOR THE CONSTRUCTION OF THE FACILITY PROVIDED BY WHC.
D.) THE COST FOR DECONTAMINATION AND DECOMMISION ARE BASED ON ACTUAL COST DATA FROM THE WEST VALLEY NUCLEAR CELL.
E.) ESCALATION IS BASED ON ASSUMED START DATES.
F.) THE CONSTRUCTION MANAGEMENT, PROJECT MANAGEMENT, AND OTHER PROJECT COST WERE DEVELOPED BY PERCENTAGES AS REPORTED IN THE ESTIMATE DETAIL.
G.) LIFE CYCLE COSTS WERE PROVIDED BY WHC FOR ALTERNATE #2 AS A WHOLE AND ARE NOT BROKEN OUT TO THE INDIVIDUAL BUILDINGS.
H.) COSTS SHOWN IN ESTIMATE ARE IN THOUSANDS OF DOLLARS.

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12
FILE NO. M33A2123

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (DU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 05/22/95 11:10:40
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I									
111200	TITLE I	202	0	202	15.35	31	233	30	70	304
TOTAL 010	TITLE I	202	0	202	15.35	31	233	30	70	304
020	TITLE II									
112100	TITLE II	302	0	302	19.54	59	361	30	108	469
TOTAL 020	TITLE II	302	0	302	19.54	59	361	30	108	469
030	TITLE III									
122000	TITLE III	216	0	216	24.54	53	269	30	81	350
TOTAL 030	TITLE III	216	0	216	24.54	53	269	30	81	350
501	BUILDINGS									
320002	BLDG STRUCTURE	2400	0	2400	24.67	592	2992	40	1197	4189
321000	CONSTRUCTION MANAGEMENT	192	0	192	24.48	47	239	30	72	311
400000	WHC PROJ MGMT	168	0	168	20.83	35	203	30	61	264
TOTAL 501	BUILDINGS	2760	0	2760	24.42	674	3434	39	1330	4764
810	DECONTAMINATE & DECOMMISSION									
330200	DECOMMISSION	3370	0	3370	221.39	7461	10831	35	3791	14622
TOTAL 810	DECONTAMINATE & DECOMMISSION	3370	0	3370	221.39	7461	10831	35	3791	14622
900	OTHER PROJECT COST									
500000	OTHER PROJECT COST	1392	0	1392	12.64	176	1568	30	470	2038

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12
FILE NO. M33A2123

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE R04 - COST CODE ACCOUNT SUMMARY

DATE 05/22/95 11:10:40
BY GPH

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
TOTAL 900	OTHER PROJECT COST	1392	0	1392	12.64	176	1568	30	470	2038
PROJECT TOTAL		8,242	0	8,242	102.57	8,454	16,696	35	5,850	22,547

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12
FILE NO. M33A2123

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 05/22/95 11:10:46
BY GPH

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
00	TECHNICAL SERVICES	912	0	912	20.83	190	1102	30	331	1434
01	GENERAL REQUIRMENTS	3370	0	3370	221.39	7461	10831	35	3791	14622
13	SPECIAL CONSTRUCTION	2400	0	2400	24.67	592	2992	40	1197	4189
19	PROJECT MANAGEMENT	168	0	168	20.83	35	203	30	61	264
20	OTHER PROJECT COST	1392	0	1392	12.64	176	1568	30	470	2038
TOTAL CONSTRUCTION			0			8,454			5,850	
		8,242		8,242	102.57		16,696	35		22,547
PROJECT TOTAL			0			8,454			5,850	
		8,242		8,242	102.57		16,696	35		22,547

REFERENCE: ESTIMATE BASIS SHEET PAGE 3, 4 OF 9
COST CODE ACCOUNT SUMMARY PAGE 5, 6 OF 9

THE U.S. DEPARTMENT OF ENERGY - RICHLAND ORDER 5700.3 "COST ESTIMATING, ANALYSIS AND STANDARDIZATION" DATED 3-27-85, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THE GUIDELINE FOR A R.O.M/STUDY ESTIMATE SHOULD HAVE AN OVERALL RANGE OF 20% TO 30% AND UP TO 50 % FOR EXPEIMENTAL/SPECIAL CONDITIONS.

CONTINGENCY IS EVALUATED AT THE THIRD COST CODE LEVEL AND SUMMARIZED AT THE PRIMARY AND SECONDARY COST CODE LEVEL OF THE DETAILED COST ESTIMATE.

ENGINEERING

COST CODE 000
WBS 11.
12.
TITLE I AND TITLE II DESIGN COSTS AND TITLE III E/I COSTS HAVE A 30% CONTINGENCY APPLIED BASED ON THE UNCERTAINTIES THAT EXIST AT THE PRESENT TIME, THE LACK OF DETAIL PROVIDED, AND THE ANTICIPATED DIFFICULTIES THAT WILL ARISE THROUGH THE LIFE OF A PROJECT OF THIS MAGNITUDE.

AVERAGE ENGINEERING CONTINGENCY 30%

CONSTRUCTION

COST CODE 501
WBS 32
A 40% CONTINGENCY WAS APPLIED TO CONSTRUCTION COSTS BASED ON THE LACK OF DETAIL AND COSTS BEING DEVELOPED BY THE USE OF THE PARAMETRIC MODEL.

WBS 40
A CONTINGENCY OF 30% WAS APPLIED TO WHC PROJECT MANAGEMENT AS THESE COSTS WERE BASED ON A PERCENTAGE OF CONSTRUCTION AND NO DETAIL WAS PROVIDED.

COST CODE 810
WBS 33
A 45% CONTINGENCY WAS APPLIED TO DECONTAMINATION AS A RESULT OF LIMITED DETAIL, THE FACT THAT CONTAMINATION LEVELS ARE UNKNOWN AND DECONTAMINATION METHODS ARE UNDEFINED.
A CONTINGENCY OF 35% WAS APPLIED TO DECOMMISSIONING DUE TO UNKNOWNS ASSOCIATED WITH THE DEMOLITION OF THE FACILITY.

AVERAGE CONSTRUCTION CONTINGENCY 36%

OTHER PROJECT COST

COST CODE 900
WBS 50.
A CONTINGENCY OF 30% WAS APPLIED TO OPC COSTS AS NO DETAIL WAS PROVIDED TO DEVELOP THESE COSTS AND ALLOWANCES WERE USED IN THE ESTIMATE.

AVERAGE OPC CONTINGENCY 30%

AVERAGE PROJECT CONTINGENCY 35%

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12
FILE NO. M33A2123

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R07 - ONSITE INDIRECT COSTS BY WBS

DATE 05/22/95 11:10:51
BY GPH

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	CONTRACT ADMINISTRATION %	CONTRACT ADMINISTRATION TOTAL	BID PACK PREP.	OTHER INDIRECTS	TOTAL INDIRECTS
111200	TITLE I	202	0.00	0	0	0	0
112100	TITLE II	302	0.00	0	0	0	0
122000	TITLE III	216	0.00	0	0	0	0
320002	BLDG STRUCTURE	2400	0.00	0	0	0	0
321000	CONSTRUCTION MANAGEMENT	192	0.00	0	0	0	0
330200	DECOMMISSION	3370	0.00	0	0	0	0
400000	WHC PROJ MGMT	168	0.00	0	0	0	0
500000	OTHER PROJECT COST	1392	0.00	0	0	0	0
PROJECT TOTAL		8,242		0	0	0	0

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (DD STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 1
DATE 05/22/95 11:10:57
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
111200	TITLE I										
111200.00	TECHNICAL SERVICES										
111200.0000002	DEFIN/DESIGN CAT 1 @6% CONST	010	1 LS	0	0	0	0	202	0	0	202
	CAT 1 144,000 6%										
	CAT 2 360,000 15%. 40%										
	OF 1&2 = 504,000 TITLE I										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	202	0	0	202
TOTAL	COST CODE 01000			0	0	0	0	202	0	0	202
	WBS 111200										
	(ESCALATION 15.58% - CONTINGENCY		30.00 %)								
TOTAL WBS 111200 TITLE I				0	0	0	0	202	0	0	202

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WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 2
DATE 05/22/95 11:10:57
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
112100	TITLE II										
112100.00	TECHNICAL SERVICES										
112100.0000002	DEFIN/DESIGN CAT2 @15% CONST	020	1 LS	0	0	0	0	302	0	0	302
	CAT 1 144,000 6%										
	CAT 2 360,000 15%. 60%										
	OF 1&2 = 504,000 TITLE II										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	302	0	0	302
TOTAL	COST CODE 02000			0	0	0	0	302	0	0	302
	WBS 112100										
	(ESCALATION 19.39% - CONTINGENCY		30.00 %)								
TOTAL WBS 112100 TITLE II				0	0	0	0	302	0	0	302

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
122000	TITLE III										
122000.00	TECHNICAL SERVICES										
122000.0000002	ENGINEERING/INSP @9% CONST	030	1 LS	0	0	0	0	216	0	0	216
	SAME AS TITLE III										
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	216	0	0	216
TOTAL	COST CODE 03000			0	0	0	0	216	0	0	216
	WBS 122000										
	(ESCALATION 24.67% - CONTINGENCY 30.00 %)										
TOTAL WBS 122000 TITLE III				0	0	0	0	216	0	0	216

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
320002	BLDG STRUCTURE										
320002.13	SPECIAL CONSTRUCTION										
320002.1300002	DIRECT COST FOR COMPLETE 24,000 SF BLDG. PROVIDED BY WHC.	501	1 LS	0	0	0	0	2400	0	0	2400
SUBTOTAL	SPECIAL CONSTRUCTION			0	0	0	0	2,400	0	0	2,400
TOTAL	COST CODE 50113 WBS 320002 (ESCALATION 24.67% - CONTINGENCY 40.00 %)			0	0	0	0	2,400	0	0	2,400
TOTAL WBS 320002 BLDG STRUCTURE				0	0	0	0	2,400	0	0	2,400

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (DD STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 5
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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321000	CONSTRUCTION MANAGEMENT										
321000.00	TECHNICAL SERVICES										
321000.0000002	CONSTRUCTION MANAGEMENT IS AN ALLOWANCE @8% OF CONST.	501	1 LS	0	0	0	0	192	0	0	192
SUBTOTAL	TECHNICAL SERVICES			0	0	0	0	192	0	0	192
TOTAL	COST CODE 50100 WBS 321000 (ESCALATION 24.67% - CONTINGENCY 30.00 %)			0	0	0	0	192	0	0	192
TOTAL WBS 321000 CONSTRUCTION MANAGEMENT				0	0	0	0	192	0	0	192

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. H33/BLDG 12

** TEST - INTERACTIVE ESTIMATING **
H-33 ALTERNATE 2 SUPPORT FACILITY (UU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_ROB - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 6
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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
330200	DECOMMISSION										
330200.01	GENERAL REQUIRMENTS										
330200.0100002	DECOMMISSION	810	1 LS	0	0	0	0	3370	0	0	3370
SUBTOTAL	GENERAL REQUIRMENTS			0	0	0	0	3,370	0	0	3,370
TOTAL	COST CODE 81001 WBS 330200 (ESCALATION 221.39% - CONTINGENCY 35.00 %)			0	0	0	0	3,370	0	0	3,370
TOTAL WBS 330200 DECOMMISSION				0	0	0	0	3,370	0	0	3,370

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (DU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 7
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BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
400000	WHC PROJ MGMT										
400000.19	PROJECT MANAGEMENT										
400000.1900000	PROJECT MANAGEMENT ALLOWANCE	501	1 LS	0	0	0	0	168	0	0	168
SUBTOTAL	PROJECT MANAGEMENT			0	0	0	0	168	0	0	168
TOTAL	COST CODE 50119			0	0	0	0	168	0	0	168
	WBS 400000										
	(ESCALATION 20.69% - CONTINGENCY		30.00 %)								
TOTAL WBS 400000 WHC PROJ MGMT				0	0	0	0	168	0	0	168

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** IEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (OU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 8
DATE 05/22/95 11:10:58
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
500000	OTHER PROJECT COST										
500000.20	OTHER PROJECT COST										
500000.2000000	OTHER PROJECT COST IS AN ALLOWANCE AND IS APROX 40% OF THE TEC 3,480,000	900	1 LS	0	0	0	0	1392	0	0	1392
SUBTOTAL	OTHER PROJECT COST			0	0	0	0	1,392	0	0	1,392
TOTAL	COST CODE 90020 WBS 500000 (ESCALATION 12.61% - CONTINGENCY 30.00 %)			0	0	0	0	1,392	0	0	1,392
TOTAL WBS 500000 OTHER PROJECT COST				0	0	0	0	1,392	0	0	1,392

KAISER ENGINEERS HANFORD
WESTINGHOUSE HANFORD COMPANY
JOB NO. M33/BLDG 12

** TEST - INTERACTIVE ESTIMATING **
M-33 ALTERNATE 2 SUPPORT FACILITY (DU STORAGE)
PARAMETRIC R.O.M. ESTIMATE
DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

PAGE 9
DATE 05/22/95 11:10:58
BY GPH

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0	0	0	0	8,242	0	0	8,242

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SOLID WASTE AND MATERIALS SYSTEMS ALTERNATIVES STUDY

VOLUME IV

APPENDIX B.3

Alternative 3 Detailed Cost Estimate

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Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF B.3-90
Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF B.3-104
Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF B.3-116
Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF B.3-128
Table B.3-10e. Life-Cycle Cost Estimate for Miscellaneous Source Materials and UU Storage at the FMEF B.3-141
Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF B.3-143
Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF B.3-156

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B.3 ALTERNATIVE 3 COST SUMMARY

The cost estimates for Alternative 3 were compiled using the Construction Specifications Institute format to facilitate ease of tracking and grouping. The categories used on this project are listed as follows:

01	General Requirements
02	Site Work
03	Concrete
04	Masonry
05	Metals
06	Wood and Plastics
07	Thermal and Moisture Protection
08	Doors and Windows
09	Finishes
11	Equipment
13	Special Construction
14	Conveying Systems
15	Mechanical
16	Electrical

Parametric cost estimates were prepared utilizing information from previous estimates (Long-Term Decontamination Engineering Study, December 1994), established estimating manuals (R.S. Means, Richardson, etc.) Waste Management Facilities Cost Information Reports (EGG-WM-10701, EGG-WM-10962 and EGG-WM 11274) and engineering judgement. Information taken from estimating manuals was adjusted to reflect the labor and equipment rates that exist in the Hanford Site area. Construction and equipment items that significantly affect cost were addressed in greater detail than those items which have a smaller impact on cost.

Construction management and Title I, II and III engineering costs were estimated as percentages of the construction costs, as is standard practice. A contingency factor of 35% was identified and applied to account for the fact that the design is in a "pre-conceptual" stage and information is not available to identify all potential cost elements. All costs are escalated to the assumed midpoint of the construction phase. Establishment of the construction midpoint of the appropriate activity phase. Establishment of the midpoints was based on the assumed operational start date of January 2001, and reflects minor modification to the procurement requirements of DOE 4700.1.

A concerted effort was made to maintain the same level of detail and accuracy for all of the estimates to permit meaningful, cost based evaluation. General steps in the estimating procedure are listed as follows:

1. Identification of potential facilities;
2. Waste stream projections;
3. Process flow diagram development;
4. Establishment of assumed facility configurations;
5. Identification of necessary facility modifications;
6. Identification of process equipment;
7. Quantity take-off;
8. Estimate construction costs using historical data, estimating manuals and engineering judgment;
9. Assume percentages for engineering, construction management, contingency and escalation;
10. Estimate decontamination and decommissioning costs;
11. Estimate start-up, operation and maintenance costs; and
12. Perform life cycle cost analysis.

For the life-cycle cost analysis the following assumptions were made:

- Operational life is 2001 through 2023 for processing facilities and 2001 through 2028 for storage facilities;
- Design period is three years;
- Construction period is two years; and
- D&D period is one year and returns existing facilities to their current condition.

Tables B.3-1 and B.3-2 provide the estimate basis and contingency analysis while Tables B.3-3 and B.3-4 are a cost estimate summary and a comparison of storage facility costs.

B.3.1 T Plant for TRU Processing

The facility and process configuration for processing transuranic waste in the T Plant facility is described in Section 6.6.2.1.

Inasmuch as the T Plant canyon is contaminated, work performed there must be done with personal protective equipment in place. The effect on labor productivity is reflected in the estimated cost. In addition, equipment usage is increased by decreased labor productivity (equipment is on the job longer if productivity rates decrease). This cost is also reflected in the estimated cost.

Table B.3-5 provides the detailed cost estimate for this item.

B.3.2 MASF for TRU Processing

The facility and process configuration for processing transuranic waste in the MASF is described in Section 6.6.2.2.

The MASF Building is not contaminated; therefore, work performed there does not require the use of personal protective equipment. The enclosed structure will allow work to proceed without weather delays, etc.

Table B.3-6 provides the detailed cost estimate for this item.

B.3.3 Grout Vaults for LLMW Processing

The facility and process configuration for processing low level mixed waste in the existing grout vaults is described in Section 6.6.2.3.

Tables B.3-7a and B.3-7b provide the detailed cost estimates for this item.

B.3.4 MASF for LLMW Processing

The facility and process configuration for processing low level mixed waste in the MASF is described in Section 6.6.2.4.

The MASF is not contaminated; therefore, work performed there does not require the use of personal protective equipment. The enclosed structure will allow work to proceed without weather delays, etc.

Table B.3-8 provides the detailed cost estimate for this item.

B.3.5 T Plant for LLMW Processing

The facility and process configuration for processing low level mixed waste in the T Plant facility is described in Section 6.6.2.5.

Inasmuch as the T Plant canyon is contaminated, work performed there must be done with personal protective equipment in place. The effect on labor productivity is reflected in the estimated cost. In addition, equipment usage is increased by decreased labor productivity (equipment is on the job longer if productivity rates decrease). This cost is also reflected in the estimated cost.

Table B.3-9 provides the detailed cost estimate for this item.

B.3.6 FMEF for Storage

The facility modifications required to permit storage of RH TRU, RH LLMW, Sr and Cs capsules, UU and miscellaneous sources in the FMEF is described in Sections 6.6.2.6, 6.6.2.7, 6.6.2.8, and 6.6.2.9.

The FMEF is not contaminated and does not require the use of personal protective equipment in the performance of work within the facility.

Tables B.3-10a through B.3-10g provide the detailed cost estimate for these items.

Table B.3-1. Cost Estimate Basis Sheet.

ESTIMATE BASIS SHEET

1. DOCUMENTS AND DRAWINGS

See the report for Alternative 3, including the list of figures.

2. MATERIAL PRICES

Material prices represent current prices for equipment at the time the LTDS estimate was prepared. Prices were developed based on vendor budgetary quotations, estimating manuals (Richardson, R.S. Means, etc.), historical data and estimator experience.

3. LABOR RATES

Labor rates are based on the Hanford Site Stabilization Agreement and included fringe benefits, labor insurance, taxes, small tool allowance, etc. For labor that must be performed in contaminated areas, an allowance for reduced productivity due to working in personal protective equipment is included in the hourly labor rate.

4. GENERAL REQUIREMENTS

It was assumed that the construction contract would be competitively bid on a fixed price basis.

5. REMARKS

See the main body of the report, Alternative 3, for greater detail of the assumptions for costing purposes.

Table B.3-2. Contingency Analysis Basis Sheet.

CONTINGENCY ANALYSIS BASIS SHEET

THE U.S. DEPARTMENT OF ENERGY ORDER 4700.1 "PROJECT MANAGEMENT SYSTEM" DATED 3-6-87, PROVIDES GUIDELINES FOR ESTIMATE CONTINGENCIES. THIS ESTIMATE IS BASED ON A PRE-CONCEPTUAL DESIGN, WITH MANY DETAILS NOT YET DEFINED. SINCE THE LEVEL OF DETAIL IS SIMILAR FOR EACH PHASE OF THE PROJECT, A UNIFORM CONTINGENCY OF 35% HAS BEEN APPLIED TO ALL PORTIONS OF THE ESTIMATE. THIS IS CONSISTENT WITH THE RECOMMENDATIONS OF THE COST ESTIMATING HANDBOOK FOR ENVIRONMENTAL RESTORATION, DATED 3-30-95.

ENGINEERING	35%
CONSTRUCTION	35%
AVERAGE PROJECT CONTINGENCY	35%

Table B.3-3. Alternative 3 Cost Estimate Summary.

ALTERNATIVE 3
COST ESTIMATE
SUMMARY

PROCESSING

WASTE STREAM	FACILITY	CONSTR COST	TITLE I & II	TITLE III	CONSTR MGMT	WHC PROJ MGMT	OPC	TOTAL	WITH CONTINGENCY	LCC CURRENT $	LCC ESCALATED
RH TRU											
	T PLANT	$35,418,996	$7,437,989	$3,187,710	$3,541,900	$2,479,330	$5,206,592	$57,272,517	$77,317,897	$342,478,684	$562,273,551
	MASF	$23,737,496	$4,984,874	$2,136,375	$2,373,750	$1,661,625	$3,489,412	$38,383,531	$51,817,767	$312,992,554	$526,379,220
RH LLMW											
	GROUT, SC1	$18,803,223	$3,948,677	$1,692,290	$1,880,322	$1,316,226	$2,764,074	$30,404,812	$41,046,496	$217,911,461	$364,139,271
	GROUT, SC2	$19,791,500	$4,156,215	$1,781,235	$1,979,150	$1,385,405	$2,909,351	$32,002,856	$43,203,855	$307,570,234	$525,958,142
	MASF	$21,608,180	$4,537,718	$1,944,736	$2,160,818	$1,512,573	$3,176,402	$34,940,427	$47,169,577	$305,796,788	$516,967,658
	T PLANT	$33,231,154	$6,978,542	$2,990,804	$3,323,115	$2,326,181	$4,884,980	$53,734,776	$72,541,948	$337,364,532	$556,241,035

STORAGE

WASTE STREAM	FACILITY	CONSTR. COST	TITLE I & II	TITLE III	CONSTR. MGMT	WHC PROJ MGMT	OPCs	TOTAL	WITH 35% CONTINGENCY	LCC CURRENT $	LCC ESCALATED
HLW CANISTERS	CANYONS (3)	$117,000,000	$24,570,000	$10,530,000	$11,700,000	$8,190,000	$17,199,000	$189,189,000	$255,405,150	$325,786,518	$428,644,240
RH TRU	FMEF	$3,044,329	$639,309	$273,990	$304,433	$213,103	$447,516	$4,922,680	$6,645,618	$186,499,373	$360,390,666
LLMW	FMEF	$3,044,329	$639,309	$273,990	$304,433	$213,103	$447,516	$4,922,680	$6,645,618	$186,499,373	$360,390,666
Cs/Sr	FMEF	$3,077,003	$646,171	$276,930	$307,700	$215,390	$452,319	$4,975,514	$6,716,944	$77,100,570	$145,876,714
DU	FMEF	$1,640,603	$344,527	$147,654	$164,060	$114,842	$241,169	$2,652,855	$3,581,354	$73,350,360	$141,014,464
MISC SOURCES	FMEF	$133,239	$27,980	$11,992	$13,324	$9,327	$19,586	$215,447	$290,854	$66,924,399	$131,121,482

Table B.3-4. Storage Facility Cost Comparison (Costs in Millions).

	CONSTRUCTION	LIFE CYCLE
TRANSURANIC WASTE STORAGE		
Fuel Materials Examination Facility (FMEF)	7[1]	187
Central Waste Complex (CWC) Expansion	26[2]	
LOW-LEVEL MIXED WASTE STORAGE		
FMEF	7	187
CWC Expansion	26[2]	
GREATER THAN CATEGORY III STORAGE		
Future Remote-Handled (RH) Storage Facility at CWC	272[3]	
Future Contact-Handled (CH) Storage Facility at CWC	55[3]	
HIGH-LEVEL WASTE CANISTER STORAGE		
Canyon Facilities	255[4]	528
Modular Vault Dry Storage	100[5]	429
CESIUM/STRONTIUM CAPSULE STORAGE		
FMEF	7	77
Waste Encapsulation and Storage Facility	30[6]	671
UNIRRADIATED URANIUM AND MISCELLANEOUS SOURCE STORAGE		
FMEF	5	74
Existing Locations	0.04[7]	32

1. Storage Space available at FMEF is less than required.
2. The cost of RH and CH GTC3 storage includes the cost of RH and CH TRU and LLMW storage.
3. Estimates are based on projected storage space required and average cost per square foot.
4. Based on the costs to upgrade u Plant, applied to three canyons.
5. Based on Foster Wheeler estimate and engineering judgement.
6. Estimate for construction costs provided by WEST staff; M&O costs obtained from current ADS documents.
7. Based on current operating costs and a $400,000 upgrade estimate.

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 1 of 14

LIFE-CYCLE ESTIMATE FOR T PLANT, TRU PROCESSING (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 12:55:32

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	4,669,047			691,711	2,420,745							7,781,502
1997	3,216,351			714,745	2,501,356							8,432,452
1998	2,769,546			738,546	2,584,651							8,092,742
1999	2,207,653	24,529,475	2,452,947	763,139								29,953,214
2000	2,788,093	30,976,619	3,097,661	788,552								37,653,345
2001						5,477,358	2,208,799	1,825,788	829,833		3,651,572	13,993,347
2002						5,659,754	2,282,352	1,886,585	857,466		3,773,169	14,459,326
2003						5,848,223	2,358,355	1,949,408	886,020		3,898,816	14,940,821
2004						6,042,969	2,436,888	2,014,323	915,525		4,028,646	15,438,351
2005						6,244,200	2,518,036	2,081,400	946,012		4,162,800	15,952,448
2006						6,452,132	2,601,887	2,150,711	977,514		4,301,421	16,483,664
2007						6,666,968	2,688,530	2,222,329	1,010,065		4,444,659	17,032,570
2008						6,888,999	2,778,058	2,296,333	1,043,700		4,592,666	17,599,755
2009						7,118,402	2,870,567	2,372,801	1,078,455		4,745,601	18,185,827
2010						7,255,445	2,966,157	2,451,815	1,114,368		4,903,630	18,791,415
2011						7,500,381	3,064,930	2,533,460	1,151,476		5,066,921	19,417,169
2012						7,953,474	3,166,992	2,617,925	1,189,821		5,235,649	20,063,781
2013						8,114,995	3,272,453	2,704,998	1,229,442		5,409,996	20,731,884
2014						8,385,224	3,381,425	2,795,075	1,270,382		5,590,149	21,422,256
2015						8,664,452	3,494,027	2,888,151	1,312,686		5,776,301	22,135,617
2016						8,952,978	3,610,378	2,984,326	1,356,398		5,968,652	22,872,733
2017						9,251,112	3,730,604	3,083,704	1,401,568		6,167,408	23,634,395
2018						9,559,175	3,854,833	3,186,392	1,448,238		6,372,783	24,421,420
2019						9,877,495	3,983,199	3,292,498	1,496,465		6,584,997	25,234,653
2020						10,206,418	4,115,839	3,402,139	1,546,297		6,804,277	26,074,967
2021						10,546,289	4,252,597	3,515,430	1,597,789		7,030,659	26,943,264
2022						10,897,481	4,394,518	3,632,494	1,650,995		7,264,587	27,840,474
2023						11,260,367	4,540,656	3,753,458	1,705,973		7,506,911	28,767,562
2024										1,922,618		1,922,618
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	15,650,890	55,506,294	5,550,829	3,696,692	7,506,752	184,924,308	74,572,578	61,641,436	28,018,485	1,922,618	123,282,972	562,273,551

LIFE-CYCLE ESTIMATE FOR T PLANT, TRU PROCESSING — SUMMARY (ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$15,650,890	2.8%
TITLE I, II & III	$15,650,890		
CONSTRUCTION		$61,059,122	10.9%
FACILITY	$55,508,294		
CONSTRUCTION MANAGEMENT	$5,550,829		
EXPENSE COSTS		11,203,443	2.0%
WHC PROJECT MANAGEMENT	$3,696,692		
OTHER PROJECT COSTS	7,506,752		
OPERATING & MAINTENANCE COST		$472,437,677	84.0%
OPERATIONS	$259,496,885		
MAINTENANCE	$89,657,921		
PROJECT MANAGEMENT	$123,282,872		
DECONTAMINATION & DECOMMISSIONING		$1,922,618	0.3%
TOTAL COST	$1,922,618		
TOTAL LIFE-CYCLE COST		$562,273,551	100.0%

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 2 of 14

LIFE-CYCLE ESTIMATE FOR T PLANT, TRU PROCESSING (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	4,518,576			669,419	2,342,732							7,530,729
1997	3,012,386			669,419	2,342,732							6,024,537
1998	2,510,321			669,419	2,342,732							5,522,472
1999	1,936,534	21,517,040	2,151,704	669,419								26,274,697
2000	2,366,874	26,298,605	2,629,860	669,419								31,964,758
2001						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2002						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2003						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2004						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2005						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2006						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2007						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2008						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2009						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2010						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2011						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2012						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2013						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2014						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2015						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2016						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2017						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2018						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2019						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2020						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2021						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2022						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2023						4,500,000	1,814,670	1,500,000	581,761		3,000,000	11,496,431
2024										743,578		743,578
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	14,344,693	47,815,645	4,781,564	3,347,095	7,028,196	103,500,000	41,737,410	34,500,000	5,680,503	743,578	69,000,000	342,478,684

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$14,344,693	4.2%
TITLE I, II & III	$14,344,693		
CONSTRUCTION		$52,597,209	15.4%
FACILITY	$47,815,645		
CONSTRUCTION MANAGEMENT	$4,781,564		
EXPENSE COSTS		10,375,291	3.0%
WHC PROJECT MANAGEMENT	$3,347,095		
OTHER PROJECT COSTS	7,028,196		
OPERATING & MAINTENANCE COST		$264,417,913	77.2%
OPERATIONS	$145,237,410		
MAINTENANCE	$50,180,503		
PROJECT MANAGEMENT	$69,000,000		
DECONTAMINATION & DECOMMISSIONING		$743,578	0.2%
TOTAL COST	$743,578		
TOTAL LIFE-CYCLE COST		$342,478,684	100.0%

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 3 of 14

T PLANT
TRANSURANIC WASTE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$35,418,996	35%	$12,396,649	$47,815,645	17.79%	$8,506,403	$56,322,048
TITLE I AND TITLE II ENGINEERING	21%	$7,437,989	35%	$2,603,296	$10,041,285	10.24%	$1,028,228	$11,069,513
TITLE III ENGINEERING	9%	$3,187,710	35%	$1,115,698	$4,303,408	17.79%	$765,576	$5,068,984
CONSTRUCTION MANAGEMENT	10%	$3,541,900	35%	$1,239,665	$4,781,564	17.79%	$850,640	$5,632,205
WHC PROJECT MANAGEMENT	7%	$2,479,330	35%	$867,765	$3,347,095	17.79%	$595,448	$3,942,543
SUBTOTAL		$52,065,924		$18,223,073	$70,288,997		$11,746,296	$82,035,293
OTHER PROJECT COSTS	10%	$5,206,592	35%	$1,822,307	$7,028,900	15.13%	$1,063,473	$8,092,372
TOTAL		$57,272,516		$20,045,381	$77,317,897		$12,809,768	$90,127,665

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 4 of 14

CSI SUMMARY							
CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS					$8,869,848	$8,869,848
02	SITEWORK						
03	CONCRETE					$760,000	$760,000
04	MASONRY						
05	METALS					$80,000	$80,000
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS						
08	THERMAL AND MOISTURE PROT.						
09	FINISHES					$120,000	$120,000
010	SPECIALTIES						
011	EQUIPMENT	$11,098,606	$3,367,567	$183,772		$1,300,000	$15,949,944
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION				$310,000	$1,280,000	$1,590,000
014	CONVEYING SYSTEMS	$5,735,000	$598,406	$108,500		$605,000	$7,046,906
015	MECHANICAL					$850,500	$850,500
016	ELECTRICAL					$2,152,000	$2,152,000
	TOTAL	$16,833,606	$3,965,973	$292,271	$310,000	$14,017,148	$35,418,998

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 5 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	GENERAL REQUIREMENTS												$8,869,646	$8,869,646
	CLEAN OUT HEAD END	1	LS										$2,400,000	$2,400,000
	CLEAN CANYON/ZONE REDUCTION	1	LS										$3,300,000	$3,300,000
	FIRE PROTECTION INTERLOCKS	1	LS										$159,646	$159,646
	INSTR AND CONTROLS (C-159)	1	LS										$1,010,000	$1,010,000

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 6 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
03	CONCRETE												$760,000	$760,000
	ROOF RESURFACE/CONC REPAIR	1	LS										$760,000	$760,000

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 7 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO.	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
05	METALS												$80,000	$80,000
	EQUIPMENT PLATFORM, 3 FT	20	TON										$80,000	$80,000

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 8 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
08	THERMAL AND MOISTURE PROT.													
	ROOF RESURFACE(SEE SECTION 030)													

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 9 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO.	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
09	FINISHES												$120,000	$120,000
	PAINT GALLERIES	92000	SF										$120,000	$120,000

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant.

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
011	EQUIPMENT				$11,098,606			$3,367,567			$183,772		$1,300,000	$15,949,944
	REMOVE WASTE													
	BOOM CRANE, 10 TON	1	EA	$150,000	$150,000	400	$75.93	$30,372	200	$26.79	$5,358			$185,730
	CONTAINER OPENING MANIPULATOR	2	EA	$137,124	$274,248	400	$75.93	$60,744	100	$26.79	$5,358			$340,350
	SMEAR SURVEY STATION	1	EA	$1,000	$1,000	40	$75.93	$3,037	10	$26.79	$268			$4,305
	CONTAINER PROCESSING													
	SHREDDER	1	EA	$51,510	$51,510	1073	$84.85	$91,044	106	$31.68	$3,358			$145,912
	WASTE PACKAGING													
	PLATFORM SCALE	4	EA	$22,854	$91,416	400	$75.93	$121,488	40	$26.79	$4,286			$217,190
	SHAKER	4	EA	$22,854	$91,416	500	$75.93	$151,860	100	$26.79	$10,716			$253,992
	MANIPULATOR	2	EA	$514,215	$1,028,430	800	$75.93	$121,488	200	$26.79	$10,716			$1,160,634
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$75.93	$121,488	200	$26.79	$10,716			$1,937,004
	SIZE REDUCTION													
	MECHANICAL SIZE RED	2	EA	$718,865	$1,437,730	8378	$87.50	$1,118,150	718	$19.78	$28,325			$2,582,205
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$75.93	$121,488	200	$26.79	$10,716			$1,937,004
	ASSAY													
	BUCKET ASSAY SYSTEM	2	EA	$285,675	$571,350	800	$75.93	$121,488	200	$26.79	$10,716			$703,554
	SORT													
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$75.93	$60,744	200	$26.79	$5,358			$968,502
	SORT CONVEYOR	30	LF	$1,700	$51,000	4	$75.93	$9,112	1	$26.79	$804			$60,915
	ST STL ENCLOSURE, W/HEPA	1	LS	$125,697	$125,697	800	$75.93	$60,744	200	$26.79	$5,358			$191,799
	STABILIZATION													
	POLYETHYLENE EXTRUSION SYSTEM	1	EA										$1,000,000	$1,000,000
	GROUT MODULE	2	EA	$75,998	$151,996	2715	$79.26	$430,382	605	$19.64	$23,764			$606,142
	ST STL ENCLOSURE, W/HEPA	3	EA	$125,697	$377,091	800	$75.93	$182,232	200	$26.79	$18,074			$575,397
	MANIPULATOR FOR GROUT MODULES	2	EA	$514,215	$1,028,430	800	$75.93	$121,488	200	$26.79	$10,716			$1,160,634
	WASTE PACKAGING													
	DRUMS	1	LS	$97,016	$97,016	1735	$80.65	$139,928	90	$53.58	$4,822			$241,766
	BOXES	1	LS	$626,926	$626,926	2341	$83.72	$195,989	155	$53.58	$8,305			$831,219
	REMOTE OPERATED FORKLIFT	1	EA										$300,000	$300,000
	ASSAY													
	ASSAY STATION	2	EA	$285,675	$571,350	800	$75.93	$121,488	200	$26.79	$10,716			$703,554
	SMEAR SURVEY STATION	2	EA	$5,000	$10,000	100	$75.93	$15,186	50	$26.79	$2,679			$27,865

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 11 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
013	SPECIAL CONSTRUCTION											$310,000	$1,280,000	$1,590,000
	CONTROL ROOM (C-159)	1	LS										$1,000,000	$1,000,000
	FIBER OPTICS TO CONTROL	1	LS										$100,000	$100,000
	CLOSED CIRCUIT TV	1	LS									$310,000		$310,000
	PROCESS LOGIC CONTROLLER	1	LS										$30,000	$30,000
	BAR CODE SYSTEM	1	LS										$150,000	$150,000

Table B 3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 12 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
014	CONVEYING SYSTEMS				$5,735,000			$598,406			$108,500		$805,000	$7,046,906
	CRANE UPGRADES (75 TON)	1	LS										$455,000	$455,000
	CRANE UPGRADES (10 TON)	1	LS										$150,000	$150,000
	CONVEYOR SYSTEM, LARGE, BASE	1000	LF	$1,700	$1,700,000	4	$53.02	$212,080	1	$26.79	$26,790			$1,938,870
	CONVEYOR SYSTEM, LARGE, UPPER	1000	LF	$1,500	$1,500,000	3	$53.02	$159,060	1	$26.79	$26,790			$1,685,850
	CONVEYOR SYSTEM, SMALL, UPPER	2000	LF	$1,200	$2,400,000	2	$53.02	$212,080	1	$26.79	$53,580			$2,665,660
	SHUTTLE SYSTEM, SIZE REDUCTION	20	LF	$1,700	$34,000	4	$75.93	$6,074	1	$26.79	$536			$40,610
	SHUTTLE SYSTEM, ASSAY	30	LF	$1,700	$51,000	4	$75.93	$9,112	1	$26.79	$804			$60,915
	CONVEYOR BUCKETS	50	EA	$1,000	$50,000									$50,000

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 13 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
015	MECHANICAL												$850,500	$850,500
	DISCONNECT STEAM SYSTEM	1	LS										$500,000	$500,000
	GALLERY HEAT PUMPS, 15T	1	LS										$37,500	$37,500
	CANYON HEAT PUMP, 60T	1	LS										$150,000	$150,000
	GALLERY FIRE SUPPRESSION SYSTEM	1	LS										$163,000	$163,000

Table B.3-5. Life-Cycle Cost Estimate for Processing Transuranic Waste at T Plant. 14 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO.	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
016	ELECTRICAL												$2,152,000	$2,152,000
	ELECTRICAL UPGRADES (C-167)	1	LS										$2,000,000	$2,000,000
	LIGHTING UPGRADES - GALLERY	1	LS										$152,000	$152,000

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 1 of 14

LIFE-CYCLE ESTIMATE FOR MASF, TRU PROCESSING (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 13:13:43

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EOP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	3,129,154			463,579	1,622,362							5,215,094
1997	2,155,570			479,018	1,676,386							4,310,972
1998	1,866,125			494,967	1,732,210							4,093,302
1999	1,479,550	16,439,436	1,643,944	511,449								20,074,379
2000	1,868,556	20,781,729	2,076,173	528,461								25,234,938
2001						5,477,358	2,208,799	1,825,786	804,139		3,651,572	13,767,653
2002						5,659,754	2,282,352	1,886,585	624,257		3,773,169	14,226,116
2003						5,848,223	2,358,355	1,949,408	645,045		3,898,816	14,699,846
2004						6,042,969	2,436,868	2,014,323	666,525		4,028,646	15,189,351
2005						6,244,200	2,518,036	2,081,400	688,720		4,162,800	15,695,158
2006						6,452,132	2,601,867	2,150,711	711,654		4,301,421	16,217,805
2007						6,666,988	2,688,530	2,222,329	735,352		4,444,659	16,757,858
2008						6,888,999	2,778,058	2,296,333	759,840		4,592,666	17,315,894
2009						7,118,402	2,870,567	2,372,801	785,142		4,745,601	17,892,514
2010						7,355,445	2,966,157	2,451,815	811,288		4,903,630	18,488,334
2011						7,600,381	3,064,930	2,533,480	838,303		5,066,921	19,103,998
2012						7,853,474	3,166,992	2,617,825	866,219		5,235,649	19,740,159
2013						8,114,996	3,272,453	2,704,998	895,064		5,409,998	20,397,508
2014						8,385,224	3,381,425	2,795,075	924,870		5,590,149	21,076,743
2015						8,664,452	3,494,027	2,888,151	955,668		5,776,301	21,778,599
2016						8,952,978	3,610,378	2,984,326	987,492		5,968,652	22,503,826
2017						9,251,112	3,730,604	3,083,704	1,020,375		6,167,408	23,253,204
2018						9,559,175	3,854,833	3,186,392	1,054,354		6,372,783	24,027,535
2019						9,877,495	3,983,199	3,292,498	1,089,464		6,584,997	24,827,552
2020						10,206,416	4,115,839	3,402,139	1,125,743		6,804,277	25,654,413
2021						10,546,299	4,252,897	3,515,430	1,163,230		7,030,859	26,508,705
2022						10,897,481	4,394,518	3,632,494	1,201,965		7,264,987	27,391,445
2023						11,260,387	4,540,856	3,753,456	1,241,991		7,506,911	28,303,560
2024										2,642,644		2,642,644
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	10,488,954	37,201,165	3,720,116	2,477,492	5,030,958	184,924,308	74,572,578	61,641,438	20,396,699	2,642,644	123,282,872	526,379,220

LIFE-CYCLE ESTIMATE FOR MASF, TRU PROCESSING

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$10,488,954	2.0%
TITLE I, II & III	$10,488,954		
CONSTRUCTION		$40,921,281	7.8%
FACILITY	$37,201,165		
CONSTRUCTION MANAGEMENT	$3,720,116		
EXPENSE COSTS		7,508,450	1.4%
WHC PROJECT MANAGEMENT	$2,477,492		
OTHER PROJECT COSTS	5,030,958		
OPERATING & MAINTENANCE COST		$464,817,892	88.3%
OPERATIONS	$259,496,885		
MAINTENANCE	$82,038,135		
PROJECT MANAGEMENT	$123,282,872		
DECONTAMINATION & DECOMMISSIONING		$2,642,644	0.5%
TOTAL COST	$2,642,644		
TOTAL LIFE-CYCLE COST		$526,379,220	100.0%

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 2 of 14

LIFE-CYCLE ESTIMATE FOR MASF, TRU PROCESSING (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ MGMT	OTHER PROJ COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	3,028,311			448,639	1,570,078							5,047,028
1997	2,018,874			448,639	1,570,078							4,037,591
1998	1,682,395			448,639	1,570,078							3,701,112
1999	1,297,846	14,420,529	1,442,053	448,639								17,609,066
2000	1,586,258	17,625,091	1,762,509	448,639								21,422,497
2001						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2002						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2003						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2004						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2005						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2006						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2007						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2008						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2009						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2010						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2011						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2012						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2013						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2014						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2015						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2016						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2017						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2018						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2019						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2020						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2021						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2022						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2023						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2024						4,500,000	1,814,670	1,500,000	496,339		3,000,000	11,311,009
2025										1,022,050		1,022,050
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	3,613,686	32,045,620	3,204,562	2,243,195	4,710,234	103,500,000	41,737,410	34,500,000	11,415,797	1,022,050	69,000,000	312,992,554

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$9,613,686	$9,613,686	3.1%
CONSTRUCTION			
FACILITY	$32,045,620	$35,250,182	11.2%
CONSTRUCTION MANAGEMENT	$3,204,562		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$2,243,195	6,953,429	2.2%
OTHER PROJECT COSTS	4,710,234		
OPERATING & MAINTENANCE COST			
OPERATIONS	$145,237,410	$260,153,207	83.1%
MAINTENANCE	$45,915,797		
PROJECT MANAGEMENT	$69,000,000		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$1,022,050	$1,022,050	0.3%
TOTAL LIFE-CYCLE COST		$312,992,554	100.0%

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 3 of 14

MASF
TRANSURANIC WASTE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$23,737,496	35%	$8,308,124	$32,045,620	17.79%	$5,700,916	$37,746,536
TITLE I AND TITLE II ENGINEERING	21.00%	$4,984,874	35%	$1,744,706	$6,729,580	10.24%	$689,109	$7,418,689
TITLE III ENGINEERING	9.00%	$2,136,375	35%	$747,731	$2,884,106	17.79%	$513,082	$3,397,188
CONSTRUCTION MANAGEMENT	10.00%	$2,373,750	35%	$830,812	$3,204,562	17.79%	$570,092	$3,774,654
WHC PROJECT MANAGEMENT	7.00%	$1,661,625	35%	$581,569	$2,243,193	17.79%	$399,064	$2,642,258
SUBTOTAL		$34,894,120		$12,212,942	$47,107,062		$7,872,263	$54,979,325
OTHER PROJECT COSTS	10.00%	$3,489,412	35%	$1,221,294	$4,710,706	15.13%	$1,191,073	$5,901,780
TOTAL		$38,383,532		$13,434,236	$51,817,768		$9,063,336	$60,881,104

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 4 of 14

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS					$500,000	$500,000
02	SITE WORK						
03	CONCRETE	$329,282	$779,953	$146,324			$1,255,558
04	MASONRY						
05	METALS	$300,000	$31,836	$12,371		$5,000,000	$5,344,207
06	WOOD AND PLASTICS						
07	THERMAL AND MOISTURE PROT.						
08	DOORS AND WINDOWS	$250,000	$19,068	$2,749			$271,817
09	FINISHES	$8,786	$17,320				$26,106
010	SPECIALTIES						
011	EQUIPMENT	$10,638,280	$1,585,058	$142,186		$1,300,000	$13,665,524
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION					$150,000	$150,000
014	CONVEYING SYSTEMS	$1,317,000	$141,563	$22,504			$1,481,067
015	MECHANICAL					$425,000	$425,000
016	ELECTRICAL	$550,760	$60,760	$6,698			$618,218
	TOTAL	$13,394,108	$2,635,558	$332,831		$7,376,000	$23,737,496

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 5 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	GENERAL REQUIREMENTS												$500,000	$500,000
	STRUCTURAL ANALYSIS	1	LS										$500,000	$500,000

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 6 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
03	CONCRETE				$329,282			$779,953			$148,324			$1,255,558
	MAIN CONVEYOR COVER													
	WALLS, 2 FT THICK	900	CY	$203	$182,736	11.3	$47.67	$484,804	4	$25.99	$93,564			$761,104
	ELEVATED SLAB, 2 FT THICK	970	CY	$144	$140,049	6.1	$47.67	$282,063	2	$25.99	$50,421			$472,633
	COLUMNS	45	CY	$144	$6,497	6.1	$47.67	$13,085	2	$25.99	$2,339			$21,922

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF 7 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$300,000			$31,838			$12,371		$5,000,000	$5,344,207
	MAIN STRUCTURE													
	UPGRADE TO HAZ CAT 3	1	LS										$5,000,000	$5,000,000
	TOP OPENING CLAM DOORS	3	EA	$100,000	$300,000	200	$53.06	$31,838	160	$27.49	$12,371			$344,207

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 8 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
08	DOORS AND WINDOWS				$250,000			$19,068			$2,749			$271,817
	CONCRETE STRUCTURE													
	VIEWING WINDOWS	10	EA	$25,000	$250,000	40	$47.67	$19,068	10	$27.49	$2,749			$271,817

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 9 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
09	FINISHES				$8,786			$17,320						$26,106
	CONCRETE STRUCTURE													
	PAINT INSIDE OF STRUCTURE	38200	SF	$0.23	$8,786	0.01	$45.34	$17,320						$26,106

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 10 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
011	EQUIPMENT				$10,638,280			$1,585,058			$142,188		$1,300,000	$13,665,524
	REMOVE WASTE													
	CONTAINER OPENING MANIPULATOR	2	EA	$137,124	$274,248	400	$53.02	$42,416	100	$26.79	$5,358			$322,022
	SMEAR SURVEY STATION	1	EA	$1,000	$1,000	40	$53.02	$2,121	10	$26.79	$268			$3,389
	CONTAINER PROCESSING													
	SHREDDER	1	EA	$51,510	$51,510	1073	$53.02	$56,890	106	$31.68	$3,358			$111,759
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53.02	$42,416	200	$26.79	$5,358			$950,174
	LLW PACKAGING													
	COMPACTOR	1	EA	$57,135	$57,135	240	$53.02	$12,725	80	$26.79	$2,143			$72,003
	PLATFORM SCALE	1	EA	$22,854	$22,854	400	$53.02	$21,208	40	$26.79	$1,072			$45,134
	SHAKER	1	EA	$22,854	$22,854	500	$53.02	$26,510	100	$26.79	$2,679			$52,043
	MANIPULATOR	1	EA	$514,215	$514,215	800	$53.02	$42,416	200	$26.79	$5,358			$561,989
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53.02	$42,416	200	$26.79	$5,358			$950,174
	SIZE REDUCTION													
	MECHANICAL SIZE RED	2	EA	$892,173	$1,784,346	4000	$55.25	$442,000	2000	$7.20	$28,800			$2,255,146
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$53.02	$84,832	200	$26.79	$10,716			$1,900,348
	ASSAY													
	BUCKET ASSAY SYSTEM	2	EA	$285,675	$571,350	800	$53.02	$84,832	200	$26.79	$10,716			$666,898
	SORT													
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$53.02	$84,832	200	$26.79	$10,716			$1,900,348
	STABILIZATION													
	POLYETHYLENE EXTRUSION SYSTEM	1	EA										$1,000,000	$1,000,000
	GROUT MODULE	2	EA	$75,998	$151,996	2715	$53.02	$287,899	605	$19.64	$23,784			$463,659
	MANIPULATORS FOR GROUT MODULE	2	EA	$514,215	$1,028,430	800	$53.02	$84,832	200	$26.79	$10,716			$1,123,978
	WASTE PACKAGING													
	DRUMS	1	LS	$97,016	$97,016	1735	$53.02	$91,990	90	$53.58	$4,822			$193,828
	BOXES	1	LS	$626,926	$626,926	2341	$53.02	$124,120	155	$53.58	$8,305			$759,351
	REMOTE OPERATED FORKLIFT	1	EA										$300,000	$300,000
	ASSAY													
	DOSE SURVEY STATION	1	EA	$20,000	$20,000	200	$53.02	$10,604	100	$26.79	$2,679			$33,283

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 11 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
013	SPECIAL CONSTRUCTION												$150,000	$150,000
	TRACKING													
	BAR CODE SYSTEM	1	6										$150,000	$150,000

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 12 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	**CONVEYING SYSTEMS**				$1,317,000			$141,563			$22,604			$1,481,067
	CONVEYOR SYSTEM, HEAVY, LOWER	230	LF	$1,700	$391,000	4	$53.02	$48,778	1	$26.79	$6,162			$445,940
	CONVEYOR SYSTEM, HEAVY, UPPER	230	LF	$1,500	$345,000	3	$53.02	$36,584	1	$26.79	$6,162			$387,746
	CONVEYOR SYSTEM, LIGHT	230	LF	$1,200	$276,000	2	$53.02	$24,389	1	$26.79	$6,162			$306,551
	CONVEYOR BUCKETS	50	EA	$1,000	$50,000									$50,000
	MISC. CONVEYOR SHUTTLES	150	LF	$1,700	$255,000	4	$53.02	$31,812	1	$26.79	$4,019			$290,831

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 13 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
015	MECHANICAL												$426,000	$426,000
	HEPA FILTRATION SYSTEM MODS	1	LS										$300,000	$300,000
	VENTILATION SYSTEM MODS	1	LS										$126,000	$126,000

Table B.3-6. Life-Cycle Cost Estimate for Processing Transuranic Waste at the MASF. 14 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
016	ELECTRICAL				$550,760			$60,760			$8,698			$618,218
	MOTOR STARTERS	12	EA	$4,230	$50,760	40	$62.00	$29,760						$80,520
	ELECTRICAL MODS TO BUILDING	1	LS	$500,000	$500,000	500	$62.00	$31,000	250	$26.79	$8,698			$537,698

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 1. 1 of 13

LIFE-CYCLE ESTIMATE FOR GROUT VAULTS, LLMW PROCESSING (ESCALATED DOLLARS) 04/28/95
SCENARIO 1
CLIENT: WESTINGHOUSE HANFORD COMPANY 13:18:41
ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	2,478,702			367,215	1,285,125							4,131,041
1997	1,707,495			379,443	1,327,919							3,414,858
1998	1,470,285			392,079	1,372,139							3,234,513
1999	1,171,998	13,022,198	1,302,220	405,135								15,901,551
2000	1,460,142	16,446,023	1,644,602	418,626								19,989,393
2001						3,042,978	1,465,789	1,217,191	494,249		3,042,978	9,263,181
2002						3,144,308	1,514,579	1,257,723	510,707		3,144,308	9,571,624
2003						3,249,013	1,565,014	1,299,605	527,714		3,249,013	9,890,359
2004						3,357,205	1,617,129	1,342,882	545,287		3,357,205	10,219,708
2005						3,469,000	1,670,960	1,387,500	563,445		3,469,000	10,560,025
2006						3,584,518	1,726,623	1,433,807	582,207		3,584,518	10,911,673
2007						3,703,882	1,784,120	1,481,553	601,595		3,703,882	11,275,032
2008						3,827,221	1,843,531	1,530,889	621,628		3,827,221	11,650,491
2009						3,954,668	1,904,921	1,581,867	642,328		3,954,668	12,038,452
2010						4,086,358	1,968,355	1,634,543	663,718		4,086,358	12,439,333
2011						4,222,434	2,033,901	1,688,974	685,820		4,222,434	12,853,562
2012						4,363,041	2,101,630	1,745,216	708,657		4,363,041	13,281,586
2013						4,508,330	2,171,514	1,803,332	732,256		4,508,330	13,723,863
2014						4,658,458	2,243,929	1,863,383	756,640		4,658,458	14,180,867
2015						4,813,584	2,318,652	1,925,434	781,836		4,813,584	14,653,090
2016						4,973,877	2,395,863	1,989,551	807,871		4,973,877	15,141,038
2017						5,139,507	2,475,645	2,055,803	834,773		5,139,507	15,645,235
2018						5,310,653	2,558,084	2,124,261	862,571		5,310,653	16,166,221
2019						5,487,497	2,643,258	2,194,999	891,295		5,487,497	16,704,556
2020						5,670,231	2,731,289	2,268,092	920,975		5,670,231	17,260,818
2021						5,859,050	2,822,241	2,343,620	951,643		5,859,050	17,835,603
2022						6,054,158	2,916,222	2,421,662	983,333		6,054,158	18,429,529
2023						6,255,759	3,013,332	2,502,304	1,016,078		6,255,759	19,043,232
2024										4,728,857		4,728,857
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	3,308,631	29,468,221	2,946,822	1,962,499	3,985,183	102,735,727	49,468,890	41,094,291	16,686,624	4,728,857	102,735,727	364,139,271

LIFE-CYCLE ESTIMATE FOR GROUT VAULTS, LLMW PROCESS

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$8,308,631	$8,308,631	2.3%
CONSTRUCTION			
FACILITY	$29,468,221	$32,415,043	8.9%
CONSTRUCTION MANAGEMENT	$2,946,822		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$1,962,499	5,947,681	1.6%
OTHER PROJECT COSTS	3,985,183		
OPERATING & MAINTENANCE COST			
OPERATIONS	$152,222,417	$312,739,058	85.9%
MAINTENANCE	$57,780,915		
PROJECT MANAGEMENT	$102,735,727		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$4,728,857	$4,728,857	1.3%
TOTAL LIFE-CYCLE COST		$364,139,271	100.0%

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 1. 2 of 13

LIFE-CYCLE ESTIMATE FOR GROUT VAULTS, LLMW PROCESSING (CURRENT DOLLARS)
SCENARIO 1
CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	2,398,621			355,381	1,243,709							
1997	1,599,214			355,381	1,243,709							3,997,911
1998	1,332,678			355,381	1,243,709							3,198,304
1999	1,028,088	11,422,958	1,142,298	355,381								2,931,768
2000	1,256,525	13,981,393	1,398,139	355,381								13,948,701
2001						2,500,000	1,204,223	1,000,000	406,057		2,500,000	16,969,438
2002						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2003						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2004						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2005						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2006						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2007						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2008						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2009						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2010						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2011						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2012						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2013						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2014						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2015						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2016						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2017						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2018						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2019						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2020						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2021						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2022						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2023						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2024										1,828,899		1,828,899
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	7,615,304	25,384,351	2,538,435	1,776,905	3,731,127	57,500,000	27,697,129	23,000,000	9,339,311	1,828,899	57,500,000	217,911,461

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$7,615,304	$7,615,304	3.5%
CONSTRUCTION			
FACILITY	$25,384,351	$27,922,786	12.8%
CONSTRUCTION MANAGEMENT	$2,538,435		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$1,776,905	5,508,032	2.5%
OTHER PROJECT COSTS	3,731,127		
OPERATING & MAINTENANCE COST			
OPERATIONS	$85,197,129	$175,036,440	80.3%
MAINTENANCE	$32,339,311		
PROJECT MANAGEMENT	$57,500,000		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$1,828,899	$1,828,899	0.8%
TOTAL LIFE-CYCLE COST		$217,911,461	100.0%

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 1. 3 of 13

GROUT FACILITY
LOW LEVEL MIXED WASTE
SCENARIO 1

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$18,803,223	35%	$6,581,128	$25,384,351	17.79%	$4,515,876	$29,900,227
TITLE I AND TITLE II ENGINEERING	21%	$3,948,677	35%	$1,382,037	$5,330,714	10.24%	$545,865	$5,876,579
TITLE III ENGINEERING	9%	$1,692,290	35%	$592,302	$2,284,592	17.79%	$406,429	$2,691,020
CONSTRUCTION MANAGEMENT	10%	$1,880,322	35%	$658,113	$2,538,435	17.79%	$451,588	$2,990,023
WHC PROJECT MANAGEMENT	7%	$1,316,226	35%	$460,679	$1,776,905	17.79%	$316,111	$2,093,016
SUBTOTAL		$27,640,738		$9,674,258	$37,314,996		$6,235,869	$43,550,865
OTHER PROJECT COSTS	10%	$2,764,074	35%	$967,426	$3,731,500	15.13%	$564,576	$4,296,076
TOTAL		$30,404,812		$10,641,684	$41,046,496		$6,800,445	$47,846,941

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 1. 4 of 13

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS						
02	SITEWORK						
03	CONCRETE	$1,193,368	$1,279,907	$193,911			$2,667,186
04	MASONRY						
05	METALS				$1,502,650		$1,502,650
06	WOODS AND PLASTICS						
07	DOORS AND WINDOWS	$62,000	$19,174	$1,702		$1,000	$83,876
08	THERMAL AND MOISTURE PROTECTION						
09	FINISHES	$18,975	$37,406				$56,361
010	SPECIALTIES						
011	EQUIPMENT	$9,179,107	$1,062,015	$102,483	$600,000	$200,000	$11,143,605
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION				$310,000	$1,050,000	$1,360,000
014	CONVEYING SYSTEMS	$900,000	$114,523	$15,002		$280,000	$1,309,526
015	MECHANICAL					$475,000	$475,000
016	ELECTRICAL					$205,000	$205,000
	TOTAL	$11,353,450	$2,513,024	$313,099	$2,412,650	$2,211,000	$18,803,223

Table B.3-7a. Life-Cycle Cost Estimate for Processing 1 MW at the Grout Vaults: Scenario 1, 5 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
03	CONCRETE				$1,193,368			$1,279,907			$193,911			$2,667,186
	CONTROL ROOM													
	WALLS, 2 FT THICK	100	CY	$203	$20,304	11.3	$47.67	$53,867	3.7	$25.99	$9,616			$83,787
	ELEVATED SLAB, 2 FT THICK, 10 FT A/C	80	CY	$144	$11,550	6.1	$47.67	$23,263	2	$25.99	$4,158			$38,972
	SLAB ON GRADE	40	CY	$133	$5,324	3.9	$47.67	$7,437	1.3	$25.99	$1,351			$14,112
	CRANE SUPPORT FOOTINGS													
	FOOTINGS, MAIN STR, 22 EA	55	CY	$139	$7,631	4.9	$47.67	$12,847	1.6	$25.99	$2,287			$22,765
	FOOTINGS,TRANSFER STR, 20 EA	40	CY	$139	$5,550	4.9	$47.67	$9,343	1.6	$25.99	$1,663			$16,556
	BUILDING STRUCTURES													
	FOUNDATION, MAIN BUILDING	240	CY	$149	$35,736	5.5	$47.67	$62,924	1.6	$25.99	$9,980			$108,641
	FOUNDATION, TRANSFER STRUC.	310	CY	$149	$46,159	5.5	$47.67	$81,277	1.6	$25.99	$12,891			$140,327
	SLAB ON GRADE	900	CY	$133	$119,790	3.9	$47.67	$167,322	1.3	$25.99	$30,408			$317,520
	MAIN STRUC WALLS	550	CY	$203	$111,672	11.3	$47.67	$296,269	3.7	$25.99	$52,690			$460,631
	TRANSFER STRUC WALLS	700	CY	$203	$142,128	11.3	$47.67	$377,070	3.7	$25.99	$67,314			$586,512
	AIRLOCK													
	SLAB ON GRADE	40	CY	$133	$5,324	3.9	$47.67	$7,437	1.3	$25.99	$1,351			$14,112
	GROUT IN CELLS													
	GROUT	11370	CY	$60	$682,200	0.3	$53.02	$180,851						$863,051

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 1, 6 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS											$1,502,650		$1,502,650
	MAIN STRUCTURE													
	METAL BUILDING	24150	SF									$390,000		$390,000
	TRANSFER STRUCTURE													
	METAL BUILDING ROOF	15200	SF									$81,000		$81,000
	AIRLOCK STRUCTURE													
	METAL STRUCTURE	1020	SF									$18,000		$18,000
	MAIN CRANE													
	SUPPORT STRUCTURE	86	TON									$172,000		$172,000
	CRANE RAIL	480	LF									$34,250		$34,250
	CRANE, TRANSFER STRUC													
	SUPPORT STRUCTURE, 3 EA	48	TON									$96,000		$96,000
	CRANE RAIL	760	LF									$54,300		$54,300
	VAULTS													
	SUPPORT STRUCTURE	140	TON									$280,000		$280,000
	CRANE RAIL	1200	LF									$85,700		$85,700
	RETRIEVAL PIPE													
	3" CARBON STEEL	17500	LF									$291,400		$291,400

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 1, 7 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
07	DOORS AND WINDOWS				$62,000			$19,174			$1,702		$1,000	$83,876
	CONTROL ROOM													
	MAN DOOR, W/HARDWARE	2	EA										$1,000	$1,000
	VIEWING WINDOW	3	EA	$10,000	$30,000	80	$53.02	$12,726	20	$25.99	$1,659			$44,284
	MAIN STRUCTURE													
	ACCESS DOOR, ROLL-UP	1	EA	$16,000	$16,000	62	$52.01	$3,225	62	$1.15	$71			$19,296
	AIRLOCK													
	ACCESS DOOR, ROLL-UP	1	EA	$16,000	$16,000	62	$52.01	$3,225	62	$1.15	$71			$19,296

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults, Scenario 1 8 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
09	FINISHES				$18,975			$37,406						$56,381
	PAINT INTERIOR SURFACE	82500	SF	$0	$18,975	0 01	$45 34	$37,406						$56,381

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 1. 9 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
011	EQUIPMENT				$9,179,107			$1,082,015			$102,483	$600,000	$200,000	$11,143,605
	REMOVE WASTE													
	CRANE, 75 TON, 100 FT SPAN	1	EA									$600,000		$600,000
	CONTAINER OPENING MANIPULATOR	2	EA	$137,124	$274,248	400	$53.02	$42,416	100	$26.79	$5,358			$322,022
	SMEAR SURVEY STATION	1	EA	$1,000	$1,000	40	$53.02	$2,121	10	$26.79	$268			$3,389
	CONTAINER PROCESSING													
	SHREDDER	1	EA	$51,510	$51,510	1073	$53.02	$56,890	100	$31.68	$3,168			$111,568
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53.02	$42,416	200	$26.79	$5,358			$950,174
	CO2 PELLET DECON SYSTEM	1	EA	$506,248	$506,248	3030	$57.77	$175,043	350	$33.08	$11,578			$692,869
	LLW PACKAGING													
	COMPACTOR	1	EA	$57,135	$57,135	240	$53.02	$12,725	80	$26.79	$2,143			$72,003
	PLATFORM SCALE	1	EA	$22,854	$22,854	400	$53.02	$21,208	40	$26.79	$1,072			$45,134
	SHAKER	1	EA	$22,854	$22,854	500	$53.02	$26,510	100	$26.79	$2,679			$52,043
	MANIPULATOR	1	EA	$514,215	$514,215	800	$53.02	$42,416	200	$26.79	$5,358			$561,989
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53.02	$42,416	200	$26.79	$5,358			$950,174
	SIZE REDUCTION													
	SIZE REDUCTION INDEXER	2	EA	$137,127	$274,254	1200	$53.02	$127,248	400	$26.79	$21,432			$422,934
	MECHANICAL SIZE REDUCTION	2	EA	$966,586	$1,933,172	800	$53.02	$84,832	200	$26.79	$10,716			$2,028,720
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$53.02	$84,832	200	$26.79	$10,716			$1,900,348
	SORT													
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53.02	$42,416	200	$26.79	$5,358			$950,174
	WASTE PACKAGING													
	DRUMS	1	LS	$97,016	$97,016	1735	$53.02	$91,990	90	$26.79	$2,411			$191,417
	BOXES	1	LS	$626,926	$626,926	2341	$53.02	$124,120	155	$26.79	$4,152			$755,196
	ASSAY													
	SMEAR SURVEY STATION	1	EA	$285,675	$285,675	800	$53.02	$42,416	200	$26.79	$5,358			$333,449
	GROUT PLANT													
	GROUT PUMP	1	EA										$150,000	$150,000
	RELOCATE TWICE	1	LS										$50,000	$50,000

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 1. 10 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
013	SPECIAL CONSTRUCTION											$310,000	$1,050,000	$1,360,000
	CONTROL ROOM													
	EQUIPMENT & INSTRUMENTS	1	LS										$800,000	$800,000
	PROCESS LOGIC CONTROLLER	1	LS										$100,000	$100,000
	CLOSED CIRCUIT TV, 8 CAMERAS	1	LS									$310,000		$310,000
	PROCESS AREA													
	BAR CODE SYSTEM	1	LS										$150,000	$150,000

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 1. 11 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	CONVEYING SYSTEMS				$900,000			$114,623			$15,002		$280,000	$1,309,626
	CELL TRANSFER SYSTEM													
	CONVEYOR	320	LF	$1,700	$544,000	4	$53.02	$67,866	1	$26.79	$8,573			$620,438
	CRANE, 10 TON, 40 FT SPAN	1	EA										$150,000	$150,000
	PROCESS SYSTEM													
	CONVEYOR SYSTEM	200	LF	$1,700	$340,000	4	$53.02	$42,416	1	$26.79	$5,358			$387,774
	AIRLOCK													
	TRAILER WINCH	2	EA	$8,000	$16,000	40	$53.02	$4,242	20	$26.79	$1,072			$21,313
	VAULTS													
	CRANE, 2 TON, 50 FT SPAN	2	EA										$130,000	$130,000

Table B.3-7a. Life-Cycle Cost Estimate for Processing 1 MW at the Grout Vaults: Scenario 1 12 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
015	MECHANICAL												$475,000	$475,000
	CONTROL ROOM													
	HVAC	1	LS										$25,000	$25,000
	PROCESS AREA													
	HEPA FILTRATION	1	LS										$150,000	$150,000
	HVAC	1	LS										$100,000	$100,000
	STORAGE AREAS													
	HVAC/HEPA	1	LS										$200,000	$200,000

Table B.3-7a. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 1, 13 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
010	ELECTRICAL												$205,000	$205,000
	PROCESS CELL													
	INTERIOR LIGHTING	1	LS										$20,000	$20,000
	ELECTRICAL SERVICE	1	LS										$100,000	$100,000
	CONTROL ROOM													
	ELECTRICAL SERVICE	1	LS										$25,000	$25,000
	TRANSFER STRUCTURE													
	ELECTRICAL SERVICE	1	LS										$60,000	$60,000

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 1 of 14

LIFE-CYCLE ESTIMATE FOR GROUT VAULTS, LLMW PROCESSING (ESCALATED DOLLARS) 04/28/95
SCENARIO 2
CLIENT: WESTINGHOUSE HANFORD COMPANY 13:22:58

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & BOP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	2,609,375			388,574	1,352,574							4,348,823
1997	1,797,511			399,447	1,397,925							3,594,883
1998	1,551,117			412,749	1,444,475							3,408,341
1999	1,233,783	13,708,709	1,370,871	426,493								16,739,856
2000	1,558,172	17,313,032	1,731,304	440,695								21,043,203
2001						3,042,978	1,465,769	1,217,191	494,249		3,042,978	9,263,161
2002						5,859,754	2,282,352	1,886,585	857,466		3,773,189	14,459,326
2003						5,846,223	2,358,355	1,949,408	886,020		3,898,816	14,940,821
2004						6,042,969	2,436,886	2,014,323	915,525		4,028,646	15,438,351
2005						6,244,200	2,516,036	2,081,400	946,012		4,162,800	15,952,448
2006						6,452,132	2,601,887	2,150,711	977,514		4,301,421	16,483,684
2007						6,666,966	2,688,530	2,222,329	1,010,065		4,444,659	17,032,570
2008						6,888,999	2,778,058	2,296,333	1,043,700		4,592,666	17,599,755
2009						7,118,402	2,870,567	2,372,801	1,078,455		4,745,601	18,185,827
2010						7,355,445	2,966,157	2,451,815	1,114,368		4,903,630	18,791,415
2011						7,600,381	3,064,930	2,533,480	1,151,476		5,066,921	19,417,169
2012						7,853,474	3,166,992	2,617,825	1,189,821		5,235,649	20,063,761
2013						8,114,995	3,272,453	2,704,998	1,229,442		5,409,998	20,731,884
2014						8,385,224	3,381,425	2,795,075	1,270,382		5,590,149	21,422,256
2015						8,664,452	3,494,027	2,888,151	1,312,686		5,776,301	22,135,617
2016						8,952,978	3,610,378	2,984,328	1,356,398		5,968,652	22,872,733
2017						9,251,112	3,730,604	3,083,704	1,401,566		6,167,408	23,634,395
2018						9,559,175	3,854,833	3,186,392	1,448,238		6,372,783	24,421,420
2019						9,877,495	3,983,199	3,292,498	1,496,465		6,584,997	25,234,653
2020						10,206,418	4,115,839	3,402,139	1,546,297		6,804,277	26,074,987
2021						10,546,289	4,252,897	3,515,430	1,597,789		7,030,859	26,943,264
2022						10,897,481	4,394,518	3,632,494	1,650,995		7,264,987	27,840,474
2023						11,260,367	4,540,856	3,753,456	1,705,973		7,506,911	28,787,562
2024												
2025										9,115,544		9,115,544
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	8,749,959	31,021,741	3,102,175	2,085,958	4,195,274	182,489,927	73,829,546	61,032,841	27,880,900	9,115,544	122,674,277	525,958,142

LIFE-CYCLE ESTIMATE FOR GROUT VAULTS, LLMW PROCESS

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$8,749,959	$8,749,959	1.7%
CONSTRUCTION			
FACILITY		$34,123,915	6.5%
CONSTRUCTION MANAGEMENT	$31,021,741		
	$3,102,175		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT		6,281,232	1.2%
OTHER PROJECT COSTS	$2,085,958		
	4,195,274		
OPERATING & MAINTENANCE COST			
OPERATIONS		$467,707,491	88.9%
MAINTENANCE	$256,319,473		
PROJECT MANAGEMENT	$88,713,741		
	$122,674,277		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$9,115,544	$9,115,544	1.7%
TOTAL LIFE-CYCLE COST		$525,958,142	100.0%

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 2 of 14

LIFE-CYCLE ESTIMATE FOR GROUT VAULTS, LLMW PROCESSING (CURRENT DOLLARS)
SCENARIO 2
CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	2,525,283			374,116	1,309,275							4,208,674
1997	1,683,522			374,116	1,309,275							3,366,913
1998	1,405,935			374,116	1,309,275							3,089,326
1999	1,082,284	12,025,159	1,202,516	374,116								14,684,055
2000	1,322,767	14,697,416	1,469,742	374,116								17,864,041
2001						2,500,000	1,204,223	1,000,000	406,057		2,500,000	7,610,280
2002						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2003						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2004						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2005						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2006						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2007						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2008						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2009						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2010						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2011						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2012						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2013						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2014						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2015						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2016						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2017						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2018						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2019						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2020						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2021						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2022						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2023						4,500,000	1,814,670	1,500,000	681,761		3,000,000	11,496,431
2024										3,525,463		3,525,463
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	8,019,771	26,722,575	2,672,258	1,870,580	3,927,825	101,500,000	41,128,983	34,000,000	15,404,799	3,525,463	68,500,000	307,270,234

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$8,019,771	$8,019,771	2.6%
CONSTRUCTION			
FACILITY	$26,722,575	$29,394,833	9.6%
CONSTRUCTION MANAGEMENT	$2,672,258		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$1,870,580	5,798,405	1.9%
OTHER PROJECT COSTS	3,927,825		
OPERATING & MAINTENANCE COST			
OPERATIONS	$142,628,983	$260,531,782	84.8%
MAINTENANCE	$49,404,799		
PROJECT MANAGEMENT	$68,500,000		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$3,525,463	$3,525,463	1.1%
TOTAL LIFE-CYCLE COST		$307,270,234	100.0%

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 2. 3 of 14

GROUT FACILITY
LOW LEVEL MIXED WASTE
SCENARIO 2

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$19,791,500	35%	$6,927,025	$26,718,525	17.79%	$4,753,226	$31,471,751
TITLE I AND TITLE II ENGINEERING	21%	$4,156,215	35%	$1,454,675	$5,610,890	10.24%	$574,555	$6,185,445
TITLE III ENGINEERING	9%	$1,781,235	35%	$623,432	$2,404,667	17.79%	$427,790	$2,832,458
CONSTRUCTION MANAGEMENT	10%	$1,979,150	35%	$692,703	$2,671,853	17.79%	$475,323	$3,147,175
WHC PROJECT MANAGEMENT	7%	$1,385,405	35%	$484,892	$1,870,297	17.79%	$332,726	$2,203,023
SUBTOTAL		$29,093,505		$10,182,727	$39,276,232		$6,563,619	$45,839,851
OTHER PROJECT COSTS	10%	$2,909,351	35%	$1,018,273	$3,927,623	15.13%	$594,249	$4,521,873
TOTAL		$32,002,856		$11,200,999	$43,203,855		$7,157,869	$50,361,724

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 4 of 14

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONSTR EA	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS						
02	SITE WORK		$1,263,143	$802,755	$50,000	$140,000	$2,255,899
03	CONCRETE	$879,384	$738,974	$103,180			$1,721,538
04	MASONRY						
05	METALS				$1,074,000		$1,074,000
06	WOODS & PLASTICS						
07	THERMAL & MOISTURE PROTECTION						
08	DOORS AND WINDOWS	$62,000	$19,174	$1,702		$1,000	$83,876
09	FINISHES						
010	SPECIALTIES						
011	EQUIPMENT	$9,179,107	$1,062,015	$102,483	$500,000	$200,000	$11,043,605
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS				$310,000	$1,050,000	$1,360,000
015	MECHANICAL	$815,000	$103,919	$13,663		$450,000	$1,382,582
016	ELECTRICAL					$525,000	$525,000
	TOTAL					$345,000	$345,000
		$10,935,491	$3,187,225	$1,023,784	$1,934,000	$2,711,000	$19,791,500

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 5 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
02	SITE WORK							$1,283,143			$802,765	$50,000	$140,000	$2,255,899
	EARTHWORK													
	EXCAVATE GROUT CELLS	300000	CY			0.07	$47.67	$1,001,070	0.035	$55.70	$584,850			$1,585,920
	REMOVE CROUT CELL COVERS													
	SAW CUT CONCRETE	7200	LF									$50,000		$50,000
	CHIP BEAM ENDS	240	EA			8	$47.67	$91,910	4	$25.99	$24,950			$116,861
	REMOVE WITH CRANE	1400	TON			1	$47.67	$66,738	0.5	$150.00	$105,000			$171,738
	SIZE REDUCE	1400	TON			0.5	$47.67	$33,369	0.5	$25.99	$18,193			$51,562
	HAUL TO WASTE	1400	TON			1	$50.04	$70,056	1	$49.63	$69,762			$139,818
	DUMP CHARGES	1400	TON										$140,000	$140,000

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 2, 6 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
03	CONCRETE				$879,384			$739,974			$103,180			$1,721,538
	CONTROL ROOM													
	WALLS, 2 FT THICK	100	CY	$203	$20,304	11.3	$47.67	$53,867	3.7	$25.99	$9,616			$83,787
	ELEVATED SLAB, 2 FT THICK, 10 FT A/C	80	CY	$144	$11,550	6.1	$47.67	$23,263	2	$25.99	$4,158			$38,972
	SLAB ON GRADE	40	CY	$133	$5,324	3.9	$47.67	$7,437	1.3	$25.99	$1,351			$14,112
	CRANE SUPPORT FOOTINGS													
	FOOTINGS, PROCESS, 14 EA	35	CY	$139	$4,856	4.9	$47.67	$8,175	1.6	$25.99	$1,455			$14,487
	FOTTINGS, STORAGE, 42 EA	75	CY	$139	$10,406	4.9	$47.67	$17,519	1.6	$25.99	$3,119			$31,043
	METAL BUILDING STRUCTURES													
	FOUNDATION, MAIN BUILDING	600	CY	$149	$89,340	6.5	$47.67	$157,311	1.8	$25.99	$24,950			$271,601
	FOUNDATION, STORAGE BUILDINGS	400	CY	$149	$59,560	5.5	$47.67	$104,874	1.8	$25.99	$16,634			$181,068
	AIRLOCK													
	SLAB ON GRADE	40	CY	$133	$5,324	3.9	$47.67	$7,437	1.3	$25.99	$1,351			$14,112
	GENERAL													
	SLAB ON GRADE	1200	CY	$133	$159,720	3.9	$47.67	$223,098	1.3	$25.99	$40,644			$423,360
	GROUT IN CELLS													
	GROUT	8550	CY	$60	$513,000	0.3	$53.02	$135,996						$648,996

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2, 7 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO.	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
05	METALS											$1,074,000		$1,074,000
	PROCESS CELL													
	PLATFORM FOR PROCESS CELL	10	TON									$20,000		$20,000
	BRACING FOR SIDES	25	TON									$50,000		$50,000
	MAIN STRUCTURE													
	METAL BUILDING	22000	SF									$390,000		$390,000
	MOVABLE STRUCTURE													
	METAL BUILDING	14000	SF									$245,000		$245,000
	REMOVE AND REPLACE, 7000 SF	1	LS									$75,000		$75,000
	AIRLOCK STRUCTURE													
	METAL STRUCTURE	1020	SF									$18,000		$18,000
	MAIN CRANE													
	SUPPORT STRUCTURE	33	TON									$66,000		$66,000
	CRANE RAIL	280	LF									$20,000		$20,000
	CRANE, TEMP STRUCTURE													
	SUPPORT STRUCTURE, 3 EA	60	TON									$105,000		$105,000
	CRANE RAIL	840	LF									$60,000		$60,000
	REMOVE AND REPLACE, 240 LF	1	LS									$25,000		$25,000

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 2. 8 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON COST	OTHER COSTS	TOTAL COSTS
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS			
07	THERMAL AND MOISTURE PROT.													

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 9 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
011	EQUIPMENT				$9,179,107			$1,062,015			$102,483	$500,000	$200,000	$11,043,605
	REMOVE WASTE													
	CRANE, 75 TON, 80 FT SPAN	1	EA									$500,000		$500,000
	CONTAINER OPENING MANIPULATOR	2	EA	$137,124	$274,248	400	$53 02	$42,416	100	$26 79	$5,358			$322,022
	SMEAR SURVEY STATION	1	EA	$1,000	$1,000	40	$53 02	$2,121	10	$26 79	$268			$3,389
	CONTAINER PROCESSING													
	SHREDDER	1	EA	$51,510	$51,510	1073	$53 02	$56,890	100	$31 68	$3,168			$111,568
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53 02	$42,416	200	$26 79	$5,358			$950,174
	CO2 PELLET DECON SYSTEM	1	EA	$506,248	$506,248	3030	$57 77	$175,043	350	$33 08	$11,578			$692,869
	LLW PACKAGING													
	COMPACTOR	1	EA	$57,135	$57,135	240	$53 02	$12,725	80	$26 79	$2,143			$72,003
	PLATFORM SCALE	1	EA	$22,854	$22,854	400	$53 02	$21,208	40	$26 79	$1,072			$45,134
	SHAKER	1	EA	$22,854	$22,854	500	$53 02	$26,510	100	$26 79	$2,679			$52,043
	MANIPULATOR	1	EA	$514,215	$514,215	800	$53 02	$42,416	200	$26 79	$5,358			$561,989
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53 02	$42,416	200	$26 79	$5,358			$950,174
	SIZE REDUCTION													
	SIZE REDUCTION INDEXER	2	EA	$137,127	$274,254	1200	$53 02	$127,248	400	$26 79	$21,432			$422,934
	MECHANICAL SIZE REDUCTION	2	EA	$966,586	$1,933,172	800	$53 02	$84,832	200	$26 79	$10,716			$2,028,720
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$53 02	$84,832	200	$26 79	$10,716			$1,900,348
	SORT													
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53 02	$42,416	200	$26 79	$5,358			$950,174
	WASTE PACKAGING													
	DRUMS	1	LS	$97,016	$97,016	1735	$53 02	$91,990	90	$26 79	$2,411			$191,417
	BOXES	1	LS	$626,926	$626,926	2341	$53 02	$124,120	155	$26 79	$4,152			$755,198
	ASSAY													
	SMEAR SURVEY STATION	1	EA	$285,675	$285,675	800	$53 02	$42,416	200	$26 79	$5,358			$333,449
	GROUT PLANT													
	GROUT PUMP	1	EA										$150,000	$150,000
	RELOCATE TWICE	1	LS										$50,000	$50,000

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults: Scenario 2. 10 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
08	DOORS AND WINDOWS				$62,000			$19,174			$1,702		$1,000	$83,876
	CONTROL ROOM													
	MAN DOOR, W/HARDWARE	2	EA										$1,000	$1,000
	VIEWING WINDOW	3	EA	$10,000	$30,000	80	$53.02	$12,725	20	$26.99	$1,559			$44,284
	MAIN STRUCTURE													
	ACCESS DOOR, ROLL-UP	1	EA	$16,000	$16,000	62	$52.01	$3,225	62	$1.15	$71			$19,296
	AIRLOCK													
	ACCESS DOOR, ROLL-UP	1	EA	$16,000	$16,000	62	$52.01	$3,225	62	$1.15	$71			$19,296

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 11 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
013	SPECIAL CONSTRUCTION											$310,000	$1,050,000	$1,360,000
	CONTROL ROOM													
	EQUIPMENT & INSTRUMENTS	1	LS										$800,000	$800,000
	PROCESS LOGIC CONTROLLER	1	LS										$100,000	$100,000
	CLOSED CIRCUIT TV, 8 CAMERAS	1	LS									$310,000		$310,000
	PROCESS AREA													
	BAR CODE SYSTEM	1	LS										$150,000	$150,000

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 12 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	CONVEYING SYSTEMS				$815,000			$103,919			$13,863		$450,000	$1,382,582
	CELL TRANSFER SYSTEM													
	CONVEYOR	320	LF	$1,700	$544,000	4	$53.02	$67,866	1	$26.79	$8,573			$620,438
	CRANE, 10 TON, 40 FT SPAN	3	EA										$450,000	$450,000
	PROCESS SYSTEM													
	CONVEYOR SYSTEM	160	LF	$1,700	$255,000	4	$53.02	$31,812	1	$26.79	$4,019			$290,831
	AIRLOCK													
	TRAILER WINCH	2	EA	$8,000	$16,000	40	$53.02	$4,242	20	$26.79	$1,072			$21,313

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 13 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
015	MECHANICAL												$526,000	$526,000
	CONTROL ROOM													
	HVAC	1	LS										$25,000	$25,000
	PROCESS AREA													
	HEPA FILTRATION	1	LS										$150,000	$150,000
	HVAC	1	LS										$100,000	$100,000
	STORAGE AREAS													
	HVAC/HEPA	1	LS										$200,000	$200,000
	RELOCATE AND MODIFY	1	LS										$50,000	$50,000

Table B.3-7b. Life-Cycle Cost Estimate for Processing LLMW at the Grout Vaults; Scenario 2. 14 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
018	ELECTRICAL												$346,000	$346,000
	PROCESS CELL													
	INTERIOR LIGHTING	1	LS										$20,000	$20,000
	ELECTRICAL SERVICE	1	LS										$100,000	$100,000
	CONTROL ROOM													
	ELECTRICAL SERVICE	1	LS										$25,000	$25,000
	STORAGE CELLS													
	ELECTRICAL SERVICE	1	LS										$200,000	$200,000

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 1 of 14

LIFE-CYCLE ESTIMATE FOR MASF, LLMW PROCESSING (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 13:29:28

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR. MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	2,808,913			416,136	1,458,328							4,681,377
1997	1,934,987			429,993	1,504,824							3,869,784
1998	1,666,167			444,312	1,554,934							3,665,413
1999	1,328,131	14,757,009	1,475,701	459,107								18,019,949
2000	1,677,328	18,636,958	1,863,696	474,398								22,652,372
2001						5,477,358	2,208,799	1,825,786	503,973		3,651,572	13,667,487
2002						5,659,754	2,282,352	1,886,585	520,755		3,773,169	14,122,614
2003						5,648,223	2,358,355	1,949,408	538,096		3,898,816	14,592,898
2004						6,042,989	2,436,888	2,014,323	556,015		4,028,646	15,078,841
2005						6,244,200	2,518,036	2,081,400	574,530		4,162,800	15,580,966
2006						6,452,132	2,601,887	2,150,711	593,662		4,301,421	16,099,813
2007						6,666,966	2,688,530	2,222,329	613,431		4,444,659	16,635,936
2008						6,888,999	2,778,058	2,296,333	633,858		4,592,666	17,189,913
2009						7,116,402	2,870,567	2,372,801	654,966		4,745,601	17,762,337
2010						7,355,445	2,966,157	2,451,815	676,776		4,903,830	18,353,823
2011						7,600,381	3,064,930	2,533,460	699,313		5,066,921	18,965,005
2012						7,853,474	3,166,992	2,617,825	722,600		5,235,649	19,596,540
2013						8,114,995	3,272,453	2,704,998	746,662		5,409,966	20,249,105
2014						8,385,224	3,381,425	2,795,075	771,526		5,590,149	20,923,400
2015						8,664,452	3,494,027	2,888,151	797,218		5,776,301	21,620,149
2016						8,952,978	3,610,378	2,984,326	823,766		5,968,652	22,340,100
2017						9,251,112	3,730,604	3,083,704	851,197		6,167,408	23,084,025
2018						9,559,175	3,854,833	3,186,392	879,542		6,372,783	23,852,723
2019						9,877,496	3,983,199	3,292,498	908,831		6,584,997	24,647,019
2020						10,206,416	4,115,839	3,402,139	939,095		6,804,277	25,467,765
2021						10,546,289	4,252,897	3,515,430	970,368		7,030,859	26,315,841
2022						10,897,481	4,394,518	3,632,494	1,002,680		7,264,987	27,192,159
2023						11,260,367	4,540,856	3,753,456	1,036,069		7,506,911	28,097,658
2024										2,642,644		2,642,644
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	9,415,505	33,393,965	3,339,398	2,223,944	4,516,086	184,924,308	74,572,578	61,641,438	17,014,927	2,642,644	123,282,872	516,967,658

LIFE-CYCLE ESTIMATE FOR MASF, LLMW PROCESSING

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$9,415,505	1.8%
TITLE I, II & III	$9,415,505		
CONSTRUCTION		$36,733,361	7.1%
FACILITY	$33,393,965		
CONSTRUCTION MANAGEMENT	$3,339,396		
EXPENSE COSTS		6,740,029	1.3%
WHC PROJECT MANAGEMENT	$2,223,944		
OTHER PROJECT COSTS	4,516,086		
OPERATING & MAINTENANCE COST		$461,436,119	89.2%
OPERATIONS	$259,496,885		
MAINTENANCE	$78,656,363		
PROJECT MANAGEMENT	$123,282,872		
DECONTAMINATION & DECOMMISSIONING		$2,642,644	0.5%
TOTAL COST	$2,642,644		
TOTAL LIFE-CYCLE COST		$516,967,658	100.0%

Table 8.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 2 of 14

LIFE-CYCLE ESTIMATE FOR MASF, LLMW PROCESSING (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	2,718,391			402,725	1,409,396							4,530,511
1997	1,812,281			402,725	1,409,396							3,624,381
1998	1,510,217			402,725	1,409,396							3,322,337
1999	1,166,025	12,944,719	1,294,472	402,725								15,808,941
2000	1,423,919	15,821,324	1,582,132	402,725								19,230,100
2001						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2002						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2003						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2004						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2005						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2006						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2007						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2008						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2009						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2010						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2011						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2012						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2013						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2014						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2015						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2016						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2017						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2018						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2019						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2020						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2021						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2022						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2023						4,500,000	1,814,670	1,500,000	414,046		3,000,000	11,228,716
2024										1,022,050		1,022,050
2025												
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TOTAL	3,629,813	28,766,043	2,876,604	2,013,625	4,228,185	103,500,000	41,737,410	34,500,000	9,523,058	1,022,050	69,000,000	305,796,788

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$8,629,813	2.8%
TITLE I, II & III	$8,629,813		
CONSTRUCTION		$31,642,647	10.3%
FACILITY	$28,766,043		
CONSTRUCTION MANAGEMENT	$2,876,604		
EXPENSE COSTS		6,241,810	2.0%
WHC PROJECT MANAGEMENT	$2,013,625		
OTHER PROJECT COSTS	4,228,185		
OPERATING & MAINTENANCE COST		$258,260,466	84.5%
OPERATIONS	$145,237,410		
MAINTENANCE	$44,023,056		
PROJECT MANAGEMENT	$69,000,000		
DECONTAMINATION & DECOMMISSIONING		$1,022,050	0.3%
TOTAL COST	$1,022,050		
TOTAL LIFE-CYCLE COST		$305,796,788	100.0%

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 3 of 14

MASF
LOW LEVEL MIXED WASTE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$21,608,180	35%	$7,562,863	$29,171,043	17.79%	$5,189,529	$34,360,571
TITLE I AND TITLE II ENGINEERING	21.00%	$4,537,718	35%	$1,588,201	$6,125,919	10.24%	$627,294	$6,753,213
TITLE III ENGINEERING	9.00%	$1,944,736	35%	$680,658	$2,625,394	17.79%	$467,058	$3,092,451
CONSTRUCTION MANAGEMENT	10.00%	$2,160,818	35%	$756,286	$2,917,104	17.79%	$518,953	$3,436,057
WHC PROJECT MANAGMENT	7.00%	$1,512,573	35%	$529,400	$2,041,973	17.79%	$363,267	$2,405,240
SUBTOTAL		$31,764,024		$11,117,409	$42,881,433		$7,166,100	$50,047,533
OTHER PROJECT COSTS	10.00%	$3,176,402	35%	$1,111,741	$4,288,143	15.13%	$1,084,231	$5,372,374
TOTAL		$34,940,427		$12,229,149	$47,169,576		$8,250,331	$55,419,907

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF, 4 of 14

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONSTR EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS						
02	SITEWORK						
03	CONCRETE	$250,079	$588,000	$110,094			$948,172
04	MASONRY						
05	METALS	$300,000	$31,836	$12,645		$5,000,000	$5,344,481
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS	$325,000	$24,788	$3,574			$353,362
08	THERMAL & MOISTURE PROTECTION						
09	FINISHES	$6,900	$13,602				$20,502
010	SPECIALTIES						
011	EQUIPMENT	$8,817,346	$1,276,694	$114,593		$300,000	$10,508,632
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION					$150,000	$150,000
014	CONVEYING SYSTEMS	$1,106,000	$114,523	$19,289			$1,239,812
015	MECHANICAL					$425,000	$425,000
016	ELECTRICAL	$550,760	$60,760	$6,698		$2,000,000	$2,618,218
	TOTAL	$11,356,085	$2,110,203	$266,892		$7,875,000	$21,608,180

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 5 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO.	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
01	GENERAL REQUIREMENTS													
	STRUCTURAL ANALYSIS	1	LS											

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 6 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
03	CONCRETE				$250,079			$588,000			$110,094			$948,172
	MAIN CONVEYOR COVER													
	WALLS, 2 FT THICK	650	CY	$203	$131,978	11.3	$47.67	$350,136	4	$25.99	$67,674			$549,688
	ELEVATED SLAB, 2 FT THICK	800	CY	$144	$115,504	6.1	$47.67	$232,630	2	$25.99	$41,584			$389,718
	COLUMNS	18	CY	$144	$2,599	6.1	$47.67	$5,234	2	$25.99	$936			$8,769

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 7 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$300,000			$31,836			$12,846		$5,000,000	$5,344,481
	MAIN STRUCTURE													
	UPGRADE TO HAZ. CAT. 3	1	LS										$5,000,000	$5,000,000
	TOP OPENING CLAM DOORS	2	EA	$100,000	$200,000	200	$53.06	$21,224	150	$27.49	$8,247			$229,471
	TOP OPENING BAY DOORS	2	EA	$50,000	$100,000	100	$53.06	$10,612	80	$27.49	$4,398			$115,010

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 8 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
07	DOORS AND WINDOWS				$325,000			$24,788			$3,574			$353,362
	CONCRETE STRUCTURE													
	VIEWING WINDOWS	13	EA	$25,000	$325,000	40	$47.87	$24,788	10	$27.49	$3,574			$353,362

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 9 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
09	FINISHES				$6,900			$13,602						$20,502
	CONCRETE STRUCTURE													
	PAINT INSIDE OF STRUCTURE	30000	SF	$0.23	$6,900	0.01	$45.34	$13,602						$20,502

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 10 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
011	EQUIPMENT				$8,817,346			$1,276,694			$114,593		$300,000	$10,508,632
	REMOVE WASTE													
	CONTAINER OPENING MANIPULATOR	2	EA	$137,124	$274,248	400	$53.02	$42,416	100	$26.79	$5,358			$322,022
	SMEAR SURVEY STATION	1	EA	$1,000	$1,000	40	$53.02	$2,121	10	$26.79	$268			$3,389
	CONTAINER PROCESSING													
	SHREDDER	1	EA	$51,510	$51,510	1073	$53.02	$56,890	106	$31.68	$3,358			$111,759
	SIZE REDUCTION													
	MECHANICAL SIZE RED	2	EA	$892,173	$1,784,346	4000	$55.25	$442,000	2000	$7.20	$28,800			$2,255,146
	PICK AND PLACE ROBOT	3	EA	$902,400	$2,707,200	800	$53.02	$127,248	200	$26.79	$16,074			$2,850,522
	SORT													
	PICK AND PLACE ROBOT	1	EA	$902,400	$902,400	800	$53.02	$42,416	200	$26.79	$5,358			$950,174
	STABILIZATION													
	GROUT MODULE	2	EA	$75,998	$151,996	2715	$53.02	$287,899	605	$19.64	$23,764			$463,659
	PLATFORM SCALE	2	EA	$22,054	$45,708	400	$53.02	$42,416	40	$26.79	$2,143			$90,267
	SHAKER	2	EA	$22,054	$45,708	500	$53.02	$53,020	100	$26.79	$5,358			$104,086
	MANIPULATOR	2	EA	$514,215	$1,028,430	800	$53.02	$84,832	200	$26.79	$10,716			$1,123,978
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$53.02	$84,832	200	$26.79	$10,716			$1,900,348
	WASTE PACKAGING													
	REMOTE OPERATED FORKLIFT	1	EA										$300,000	$300,000
	ASSAY													
	DOSE SURVEY MODULE	1	EA	$20,000	$20,000	200	$53.02	$10,604	100	$26.79	$2,679			$33,283

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF, 11 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
013	SPECIAL CONSTRUCTION												$150,000	$150,000
	TRACKING													
	BAR CODE SYSTEM	1	LS										$150,000	$150,000

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 12 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
014	CONVEYING SYSTEMS				$1,108,000			$114,523			$19,289			$1,239,812
	CONVEYOR SYSTEM, HEAVY, LOWER	240	LF	$1,700	$408,000	4	$53.02	$50,899	1	$26.79	$6,430			$465,329
	CONVEYOR SYSTEM, HEAVY, UPPER	240	LF	$1,500	$360,000	3	$53.02	$38,174	1	$26.79	$6,430			$404,604
	CONVEYOR SYSTEM, LIGHT	240	LF	$1,200	$288,000	2	$53.02	$25,450	1	$26.79	$6,430			$319,879
	CONVEYOR BUCKETS	50	EA	$1,000	$50,000									$50,000

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 13 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
015	MECHANICAL												$425,000	$425,000
	HEPA FILTRATION SYSTEM MODS	1	LS										$300,000	$300,000
	VENTILATION SYSTEM MODS	1	LS										$125,000	$125,000

Table B.3-8 Life-Cycle Cost Estimate for Processing LLMW at the MASF. 14 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
018	ELECTRICAL				$550,760			$60,760			$6,698		$2,000,000	$2,618,218
	MOTOR STARTERS	12	EA	$4,230	$50,760	40	$62.00	$29,760					$2,000,000	$2,080,520
	ELECTRICAL MODS TO BUILDING	1	LS	$500,000	$500,000	500	$62.00	$31,000	250	$26.79	$6,698			$537,698

Table B.3-9. Life-Cycle Cost Estimate for Processing LLMW at T Plant. 1 of 13

LIFE-CYCLE ESTIMATE FOR T PLANT, LLMW PROCESSING (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 09:46:20

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	4,377,536			648,984	2,271,215							7,297,737
1997	3,017,876			670,595	2,346,847							6,035,118
1998	2,598,470			692,926	2,424,997							5,716,393
1999	2,071,286	23,014,282	2,301,429	716,000								28,102,995
2000	2,615,872	29,086,246	2,906,525	739,843								35,327,486
2001						5,477,358	2,208,799	1,825,786	612,091		3,851,572	13,975,606
2002						5,659,754	2,282,352	1,886,585	639,134		3,773,189	14,440,993
2003						5,848,223	2,358,355	1,949,408	667,077		3,898,818	14,921,878
2004						6,042,969	2,436,888	2,014,323	695,951		4,028,646	15,418,777
2005						6,244,200	2,518,036	2,081,400	925,786		4,162,800	15,932,222
2006						6,452,132	2,601,887	2,150,711	956,615		4,301,421	16,462,765
2007						6,666,988	2,688,530	2,222,329	988,470		4,444,659	17,010,975
2008						6,888,999	2,778,058	2,296,333	1,021,386		4,592,666	17,577,441
2009						7,118,402	2,870,587	2,372,801	1,055,398		4,745,601	18,162,769
2010						7,355,445	2,966,157	2,451,815	1,090,543		4,903,630	18,767,590
2011						7,600,381	3,064,930	2,533,460	1,126,858		5,066,921	19,392,550
2012						7,853,474	3,166,992	2,617,825	1,164,382		5,235,649	20,038,322
2013						8,114,995	3,272,453	2,704,998	1,203,156		5,409,996	20,705,598
2014						8,385,224	3,381,425	2,795,075	1,243,221		5,590,149	21,395,095
2015						8,664,452	3,494,027	2,888,151	1,284,621		5,776,301	22,107,552
2016						8,952,978	3,610,378	2,984,326	1,327,398		5,968,652	22,843,733
2017						9,251,112	3,730,604	3,083,704	1,371,601		6,167,408	23,604,429
2018						9,559,175	3,854,833	3,186,392	1,417,275		6,372,783	24,390,457
2019						9,877,495	3,983,199	3,292,498	1,464,470		6,584,997	25,202,659
2020						10,206,416	4,115,839	3,402,139	1,513,237		6,804,277	26,041,908
2021						10,546,289	4,252,897	3,515,430	1,563,628		7,030,859	26,909,103
2022						10,897,481	4,394,518	3,632,494	1,615,697		7,264,987	27,805,176
2023						11,260,387	4,540,856	3,753,456	1,669,500		7,506,911	28,731,089
2024										1,922,518		1,922,518
2025												
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TOTAL	14,680,842	52,079,529	5,207,953	3,468,347	7,043,058	184,924,308	74,572,576	61,641,436	27,417,494	1,922,518	123,282,872	556,241,035

LIFE-CYCLE ESTIMATE FOR T PLANT, LLMW PROCESSING

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$14,680,842	$14,680,842	2.6%
CONSTRUCTION			
FACILITY	$52,079,529	$57,287,483	10.3%
CONSTRUCTION MANAGEMENT	$5,207,953		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$3,468,347	10,511,405	1.9%
OTHER PROJECT COSTS	7,043,058		
OPERATING & MAINTENANCE COST			
OPERATIONS	$259,496,885	$471,938,687	84.8%
MAINTENANCE	$89,058,930		
PROJECT MANAGEMENT	$123,282,872		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$1,922,518	$1,922,518	0.3%
TOTAL LIFE-CYCLE COST		$556,241,035	100.0%

Table B.3-9. Life-Cycle Cost Estimate for Processing LLMW at T Plant. 2 of 13

LIFE-CYCLE ESTIMATE FOR T PLANT, LLMW PROCESSING (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	4,238,464			628,089	2,196,021							7,062,554
1997	2,628,310			628,089	2,196,021							5,652,400
1998	2,356,258			628,089	2,196,021							5,181,348
1999	1,818,913	20,187,928	2,018,793	628,089								24,651,701
2000	2,220,672	24,674,132	2,467,413	628,089								29,990,286
2001						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2002						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2003						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2004						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2005						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2006						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2007						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2008						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2009						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2010						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2011						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2012						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2013						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2014						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2015						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2016						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2017						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2018						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2019						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2020						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2021						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2022						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2023						4,500,000	1,814,670	1,500,000	667,185		3,000,000	11,481,855
2024										743,578		743,578
2025												
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2041												
2042												
TOTAL	13,455,817	44,862,058	4,486,206	3,140,345	8,594,083	103,500,000	41,737,410	34,500,000	15,345,255	743,578	69,000,000	337,364,532

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$13,455,817	4.0%
TITLE I, II & III	$13,455,817		
CONSTRUCTION		$49,348,264	14.6%
FACILITY	$44,862,058		
CONSTRUCTION MANAGEMENT	$4,486,206		
EXPENSE COSTS		9,734,408	2.9%
WHC PROJECT MANAGEMENT	$3,140,345		
OTHER PROJECT COSTS	6,594,063		
OPERATING & MAINTENANCE COST		$264,082,665	78.3%
OPERATIONS	$145,237,410		
MAINTENANCE	$49,845,255		
PROJECT MANAGEMENT	$69,000,000		
DECONTAMINATION & DECOMMISSIONING		$743,578	0.2%
TOTAL COST	$743,578		
TOTAL LIFE-CYCLE COST		$337,364,532	100.0%

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 3 of 13

T PLANT
LOW LEVEL MIXED WASTE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$33,231,154	35%	$11,630,904	$44,862,058	17.79%	$7,980,960	$52,843,019
TITLE I AND TITLE II ENGINEERING	21.00%	$6,978,542	35%	$2,442,490	$9,421,032	10.24%	$964,714	$10,385,746
TITLE III ENGINEERING	9.00%	$2,990,804	35%	$1,046,781	$4,037,585	17.79%	$718,286	$4,755,872
CONSTRUCTION MANAGEMENT	10.00%	$3,323,115	35%	$1,163,090	$4,486,206	17.79%	$798,096	$5,284,302
WHC PROJECT MANAGEMENT	7.00%	$2,326,181	35%	$814,163	$3,140,344	17.79%	$558,667	$3,699,011
SUBTOTAL		$48,849,797		$17,097,429	$65,947,226		$11,020,724	$76,967,949
OTHER PROJECT COSTS	10.00%	$4,884,980	35%	$1,709,743	$6,594,723	15.13%	$997,782	$7,592,504
TOTAL		$53,734,777		$18,807,172	$72,541,948		$12,018,505	$84,560,454

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 4 of 13

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS					$5,700,000	$5,700,000
02	SITEWORK						
03	CONCRETE					$760,000	$760,000
04	MASONRY						
05	METALS					$80,000	$80,000
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS						
08	THERMAL AND MOISTURE PROT.						
09	FINISHES					$120,000	$120,000
010	SPECIALTIES						
011	EQUIPMENT	$10,789,698	$3,609,151	$223,815		$300,000	$14,922,664
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION				$310,000	$1,350,000	$1,660,000
014	CONVEYING SYSTEMS	$5,684,000	$589,294	$107,696		$605,000	$6,985,990
015	MECHANICAL					$850,500	$850,500
016	ELECTRICAL					$2,152,000	$2,152,000
		$16,473,698	$4,198,445	$331,511	$310,000	$11,917,500	$33,231,154

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 5 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
03	CONCRETE												$760,000	$760,000
	ROOF RESURFACE/CONC. REPAIR	1	LS										$760,000	$760,000

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 6 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
05	METALS												$80,000	$80,000
	EQUIPMENT PLATFORM, 3 FT	20	TON										$80,000	$80,000

Table B.3-9 Life-Cycle Cost Estimate for Processing LLMW at T Plant. 7 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
08	THERMAL AND MOISTURE PROT.													
	ROOF RESURFACE(SEE SECTION 030)													

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 8 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
09	FINISHES												$120,000	$120,000
	PAINT GALLERIES	92000	SF										$120,000	$120,000

Table B.3-9. Life-Cycle Cost Estimate for Processing LLMW at T Plant. 9 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
011	EQUIPMENT				$10,789,698			$3,609,161			$223,815		$300,000	$14,922,664
	REMOVE WASTE													
	BOOM CRANE, 10 TON	1	EA	$200,000	$200,000	400	$75.93	$30,372	200	$26.79	$5,358			$235,730
	CONTAINER OPENING MANIPULATOR	2	EA	$137,124	$274,248	400	$75.93	$60,744	100	$26.79	$5,358			$340,350
	SIZE REDUCTION, LLCE	1	EA	$636,620	$636,620	5270	$75.93	$400,151	390	$26.79	$10,448			$1,047,219
	SMEAR SURVEY STATION	1	EA	$1,000	$1,000	40	$75.93	$3,037	10	$26.79	$268			$4,305
	CONTAINER PROCESSING													
	SHREDDER	1	EA	$51,510	$51,510	1073	$84.85	$91,044	106	$31.68	$3,358			$145,912
	SIZE REDUCTION													
	SIZE REDUCTION INDEXER	2	EA	$137,127	$274,254	1200	$75.93	$182,232	400	$26.79	$21,432			$477,918
	MECHANICAL SIZE RED	2	EA	$966,586	$1,933,172	7026	$80.43	$1,259,212	756	$26.79	$40,506			$3,232,891
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$75.93	$121,488	200	$26.79	$10,716			$1,937,004
	SORT													
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$75.93	$121,488	200	$26.79	$10,716			$1,937,004
	SORT CONVEYOR	30	LF	$1,700	$51,000	4	$75.93	$9,112	1	$26.79	$804			$60,915
	ST STL ENCLOSURE, W/HEPA	2	EA	$125,697	$251,394	800	$75.93	$121,488	200	$26.79	$10,716			$383,598
	STABILIZATION													
	GROUT MODULE	2	EA	$260,430	$520,860	4434	$81.51	$722,831	1010	$33.25	$67,165			$1,310,856
	PLATFORM SCALE	2	EA	$22,854	$45,708	400	$75.93	$60,744	40	$26.79	$2,143			$108,595
	SHAKER	2	EA	$22,854	$45,708	500	$75.93	$75,930	100	$26.79	$5,358			$126,996
	MANIPULATOR	2	EA	$514,215	$1,028,430	800	$75.93	$121,488	200	$26.79	$10,716			$1,160,634
	PICK AND PLACE ROBOT	2	EA	$902,400	$1,804,800	800	$75.93	$121,488	200	$26.79	$10,716			$1,937,004
	ST STL ENCLOSURE, W/HEPA	2	EA	$125,697	$251,394	800	$75.93	$121,488	200	$26.79	$10,716			$383,598
	WASTE PACKAGING													
	REMOTE OPERATED FORKLIFT	1	EA										$300,000	$300,000
	ASSAY													
	SMEAR SURVEY STATION	2	EA	$5,000	$10,000	100	$75.93	$15,186	50	$26.79	$2,679			$27,865

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 10 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO.	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
013	SPECIAL CONSTRUCTION											$310,000	$1,350,000	$1,660,000
	CONTROL ROOM (C-159)	1	LS										$1,000,000	$1,000,000
	FIBER OPTICS TO CONTROL	1	LS										$100,000	$100,000
	CLOSED CIRCUIT TV	1	LS									$310,000		$310,000
	PROCESS LOGIC CONTROLLER	1	LS										$100,000	$100,000
	BAR CODE SYSTEM	1	LS										$150,000	$150,000

Table B.3-9. Life-Cycle Cost Estimate for Processing LLMW at T Plant. 11 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
014	CONVEYING SYSTEMS				$5,884,000			$569,294			$107,696		$605,000	$6,986,990
	CRANE UPGRADES (75 TON)	1	LS										$455,000	$455,000
	CRANE UPGRADES (10 TON)	1	LS										$150,000	$150,000
	CONVEYOR SYSTEM, LARGE, BASE	1000	LF	$1,700	$1,700,000	4	$53.02	$212,080	1	$26.79	$26,790			$1,938,870
	CONVEYOR SYSTEM, LARGE, UPPER	1000	LF	$1,500	$1,500,000	3	$53.02	$159,060	1	$26.79	$26,790			$1,685,850
	CONVEYOR SYSTEM, SMALL, UPPER	2000	LF	$1,200	$2,400,000	2	$53.02	$212,080	1	$26.79	$53,580			$2,665,660
	SHUTTLE SYSTEM, SIZE REDUCTION	20	LF	$1,700	$34,000	4	$75.93	$6,074	1	$26.79	$536			$40,610
	CONVEYOR BUCKETS	50	EA	$1,000	$50,000									$50,000

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 12 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
015	MECHANICAL												$850,500	$850,500
	DISCONNECT STEAM SYSTEM	1	LS										$500,000	$500,000
	GALLERY HEAT PUMPS, 15T	1	LS										$37,500	$37,500
	CANYON HEAT PUMP, 60T	1	LS										$150,000	$150,000
	GALLERY FIRE SUPPRESSION SYSTEM	1	LS										$163,000	$163,000

Table B.3-9.Life-Cycle Cost Estimate for Processing LLMW at T Plant. 13 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
016	ELECTRICAL												$2,152,000	$2,152,000
	ELECTRICAL UPGRADES (C-157)	1	LS										$2,000,000	$2,000,000
	LIGHTING UPGRADES - GALLERY	1	LS										$152,000	$152,000

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 1 of 14

LIFE-CYCLE ESTIMATE FOR FMEF, STORAGE OF ALL SOURCES (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 08:00:01

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	380,152			142,245	497,807							1,800,204
1997	681,417			146,982	514,384							1,322,782
1998	569,534			151,876	531,513							1,252,924
1999	453,987	5,044,289	504,429	156,934								8,159,639
2000	573,349	6,370,544	637,055	162,160								7,743,108
2001						4,868,782	526,922	121,719	115,874		3,042,976	8,676,254
2002						5,030,892	544,468	125,772	119,733		3,144,308	8,965,173
2003						5,198,421	562,599	129,961	123,720		3,249,013	9,263,713
2004						5,371,528	581,334	134,288	127,840		3,357,205	9,572,195
2005						5,550,400	600,692	138,760	132,097		3,469,000	9,890,949
2006						5,735,228	620,695	143,381	136,498		3,584,518	10,220,317
2007						5,926,211	641,384	148,155	141,041		3,703,882	10,560,654
2008						6,123,554	662,722	153,089	145,738		3,827,221	10,912,324
2009						6,327,469	684,730	158,187	150,591		3,954,668	11,275,704
2010						6,538,173	707,594	163,454	155,605		4,086,358	11,651,185
2011						6,755,895	731,157	168,897	160,787		4,222,434	12,039,170
2012						6,980,866	755,504	174,522	166,141		4,363,041	12,440,074
2013						7,213,329	780,662	180,333	171,674		4,508,330	12,854,328
2014						7,453,533	806,659	186,338	177,390		4,658,458	13,282,378
2015						7,701,735	833,520	192,543	183,297		4,813,584	13,724,681
2016						7,958,203	861,277	198,955	189,401		4,973,877	14,181,713
2017						8,223,211	889,957	205,580	195,708		5,139,507	14,653,364
2018						8,497,044	919,593	212,426	202,225		5,310,653	15,141,941
2019						8,779,996	950,215	219,500	208,960		5,487,497	15,646,187
2020						9,072,369	981,857	225,809	215,918		5,670,231	16,167,185
2021						9,374,479	1,014,553	234,362	223,108		5,859,050	16,705,552
2022						9,686,649	1,048,338	242,166	230,537		6,054,156	17,261,847
2023						10,009,215	1,083,247	250,230	238,214		6,255,759	17,836,666
2024						10,342,522	1,119,319	258,563	246,147		6,464,076	18,430,827
2025						10,686,928	1,156,593	267,173	254,344		6,679,330	19,044,367
2026						11,042,902	1,195,107	276,070	262,813		6,901,752	19,678,544
2027						11,410,526	1,234,904	285,263	271,565		7,131,580	20,333,840
2028						11,790,498	1,276,027	294,762	280,608		7,369,081	21,010,957
2029										1,564,313		1,564,313
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	3,218,439	11,414,833	1,141,484	760,197	1,543,703	219,650,441	23,771,669	5,491,281	5,227,571	1,564,313	137,281,525	411,065,436

LIFE-CYCLE ESTIMATE FOR FMEF, STORAGE OF ALL SOURCES

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$3,218,439	$3,218,439	0.8%
CONSTRUCTION			
FACILITY	$11,414,833	$12,556,317	3.1%
CONSTRUCTION MANAGEMENT	$1,141,484		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$760,197	2,303,900	0.6%
OTHER PROJECT COSTS	1,543,703		
OPERATING & MAINTENANCE COST			
OPERATIONS	$243,422,110	$391,422,467	95.2%
MAINTENANCE	$10,718,832		
PROJECT MANAGEMENT	$137,281,525		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$1,564,313	$1,564,313	0.4%
TOTAL LIFE-CYCLE COST		$411,065,436	100.0%

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 2 of 14

LIFE-CYCLE ESTIMATE FOR FMEF, STORAGE OF ALL SOURCES (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	329,209			137,661	461,764							1,548,634
1997	519,473			137,661	461,764							1,238,898
1998	516,227			137,661	461,764							1,135,652
1999	398,233	4,424,808	442,481	137,661								5,403,181
2000	486,729	5,408,088	540,810	137,661								6,573,298
2001						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2002						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2003						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2004						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2005						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2006						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2007						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2008						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2009						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2010						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2011						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2012						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2013						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2014						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2015						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2016						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2017						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2018						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2019						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2020						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2021						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2022						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2023						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2024						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2025						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2026						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2027						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2028						4,000,000	432,900	100,000	95,198		2,500,000	7,128,098
2029										513,600		513,600
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	2,949,871	9,832,902	983,291	988,305	1,445,292	112,000,000	12,121,200	2,800,000	2,665,544	513,600	70,000,000	216,000,005

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$2,949,871	1.4%
TITLE I, II & III	$2,949,871		
CONSTRUCTION		$10,816,193	5.0%
FACILITY	$9,832,902		
CONSTRUCTION MANAGEMENT	$983,291		
EXPENSE COSTS		2,133,597	1.0%
WHC PROJECT MANAGEMENT	$688,305		
OTHER PROJECT COSTS	1,445,292		
OPERATING & MAINTENANCE COST		$199,586,744	92.4%
OPERATIONS	$124,121,200		
MAINTENANCE	$5,465,544		
PROJECT MANAGEMENT	$70,000,000		
DECONTAMINATION & DECOMMISSIONING		$513,600	0.2%
TOTAL COST	$513,600		
TOTAL LIFE-CYCLE COST		$216,000,005	100.0%

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 3 of 14

FMEF
STORAGE FACILITY

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$7,283,631	35%	$2,549,271	$9,832,901	17.79%	$1,749,273	$11,582,175
TITLE I AND TITLE II ENGINEERING	21%	$1,529,562	35%	$535,347	$2,064,909	10.24%	$211,447	$2,276,356
TITLE III ENGINEERING	9%	$655,527	35%	$229,434	$884,961	17.79%	$157,435	$1,042,396
CONSTRUCTION MANAGEMENT	10%	$728,363	35%	$254,927	$983,290	17.79%	$174,927	$1,158,217
WHC PROJECT MANAGEMENT	7%	$509,854	35%	$178,449	$688,303	17.79%	$122,449	$810,752
SUBTOTAL		$10,706,937		$3,747,428	$14,454,365		$2,415,531	$16,869,896
OTHER PROJECT COSTS	10%	$1,070,694	35%	$374,743	$1,445,436	15.13%	$218,695	$1,664,131
TOTAL		$11,777,631		$4,122,171	$15,899,801		$2,634,225	$18,534,027

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 4 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
010	GENERAL REQUIREMENTS	1	LS					$95,698			$55,000	$50,000		$200,698
	GEN CONDITIONS													
	Work Requirement													
	Seismic Re-qualification	1	LS									$50,000		$50,000
	CONSTRUCTION AIDS													
	Scaffolds/Temp Supports													
	Rental	1	LS								$55,000			$55,000
	Set-up/Remove	1	LS			1840	52.01	$95,698						$95,698

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 5 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
020	SITE WORK				$4,376			$662,048			$217,779	$19,000		$1,223,202
	EQUIPMENT REMOVAL (INCL HANDLING/STORAGE ON SITE)													
	El 70' – 0"													
	Remove Exist Equip/Piping/Conduit	1	LS			13420	42.55	$571,021	13420	8.28	$111,118			$682,139
	El 42' – 6"													
	Remove Misc Equip (Loose/Crated)	1	LS			160	42.55	$6,808	160	12.33	$1,973			$8,781
	El 21' – 3"													
	Remove Misc Equip (Loose/Crated)	1	LS			160	42.55	$6,808	160	12.33	$1,973			$8,781
	El 0' – 0"													
	Remove Exist Equip/Piping/Conduit	1	LS			4020	42.55	$171,051	4020	8.28	$33,286			$204,337
	El – 17' – 6"													
	Remove Misc Equip (Loose/Crated)	1	LS			120	42.55	$5,106	120	12.33	$1,480			$6,586
	Salvage Value (Allowance)	-1	LS											
	ARCHITECTURAL DEMOLITION													
	El 42' – 6"													
	Remove Exist Susp Ceiling (Incl Elect)	1	LS			180	41.58	$7,484	180	4.19	$754			$8,239
	Remove Exist Doors (Pr 3'x7')	1	EA			4	41.58	$166	4	4.19	$17			$183
	El 21' – 3"													
	Remove Exist Doors (Pr 3'x7')	3	EA			4	41.58	$499	4	4.19	$50			$549
	El 0' – 0"													
	Remove Exist Doors (Pr 3'x7')	1	EA			4	41.58	$166	4	4.19	$17			$183
	Rem Exist Oversize Dbl Door	1	EA			40	41.58	$1,663	40	8.89	$356			$2,019
	STRUCTURAL DEMOLITION													
	EL 70' – 0"													
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41.58	$5,988	144	5.28	$760			$6,873
	El 42' – 6"													
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41.58	$5,988	144	5.28	$760			$6,873
	Increase Door Opng	1	LS	185	$185	146	41.58	$6,071	146	5.28	$771			$7,027
	EL 21' – 3"													
	Cut - out Opng – 6" Thk Conc Wall	1	LS	150	$150	235	41.58	$9,771	235	5.28	$1,241			$11,162
	Cut - out Opng – 12" Thk Conc Wall	1	LS	525	$525	769	41.58	$31,975	769	5.28	$4,060			$36,560
	Cut - out Opng – 24" Thk Conc Wall	1	LS	160	$160	325	41.58	$13,514	325	5.28	$1,716			$15,390
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41.58	$5,988	144	5.28	$760			$6,873

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 6 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
020	SITE WORK (CONT'D)													
	El 0' - 0"													
	Remove Exist Conc Wall	1	LS	640	$640	725	41.68	$30,146	726	5.28	$3,828			$34,614
	Remove Exist Steel Stairs	1	LS			40	41.68	$1,663	40	5.28	$211			$1,874
	Enlarge Exist Slab Opng	1	LS	480	$480	307	41.68	$12,765	307	5.28	$1,621			$14,866
	Demo Part Of Slab on Gr For Wall Fdn	1	LS	1580	$1,580	584	41.68	$24,283	584	5.28	$3,084			$28,948
	Remove Misc Equip Pads, Etc	1	LS	130	$130	144	41.68	$5,988	144	5.28	$760			$6,878
	El - 17' - 6"													
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41.68	$5,988	144	5.28	$760			$6,873
	El - 35' - 0"													
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41.68	$5,988	144	5.28	$760			$6,873
	RUBBISH HANDLING/REMOVAL													
	Dumpster Rental	1	LS						1	3500	$3,500			$3,500
	Collect/Haul to Dumpster	1	LS			343	41.68	$14,262	343	3.81	$1,307			$15,569
	Load/Haul to Dump	1	LS			723	42.74	$30,901	723	56.61	$40,857			$71,758
	Dump Charges	1	LS									$19,000		$19,000

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 7 of 14

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
030	CONCRETE				$171,000			$562,970			$99,473			$853,443
	CIP CONC/CONC REPAIRS													
	El 70' - 0"													
	Grout Misc Penetrations	1	LS	1805	$1,805	200	43.58	$8,716	200	9.69	$1,938			$12,459
	Misc Conc Repairs	1	LS	1000	$1,000	80	43.58	$3,486	80	9.69	$775			$5,262
	El 42' - 0"													
	Fill Exist Opngs w/ Conc	12	EA	420	$5,040	80	43.95	$31,644	60	11.07	$8,842			$43,326
	Grout Misc Penetrations	1	LS	4060	$4,060	410	43.58	$17,868	410	9.69	$3,973			$25,901
	Misc Conc Repairs	1	LS	1000	$1,000	80	43.58	$3,486	80	9.69	$775			$5,262
	El 21' - 3"													
	Grout Misc Penetrations	1	LS	905	$905	100	43.58	$4,358	100	9.69	$969			$6,232
	Misc Conc Repairs	1	LS	750	$750	60	43.58	$2,615	60	9.69	$581			$3,946
	El 0' - 0"													
	Fill Exist Opngs w/ Conc	25	EA	420	$10,500	94	43.95	$103,283	80	11.07	$22,140			$135,923
	Grout Misc Penetrations	1	LS	10835	$10,835	926	43.58	$40,355	926	9.69	$8,973			$60,163
	Grout Floor Beams Base Pls Rm 351	1	LS	415	$415	25	50.19	$1,255	25	8.89	$222			$1,892
	New Slabs Over Exist Pits	1	LS	5055	$5,055	396	48.74	$19,301	398	8.05	$2,396			$26,752
	New Raised Loadout Dock	1	LS	5610	$5,610	350	48.74	$17,059	350	8.05	$2,118			$24,787
	New Reinf Conc Wall	1	LS	20930	$20,930	990	48.74	$48,253	990	8.05	$5,990			$75,172
	Thicken Exist Walls	1	LS	58415	$58,415	2800	48.74	$136,472	2800	8.05	$16,940			$211,827
	Foundation For New Walls	1	LS	5315	$5,315	1084	48.74	$52,834	1084	8.05	$6,558			$64,707
	Modify Exist Wall Foundations	1	LS	16330	$16,330	265	48.74	$12,916	265	8.05	$1,603			$30,849
	Misc Conc Repairs	1	LS	10000	$10,000	400	43.58	$17,432	400	9.69	$3,876			$31,308
	El - 17' - 6"													
	Grout Misc Penetrations	1	LS	905	$905	100	43.58	$4,358	100	9.69	$969			$6,232
	Misc Conc Repairs	1	LS	750	$750	60	43.58	$2,615	60	9.69	$581			$3,946
	Grout Floor Beams Base Pls Rm 325	1	LS	1495	$1,495	90	50.19	$4,517	90	8.89	$800			$6,812
	El - 35' - 0"													
	Fill Exist Opngs w/ Conc	11	EA	420	$4,620	80	43.95	$29,007	50	11.07	$6,069			$39,716
	Grout Misc Penetrations	1	LS	3720	$3,720	376	43.58	$16,386	376	9.69	$3,643			$23,750
	Misc Conc Repairs	1	LS	500	$500	40	43.58	$1,743	40	9.69	$388			$2,631
	Grout Floor Beams Base Pls Rm 141	1	LS	1045	$1,045	60	50.19	$3,011	60	8.89	$533			$4,590

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 8 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
050	METALS				$1,651,610			$545,918			$71,288			$2,268,814
	STRUCT STL/MISC METALS													
	El 42' – 6"													
	Stl Sill Header (For Door Opng)	1	LS	780	$780	40	58.07	$2,323	40	6.81	$272			$3,366
	El 21' – 3"													
	Stl Sill Headers (For New Opngs)	1	LS	4000	$4,000	174	58.07	$10,104	174	6.81	$1,185			$15,289
	El 0' – 0"													
	Stl Sill Headers	1	LS	11760	$11,760	681	58.07	$39,546	681	6.81	$4,638			$55,943
	Stl Sill Flr Bms For New Flr Grtg	1	LS	22670	$22,670	371	58.07	$21,544	371	10.62	$3,940			$48,154
	New Floor Grating	1	LS	100000	$100,000	403	58.07	$23,402	403	10.62	$4,280			$128,682
	Stl Sill For Enlarged Slab Opng	1	LS	6970	$6,970	392	58.07	$22,763	392	6.81	$2,670			$32,403
	Stl Sill For Upgraded Oil Crane	1	LS	45650	$45,650	228	58.07	$13,240	228	6.81	$1,553			$60,443
	El – 36' – 0"													
	Stl Sill Flr Bms For New Flr Grtg	1	LS	8500	$8,500	133	58.07	$7,723	133	10.62	$1,412			$17,636
	New Floor Grating	1	LS	36070	$36,070	145	58.07	$8,420	145	10.62	$1,540			$46,030
	SPECIAL FABRICATION/INSTALL'N													
	El 0' – 0"													
	Fabricate Storage Racks For RH TRU	1	LS	444000	$444,000	2220	58.07	$128,915	2220	8.61	$19,114			$592,030
	Install Storage Racks For RH TRU	1	LS			555	58.07	$32,229	555	10.62	$5,894			$38,123
	Removable Grating For RH TRU Stor	1	LS	156000	$156,000	946	58.07	$54,934	946	10.62	$10,047			$220,981
	Fabr SS Stor Rack for Cs/Sr Capsules	305	EA	2000	$610,000	5	58.07	$88,557	5	2.67	$4,072			$702,629
	Fabr SS Plug For Stor Pit	301	EA	150	$45,150	2	58.07	$34,956	2	2.67	$1,607			$81,715
	El – 17' – 6"													
	Fabricate Stor Racks For Misc Sources	1	LS	50000	$50,000	250	58.07	$14,518	250	8.61	$2,153			$66,670
	Install Stor Racks For Misc Sources	1	LS			62	58.07	$3,600	62	10.62	$658			$4,259
	El – 36' – 0"													
	Fabricate Storage Racks For RH TRU	1	LS	80000	$80,000	400	58.07	$23,228	400	8.61	$3,444			$106,672
	Install Storage Racks For RH TRU	1	LS			100	58.07	$5,807	100	10.62	$1,062			$6,869
	Removable Grating For RH TRU Stor	1	LS	28980	$28,980	174	58.07	$10,104	174	10.62	$1,848			$40,932

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 9 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
07	DOORS AND WINDOWS				$9,540			$37,447			$92			$47,079
	SPECIAL DOORS													
	El 42'-6" Shielded Door, 10'x10' (Motor Oper)	1	EA	9540	$9,540	80	52.01	$4,161	80	1.15	$92			$13,793
	OBSERVATION WINDOWS													
	El 42'-6" Shielded Window (Exist Mtl)	2	EA			40	52.01	$4,161						$4,161
	El 0'-0" Shielded Window (Exist Mtl)	8	EA			40	52.01	$16,643						$16,643
	El -35-0" Shielded Window (Exist Mtl)	6	EA			40	52.01	$12,482						$12,482

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 10 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
090	FINISHES				$1840			$19,676			$868			$32,672
	PAINTING													
	El 21'-3"													
	Paint Sv Sil Headers	1	LS	$145	$145	24	19.35	$464	24	2.02	$48			$658
	El 0'-0"													
	Paint New Walls	1	LS	7895	$7,895	240	47.98	$11,515	240	2.02	$485			$19,895
	Paint Sv Sil Frame/Upgraded Crane Sil	1	LS	3800	$3,800	160	49.35	$7,898	160	2.02	$323			$12,019

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 11 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	**CONVEYING SYSTEMS**				$1,340,000			$207,838			$31,812			$1,579,461
	MATERIAL HANDLING													
	Fork Lift	2	EA	60000	$120,000									$120,000
	El 0' – 0"													
	Remote Manipulator Work Stations (Use Exist Manipulators)	1	LS			800	53.02	$42,416	400	26.79	$10,716			$53,132
	CONVEYORS													
	El 0' – 0"													
	Conveyor System	1	LS	250000	$250,000	450	53.02	$23,859	126	26.79	$3,349			$277,208
	HOISTS AND CRANES													
	El 0' – 0"													
	Upgrade 5 Ton To 40 Ton Crane	1	LS	100000	$100,000	320	53.02	$18,966	80	26.79	$2,143			$119,110
	Remote Oper Crane 10 Ton Rm 325	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,887
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	Remote Oper Crane 10 Ton Rm 351	1	EA	100000	$100,000	350	53.02	$18,557	75	26.79	$2,009			$120,566
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	El – 17' – 6"													
	Remote Oper Crane 10 Ton – Rm 111	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,887
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	El – 35' – 0"													
	Remote Oper Crane 10 Ton – Rm 141	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,887
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 12 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
015	MECHANICAL				$160,000			$89,624			$14,188			$267,792
	HVAC													
	Vent System	1	LS	100000	$100,000	420	60.01	$25,204	200	26.79	$5,358			$130,562
	Duct/Misc Repair Work	1	LS	60000	$60,000	1000	68.42	$58,420	1000	8.81	$8,810			$127,230

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 13 of 14

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
018	ELECTRICAL				$849,534			$179,387			$677			$820,579
	MTL HANDLING ELECTRICAL													
	El 0' – 0"													
	Elect Cables/Wiring/Misc	1	LS	30474	$30,474	1105	62	$68,510						$98,984
	El – 17' – 6"													
	Elect Cables/Wiring/Misc	1	LS	6095	$6,095	221	62	$13,702						$19,797
	El – 35' – 0"													
	Elect Cables/Wiring/Misc	1	LS	6095	$6,095	221	62	$13,702						$19,797
	HVAC ELECTRICAL													
	El 0' – 0"													
	Power & Distribution	1	LS	100870	$100,870	294	59.85	$17,598	115	5.89	$677			$119,943
	SPECIAL ELECTRICAL													
	El 70' – 0"													
	Upgrade Exist CCTV System	1	LS	52500	$52,500	80	59.85	$4,788						$57,288
	El 42' – 6"													
	Upgrade Exist CCTV System	1	LS	52500	$52,500	80	59.85	$4,788						$57,288
	El 21' – 3"													
	Upgrade Exist CCTV System	1	LS	52500	$52,500	80	59.85	$4,788						$57,288
	El 0' – 0"													
	Upgrade Exist CCTV System	1	LS	21000	$21,000	32	59.85	$1,916						$22,916
	Remote CCTV Systems	1	LS	87000	$87,000	180	59.85	$10,773						$97,773
	OH Crane CCTV Systems	1	LS	38700	$38,700	100	59.85	$5,985						$44,685
	Upgraded OH Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993
	El – 17' – 6"													
	Upgrade Exist CCTV System	1	LS	84000	$84,000	120	59.85	$7,801						$91,801
	OH Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993
	El – 35' – 0"													
	Remote CCTV System	1	LS	58000	$58,000	120	59.85	$7,182						$65,182
	OH Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993

Table B.3-10a. Life-Cycle Cost Estimate of RH TRU/ RH LLMW, Cs and Sr Capsules, UU, and Miscellaneous Sources Storage at the FMEF. 14 of 14

CSI SUMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS		$95,698	$55,000	$50,000		$200,698
02	SITE WORK	$4,376	$982,048	$217,779	$19,000		$1,223,202
03	CONCRETE	$171,000	$582,970	$99,473			$853,443
04	MASONRY						
05	METALS	$1,661,610	$545,918	$71,386			$2,288,914
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS	$9,540	$37,447	$92			$47,079
08	THERMAL & MOISTURE PROTECTION						
09	FINISHES	$11,840	$19,876	$856			$32,572
010	SPECIALTIES						
011	EQUIPMENT						
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS	$1,340,000	$207,836	$31,612			$1,579,461
015	MECHANICAL	$160,000	$83,624	$14,168			$257,792
016	ELECTRICAL	$849,534	$170,367	$677			$820,579
	TOTAL	$3,997,799	$2,725,786	$491,016	$69,000		$7,283,601

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 1 of 12

LIFE-CYCLE ESTIMATE FOR FMEF, RH TRU STORAGE (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 13:32:34

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EOP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	401,313			59,454	208,087							668,834
1997	276,451			61,434	214,998							552,881
1998	238,045			63,480	222,158							523,683
1999	189,752	2,108,354	210,835	65,593								2,574,536
2000	239,642	2,682,687	268,268	67,778								3,258,375
2001						4,016,729	455,716	1,825,788	55,117		1,460,629	7,813,976
2002						4,150,486	470,891	1,886,585	58,952		1,509,268	8,074,182
2003						4,288,697	486,572	1,949,408	58,849		1,559,526	8,343,052
2004						4,431,511	502,775	2,014,323	60,808		1,611,458	8,620,876
2005						4,579,080	519,517	2,081,400	62,833		1,665,120	8,907,951
2006						4,731,563	536,817	2,150,711	64,926		1,720,569	9,204,586
2007						4,889,124	554,653	2,222,329	67,088		1,777,863	9,511,098
2008						5,051,932	573,155	2,296,333	69,322		1,837,066	9,827,818
2009						5,220,162	592,251	2,372,801	71,630		1,898,241	10,155,084
2010						5,393,993	611,973	2,451,815	74,015		1,961,452	10,493,248
2011						5,573,613	632,352	2,533,460	76,480		2,026,758	10,842,674
2012						5,759,214	653,409	2,617,825	79,027		2,094,260	11,203,735
2013						5,950,998	675,168	2,704,998	81,658		2,163,999	11,576,819
2014						6,149,164	697,651	2,795,075	84,378		2,236,060	11,962,327
2015						6,353,931	720,882	2,888,151	87,197		2,310,521	12,360,673
2016						6,565,517	744,888	2,984,326	90,091		2,387,461	12,772,283
2017						6,784,149	769,693	3,083,704	93,091		2,466,963	13,197,600
2018						7,010,081	795,323	3,186,392	96,191		2,549,113	13,637,080
2019						7,243,496	821,808	3,292,498	99,394		2,633,999	14,091,195
2020						7,484,705	849,174	3,402,139	102,704		2,721,711	14,560,432
2021						7,733,945	877,451	3,515,430	106,124		2,812,344	15,045,294
2022						7,991,486	906,670	3,632,494	109,658		2,905,995	15,546,302
2023						8,257,602	936,863	3,753,458	113,309		3,002,764	16,063,994
2024						8,532,580	968,060	3,878,446	117,083		3,102,757	16,598,925
2025						8,816,715	1,000,298	4,007,598	120,981		3,206,078	17,151,669
2026						9,110,312	1,033,606	4,141,051	125,010		3,312,841	17,722,920
2027						9,413,685	1,068,025	4,278,948	129,173		3,423,158	18,312,990
2028						9,727,161	1,103,591	4,421,437	133,474		3,537,149	18,922,812
2029										312,863		312,863
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	1,345,208	4,771,042	477,104	317,739	645,219	181,211,814	20,559,281	32,368,915	2,486,553	312,863	35,895,132	360,390,666

LIFE-CYCLE ESTIMATE FOR FMEF, RH TRU STORAGE

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$1,345,208	0.4%
TITLE I, II & III	$1,345,208		
CONSTRUCTION		$5,248,145	1.5%
FACILITY	$4,771,042		
CONSTRUCTION MANAGEMENT	$477,104		
EXPENSE COSTS		962,957	0.3%
WHC PROJECT MANAGEMENT	$317,739		
OTHER PROJECT COSTS	645,219		
OPERATING & MAINTENANCE COST		$352,521,495	97.8%
OPERATIONS	$201,770,895		
MAINTENANCE	$54,855,468		
PROJECT MANAGEMENT	$95,895,132		
DECONTAMINATION & DECOMMISSIONING		$312,863	0.1%
TOTAL COST	$312,863		
TOTAL LIFE-CYCLE COST		$360,390,666	100.0%

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 2 of 12

LIFE-CYCLE ESTIMATE FOR FMEF, RH TRU STORAGE (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	388,380			57,538	201,362							647,280
1997	258,920			57,538	201,362							517,820
1998	215,787			57,538	201,362							474,687
1999	166,449	1,849,430	184,943	57,538								2,258,360
2000	203,437	2,260,414	226,041	57,538								2,747,430
2001						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2002						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2003						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2004						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2005						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2006						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2007						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2008						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2009						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2010						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2011						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2012						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2013						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2014						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2015						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2016						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2017						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2018						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2019						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2020						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2021						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2022						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2023						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2024						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2025						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2026						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2027						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2028						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2029										102,720		102,720
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	1,232,953	4,109,844	410,984	287,690	604,086	92,400,000	10,483,200	42,000,000	1,267,996	102,720	33,600,000	188,499,373

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$1,232,953	$1,232,953	0.7%
CONSTRUCTION			
FACILITY	$4,109,844	$4,520,828	2.4%
CONSTRUCTION MANAGEMENT	$410,984		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$287,690	891,776	0.5%
OTHER PROJECT COSTS	604,086		
OPERATING & MAINTENANCE COST			
OPERATIONS	$102,883,200	$179,751,096	96.4%
MAINTENANCE	$43,267,896		
PROJECT MANAGEMENT	$33,600,000		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$102,720	$102,720	0.1%
TOTAL LIFE-CYCLE COST		$188,499,373	100.0%

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 3 of 12

FMEF
RH TRU STORAGE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$3,044,329	35%	$1,065,515	$4,109,844	17.79%	$731,141	$4,840,986
TITLE I AND TITLE II ENGINEERING	21%	$639,309	35%	$223,758	$863,067	10.24%	$88,378	$951,445
TITLE III ENGINEERING	9%	$273,990	35%	$95,896	$369,886	17.79%	$65,803	$435,689
CONSTRUCTION MANAGEMENT	10%	$304,433	35%	$106,552	$410,984	17.79%	$73,114	$484,099
WHC PROJECT MANAGEMENT	7%	$213,103	35%	$74,586	$287,689	17.79%	$51,180	$338,869
SUBTOTAL		$4,475,164		$1,566,307	$6,041,471		$1,009,616	$7,051,087
OTHER PROJECT COSTS	10%	$447,516	35%	$156,631	$604,147	15.13%	$91,407	$695,555
TOTAL		$4,922,680		$1,722,938	$6,645,618		$1,101,024	$7,746,642

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 4 of 12

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS		$33,494	$19,250	$30,000		$82,744
02	SITE WORK	$190	$12,540	$4,740	$1,500		$18,971
03	CONCRETE	$35,285	$206,530	$44,339			$286,154
04	MASONRY						
05	METALS	$884,190	$339,071	$55,250			$1,278,511
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS		$29,126				$29,126
08	THERMAL & MOISTURE PROTECTION						
09	FINISHES	$1,900	$3,948	$162			$6,010
010	SPECIALTIES						
011	EQUIPMENT						
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS	$870,000	$124,597	$15,404			$1,010,001
015	MECHANICAL						
016	ELECTRICAL	$248,080	$84,733				$332,813
	TOTAL	$2,039,645	$834,039	$139,145	$31,500		$3,044,329

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 5 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	**GENERAL REQUIREMENTS**	1	LS					$33,494			$19,250	$30,000		$82,744
	GEN CONDITIONS													
	Work Requirement													
	Seismic Re-qualification	1	LS									$30,000		$30,000
	CONSTRUCTION AIDS													
	Scaffolds/Temp Supports													
	Rental	1	LS								$19,250			$19,250
	Set-up/Remove	1	LS			644	52.01	$33,494						$33,494

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 6 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
02	SITE WORK				$190			$12,540			$4,740	$1,500		$18,971
	STRUCTURAL DEMOLITION													
	El 0' – 0"													
	Remove Misc Equip Pads, Etc	1	LS	65	$65	72	41.58	$2,994	72	5.28	$380			$3,439
	El – 35' – 0"													
	Remove Misc Equip Pads, Etc.	1	LS	125	$125	144	41.58	$5,988	144	5.28	$760			$6,873
	RUBBISH HANDLING/REMOVAL													
	Dumpster Rental	1	LS						1	276	$276			$276
	Collect/Haul to Dumpster	1	LS			27	41.58	$1,123	27	3.81	$103			$1,226
	Load/Haul to Dump	1	LS			57	42.74	$2,436	57	56.51	$3,221			$5,657
	Dump Charges	1	LS									$1,500		$1,500

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 7 of 12

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
03	CONCRETE				$35,285			$206,530			$44,339			$286,154
	CIP CONC/CONC REPAIRS													
	El 0' – 0"													
	Fill Exist Opngs w/ Conc	25	EA	420	$10,500	94	43 95	$103,283	80	11 07	$22,140			$135,923
	Grout Misc Penetrations	1	LS	10835	$10,835	928	43 58	$40,355	928	9 69	$8,973			$60,163
	Grout Floor Beams Base Pls Rm 351	1	LS	415	$415	25	50 19	$1,255	25	8 89	$222			$1,892
	Misc Conc Repairs	1	LS	1000	$1,000	40	43 58	$1,743	40	9 69	$388			$3,131
	El – 17' – 6"													
	Grout Misc Penetrations	1	LS	905	$905	100	43 58	$4,358	100	9 69	$969			$6,232
	Misc Conc Repairs	1	LS	250	$250	20	43 58	$872	20	9 69	$194			$1,315
	Grout Floor Beams Base Pls Rm 325	1	LS	1495	$1,495	90	50 19	$4 517	90	8 89	$800			$6,812
	El – 36' – 0"													
	Fill Exist Opngs w/ Conc	11	EA	420	$4,620	60	43 95	$29,007	60	11 07	$6,089			$39,716
	Grout Misc Penetrations	1	LS	3720	$3,720	376	43 58	$16,386	376	9 69	$3 643			$23,750
	Misc Conc Repairs	1	LS	500	$500	40	43 58	$1,743	40	9 69	$388			$2,631
	Grout Floor Beams Base Pls Rm 141	1	LS	1045	$1 045	60	50 19	$3,011	60	8 89	$533			$4,590

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 8 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$884,190			$339,071			$55,260			$1,278,511
	STRUCT STL/MISC METALS													
	El 0' – 0"													
	Su Sd Fk Bms For New Fk Grtg	1	LS	22870	$22,870	371	58 07	$21,544	371	10 62	$3,940			$48,354
	New Floor Grating	1	LS	100800	$100 800	403	58 07	$23,402	403	10 62	$4,280			$128,482
	Su Sd For Enlarged Slab Opng	1	LS	6970	$6,970	392	58 07	$22,763	392	6 81	$2,670			$32,403
	El – 35' – 0"													
	Su Sd Fk Bms For New Fk Grtg	1	LS	8500	$8,500	133	58 07	$7,723	133	10 62	$1,412			$17,636
	New Floor Grating	1	LS	36070	$36,070	145	58 07	$8,420	145	10 62	$1,540			$46,030
	SPECIAL FABRICATION/INSTALL'N													
	El 0' – 0"													
	Fabricate Storage Racks For RH TRU	1	LS	444000	$444,000	2220	58 07	$128,915	2220	8 61	$19,114			$592,030
	Install Storage Racks For RH TRU	1	LS			555	58 07	$32 229	555	10 62	$5,894			$38,123
	Removable Grating For RH TRU Stor	1	LS	156000	$156,000	946	58 07	$54,934	946	10 62	$10 047			$220,981
	El – 35' – 0"													
	Fabricate Storage Racks For RH TRU	1	LS	80000	$80,000	400	58 07	$23,228	400	8 61	$3,444			$106,672
	Install Storage Racks For RH TRU	1	LS			100	58 07	$5,807	100	10 62	$1,062			$6,869
	Removable Grating For RH TRU Stor	1	LS	28980	$28,980	174	58 07	$10,104	174	10 62	$1,848			$40,932

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 9 of 12

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
07	DOORS AND WINDOWS							$29,126						$29,126
	OBSERVATION WINDOWS													
	El 0' – 0"													
	Shielded Window (Exist Mil)	8	EA			40	52.01	$16,643						$16,643
	El – 35 – 0"													
	Shielded Window (Exist Mil)	6	EA			40	52.01	$12,482						$12,482

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 10 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
09	FINISHES				1900			$3,948			$162			$6,010
	PAINTING													
	El 0' – 0"													
	Paint Str Stl Frame	1	LS	1900	$1,900	80	49.35	$3,948	80	2.02	$162			$6,010

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 11 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	CONVEYING SYSTEMS				$870,000			$124,697			$15,404			$1,010,001
	HOISTS AND CRANES													
	El 0' – 0"													
	Remote Oper Crane 10 Ton – Rm 325	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,887
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	Remote Oper Crane 10 Ton – Rm 351	1	EA	100000	$100,000	350	53.02	$18,557	75	26.79	$2,009			$120,565
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	El – 17' – 6"													
	Remote Oper Crane 10 Ton – Rm 111	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,887
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	El – 35' – 0"													
	Remote Oper Crane 10 Ton – Rm 141	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,887
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944

Table B.3-10b. Life-Cycle Cost Estimate for RH TRU Waste Storage at the FMEF. 12 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
016	ELECTRICAL				$248,080			$84,733						$332,813
	MTL HANDLING ELECTRICAL													
	El 0'-0"													
	Elect Cables/Wiring/Misc	1	LS	12190	$12,190	442	62	$27,404						$39,594
	El -17'-6"													
	Elect Cables/Wiring/Misc	1	LS	6095	$6,095	221	62	$13,702						$19,797
	El -35'-0"													
	Elect Cables/Wiring/Misc	1	LS	6095	$6,095	221	62	$13,702						$19,797
	SPECIAL ELECTRICAL													
	El 0'-0"													
	Remote CCTV System	1	LS	87000	$87,000	180	59.85	$10,773						$97,773
	OH Crane CCTV Systems	1	LS	38700	$38,700	100	59.85	$5,985						$44,685
	El -17-6"													
	OH Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993
	El -35-0"													
	Remote CCTV System	1	LS	58000	$58,000	120	59.85	$7,182						$65,182
	OH Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 1 of 12

LIFE-CYCLE ESTIMATE FOR FMEF, LLMW STORAGE (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 10:35:32

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	401,313			59,454	208,087							668,834
1997	278,451			61,434	214,998							552,881
1998	238,048			63,480	222,155							523,683
1999	169,752	2,108,354	210,635	65,593								2,574,538
2000	238,842	2,662,667	266,266	67,778								3,236,375
2001						4,016,729	455,716	1,825,788	55,117		1,460,829	7,813,978
2002						4,150,468	470,891	1,888,585	56,952		1,509,268	8,074,182
2003						4,288,697	486,572	1,949,408	58,849		1,559,526	8,343,052
2004						4,431,511	502,775	2,014,323	60,808		1,611,458	8,620,876
2005						4,579,080	519,517	2,081,400	62,833		1,665,120	8,907,951
2006						4,731,563	536,817	2,150,711	64,926		1,720,569	9,204,586
2007						4,889,124	554,693	2,222,329	67,088		1,777,863	9,511,098
2008						5,051,932	573,165	2,298,333	69,322		1,837,066	9,827,818
2009						5,220,162	592,251	2,372,901	71,630		1,898,241	10,155,084
2010						5,393,993	611,973	2,451,815	74,015		1,961,452	10,493,248
2011						5,573,613	632,352	2,533,460	76,480		2,026,768	10,842,674
2012						5,759,214	653,409	2,617,825	79,027		2,094,260	11,203,735
2013						5,950,998	675,168	2,704,998	81,658		2,163,999	11,576,819
2014						6,149,154	697,651	2,795,075	84,376		2,236,060	11,962,327
2015						6,353,931	720,882	2,888,151	87,187		2,310,521	12,360,673
2016						6,565,517	744,888	2,984,326	90,091		2,387,461	12,772,283
2017						6,784,149	769,693	3,083,704	93,091		2,466,963	13,197,600
2018						7,010,081	795,323	3,186,392	96,191		2,549,113	13,637,080
2019						7,243,498	821,808	3,292,498	99,394		2,633,999	14,091,195
2020						7,484,705	849,174	3,402,139	102,704		2,721,711	14,560,432
2021						7,733,945	877,451	3,515,430	106,124		2,812,344	15,045,294
2022						7,991,486	906,670	3,632,494	109,658		2,905,995	15,546,302
2023						8,257,602	936,863	3,753,456	113,309		3,002,764	16,063,994
2024						8,532,580	968,060	3,878,446	117,083		3,102,757	16,598,925
2025						8,816,715	1,000,296	4,007,598	120,981		3,206,078	17,151,689
2026						9,110,312	1,033,606	4,141,051	125,010		3,312,841	17,722,820
2027						9,413,685	1,068,025	4,278,948	129,173		3,423,158	18,312,990
2028						9,727,161	1,103,591	4,421,437	133,474		3,537,149	18,922,812
2029										312,863		312,863
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	1,345,206	4,771,042	477,104	317,739	645,219	181,211,814	20,559,281	82,368,915	2,486,553	312,863	85,895,132	380,390,666

LIFE-CYCLE ESTIMATE FOR FMEF, LLMW STORAGE

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$1,345,206	$1,345,206	0.4%
CONSTRUCTION			
FACILITY	$4,771,042	$5,248,145	1.5%
CONSTRUCTION MANAGEMENT	$477,104		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$317,739	962,957	0.3%
OTHER PROJECT COSTS	645,219		
OPERATING & MAINTENANCE COST			
OPERATIONS	$201,770,895	$352,521,495	97.8%
MAINTENANCE	$84,855,468		
PROJECT MANAGEMENT	$85,895,132		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$312,863	$312,863	0.1%
TOTAL LIFE-CYCLE COST		$360,390,666	100.0%

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 2 of 12

LIFE-CYCLE ESTIMATE FOR FMEF, LLMW STORAGE (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	388,380			57,538	201,362							647,280
1997	258,920			57,538	201,362							517,820
1998	215,767			57,538	201,362							474,667
1999	168,449	1,849,430	184,943	57,538								2,258,360
2000	203,437	2,260,414	226,041	57,538								2,747,430
2001						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2002						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2003						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2004						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2005						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2006						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2007						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2008						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2009						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2010						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2011						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2012						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2013						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2014						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2015						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2016						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2017						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2018						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2019						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2020						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2021						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2022						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2023						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2024						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2025						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2026						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2027						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2028						3,300,000	374,400	1,500,000	45,282		1,200,000	6,419,682
2029										102,720		102,720
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	1,232,953	4,109,844	410,984	287,690	804,086	92,400,000	10,483,200	42,000,000	1,267,996	102,720	33,600,000	188,499,373

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$1,232,953	0.7%
TITLE I, II & III	$1,232,953		
CONSTRUCTION		$4,520,828	2.4%
FACILITY	$4,109,844		
CONSTRUCTION MANAGEMENT	$410,984		
EXPENSE COSTS		891,776	0.5%
WHC PROJECT MANAGEMENT	$287,690		
OTHER PROJECT COSTS	604,086		
OPERATING & MAINTENANCE COST		$179,751,096	98.4%
OPERATIONS	$102,883,200		
MAINTENANCE	$43,267,896		
PROJECT MANAGEMENT	$33,600,000		
DECONTAMINATION & DECOMMISSIONING		$102,720	0.1%
TOTAL COST	$102,720		
TOTAL LIFE-CYCLE COST		$188,499,373	100.0%

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 3 of 12

FMEF
RH LLMW STORAGE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$3,044,329	35%	$1,065,515	$4,109,844	17.79%	$731,141	$4,840,986
TITLE I AND TITLE II ENGINEERING	21%	$639,309	35%	$223,758	$863,067	10.24%	$88,378	$951,445
TITLE III ENGINEERING	9%	$273,990	35%	$95,896	$369,886	17.79%	$65,803	$435,689
CONSTRUCTION MANAGEMENT	10%	$304,433	35%	$106,552	$410,984	17.79%	$73,114	$484,099
WHC PROJECT MANAGEMENT	7%	$213,103	35%	$74,586	$287,689	17.79%	$51,180	$338,869
SUBTOTAL		$4,475,164		$1,566,307	$6,041,471		$1,009,616	$7,051,087
OTHER PROJECT COSTS	10%	$447,516	35%	$156,631	$604,147	15.13%	$91,407	$695,555
TOTAL		$4,922,680		$1,722,938	$6,645,618		$1,101,024	$7,746,642

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 4 of 12

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS		$33,494	$19,250	$30,000		$82,744
02	SITE WORK	$190	$12,540	$4,740	$1,500		$18,971
03	CONCRETE	$35,285	$208,530	$44,339			$288,154
04	MASONRY						
05	METALS	$884,190	$339,071	$55,250			$1,278,511
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS		$29,126				$29,126
08	THERMAL & MOISTURE PROTECTION						
09	FINISHES	$1,900	$3,948	$162			$6,010
010	SPECIALTIES						
011	EQUIPMENT						
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS	$870,000	$124,597	$15,404			$1,010,001
015	MECHANICAL						
016	ELECTRICAL	$248,080	$84,733				$332,813
	TOTAL	$2,039,645	$834,039	$139,145	$31,500		$3,044,329

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 5 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	**GENERAL REQUIREMENTS**	1	LS					$33,494			$19,250	$30,000		$82,744
	GEN CONDITIONS													
	Work Requirement													
	Seismic Re - qualification	1	LS									$30,000		$30,000
	CONSTRUCTION AIDS													
	Scaffolds/Temp Supports													
	Rental	1	LS								$19,250			$19,250
	Set - up/Remove	1	LS			644	52.01	$33,494						$33,494

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 6 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
02	SITE WORK				$190			$12,540			$4,740	$1,500		$18,971
	STRUCTURAL DEMOLITION													
	El 0' – 0"													
	Remove Misc Equip Pads, Etc.	1	LS	65	$65	72	41.58	$2,994	72	5.28	$380			$3,439
	El – 35' – 0"													
	Remove Misc Equip Pads, Etc.	1	LS	125	$125	144	41.58	$5,988	144	5.28	$760			$6,873
	RUBBISH HANDLING/REMOVAL													
	Dumpster Rental	1	LS						1	276	$276			$276
	Collect/Haul to Dumpster	1	LS			27	41.58	$1,123	27	3.81	$103			$1,226
	Load/Haul to Dump	1	LS			57	42.74	$2,436	57	56.51	$3,221			$5,657
	Dump Charges	1	LS									$1,500		$1,500

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 7 of 12

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
03	CONCRETE				$35,285			$206,530			$44,339			$286,154
	CIP CONC/CONC REPAIRS													
	El 0' – 0"													
	Fill Exist Opngs w/ Conc	25	EA	420	$10,500	94	43.95	$103,283	80	11.07	$22,140			$135,923
	Grout Misc Penetrations	1	LS	10835	$10,835	926	43.58	$40,355	926	9.69	$8,973			$60,163
	Grout Floor Beams Base Pls Rm 351	1	LS	415	$415	25	50.19	$1,255	25	8.89	$222			$1,892
	Misc Conc Repairs	1	LS	1000	$1,000	40	43.58	$1,743	40	9.69	$388			$3,131
	El – 17' – 6"													
	Grout Misc Penetrations	1	LS	905	$905	100	43.58	$4,358	100	9.69	$969			$6,232
	Misc Conc Repairs	1	LS	250	$250	20	43.58	$872	20	9.69	$194			$1,316
	Grout Floor Beams Base Pls Rm 325	1	LS	1495	$1,495	90	50.19	$4,517	90	8.89	$800			$6,812
	El – 35' – 0"													
	Fill Exist Opngs w/ Conc	11	EA	420	$4,620	60	43.95	$29,007	60	11.07	$6,069			$39,716
	Grout Misc Penetrations	1	LS	3720	$3,720	376	43.58	$16,386	376	9.69	$3,643			$23,749
	Misc Conc Repairs	1	LS	500	$500	40	43.58	$1,743	40	9.69	$388			$2,631
	Grout Floor Beams Base Pls Rm 141	1	LS	1045	$1,045	60	50.19	$3,011	60	8.89	$533			$4,589

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 8 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$904,190			$339,071			$56,250			$1,278,511
	STRUCT STL/MISC METALS													
	El 0' – 0"													
	Str Stl Flr Bms For New Flr Grtg	1	LS	22870	$22,870	371	58.07	$21,544	371	10.62	$3,940			$48,354
	New Floor Grating	1	LS	100800	$100,800	403	58.07	$23,402	403	10.62	$4,280			$128,482
	Str Stl For Enlarged Slab Opng	1	LS	6970	$6,970	392	58.07	$22,763	392	6.81	$2,670			$32,403
	El – 35' – 0"													
	Str Stl Flr Bms For New Flr Grtg	1	LS	8500	$8,500	133	58.07	$7,723	133	10.62	$1,412			$17,636
	New Floor Grating	1	LS	38070	$38,070	145	58.07	$8,420	145	10.62	$1,540			$48,030
	SPECIAL FABRICATION/INSTALL'N													
	El 0' – 0"													
	Fabricate Storage Racks For RH TRU	1	LS	444000	$444,000	2220	58.07	$128,916	2220	8.61	$19,114			$592,030
	Install Storage Racks For RH TRU	1	LS			555	58.07	$32,229	555	10.62	$5,894			$38,123
	Removable Grating For RH TRU Stor	1	LS	156000	$156,000	946	58.07	$54,934	946	10.62	$10,047			$220,981
	El – 35' – 0"													
	Fabricate Storage Racks For RH TRU	1	LS	80000	$80,000	400	58.07	$23,228	400	8.61	$3,444			$106,672
	Install Storage Racks For RH TRU	1	LS			100	58.07	$5,807	100	10.62	$1,062			$6,869
	Removable Grating For RH TRU Stor	1	LS	28980	$28,980	174	58.07	$10,104	174	10.62	$1,848			$40,932

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 9 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
07	DOORS AND WINDOWS							$29,126						$29,126
	OBSERVATION WINDOWS													
	El 0'-0"													
	Shielded Window (Exist Mtl)	8	EA			40	52.01	$16,643						$16,643
	El -36-0"													
	Shielded Window (Exist Mtl)	6	EA			40	52.01	$12,482						$12,482

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 10 of 12

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
09	FINISHES				1900			$3,948			$162			$6,010
	PAINTING													
	El 0' – 0"													
	Paint Su Su Frame	1	LS	1900	$1,900	80	49.35	$3,948	80	2.02	$162			$6,010

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 11 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	CONVEYING SYSTEMS				$870,000			$124,597			$15,404			$1,010,001
	HOISTS AND CRANES													
	El 0' – 0"													
	Remote Oper Crane 10 Ton – Rm 325	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,8[illegible]
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,9[illegible]
	Remote Oper Crane 10 Ton – Rm 351	1	EA	100000	$100,000	350	53.02	$18,557	75	26.79	$2,009			$120,5[illegible]
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,9[illegible]
	El – 17' – 6"													
	Remote Oper Crane 10 Ton – Rm 111	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,867
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944
	El – 35' – 0"													
	Remote Oper Crane 10 Ton – Rm 141	1	EA	150000	$150,000	400	53.02	$21,208	100	26.79	$2,679			$173,867
	Remote Oper Crane Work Station	1	EA	80000	$80,000	200	53.02	$10,604	50	26.79	$1,340			$91,944

Table B.3-10c. Life-Cycle Cost Estimate for LLMW Storage at the FMEF. 12 of 12

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
016	ELECTRICAL				$248,080			$84,733						$332,813
	MTL HANDLING ELECTRICAL													
	El 0' – 0"													
	Elect Cables/Wiring/Misc	1	LS	12190	$12,190	442	62	$27,404						$39,594
	El – 17' – 6"													
	Elect Cables/Wiring/Misc	1	LS	6095	$6,095	221	62	$13,702						$19,797
	El – 35' – 0"													
	Elect Cables/Wiring/Misc	1	LS	6095	$6,095	221	62	$13,702						$19,797
	SPECIAL ELECTRICAL													
	El 0' – 0"													
	Remote CCTV System	1	LS	87000	$87,000	180	59.85	$10,773						$97,773
	Off Crane CCTV Systems	1	LS	38700	$38,700	100	59.85	$5,965						$44,665
	El – 17 – 6"													
	Off Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993
	El – 35 – 0"													
	Remote CCTV System	1	LS	58000	$58,000	120	59.85	$7,182						$65,182
	Off Crane CCTV System	1	LS	20000	$20,000	50	59.85	$2,993						$22,993

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 1 of 13

LIFE-CYCLE ESTIMATE FOR FMEF, Cs/Sr STORAGE (ESCALATED DOLLARS) 04/27/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 13:53:47

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & BOP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	405,621			60,092	210,300							676,013
1997	279,416			62,093	217,303							558,814
1998	240,603			64,180	224,540							529,303
1999	191,788	2,130,982	213,098	66,297								2,602,166
2000	242,214	2,591,266	259,126	68,505								3,271,110
2001						1,460,629	455,716	608,595	68,550		486,876	3,076,366
2002						1,509,268	470,891	628,862	39,147		503,089	3,151,258
2003						1,559,526	486,572	649,803	40,450		519,842	3,256,193
2004						1,611,458	502,775	671,441	41,797		537,153	3,364,625
2005						1,665,120	519,517	693,800	43,189		555,040	3,476,667
2006						1,720,569	536,817	716,904	44,627		573,523	3,592,440
2007						1,777,963	554,693	740,776	46,113		592,521	3,712,068
2008						1,837,068	573,185	765,444	47,649		612,255	3,835,680
2009						1,898,241	592,251	790,934	49,236		632,747	3,963,408
2010						1,961,452	611,973	817,272	50,875		653,817	4,095,389
2011						2,026,768	632,352	844,487	52,569		675,569	4,231,766
2012						2,094,250	653,409	872,608	54,320		698,087	4,372,683
2013						2,163,999	675,168	901,666	56,129		721,333	4,518,294
2014						2,236,060	697,651	931,692	57,998		745,353	4,668,753
2015						2,310,521	720,882	962,717	59,929		770,174	4,824,222
2016						2,387,461	744,888	994,775	61,925		795,820	4,984,869
2017						2,466,963	769,693	1,027,901	63,987		822,327	5,150,865
2018						2,549,113	795,323	1,062,131	66,118		849,704	5,322,389
2019						2,633,999	821,808	1,097,499	68,319		878,000	5,499,625
2020						2,721,711	849,174	1,134,046	70,594		907,237	5,682,762
2021						2,812,344	877,451	1,171,810	72,945		937,448	5,871,998
2022						2,905,995	906,670	1,210,831	75,374		968,665	6,067,536
2023						3,002,764	936,863	1,251,152	77,884		1,000,921	6,269,585
2024						3,102,757	968,060	1,292,815	80,478		1,034,252	6,478,362
2025						3,206,078	1,000,296	1,335,868	83,158		1,068,693	6,694,091
2026						3,312,841	1,033,606	1,380,350	85,927		1,104,280	6,917,304
2027						3,423,158	1,068,025	1,426,316	88,788		1,141,053	7,147,341
2028						3,537,149	1,103,591	1,473,812	91,745		1,179,050	7,385,347
2029										625,725		625,725
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	1,359,645	4,822,248	482,224	321,146	852,143	35,895,132	20,559,281	27,458,305	1,737,820	625,725	21,965,044	145,878,714

LIFE-CYCLE ESTIMATE FOR FMEF, Cs/Sr STORAGE

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$1,359,645	0.9%
TITLE I, II & III	$1,359,645		
CONSTRUCTION		$5,304,472	3.6%
FACILITY	$4,822,248		
CONSTRUCTION MANAGEMENT	$482,224		
EXPENSE COSTS		973,289	0.7%
WHC PROJECT MANAGEMENT	$321,146		
OTHER PROJECT COSTS	652,143		
OPERATING & MAINTENANCE COST		$137,613,582	94.3%
OPERATIONS	$86,454,413		
MAINTENANCE	$29,194,125		
PROJECT MANAGEMENT	$21,965,044		
DECONTAMINATION & DECOMMISSIONING		$625,725	0.4%
TOTAL COST	$625,725		
TOTAL LIFE-CYCLE COST		$145,878,714	100.0%

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 2 of 13

LIFE-CYCLE ESTIMATE FOR FMEF, Cs/Sr STORAGE (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1996												
1996	392,549			58,155	203,523							654,227
1997	261,699			58,155	203,523							523,377
1998	218,083			58,155	203,523							479,761
1999	168,235	1,869,279	168,928	58,155								2,282,597
2000	205,621	2,284,675	228,467	58,155								2,776,918
2001						1,200,000	374,400	500,000	54,875		400,000	2,529,075
2002						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2003						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2004						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2005						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2006						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2007						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2008						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2009						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2010						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2011						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2012						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2013						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2014						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2015						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2016						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2017						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2018						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2019						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2020						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2021						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2022						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2023						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2024						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2025						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2026						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2027						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2028						1,200,000	374,400	500,000	31,125		400,000	2,505,525
2029										205,440		205,440
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	1,246,187	4,153,954	415,395	290,775	610,569	33,600,000	10,483,200	14,000,000	895,050	205,440	11,200,000	77,100,570

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$1,246,187	1.6%
TITLE I, II & III	$1,246,187		
CONSTRUCTION		$4,569,349	5.9%
FACILITY	$4,153,954		
CONSTRUCTION MANAGEMENT	$415,395		
EXPENSE COSTS		$901,344	1.2%
WHC PROJECT MANAGEMENT	$290,775		
OTHER PROJECT COSTS	$610,569		
OPERATING & MAINTENANCE COST		$70,178,250	91.0%
OPERATIONS	$44,083,200		
MAINTENANCE	$14,895,050		
PROJECT MANAGEMENT	$11,200,000		
DECONTAMINATION & DECOMMISSIONING		$205,440	0.3%
TOTAL COST	$205,440		
TOTAL LIFE-CYCLE COST		$77,100,570	100.0%

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 3 of 13

FMEF
CsSr STORAGE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$3,077,003	35%	$1,076,951	$4,153,953	17.79%	$738,988	$4,892,942
TITLE I AND TITLE II ENGINEERING	21%	$646,171	35%	$226,160	$872,330	10.24%	$89,327	$961,657
TITLE III ENGINEERING	9%	$276,930	35%	$96,926	$373,856	17.79%	$66,509	$440,365
CONSTRUCTION MANAGEMENT	10%	$307,700	35%	$107,695	$415,395	17.79%	$73,899	$489,294
WHC PROJECT MANAGEMENT	7%	$215,390	35%	$75,387	$290,777	17.79%	$51,729	$342,506
SUBTOTAL		$4,523,194		$1,583,118	$6,106,312		$1,020,452	$7,126,764
OTHER PROJECT COSTS	10%	$452,319	35%	$158,312	$610,631	15.13%	$92,388	$703,020
TOTAL		$4,975,513		$1,741,430	$6,716,943		$1,112,840	$7,829,783

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 4 of 13

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS		$9,570	$5,500	$10,000		$25,070
02	SITE WORK	$2,600	$96,868	$35,579	$11,000		$146,047
03	CONCRETE	$119,655	$300,781	$38,705			$459,141
04	MASONRY						
05	METALS	$712,560	$176,301	$11,869			$900,730
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS						
08	THERMAL AND MOISTURE PROTECTION						
09	FINISHES	$9,795	$15,463	$646			$25,905
010	SPECIALTIES						
011	EQUIPMENT	$425,000	$168,543				$811,543
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS	$350,000	$83,241	$16,208			$449,449
015	MECHANICAL	$160,000	$83,624	$14,168			$257,792
016	ELECTRICAL	$138,954	$61,694	$677			$201,326
		$1,918,564	$1,014,086	$123,353	$21,000		$3,077,003

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 5 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	GENERAL REQUIREMENTS	1	LS					$9,670			$5,500	$10,000		$25,070
	GEN CONDITIONS													
	Work Requirement													
	Seismic Re-qualification	1	LS									$10,000		$10,000
	CONSTRUCTION AIDS													
	Scaffolds/Temp Supports													
	Rental	1	LS								$5,500			$5,500
	Set-up/Remove	1	LS			184	52.01	$9,670						$9,670

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 6 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
02	SITE WORK				$2,600			$98,888			$35,679	$11,000		$148,047
	ARCHITECTURAL DEMOLITION													
	El 0' – 0"													
	Remove Exist Doors (Pr 3'x7')	1	EA			4	41.58	$166	4	4.19	$17			$183
	Rem Exist Oversize Dbl Door	1	EA			40	41.58	$1,663	40	8.89	$356			$2,019
	STRUCTURAL DEMOLITION													
	El 0' – 0"													
	Remove Exist Conc Wall	1	LS	540	$540	725	41.58	$30,146	725	5.28	$3,828			$34,514
	Remove Exist Steel Stairs	1	LS			40	41.58	$1,663	40	5.28	$211			$1,874
	Enlarge Exist Slab Opng	1	LS	480	$480	307	41.58	$12,765	307	5.28	$1,621			$14,866
	Demo Part Of Slab on Gr For Wall Fdn	1	LS	1580	$1,580	584	41.58	$24,283	584	5.28	$3,084			$28,946
	RUBBISH HANDLING/REMOVAL													
	Dumpster Rental	1	LS						1	2027	$2,027			$2,027
	Collect/Haul to Dumpster	1	LS			199	41.58	$8,274	199	3.81	$758			$9,033
	Load/Haul to Dump	1	LS			419	42.74	$17,908	419	56.51	$23,678			$41,586
	Dump Charges	1	LS									$11,000		$11,000

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 7 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
03	CONCRETE				$119,655			$300,781			$38,705			$459,141
	CIP CONC/CONC REPAIRS													
	El 0'-0"													
	New Slabs Over Exist Pits	1	LS	5055	$5,055	398	48.74	$19,301	398	6.05	$2,398			$26,752
	New Raised Loadout Dock	1	LS	5810	$5,810	350	48.74	$17,059	350	6.05	$2,118			$24,78[illegible]
	New Reinf Conc Wall	1	LS	20930	$20,930	990	48.74	$48,253	990	6.05	$5,990			$75,17[illegible]
	Thicken Exist Walls	1	LS	58415	$58,415	2800	48.74	$136,472	2800	6.05	$16,940			$211,82[illegible]
	Foundation For New Walls	1	LS	5315	$5,315	1084	48.74	$52,834	1084	6.05	$6,558			$84,70[illegible]
	Modify Exist Wall Foundations	1	LS	16330	$16,330	265	48.74	$12,916	265	6.05	$1,603			$30,84[illegible]
	Misc Conc Repairs	1	LS	8000	$8,000	320	43.58	$13,946	320	9.69	$3,101			$25,04[illegible]

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 8 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$712,560			$176,301			$11,889			$900,730
	STRUCT STL/MISC METALS													
	El 0' – 0"													
	Str Stl Headers	1	LS	11760	$11,760	681	58.07	$39,546	681	6.81	$4,638			$55,943
	Str Stl For Upgraded OH Crane	1	LS	45650	$45,650	228	58.07	$13,240	228	6.81	$1,553			$60,443
	SPECIAL FABRICATION/INSTALL'N													
	El 0' – 0"													
	Fabr SS Stor Rack for Cs/Sr Capsules	305	EA	2000	$610,000	5	58.07	$88,557	6	2.67	$4,072			$702,629
	Fabr SS Plug For Stor Pit	301	EA	150	$45,150	2	58.07	$34,958	2	2.67	$1,607			$81,715

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 9 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
09	FINISHES				$9,795			$15,463			$646			$25,905
	PAINTING													
	El 0'-0"													
	Paint New Walls	1	LS	7895	$7,895	240	47.98	$11,515	240	2.02	$485			$19,8[illegible]
	Paint Sb Sll Upgraded Crane	1	LS	1900	$1,900	80	49.35	$3,948	80	2.02	$162			$6,01[illegible]

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 10 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
011	EQUIPMENT				$425,000			$108,543						$611,543
	LEAK DETECTION SENSORS	1	LS	50000	$50,000	475	49.35	$23,441						$73,441
	GAMMA SCAN SENSORS	1	LS	75000	$75,000	710	49.35	$35,039						$110,039
	WELD INSPECTION EQUIPMENT	1	LS	100000	$100,000	925	49.35	$45,649						$145,649
	TEMPERATURE SENSORS	1	LS	15000	$15,000	145	49.35	$7,156						$22,156
	LOCAL CONTROL UNIT	1	LS	115000	$115,000	925	49.35	$45,649						$160,649
	OPERATING CONTROL STATION	1	LS	70000	$70,000	600	49.35	$29,610						$99,610

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 11 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	CONVEYING SYSTEMS				$350,000			$83,241			$16,208			$449,449
	MATERIAL HANDLING													
	El 0' – 0"													
	Remote Manipulator Work Stations (Use Exist Manipulators)	1	LS			800	53.02	$42,416	400	26.79	$10,716			$53,132
	CONVEYORS													
	El 0' – 0"													
	Conveyor System	1	LS	250000	$250,000	450	53.02	$23,859	125	26.79	$3,349			$277,208
	HOISTS AND CRANES													
	El 0' – 0"													
	Upgrade 5 Ton To 40 Ton Crane	1	LS	100000	$100,000	320	53.02	$16,966	80	26.79	$2,143			$119,110

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 12 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
015	MECHANICAL				$160,000			$89,624			$14,168			$267,792
	HVAC													
	Vent System	1	LS	100000	$100,000	420	60.01	$25,204	200	26.79	$5,358			$130,562
	Duct/Misc Repair Work	1	LS	60000	$60,000	1000	58.42	$58,420	1000	8.81	$8,810			$127,230

Table B.3-10d. Life-Cycle Cost Estimate for Cs and Sr Capsule Storage at the FMEF. 13 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
016	ELECTRICAL				$139,954			$61,694			$677			$201,326
	MTL HANDLING ELECTRICAL													
	El 0'-0"													
	Elect Cables/Wiring/Misc	1	LS	18284	$18,284	663	62	$41,106						$59,390
	HVAC ELECTRICAL													
	El 0'-0"													
	Power & Distribution	1	LS	100670	$100,670	294	59 85	$17,596	115	5 89	$677			$118,943
	SPECIAL ELECTRICAL													
	El 0'-0"													
	Upgraded OH Crane CCTV System	1	LS	20000	$20,000	50	59 85	$2,993						$22,993

Table B.3-10e. Life-Cycle Cost Estimate for Miscellaneous Source Materials and UU Storage at the FMEF. 1 of 2

LIFE-CYCLE ESTIMATE FOR FMEF, MISC. SOURCE & UU STORAGE (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 12:46:46

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	233,834			34,641	121,235							389,710
1997	161,080			35,795	125,272							322,147
1998	138,703			36,987	129,444							305,134
1999	110,583	1,228,477	122,848	38,219								1,500,106
2000	139,632	1,547,937	155,147	39,491								1,882,208
2001						1,217,191	455,716	608,595	18,855		730,314	3,030,672
2002						1,257,723	470,891	628,862	19,483		754,634	3,131,593
2003						1,299,605	486,572	649,803	20,132		779,763	3,235,875
2004						1,342,882	502,775	671,441	20,803		805,729	3,343,630
2005						1,387,600	519,517	693,800	21,495		832,560	3,454,973
2006						1,433,807	536,817	716,904	22,211		860,284	3,570,023
2007						1,481,553	554,693	740,776	22,951		888,932	3,688,905
2008						1,530,889	573,165	765,444	23,715		918,533	3,811,746
2009						1,581,867	592,251	790,934	24,505		949,120	3,938,677
2010						1,634,543	611,973	817,272	25,321		980,726	4,069,835
2011						1,688,974	632,352	844,487	26,164		1,013,384	4,205,360
2012						1,745,216	653,409	872,608	27,035		1,047,130	4,345,399
2013						1,803,332	675,168	901,666	27,935		1,081,999	4,490,101
2014						1,863,383	697,651	931,692	28,866		1,118,030	4,639,621
2015						1,925,434	720,882	962,717	29,827		1,155,260	4,794,120
2016						1,989,551	744,888	994,775	30,820		1,193,730	4,953,764
2017						2,055,803	769,693	1,027,901	31,846		1,233,482	5,118,725
2018						2,124,261	795,323	1,062,131	32,907		1,274,557	5,289,178
2019						2,194,999	821,808	1,097,499	34,003		1,318,999	5,465,308
2020						2,268,092	849,174	1,134,046	35,135		1,360,855	5,647,303
2021						2,343,620	877,451	1,171,810	36,305		1,406,172	5,835,358
2022						2,421,662	906,670	1,210,831	37,514		1,452,997	6,029,675
2023						2,502,304	936,863	1,251,152	38,763		1,501,382	6,230,464
2024						2,585,630	968,060	1,292,815	40,054		1,551,378	6,437,938
2025						2,671,722	1,000,298	1,335,866	41,388		1,603,039	6,652,311
2026						2,760,701	1,033,608	1,380,350	42,766		1,656,420	6,873,844
2027						2,852,632	1,068,025	1,426,316	44,190		1,711,579	7,102,743
2028						2,947,625	1,103,591	1,473,812	45,662		1,788,575	7,339,264
2029										625,725		625,725
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	783,813	2,776,414	277,995	185,133	375,951	54,912,810	20,559,281	27,456,305	850,651	625,725	32,947,566	141,751,444

LIFE-CYCLE ESTIMATE FOR FMEF, MISC. SOURCE & UU STORA SUMMARY (ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$783,813	$783,813	0.6%
CONSTRUCTION			
FACILITY	$2,776,414	$3,054,409	2.2%
CONSTRUCTION MANAGEMENT	$277,995		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$185,133	561,084	0.4%
OTHER PROJECT COSTS	375,951		
OPERATING & MAINTENANCE COST			
OPERATIONS	$75,471,891	$138,726,414	96.5%
MAINTENANCE	$28,306,956		
PROJECT MANAGEMENT	$32,947,566		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$625,725	$625,725	0.4%
TOTAL LIFE-CYCLE COST		$141,751,444	100.0%

Table B.3-10e. Life-Cycle Cost Estimate for Miscellaneous Source Materials and UU Storage at the FMEF. 2 of 2

LIFE-CYCLE ESTIMATE FOR FMEF, MISC. SOURCE & UU STORAGE (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	228,298			33,525	117,328							377,151
1997	150,865			33,525	117,328							301,718
1998	125,721			33,525	117,328							276,574
1999	98,985	1,077,609	107,761	33,525								1,315,880
2000	118,537	1,314,078	131,708	33,525								1,597,848
2001						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2002						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2003						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2004						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2005						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2006						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2007						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2008						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2009						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2010						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2011						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2012						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2013						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2014						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2015						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2016						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2017						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2018						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2019						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2020						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2021						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2022						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2023						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2024						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2025						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2026						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2027						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2028						1,000,000	374,400	500,000	15,491		600,000	2,489,891
2029										205,440		205,440
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	718,408	2,391,687	239,469	167,625	351,984	28,000,000	10,483,200	14,000,000	433,746	205,440	16,800,000	73,791,559

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$718,408	1.0%
TITLE I, II & III	$718,408		
CONSTRUCTION		$2,631,156	3.6%
FACILITY	$2,391,687		
CONSTRUCTION MANAGEMENT	$239,469		
EXPENSE COSTS		519,609	0.7%
WHC PROJECT MANAGEMENT	$167,625		
OTHER PROJECT COSTS	351,984		
OPERATING & MAINTENANCE COST		$69,716,946	94.5%
OPERATIONS	$38,483,200		
MAINTENANCE	$14,433,746		
PROJECT MANAGEMENT	$16,800,000		
DECONTAMINATION & DECOMMISSIONING		$205,440	0.3%
TOTAL COST	$205,440		
TOTAL LIFE-CYCLE COST		$73,791,559	100.0%

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 1 of 13

LIFE-CYCLE ESTIMATE FOR FMEF, UU STORAGE (ESCALATED DOLLARS) 04/28/95

CLIENT: WESTINGHOUSE HANFORD COMPANY 10:19:21

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ MGMT	OTHER PROJ COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	216,270			32,040	112,129							360,438
1997	148,981			33,108	115,862							297,950
1998	128,285			34,209	119,721							282,215
1999	102,258	1,138,202	113,621	35,346								1,387,428
2000	129,144	1,431,401	143,494	36,525								1,740,564
2001						1,217,191	455,716	808,595	18,785		730,314	3,028,601
2002						1,257,723	470,891	828,862	17,344		754,834	3,129,454
2003						1,299,605	486,572	849,803	17,922		779,783	3,233,685
2004						1,342,862	502,775	871,441	18,518		805,729	3,341,346
2005						1,387,600	519,517	893,800	19,135		832,560	3,452,612
2006						1,433,807	536,817	716,904	19,772		860,284	3,567,584
2007						1,481,553	554,693	740,776	20,431		888,932	3,686,385
2008						1,530,889	573,165	765,444	21,111		918,533	3,809,142
2009						1,581,867	592,251	790,934	21,814		949,120	3,935,986
2010						1,634,543	611,973	817,272	22,540		980,726	4,067,054
2011						1,688,974	632,352	844,487	23,291		1,013,384	4,202,487
2012						1,745,216	653,409	872,608	24,067		1,047,130	4,342,430
2013						1,803,332	675,168	901,666	24,868		1,081,999	4,487,033
2014						1,863,383	697,651	931,692	25,696		1,118,030	4,638,451
2015						1,925,434	720,882	962,717	26,552		1,155,260	4,790,845
2016						1,989,551	744,888	994,775	27,436		1,193,730	4,950,380
2017						2,055,803	769,693	1,027,901	28,350		1,233,482	5,115,228
2018						2,124,261	795,323	1,062,131	29,294		1,274,557	5,285,565
2019						2,194,999	821,808	1,097,499	30,269		1,316,999	5,461,574
2020						2,268,092	849,174	1,134,046	31,277		1,360,855	5,643,445
2021						2,343,620	877,451	1,171,810	32,319		1,406,172	5,831,371
2022						2,421,862	906,670	1,210,831	33,395		1,452,997	6,025,556
2023						2,502,304	936,863	1,251,152	34,507		1,501,382	6,226,207
2024						2,585,630	968,080	1,292,815	35,656		1,551,378	6,433,540
2025						2,671,722	1,000,296	1,335,866	36,843		1,603,039	6,647,777
2026						2,760,701	1,033,608	1,380,350	38,070		1,656,420	6,869,148
2027						2,852,632	1,068,025	1,426,316	39,338		1,711,579	7,097,890
2028						2,947,525	1,103,591	1,473,812	40,648		1,768,575	7,334,250
2029										312,863		312,863
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	724,938	2,567,603	257,114	171,228	347,712	54,912,610	20,559,281	27,456,305	757,245	312,863	32,947,566	141,014,464

SUMMARY
LIFE-CYCLE ESTIMATE FOR FMEF, UU STORAGE (ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$724,938	0.5%
TITLE I, II & III	$724,938		
CONSTRUCTION		$2,824,717	2.0%
FACILITY	$2,567,603		
CONSTRUCTION MANAGEMENT	$257,114		
EXPENSE COSTS		$518,940	0.4%
WHC PROJECT MANAGEMENT	$171,228		
OTHER PROJECT COSTS	347,712		
OPERATING & MAINTENANCE COST		$136,633,008	96.9%
OPERATIONS	$75,471,891		
MAINTENANCE	$28,213,550		
PROJECT MANAGEMENT	$32,947,566		
DECONTAMINATION & DECOMMISSIONING		$312,863	0.2%
TOTAL COST	$312,863		
TOTAL LIFE-CYCLE COST		$141,014,464	100.0%

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 2 of 13

LIFE-CYCLE ESTIMATE FOR FMEF, UU STORAGE (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	209,300			31,007	108,515							348,822
1997	139,533			31,007	108,515							279,055
1998	116,278			31,007	108,515							255,800
1999	99,700	998,668	99,667	31,007								1,217,040
2000	109,633	1,215,148	121,815	31,007								1,477,603
2001						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2002						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2003						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2004						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2005						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2006						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2007						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2008						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2009						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2010						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2011						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2012						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2013						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2014						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2015						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2016						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2017						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2018						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2019						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2020						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2021						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2022						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2023						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2024						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2025						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2026						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2027						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2028						1,000,000	374,400	500,000	13,790		600,000	2,488,190
2029										102,720		102,720
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	664,444	2,211,814	221,482	155,035	325,545	28,000,000	10,483,200	14,000,000	386,120	102,720	18,800,000	73,350,360

SUMMARY
(CURRENT DOLLARS)

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION		$664,444	0.9%
TITLE I, II & III	$664,444		
CONSTRUCTION		$2,433,296	3.3%
FACILITY	$2,211,814		
CONSTRUCTION MANAGEMENT	$221,482		
EXPENSE COSTS		480,580	0.7%
WHC PROJECT MANAGEMENT	$155,035		
OTHER PROJECT COSTS	325,545		
OPERATING & MAINTENANCE COST		$69,669,320	95.0%
OPERATIONS	$38,483,200		
MAINTENANCE	$14,386,120		
PROJECT MANAGEMENT	$16,800,000		
DECONTAMINATION & DECOMMISSIONING		$102,720	0.1%
TOTAL COST	$102,720		
TOTAL LIFE-CYCLE COST		$73,350,360	100.0%

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 3 of 13

FMEF
UU STORAGE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$1,640,603	35%	$574,211	$2,214,813	17.79%	$394,015	$2,608,829
TITLE I AND TITLE II ENGINEERING	21%	$344,527	35%	$120,584	$465,111	10.24%	$47,627	$512,738
TITLE III ENGINEERING	9%	$147,654	35%	$51,679	$199,333	17.79%	$35,461	$234,795
CONSTRUCTION MANAGEMENT	10%	$164,060	35%	$57,421	$221,481	17.79%	$39,402	$260,883
WHC PROJECT MANAGEMENT	7%	$114,842	35%	$40,195	$155,037	17.79%	$27,581	$182,618
SUBTOTAL		$2,411,686		$844,090	$3,255,776		$544,087	$3,799,862
OTHER PROJECT COSTS	10%	$241,169	35%	$84,409	$325,578	15.13%	$49,260	$374,837
TOTAL		$2,652,854		$928,499	$3,581,353		$593,347	$4,174,700

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 4 of 13

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS		$47,849	$27,500	$10,000		$85,349
02	SITE WORK	$1,535	$867,510	$176,610	$6,000		$1,050,655
03	CONCRETE	$15,810	$74,788	$16,235			$106,833
04	MASONRY						
05	METALS	$4,760	$12,427	$1,457			$18,644
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS	$9,540	$8,322	$92			$17,954
08	THERMAO & MOISTURE PROTECTION						
09	FINISHES	$145	$464	$48			$656
010	SPECIALTIES						
011	EQUIPMENT						
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS	$120,000					$120,000
015	MECHANICAL						
016	ELECTRICAL	$220,500	$20,110				$240,610
		$372,290	$1,031,470	$220,843	$16,000		$1,640,603

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 5 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	**GENERAL REQUIREMENTS**	1	LS					$47,849			$27,500	$10,000		$85,349
	GEN CONDITIONS													
	Work Requirement													
	Seismic Re-qualification	1	LS									$10,000		$10,000
	CONSTRUCTION AIDS													
	Scaffolds/Temp Supports													
	Rental	1	LS								$27,500			$27,500
	Set-up/Remove	1	LS			920	52.01	$47,849						$47,849

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 6 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
02	SITE WORK				$1,535			$667,510			$175,510	$6,000		$1,050,555
	EQUIPMENT REMOVAL (INCL HANDLING/STORAGE ON SITE)													
	El 70' – 0"													
	Remove Exist Equip/Piping/Conduit	1	LS			13420	42 55	$571,021	13420	8 28	$111,118			$682,139
	El 42' – 6"													
	Remove Misc Equip (Loose/Crated)	1	LS			160	42 55	$6,808	160	12 33	$1,973			$8,781
	El 21' – 3"													
	Remove Misc Equip (Loose/Crated)	1	LS			160	42 55	$6,808	160	12 33	$1,973			$8,781
	El 0' – 0"													
	Remove Exist Equip/Piping/Conduit	1	LS			4020	42 55	$171,051	4020	8 28	$33,286			$204,337
	El – 17' – 6"													
	Remove Misc Equip (Loose/Crated)	1	LS			84	42 55	$3,574	84	12 33	$1,036			$4,610
	Salvage Value (Allowance)	-1	LS											
	ARCHITECTURAL DEMOLITION													
	El 42' – 6"													
	Remove Exist Susp Ceiling (Incl Elect)	1	LS			180	41 58	$7,484	180	4 19	$754			$8,239
	Remove Exist Doors (Pr 3'x7')	1	EA			4	41 58	$166	4	4 19	$17			$183
	El 21' – 3"													
	Remove Exist Doors (Pr 3'x7')	3	EA			4	41 58	$499	4	4 19	$50			$549
	STRUCTURAL DEMOLITION													
	EL 70' – 0"													
	Remove Misc Equip Pads, Etc.	1	LS	125	$125	144	41 58	$5,988	144	5.28	$760			$6,873
	El 42' – 6"													
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41 58	$5,988	144	5 28	$760			$6,873
	Increase Door Opng	1	LS	185	$185	146	41 58	$6,071	146	5 28	$771			$7,027
	EL 21' – 3"													
	Cut-out Opng – 6" Thk Conc Wall	1	LS	150	$150	235	41 58	$9,771	235	5 28	$1,241			$11,162
	Cut-out Opng – 12" Thk Conc Wall	1	LS	525	$525	769	41 58	$31,975	769	5 28	$4,060			$36,560
	Cut-out Opng – 24" Thk Conc Wall	1	LS	160	$160	325	41 58	$13,514	325	5 28	$1,716			$15,390
	Remove Misc Equip Pads, Etc	1	LS	125	$125	144	41 58	$5,988	144	5 28	$760			$6,873

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 7 of 13

CODE	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR			CONST EQUIP			SUBCON	OTHER	TOTAL
		NO	UNIT	$/UNIT	COST	MHR/UNIT	$/MHR	COSTS	HR/UNIT	$/HR	COSTS	COST	COSTS	COSTS
02	SITE WORK (CONT'D)													
	El 0' – 0"													
	Remove Misc Equip Pads, Etc.	1	LS	65	$65	72	41.58	$2,994	72	5.28	$380			$3,439
	El – 17' – 6"													
	Remove Misc Equip Pads, Etc.	1	LS	75	$75	86	41.58	$3,576	86	5.28	$454			$4,105
	RUBBISH HANDLING/REMOVAL													
	Dumpster Rental	1	LS						1	1105	$1,105			$1,105
	Collect/Haul to Dumpster	1	LS			108	41.58	$4,491	108	3.81	$411			$4,902
	Load/Haul to Dump	1	LS			228	42.74	$9,745	228	56.51	$12,884			$22,629
	Dump Charges	1	LS									$8,000		$8,000

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 8 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
03	CONCRETE				$15,810			$74,788			$16,235			$106,833
	CIP CONC/CONC REPAIRS													
	El 70' – 0"													
	Grout Misc Penetrations	1	LS	1805	$1,805	200	43.58	$8,716	200	9.69	$1,938			$12,459
	Misc Conc Repairs	1	LS	1000	$1,000	80	43.58	$3,486	80	9.69	$775			$5,262
	El 42' – 6"													
	Fill Exist Opngs w/ Conc	12	EA	420	$5,040	60	43.95	$31,644	50	11.07	$6,642			$43,328
	Grout Misc Penetrations	1	LS	4060	$4,060	410	43.58	$17,868	410	9.69	$3,973			$25,901
	Misc Conc Repairs	1	LS	1000	$1,000	80	43.58	$3,486	80	9.69	$775			$5,262
	El 21' – 3"													
	Grout Misc Penetrations	1	LS	905	$905	100	43.58	$4,358	100	9.69	$969			$6,232
	Misc Conc Repairs	1	LS	750	$750	60	43.58	$2,615	60	9.69	$581			$3,946
	El 0' – 0"													
	Misc Conc Repairs	1	LS	1000	$1,000	40	43.58	$1,743	40	9.69	$388			$3,131
	El – 17' – 6"													
	Misc Conc Repairs	1	LS	250	$250	20	43.58	$872	20	9.69	$194			$1,316

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 9 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$4,760			$12,427			$1,457			$18,644
	STRUCT STL/MISC METALS													
	El 42' – 6"													
	Sv Stl Header (For Door Opng)	1	LS	760	$760	40	58 07	$2,323	40	6 81	$272			$3,355
	El 21' – 3"													
	Sv Stl Headers (For New Opngs)	1	LS	4000	$4,000	174	58 07	$10,104	174	6 81	$1,185			$16,289

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 10 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
08	DOORS AND WINDOWS				$9,540			$8,322			$92			$17,954
	SPECIAL DOORS													
	El 42' - 6" Shielded Door, 10'x10' (Motor Oper)	1	EA	9540	$9,540	80	52.01	$4,161	80	1.15	$92			$13,793
	OBSERVATION WINDOWS													
	El 42' - 6" Shielded Windows (Exist Mtl)	2	EA			40	52.01	$4,161						$4,161

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 11 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
09	FINISHES				145			$464			$48			$658
	PAINTING													
	El 21' – 3"													
	Paint Str Stl Headers	1	LS	145	$145	24	19 35	$464	24	2 02	$48			$658

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 12 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
014	CONVEYING SYSTEMS				$120,000									$120,000
	MATERIAL HANDLING													
	Fork Lift	2	EA	60000	$120,000									$120,000

Table B.3-10f. Life-Cycle Cost Estimate for UU Storage at the FMEF. 13 of 13

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
010	ELECTRICAL				$220,500			$20,110						$240,610
	SPECIAL ELECTRICAL													
	El 70'-0" Upgrade Exist CCTV System	1	LS	52500	$52,500	80	59.85	$4,788						$57,288
	El 42'-6" Upgrade Exist CCTV System	1	LS	52500	$52,500	80	59.85	$4,788						$57,288
	El 21'-3" Upgrade Exist CCTV System	1	LS	52500	$52,500	80	59.85	$4,788						$57,288
	El 0'-0" Upgrade Exist CCTV System	1	LS	21000	$21,000	32	59.85	$1,915						$22,915
	El -17-6" Upgrade Exist CCTV System	1	LS	42000	$42,000	64	59.85	$3,830						$45,830

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 1 of 9

LIFE-CYCLE ESTIMATE FOR FMEF, MISC. SOURCE STORAGE (ESCALATED DOLLARS) 04/26/96

CLIENT: WESTINGHOUSE HANFORD COMPANY 10:22:16

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (ESCALATED $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ. MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	17,564			2,602	9,108							29,272
1997	12,099			2,688	9,410							24,197
1998	10,418			2,778	9,723							22,919
1999	8,305	92,275	9,227	2,871								112,678
2000	10,489	116,536	11,654	2,966								141,644
2001						1,095,472	455,716	808,595	2,070		730,314	2,892,168
2002						1,131,351	470,891	828,862	2,139		754,634	2,988,477
2003						1,169,645	486,572	849,803	2,211		779,783	3,087,993
2004						1,208,594	502,775	871,441	2,284		805,729	3,190,823
2005						1,248,840	519,517	893,800	2,360		832,560	3,297,078
2006						1,290,428	536,817	716,904	2,438		860,284	3,406,870
2007						1,333,398	554,693	740,776	2,520		888,932	3,520,319
2008						1,377,800	573,165	765,444	2,604		918,533	3,637,546
2009						1,423,680	592,251	790,934	2,691		949,120	3,758,678
2010						1,471,089	611,973	817,272	2,780		980,728	3,883,840
2011						1,520,076	632,352	844,487	2,873		1,013,384	4,013,172
2012						1,570,695	653,409	872,608	2,969		1,047,130	4,146,811
2013						1,622,999	675,158	901,666	3,067		1,081,999	4,284,899
2014						1,677,045	697,951	931,892	3,170		1,118,030	4,427,587
2015						1,732,890	720,882	962,717	3,275		1,155,280	4,575,025
2016						1,790,598	744,888	994,775	3,384		1,193,730	4,727,373
2017						1,850,222	769,693	1,027,901	3,497		1,233,482	4,884,795
2018						1,911,835	795,323	1,062,131	3,613		1,274,557	5,047,459
2019						1,975,499	821,808	1,097,499	3,734		1,316,999	5,215,539
2020						2,041,283	849,174	1,134,046	3,858		1,360,855	5,389,217
2021						2,109,258	877,451	1,171,810	3,986		1,406,172	5,568,677
2022						2,179,496	906,670	1,210,831	4,119		1,452,997	5,754,114
2023						2,252,073	936,863	1,251,152	4,256		1,501,382	5,945,726
2024						2,327,067	968,060	1,292,915	4,398		1,551,378	6,143,719
2025						2,404,559	1,000,296	1,335,866	4,545		1,603,039	6,346,305
2026						2,484,631	1,033,608	1,380,350	4,696		1,656,420	6,559,703
2027						2,567,369	1,068,025	1,426,318	4,852		1,711,579	6,778,142
2028						2,652,862	1,103,591	1,473,812	5,014		1,768,575	7,003,854
2029										312,863		312,863
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	58,875	208,811	20,881	13,905	28,239	49,421,349	20,559,281	27,456,305	93,406	312,863	32,947,566	131,121,482

LIFE-CYCLE ESTIMATE FOR FMEF, MISC. SOURCE STORAGE

SUMMARY
(ESCALATED DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$58,875	$58,875	0.0%
CONSTRUCTION			
FACILITY	$208,811	$229,692	0.2%
CONSTRUCTION MANAGEMENT	$20,881		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$13,905	42,144	0.0%
OTHER PROJECT COSTS	28,239		
OPERATING & MAINTENANCE COST			
OPERATIONS	$69,980,630	$130,477,908	99.5%
MAINTENANCE	$27,549,711		
PROJECT MANAGEMENT	$32,947,566		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$312,863	$312,863	0.2%
TOTAL LIFE-CYCLE COST		$131,121,482	100.0%

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 2 of 9

LIFE-CYCLE ESTIMATE FOR FMEF, MISC. SOURCE STORAGE (CURRENT DOLLARS)

CLIENT: WESTINGHOUSE HANFORD COMPANY

ESTIMATE BY: PARSONS ENGINEERING SCIENCE INC.

ALTERNATIVE 3 (CURRENT $)
TOTAL COST

YEAR	DESIGN	CONSTR.	CONSTR MGMT	WHC PROJ MGMT	OTHER PROJ. COSTS	OPERATIONS LABOR	OPERATIONS OPS MTL	MAINTENANCE LABOR	MAINTENANCE SPARE PARTS	D & D LAB & EQP	PROJECT MANAGEMENT	TOTAL ANNUAL COST
1995												
1996	16,998			2,518	8,813							28,329
1997	11,332			2,518	8,813							22,663
1998	9,443			2,518	8,813							20,774
1999	7,285	80,943	8,094	2,518								98,840
2000	8,904	98,930	9,893	2,518								120,245
2001						900,000	374,400	500,000	1,701		500,000	2,376,101
2002						900,000	374,400	500,000	1,701		500,000	2,376,101
2003						900,000	374,400	500,000	1,701		500,000	2,376,101
2004						900,000	374,400	500,000	1,701		500,000	2,376,101
2005						900,000	374,400	500,000	1,701		500,000	2,376,101
2006						900,000	374,400	500,000	1,701		500,000	2,376,101
2007						900,000	374,400	500,000	1,701		500,000	2,376,101
2008						900,000	374,400	500,000	1,701		500,000	2,376,101
2009						900,000	374,400	500,000	1,701		500,000	2,376,101
2010						900,000	374,400	500,000	1,701		500,000	2,376,101
2011						900,000	374,400	500,000	1,701		500,000	2,376,101
2012						900,000	374,400	500,000	1,701		500,000	2,376,101
2013						900,000	374,400	500,000	1,701		500,000	2,376,101
2014						900,000	374,400	500,000	1,701		500,000	2,376,101
2015						900,000	374,400	500,000	1,701		500,000	2,376,101
2016						900,000	374,400	500,000	1,701		500,000	2,376,101
2017						900,000	374,400	500,000	1,701		500,000	2,376,101
2018						900,000	374,400	500,000	1,701		500,000	2,376,101
2019						900,000	374,400	500,000	1,701		500,000	2,376,101
2020						900,000	374,400	500,000	1,701		500,000	2,376,101
2021						900,000	374,400	500,000	1,701		500,000	2,376,101
2022						900,000	374,400	500,000	1,701		500,000	2,376,101
2023						900,000	374,400	500,000	1,701		500,000	2,376,101
2024						900,000	374,400	500,000	1,701		500,000	2,376,101
2025						900,000	374,400	500,000	1,701		500,000	2,376,101
2026						900,000	374,400	500,000	1,701		500,000	2,376,101
2027						900,000	374,400	500,000	1,701		500,000	2,376,101
2028						900,000	374,400	500,000	1,701		500,000	2,376,101
2029										102,720		102,720
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
TOTAL	53,962	179,873	17,987	12,590	26,439	25,200,000	10,483,200	14,000,000	47,528	102,720	16,800,000	66,924,399

LIFE-CYCLE COST ESTIMATE FOR GROUT, LLMW

SUMMARY
(CURRENT DOLLARS)

		COST	PERCENT
ENGINEERING, DESIGN & INSPECTION			
TITLE I, II & III	$53,962	$53,962	0.1%
CONSTRUCTION			
FACILITY	$179,873	$197,860	0.3%
CONSTRUCTION MANAGEMENT	$17,987		
EXPENSE COSTS			
WHC PROJECT MANAGEMENT	$12,590	39,029	0.1%
OTHER PROJECT COSTS	26,439		
OPERATING & MAINTENANCE COST			
OPERATIONS	$35,683,200	$66,530,828	99.4%
MAINTENANCE	$14,047,628		
PROJECT MANAGEMENT	$16,800,000		
DECONTAMINATION & DECOMMISSIONING			
TOTAL COST	$102,720	$102,720	0.2%
TOTAL LIFE-CYCLE COST		$66,924,399	100.0%

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 3 of 9

FMEF
MISC SOURCES STORAGE

		COST	CONTINGENCY		SUBTOTAL	ESCALATION		TOTAL
CONSTRUCTION		$133,239	35%	$46,634	$179,873	17.79%	$31,999	$211,873
TITLE I AND TITLE II ENGINEERING	21%	$27,980	35%	$9,793	$37,773	10.24%	$3,868	$41,641
TITLE III ENGINEERING	9%	$11,992	35%	$4,197	$16,189	17.79%	$2,880	$19,069
CONSTRUCTION MANAGEMENT	10%	$13,324	35%	$4,663	$17,987	17.79%	$3,200	$21,187
WHC PROJECT MANAGEMENT	7%	$9,327	35%	$3,264	$12,591	17.79%	$2,240	$14,831
SUBTOTAL		$195,862		$68,552	$264,413		$44,187	$308,601
OTHER PROJECT COSTS	10%	$19,586	35%	$6,855	$26,441	15.13%	$4,001	$30,442
TOTAL		$215,448		$75,407	$290,855		$48,188	$339,043

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 4 of 9

CSI SUMMARY

CODE	ITEM DESCRIPTION	MATERIAL	LABOR	CONST EQ	SUBCON	OTHER	TOTAL
01	GENERAL REQUIREMENTS		$4,785	$2,750			$7,535
02	SITE WORK	$50	$5,130	$1,950	$500		$7,630
03	CONCRETE	$250	$872	$194			$1,316
04	MASONRY						
05	METALS	$50,000	$18,118	$2,811			$70,929
06	WOODS & PLASTICS						
07	DOORS AND WINDOWS						
08	THERMAL & MOISTURE PROTECTION						
09	FINISHES						
010	SPECIALTIES						
011	EQUIPMENT						
012	FURNISHINGS						
013	SPECIAL CONSTRUCTION						
014	CONVEYING SYSTEMS						
015	MECHANICAL						
016	ELECTRICAL	$42,000	$3,830				$45,830
		$92,300	$32,734	$7,705	$500		$133,239

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 5 of 9

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
01	GENERAL REQUIREMENTS	1	LS					$4,785			$2,750			$7,535
	CONSTRUCTION AIDS													
	Scaffolds/Temp Supports													
	Rental	1	LS								$2,750			$2,750
	Set-up/Remove	1	LS			92	52.01	$4,785						$4,785

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 6 of 9

CODE	ITEM DESCRIPTION	QUANTITY NO	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
02	SITE WORK				$50			$5,130			$1,950	$500		$7,630
	EQUIPMENT REMOVAL (INCL HANDLING/STORAGE ON SITE)													
	El -17'-6"													
	Remove Misc Equip (Loose/Crated)	1	LS			36	42.55	$1,532	36	12.33	$444			$1,976
	Salvage Value (Allowance)	-1	LS											
	STRUCTURAL DEMOLITION													
	El -17'-6"													
	Remove Misc Equip Pads, Etc.	1	LS	50	$50	58	41.58	$2,412	58	5.28	$306			$2,768
	RUBBISH HANDLING/REMOVAL													
	Dumpster Rental	1	LS						1	92	$92			$92
	Collect/Haul to Dumpster	1	LS			9	41.58	$374	9	3.81	$34			$408
	Load/Haul to Dump	1	LS			19	42.74	$812	19	56.61	$1,074			$1,886
	Dump Charges	1	LS									$500		$500

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 7 of 9

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
03	CONCRETE				$250			$872			$194			$1,316
	CIP CONC/CONC REPAIRS													
	El -17'-6"													
	Misc Conc Repairs	1	LS	250	$250	20	43 58	$872	20	9 69	$194			$1,316

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 8 of 9

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
05	METALS				$50,000			$18,118			$2,811			$70,929
	SPECIAL FABRICATION/INSTALL'N													
	El – 17 – 6"													
	Fabricate Stor Racks For Misc Sources	1	LS	50000	$50,000	250	58.07	$14,518	250	8.61	$2,153			$66,670
	Install Stor Racks For Misc Sources	1	LS			62	58.07	$3,600	62	10.62	$658			$4,259

Table B.3-10g. Life-Cycle Cost Estimate for Miscellaneous Source Materials at the FMEF. 9 of 9

CODE	ITEM DESCRIPTION	QUANTITY NO.	QUANTITY UNIT	MATERIAL $/UNIT	MATERIAL COST	LABOR MHR/UNIT	LABOR $/MHR	LABOR COSTS	CONST EQUIP HR/UNIT	CONST EQUIP $/HR	CONST EQUIP COSTS	SUBCON COST	OTHER COSTS	TOTAL COSTS
016	ELECTRICAL				$42,000			$3,830						$45,830
	SPECIAL ELECTRICAL													
	EI - 17 - 6"													
	Upgrade Exist CCTV System	1	LS	42000	$42,000	64	59.85	$3,830						$45,830

SOLID WASTE AND MATERIALS SYSTEMS ALTERNATIVES STUDY

VOLUME IV

APPENDIX B.4

Alternative 4 Detailed Cost Estimate

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SOLID WASTE AND MATERIALS - ALTERNATIVE 4

TOTALS (LIFE CYCLE COST)

(IN $ MILLIONS)

Description of Expense	# FY	0 95	1 96	2 97	3 98	4 99	5 00	6 01	7 02	8 03	9 04	10 05	11 06	12 07	13 08	14 09	15 10	16 11	17 12	18 13	19 14	20 15	21 16	22 17	23 18	24 19	25 20	26 21	27 22	28 23	29 24	30 25	31 26	32 27	33 28	34 29	35 30	36 31	37 32	38 33	Total Expenses
		YEARS FROM AUTHORIZATION																																							
CAP					39.1	44.7	44.8	144.7	144.8	144.8	144.8																													707.7
CAP - PHASE II																						33.3	100.5	100.6	100.7																335.1
OPS								4.0	4.0	40.0	41.0	43.0	113.6	115.6	84.6	85.6	89.6	91.6	94.6	98.6	100.6	104.6	108.6	111.6	115.6	119.6	123.6	126.6	131.6	135.6	41.6	43.6	44.6	45.6	46.6						2,305.8
D & D																																				50.9	50.9	51.0	50.9	5.0	208.7
TOTAL		0.0	0.0	0.0	39.1	44.7	44.8	148.7	148.8	184.8	185.8	43.0	113.6	115.6	84.6	85.6	89.6	91.6	94.6	98.6	100.6	137.9	209.1	212.2	216.3	119.6	123.6	126.6	131.6	135.6	41.6	43.6	44.6	45.6	46.6						3,557.3

WHC-SD-WM-ES-341, Rev 0

RAYTHEON ENGINEERS & CONSTRUCTORS

DATE 04/21/95

SOLID WASTE AND MATERIALS - ALTERNATIVE 4

CAPITAL EXPENDITURES

(IN $ MILLIONS)

YEARS FROM AUTHORIZATION

Description of Expense	# FY	0 95	1 96	2 97	3 98	4 99	5 00	6 01	7 02	8 03	9 04	10 05	11 06	12 07	13 08	14 09	15 10	16 11	17 12	18 13	19 14	20 15	21 16	22 17	23 18	24 19	25 20	26 21	27 22	28 23	29 24	30 25	31 26	32 27	33 28	34 29	35 30	36 31	37 32	38 33	Total Expenses
Engineering																																									
Title I					21.9																																				21.9
Title II						27.4	27.4																																		54.8
Title III								9	9	9.1	9																														36.1
Procurement																																									0
Bldg. Modifications								108.4	108.4	108.4	108.4																														433.6
Construction Mgmt								10.0	10.0	10.0	10.1																														40.1
Project Mgmt					7.7	7.7	7.6	7.8	7.8	7.8	7.8																														54.4
Other Project Costs					9.5	9.6	9.6	9.5	9.6	9.5	9.5																														66.8
TOTAL					39.1	44.7	44.8	144.7	144.8	144.8	144.8																														707.1

RAYTHEON ENGINEERS & CONSTRUCTORS

DATE: 04/21/95

SOLID WASTE AND MATERIALS - ALTERNATIVE 4

CAPITAL EXPENDITURES - PHASE II

(IN $ MILLIONS)

Description of Expense	YEARS FROM AUTHORIZATION																																											Total Expenses
	8 FY	0 95	1 96	2 97	3 98	4 99	5 00	6 01	7 02	8 03	9 04	10 05	11 06	12 07	13 08	14 09	15 10	16 11	17 12	18 13	19 14	20 15	21 16	22 17	23 18	24 19	25 20	26 21	27 22	28 23	29 24	30 25	31 26	32 27	33 28	34 29	35 30	36 31	37 32	38 33	
Engineering																																												
Title I																																												10
Title II																						10 0																						23 3
Title III																						23 3																						11 1
Procurement																							3 7	3 7	3 7																			0
Bldg Modifications																							77 0	77 1	77 1																			231 2
Construction Mgmt																							4 4	4 5	4 4																			13 3
Project Mgmt																							5 2	5 1	5 2																			15 5
Other Project Costs																							10 2	10 2	10 3																			30 7
TOTAL																						33 3	100 5	100 6	100 7																			335 1

SOLID WASTE AND MATERIALS - ALTERNATIVE 4

OPERATIONAL EXPENSES

(IN $ MILLIONS)

YEARS FROM AUTHORIZATION

Description of Expense	0 FY	0 95	1 96	2 97	3 98	4 99	5 00	6 01	7 02	8 03	9 04	10 05	11 06	12 07	13 08	14 09	15 10	16 11	17 12	18 13	19 14	20 15	21 16	22 17	23 18	24 19	25 20	26 21	27 22	28 23	29 24	30 25	31 26	32 27	33 28	34 29	35 30	36 31	37 32	38 33	Total Expenses
Operating Staff													36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	10.8	10.8	10.8	10.8	10.8						712.8
Consumables													3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0						59.0
Development Cost								2.0	2.0	2.0	2.0	2.0																													10.0
Start up Cost										22.0	22.0	22.0	22.0	22.0																											110.0
Spares															3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.8	0.8	0.8	0.8	0.8						52.0
Subtotal								2.0	2.0	24.0	24.0	24.0	61.6	61.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	12.6	12.6	12.6	12.6	12.6						943.8
Escalation								1	1	8	9	10	29	31	25	26	29	31	33	36	38	41	44	47	50	53	56	59	63	66	21	22	23	24	25						901.0
Contingency								1	1	8	8	9	23	23	17	17	18	18	19	20	20	21	22	22	23	24	25	25	26	27	8	9	9	9	9						461.0
TOTAL								4.0	4.0	40.0	41.0	43.0	113.6	115.6	81.6	85.6	89.6	91.6	94.6	98.6	100.6	103.6	108.6	111.6	115.6	119.6	123.6	126.6	131.6	135.6	41.6	43.6	44.6	45.6	46.6						2 305.8

SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DECONTAMINATION AND DECOMMISSIONING

(IN $ MILLIONS)

	YEARS FROM AUTHORIZATION																																									
Description of Expense	# FY	0 95	1 96	2 97	3 98	4 99	5 00	6 01	7 02	8 03	9 04	10 05	11 06	12 07	13 08	14 09	15 10	16 11	17 12	18 13	19 14	20 15	21 16	22 17	23 18	24 19	25 20	26 21	27 22	28 23	29 24	30 25	31 26	32 27	33 28	34 29	35 30	36 31	37 32	38 33	Total Expenses
Decontamination																																				6.3	6.3	6.3	6.2		25.1
Dismantlement																																				44.6	44.6	44.7	44.7		178.6
Closure																																								5.0	5.0
TOTAL																																				50.9	50.9	51.0	50.9	5.0	208.7

1. DOCUMENTS AND DRAWINGS

DOCUMENTS:

1) Engineering Report " Facility configuration study"
WHC-SD-WM-ES-295 REV 0

2) HWVP Estimate REV "F" July 1991
Canister Storage Building

3) INEL Solid Waste Handling Facility
Project W-112 Automation Alternatives
June 2, 1993 - Los Alamos Technical Associates

4) SWSTF- Alternative 3-B
Raytheon Engineers & Constructors 6217017
Equipment list - Budgetary

5) Waste Stream Definition and Inventory
(Furnished by WHC)

6) WNP-1 Site Restoration Estimate Study
Raytheon Engineers & Constructors

DRAWINGS: WNP-1 Drawings (For WBS 321A48)

9779-F-100043 Rev 8
9779-F-100044 Rev 14
9779-F-100045 Rev 3
9779-F-100046 Rev 9
9779-F-100047 Rev 10
9779-F-100048 Rev 10
9779-F-100049 Rev 6
9779-F-100050 Rev 2
9779-F-100057 Rev 6

HWVP Canister Storage BLD- Package E-350

H-2- 117798 S1 & 2
H-2- 119277 S1

H-2- 119290-119293 S1
H-2- 120005 S1
H-2- 120142 S1
H-2- 120143 S1,2,3
H-2- 120394 - 120397 S1
H-2- 120395 SH1,2,3

Figures 6.7-13 Alt 4 For Report
-14
-15
-16 (Canister Storage)
-17
-18
-19
-20

Figures 6.7-1 thru 6.7.12 (Processing)
6.7-21,22,23,24,25,30

Figures 6.7-26,27 (Cs/Sr Storage)

Figures 6.7-29 (Schedule)

2. MATERIAL PRICES

Unit costs represent current prices prepared by each design group. Vendor quotes were obtained for major pieces of equipment. Pricing was also developed using recent similar projects, extrapolation of data from other Hanford site and WPPSS estimates, and estimating publications such as R.S. Means Construction Cost Data, Richardsons Construction Estimating Standards, and TLG Estimating Decommissioning Cost for Commercial Nuclear Facilities.

3. LABOR RATES

The wage rates are the current 1995 Hanford site rates obtained from the KEH estimating Guidelines 1995. These rates are fully burdened.

4. GENERAL REQUIREMENTS/TECHNICAL SERVICES

Fixed price contractor overhead, and profit has been applied at the following percentages:

Labor - 16.5% Material 16.5%

5. ESCALATION

Escalation rates are calculated from the latest KEH Estimating Guidelines 1995. The escalation rate is based on the midpoint of the activity as defined by the project schedule.

6. ROUNDING - GPP:

U.S. Department of Energy - DOE Order 5100.4 Page J-2 Subparagraph (M), requires rounding of a cost estimate to $1,000 for item cost and $10,000 for total cost. Reference DOE 5100.4, Figure I-11, dated 10-31-84.

9. REMARKS

1). Waste Stream characteristics were provided by WHC.

2). Input Volumes were provided by WHC.

3). Selected processes are per WHC.

4). Transfer of ownership of WNP-1 to DOE will occur in a manner that does not impact schedule milestones.

5). Shredded and compacted waste has a 4:1 volume reduction (average). This is a conservative number. 10:1 is typical for shredded paper, clothing, etc.

6). Round metal 55 gal drums are used for storage of repackaged, cut up, high-rad debris.

7). Each 55 gallon drum holds 7 ft^3 (95% full), and weighs up to 1,000 lbs. Note that four drums fit on a 4'-6" pallet. A typical pallet spacing of 5 ft is used to account for partial use of overpacks. Voids in debris drums will be filled with inert material. No inspection is required for drums filled with dry waste.

8). Sodium will not be processed or stored.

9). Process facility will operate at an average rate of 100 DE per day, with capacity to process 200 DE on a three shift basis. This operational capacity allows the facility to produce twice the average throughput rate required by basis diagrams and thus provides flexibility for basis uncertainty.

10). WNP-1 was used as the basis and assumes no cost to DOE for the facility or the existing equipment.

11). No allowance is provided for retrieval, loading or shipping the waste to WNP-1. It is assumed delivered to the receiving area. Also, no allowance is made for loading and shipping to final disposition.

12). No repository are included.

13). Hot operation for the facility is 2006.

14). The hot operation for high level vitrification is 2009, and has a 19 year operating life.

15). A start date of 1998 (capital funds available) was selected as being aggressive but achievable.

16). All waste is to be finally disposed by 2029.

17). The facility can be permitted as necessary to support the schedule.

18). D&D of the facility will start in 2028 and will be completed in 2033 utilizing the "at grade" approach.

19). Engineering was calculated the following way:

Modification estimate	-	Title I	6% of the total construction cost
		Title II	15% of the total construction cost
		Title III	9% of the total construction cost
Phase II	-	Title I&II	15% of the total construction cost
		Title III	5% of the total construction cost
Decontamination	-	Title I&II	15% of the total construction cost
		Title III	5% of the total construction cost
Demolition	-	Title I&II	15% of the total construction cost
		Title III	5% of the total construction cost

20). Construction management was calculated at 10% of the total construction cost

21). Project management was calculated at 10% of the total construction cost, engineering and construction management costs.

22). Other Project costs were calculate at 10% of the total estimated cost.

REFERENCE: ESTIMATE BASIS SHEET
COST CODE ACCOUNT SUMMARY

CONTINGENCY ANALYSIS:

1) Engineering 25%

- WNP-1 Plant exists
- Design Basis is in Tack
- Facility was Walked Down
- Conditions are Known
- Existing process facilities used as Model

Based on above, the 25% value is believed to be reasonable.

2) Construction 35%

- Construction will be primarily modifications and completion of existing systems
- No "Hot" Work

3) Decontamination 45%

- This activity is high risk
- No solid basis for amount of decon needed. Quantified as:

  - very light - wipe down
  - low - wipe down - water rinse
  - high - chemical wash down possible fnit.

- Unknown spread of contamination

Based on these conditions a high contingency (but still within DOE 5700.3 guidelines for a study estimate) was used.

Decommissioning	35%	• An existing WNP-1 Decommissioning estimate exists • Estimate contained vendor quotes • At grade approach limits uncertainties Based on these conditions a 35% rate was felt adequate.
Construction Management	25%	Extensive use of Fixed Price Contracting should allow Lower contingency in this area.
Project Management	25%	Large Amounts of subcontracting, Lower risk engineering, and technology maturity should make this rate acceptable.
Other Project Costs	35%	Based on the existence of the WNP-1 facility, known processing requirements, and existing safety basis the OPC is estimated at 35%.

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev.B

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

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BY D. C. PRYOR

DOE_R01 - PROJECT COST SUMMARY

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I ENGINEERING	17,510,000	25	4,380,000	21,890,000
020	TITLE II ENGINEERING	43,780,000	25	10,950,000	54,730,000
030	TITLE III ENGINEERING	28,910,000	25	7,230,000	36,140,000
050	CONSTRUCTION MANAGEMENT	32,120,000	25	8,030,000	40,150,000
060	PROJECT INTEGRATION	43,540,000	25	10,890,000	54,430,000
460	IMPROVEMENTS TO LAND	1,050,000	35	370,000	1,420,000
501	BUILDINGS	58,690,000	35	20,540,000	79,230,000
600	UTILITIES	430,000	35	150,000	580,000
700	SPECIAL EQUIP/PROCESS SYSTEMS	610,000	35	210,000	820,000
710	HEAVY MOBILE EQUIPMENT	1,170,000	35	410,000	1,580,000
735	PROCESS EQUIPMENT	175,220,000	35	61,330,000	236,550,000
799	MISCELLANEOUS EQUIPMENT	82,690,000	35	28,940,000	111,630,000
810	DEMOLITION	1,340,000	35	470,000	1,810,000
	TOTAL ESTIMATED COST (TEC)	487,060,000	32	153,900,000	640,960,000
900	OTHER PROJECT COSTS	49,460,000	35	17,310,000	66,770,000
	(ADJUSTED TO MEET DOE S100.4)				
	TOTAL PRJECT COST (TPC)	536,520,000	32	171,210,000	707,730,000

TYPE OF ESTIMATE	REMARKS:
ARCHITECT ENGINEER	
OPERATING CONTRACTOR	

(ROUNDED/ADJUSTED TO THE NEAREST " 10,000 / 100,000 " - PERCENTAGES NOT RECALCULATED TO REFLECT ROUNDING)

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev B

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

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WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
119Z99	TITLES I & II ENGINEERING	53375870	0	53375870	14.84	7920979	61296849	25	15324213	76621062
SUBTOTAL 119	TITLES I & II ENGINEERING	53375870	0	53375870	14.84	7920979	61296849	25	15324213	76621062
SUBTOTAL 11	DEFINITIVE DESIGN	53375870	0	53375870	14.84	7920979	61296849	25	15324213	76621062
129Z99	TITLE III ENGR/INSPECTION	22875370	0	22875370	26.37	6032235	28907605	25	7226901	36134506
SUBTOTAL 129	TITLE III ENGR/INSPECTION	22875370	0	22875370	26.37	6032235	28907605	25	7226901	36134506
SUBTOTAL 12	E/I DURING CONSTRUCTION/MOD	22875370	0	22875370	26.37	6032235	28907605	25	7226901	36134506
SUBTOTAL 1	ENGINEERING	76251240	0	76251240	18.30	13953214	90204454	25	22551114	112755568
321A48	SPRAY POND	159033871	0	159033871	26.37	41937232	200971103	35	70339885	271310989
SUBTOTAL 321A	HLW - CANISTER	159033871	0	159033871	26.37	41937232	200971103	35	70339885	271310989
SUBTOTAL 321	CONTRUCTION/MODIFICATION -	159033871	0	159033871	26.37	41937232	200971103	35	70339885	271310989
322299	NON SPECIFIC AREA	24624089	0	24624089	26.37	6493372	31117461	35	10891110	42008574
SUBTOTAL 322Z	TRU - OTHERS	24624089	0	24624089	26.37	6493372	31117461	35	10891110	42008574
SUBTOTAL 322	CONTRUCTION/MODIFICATION -	24624089	0	24624089	26.37	6493372	31117461	35	10891110	42008574
323299	NON SPECIFIC AREA	781284	0	781284	26.37	206025	987309	35	345558	1332867
SUBTOTAL 323Z	LLMW - OTHERS	781284	0	781284	26.37	206025	987309	35	345558	1332867
SUBTOTAL 323	CONTRUCTION/MODIFICATION -	781284	0	781284	26.37	206025	987309	35	345558	1332867
325Q99	NON SPECIFIC AREA	1167359	0	1167359	26.37	307832	1475191	35	516316	1991508
SUBTOTAL 325Q	MISC.MATERIAL - UNIRRADIATE	1167359	0	1167359	26.37	307832	1475191	35	516316	1991508
SUBTOTAL 325	CONTRUCTION/MODIFICATION -	1167359	0	1167359	26.37	307832	1475191	35	516316	1991508

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

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DATE 04/21/95 05:55:42
BY D. C. PRYOR

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
326S01	SAFEGUARDS	2138240	0	2138240	26.37	563854	2702094	35	945734	3647826
SUBTOTAL 326S	Cs/Sr - CESIUM CAPSULES	2138240	0	2138240	26.37	563854	2702094	35	945734	3647826
SUBTOTAL 326	CONTRUCTION/MODIFICATION -	2138240	0	2138240	26.37	563854	2702094	35	945734	3647826
327Z99	NON SPECIFIC AREA	65359971	0	65359971	26.37	17235424	82595395	35	28908388	111503784
SUBTOTAL 327Z	FPSC / MODIFICATIONS - LLMW	65359971	0	65359971	26.37	17235424	82595395	35	28908388	111503784
SUBTOTAL 327	FPSC / MODIFICATIONS - LLMW	65359971	0	65359971	26.37	17235424	82595395	35	28908388	111503784
329Z99	NON SPECIFIC AREA	1066000	0	1066000	26.37	281104	1347104	35	471487	1818591
SUBTOTAL 329Z	COMMON USAGE	1066000	0	1066000	26.37	281104	1347104	35	471487	1818591
SUBTOTAL 329	CONTRUCTION/MODIFICATION -	1066000	0	1066000	26.37	281104	1347104	35	471487	1818591
SUBTOTAL 32	FIXED PRICE CONTRACTOR	254170814	0	254170814	26.37	67024843	321195657	35	112418478	433614139
SUBTOTAL 3	CONSTRUCTION SERVICES	254170814	0	254170814	26.37	67024843	321195657	35	112418478	433614139
410Z99	CONSTRUCTION MANAGEMENT	25417080	0	25417080	26.37	6702484	32119564	25	8029891	40149455
SUBTOTAL 410	CONSTRUCTION MANAGEMENT	25417080	0	25417080	26.37	6702484	32119564	25	8029891	40149455
SUBTOTAL 4	CONSTRUCTION MANAGEMENT	25417080	0	25417080	26.37	6702484	32119564	25	8029891	40149455
510Z99	PROJECT MANAGEMENT (INTEGRATION)	35583910	0	35583910	22.36	7956562	43540472	25	10885118	54425590
SUBTOTAL 510	PROJECT MANAGEMENT (INTEGRA	35583910	0	35583910	22.36	7956562	43540472	25	10885118	54425590
SUBTOTAL 5	PROJECT INTEGRATION	35583910	0	35583910	22.36	7956562	43540472	25	10885118	54425590
910Z99	OTHER PROJECT COSTS	39142300	0	39142300	26.37	10321825	49464125	35	17312444	66776568

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev.B

** IEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R02 WORK BREAKDOWN STRUCTURE SUMMARY

DATE 04/21/95 05:55:43
BY D. C. PRYOR

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
SUBTOTAL 91	OTHER PROJECT COSTS	39142300	0	39142300	26.37	10321825	49464125	35	17312444	66776568
SUBTOTAL 9	OTHER PROJECT COSTS	39142300	0	39142300	26.37	10321825	49464125	35	17312444	66776568
PROJECT TOTAL		430,565,344	0	430,565,344	24.61	105,958,928	536,524,272	32	171,197,045	707,721,320

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev.B

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 04/21/95 05:57:19
BY D. C. PRYOR

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I ENGINEERING									
119Z99	TITLES I & II ENGINEERING	15250250	0	15250250	14.84	2263137	17513387	25	4378347	21891734
TOTAL 010	TITLE I ENGINEERING	15250250	0	15250250	14.84	2263137	17513387	25	4378347	21891734
020	TITLE II ENGINEERING									
119Z99	TITLES I & II ENGINEERING	38125620	0	38125620	14.84	5657842	43783462	25	10945866	54729328
TOTAL 020	TITLE II ENGINEERING	38125620	0	38125620	14.84	5657842	43783462	25	10945866	54729328
030	TITLE III ENGINEERING									
129Z99	TITLE III ENGR/INSPECTION	22875370	0	22875370	26.37	6032235	28907605	25	7226901	36134506
TOTAL 030	TITLE III ENGINEERING	22875370	0	22875370	26.37	6032235	28907605	25	7226901	36134506
050	CONSTRUCTION MANAGEMENT									
410Z99	CONSTRUCTION MANAGEMENT	25417080	0	25417080	26.37	6702484	32119564	25	8029891	40149455
TOTAL 050	CONSTRUCTION MANAGEMENT	25417080	0	25417080	26.37	6702484	32119564	25	8029891	40149455
060	PROJECT INTEGRATION									
510Z99	PROJECT MANAGEMENT (INTEGRATION)	35583910	0	35583910	22.36	7956562	43540472	25	10885118	54425590
TOTAL 060	PROJECT INTEGRATION	35583910	0	35583910	22.36	7956562	43540472	25	10885118	54425590
460	IMPROVEMENTS TO LAND									
321A48	SPRAY POND	382236	0	382236	26.37	100796	483032	35	169061	652093
329Z99	NON SPECIFIC AREA	446000	0	446000	26.37	117610	563610	35	197264	760874

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 04/21/95 05:57:19
BY D C PRYOR

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
TOTAL 460	IMPROVEMENTS TO LAND	828236	0	828236	26.37	218406	1046642	35	366325	1412967
501 BUILDINGS										
321A48	SPRAY POND	40295293	0	40295293	26.37	10625869	50921162	35	17822406	68743568
322Z99	NON SPECIFIC AREA	2904201	0	2904201	26.37	765838	3670039	35	1284513	4954553
323Z99	NON SPECIFIC AREA	531284	0	531284	26.37	140100	671384	35	234984	906368
325Q99	NON SPECIFIC AREA	1125364	0	1125364	26.37	296758	1422122	35	497742	1919865
326S01	SAFEGUARDS	963645	0	963645	26.37	254114	1217759	35	426216	1643973
329Z99	NON SPECIFIC AREA	620000	0	620000	26.37	163494	783494	35	274223	1057717
TOTAL 501	BUILDINGS	46439787	0	46439787	26.37	12246173	58685960	35	20540084	79226044
600 UTILITIES										
321A48	SPRAY POND	343479	0	343479	26.37	90575	434054	35	151919	585973
TOTAL 600	UTILITIES	343479	0	343479	26.37	90575	434054	35	151919	585973
700 SPECIAL EQUIP/PROCESS SYSTEMS										
321A48	SPRAY POND	485207	0	485207	26.37	127949	613156	35	214605	827761
TOTAL 700	SPECIAL EQUIP/PROCESS SYSTEM	485207	0	485207	26.37	127949	613156	35	214605	827761
710 HEAVY MOBILE EQUIPMENT										
321A48	SPRAY POND	926572	0	926572	26.37	244337	1170909	35	409818	1580727
TOTAL 710	HEAVY MOBILE EQUIPMENT	926572	0	926572	26.37	244337	1170909	35	409818	1580727
735 PROCESS EQUIPMENT										
321A48	SPRAY POND	116566338	0	116566338	26.37	30738543	147304881	35	51556708	198861590
322Z99	NON SPECIFIC AREA	20986254	0	20986254	26.37	5534075	26520329	35	9282114	35802445

RAYTHEON ENGINEERS & CONSTRUCTORS
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 04/21/95 05:57:19
BY D. C. PRYOR

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
326S01	SAFEGUARDS	1103141	0	1103141	26.37	290898	1394039	35	487914	1881953
TOTAL 735	PROCESS EQUIPMENT	138655733	0	138655733	26.37	36563516	175219249	35	61326736	236545988
799	MISCELLANEOUS EQUIPMENT									
326S01	SAFEGUARDS	71454	0	71454	26.37	18842	90296	35	31604	121900
327Z99	NON SPECIFIC AREA	65359971	0	65359971	26.37	17235424	82595395	35	28908388	111503784
TOTAL 799	MISCELLANEOUS EQUIPMENT	65431425	0	65431425	26.37	17254266	82685691	35	28939992	111625684
810	DEMOLITION									
321A40	SPRAY POND	34746	0	34746	26.37	9163	43909	35	15368	59277
322Z99	NON SPECIFIC AREA	733634	0	733634	26.37	193459	927093	35	324483	1251576
323Z99	NON SPECIFIC AREA	250000	0	250000	26.37	65925	315925	35	110574	426499
325Q99	NON SPECIFIC AREA	41995	0	41995	26.37	11074	53069	35	18574	71643
TOTAL 810	DEMOLITION	1060375	0	1060375	26.37	279621	1339996	35	468999	1808995
900	OTHER PROJECT COSTS									
910Z99	OTHER PROJECT COSTS	39142300	0	39142300	26.37	10321825	49464125	35	17312444	66776568
TOTAL 900	OTHER PROJECT COSTS	39142300	0	39142300	26.37	10321825	49464125	35	17312444	66776568
PROJECT TOTAL		430,565,344	0	430,565,344	24.61	105,958,928	536,524,272	32	171,197,045	707,721,320

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev B

** IESF - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 04/21/95 05:58:54
BY D. C. PRYOR

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
01	GENERAL REQUIRMENTS	156019236	0	156019236	26.37	41142273	197161509	35	69006527	266168037
02	SITEWORK	621244	0	621244	26.37	163822	785066	35	274774	1059839
03	CONCRETE	1812817	0	1812817	26.37	478040	2290857	35	801800	3092657
05	METALS	71454	0	71454	26.37	18842	90296	35	31604	121900
08	DOORS,WINDOWS,GLASS	677322	0	677322	26.37	178610	855932	35	299576	1155508
09	FINISHES	1525523	0	1525523	26.37	402280	1927803	35	674731	2602535
11	EQUIPMENT	66686543	0	66686543	26.37	17585241	84271784	35	29495124	113766909
14	CONVEYING SYSTEMS	17520764	0	17520764	26.37	4620225	22140989	35	7749346	29890336
15	MECHANICAL	4160951	0	4160951	26.37	1097243	5258194	35	1840368	7098562
16	ELECTRICAL	4418702	0	4418702	26.37	1165211	5583913	35	1954369	7538283
17	DECONTAMINATION	158065	0	158065	26.37	41682	199747	35	69911	269658
18	DEMOLITION	498193	0	498193	26.37	131374	629567	35	220348	849915
33	TITLE I & II ENGINEERING	53375870	0	53375870	14.84	7920979	61296849	25	15324213	76621062
34	TITLE III ENGINEERING	22875370	0	22875370	26.37	6032235	28907605	25	7226901	36134506
40	CONSTRUCTION MANAGEMENT	25417080	0	25417080	26.37	6702484	32119564	25	8029891	40149455
50	PROJECT MANAGEMENT	35583910	0	35583910	22.36	7956562	43540472	25	10885118	54425590
90	OTHER PROJECT COSTS	39142300	0	39142300	26.37	10321825	49464125	35	17312444	66776568
TOTAL CONSTRUCTION		430,565,344	0	430,565,344	24.61	105,958,928	536,524,272	32	171,197,045	707,721,320
PROJECT TOTAL		430,565,344	0	430,565,344	24.61	105,958,928	536,524,272	32	171,197,045	707,721,320

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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DATE 04/21/95 05:59:27
BY D. C. PRYOR

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
119Z99	TITLES I & II ENGINEERING										
119Z99.3300010	TITLE I ENGINEERING (6 % OF CONSTRUCTION $)	010	1000 K$	0	0	0	0	15250250	0	0	15250250
119Z99.3300011	TITLE II ENGINEERING (15 % OF CONSTRUCTION $)	020	1000 K$	0	0	0	0	38125620	0	0	38125620
TOTAL WBS 119Z99 TITLES I & II ENGINEERING				0	0	0	0	53,375,870	0	0	53,375,870

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev.B

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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DATE 04/21/95 05:59:27
BY D. C. PRYOR

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
129Z99	TITLE III ENGR/INSPECTION										
129Z99.3400012	TITLE III ENGINEERING (9 % OF CONSTRUCTION $)	010	1000 K$	0	0	0	0	22875370	0	0	22875370
TOTAL WBS 129Z99 TITLE III ENGR/INSPECTION				0	0	0	0	22,875,370	0	0	22,875,370

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321A48	SPRAY POND										
321A48.01	GENERAL REQUIREMENTS										
321A48.0181010	RAILROAD SPUR ADDITION	460	800 LF	4800	111072	0	176000	0	17200	47367	351639
SUBTOTAL	GENERAL REQUIREMENTS			4,800		0		0		47,367	
					111,072		176,000		17,200		351,639
	CONSUMABLES 6.00 %						10560				10560
	SALES TAX 7.80 %						14551		1341		15893
	OH&P (ON MARKUPS ONLY)									4143	4143
TOTAL	COST CODE 46001			4,800		0		0		51,510	
	WBS 321A48				111,072		201,111		18,541		382,235
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.01	GENERAL REQUIREMENTS										
321A48.0191011	CANISTER STORAGE FACILITY (CONCRETE BELOW GRADE, OPERATING DECK,& TUBES EXTRA	501	1000 K	109212	2604706	0	1741890	4850	2000000	717188	7068634
321A48.0191013	CANISTER STORAGE FACILITY (BLDG. SHELL & UTILITIES)	501	1000 K	415890	11740575	0	12106840	0	1061060	3934823	28843298
SUBTOTAL	GENERAL REQUIREMENTS			525,102		0		4,850		4,652,011	
					14,345,281		13,848,730		3,061,060		35,911,932
	CONSUMABLES 6.00 %						830923				830923
	SALES TAX 7.80 %						1145012		238762		1383775
	OH&P (ON MARKUPS ONLY)									326029	326029
TOTAL	COST CODE 50101			525,102		0		4,850		4,978,040	
	WBS 321A48				14,345,281		15,824,666		3,299,822		38,452,661
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.01	GENERAL REQUIREMENTS										
321A48.0191012	SPECIAL CANISTER TUBE ASSEMBLY	735	3400 EA	319600	9022308	0	59636000	0	0	11328621	79986929
321A48.0191014	CANISTER TUBE IMPACT ABSORBER	735	6736 EA	26944	760629	0	19366000	0	0	3320894	23447523
SUBTOTAL	GENERAL REQUIREMENTS			346,544		0		0		14,649,515	
					9,782,937		79,002,000			0	103,434,452
	CONSUMABLES 6.00 %						4740120				4740120
	SALES TAX 7.80 %						6531885			0	6531885

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
	OH&P (ON MARKUPS ONLY)									1859880	1859880
TOTAL	COST CODE 73501			346,544		0		0	16,509,395		
	WBS 321A48				9,782,937		90,274,005		0		116,566,338
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.02	SITEWORK										
321A48.0207110	REMOVE 24" PIPE	810	750 LF	698	21743	0	0	0	1500	3588	26831
321A48.0231051	REMOVE CONCRETE	810	8 CY	3	66	0	0	0	2	11	79
SUBTOTAL	SITEWORK			701		0		0		3,599	
					21,809		0		1,502		26,910
	SALES TAX 7.80 %						0		117		117
TOTAL	COST CODE 81002			701		0		0		3,599	
	WBS 321A48				21,809		0		1,619		27,027
	(ESCALATION 26.37% CONTINGENCY 35.00 %)										
321A48.03	CONCRETE										
321A48.0391010	ADDITIONAL CONCRETE REQUIRED	501	12000 CY	5232	124783	0	624000	0	75000	123549	947332
SUBTOTAL	CONCRETE			5,232		0		0		123,549	
					124,783		624,000		75,000		947,332
	CONSUMABLES 6.00 %						37440				37440
	SALES TAX 7.80 %						51592		5850		57442
	OH&P (ON MARKUPS ONLY)									14690	14690
TOTAL	COST CODE 50103			5,232		0		0		138,239	
	WBS 321A48				124,783		713,032		80,850		1,056,904
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.03	CONCRETE										
321A48.0390010	CONCRETE EXHAUST STACK	700	5 EA	5000	119250	0	250000	0	12500	60926	442676
SUBTOTAL	CONCRETE			5,000		0		0		60,926	
					119,250		250,000		12,500		442,676
	CONSUMABLES 6.00 %						15000				15000
	SALES TAX 7.80 %						20670		975		21645
	OH&P (ON MARKUPS ONLY)									5885	5885
TOTAL	COST CODE 70003			5,000		0		0		66,811	
	WBS 321A48				119,250		285,670		13,475		485,206

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.09	FINISHES										
321A48.0991011	CONCRETE COATING (EPOXY)	501	140000 SF	6580	152064	0	105000	0	0	42416	299480
SUBTOTAL	FINISHES			6,580		0		0		42,416	
					152,064		105,000		0		299,480
	CONSUMABLES 6.00 %						6300				6300
	SALES TAX 7.80 %						8681		0		8681
	OH&P (ON MARKUPS ONLY)									2471	2471
TOTAL	COST CODE 50109			6,580		0		0		44,887	
	WBS 321A48				152,064		119,981		0		316,933
	(ESCALATION 26.37% CONTINGENCY 35.00 %)										
321A48.11	EQUIPMENT										
321A48.1191014	SPECIAL CRANE ASSEMBLY (20 TON)	710	2 EA	560	13832	0	223998	0	5000	39242	282072
321A48.1191015	SPECIAL CRANE ASSEMBLY (10 TON)	710	1 EA	160	3952	0	87999	0	1000	15172	108123
321A48.1191016	SPECIAL CRANE ASSEMBLY (100 TON)	710	1 EA	480	11856	0	349997	0	4000	59706	425559
SUBTOTAL	EQUIPMENT			1,200		0		0		114,120	
					29,640		661,994		10,000		815,754
	CONSUMABLES 6.00 %						39719				39719
	SALES TAX 7.80 %						54733		780		55513
	OH&P (ON MARKUPS ONLY)									15584	15584
TOTAL	COST CODE 71011			1,200		0		0		129,704	
	WBS 321A48				29,640		756,447		10,780		926,572
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.15	MECHANICAL										
321A48.1576010	VENT FAN (75 HP)	501	20 EA	1280	31834	0	300000	0	30000	54753	416587
SUBTOTAL	MECHANICAL			1,280		0		0		54,753	
					31,834		300,000		30,000		416,587
	CONSUMABLES 6.00 %						18000				18000
	SALES TAX 7.80 %						24804		2340		27144
	OH&P (ON MARKUPS ONLY)									7062	7062
TOTAL	COST CODE 50115			1,280		0		0		61,815	
	WBS 321A48				31,834		342,804		32,340		468,793

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.16	ELECTRICAL										
321A48.1610010	1000 KW DIESEL GENERATOR	600	2 EA	240	7313	0	249998	0	2000	42456	301767
SUBTOTAL	ELECTRICAL			240		0		0		42,456	
					7,313		249,998		2,000		301,767
	CONSUMABLES 6.00 %						14999				14999
	SALES TAX 7.80 %						20669		156		20825
	OH&P (ON MARKUPS ONLY)									5885	5885
TOTAL	COST CODE 60016			240		0		0		48,341	
	WBS 321A48				7,313		285,667		2,156		343,478
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
321A48.18	DEMOLITION										
321A48.1860013	REMOVE MAKE-UP PUMPS	810	4 EA	192	4775	0	0	0	2000	788	7563
SUBTOTAL	DEMOLITION			192		0		0		788	
					4,775		0		2,000		7,563
	SALES TAX 7.80 %						0		156		156
TOTAL	COST CODE 81016			192		0		0		788	
	WBS 321A48				4,775		0		2,156		7,719
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
TOTAL WBS 321A48 SPRAY POND				896,871		0		4,850		22,033,134	
					24,730,758		108,803,386		3,461,740		159,033,869

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
JOB NO. WHC-00000 Rev 0

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

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BY D. C. PRYOR

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99	NON SPECIFIC AREA										
322Z99.01	GENERAL REQUIRMENTS										
322Z99.0190011	REMOVATE OFFICES INSIDE PLANT AREAS	501	6000 SF	0	0	0	0	618000	0	0	618000
SUBTOTAL	GENERAL REQUIRMENTS			0		0		618,000		0	
					0		0		0		618,000
TOTAL	COST CODE 50101			0		0		618,000		0	
	WBS 322Z99				0		0		0		618,000
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.02	SITEWORK										
322Z99.0207282	DIAMOND WIRE SAW CUT OPENINGS IN CONCRETE (2' THICK)	810	2000 SF	0	0	0	0	110000	0	0	110000
322Z99.0231051	REMOVE CONCRETE	810	1000 CY	320	7040	0	0	0	300	1162	8502
SUBTOTAL	SITEWORK			320		0		110,000		1,162	
					7,040		0		300		118,502
	SALES TAX 7.80 %						0		23		23
TOTAL	COST CODE 81002			320		0		110,000		1,162	
	WBS 322Z99				7,040		0		323		118,525
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.08	DOORS,WINDOWS,GLASS										
322Z99.0811010	SHIELD WINDOWS	735	10 EA	400	10052	0	500000	0	0	84159	594211
SUBTOTAL	DOORS,WINDOWS,GLASS			400		0		0		84,159	
					10,052		500,000		0		594,211
	CONSUMABLES 6.00 %						30000				30000
	SALES TAX 7.80 %						41340		0		41340
	OH&P (OH MARKUPS ONLY)									11771	11771
TOTAL	COST CODE 73508			400		0		0		95,930	
	WBS 322Z99				10,052		571,340		0		677,322
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.09	FINISHES										
322Z99.0991011	CONCRETE COATING (EPOXY)	501	260000 SF	12220	282404	0	195000	0	0	78772	556176

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

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DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
SUBTOTAL	FINISHES			12,220		0		0		78,772	
					282,404		195,000		0		556,176
	CONSUMABLES 6.00 %						11700				11700
	SALES TAX 7.80 %						16122		0		16122
	OH&P (ON MARKUPS ONLY)									4590	4590
TOTAL	COST CODE 50109			12,220		0		0		83,362	
	WBS 322Z99				282,404		222,822		0		588,589
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.11	EQUIPMENT										
322Z99.1190010	SAMPLE COLLECTION SYSTEM	735	1 LOT	0	0	0	0	100000	0	0	100000
322Z99.1190011	SAMPLE TRANSFER SYSTEM	735	1 LOT	0	0	0	0	100000	0	0	100000
322Z99.1190012	LABORATORY	735	1 LOT	0	0	0	0	200000	0	0	200000
SUBTOTAL	EQUIPMENT			0		0		400,000		0	
					0		0		0		400,000
TOTAL	COST CODE 73511			0		0		400,000		0	
	WBS 322Z99				0		0		0		400,000
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.14	CONVEYING SYSTEMS										
322Z99.1411010	MAINTENANCE TOOLS -ALLOWANCE	735	2 LOT	0	0	0	150000	0	0	24750	174750
322Z99.1413010	ALLOWANCE FOR FUTURE EQUIPMENT (TBD)	735	1000 K$	0	0	0	1287100	0	0	212372	1499472
322Z99.1413020	ALLOWANCE FOR SPARE PARTS	735	1 K$	0	0	0	707798	0	0	116787	824585
322Z99.1421030	FORKLIFT	735	2 EA	0	0	0	150000	0	0	24750	174750
322Z99.1421040	FLATBED TRUCK	735	1 EA	0	0	0	20000	0	0	3300	23300
322Z99.1421050	GANTRY	735	1 EA	100	2487	0	20000	0	0	3710	26197
322Z99.1421060	CHERRY PICKER	735	1 EA	0	0	0	20000	0	0	3300	23300
322Z99.1431010	OVERHEAD CRANE	735	1 EA	100	2487	0	599994	0	0	99409	701890
322Z99.1431011	AIRLOCK	735	2 EA	80	1990	0	10000	0	0	1978	13968
322Z99.1431012	FORKLIFT	735	1 EA	0	0	0	75000	0	0	12375	87375
322Z99.1431013	BOX RACK	735	1 EA	40	995	0	5000	0	0	989	6984
322Z99.1431014	MATERIAL HANDLING EQUIPMENT	735	1 LOT	320	7958	0	5000	0	0	2138	15096
322Z99.1431015	TRUCK DOOR & SEAL	735	12 EA	384	9550	0	18000	0	0	4546	32096
322Z99.1431016	DRUM LIFT	735	1 EA	200	4974	0	12000	0	0	2801	19775
322Z99.1431017	BOX LIFT	735	1 EA	200	4974	0	20000	0	0	4121	29095
322Z99.1431018	SUMP PUMP	735	2 EA	20	497	0	2000	0	0	412	2909
322Z99.1432010	SORT & SEGREGATE OVERHEAD CRANE	735	1 EA	100	2487	0	599994	0	0	99409	701890

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	HANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99.1432011	6 PETAL WASTE GRABBER	735	1 EA	16	398	0	2000	0	0	396	2794
322Z99.1432012	SIZE REDUCTION EQUIPMENT	735	1 LOT	1000	24870	0	749993	0	0	127852	902715
322Z99.1432013	SORTING TABLE	735	1 EA	400	9948	0	100000	0	0	18141	128089
322Z99.1432014	MATERIAL HANDLING EQUIPMENT	735	1 LOT	160	3979	0	100000	0	0	17157	121136
322Z99.1432015	DRUM / BOX TIPPER	735	1 EA	80	1990	0	60000	0	0	10228	72218
322Z99.1432016	DRUM / BOX TIPPER HPU	735	1 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1432017	LIFT	735	1 EA	40	995	0	20000	0	0	3464	24459
322Z99.1432018	DECON SUMP PUMP	735	1 EA	40	995	0	1000	0	0	329	2324
322Z99.1432019	LARGE MANIPULATOR	735	2 EA	1600	39792	0	499995	0	0	89065	628852
322Z99.1432020	BOX DELIDDING STATION	735	1 EA	16	398	0	15000	0	0	2541	17939
322Z99.1432021	DRUM DELIDDING STATION	735	2 EA	32	796	0	20000	0	0	3431	24227
322Z99.1432022	SMALL MANIPULATOR	735	2 EA	800	19896	0	399996	0	0	69282	489174
322Z99.1432023	FEED CHUTE	735	2 EA	16	398	0	20000	0	0	3366	23764
322Z99.1432024	FEED CHUTE	735	2 EA	16	398	0	20000	0	0	3366	23764
322Z99.1432025	TRANSFER CAR	735	2 EA	20	497	0	40000	0	0	6682	47179
322Z99.1432026	OVERHEAD CRANE	735	1 EA	100	2487	0	599994	0	0	99409	701890
322Z99.1432027	DECON SUMP PUMP	735	1 EA	40	995	0	1000	0	0	329	2324
322Z99.1432028	DRUM AIR LOCK	735	2 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1432029	MATERIAL HANDLING EQUIPMENT	735	1 LOT	120	2984	0	80000	0	0	13692	96676
322Z99.1432030	SLIDING DOOR	735	7 EA	280	6964	0	7000	0	0	2304	16268
322Z99.1432031	DRUM LIFT	735	2 EA	80	1990	0	24000	0	0	4288	30278
322Z99.1433010	OVERHEAD CRANE	735	1 EA	100	2487	0	30000	0	0	5360	37847
322Z99.1433011	TRANSFER CONTAINER AIRLOCK	735	1 EA	40	995	0	10000	0	0	1814	12809
322Z99.1433012	MATERIAL HANDLING EQUIPMENT	735	1 LOT	60	1492	0	20000	0	0	3546	25038
322Z99.1433014	BASKET LOADING STATION	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1433015	HOPPER	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1433016	DECON CHAMBER	735	1 EA	40	995	0	10000	0	0	1814	12809
322Z99.1433017	BASKET DRYING STATION	735	1 EA	20	497	0	15000	0	0	2557	18054
322Z99.1433018	SOLUTION TANK	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1433019	MONORAIL W/ BRIDGE & GRAPPLE	735	1 EA	100	2487	0	20000	0	0	3710	26197
322Z99.1433020	HYDRAULIC POWER MODULE (COMPACTOR)	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1433021	HYDRAULIC POWER MODULE (RAM)	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1433022	RAM	735	1 EA	10	249	0	15000	0	0	2516	17765
322Z99.1433023	COMPACTOR	735	1 EA	60	1492	0	999990	0	0	165245	1166727
322Z99.1433024	DRUM AIR LOCK	735	2 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1433025	TURNTABLE COMPACTOR DISCHARGE	735	2 EA	60	1492	0	30000	0	0	5196	36688
322Z99.1433026	MATERIAL HANDLING EQUIPMENT	735	1 LOT	120	2984	0	40000	0	0	7092	50076
322Z99.1433027	VIBRATING FEEDER	735	1 EA	40	995	0	15000	0	0	2639	18634
322Z99.1433028	BASKET TIPPER	735	1 EA	24	597	0	20000	0	0	3399	23996

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	HANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP MENT	OH&P / B & I	TOTAL DOLLARS
322Z99.1433029	BASKET HOPPER	735	1 EA	8	199	0	4000	0	0	693	4892
322Z99.1433030	WEIGH FEEDER	735	1 EA	8	199	0	3000	0	0	528	3727
322Z99.1433031	LIDDING STATION	735	1 EA	10	249	0	10000	0	0	1691	11940
322Z99.1441010	OVERHEAD CRANE	735	1 EA	100	2487	0	20000	0	0	3710	26197
322Z99.1441011	AIRLOCK	735	2 EA	80	1990	0	10000	0	0	1978	13968
322Z99.1441012	FORKLIFT	735	1 EA	0	0	0	75000	0	0	12375	87375
322Z99.1441013	BOX RACK	735	1 EA	40	995	0	5000	0	0	989	6984
322Z99.1441014	MATERIAL HANDLING EQUIPMENT	735	1 LOT	320	7958	0	159998	0	0	27713	195669
322Z99.1441015	TRUCK DOOR & SEAL	735	12 EA	384	9550	0	18000	0	0	4546	32096
322Z99.1441016	DRUM LIFT	735	1 EA	200	4974	0	12000	0	0	2801	19775
322Z99.1441017	BOX LIFT	735	1 EA	200	4974	0	20000	0	0	4121	29095
322Z99.1441018	SUMP PUMP	735	2 EA	20	497	0	2000	0	0	412	2909
322Z99.1442010	SORT & SEGREGATE OVERHEAD CRANE	735	1 EA	100	2487	0	20000	0	0	3710	26197
322Z99.1442011	6 PETAL WASTE GRABBER	735	1 EA	16	398	0	2000	0	0	396	2794
322Z99.1442012	SIZE REDUCTION TOOLS	735	1 LOT	100	2487	0	50000	0	0	8660	61147
322Z99.1442013	SORTING TABLE	735	1 EA	40	995	0	10000	0	0	1814	12809
322Z99.1442014	MATERIAL HANDLING EQUIPMENT	735	1 LOT	160	3979	0	100000	0	0	17157	121136
322Z99.1442015	DRUM / BOX TIPPER	735	1 EA	80	1990	0	60000	0	0	10228	72218
322Z99.1442016	DRUM / BOX TIPPER HPU	735	1 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1442017	LIFT	735	1 EA	40	995	0	20000	0	0	3464	24459
322Z99.1442018	DECON SUMP PUMP	735	1 EA	40	995	0	1000	0	0	329	2324
322Z99.1442019	LARGE MANIPULATOR	735	2 EA	800	19896	0	499995	0	0	85782	605673
322Z99.1442020	BOX DELIDDING STATION	735	1 EA	16	398	0	15000	0	0	2541	17939
322Z99.1442021	DRUM DELIDDING STATION	735	2 EA	32	796	0	20000	0	0	3431	24227
322Z99.1442022	SMALL MANIPULATION	735	2 EA	800	19896	0	399996	0	0	69282	489174
322Z99.1442023	FEED CHUTE	735	2 EA	16	398	0	20000	0	0	3366	23764
322Z99.1442024	FEED CHUTE	735	2 EA	16	398	0	20000	0	0	3366	23764
322Z99.1442025	TRANSFER CAR	735	2 EA	20	497	0	40000	0	0	6682	47179
322Z99.1443010	OVERHEAD CRANE	735	1 EA	100	2487	0	30000	0	0	5360	37847
322Z99.1443011	TRANSFER CONTAINER AIRLOCK	735	1 EA	40	995	0	10000	0	0	1814	12809
322Z99.1443012	MATERIAL HANDLING EQUIPMENT	735	1 LOT	60	1492	0	20000	0	0	3546	25038
322Z99.1443013	BASKET LOADING STATION	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1443014	HOPPER	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1443015	BASKET DRYING STATION	735	1 EA	20	497	0	15000	0	0	2557	18054
322Z99.1443016	SOLUTION TANK	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1443017	MONORAIL W/ BRIDGE & GRAPPLE	735	1 EA	100	2487	0	20000	0	0	3710	26197
322Z99.1443018	HYDRAULIC POWER MODULE (COMPACTOR)	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1443019	HYDRAULIC POWER MODULE (RAM)	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1443020	RAM	735	1 EA	10	249	0	15000	0	0	2516	17765

DOE RDB - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99.1443021	COMPACTOR	735	1 EA	60	1492	0	999990	0	0	165245	1166727
322Z99.1443022	DRUM AIRLOCK	735	2 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1443023	TURNTABLE COMPACTOR DISCHARGE	735	2 EA	60	1492	0	30000	0	0	5196	36688
322Z99.1443024	MATERIAL HANDLING EQUIPMENT	735	1 LOT	120	2984	0	40000	0	0	7092	50076
322Z99.1443025	VIBRATION FEEDER	735	1 EA	40	995	0	15000	0	0	2639	18634
322Z99.1443026	BASKET TIPPER	735	1 EA	24	597	0	20000	0	0	3399	23996
322Z99.1443027	BASKET HOPPER	735	1 EA	8	199	0	4000	0	0	693	4892
322Z99.1443028	WEIGH FEEDER	735	1 EA	8	199	0	3000	0	0	528	3727
322Z99.1443029	LIDDING STATION	735	1 EA	10	249	0	10000	0	0	1691	11940
322Z99.1444010	OVERHEAD CRANE	735	1 EA	100	2487	0	20000	0	0	3710	26197
322Z99.1444020	AIRLOCK	735	2 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1444030	MATERIAL HANDLING EQUIPMENT	735	1 LOT	60	1492	0	100000	0	0	16746	118238
322Z99.1444040	DECON SUMP PUMP	735	1 EA	40	995	0	1000	0	0	329	2324
322Z99.1444050	SHREDDER	735	2 EA	1400	34818	0	599994	0	0	104744	739556
322Z99.1444060	WEIGH FEEDER	735	2 EA	30	746	0	10000	0	0	1773	12519
322Z99.1451010	WATER PURIFICATION SYSTEM	735	1 EA	20	497	0	20000	0	0	3382	23879
322Z99.1451011	VACUUM BAG LIFTER	735	1 EA	20	497	0	1000	0	0	247	1744
322Z99.1451012	AUGER	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1451013	MONORAIL	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1451014	FORKLIFT DOOR (12' X 10')	735	3 EA	24	597	0	15000	0	0	2574	18171
322Z99.1461010	EXTRUDER	735	1 EA	800	19896	0	421996	0	0	72912	514804
322Z99.1461011	DRUM UNCAP / CAP STATION	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1461012	DRUM AIRLOCK	735	2 EA	80	1990	0	20000	0	0	3628	25618
322Z99.1461013	TRANSFER CONTAINER AIR LOCK	735	1 EA	40	995	0	10000	0	0	1814	12809
322Z99.1461014	CONTAINER FILL PORT	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1461015	SCREW CONVEYORS	735	1 LOT	180	4477	0	60000	0	0	10639	75116
322Z99.1461016	MATERIAL HANDLING EQUIPMENT	735	1 LOT	300	7461	0	119999	0	0	21031	148491
322Z99.1461017	MONORAIL - SHREDDER FEEDER	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1461018	MONORAIL - GROUT BAG TRANSPORT	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1461019	SHREDDER	735	1 EA	700	17409	0	199998	0	0	35872	253279
322Z99.1461020	GROUT HOPPER	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1461021	POLYETHYLENE BIN	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1471010	DRUM PALLETIZER	735	1 EA	8	199	0	30000	0	0	4983	35182
322Z99.1471020	DRUM / PALLET BANDING MACHIN	735	1 EA	8	199	0	30000	0	0	4983	35182
322Z99.1471030	AIRLOCK	735	4 EA	160	3979	0	40000	0	0	7257	51236
322Z99.1471040	DRUM WASH	735	1 EA	16	398	0	20000	0	0	3366	23764
322Z99.1471050	PUSHER	735	2 EA	16	398	0	10000	0	0	1716	12114
322Z99.1471060	SEGMENTED GAMA SCANNER	735	1 EA	80	5120	0	199998	0	0	33844	238962
322Z99.1471070	MATERIAL HANDLING EQUIPMENT	735	1 LOT	200	4974	0	119999	0	0	20621	145594
322Z99.1481010	DRUM CAPPING STATION	735	1 EA	24	597	0	5000	0	0	924	6521

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99.1481020	DRIED BRINE SCREW CONVEYOR	735	1 EA	24	597	0	3000	0	0	594	4191
SUBTOTAL	CONVEYING SYSTEMS			16,350		0		0	2,180,073		
					409,762		12,802,817		0		15,392,652
	CONSUMABLES 6.00 %						768169				768169
	SALES TAX 7.80 %						1058536		0		1058536
	OH&P (ON MARKUPS ONLY)									301406	301406
TOTAL	COST CODE 73514			16,350		0		0	2,481,479		
	WBS 322Z99				409,762		14,629,522		0		17,520,764
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.15	MECHANICAL										
322Z99.1533010	EXHAUST FAN	735	1 EA	20	497	0	5000	0	0	907	6404
322Z99.1533011	HEPA FILTER	735	1 EA	20	497	0	10000	0	0	1732	12229
322Z99.1533012	RETURN HEPA FILTER	735	1 EA	20	497	0	10000	0	0	1732	12229
322Z99.1533013	FUME HOOD	735	1 EA	20	497	0	5000	0	0	907	6404
322Z99.1543010	EXHAUST FAN	735	1 EA	20	497	0	5000	0	0	907	6404
322Z99.1543011	HEPA FILTER	735	1 EA	20	497	0	10000	0	0	1732	12229
322Z99.1543012	RETURN HEPA FILTER	735	1 EA	20	497	0	10000	0	0	1732	12229
322Z99.1543013	FUME HOOD	735	1 EA	20	497	0	5000	0	0	907	6404
322Z99.1551010	BAGHOUSE	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1551011	FAN	735	1 EA	10	249	0	15000	0	0	2516	17765
322Z99.1551012	STACK	735	1 EA	20	497	0	1000	0	0	247	1744
322Z99.1551013	HOPPER	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1551014	FUME HOOD	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1551015	MIXER	735	2 EA	32	796	0	26000	0	0	4421	31217
322Z99.1551016	PORTABLE SUMP PUMP (W/CORD)	735	1 EA	8	199	0	5000	0	0	858	6057
322Z99.1551017	SODIUM HYDROXIDE PUMP	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1551018	PURIFIED WATER PUMP	735	2 EA	20	497	0	10000	0	0	1732	12229
322Z99.1551019	SERVICE WASTE PUMP	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1551020	NITRIC ACID PUMP	735	1 EA	10	249	0	5000	0	0	866	6115
322Z99.1551021	SURFACTANT PUMP	735	2 EA	20	497	0	30000	0	0	5032	35529
322Z99.1551022	SODIUM HYDROXIDE TANK	735	1 EA	24	597	0	15000	0	0	2574	18171
322Z99.1551023	PURIFIED WATER TANK	735	1 EA	24	597	0	15000	0	0	2574	18171
322Z99.1551024	SERVICE WASTE TANK	735	1 EA	24	597	0	15000	0	0	2574	18171
322Z99.1551025	NITRIC ACID TANK	735	1 EA	24	597	0	15000	0	0	2574	18171
322Z99.1551026	SURFACTANT TANK	735	1 EA	24	597	0	30000	0	0	5049	35646
322Z99.1551027	ROTARY VALVE	735	1 EA	8	249	0	2000	0	0	371	2620
322Z99.1561010	GROUT MIXER	735	1 EA	20	497	0	25000	0	0	4207	29704
322Z99.1561020	GROUT WASHING PUMP	735	1 EA	10	249	0	10000	0	0	1691	11940
322Z99.1561030	GROUT WASH TANK	735	1 EA	16	398	0	15000	0	0	2541	17939

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99.1581030	HEPA FILTER	735	2 EA	48	1225	0	6000	0	0	1192	8417
322Z99.1581031	CONDENATE BOTTOMS FILTER	735	2 EA	32	817	0	6000	0	0	1125	7942
322Z99.1581032	DRYER OFF GAS BLOWER	735	2 EA	32	817	0	40000	0	0	6735	47552
322Z99.1581033	CHILL WATER COIL (EVAPORAT)	735	1 EA	40	1021	0	5000	0	0	993	7014
322Z99.1581034	DRUM DRYER	735	1 EA	100	2552	0	199998	0	0	33421	235971
322Z99.1581035	STEAM HEATING COIL	735	1 EA	16	408	0	5000	0	0	892	6300
322Z99.1581036	CHILLED WATER COIL (DRUM DRY	735	1 EA	16	408	0	5000	0	0	892	6300
322Z99.1581037	STEAM HEATING COIL	735	1 EA	16	408	0	5000	0	0	892	6300
322Z99.1581038	MIXER	735	2 EA	32	997	0	26000	0	0	4455	31452
322Z99.1581039	MIXER	735	2 EA	32	997	0	34000	0	0	5775	40772
322Z99.1581040	EFFLUENT PUMP	735	2 EA	32	997	0	14000	0	0	2475	17472
322Z99.1581041	MAKE-UP WATER PUMP	735	1 EA	16	498	0	7000	0	0	1237	8735
322Z99.1581042	EVAPORATOR BOTTOMS PUMP	735	1 EA	16	498	0	7000	0	0	1237	8735
322Z99.1581043	LIQUID EFFLUENT RECIRC PUMP	735	1 EA	16	498	0	7000	0	0	1237	8735
322Z99.1581044	CONDENSATE BOTTOMS PUMP	735	1 EA	16	498	0	7000	0	0	1237	8735
322Z99.1581045	EFFLUENT COOLECTION TANK	735	2 EA	64	1994	0	8000	0	0	1649	11643
322Z99.1581046	MAKE-UP WATER COLLECTION TANK	735	1 EA	32	997	0	4000	0	0	825	5822
322Z99.1581047	RECEIVING & SURGE STORAGE TANK	735	1 EA	32	997	0	4000	0	0	825	5822
322Z99.1581048	RECEIVING & SURGE STORAGE TANK	735	1 EA	32	997	0	4000	0	0	825	5822
322Z99.1581049	THERMOSYPHON EVAPORATOR	735	1 EA	100	3115	0	15000	0	0	2989	21104
322Z99.1581050	CONDENSER (EVAPORATOR)	735	1 EA	40	1246	0	15000	0	0	2681	18927
322Z99.1581051	EVAPORATOR REBOILER	735	1 EA	40	1246	0	15000	0	0	2681	18927
322Z99.1581052	CONDENSER (DRUM DRYER)	735	1 EA	40	1246	0	15000	0	0	2681	18927
SUBTOTAL	MECHANICAL			1,342		0		0		133,656	
					37,010		772,998		0		943,664
	CONSUMABLES 6.00 %						46379				46379
	SALES TAX 7.80 %						63911		0		63911
	OH&P (ON MARKUPS ONLY)									18198	18198
TOTAL	COST CODE 73515			1,342		0		0		151,854	
	WBS 322Z99				37,010		883,289		0		1,072,153
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.15	MECHANICAL										
322Z99.1591011	REMOVE TANK	810	50 EA	2000	44000	0	0	0	0	7260	51260
322Z99.1591012	REMOVE MECHANICAL EQUIPMENT	810	120 EA	9600	211200	0	0	0	0	34848	246048
322Z99.1591013	REMOVE MECHANICAL PIPING	810	10000 LF	500	11000	0	0	0	0	1815	12815
322Z99.1591014	REMOVE LARGE MECHAN. PIPING	810	10000 LF	1500	33000	0	0	0	0	5445	38445

DOE R08 ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99.1591015	REMOVE HVAC DUCT	810	4000 EA	800	17600	0	0	0	0	2904	20504
322Z99.1599090	MISC. MECHANICAL EQUIPMENT REMOVAL	810	1 LOT	5000	155750	0	0	0	0	25699	181449
SUBTOTAL	MECHANICAL			19,400		0		0		77,971	
					472,550		0		0		550,521
TOTAL	COST CODE 81015			19,400		0		0		77,971	
	WBS 322Z99				472,550		0		0		550,521
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.16	ELECTRICAL										
322Z99.1612011	CCTV SYSTEM	501	1 LOT	1200	36564	0	75000	0	0	18408	129972
322Z99.1690011	MODIFY EXISTING ELECTRICAL LIGHTING	501	260000 SF	15600	475332	0	551200	0	26000	169378	1221910
322Z99.1691090	RADIATION / CRITICALITY ALARM SYSTEM	501	1 LOT	3000	91410	0	99999	0	0	31582	222991
SUBTOTAL	ELECTRICAL			19,800		0		0		219,368	
					603,306		726,199		26,000		1,574,873
	CONSUMABLES 6.00 %						43571				43571
	SALES TAX 7.80 %						60042		2028		62070
	OH&P (ON MARKUPS ONLY)									17096	17096
TOTAL	COST CODE 50116			19,800		0		0		236,464	
	WBS 322Z99				603,306		829,813		28,028		1,697,611
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.16	ELECTRICAL										
322Z99.1612010	CCTV - 01 CAMERA	735	10 EA	200	6094	0	110000	0	0	19156	135250
322Z99.1619010	60 AMP ELECTRICAL FEEDER	735	20000 LF	2660	81050	0	47000	0	0	21128	149178
322Z99.1619011	100 AMP ELECTRICAL FEEDER	735	11000 LF	1903	57984	0	39050	0	0	16011	113045
322Z99.1619012	200 AMP ELECTRICAL FEEDER	735	5000 LF	1400	42658	0	39150	0	0	13498	95306
322Z99.1619013	400 AMP ELECTRICAL FEEDER	735	3000 LF	1500	45705	0	60900	0	0	17590	124195
322Z99.1619014	CONTROL WIRING	735	20000 LF	2000	60940	0	35000	0	0	15830	111770
322Z99.1619015	INSTRUMENTATION REQUIREMENTS	735	30 EA	4800	146256	0	75000	0	0	36507	257763
322Z99.1650910	MODIFY EXISTING MCC	735	6 EA	1128	34370	0	48000	0	0	13591	95961
SUBTOTAL	ELECTRICAL			15,591		0		0		153,311	
					475,057		454,100		0		1,082,468
	CONSUMABLES 6.00 %						27246				27246
	SALES TAX 7.80 %						37544		0		37544

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
	OH&P (ON MARKUPS ONLY)									10690	10690
TOTAL	COST CODE 73516			15,591		0		0		164,001	
	WBS 322Z99				475,057		518,890		0		1,157,949
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.16	ELECTRICAL										
322Z99.1690021	REMOVE CABLE TRAY	810	21000 LF	2520	55440	0	0	0	0	9148	64588
SUBTOTAL	ELECTRICAL			2,520		0		0		9,148	
					55,440		0		0		64,588
TOTAL	COST CODE 81016			2,520		0		0		9,148	
	WBS 322Z99				55,440		0		0		64,588
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
322Z99.17	DECONTAMINATION										
322Z99.1731010	RADIATION MONITOR	735	2 EA	8	512	0	40000	0	0	6684	47196
322Z99.1741010	RADIATION MONITOR	735	2 EA	8	512	0	40000	0	0	6684	47196
322Z99.1743010	DECO CHAMBER	735	1 EA	40	2560	0	10000	0	0	2072	14632
322Z99.1761010	DECONTAMINATION WAND	735	10 EA	100	6400	0	20000	0	0	4356	30756
SUBTOTAL	DECONTAMINATION			156		0		0		19,796	
					9,984		110,000		0		139,780
	CONSUMABLES 6.00 %						6600				6600
	SALES TAX 7.80 %						9094		0		9094
	OH&P (ON MARKUPS ONLY)									2589	2589
TOTAL	COST CODE 73517			156		0		0		22,385	
	WBS 322Z99				9,984		125,694		0		158,064
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
TOTAL WBS 322Z99 NON SPECIFIC AREA				88,099		0		1,128,000		3,323,758	
					2,362,605		17,781,373		28,351		24,624,089

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
323Z99	NON SPECIFIC AREA										
323Z99.16	ELECTRICAL										
323Z99.1690011	MODIFY EXISTING ELECTRICAL LIGHTING	501	105000 SF	6300	191961	0	222600	0	10500	68403	493464
SUBTOTAL	ELECTRICAL			6,300	191,961	0	222,600	0	10,500	68,403	493,464
	CONSUMABLES 6.00 %						13356				13356
	SALES TAX 7.80 %						18404		819		19223
	OH&P (ON MARKUPS ONLY)									5240	5240
TOTAL	COST CODE 50116			6,300	191,961	0	254,360	0	11,319	73,643	531,284
	WBS 323Z99										
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
323Z99.18	DEMOLITION										
323Z99.1890091	REMOVE EXISTING MECHANICAL EQUIPMENT IN THE TURBINE BUILDING	810	1000 K$	0	0	0	0	250000	0	0	250000
SUBTOTAL	DEMOLITION			0	0	0	0	250,000	0	0	250,000
TOTAL	COST CODE 81018			0	0	0	0	250,000	0	0	250,000
	WBS 323Z99										
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
TOTAL WBS 323Z99 NON SPECIFIC AREA				6,300	191,961	0	254,360	250,000	11,319	73,643	781,284

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
325Q99	NON SPECIFIC AREA										
325Q99.02	SITEWORK										
325Q99.0207282	DIAMOND WIRE SAW CUT OPENINGS IN CONCRETE (2' THICK)	810	80 SF	0	0	0	0	4400	0	0	4400
325Q99.0231051	REMOVE CONCRETE	810	8 CY	3	66	0	0	0	2	11	79
SUBTOTAL	SITEWORK			3		0		4,400		11	
					66		0		2		4,479
	SALES TAX 7.80 %						0		0		0
TOTAL	COST CODE 81002			3		0		4,400		11	
	WBS 325Q99				66		0		2		4,479
	(ESCALATION 26.37% - CONTINGENCY 15.00 %)										
325Q99.03	CONCRETE										
325Q99.0331811	FLOOR TREATMENT (LIGHT WEIGHT REINFORCED CONCRETE ON EXISTING DECK)	501	69600 SF	5568	132797	0	75864	0	13920	34429	257010
SUBTOTAL	CONCRETE			5,568		0		0		34,429	
					132,797		75,864		13,920		257,010
	CONSUMABLES 6.00 %						4551				4551
	SALES TAX 7.80 %						6272		1085		7358
	OH&P (ON MARKUPS ONLY)									1786	1786
TOTAL	COST CODE 50103			5,568		0		0		36,215	
	WBS 325Q99				132,797		86,688		15,005		270,706
	(ESCALATION 26.37% - CONTINGENCY 15.00 %)										
325Q99.15	MECHANICAL										
325Q99.1590011	MODIFY EXISTING FIRE PROTECTION SYSTEM	501	91300 SF	4665	126888	0	102630	0	13995	37870	281383
SUBTOTAL	MECHANICAL			4,665		0		0		37,870	
					126,888		102,630		13,995		281,383
	CONSUMABLES 6.00 %						6157				6157
	SALES TAX 7.80 %						8485		1091		9577
	OH&P (ON MARKUPS ONLY)									2416	2416
TOTAL	COST CODE 50115			4,665		0		0		40,286	
	WBS 325Q99				126,888		117,273		15,086		299,533

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
325Q99.16	ELECTRICAL										
325Q99.1690011	MODIFY EXISTING ELECTRICAL LIGHTING	501	69600 SF	4176	127243	0	147552	0	6960	45341	327096
SUBTOTAL	ELECTRICAL			4,176		0		0		45,341	
					127,243		147,552		6,960		327,096
	CONSUMABLES 6.00 %						8853				8853
	SALES TAX 7.80 %						12199		542		12742
	OH&P (ON MARKUPS ONLY)									3473	3473
TOTAL	COST CODE 50116			4,176		0		0		48,814	
	WBS 325Q99				127,243		168,604		7,502		352,165
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
325Q99.18	DEMOLITION										
325Q99.1860012	MODIFY EXISTING HVAC	501	69600 SF	2784	71048	0	83520	0	8352	25504	188424
SUBTOTAL	DEMOLITION			2,784		0		0		25,504	
					71,048		83,520		8,352		188,424
	CONSUMABLES 6.00 %						5011				5011
	SALES TAX 7.80 %						6905		651		7556
	OH&P (ON MARKUPS ONLY)									1966	1966
TOTAL	COST CODE 50118			2,784		0		0		27,470	
	WBS 325Q99				71,048		95,436		9,003		202,958
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
325Q99.18	DEMOLITION										
325Q99.1860011	REMOVE TURBINE CONDENSER	810	3 EA	960	23875	0	0	0	9000	3939	36814
SUBTOTAL	DEMOLITION			960		0		0		3,939	
					23,875		0		9,000		36,814
	SALES TAX 7.80 %						0		702		702
TOTAL	COST CODE 81018			960		0		0		3,939	
	WBS 325Q99				23,875		0		9,702		37,516
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
TOTAL WBS 325Q99 NON SPECIFIC AREA				18,156		0		4,400		156,736	
					481,917		468,002		56,302		1,167,358

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
326S01	SAFEGUARDS										
326S01.02	SITEWORK										
326S01.0289011	ROOF CLOSURE	501	1 LOT	400	8800	0	8000	0	4000	2772	23572
	Cs/Sr AREA										
SUBTOTAL	SITEWORK			400		0		0		2,772	
					8,800		8,000		4,000		23,572
	CONSUMABLES 6.00 %						480				480
	SALES TAX 7.80 %						661		312		973
	OH&P (ON MARKUPS ONLY)									188	188
TOTAL	COST CODE 50102			400		0		0		2,960	
	WBS 326S01				8,800		9,141		4,312		25,213
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
326S01.05	METALS										
326S01.0590011	RAIL DOOR	799	1 LOT	500	11000	0	40000	0	5000	8415	64415
	Cs/Sr AREA										
SUBTOTAL	METALS			500		0		0		8,415	
					11,000		40,000		5,000		64,415
	CONSUMABLES 6.00 %						2400				2400
	SALES TAX 7.80 %						3307		390		3697
	OH&P (ON MARKUPS ONLY)									941	941
TOTAL	COST CODE 79905			500		0		0		9,356	
	WBS 326S01				11,000		45,707		5,390		71,453
	(ESCALATION 26.37% - CONTINGENCY 35.00 %)										
326S01.15	MECHANICAL										
326S01.1598110	INSTALL EXISTING BRIDGE CRAN	501	1 LOT	2500	62175	0	1500	0	4500	10506	78681
	Cs/Sr AREA										
326S01.1598120	MECHANICAL SYSTEMS UPGRADE	501	1 LOT	15000	467250	0	79999	0	10000	90296	647545
	Cs/Sr AREA										
326S01.1598130	HEPA FILTER SET-UP	501	2 EA	400	12460	0	70000	0	0	13606	96066
	Cs/Sr AREA										
326S01.1598140	NEW HEAT EXCHANGER	501	1 EA	200	6230	0	60000	0	2500	10928	79658
	Cs/Sr AREA										
SUBTOTAL	MECHANICAL			18,100		0		0		125,336	
					548,115		211,499		17,000		901,950

DOE R08 ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
	CONSUMABLES 6.00 %						12689				12689
	SALES TAX 7.80 %						17486		1326		18812
	OH&P (ON MARKUPS ONLY)									4979	4979
TOTAL	COST CODE 50115			18,100		0		0		130,315	
	WBS 326S01				548,115		241,675		18,326		938,431
	(ESCALATION 26.37% - CONTINGENCY	35.00 %)									
326S01.15	MECHANICAL										
326S01.1598150	RAD/WASTE MODIFICATIONS Cs/Sr AREA	735	1 LOT	10000	311500	0	349997	0	2500	109147	773144
SUBTOTAL	MECHANICAL			10,000		0		0		109,147	
					311,500		349,997		2,500		773,144
	CONSUMABLES 6.00 %						20999				20999
	SALES TAX 7.80 %						28937		195		29132
	OH&P (ON MARKUPS ONLY)									8239	8239
TOTAL	COST CODE 73515			10,000		0		0		117,386	
	WBS 326S01				311,500		399,934		2,695		831,516
	(ESCALATION 26.37% - CONTINGENCY	35.00 %)									
326S01.16	ELECTRICAL										
326S01.1698110	ELECTRICAL REQUIREMENTS IN Cs/Sr AREA	735	1 LOT	6000	182820	0	40000	0	5000	36765	264585
SUBTOTAL	ELECTRICAL			6,000		0		0		36,765	
					182,820		40,000		5,000		264,585
	CONSUMABLES 6.00 %						2400				2400
	SALES TAX 7.80 %						3307		390		3697
	OH&P (ON MARKUPS ONLY)									941	941
TOTAL	COST CODE 73516			6,000		0		0		37,706	
	WBS 326S01				182,820		45,707		5,390		271,623
	(ESCALATION 26.37% - CONTINGENCY	35.00 %)									
TOTAL WBS 326S01 SAFEGUARDS				35,000		0		0		297,725	
					1,062,235		742,166		36,113		2,138,239

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
327Z99	NON SPECIFIC AREA										
327Z99.11	EQUIPMENT										
327Z99.1192031	PALLET RACK SYSTEM (IN TURBINE BUILDING)	799	1000 K	17857	504103	0	9500000	0	50000	1650677	11704780
327Z99.1192032	PALLET RACK SYSTEM (IN GSB)	799	1000 K	17857	504103	0	9000000	0	50000	1568177	11122280
327Z99.1192041	AUTOMATI STORAGE & RETRIEVAL SYSTEM (LUMP SUM ADJUSTED FROM W-112 AUTOMATION ALTERNAT.	799	1000 K$	0	0	0	0	39450000	0	0	39450000
SUBTOTAL	EQUIPMENT			35,714	1,008,206	0 18,500,000	39,450,000		100,000	3,218,854	62,277,060
	CONSUMABLES 6.00 %					1110000					1110000
	SALES TAX 7.80 %					1529580			7800		1537380
	OH&P (ON MARKUPS ONLY)									435530	435530
TOTAL	COST CODE 79911 WBS 327Z99 (ESCALATION 26.37% - CONTINGENCY 35.00 %)			35,714	1,008,206	0 21,139,580	39,450,000		107,800	3,654,384	65,359,970
TOTAL WBS 327Z99 NON SPECIFIC AREA				35,714	1,008,206	0 21,139,580	39,450,000		107,800	3,654,384	65,359,970

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY D. C. PRYOR

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
329Z99	NON SPECIFIC AREA										
329Z99.02	SITEWORK										
329Z99.0299110	REPAIR ROADS	460	12000 SY	0	0	0	0	96000	0	0	96000
329Z99.0299112	RENOVATE PARKING AREAS	460	1 LOT	0	0	0	0	250000	0	0	250000
329Z99.0299113	FINAL GRADING	460	1 LOT	0	0	0	0	100000	0	0	100000
SUBTOTAL	SITEWORK			0	0	0	0	446,000	0	0	446,000
TOTAL	COST CODE 46002			0	0	0	0	446,000	0	0	446,000
	WBS 329Z99										
	(ESCALATION 26.37% - CONTINGENCY		35.00 %)								
329Z99.09	FINISHES										
329Z99.0990110	PAINT PLANT INTERIOR	501	400000 SF	0	0	0	0	620000	0	0	620000
SUBTOTAL	FINISHES			0	0	0	0	620,000	0	0	620,000
TOTAL	COST CODE 50109			0	0	0	0	620,000	0	0	620,000
	WBS 329Z99										
	(ESCALATION 26.37% - CONTINGENCY		35.00 %)								
TOTAL WBS 329Z99 NON SPECIFIC AREA				0	0	0	0	1,066,000	0	0	1,066,000

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
410Z99	CONSTRUCTION MANAGEMENT										
410Z99.4000013	CONSTRUCTION MANAGEMENT (10 % OF CONSTRUCTION $)	050	1000 K$	0	0	0	0	25417080	0	0	25417080
TOTAL WBS 410Z99 CONSTRUCTION MANAGEMENT				0	0	0	0	25,417,080	0	0	25,417,080

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
510299	PROJECT MANAGEMENT (INTEGRATION)										
510299.5000014	PROJECT INTERGRATION (10 % OF COST CUMLATIVE)	060	1000 K$	0	0	0	0	35583910	0	0	35583910
TOTAL WBS 510299 PROJECT MANAGEMENT (INTEGRATION)				0	0	0	0	35,583,910	0	0	35,583,910

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS - ALTERNATIVE 4

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
910299	OTHER PROJECT COSTS										
910299.9000001	OTHER PROJECT COSTS 10 % OF TOTAL DIRECT COST	900	1000 KS	0	0	0	0	39142300	0	0	39142300
TOTAL WBS 910299 OTHER PROJECT COSTS				0	0	0	0	39,142,300	0	0	39,142,300

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				1,080,140		0	218,297,780			29,539,383	
					29,837,682	149,188,869			3,701,626		430,565,341

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. WHC-0000 REV. B

** IEST - INTERACTIVE ESTIMATING **
SOILD WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

DOE_R01 - PROJECT COST SUMMARY

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BY D. C. PRYOR

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I & II ENGINEERING	27,730,000	20	5,550,000	33,280,000
030	TITLE III ENGINEERING	9,250,000	20	1,850,000	11,100,000
050	CONSTRUCTION MANAGEMENT	11,100,000	20	2,220,000	13,320,000
060	PROJECT INTEGRATION	12,940,000	20	2,590,000	15,530,000
501	BUILDINGS	125,700,000	25	31,430,000	157,130,000
799	MISCELLANEOUS EQUIPMENT	59,240,000	25	14,810,000	74,050,000
	TOTAL ESTIMATED COST (TEC)	245,960,000	24	58,450,000	304,410,000
900	OTHER PROJECT COSTS (ADJUSTED TO MEET DOE 5100.4)	24,590,000	25	6,150,000	30,740,000
	PROJECT TOTAL	270,550,000	24	64,600,000	335,150,000

TYPE OF ESTIMATE	REMARKS:
ARCHITECT ENGINEER	
OPERATING CONTRACTOR	

(ROUNDED/ADJUSTED TO THE NEAREST " 10,000 / 100,000 " - PERCENTAGES NOT RECALCULATED TO REFLECT ROUNDING)

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. WHC-0000 REV. B

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS ALTERNATIVE 4 PHASE II

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BY D. C. PRYOR

DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
113Z99	TITLE I & II ENGINEERING	14120000	0	14120000	96.41	13613092	27733092	20	5546618	33279710
SUBTOTAL 11	DEFINITIVE DESIGN	14120000	0	14120000	96.41	13613092	27733092	20	5546618	33279710
123Z99	TITLE III ENGINEERING	4710000	0	4710000	96.41	4540911	9250911	20	1850182	11101093
SUBTOTAL 12	E/I DURING CONSTRUCTION	4710000	0	4710000	96.41	4540911	9250911	20	1850182	11101093
SUBTOTAL 1	ENGINEERING	18830000	0	18830000	96.41	18154003	36984003	20	7396800	44380803
323Z99	OTHER (NON-SPECIFIC) AREAS	94160000	0	94160000	96.41	90779656	184939656	25	46234914	231174570
SUBTOTAL 323Z	FPSC - LLMW - OTHER / ALL U	94160000	0	94160000	96.41	90779656	184939656	25	46234914	231174570
SUBTOTAL 323	FPSC - LLMW	94160000	0	94160000	96.41	90779656	184939656	25	46234914	231174570
SUBTOTAL 32	FIXED PRICE CONSTRUCTION	94160000	0	94160000	96.41	90779656	184939656	25	46234914	231174570
SUBTOTAL 3	CONSTRUCTION	94160000	0	94160000	96.41	90779656	184939656	25	46234914	231174570
410Z99	CONSTRUCTION MANAGEMENT	5650000	0	5650000	96.41	5447165	11097165	20	2219433	13316598
SUBTOTAL 41	CONSTRUCTION MANAGEMENT	5650000	0	5650000	96.41	5447165	11097165	20	2219433	13316598
SUBTOTAL 4	CONSTRUCTION MANAGEMENT	5650000	0	5650000	96.41	5447165	11097165	20	2219433	13316598
510Z99	PROJECT INTEGRATION	6590000	0	6590000	96.41	6353419	12943419	20	2588684	15532103
SUBTOTAL 51	PROJECT INTEGRATION	6590000	0	6590000	96.41	6353419	12943419	20	2588684	15532103
SUBTOTAL 5	PROJECT INTEGRATION	6590000	0	6590000	96.41	6353419	12943419	20	2588684	15532103
910Z99	OTHER PROJECT COSTS	12520000	0	12520000	96.41	12070532	24590532	25	6147633	30738165
SUBTOTAL 91	OTHER PROJECT COSTS	12520000	0	12520000	96.41	12070532	24590532	25	6147633	30738165

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. WHC-0000 REV. B

** IEST - INTERACTIVE ESTIMATING **
SOILD WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

DOE_R02 WORK BREAKDOWN STRUCTURE SUMMARY

DATE 04/21/95 06:44:19
BY D. C. PRYOR

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
SUBTOTAL 9	OTHER PROJECT COSTS	12520000	0	12520000	96.41	12070532	24590532	25	6147633	30738165
PROJECT TOTAL		137,750,000	0	137,750,000	96.41	132,804,775	270,554,775	24	64,587,464	335,142,239

RAYTHEON ENGINEERS & CONSTRUCTORS
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** TEST - INTERACTIVE ESTIMATING **
SOILD WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

DOE_R04 - COST CODE ACCOUNT SUMMARY

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DATE 04/27/95 06:45.26
BY D. C. PRYOR

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I & II ENGINEERING									
113Z99	TITLE I & II ENGINEERING	14120000	0	14120000	96.41	13613092	27733092	20	5546618	33279710
TOTAL 010	TITLE I & II ENGINEERING	14120000	0	14120000	96.41	13613092	27733092	20	5546618	33279710
030	TITLE III ENGINEERING									
123Z99	TITLE III ENGINEERING	4710000	0	4710000	96.41	4540911	9250911	20	1850182	11101093
TOTAL 030	TITLE III ENGINEERING	4710000	0	4710000	96.41	4540911	9250911	20	1850182	11101093
050	CONSTRUCTION MANAGEMENT									
410Z99	CONSTRUCTION MANAGEMENT	5650000	0	5650000	96.41	5447165	11097165	20	2219433	13316598
TOTAL 050	CONSTRUCTION MANAGEMENT	5650000	0	5650000	96.41	5447165	11097165	20	2219433	13316598
060	PROJECT INTEGRATION									
510Z99	PROJECT INTEGRATION	6590000	0	6590000	96.41	6353419	12943419	20	2588684	15532103
TOTAL 060	PROJECT INTEGRATION	6590000	0	6590000	96.41	6353419	12943419	20	2588684	15532103
501	BUILDINGS									
323Z99	OTHER (NON-SPECIFIC) AREAS	64000000	0	64000000	96.41	61702400	125702400	25	31425600	157128000
TOTAL 501	BUILDINGS	64000000	0	64000000	96.41	61702400	125702400	25	31425600	157128000
799	MISCELLANEOUS EQUIPMENT									
323Z99	OTHER (NON-SPECIFIC) AREAS	30160000	0	30160000	96.41	29077256	59237256	25	14809314	74046570
TOTAL 799	MISCELLANEOUS EQUIPMENT	30160000	0	30160000	96.41	29077256	59237256	25	14809314	74046570

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO WHC-0000 REV B

** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

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DOE_R04 - COST CODE ACCOUNT SUMMARY

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
900	OTHER PROJECT COSTS									
910Z99	OTHER PROJECT COSTS	12520000	0	12520000	96.41	12070532	24590532	25	6147633	30738165
TOTAL 900	OTHER PROJECT COSTS	12520000	0	12520000	96.41	12070532	24590532	25	6147633	30738165
PROJECT TOTAL		137,750,000	0	137,750,000	96.41	132,804,775	270,554,775	24	64,587,464	335,142,239

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. WHC-0000 REV. B

** TEST - INTERACTIVE ESTIMATING **
SOILD WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

DOE R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 04/21/95 06:46:15
BY D. C. PRYOR

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
11	EQUIPMENT	94160000	0	94160000	96.41	90779656	184939656	25	46234914	231174570
33	TITLE I & II ENGINEERING	14120000	0	14120000	96.41	13613092	27733092	20	5546618	33279710
34	TITLE III ENGINEERING	4710000	0	4710000	96.41	4540911	9250911	20	1850182	11101093
40	CONSTRUCTION MANAGEMENT	5650000	0	5650000	96.41	5447165	11097165	20	2219433	13316598
50	PROJECT INTEGRATION	6590000	0	6590000	96.41	6353419	12943419	20	2588684	15532103
90	OTHER PROJECT COSTS	12520000	0	12520000	96.41	12070532	24590532	25	6147633	30738165
TOTAL CONSTRUCTION			0			132,804,775			64,587,464	
		137,750,000		137,750,000	96.41		270,554,775	24		335,142,239
PROJECT TOTAL			0			132,804,775			64,587,464	
		137,750,000		137,750,000	96.41		270,554,775	24		335,142,239

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. WHC-0000 REV. B

** IEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

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BY D. C PRYOR

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
113299	TITLE I & II ENGINEERING										
113299.3300011	TITLE I & II ENGINEERING (15% of TOTAL CONSTRUCTION)	010	1000 K$	0	0	0	0	14120000	0	0	14120000
TOTAL WBS 113299 TITLE I & II ENGINEERING				0	0	0	0	14,120,000 0	0	0	14,120,000

DOE R08 ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
123Z99	TITLE III ENGINEERING										
123Z99.3400012	TITLE III ENGINEERING (5% of TOTAL CONSTRUCTION)	030	1000 K$	0	0	0	0	4710000	0	0	4710000
TOTAL WBS 123Z99 TITLE III ENGINEERING				0	0	0	0	4,710,000	0	0	4,710,000

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOILD WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

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BY D. C. PRYOR

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
323Z99	OTHER (NON-SPECIFIC) AREAS										
323Z99.11	EQUIPMENT										
323Z99.1192021	WAREHOUSE FOR LLMW STORAGE PHASE II	501	160000 SF	0	0	0	0	64000000	0	0	64000000
SUBTOTAL	EQUIPMENT			0	0	0	0	64,000,000	0	0	64,000,000
TOTAL	COST CODE 50111			0	0	0	0	64,000,000	0	0	64,000,000
	WBS 323Z99										
	(ESCALATION 96.41% - CONTINGENCY		25.00 %)								
323Z99.11	EQUIPMENT										
323Z99.1192011	PALLET RACK SYSTEM (IN PHASE II - WAREHOUSES)	799	260000 SF	0	0	0	0	30160000	0	0	30160000
SUBTOTAL	EQUIPMENT			0	0	0	0	30,160,000	0	0	30,160,000
TOTAL	COST CODE 79911			0	0	0	0	30,160,000	0	0	30,160,000
	WBS 323Z99										
	(ESCALATION 96.41% - CONTINGENCY		25.00 %)								
TOTAL WBS 323Z99 OTHER (NON-SPECIFIC) AREAS				0	0	0	0	94,160,000	0	0	94,160,000

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
SOLID WASTE AND MATERIALS ALTERNATIVE 4 - PHASE II

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
410Z99	CONSTRUCTION MANAGEMENT										
410Z99.4000013	CONSTRUCTION MANAGEMENT (6% of TOTAL CONSTRUCTION)	050	1000 K$	0	0	0	0	5650000	0	0	5650000
TOTAL WBS 410Z99 CONSTRUCTION MANAGEMENT				0	0	0	0	5,650,000	0	0	5,650,000

DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
510Z99	PROJECT INTEGRATION										
510Z99.5000014	PROJECT MANAGEMENT (7% of TOTAL CONSTRUCTION)	060	1000 K$	0	0	0	0	6590000	0	0	6590000
TOTAL WBS 510Z99 PROJECT INTEGRATION				0	0	0	0	6,590,000	0	0	6,590,000

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
910299	OTHER PROJECT COSTS										
910299.9000001	OTHER PROJECT COSTS (10% OF TOTAL DIRECT COST)	900	1000 K$	0	0	0	0	12520000	0	0	12520000
TOTAL WBS 910299 OTHER PROJECT COSTS				0	0	0	0	12,520,000	0	0	12,520,000

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				0		0		137,750,000		0	
					0			0	0		137,750,000

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. 6237.517 REV B

** IEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

DOE R01 - PROJECT COST SUMMARY

DATE 04/21/95 06:21:42
BY D. C. PRYOR

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I & II ENGINEERING	1,920,000	45	870,000	2,790,000
030	TITLE III ENGINEERING	640,000	45	290,000	930,000
050	CONSTRUCTION MANAGEMENT	770,000	45	350,000	1,120,000
060	PROJECT INTEGRATION	1,130,000	45	510,000	1,640,000
810	DEMOLITION	12,820,000	45	5,770,000	18,590,000
	(ADJUSTED TO MEET DOE 5100.4)				
	PROJECT TOTAL	17,280,000	45	7,790,000	25,070,000

TYPE OF ESTIMATE	REMARKS:
ARCHITECT ENGINEER	
OPERATING CONTRACTOR	

(ROUNDED/ADJUSTED TO THE NEAREST * 10,000 / 100,000 * - PERCENTAGES NOT RECALCULATED TO REFLECT ROUNDING)

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. 6237.517 REV. B

** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 04/21/95 06:22:20
BY D. C. PRYOR

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
119Z99	TITLES I & II ENGINEERING	595920	0	595920	222.77	1327531	1923451	45	865553	2789004
SUBTOTAL 11	DEFINITIVE DESIGN	595920	0	595920	222.77	1327531	1923451	45	865553	2789004
129Z99	TITLE III ENGINEERING	198640	0	198640	222.77	442510	641150	45	288518	929668
SUBTOTAL 12	E/I DURING DECOMMISSIONING	198640	0	198640	222.77	442510	641150	45	288518	929668
SUBTOTAL 1	ENGINEERING	794560	0	794560	222.77	1770041	2564601	45	1154071	3718672
321A48	SPRAY POND	1116677	0	1116677	222.77	2487621	3604298	45	1621934	5226233
322Z99	NON SPECIFIC AREA	851316	0	851316	222.77	1896477	2747793	45	1236507	3984299
323Z99	NON SPECIFIC AREA	322902	0	322902	222.77	719329	1042231	45	469004	1511235
324Z99	NON SPECIFIC AREA	62498	0	62498	222.77	139227	201725	45	90776	292501
325Q99	NON SPECIFIC AREA	922659	0	922659	222.77	2055407	2978066	45	1340130	4318196
325Z99	NON SPECIFIC AREA	92335	0	92335	222.77	205695	298030	45	134113	432143
326Z99	NON SPECIFIC AREA	160514	0	160514	222.77	357577	518091	45	233141	751232
327Z99	NON SPECIFIC AREA	104161	0	104161	222.77	232039	336200	45	151290	487491
329Z99	NON SPECIFIC AREA	339727	0	339727	222.77	756810	1096537	45	493442	1589978
SUBTOTAL 32	DECOMMISSIONING FORCES	3972789	0	3972789	222.77	8850182	12822971	45	5770337	18593308
SUBTOTAL 3	DECOMMISSIONING	3972789	0	3972789	222.77	8850182	12822971	45	5770337	18593308
410Z99	CONSTRUCTION MANAGEMENT	238370	0	238370	222.77	531017	769387	45	346224	1115611
SUBTOTAL 41	CONSTRUCTION MANAGEMENT	238370	0	238370	222.77	531017	769387	45	346224	1115611
SUBTOTAL 4	CONSTRUCTION MANAGEMENT	238370	0	238370	222.77	531017	769387	45	346224	1115611
510Z99	PROJECT MANAGEMENT	350400	0	350400	222.77	780586	1130986	45	508944	1639930
SUBTOTAL 51	PROJECT MANAGEMENT	350400	0	350400	222.77	780586	1130986	45	508944	1639930
SUBTOTAL 5	PROJECT MANAGEMENT	350400	0	350400	222.77	780586	1130986	45	508944	1639930

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. 6237.517 REV. B

** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

DOE_W02 - WORK BREAKDOWN STRUCTURE SUMMARY

DATE 04/21/95 06:22:20
BY D. C. PRYOR

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
PROJECT TOTAL		5,356,119	0	5,356,119	222.77	11,931,826	17,287,945	45	7,779,576	25,067,521

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WHC - WASTE MANAGEMENT
JOB NO. 6237.517 REV. B

** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY ALTERNATIVE 4

DOE_R04 - COST CODE ACCOUNT SUMMARY

PAGE 1 OF 2
DATE 04/21/95 06:23:13
BY D. C. PRYOR

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I & II ENGINEERING									
119Z99	TITLES I & II ENGINEERING	595920	0	595920	222.77	1327531	1923451	45	865553	2789004
TOTAL 010	TITLE I & II ENGINEERING	595920	0	595920	222.77	1327531	1923451	45	865553	2789004
030	TITLE III ENGINEERING									
129Z99	TITLE III ENGINEERING	198640	0	198640	222.77	442510	641150	45	288518	929668
TOTAL 030	TITLE III ENGINEERING	198640	0	198640	222.77	442510	641150	45	288518	929668
050	CONSTRUCTION MANAGEMENT									
410Z99	CONSTRUCTION MANAGEMENT	238370	0	238370	222.77	531017	769387	45	346224	1115611
TOTAL 050	CONSTRUCTION MANAGEMENT	238370	0	238370	222.77	531017	769387	45	346224	1115611
060	PROJECT INTEGRATION									
510Z99	PROJECT MANAGEMENT	350400	0	350400	222.77	780586	1130986	45	508944	1639930
TOTAL 060	PROJECT INTEGRATION	350400	0	350400	222.77	780586	1130986	45	508944	1639930
810	DEMOLITION									
321A48	SPRAY POND	1116677	0	1116677	222.77	2487621	3604298	45	1621934	5226233
322Z99	NON SPECIFIC AREA	851316	0	851316	222.77	1896477	2747793	45	1236507	3984299
323Z99	NON SPECIFIC AREA	322902	0	322902	222.77	719329	1042231	45	469004	1511235
324Z99	NON SPECIFIC AREA	62498	0	62498	222.77	139227	201725	45	90776	292501
325Q99	NON SPECIFIC AREA	922659	0	922659	222.77	2055407	2978066	45	1340130	4318196
325Z99	NON SPECIFIC AREA	92335	0	92335	222.77	205695	298030	45	134113	432143
326Z99	NON SPECIFIC AREA	160514	0	160514	222.77	357577	518091	45	233141	751232
327Z99	NON SPECIFIC AREA	104161	0	104161	222.77	232039	336200	45	151290	487491
329Z99	NON SPECIFIC AREA	339727	0	339727	222.77	756810	1096537	45	493442	1589978

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

DOE_R04 - COST CODE ACCOUNT SUMMARY

DATE 04/21/95 06:23:11
BY D. C. PRYOR

COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
TOTAL 810	DEMOLITION	3972789	0	3972789	222.77	8850182	12822971	45	5770337	18593308
PROJECT TOTAL		5,356,119	0	5,356,119	222.77	11,931,826	17,287,945	45	7,779,576	25,067,521

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. 6237.517 REV. B

** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

DATE 04/21/95 06:23:59
BY D. C. PRYOR

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
17	DECONTAMINATION	3972789	0	3972789	222.77	8850182	12822971	45	5770337	18593308
33	TITLE I & II ENGINEERING	595920	0	595920	222.77	1327531	1923451	45	865553	2789004
34	TITLE III ENGINEERING	198640	0	198640	222.77	442510	641150	45	288518	929668
40	CONSTRUCTION MANAGEMENT	238370	0	238370	222.77	531017	769387	45	346224	1115611
50	PROJECT MANAGEMENT	350400	0	350400	222.77	780586	1130986	45	508944	1639930
TOTAL CONSTRUCTION		5,356,119	0	5,356,119	222.77	11,931,826	17,287,945	45	7,779,576	25,067,521
PROJECT TOTAL		5,356,119	0	5,356,119	222.77	11,931,826	17,287,945	45	7,779,576	25,067,521

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

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BY D. C. PRYOR

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
119Z99	TITLES I & II ENGINEERING										
119Z99.3300011	TITLE I & II ENGINEERING (15 % of TOTAL DIRECT COST)	010	1000 LOT	0	0	0	0	595920	0	0	595920
TOTAL WBS 119Z99 TITLES I & II ENGINEERING				0	0	0	0	595,920	0	0	595,920

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** IEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
129Z99	TITLE III ENGINEERING										
129Z99.3400012	TITLE III ENGINEERING (5 % of TOTAL DIRECT COST)	030	1000 LOT	0	0	0	0	198640	0	0	198640
TOTAL WBS 129Z99 TITLE III ENGINEERING				0	0	0	0	198,640	0	0	198,640

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
JOB NO. 6237.517 REV. B

** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

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BY D. C. PRYOR

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
321A48	SPRAY POND										
321A48.17	DECONTAMINATION										
321A48.1700012	SURFACE DECONTAMINATION (LOW LEVEL)	810	115000 SF	18055	769865	0	17250	0	0	129874	916989
321A48.1700013	SURFACE DECONTAMINATION (VERY LOW LEVEL - LIGHT)	810	100600 SF	1911	81485	0	2515	0	0	13860	97860
321A48.1700021	PERSONAL PROTECTIVE EQUIPMNT PPE (LOW LEVEL)	810	18055 HR	0	0	0	69151	0	0	11410	80561
321A48.1700023	PERSONAL PROTECTIVE EQUIPMNT PPE (VERY LOW LEVEL - LIGHT)	810	1911 HR	0	0	0	4873	0	0	804	5677
SUBTOTAL	DECONTAMINATION			19,966		0		0		155,948	
					851,350		93,789		0		1,101,087
	CONSUMABLES 6.00 %						5627				5627
	SALES TAX 7.80 %						7754		0		7754
	OH&P (ON MARKUPS ONLY)									2207	2207
TOTAL	COST CODE 81017			19,966		0		0		158,155	
	WBS 321A48				851,350		107,170		0		1,116,676
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 321A48 SPRAY POND				19,966		0		0		158,155	
					851,350		107,170		0		1,116,676

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
322Z99	NON SPECIFIC AREA										
322Z99.17	DECONTAMINATION										
322Z99.1700012	SURFACE DECONTAMINATION (LOW LEVEL)	810	93200 SF	14632	623908	0	13980	0	0	105252	743140
322Z99.1700013	SURFACE DECONTAMINATION (VERY LOW LEVEL - LIGHT)	810	30000 SF	570	24305	0	750	0	0	4134	29189
322Z99.1700021	PERSONAL PROTECTIVE EQUIPMNT PPE (LOW LEVEL)	810	14632 HR	0	0	0	56041	0	0	9247	65288
322Z99.1700023	PERSONAL PROTECTIVE EQUIPMNT PPE (VERY LOW LEVEL - LIGHT)	810	570 HR	0	0	0	1454	0	0	240	1694
SUBTOTAL	DECONTAMINATION			15,202		0		0		118,873	
					648,213		72,225		0		839,311
	CONSUMABLES 6.00 %						4333				4333
	SALES TAX 7.80 %						5971		0		5971
	OH&P (ON MARKUPS ONLY)									1700	1700
TOTAL	COST CODE 81017			15,202		0		0		120,573	
	WBS 322Z99				648,213		82,530		0		851,316
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 322Z99 NON SPECIFIC AREA				15,202		0		0		120,573	
					648,213		82,530		0		851,316

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
DECONTAMINATION ONLY - ALTERNATIVE 4

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
323Z99	NON SPECIFIC AREA										
323Z99.17	DECONTAMINATION										
323Z99.1700013	SURFACE DECONTAMINATION (VERY LOW LEVEL - LIGHT)	810	310000 SF	5890	251150	0	7750	0	0	42719	301619
323Z99.1700023	PERSONAL PROTECTIVE EQUIPMNT PPE (VERY LOW LEVEL - LIGHT)	810	5890 HR	0	0	0	15020	0	0	2478	17498
SUBTOTAL	DECONTAMINATION			5,890		0		0		45,197	
					251,150		22,770		0		319,117
	CONSUMABLES 6.00 %						1366				1366
	SALES TAX 7.80 %						1882		0		1882
	OH&P (OH MARKUPS ONLY)									536	536
TOTAL	COST CODE 81017			5,890		0		0		45,733	
	WBS 323Z99				251,150		26,018		0		322,901
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 323Z99 NON SPECIFIC AREA				5,890		0		0		45,733	
					251,150		26,018		0		322,901

RAYTHEON ENGINEERS & CONSTRUCTORS
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BY D. C. PRYOR

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
324Z99	NON SPECIFIC AREA										
324Z99.17	DECONTAMINATION										
324Z99.1700013	SURFACE DECONTAMINATION (VERY LOW LEVEL - LIGHT)	810	60000 SF	1140	48610	0	1500	0	0	8268	58378
324Z99.1700023	PERSONAL PROTECTIVE EQUIPMNT PPE (VERY LOW LEVEL - LIGHT)	810	1140 HR	0	0	0	2907	0	0	480	3387
SUBTOTAL	DECONTAMINATION			1,140		0		0		8,748	
					48,610		4,407		0		61,765
	CONSUMABLES 6.00 %						264				264
	SALES TAX 7.80 %						364		0		364
	OH&P (ON MARKUPS ONLY)									103	103
TOTAL	COST CODE 81017			1,140		0		0		8,851	
	WBS 324Z99				48,610		5,035		0		62,497
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 324Z99 NON SPECIFIC AREA				1,140		0		0		8,851	
					48,610		5,035		0		62,497

RAYTHEON ENGINEERS & CONSTRUCTORS
WHC - WASTE MANAGEMENT
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** TEST - INTERACTIVE ESTIMATING **
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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
325Q99	NON SPECIFIC AREA										
325Q99.17	DECONTAMINATION										
325Q99.1700012	SURFACE DECONTAMINATION (LOW LEVEL)	810	115350 SF	18110	772210	0	17303	0	0	130270	919783
SUBTOTAL	DECONTAMINATION			18,110		0		0		130,270	
					772,210		17,303		0		919,783
	CONSUMABLES 6.00 %						1038				1038
	SALES TAX 7.80 %						1430		0		1430
	OH&P (ON MARKUPS ONLY)									407	407
TOTAL	COST CODE 81017			18,110		0		0		130,677	
	WBS 325Q99				772,210		19,771		0		922,659
	(ESCALATION 222.77% - CONTINGENCY 15.00 %)										
TOTAL WBS 325Q99 NON SPECIFIC AREA				18,110		0		0		130,677	
					772,210		19,771		0		922,659

RAYTHEON ENGINEERS & CONSTRUCTORS
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** IEST - INTERACTIVE ESTIMATING **
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DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
325Z99	NON SPECIFIC AREA										
325Z99.17	DECONTAMINATION										
325Z99.1700021	PERSONAL PROTECTIVE EQUIPMNT PPE (LOW LEVEL)	810	18110 HR	0	0	0	69361	0	0	11445	80806
SUBTOTAL	DECONTAMINATION			0	0	0	69,361	0	0	11,445	80,806
	CONSUMABLES 6.00 %						4161				4161
	SALES TAX 7.80 %						5734		0		5734
	OH&P (ON MARKUPS ONLY)									1632	1632
TOTAL	COST CODE 81017			0	0	0	79,257	0	0	13,077	92,335
	WBS 325Z99										
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 325Z99 NON SPECIFIC AREA				0	0	0	79,257	0	0	13,077	92,335

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BY D. C. PRYOR

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
326Z99	NON SPECIFIC AREA										
326Z99.17	DECONTAMINATION										
326Z99.1700011	SURFACE DECONTAMINATION (HIGH LEVEL)	810	12000 SF	2772	118198	0	3000	0	0	19998	141196
326Z99.1700022	PERSONAL PROTECTIVE EQUIPMNT PPE (HIGH LEVEL)	810	2772 HR	0	0	0	14137	0	0	2333	16470
SUBTOTAL	DECONTAMINATION			2,772		0		0		22,331	
					118,198		17,137		0		157,666
	CONSUMABLES 6.00 %						1028				1028
	SALES TAX 7.80 %						1416		0		1416
	OH&P (OB MARKUPS ONLY)									403	403
TOTAL	COST CODE 81017			2,772		0		0		22,734	
	WBS 326Z99				118,198		19,582		0		160,514
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 326Z99 NON SPECIFIC AREA				2,772		0		0		22,734	
					118,198		19,582		0		160,514

RAYTHEON ENGINEERS & CONSTRUCTORS
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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
327Z99	NON SPECIFIC AREA										
327Z99.17	DECONTAMINATION										
327Z99.1700013	SURFACE DECONTAMINATION [VERY LOW LEVEL - LIGHT]	810	100000 SF	1900	81016	0	2500	0	0	13780	97296
327Z99.1700023	PERSONAL PROTECTIVE EQUIPMNT PPE (VERY LOW LEVEL - LIGHT)	810	1900 HR	0	0	0	4845	0	0	799	5644
SUBTOTAL	DECONTAMINATION			1,900		0		0		14,579	
					81,016		7,345		0		102,940
	CONSUMABLES 6.00 %						440				440
	SALES TAX 7 80 %						607		0		607
	OH&P (ON MARKUPS ONLY)									172	172
TOTAL	COST CODE 81017			1,900		0		0		14,751	
	WBS 327Z99				81,016		8,392		0		104,160
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 327Z99 NON SPECIFIC AREA				1,900		0		0		14,751	
					81,016		8,392		0		104,160

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
329Z99	NON SPECIFIC AREA										
329Z99.17	DECONTAMINATION										
329Z99.1700031	B - 25 WASTE CONTAINER (4' X 4' X 6') 96 cf	810	136 EA	61	2601	0	51000	0	0	8844	62445
329Z99.1700032	55 GALLON DRUM (7.35 cf)	810	376 EA	56	2388	0	16544	0	0	3124	22056
329Z99.1700033	SIZE REDUCTION, PACKAGING, & INVENTORY OF DECONTAMINATION EQUIPMENT AND ASSOCIATED WASTE STREAMS	810	1 LOT	2500	106600	0	90000	0	0	32439	229039
SUBTOTAL	DECONTAMINATION			2,617		0		0		44,407	
					111,589		157,544		0		313,540
	CONSUMABLES 6.00 %						9452				9452
	SALES TAX 7.80 %						13025		0		13025
	OH&P (ON MARKUPS ONLY)									3708	3708
TOTAL	COST CODE 81017			2,617		0		0		48,115	
	WBS 329Z99				111,589		180,022		0		339,727
	(ESCALATION 222.77% - CONTINGENCY 45.00 %)										
TOTAL WBS 329Z99 NON SPECIFIC AREA				2,617		0		0		48,115	
					111,589		180,022		0		339,727

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
410299	CONSTRUCTION MANAGEMENT		1								
410299.4000013	CONSTRUCTION MANAGEMENT (6 % OF TOTAL DIRECT COST)	050	1000 LOT	0	0	0	0	238370	0	0	238370
TOTAL WBS 410299 CONSTRUCTION MANAGEMENT				0	0	0	0	238,370	0	0	238,370

DOE R08 ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
510Z99	PROJECT MANAGEMENT										
510Z99.5000014	PROJECT MANAGEMENT (7 % of TDC, ENGR & CM)	060	1000 LOT	0	0	0	0	350400	0	0	350400
TOTAL WBS 510Z99 PROJECT MANAGEMENT				0	0	0	0	350,400	0	0	350,400

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				67,597	2,882,336	0	527,782	1,383,330	0	562,671	5,356,119

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WHC - WASTE MANAGEMENT
JOB NO. 6217 517 REV B

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DOE R01 - PROJECT COST SUMMARY

COST CODE	DESCRIPTION	ESCALATED TOTAL COST	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I & II ENGINEERING	15,130,000	35	5,290,000	20,420,000
030	TITLE III ENGINEERING	5,040,000	35	1,760,000	6,800,000
050	CONSTRUCTION MANAGEMENT	6,050,000	35	2,120,000	8,170,000
060	PROJECT MANAGEMENT	8,900,000	35	3,110,000	12,010,000
810	DEMOLITION	100,850,000	35	35,300,000	136,150,000
	(ADJUSTED TO MEET DOE $100.4)				
	PROJECT TOTAL	135,970,000	35	47,580,000	183,550,000

TYPE OF ESTIMATE	REMARKS:
ARCHITECT ENGINEER	
OPERATING CONTRACTOR	

(ROUNDED/ADJUSTED TO THE NEAREST " 10,000 / 100,000 " - PERCENTAGES NOT RECALCULATED TO REFLECT ROUNDING)

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** TEST - INTERACTIVE ESTIMATING **
DEMOLITION COST ONLY - ALTERNATIVE 4

DOE_R02 - WORK BREAKDOWN STRUCTURE SUMMARY

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BY D. C. PRYOR

WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
119Z99	TITLES I & II ENGINEERING	4686920	0	4686920	222.77	10441052	15127972	35	5294790	20422762
SUBTOTAL 11	DEFINITIVE DESIGN	4686920	0	4686920	222.77	10441052	15127972	35	5294790	20422762
129Z99	TITLE III ENGINEERING	1562310	0	1562310	222.77	3480358	5042668	35	1764934	6807602
SUBTOTAL 12	E/I DURING DECOMMISSIONING	1562310	0	1562310	222.77	3480358	5042668	35	1764934	6807602
SUBTOTAL 1	ENGINEERING	6249230	0	6249230	222.77	13921410	20170640	35	7059724	27230364
329Z99	NON SPECIFIC AREA	31246142	0	31246142	222.77	69607031	100853173	35	35298610	136151783
SUBTOTAL 32	FIXED PRICE DEMOLITION CONT	31246142	0	31246142	222.77	69607031	100853173	35	35298610	136151783
SUBTOTAL 3	DECOMMISSIONING	31246142	0	31246142	222.77	69607031	100853173	35	35298610	136151783
410Z99	CONSTRUCTION MANAGEMENT	1874770	0	1874770	222.77	4176425	6051195	35	2117918	8169113
SUBTOTAL 41	CONSTRUCTION MANAGEMENT	1874770	0	1874770	222.77	4176425	6051195	35	2117918	8169113
SUBTOTAL 4	CONSTRUCTION MANAGEMENT	1874770	0	1874770	222.77	4176425	6051195	35	2117918	8169113
510Z99	PROJECT MANAGEMENT	2755910	0	2755910	222.77	6139341	8895251	35	3113338	12008588
SUBTOTAL 51	PROJECT MANAGEMENT	2755910	0	2755910	222.77	6139341	8895251	35	3113338	12008588
SUBTOTAL 5	PROJECT INTEGRATION	2755910	0	2755910	222.77	6139341	8895251	35	3113338	12008588
PROJECT TOTAL		42,126,052	0	42,126,052	222.77	93,844,207	135,970,259	35	47,589,590	183,559,848

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** TEST INTERACTIVE ESTIMATING **
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DOE_R04 - COST CODE ACCOUNT SUMMARY

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COST CODE/WBS	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
010	TITLE I & II ENGINEERING									
119Z99	TITLES I & II ENGINEERING	4686920	0	4686920	222.77	10441052	15127972	35	5294790	20422762
TOTAL 010	TITLE I & II ENGINEERING	4686920	0	4686920	222.77	10441052	15127972	35	5294790	20422762
030	TITLE III ENGINEERING									
129Z99	TITLE III ENGINEERING	1562310	0	1562310	222.77	3480358	5042668	35	1764934	6807602
TOTAL 030	TITLE III ENGINEERING	1562310	0	1562310	222.77	3480358	5042668	35	1764934	6807602
050	CONSTRUCTION MANAGEMENT									
410Z99	CONSTRUCTION MANAGEMENT	1874770	0	1874770	222.77	4176425	6051195	35	2117918	8169113
TOTAL 050	CONSTRUCTION MANAGEMENT	1874770	0	1874770	222.77	4176425	6051195	35	2117918	8169113
060	PROJECT MANAGEMENT									
510Z99	PROJECT MANAGEMENT	2755910	0	2755910	222.77	6139341	8895251	35	3113338	12008588
TOTAL 060	PROJECT MANAGEMENT	2755910	0	2755910	222.77	6139341	8895251	35	3113338	12008588
810	DEMOLITION									
329Z99	NON SPECIFIC AREA	31246142	0	31246142	222.77	69607031	100853173	35	35298610	136151783
TOTAL 810	DEMOLITION	31246142	0	31246142	222.77	69607031	100853173	35	35298610	136151783
PROJECT TOTAL		42,126,052	0	42,126,052	222.77	93,844,207	135,970,259	35	47,589,590	183,559,848

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DOE_R05 - ESTIMATE SUMMARY BY CSI DIVISION

CSI	DESCRIPTION	ESTIMATE SUBTOTAL	ONSITE INDIRECTS	SUB TOTAL	ESCALATION %	ESCALATION TOTAL	SUB TOTAL	CONTINGENCY %	CONTINGENCY TOTAL	TOTAL DOLLARS
CONSTRUCTION										
18	DEMOLITION	31246142	0	31246142	222.77	69607031	100853173	35	35298610	136151783
33	TITLE I & II ENGINEERING	4686920	0	4686920	222.77	10441052	15127972	35	5294790	20422762
34	TITLE III ENGINEERING	1562310	0	1562310	222.77	3480358	5042668	35	1764934	6807602
40	CONSTRUCTION MANAGEMENT	1874770	0	1874770	222.77	4176425	6051195	35	2117918	8169113
50	PROJECT MANAGEMENT	2755910	0	2755910	222.77	6139341	8895251	35	3113338	12008588
TOTAL CONSTRUCTION		42,126,052	0	42,126,052	222.77	93,844,207	135,970,259	35	47,589,590	183,559,848
PROJECT TOTAL		42,126,052	0	42,126,052	222.77	93,844,207	135,970,259	35	47,589,590	183,559,848

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
119Z99	TITLES I & II ENGINEERING										
119Z99.1300011	TITLE I & II ENGINEERING 15% OF TOTAL DIRECT COST	010	1000 LOT	0	0	0	0	4686920	0	0	4686920
TOTAL WBS 119Z99 TITLES I & II ENGINEERING				0	0	0	0	4,686,920	0	0	4,686,920

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DEMOLITION COST ONLY - ALTERNATIVE 4

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
129Z99	TITLE III ENGINEERING										
129Z99.3400012	TITLE III ENGINEERING 5% OF TOTAL DIRECT COST	030	1000 LOT	0	0	0	0	1562310	0	0	1562310
TOTAL WBS 129Z99 TITLE III ENGINEERING				0	0	0	0	1,562,310	0	0	1,562,310

DOE H08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
329Z99	NON SPECIFIC AREA										
329Z99.18	DEMOLITION										
329Z99.1891010	CLEAR AND REMOVE TRASH AND UNSOLD SCRAP & DUNNAGE	810	100 CLS	5600	147616	0	214759	0	0	59792	422167
329Z99.1891011	REMOVE HAZARDOUS MATERIALS, WASHDOWN, AND DRAIN HOLES	810	100 CLS	480	12653	0	15033	0	0	4568	32254
329Z99.1891012	RESTORE LAYDOWN AREAS	810	100 CLS	2000	52720	0	66380	0	0	19652	138752
329Z99.1891013	REVEGETATE AND BLADE ROADS	810	100 CLS	0	0	0	84426	0	0	13930	98356
329Z99.1891014	REMOVE AND DEMOLISH UNSOLD TEMPORARY BUILDINGS	810	100 CLS	320	8435	0	3166	0	0	1914	13515
329Z99.1891015	DRILL AND FILL AREAS UNDER TEMPORARY BUILDINGS THAT WERE REMOVED	810	100 CLS	2560	67482	0	94320	0	0	26697	188499
329Z99.1891016	REMOVE PROTRUTIONS LEFT BY TEMPORARY BUILDINGS THAT WERE REMOVED	810	100 CLS	0	0	0	83750	0	0	13819	97569
329Z99.1891017	ADDITIONAL WASHDOWNS	810	100 CLS	0	0	0	22513	0	0	3715	26228
329Z99.1891018	CLEAR AND REMOVE TRASH AT RAILROAD TRACKS	810	100 CLS	5520	145507	0	176063	0	0	53059	374629
329Z99.1891019	REMOVE RAILROAD TRACKS AND TIES	810	100 CLS	0	0	0	87803	0	0	14487	102290
329Z99.1891020	RESTORE LAYDOWN AREAS AND ROADS	810	100 CLS	2560	67482	0	76617	0	0	23776	167875
329Z99.1891021	RESTORE RAILROAD AREAS	810	100 CLS	1760	46394	0	54416	0	0	16634	117444
329Z99.1891022	EROSION CONTROL	810	100 CLS	0	0	0	113131	0	0	18667	131798
329Z99.1891023	REVEGETATE AND DUST CONTROL	810	100 CLS	0	0	0	93657	0	0	15453	109110
329Z99.1891024	TGB - SALVAGE OPERATION CLEANUP	810	100 CLS	500	13180	0	13425	0	0	4390	30995
329Z99.1891025	TGB - STRUCTURAL DEMOLITION WITH DIAMOND WIRE SAW	810	100 CLS	480	12653	0	25000	385000	0	6213	428866
329Z99.1891026	TGB - MOUND OVER	810	100 CLS	840	22142	0	67400	0	0	14774	104316
329Z99.1891027	COOLING TOWERVER STRUCTURAL DEMOLITION	810	100 CLS	0	0	0	0	225000	0	0	225000
329Z99.1891028	COOLING TOWERVER BACKFILL AND COVER	810	100 CLS	4373	115272	0	276917	0	0	64711	456900
329Z99.1891029	CHEMICAL TREATMENT & AIR INTAKES (2) STRUCTURAL DEMOLITION	810	100 CLS	240	6326	0	5013	0	0	1871	13210
329Z99.1891030	CHEMICAL TREATMENT & AIR INTAKES (2) BACKFILL	810	100 CLS	12	316	0	1182	0	0	247	1745
329Z99.1891031	CHEMICAL TREATMENT & AIR INTAKES (2) COVER	810	100 CLS	2	53	0	246	0	0	49	348

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DOE R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
329Z99.1891032	TRANSFORMER YARD STRUCTURAL DEMOLITION	810	100 CLS	1440	37958	0	46434	0	0	13925	98317
329Z99.1891033	TRANSFORMER YARD STRUCTURAL DEMOLITION	810	100 CLS	998	26307	0	54033	0	0	13256	93596
329Z99.1891034	CIRCULATION WATER STRUCTURAL DEMOLITION	810	100 CLS	0	0	0	112360	251500	0	18539	382399
329Z99.1891035	CIRCULATION WATER BACKFILL AND COVER	810	100 CLS	4629	122020	0	293127	0	0	68499	483646
329Z99.1891036	MISCELLANEOUS TANKS AND FOUNDATIONS	810	100 CLS	213	5615	0	13508	0	0	3155	22278
329Z99.1891037	GENERAL SITE CLEAN UP	810	100 CLS	8725	229991	0	536952	0	0	126546	893489
329Z99.1891038	SIGNAGE	810	100 CLS	180	4745	0	5000	0	0	1608	11353
329Z99.1891039	ASBESTOS ABATEMENT ON THE COOLING TOWERS (3)	810	100 CLS	0	0	0	0	273561	0	0	273561
329Z99.1891040	CONTAINMENT BUILDING EQUIPMENT DEMOLITION	810	100 CLS	8000	210880	0	160000	0	0	61195	432075
329Z99.1891041	CONTAINMENT BUILDING STRUCTURAL DEMOLITION	810	100 CLS	8000	210880	0	4300000	9500000	0	744295	14755175
329Z99.1891042	CONTAINMENT BUILDING BACKFILL AND COVER	810	100 CLS	3367	88754	0	213173	0	0	49818	351745
329Z99.1891043	GSB - EQUIPMENT DEMOLITION	810	100 CLS	14000	369040	0	200000	0	0	93892	662932
329Z99.1891044	GSB - STRUCTURAL DEMOLITION	810	100 CLS	0	0	0	678864	1519737	0	112013	2310614
329Z99.1891045	GSB - STRUCTURAL DEMOLITION (ADDITIONAL REQUIREMENTS) (SUBCONTRACTOR PORTION)	810	100 CLS	0	0	0	1502079	3362625	0	247843	5112547
329Z99.1891046	GSB - BACKFILL AND COVER	810	100 CLS	9930	261755	0	628805	0	0	146942	1037502
329Z99.1891047	MISCELLANEOUS MATERIAL & EQUIPMENT	810	100 CLS	0	0	0	83853	0	0	13836	97689
SUBTOTAL	DEMOLITION			86,729	2,286,176	0	10,403,405	15,517,423	0	2,093,780	30,300,784
	SALES TAX 7.80 %						811465		0		811465
	OH&P (ON MARKUPS ONLY)									133891	133891
TOTAL	COST CODE 81018			86,729	2,286,176	0	11,214,870	15,517,423	0	2,227,671	31,246,141
	WBS 329Z99										
	(ESCALATION 222.77% - CONTINGENCY 35.00 %)										
TOTAL WBS 329Z99 NON SPECIFIC AREA				86,729	2,286,176	0	11,214,870	15,517,423	0	2,227,671	31,246,141

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DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
410Z99	CONSTRUCTION MANAGEMENT										
410Z99.4000013	CONSTRUCTION MANAGEMENT 6% OF TOTAL DIRECT COST	050	1000 LOT	0	0	0	0	1874770	0	0	1874770
TOTAL WBS 410Z99 CONSTRUCTION MANAGEMENT				0	0	0	0	1,874,770	0	0	1,874,770

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DOE_HOB - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
510Z99	PROJECT MANAGEMENT										
510Z99.5000014	PROJECT MANAGEMENT 7% OF TDC, ENGR, & CM	060	1000 LOT	0	0	0	0	2755910	0	0	2755910
TOTAL WBS 510Z99 PROJECT MANAGEMENT				0	0	0	0	2,755,910	0	0	2,755,910

DOE_R08 - ESTIMATE DETAIL BY WBS / COST CODE

ACCOUNT NUMBER	DESCRIPTION	COST CODE	QUANTITY	MANHOURS	LABOR	EQUIP USAGE	MATERIAL	SUB-CONTRACT	EQUIP-MENT	OH&P / B & I	TOTAL DOLLARS
REPORT TOTAL				86,729		0		26,397,333		2,227,671	
					2,286,176		11,214,870			0	42,126,051

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SOLID WASTE AND MATERIALS SYSTEMS ALTERNATIVES STUDY

VOLUME IV

APPENDIX B.5

Alternative 5 Detailed Cost Estimate

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B.5 ALTERNATIVE 5 COST SUMMARY

Existing baseline documents have been examined if an effort to obtain cost data for each of the projects described in Alternative 5. In some cases, the existing baseline does not specifically identify a project(s) or a path forward for certain waste streams and material processing or treatment. In these cases, assumptions have been made regarding current plans and costs. A summary of the existing baseline costs is provided in Table B.5-1.

B.5.1 HIGH-LEVEL WASTE CANISTER STORAGE

A "turn-key facility" estimate for this project, provided by Foster-Wheeler Energy Corporation, was $61,300,000, in 1990 dollars. The estimate was for storage of 2,000 HLW canisters, and included costs for a canister-shipping cask and a cask-loading facility at the HWVP site.

The Foster-Wheeler Energy Corporation estimate was based on the waste stream feed projected in 1990, and assumed that the facility would provide storage capacity for only 2,000 canisters that are physically smaller than the currently proposed canister size. Current waste stream projections show 6,800 HLW canisters being generated by the HLW Vitrification Process. It is not possible to accurately extrapolate the cost of a storage facility for the current number and size of canisters from the Foster-Wheeler estimate.

As part of Alternative 2 of the M-33 study, Kaiser Engineers Hanford (Kaiser) prepared an estimate for the construction of a modular storage facility of a different design other than the Foster-Wheeler design. The Kaiser estimate for a new HLW canister storage facility is $320 Million.

B.5.2 RH AND LARGE CONTAINER CH TRU AND LLMW PROCESSING

The WRAP-2B module was intended to provide processing for the TRU and LLMW streams that could not be accepted by WRAP-1 or WRAP-2A. Design and construction cost for the WRAP-2B Facility was estimated at $202 Million. This cost was derived from the cost estimates for the WRAP-2 complex and the WRAP-2A Facility, detailed in WHC-SD-W100-CDR-001 (1991), and TVW-SVV-364152 (1994).

The total design and construction costs estimated for the WRAP-2 Complex were $300 Million. The estimated design and construction costs of WRAP-2A totaled $139.9 Million. Assuming a 30% redundancy or overlap in functions between WRAP-2A and WRAP-2B, the WRAP-2B cost was estimated by subtracting 70% of the WRAP-2A costs from the total WRAP-2 CDR cost.

Annual operation and maintenance costs for this facility alternative were estimated at $48 Million.

Table B.5-1. Technical Baseline Cost Comparison.

WASTE STREAM/FUNCTION	FACILITY	CONSTRUCTION COST	OPERATING COST	LIFE-CYCLE COST	SOURCE
HLW Canister Storage	New Modular Storage Facility	$320 M	Not Available	Not Available	Kaiser Estimate for Alternative 2
RH and Large-Container CH TRU and LLMW Processing	WRAP-2B	$202 M	$48 M/YR	Not Available	Total WRAP-2 CDR estimate, less WRAP-2A cost.
RH and Large-Container CH TRU and LLMW Storage	CWC Expansion	(1)			
GTC3, RH Waste Storage	CWC Expansion	$272 M (1)	Not Available	Not Available	Estimate based on projected storage required and average cost per square foot.
GTC3, CH Waste Storage	CWC Expansion	$55 M (1)	Not Available	Not Available	Estimate based on projected storage required and average cost per square foot.
Hallam and SRE Sodium Processing	FFTF Sodium Reaction Facility	$30 M	Not Available	Not Available	Obtained from cost estimates for 2002 start date, converted to 1995 dollars.
Hallam and SRE Sodium Storage	2727 W Building and CWC	Not Applicable	Not Available	Not Available	
Unirradiated Uranium Storage	Existing 200 and 300 Area Facilities	Not Available	Not Available	Not Available	
Miscellaneous Source Storage	Interim Storage Facility (W-272)	$6 M	Not Available	Not Available	Project W-272 documentation.
	Interim Storage Facility (W-349)	$5 M	$1 M/YR	Not Available	Project W-349 documentation.
Cesium and Strontium Capsule Storage	WESF	$30 M	$17 M/YR	$671 M	Construction estimate from WESF staff. Operating cost from ADS documents.

(1) Cost of GTC III storage includes cost of RH and Large Container CH TRU and LLMW storage.

B.5.3 RH AND LARGE CONTAINER CH TRU AND LLMW STORAGE

At present, there are no facilities planned that will accommodate these waste streams. If facilities were constructed to store the projected volume of GTC-3 waste, then the surge capacity needed for pre- and post-processing storage at the RH and Large Container LLMW could be accommodated as well. Section B.5.4 provides a discussion of the GTC-3 storage costs.

B.5.4 GREATER THAN CATEGORY 3 LOW-LEVEL WASTE STORAGE

The required storage space for pre- and post-processing storage in any given year is a function of the waste generation and processing rates for the present and prior years. The maximum volume of waste to be stored occurs in the year 2023. All GTC-3 waste will require storage at that time. The total volume to be stored is 89,292 m^3. Of this, 42,589 m^3 is Remote-Handled and 46,703 m^3 is Contact-Handled.

The storage space in square feet can be calculated from the waste volumes if the container types are known. For purposes of this summary, all CH wastes were assumed to be in 200 liters drums and all RH wastes were assumed to be in 1.5 m x 1.5 m x 2.7 m metal boxes. Drums are stacked three high and metal boxes are stacked two high, with a 3-ft. aisle between rows, as required by WAC 173-303. The calculated storage areas are then 50,620 m^2 for CH wastes and 19,670 m^2 for RH wastes. The CWC phases I through V provide 26,010 m^2 of CH waste storage space, thus reducing the new construction CH storage requirements to 26,610 m^2. All of the RH storage space must be provided by new construction.

The total new construction costs for future CWC expansion are projected to be $55 Million for CH storage and $272 Million for RH storage. The costs for CWC Phase V, $26 Million, should be added to these totals.

To accommodate both pre- and post-processing storage requirements of other waste streams, it is recommended that the additional GTC-3 floor space be phased in ahead of the forecasted GTC-3 storage requirements curve. By using this type of storage strategy, the DOE could employ a single storage facility to store TRU (or any of the other waste streams with an identified final disposal option), before and after processing, and to store GTC-3 waste after the year 2023. In this manner, the whole storage complex could be constructed and filled gradually, over time, with a decreasing fraction of rotating inventory and an increasing fraction of GTC-3 waste, becoming filled to capacity in the year 2023 with GTC-3 waste. The following assumptions were made to arrive at the facility sizes and costs mentioned herein:

- Processed TRU waste will be shipped to WIPP beginning in the year 2002;
- LLMW will be disposed of in the Radioactive Mixed Waste RMW trench immediately after processing;
- Existing and planned CWC structures can be used to provide both pre- and post-storage functions for all waste streams;
- GTC III waste is the only waste stream which will require long term interim storage;

- The Project W-112 (CWC Phase V) current budget of $25 Million is a good cost estimate for bringing a 7,250 m^2. CH storage facility through the design, construction, and operational readiness phases; and
- Remote-Handled waste storage space will cost four times as much per square foot to design, construct, and make operational.

Contact-Handled GTC-3 Waste Storage:

- All Contact-Handled waste is in 200 liters drums;
- Array length is length of building (assume 60 m for calculation purposes);
- Array is comprised solely of drums and is 1.2 m wide;
- Drums are stacked 3 high as they are now at CWC; and
- Aisles are 1 m wide.

Calculations:

- Drum area = 6.1 m x 1.2 m =73 m^2;
- Matrix area = 61 m x 2.1 m = 128 m^2;
- Storage matrix floor efficiency = 73 m/128 m = 57%; and
- Matrix volume = 61 m. x (1 pallet / 1.2 m) x (4 drums / pallet) x 3 high x (0.2 m^3 / drum)
  = 120 m^3 / matrix

  Floor Space required = 64,000 m^3 CH waste x (1 array / 120 m^3) x (128 m^2/array)
  = 68,300 m^2.

Remote-Handled GTC-3 Waste Storage:

- All Remote-Handled waste is in 1.5 m x 1.5 m 2.7 m boxes;
- Assume array is comprised of 16 boxes, stacked two high, 4 end-to-end, 2 back-to-back; and
- Aisles are 1 m wide.

Calculations:

- Box Area = (4 boxes long) x (2.7 m / box) x (2 boxes wide) x (1.5 m / box) =32.4 m^2;
- Matrix Area = 12 m x 4 m = 48 m^2;
- Storage Matrix floor efficiency = 32.4 m/48 m = 67.5%; and
- Matrix volume = 48 m^2 x (1.5 m box height) x (2 boxes high) = 144 m^3.

  Floor Space required = 43,000 m^3 RH waste x (1 array / 144 m^3) x (48 m^3 / matrix)
  = 14,350 m^2.

B.5.5 HALLAM AND SRE SODIUM PROCESSING AT THE SODIUM REACTION FACILITY COST

The estimated cost of the Sodium Reaction Facility is $23 Million (escalated), assuming full conversion of the sodium to sodium carbonate; however, using the Argonne-proven design to produce only sodium hydroxide

should significantly reduce this amount. For planning purposes, estimates of the Sodium Reaction Facility startup, operation, and transition costs beyond fiscal year 2002 are an additional $13.5 Million in escalated dollars. Converting these costs to 1995 dollars results in $30 Million. Because the facility will have a relatively short operational lifetime, construction is expected to be as inexpensive as possible, consistent with the safety and environmental requirements. Delayed construction of the Sodium Reaction Facility will allow for full process development and testing by Argonne before the completion of the final design of the Sodium Reduction Facility. It will also allow for the costs of the construction project to be spread out throughout several years.

B.5.6 HALLAM AND SRE SODIUM STORAGE COST

The current path forward for disposing the Hallam and SRE sodium is to process the material at a commercial facility. The vendor would utilize the product material(s) for other commercial use. This option will require DOE funding since the processing costs will exceed the commercial value of the product materia (s). Because the vendor bids have not been evaluated, the cost for the commercial processing option is not known.

B.5.7 UNIRRADIATED URANIUM STORAGE

Modifications required to bring existing storage facilities into compliance are estimated at $400,000. Annual operating costs for the existing storage facilities are currently approximately $1.1 million.

B.5.8 MISCELLANEOUS SOURCE STORAGE

Storage of miscellaneous source inventories will be accomplished by two facilities. Project W-272 will provide the capabilities to transport the miscellaneous source inventories and store them in the Special Case Waste Interim Storage Facility. Project W-349 will provide the capabilities to transport the miscellaneous source inventories which also are state regulated hazardous wastes and store them in the Special Case Mixed Waste Interim Storage Facility. The storage system may be a horizontal or vertical system that meets the requirements of all functional design criteria. The storage system will be constructed on a reinforced concrete pad capable of housing the solid waste overpacks. The cask/module arrangement will be passively cooled by natural convection through ventilation. The storage system design will include provisions for future retrieval of solid waste overpacks. Project W-349 will provide the same features as Project W-272 and in addition provide features for compliance with dangerous waste regulations.

The total estimated cost of Project W-272 is $6,250,000, including escalation and contingency. Budgetary estimates show an estimated facility cost of $5,400,000 distributed from 1996 through 2000. Both projects assume expense costs of transportation services and capital costs of modules are assessed to the waste generator.

B.5.9 STRONTIUM AND CESIUM CAPSULE STORAGE COSTS

The baseline documentation identifies a number of on-site storage and canister overpacking options, including the WESF and the Canister Storage Building (CSB). Although future plans for canister storage and overpacking are not clear at present, the WESF is used for comparison purposes. Operating costs associated with B Plant to support the WESF were $30 million in fiscal year 1993. The upgrades costs for WESF to provide safe long-term storage of the Cs/Sr capsules were estimated by the WESF staff at $30 Million. Other rough estimates documented in previous reports range higher than $100 Million. Life-Cycle cost, based on information in the current Activity Data Sheets, is $671 Million.

In the Record Of Decision (ROD) Implementation Plan, for new Storage/Overpack Facility, the estimated cost for the overpacking, storage and disposal of the capsules is $210 Million. It is now assumed that this estimate will be exceeded, based on the delay in the opening of the high-level waste repository.