BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

FEATURE:

Klamath River Dams Removal
Partial Removal Option
Iron Gate Dam & Powerplant Removal
Escalation NOT Included
SUMMARY ESTIMATE

PROJECT: Klamath River, Northern California/Southern Oregon

WOID: AF652 | **ESTIMATE LEVEL:** Feasibility
REGION: MP | **PRICE LEVEL:** Jul-2010
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\[Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gate - Partial-without Esc

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir	8130	1	1	1	LS	$190,000.00	$200,000.00	$210,000.00	$190,000.00	$200,000.00	$210,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure	8130	0	0	0	LS				$0.00	$0.00	$0.00
	3	Remove Reinforced Concrete Ring Located D/S of Closeure Gate and U/S for Flap Gate	8130	31	31	31	CY	$1,300.00	$1,500.00	$1,800.00	$40,300.00	$46,500.00	$55,800.00
	4	Remove Reinforced Concrete Stoplog Structure	8130	3	3	3	CY	$170.00	$215.00	$380.00	$510.00	$645.00	$1,140.00
	5	Remove Water from behind Tailrace Cofferdam	8130	0	0	0	GAL				$0.00	$0.00	$0.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry	8130	0	0	0	LS				$0.00	$0.00	$0.00
	7	Construct Embankment Cofferdam across Tailrace to remove Powerhouse in dry	8130	0	0	0	CY				$0.00	$0.00	$0.00
	8	Construct 240-ft-long, 2-span concrete Bridge.	8130	0	0	7,440	SF	$200.00	$300.00	$600.00	$0.00	$0.00	$4,464,000.00
	9	Remove and dispose of existing bridge	8130	0	0	1	LS	$300,000.00	$400,000.00	$800,000.00	$0.00	$0.00	$800,000.00
	10	Upstream Cofferdam to be Removed in the Wet	8313	20,000	20,000	20,000	CY	$55.00	$70.00	$100.00	$1,100,000.00	$1,400,000.00	$2,000,000.00
	11	Remove 9' dia hinged blind flange	8420	19,000	19,000	19,000	LBS	$1.50	$2.00	$3.00	$28,500.00	$38,000.00	$57,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe	8420	2,900	2,900	2,900	LBS	$1.50	$2.00	$3.00	$4,350.00	$5,800.00	$8,700.00
	13	Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operator	8420	110,000	110,000	110,000	LBS	$12.00	$15.00	$18.00	$1,320,000.00	$1,650,000.00	$1,980,000.00
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension	8130	580	580	580	CY	$170.00	$215.00	$380.00	$98,600.00	$124,700.00	$220,400.00
	15	Remove Concrete in Diversion Tunnel Intake Structure	8130	530	530	530	CY	$170.00	$215.00	$380.00	$90,100.00	$113,950.00	$201,400.00
	16	Remove Concrete in Diversion Tunnel Gate Tower	8130	410	410	410	CY	$170.00	$215.00	$380.00	$69,700.00	$88,150.00	$155,800.00
	17	Remove Steel Footbridge to Gate Tower	8130	13,000	13,000	13,000	LBS	$0.85	$0.85	$1.00	$11,050.00	$11,050.00	$13,000.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment	8130	20	20	20	CY	$170.00	$215.00	$380.00	$3,400.00	$4,300.00	$7,600.00
	19	Place Concrete Plugs for Diversion Tunnel	8130	43	43	43	CY	$1,100.00	$1,200.00	$1,300.00	$47,300.00	$51,600.00	$55,900.00
	20	Remove Concrete Closure Gates in Gate Tower	8130	61	61	61	CY	$900.00	$1,000.00	$1,300.00	$54,900.00	$61,000.00	$79,300.00
	21	Remove Upstream Riprap	8313	80,000	80,000	80,000	CY	$10.00	$13.00	$17.00	$800,000.00	$1,040,000.00	$1,360,000.00
	22	Remove Downstream Riprap	8313	30,000	30,000	30,000	CY	$10.00	$13.00	$17.00	$300,000.00	$390,000.00	$510,000.00
	23	Miscellaneous Excavation	8313	880,000	880,000	925,000	CY	$10.00	$13.00	$17.00	$8,800,000.00	$11,440,000.00	$15,725,000.00
	24	Cutoff Wall Concrete Demolition	8313	1,000	1,250	1,500	CY	$170.00	$215.00	$380.00	$170,000.00	$268,750.00	$570,000.00
	25	Earth Fill Crest Raise	8313	13,000	13,000	13,000	CY	$10.00	$13.00	$17.00	$130,000.00	$169,000.00	$221,000.00
	26	Sheetpile Crest Raise	8313	800	800	800	LF	$200.00	$250.00	$300.00	$160,000.00	$200,000.00	$240,000.00
	27	Remove 5 monitoring wells	8313	5	5	5	EA	$1,900.00	$2,000.00	$2,200.00	$9,500.00	$10,000.00	$11,000.00
	28	Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H	8420	4,500	4,500	4,500	LBS	$0.60	$0.85	$1.00	$2,700.00	$3,825.00	$4,500.00
	29	Remove and Dispose of Intake structure	8420	72,000	72,000	72,000	LBS	$0.60	$0.70	$0.85	$43,200.00	$50,400.00	$61,200.00
	30	Remove and Dispose of Sluice and Diversion Tunnel Gate	8420	28,000	28,000	28,000	LBS	$0.60	$0.85	$1.00	$16,800.00	$23,800.00	$28,000.00
	31	Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft.	8420	7,500	7,500	7,500	LBS	$0.60	$0.85	$1.00	$4,500.00	$6,375.00	$7,500.00
	32	Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft.	8420	4,650	4,650	4,650	LBS	$1.50	$2.00	$3.00	$6,975.00	$9,300.00	$13,950.00
	33	Remove and Dispose of Transition Gate Structure	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	34	Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft.	8420	30,250	30,250	30,250	LBS	$1.50	$2.00	$3.00	$45,375.00	$60,500.00	$90,750.00
	35	Remove and Dispose of Outlet Works Stop Logs	8420	2,670	2,670	2,670	LBS	$0.60	$0.85	$1.00	$1,602.00	$2,269.50	$2,670.00
	36	Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel	8430	1	1	1	EA	$300.00	$350.00	$400.00	$300.00	$350.00	$400.00
	37	Remove and Dispose of Distribution equipment , Junction Boxes	8430	1	1	1	EA	$1,500.00	$1,700.00	$2,000.00	$1,500.00	$1,700.00	$2,000.00
	38	Remove and Dispose of Power Cable and 4"Conduit from Penstock Structure	8430	800	800	800	FT	$30.00	$35.00	$40.00	$24,000.00	$28,000.00	$32,000.00
	39	Remove Powerhouse Concrete	8130	0	0	0	CY				$0.00	$0.00	$0.00
	40	Remove and Dispose of Turbine Unit	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	41	Remove and Dispose of Draft Tube Bulkheads	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	42	Remove and Dispose of Crane	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	43	Remove and Dispose of Governor	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	44	Remove and Dispose of Bearing Oil System and Cooling Water System	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	45	Remove and Dispose of CO2 System	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	46	Remove and Dispose of Plant Water and Fire Protection System	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	47	Remove and Dispose of Sump Pumps	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	48	Remove and Dispose of Pumps	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	49	Remove and Dispose of Exposed Piping around the plant	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	50	Remove and Dispose of Unwatering Piping	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	51	Remove and Dispose of Drainage Piping	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	52	Remove and Dispose of Transformer Oil and Fire Protection	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	53	Remove and Dispose of Compressed Air System	8420	0	0	0	LBS				$0.00	$0.00	$0.00
	53A	Remove Petroleum Products from Mechanical Equipment	8420	1,100	1,100	1,100	GAL	$9.00	$10.00	$12.00	$9,900.00	$11,000.00	$13,200.00
	54	Remove and Dispose of AC Generator, Outdoor Horizontal	8430	0	0	0	EA				$0.00	$0.00	$0.00

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REGION: MP **PRICE LEVEL:** Jul-2010

FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\[Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gate - Partial-without Esc

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	55	Remove and Dispose of Excitation equipment for 18.975 MVA Generator	8430	0	0	0	EA				$0.00	$0.00	$0.00
	56	Remove and Dispose of Surge protection equip. for 18.975 MVA Generator	8430	0	0	0	EA				$0.00	$0.00	$0.00
	57	Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generator	8430	0	0	0	EA				$0.00	$0.00	$0.00
	58	Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	0	0	0	EA				$0.00	$0.00	$0.00
	59	Remove and Dispose of Unit and plant control switchboard	8430	0	0	0	EA				$0.00	$0.00	$0.00
	60	Remove and Dispose of Battery system - assume 60 batteries, charger,	8430	1	1	1	EA	$9,000.00	$10,000.00	$12,000.00	$9,000.00	$10,000.00	$12,000.00
	61	Remove and Dispose of Raceways, Bus, Conduit and Cable	8430	0	0	0	EA				$0.00	$0.00	$0.00
	62	Remove and Dispose of Misc. power & control boards	8430	0	0	0	EA				$0.00	$0.00	$0.00
	63	Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V est.)	8430	0	0	0	EA				$0.00	$0.00	$0.00
	64	Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp est.)	8430	0	0	0	EA				$0.00	$0.00	$0.00
	65	Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.)	8430	4	4	4	EA	$500.00	$600.00	$700.00	$2,000.00	$2,400.00	$2,800.00
	66	Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est.)	8430	1	1	1	EA	$9,000.00	$10,000.00	$13,000.00	$9,000.00	$10,000.00	$13,000.00
	67	Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase,	8430	1	1	1	EA	$90,000.00	$100,000.00	$120,000.00	$90,000.00	$100,000.00	$120,000.00
	68	Remove and Dispose of Lattice steel structure, with 69-kV disconnect	8430	1	1	1	EA	$4,000.00	$5,000.00	$6,000.00	$4,000.00	$5,000.00	$6,000.00
	69	Remove and Dispose of Generator Switchgear, outdoor, 7.2kV	8430	1	1	1	EA	$30,000.00	$35,000.00	$40,000.00	$30,000.00	$35,000.00	$40,000.00
	70	Remove and Dispose of Single Phase Pole Transformers. (25 kVA est.)	8430	3	3	3	EA	$1,500.00	$2,000.00	$3,000.00	$4,500.00	$6,000.00	$9,000.00
	71	Remove Concrete in Penstock Intake Structure	8130	460	460	460	CY	$170.00	$215.00	$380.00	$78,200.00	$98,900.00	$174,800.00
	72	Remove Concrete in Penstock Encasement	8130	840	840	840	CY	$170.00	$215.00	$380.00	$142,800.00	$180,600.00	$319,200.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	8130	1,900	1,900	1,900	CY	$170.00	$215.00	$380.00	$323,000.00	$408,500.00	$722,000.00
	74	Remove Steel Footbridge to Intake Stucture	8130	11,000	11,000	11,000	LBS	$0.60	$0.85	$1.00	$6,600.00	$9,350.00	$11,000.00
	75	Remove Concrete in Intake Structure Footbridge Abutment	8130	5	5	5	CY	$170.00	$215.00	$380.00	$850.00	$1,075.00	$1,900.00
	76	Remove and Dispose of Intake Structure	8420	131,630	131,630	131,630	LBS	$0.60	$0.85	$1.00	$78,978.00	$111,885.50	$131,630.00
	77	Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft.	8420	1,800	1,800	1,800	LBS	$0.60	$0.85	$1.00	$1,080.00	$1,530.00	$1,800.00
	78	Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft	8420	1,350	1,350	1,350	LBS	$0.60	$0.85	$1.00	$810.00	$1,147.50	$1,350.00
	79	Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft.	8420	1,600	1,600	1,600	LBS	$0.60	$0.85	$1.00	$960.00	$1,360.00	$1,600.00
	80	Remove and Dispose of Gage Wells	8420	2,612	2,612	2,612	LBS	$0.60	$0.85	$1.00	$1,567.20	$2,220.20	$2,612.00
	81	Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft.	8420	7,440	7,440	7,440	LBS	$0.60	$0.85	$1.00	$4,464.00	$6,324.00	$7,440.00
	82	Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft.	8420	294,428	294,428	294,428	LBS	$0.60	$0.85	$1.00	$176,656.80	$250,263.80	$294,428.00
	83	Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft.	8420	12,850	12,850	12,850	LBS	$0.60	$0.85	$1.00	$7,710.00	$10,922.50	$12,850.00
	84	Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia.	8420	18,000	18,000	18,000	LBS	$0.60	$0.85	$1.00	$10,800.00	$15,300.00	$18,000.00
	85	Remove & Dispose Overhead Trolley Crane Motor (4hp est)& controls	8430	1	1	1	EA	$900.00	$1,000.00	$1,300.00	$900.00	$1,000.00	$1,300.00
	86	Remove & Dispose Distribution equipment , Junction Boxes	8430	1	1	1	EA	$2,000.00	$2,500.00	$3,000.00	$2,000.00	$2,500.00	$3,000.00
	87	Remove & Dispose Power Cable and Conduit	8430	1	1	1	EA	$65,000.00	$70,000.00	$75,000.00	$65,000.00	$70,000.00	$75,000.00
	88	Temporary Access Roads	8140	2.6	2.6	2.6	MILE	$150,000.00	$300,000.00	$250,000.00	$390,000.00	$780,000.00	$650,000.00
	89	Spring Ground Seeding	8220	370	370	0	ACRE	$3,000.00	$3,500.00	$4,000.00	$1,110,000.00	$1,295,000.00	$0.00
	90	Spring Barge Seeding	8220	296	296	0	ACRE	$5,000.00	$6,500.00	$8,000.00	$1,480,000.00	$1,924,000.00	$0.00
	91	Spring Aerial Seeding	8220	159	159	825	ACRE	$6,500.00	$7,500.00	$15,000.00	$1,033,500.00	$1,192,500.00	$12,375,000.00
	92	Fall Ground Seeding	8220	207	413	619	ACRE	$3,000.00	$3,500.00	$4,000.00	$621,000.00	$1,445,500.00	$2,476,000.00
	93	Riparian Pole Planting	8220	50	50	50	ACRE	$4,000.00	$8,500.00	$10,000.00	$200,000.00	$425,000.00	$500,000.00
	94	Weed Management	8220	206	413	619	ACRE	$1,000.00	$1,500.00	$2,000.00	$206,000.00	$619,500.00	$1,238,000.00
	95	Fall Ground Seeding	8220	330	330	330	ACRE	$3,000.00	$3,500.00	$4,000.00	$990,000.00	$1,155,000.00	$1,320,000.00
	96	Weed Management	8220	330	330	330	ACRE	$1,000.00	$1,500.00	$2,000.00	$330,000.00	$495,000.00	$660,000.00
	97	Clear and Grub Disposal Area	8313	29	29	29	ACRE	$5,000.00	$6,000.00	$7,000.00	$145,000.00	$174,000.00	$203,000.00
	98	Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi	8313	0	13,500	17,000	CY	$35.00	$40.00	$45.00	$0.00	$540,000.00	$765,000.00
	99	Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi	8313	0	5	5	ACRE	$5,000.00	$6,000.00	$7,000.00	$0.00	$30,000.00	$35,000.00
	100	4' thick gravel surfacing-Prepare Haul Road - 1.25 mi	8313	0	5,300	5,300	TON	$60.00	$70.00	$80.00	$0.00	$371,000.00	$424,000.00
	101	Remove Building No. 2	8130	800	800	800	SF	$55.00	$60.00	$65.00	$44,000.00	$48,000.00	$52,000.00
	102	Remove Building No. 3	8130	1,088	1,088	1,088	SF	$55.00	$60.00	$65.00	$59,840.00	$65,280.00	$70,720.00
	103	Remove Concrete in Fish Ladder	8130	950	950	950	CY	$170.00	$215.00	$380.00	$161,500.00	$204,250.00	$361,000.00
	104	Remove Concrete in Holding Ponds #1 thru #6	8130	420	420	420	CY	$170.00	$215.00	$380.00	$71,400.00	$90,300.00	$159,600.00
	105	Remove Concrete in Fish Facility Items	8130	380	380	380	CY	$170.00	$215.00	$380.00	$64,600.00	$81,700.00	$144,400.00
	106	Remove Miscellaneous Metalwork in Fish Facilities	8130	12,000	12,000	12,000	LBS	$0.60	$0.85	$1.00	$7,200.00	$10,200.00	$12,000.00
	107	Remove Concrete associated with 30"-dia. Water Supply Line	8130	68	68	68	CY	$170.00	$215.00	$380.00	$11,560.00	$14,620.00	$25,840.00
	108	Remove Concrete in Aerator Structure	8130	50	50	50	CY	$170.00	$215.00	$380.00	$8,500.00	$10,750.00	$19,000.00
	109	Remove Wood in Aerator Structure	8130	6,000	6,000	6,000	LBS	$0.65	$0.70	$0.85	$3,900.00	$4,200.00	$5,100.00
	110	Remove Structural Steel in Aerator Structure	8130	2,500	2,500	2,500	LBS	$0.60	$0.85	$1.00	$1,500.00	$2,125.00	$2,500.00

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	111	Remove Asphalt Pavement	8130	39,000	39,000	39,000	SF	$5.00	$6.00	$7.00	$195,000.00	$234,000.00	$273,000.00
	112	Remove Restroom Building near Aerator Structure	8130	340	340	340	SF	$55.00	$60.00	$65.00	$18,700.00	$20,400.00	$22,100.00
	113	Remove Storage Shed near Aerator Structure	8130	90	90	90	SF	$55.00	$60.00	$65.00	$4,950.00	$5,400.00	$5,850.00
	114	Remove Toe Drain Pipe	8313	260	260	260	LF	$15.00	$20.00	$25.00	$3,900.00	$5,200.00	$6,500.00
	115	Remove Toe Drain Manhole	8313	25	25	25	LF	$45.00	$50.00	$55.00	$1,125.00	$1,250.00	$1,375.00
	116	Berm Removal	8313	53,000	53,000	53,000	CY	$10.00	$13.00	$17.00	$530,000.00	$689,000.00	$901,000.00
	117	Remove and Dipose of Intake Structures Trashracks	8420	5,000	5,000	5,000	LBS	$0.60	$0.75	$0.85	$3,000.00	$3,750.00	$4,250.00
	118	Remove and Dipose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft.	8420	76,640	76,640	76,640	LBS	$0.60	$0.85	$1.00	$45,984.00	$65,144.00	$76,640.00
	119	Remove and Dipose of Sluice Gate Valve- 30-in. H. x x30-in. W.	8420	3,000	3,000	3,000	LBS	$0.60	$0.85	$1.00	$1,800.00	$2,550.00	$3,000.00
	120	Remove and Dipose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft.	8420	360	360	360	LBS	$0.60	$0.85	$1.00	$216.00	$306.00	$360.00
	121	Remove and Dipose of Butterfly Valve- 30-in. Dia.	8420	2,435	2,435	2,435	LBS	$0.60	$0.85	$1.00	$1,461.00	$2,069.75	$2,435.00
	122	Remove and Dipose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft.	8420	7,200	7,200	7,200	LBS	$0.60	$0.85	$1.00	$4,320.00	$6,120.00	$7,200.00
	123	Remove and Dipose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft.	8420	15,872	15,872	15,872	LBS	$0.60	$0.85	$1.00	$9,523.20	$13,491.20	$15,872.00
	124	Remove and Dipose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft.	8420	4,505	4,505	4,505	LBS	$0.60	$0.85	$1.00	$2,703.00	$3,829.25	$4,505.00
	125	Remove and Dipose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft.	8420	29,088	29,088	29,088	LBS	$0.60	$0.85	$1.00	$17,452.80	$24,724.80	$29,088.00
	126	Remove and Dipose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft.	8420	6,972	6,972	6,972	LBS	$0.60	$0.85	$1.00	$4,183.20	$5,926.20	$6,972.00
	127	Remove and Dipose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft.	8420	2,176	2,176	2,176	LBS	$0.60	$0.85	$1.00	$1,305.60	$1,849.60	$2,176.00
	128	Remove and Dipose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft.	8420	1,932	1,932	1,932	LBS	$0.60	$0.85	$1.00	$1,159.20	$1,642.20	$1,932.00
	129	Remove and Dipose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft.	8420	3,588	3,588	3,588	LBS	$0.60	$0.85	$1.00	$2,152.80	$3,049.80	$3,588.00
	130	Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft.	8420	1,088	1,088	1,088	LBS	$0.60	$0.85	$1.00	$652.80	$924.80	$1,088.00
	131	Remove and Dipose of Gate Valves	8420	21,792	21,792	21,792	LBS	$0.60	$0.85	$1.00	$13,075.20	$18,523.20	$21,792.00
	132	Remove and Dipose of Basin #1	8420	2,880	2,880	2,880	LBS	$0.60	$0.85	$1.00	$1,728.00	$2,448.00	$2,880.00
	133	Remove and Dipose of Basin #2	8420	3,860	3,860	3,860	LBS	$0.60	$0.85	$1.00	$2,316.00	$3,281.00	$3,860.00
	134	Remove and Dipose of Basin #3	8420	2,880	2,880	2,880	LBS	$0.60	$0.85	$1.00	$1,728.00	$2,448.00	$2,880.00
	135	Remove and Dipose of Basin #4	8420	3,580	3,580	3,580	LBS	$0.60	$0.85	$1.00	$2,148.00	$3,043.00	$3,580.00
	136	Remove and Dipose of Basin #5	8420	1,440	1,440	1,440	LBS	$0.60	$0.85	$1.00	$864.00	$1,224.00	$1,440.00
	137	Remove and Dipose of Basin #6	8420	1,440	1,440	1,440	LBS	$0.60	$0.85	$1.00	$864.00	$1,224.00	$1,440.00
	138	Remove and Dipose of Holding Tank	8420	7,400	7,400	7,400	LBS	$0.60	$0.85	$1.00	$4,440.00	$6,290.00	$7,400.00
	139	Remove and Dipose of Misc: motors, control panels, cables and conduit	8430	1	1	1	EA	$1,000.00	$1,500.00	$2,000.00	$1,000.00	$1,500.00	$2,000.00
	140	Concrete total-Wanaka Springs	BLM	28	28	28	CY	$200.00	$300.00	$400.00	$5,600.00	$8,400.00	$11,200.00
	141	Double pipe railings-Wanaka Springs	BLM	60	60	60	LF	$35.00	$40.00	$45.00	$2,100.00	$2,400.00	$2,700.00
	142	Wood picnic tables to be removed and hauled -Wanaka Springs	BLM	5	5	5	EA	$90.00	$100.00	$120.00	$450.00	$500.00	$600.00
	143	25'X5' Wooden floating dock -Wanaka Springs	BLM	125	125	125	SF	$15.00	$20.00	$25.00	$1,875.00	$2,500.00	$3,125.00
	144	Rip and reseed site and access road-Wanaka Springs	BLM	2.5	2.5	2.5	ACRE	$20,000.00	$25,000.00	$30,000.00	$50,000.00	$62,500.00	$75,000.00
	145	Signs to be removed and hauled away-Wanaka Springs	BLM	3	3	3	EA	$250.00	$300.00	$350.00	$750.00	$900.00	$1,050.00
	146	15'x5' Gangplank with railings-Wanaka Springs	BLM	75.00	75.00	75.00	SF	$15.00	$20.00	$25.00	$1,125.00	$1,500.00	$1,875.00
	147	Concrete total-Juniper Point	BLM	19.00	19.00	19.00	CY	$200.00	$300.00	$400.00	$3,800.00	$5,700.00	$7,600.00
	148	2, 4'x4' Concrete toilet vaults-Juniper Point	BLM	32.00	32.00	32.00	SF	$90.00	$100.00	$120.00	$2,880.00	$3,200.00	$3,840.00
	149	Wood picnic tables to be removed and hauled -Juniper Point	BLM	8.00	8.00	8.00	EA	$90.00	$100.00	$120.00	$720.00	$800.00	$960.00
	150	Signs to be removed and hauled away-Juniper Point	BLM	4	4	4	EA	$250.00	$300.00	$350.00	$1,000.00	$1,200.00	$1,400.00
	151	Dock pipe railing-Juniper Point	BLM	50	50	50	LF	$35.00	$40.00	$45.00	$1,750.00	$2,000.00	$2,250.00
	152	50'x5' Composite dock with poly floats-Juniper Point	BLM	250	250	250	SF	$15.00	$20.00	$25.00	$3,750.00	$5,000.00	$6,250.00
	153	20'x5' Composite gangplank with railings-Juniper Point	BLM	100	100	100	SF	$15.00	$20.00	$25.00	$1,500.00	$2,000.00	$2,500.00
	154	Bury 3' dia boulders on site-Juniper Point	BLM	50	50	50	EA				$0.00	$0.00	$0.00
	155	Regrade to natural contour, rip and reseed-Juniper Point	BLM	2	2	2	ACRE	$20,000.00	$25,000.00	$30,000.00	$40,000.00	$50,000.00	$60,000.00
	156	Concrete total-Camp Creek	BLM	110	110	110	CY	$200.00	$300.00	$400.00	$22,000.00	$33,000.00	$44,000.00
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek	BLM	855	855	855	CY	$20.00	$25.00	$30.00	$17,100.00	$21,375.00	$25,650.00
	158	Well house 10'x16' concrete block building-Camp Creek	BLM	160	160	160	SF	$90.00	$100.00	$120.00	$14,400.00	$16,000.00	$19,200.00
	159	2, 20'x5' Composite decking gangplanks-Camp Creek	BLM	200	200	200	SF	$15.00	$20.00	$25.00	$3,000.00	$4,000.00	$5,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame -Camp Creek	BLM	200	200	200	SF	$15.00	$20.00	$25.00	$3,000.00	$4,000.00	$5,000.00
	161	Concrete block double toilet bldg 10'x16'-Camp Creek	BLM	160	160	160	SF	$90.00	$100.00	$120.00	$14,400.00	$16,000.00	$19,200.00
	162	Dump stations and approx. 2000 gal buried -Camp Creek	BLM	1	1	1	EA	$4,000.00	$5,000.00	$6,000.00	$4,000.00	$5,000.00	$6,000.00
	163	Power poles and lines-Camp Creek	BLM	3	3	3	POLES	$1,000.00	$1,500.00	$2,000.00	$3,000.00	$4,500.00	$6,000.00
	164	Remove waterlines and 3 faucets and regrade-Camp Creek	BLM	600	600	600	LF	$4.00	$5.00	$6.00	$2,400.00	$3,000.00	$3,600.00
	165	Recycle/bury approx. 3' dia. boulders-Camp Creek	BLM	5	5	5	EA				$0.00	$0.00	$0.00
	166	Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek	BLM	5	5	5	EA	$90.00	$100.00	$120.00	$450.00	$500.00	$600.00

ESTIMATE WORKSHEET

FEATURE:

Klamath River Dams Removal
Partial Removal Option
Iron Gate Dam & Powerplant Removal
Escalation NOT Included
SUMMARY ESTIMATE

PROJECT: Klamath River, Northern California/Southern Oregon

WOID: AF652 | **ESTIMATE LEVEL:** Feasibility
REGION: MP | **PRICE LEVEL:** Jul-2010
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\[Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gate - Partial-without Esc

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	167	Relocate concrete tables-Camp Creek	BLM	12	12	12	EA	$90.00	$100.00	$120.00	$1,080.00	$1,200.00	$1,440.00
	168	Regrade, rip and reseed-Camp Creek	BLM	4	4	4	ACRE	$20,000.00	$25,000.00	$30,000.00	$80,000.00	$100,000.00	$120,000.00
	169	Signs to be removed and hauled away-Camp Creek	BLM	7	7	7	EA	$250.00	$300.00	$350.00	$1,750.00	$2,100.00	$2,450.00
	170	50'x4'x3' Dock concrete abutment-Dutch Creek	BLM	22	22	22	CY	$200.00	$300.00	$400.00	$4,400.00	$6,600.00	$8,800.00
	171	Double pipe railing-Dutch Creek	BLM	100	100	100	LF	$35.00	$40.00	$45.00	$3,500.00	$4,000.00	$4,500.00
	172	Concrete total-Mirror Cove	BLM	89	89	89	CY	$200.00	$300.00	$400.00	$17,800.00	$26,700.00	$35,600.00
	173	10'x16' Toilet vault-Mirror Cove	BLM	160	160	160	SF	$90.00	$100.00	$120.00	$14,400.00	$16,000.00	$19,200.00
	174	2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove	BLM	300	300	300	SF	$15.00	$20.00	$25.00	$4,500.00	$6,000.00	$7,500.00
	175	Double pipe railings on dock-Mirror Cove	BLM	80	80	80	LF	$35.00	$40.00	$45.00	$2,800.00	$3,200.00	$3,600.00
	176	Bury 3' dia. boulders on site-Mirror Cove	BLM	120	120	120	EA				$0.00	$0.00	$0.00
	177	Regrade site, rip and reseed-Mirror Cove	BLM	3	3	3	ACRE	$20,000.00	$25,000.00	$30,000.00	$60,000.00	$75,000.00	$90,000.00
	178	Signs to be removed and hauled away-Mirror Cove	BLM	7	7	7	EA	$250.00	$300.00	$350.00	$1,750.00	$2,100.00	$2,450.00
	179	1 Concrete picnic table base-Overlook Point	BLM	1	1	1	CY	$200.00	$300.00	$400.00	$200.00	$300.00	$400.00
	180	Steel frame table to be removed and hauled away-Overlook Point	BLM	1	1	1	EA	$90.00	$100.00	$120.00	$90.00	$100.00	$120.00
	181	Regrade steep access road and site to natural contours, rip and reseed-Overlook Point	BLM	0.5	0.5	0.5	ACRE	$20,000.00	$25,000.00	$30,000.00	$10,000.00	$12,500.00	$15,000.00
	182	80'x25'x4" Concrete boat ramp to be removed-Long Gulch	BLM	25	25	25	CY	$200.00	$300.00	$400.00	$5,000.00	$7,500.00	$10,000.00
	183	Remove picnic tables (steel frame with planks) & haul away-Long Gulch	BLM	2	2	2	EA	$90.00	$100.00	$120.00	$180.00	$200.00	$240.00
	184	Regrade ramp area to natural contours, rip, reseed-Long Gulch	BLM	0.05	0.05	0.05	ACRE	$20,000.00	$25,000.00	$30,000.00	$1,000.00	$1,250.00	$1,500.00
		Subtotal 1									$22,862,689.80	$31,481,501.80	$54,737,683.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	$1,150,000.00	$1,550,000.00	$2,700,000.00	$1,150,000.00	$1,550,000.00	$2,700,000.00
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP)											
		NOT INCLUDED											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	$1,987,310.20	$2,968,498.20	$8,241,250.00	$1,987,310.20	$2,968,498.20	$8,241,250.00
		APS = Allowance for Procurement		1	1	1	ls	$0.00	$0.00	$1,321,067.00	$0.00	$0.00	$1,321,067.00
		Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)											
		CONTRACT COST									**$26,000,000.00**	**$36,000,000.00**	**$67,000,000.00**
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	$5,000,000.00	$8,000,000.00	$17,000,000.00	$5,000,000.00	$8,000,000.00	$17,000,000.00
		FIELD COST									**$31,000,000.00**	**$44,000,000.00**	**$84,000,000.00**
		Non-Contract Cost (MPL ~ 62%; MP ~ 65%; MPH ~ 71%)		1	1	1	ls	$19,000,000.00	$29,000,000.00	$61,000,000.00	$19,000,000.00	$29,000,000.00	$61,000,000.00
		CONSTRUCTION COST									**$50,000,000.00**	**$73,000,000.00**	**$145,000,000.00**

Notes: This estimate does not include non-contract costs and should not be used for funding purposes.
Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES			PRICES		
BY	See Group Worksheets	CHECKED: See Group Worksheets	BY	Craig Grush, P.E.	CHECKED
DATE PREPARED	1/20/2011	PEER REVIEW: See Group Worksheets	DATE PREPARED	06/09/11	PEER REVIEW

06-09-11
06/10/11

Crystal Ball Report - Full
Simulation started on 6/10/2011 at 9:57:37
Simulation stopped on 6/10/2011 at 9:59:04

Run preferences:	
Number of trials run	10,000
Monte Carlo	
Seed	999
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	87.95
Trials/second (average)	114
Random numbers per sec	35,703
Crystal Ball data:	
Assumptions	314
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY Craig A. Grusby

DATE 6/10/2011

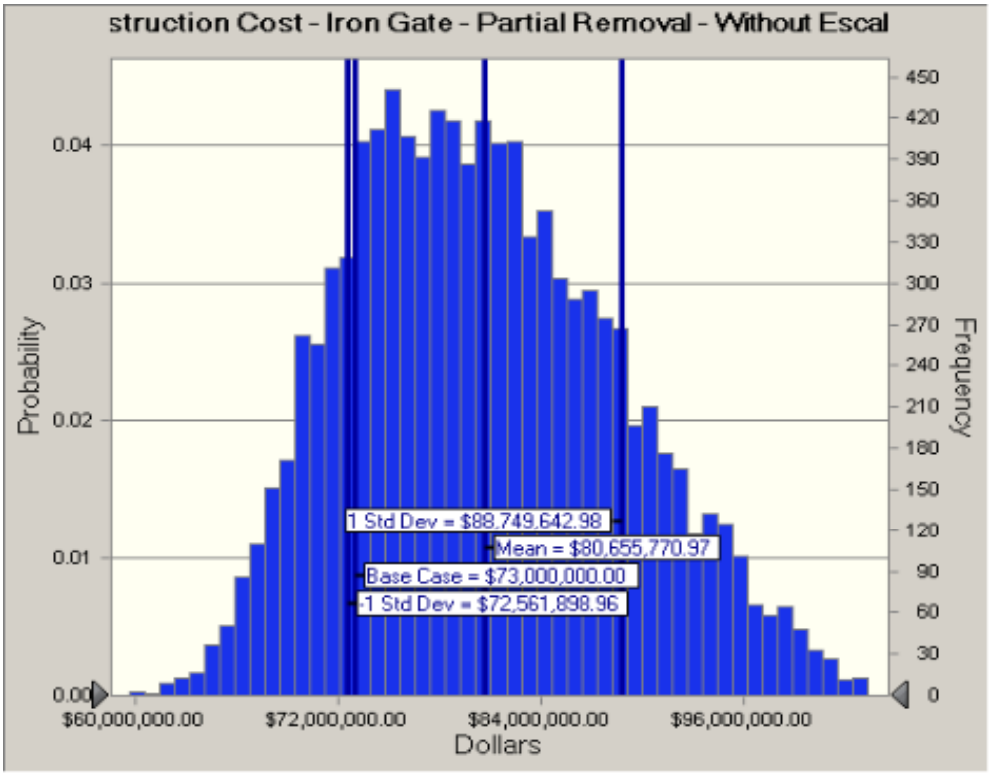
DATE	PEER REVIEWER(S)	CODE
6/13 2011	Signature	92 CB170
	Signature	
	Printed Name	
Author Initials	PEER REVIEW NOT REQUIRED	

Forecasts

Worksheet: [Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gat

Forecast: Construction Cost - Iron Gate - Partial Removal - Without Escalation **Cell: U213**

Summary:
Entire range is from $59,628,216.89 to $112,210,033.22
Base case is $73,000,000.00
After 10,000 trials, the std. error of the mean is $80,938.72



Forecast: Construction Cost - Iron Gate - Partial Removal - Without Escalation (cont'd) **Cell: U213**

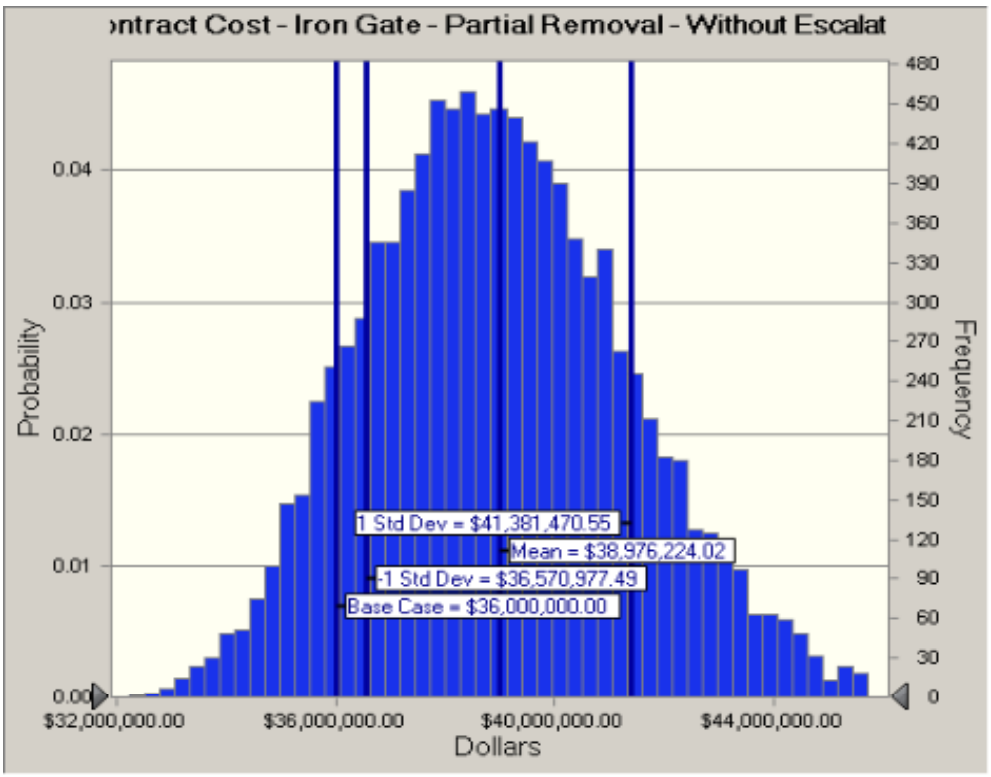
Statistics:	Forecast values
Trials	10,000
Mean	$80,655,770.97
Median	$79,976,487.07
Mode	---
Standard Deviation	$8,093,872.01
Variance	$65,510,764,135,266.40
Skewness	0.4055
Kurtosis	2.80
Coeff. of Variability	0.1004
Minimum	$59,628,216.89
Maximum	$112,210,033.22
Range Width	$52,581,816.32
Mean Std. Error	$80,938.72

Percentiles:	Forecast values
0%	$59,628,216.89
10%	$70,682,901.57
20%	$73,468,191.57
30%	$75,603,656.13
40%	$77,789,689.74
50%	$79,976,275.24
60%	$82,158,206.59
70%	$84,638,947.52
80%	$87,695,453.96
90%	$91,761,720.85
100%	$112,210,033.22

Forecast: Contract Cost - Iron Gate - Partial Removal - Without Escalation **Cell: U209**

Summary:

Entire range is from $31,131,097.71 to $50,493,623.02
Base case is $36,000,000.00
After 10,000 trials, the std. error of the mean is $24,052.47



Forecast: Contract Cost - Iron Gate - Partial Removal - Without Escalation (cont'd) Cell: U209

Statistics:	Forecast values
Trials	10,000
Mean	$38,976,224.02
Median	$38,853,244.63
Mode	---
Standard Deviation	$2,405,246.53
Variance	$5,785,210,871,411.96
Skewness	0.3132
Kurtosis	3.07
Coeff. of Variability	0.0617
Minimum	$31,131,097.71
Maximum	$50,493,623.02
Range Width	$19,362,525.31
Mean Std. Error	$24,052.47

Percentiles:	Forecast values
0%	$31,131,097.71
10%	$35,948,919.72
20%	$36,894,129.27
30%	$37,624,782.99
40%	$38,241,315.11
50%	$38,853,047.21
60%	$39,468,762.12
70%	$40,159,658.85
80%	$40,962,370.88
90%	$42,148,355.91
100%	$50,493,623.02

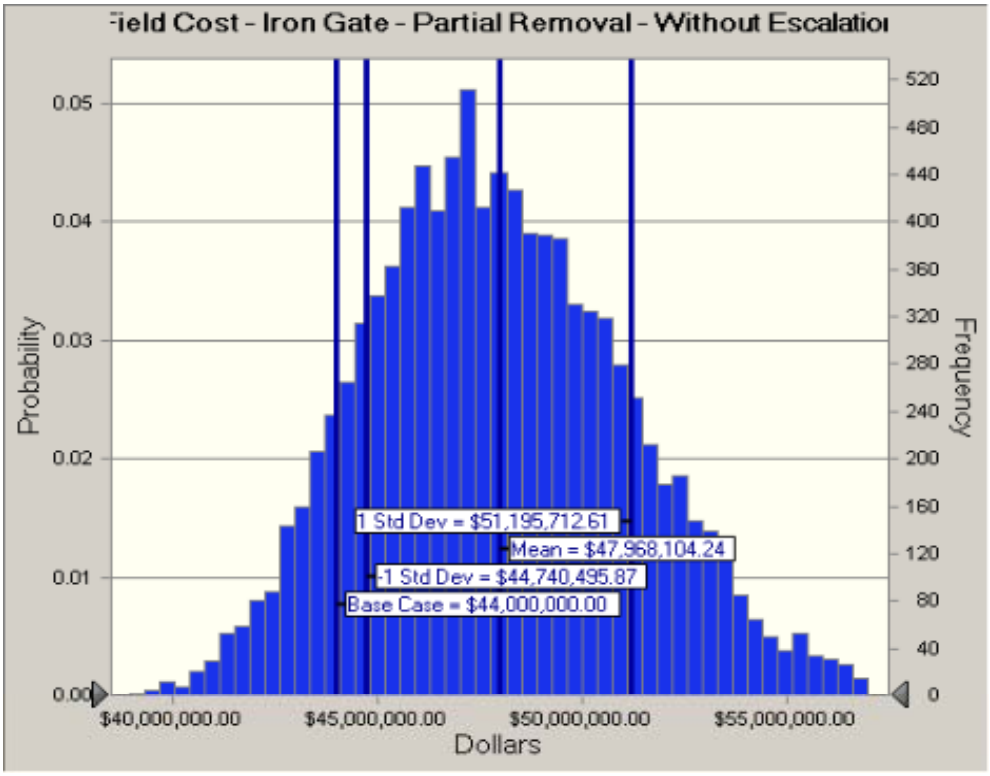
Forecast: Field Cost - Iron Gate - Partial Removal - Without Escalation **Cell: U211**

Summary:

Entire range is from $38,364,725.39 to $62,227,069.23

Base case is $44,000,000.00

After 10,000 trials, the std. error of the mean is $32,276.08



Forecast: Field Cost - Iron Gate - Partial Removal - Without Escalation (cont'd) **Cell: U211**

Statistics:	Forecast values
Trials	10,000
Mean	$47,968,104.24
Median	$47,760,415.30
Mode	---
Standard Deviation	$3,227,608.37
Variance	$10,417,455,796,011.10
Skewness	0.3025
Kurtosis	2.94
Coeff. of Variability	0.0673
Minimum	$38,364,725.39
Maximum	$62,227,069.23
Range Width	$23,862,343.84
Mean Std. Error	$32,276.08

Percentiles:	Forecast values
0%	$38,364,725.39
10%	$43,922,591.27
20%	$45,181,435.71
30%	$46,112,379.85
40%	$46,959,852.20
50%	$47,759,546.56
60%	$48,634,405.46
70%	$49,569,096.78
80%	$50,696,119.83
90%	$52,293,940.01
100%	$62,227,069.23

End of Forecasts

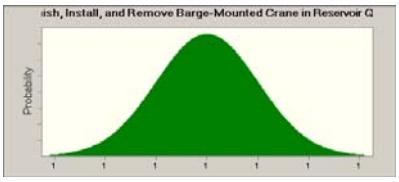
Assumptions

Worksheet: [Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gat

Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Quantity **Cell: L14**

Normal distribution with parameters:

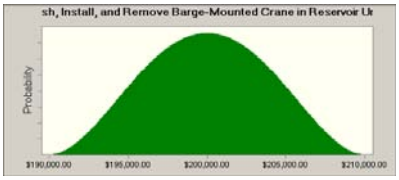
Mean	1	(=L14)
Std. Dev.	0	(=0.000001)



Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Unit Price **Cell: R14**

BetaPERT distribution with parameters:

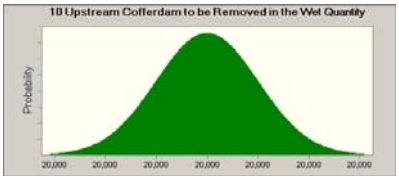
Minimum	$190,000.00	(=Q14)
Likeliest	$200,000.00	(=R14)
Maximum	$210,000.00	(=S14)



Assumption: 10 Upstream Cofferdam to be Removed in the Wet Quantity **Cell: L23**

Normal distribution with parameters:

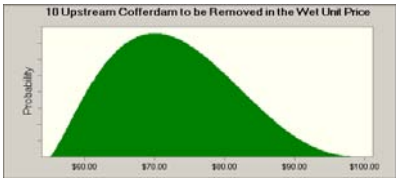
Mean	20,000	(=L23)
Std. Dev.	0	(=0.000001)



Assumption: 10 Upstream Cofferdam to be Removed in the Wet Unit Price **Cell: R23**

BetaPERT distribution with parameters:

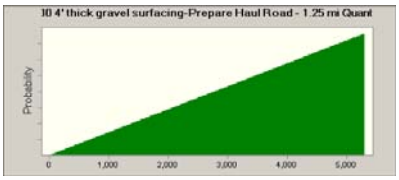
Minimum	$55.00	(=Q23)
Likeliest	$70.00	(=R23)
Maximum	$100.00	(=S23)



Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Quantity **Cell: L114**

Triangular distribution with parameters:

Minimum	0	(=K114)
Likeliest	5,300	(=L114)
Maximum	5,300	(=M114)



Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Unit Price **Cell: R114**

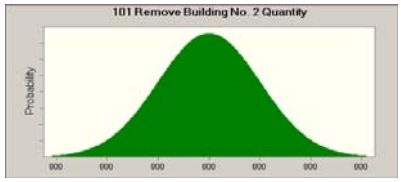
BetaPERT distribution with parameters:

Minimum	$60.00	(=Q114)
Likeliest	$70.00	(=R114)
Maximum	$80.00	(=S114)

Assumption: 101 Remove Building No. 2 Quantity **Cell: L115**

Normal distribution with parameters:

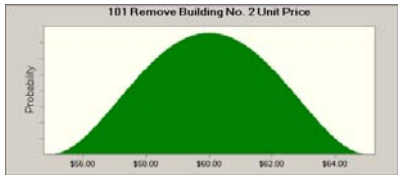
Mean	800	(=L115)
Std. Dev.	0	(=0.000001)



Assumption: 101 Remove Building No. 2 Unit Price **Cell: R115**

BetaPERT distribution with parameters:

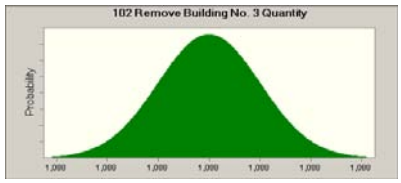
Minimum	$55.00	(=Q115)
Likeliest	$60.00	(=R115)
Maximum	$65.00	(=S115)



Assumption: 102 Remove Building No. 3 Quantity **Cell: L116**

Normal distribution with parameters:

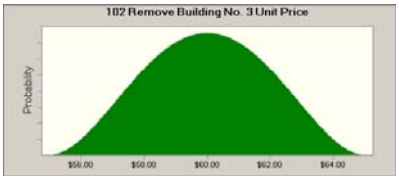
Mean	1,088	(=L116)
Std. Dev.	0	(=0.000001)



Assumption: 102 Remove Building No. 3 Unit Price **Cell: R116**

BetaPERT distribution with parameters:

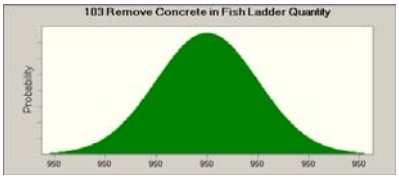
Minimum	$55.00	(=Q116)
Likeliest	$60.00	(=R116)
Maximum	$65.00	(=S116)



Assumption: 103 Remove Concrete in Fish Ladder Quantity **Cell: L117**

Normal distribution with parameters:

Mean	950	(=L117)
Std. Dev.	0	(=0.000001)



Assumption: 103 Remove Concrete in Fish Ladder Unit Price **Cell: R117**

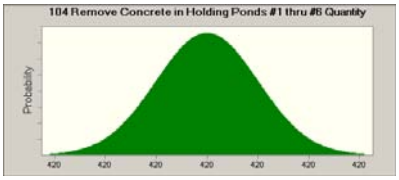
BetaPERT distribution with parameters:

Minimum	$170.00	(=Q117)
Likeliest	$215.00	(=R117)
Maximum	$380.00	(=S117)

Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Quantity **Cell: L118**

Normal distribution with parameters:

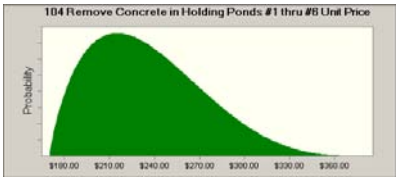
Mean	420	(=L118)
Std. Dev.	0	(=0.000001)



Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Unit Price **Cell: R118**

BetaPERT distribution with parameters:

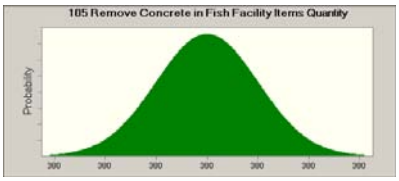
Minimum	$170.00	(=Q118)
Likeliest	$215.00	(=R118)
Maximum	$380.00	(=S118)



Assumption: 105 Remove Concrete in Fish Facility Items Quantity **Cell: L119**

Normal distribution with parameters:

Mean	380	(=L119)
Std. Dev.	0	(=0.000001)



Assumption: 105 Remove Concrete in Fish Facility Items Unit Price **Cell: R119**

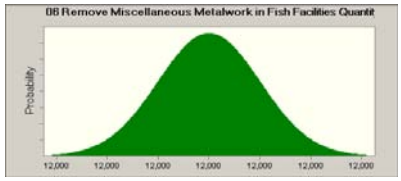
BetaPERT distribution with parameters:

Minimum	$170.00	(=Q119)
Likeliest	$215.00	(=R119)
Maximum	$380.00	(=S119)

Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Quantity **Cell: L120**

Normal distribution with parameters:

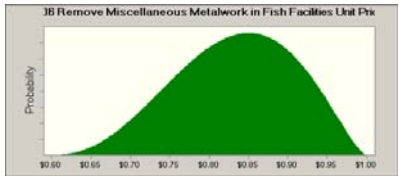
Mean	12,000	(=L120)
Std. Dev.	0	(=0.000001)



Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Unit Price **Cell: R120**

BetaPERT distribution with parameters:

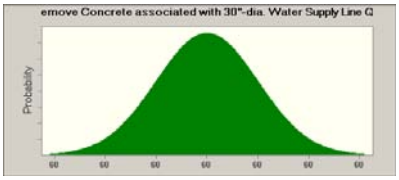
Minimum	$0.60	(=Q120)
Likeliest	$0.85	(=R120)
Maximum	$1.00	(=S120)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Quantity **Cell: L121**

Normal distribution with parameters:

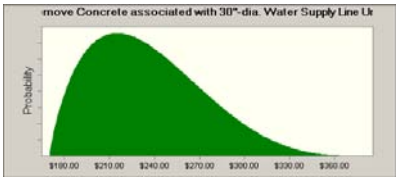
Mean	68	(=L121)
Std. Dev.	0	(=0.000001)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Unit Price **Cell: R121**

BetaPERT distribution with parameters:

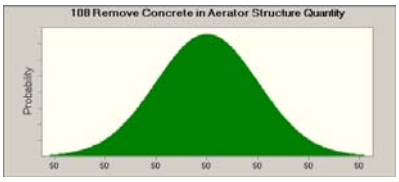
Minimum	$170.00	(=Q121)
Likeliest	$215.00	(=R121)
Maximum	$380.00	(=S121)



Assumption: 108 Remove Concrete in Aerator Structure Quantity **Cell: L122**

Normal distribution with parameters:

Mean	50	(=L122)
Std. Dev.	0	(=0.000001)



Assumption: 108 Remove Concrete in Aerator Structure Unit Price **Cell: R122**

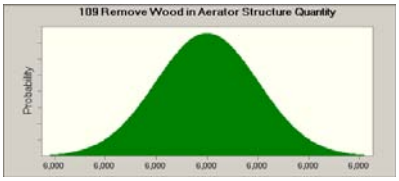
BetaPERT distribution with parameters:

Minimum	$170.00	(=Q122)
Likeliest	$215.00	(=R122)
Maximum	$380.00	(=S122)

Assumption: 109 Remove Wood in Aerator Structure Quantity **Cell: L123**

Normal distribution with parameters:

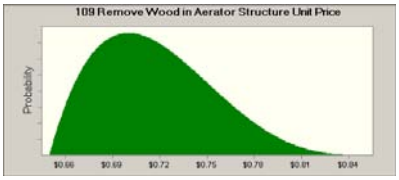
Mean	6,000	(=L123)
Std. Dev.	0	(=0.000001)



Assumption: 109 Remove Wood in Aerator Structure Unit Price **Cell: R123**

BetaPERT distribution with parameters:

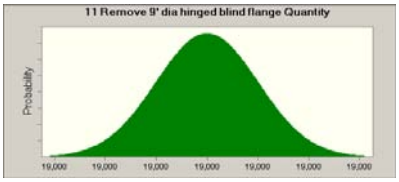
Minimum	$0.65	(=Q123)
Likeliest	$0.70	(=R123)
Maximum	$0.85	(=S123)



Assumption: 11 Remove 9' dia hinged blind flange Quantity **Cell: L24**

Normal distribution with parameters:

Mean	19,000	(=L24)
Std. Dev.	0	(=0.000001)



Assumption: 11 Remove 9' dia hinged blind flange Unit Price **Cell: R24**

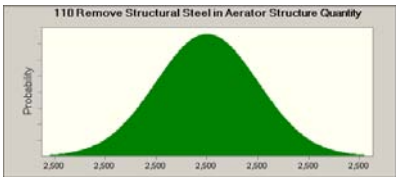
BetaPERT distribution with parameters:

Minimum	$1.50	(=Q24)
Likeliest	$2.00	(=R24)
Maximum	$3.00	(=S24)

Assumption: 110 Remove Structural Steel in Aerator Structure Quantity **Cell: L124**

Normal distribution with parameters:

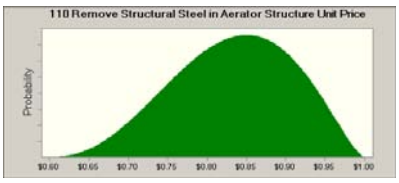
Mean	2,500	(=L124)
Std. Dev.	0	(=0.000001)



Assumption: 110 Remove Structural Steel in Aerator Structure Unit Price **Cell: R124**

BetaPERT distribution with parameters:

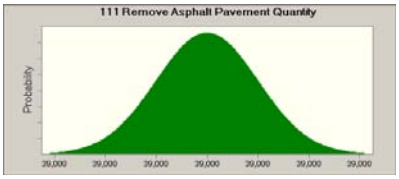
Minimum	$0.60	(=Q124)
Likeliest	$0.85	(=R124)
Maximum	$1.00	(=S124)



Assumption: 111 Remove Asphalt Pavement Quantity **Cell: L125**

Normal distribution with parameters:

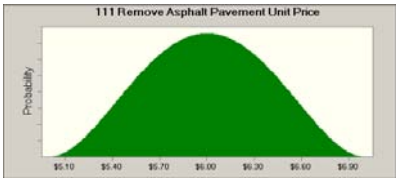
Mean	39,000	(=L125)
Std. Dev.	0	(=0.000001)



Assumption: 111 Remove Asphalt Pavement Unit Price **Cell: R125**

BetaPERT distribution with parameters:

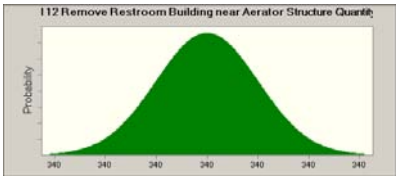
Minimum	$5.00	(=Q125)
Likeliest	$6.00	(=R125)
Maximum	$7.00	(=S125)



Assumption: 112 Remove Restroom Building near Aerator Structure Quantity **Cell: L126**

Normal distribution with parameters:

Mean	340	(=L126)
Std. Dev.	0	(=0.000001)



Assumption: 112 Remove Restroom Building near Aerator Structure Unit Price **Cell: R126**

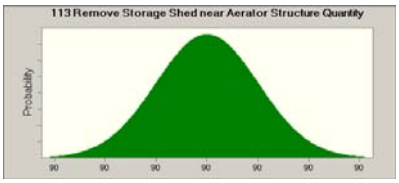
BetaPERT distribution with parameters:

Minimum	$55.00	(=Q126)
Likeliest	$60.00	(=R126)
Maximum	$65.00	(=S126)

Assumption: 113 Remove Storage Shed near Aerator Structure Quantity **Cell: L127**

Normal distribution with parameters:

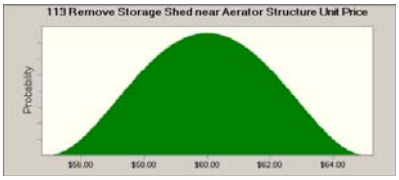
Mean	90	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 113 Remove Storage Shed near Aerator Structure Unit Price **Cell: R127**

BetaPERT distribution with parameters:

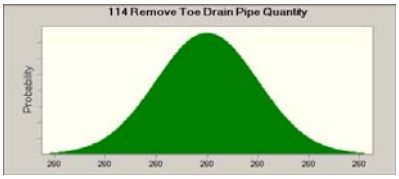
Minimum	$55.00	(=Q127)
Likeliest	$60.00	(=R127)
Maximum	$65.00	(=S127)



Assumption: 114 Remove Toe Drain Pipe Quantity **Cell: L128**

Normal distribution with parameters:

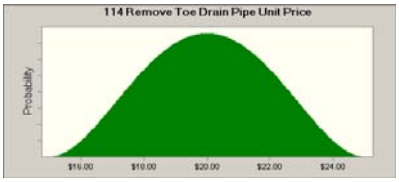
Mean	260	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 114 Remove Toe Drain Pipe Unit Price **Cell: R128**

BetaPERT distribution with parameters:

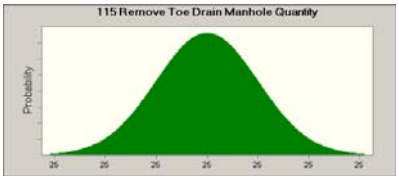
Minimum	$15.00	(=Q128)
Likeliest	$20.00	(=R128)
Maximum	$25.00	(=S128)



Assumption: 115 Remove Toe Drain Manhole Quantity **Cell: L129**

Normal distribution with parameters:

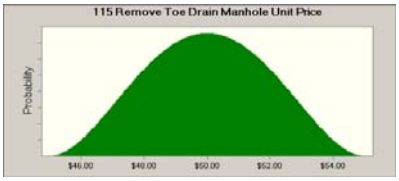
Mean	25	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 115 Remove Toe Drain Manhole Unit Price **Cell: R129**

BetaPERT distribution with parameters:

Minimum	$45.00	(=Q129)
Likeliest	$50.00	(=R129)
Maximum	$55.00	(=S129)



Assumption: 116 Berm Removal Quantity **Cell: L130**

Normal distribution with parameters:

Mean	53,000	(=L130)
Std. Dev.	0	(=0.000001)

Assumption: 116 Berm Removal Unit Price **Cell: R130**

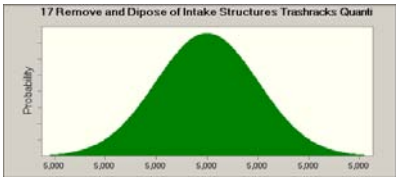
BetaPERT distribution with parameters:

Minimum	$10.00	(=Q130)
Likeliest	$13.00	(=R130)
Maximum	$17.00	(=S130)

Assumption: 117 Remove and Dipose of Intake Structures Trashracks Quantity **Cell: L131**

Normal distribution with parameters:

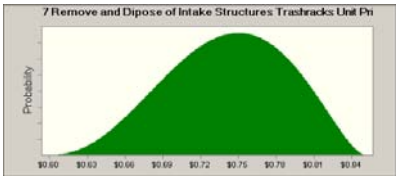
Mean	5,000	(=L131)
Std. Dev.	0	(=0.000001)



Assumption: 117 Remove and Dipose of Intake Structures Trashracks Unit Price **Cell: R131**

BetaPERT distribution with parameters:

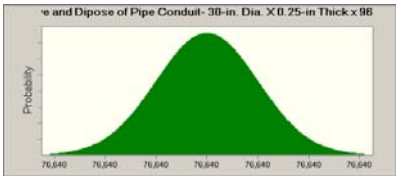
Minimum	$0.60	(=Q131)
Likeliest	$0.75	(=R131)
Maximum	$0.85	(=S131)



Assumption: 118 Remove and Dipose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 98 Cell: L132

Normal distribution with parameters:

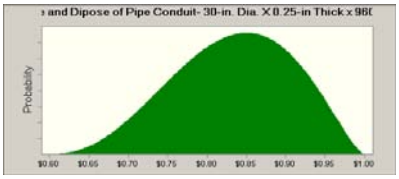
Mean	76,640	(=L132)
Std. Dev.	0	(=0.000001)



Assumption: 118 Remove and Dipose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 98 Cell: R132

BetaPERT distribution with parameters:

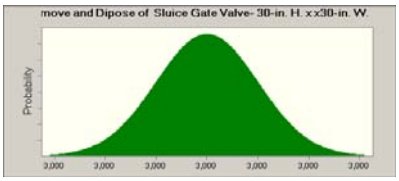
Minimum	$0.60	(=Q132)
Likeliest	$0.85	(=R132)
Maximum	$1.00	(=S132)



Assumption: 119 Remove and Dipose of Sluice Gate Valve- 30-in. H. x x30-in. W. Quantity Cell: L133

Normal distribution with parameters:

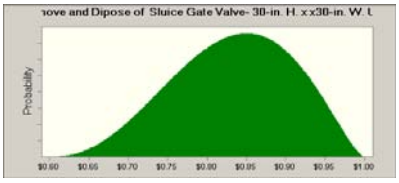
Mean	3,000	(=L133)
Std. Dev.	0	(=0.000001)



Assumption: 119 Remove and Dipose of Sluice Gate Valve- 30-in. H. x x30-in. W. Unit Price **Cell: R133**

BetaPERT distribution with parameters:

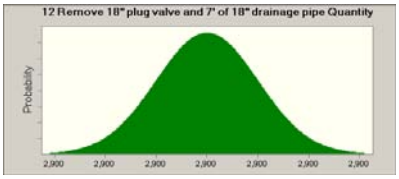
Minimum	$0.60	(=Q133)
Likeliest	$0.85	(=R133)
Maximum	$1.00	(=S133)



Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Quantity **Cell: L25**

Normal distribution with parameters:

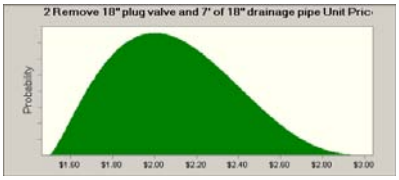
Mean	2,900	(=L25)
Std. Dev.	0	(=0.000001)



Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Unit Price **Cell: R25**

BetaPERT distribution with parameters:

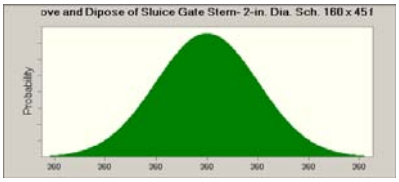
Minimum	$1.50	(=Q25)
Likeliest	$2.00	(=R25)
Maximum	$3.00	(=S25)



Assumption: 120 Remove and Dipose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft Quan **Cell: L134**

Normal distribution with parameters:

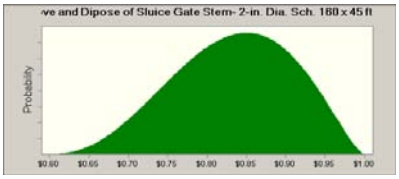
Mean	360	(=L134)
Std. Dev.	0	(=0.000001)



Assumption: 120 Remove and Dipose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft Unit R **Cell: R134**

BetaPERT distribution with parameters:

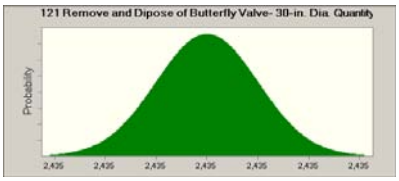
Minimum	$0.60	(=Q134)
Likeliest	$0.85	(=R134)
Maximum	$1.00	(=S134)



Assumption: 121 Remove and Dipose of Butterfly Valve- 30-in. Dia. Quantity **Cell: L135**

Normal distribution with parameters:

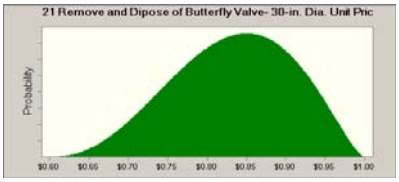
Mean	2,435	(=L135)
Std. Dev.	0	(=0.000001)



Assumption: 121 Remove and Dipose of Butterfly Valve- 30-in. Dia. Unit Price **Cell: R135**

BetaPERT distribution with parameters:

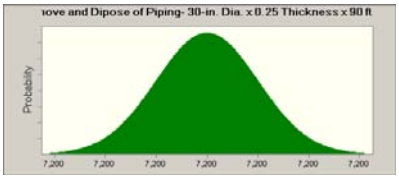
Minimum	$0.60	(=Q135)
Likeliest	$0.85	(=R135)
Maximum	$1.00	(=S135)



Assumption: 122 Remove and Dipose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Quantity **Cell: L136**

Normal distribution with parameters:

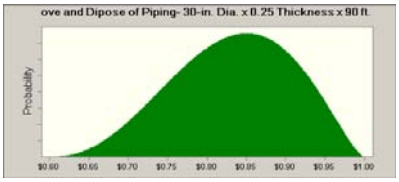
Mean	7,200	(=L136)
Std. Dev.	0	(=0.000001)



Assumption: 122 Remove and Dipose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Unit Price **Cell: R136**

BetaPERT distribution with parameters:

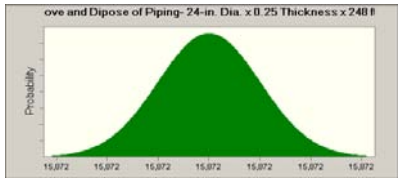
Minimum	$0.60	(=Q136)
Likeliest	$0.85	(=R136)
Maximum	$1.00	(=S136)



Assumption: 123 Remove and Dipose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Quan **C137**

Normal distribution with parameters:

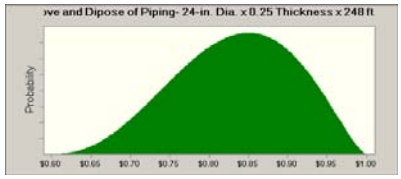
Mean	15,872	(=L137)
Std. Dev.	0	(=0.000001)



Assumption: 123 Remove and Dipose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Unit **C137**

BetaPERT distribution with parameters:

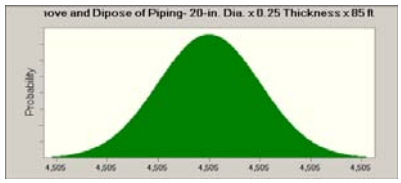
Minimum	$0.60	(=Q137)
Likeliest	$0.85	(=R137)
Maximum	$1.00	(=S137)



Assumption: 124 Remove and Dipose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Quan **C138**

Normal distribution with parameters:

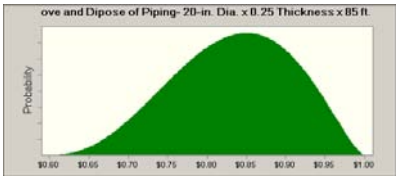
Mean	4,505	(=L138)
Std. Dev.	0	(=0.000001)



Assumption: 124 Remove and Dipose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft.Cell: R138

BetaPERT distribution with parameters:

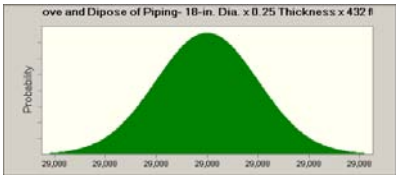
Minimum	$0.60	(=Q138)
Likeliest	$0.85	(=R138)
Maximum	$1.00	(=S138)



Assumption: 125 Remove and Dipose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft.Cell: L139

Normal distribution with parameters:

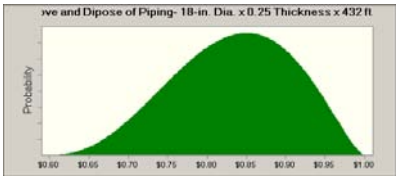
Mean	29,088	(=L139)
Std. Dev.	0	(=0.000001)



Assumption: 125 Remove and Dipose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft.Cell: R139

BetaPERT distribution with parameters:

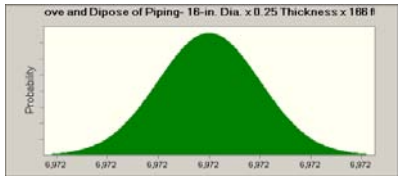
Minimum	$0.60	(=Q139)
Likeliest	$0.85	(=R139)
Maximum	$1.00	(=S139)



Assumption: 126 Remove and Dipose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quan **Cell: L140**

Normal distribution with parameters:

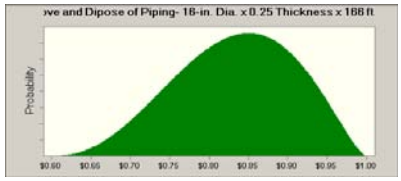
Mean	6,972	(=L140)
Std. Dev.	0	(=0.000001)



Assumption: 126 Remove and Dipose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Unit **Cell: R140**

BetaPERT distribution with parameters:

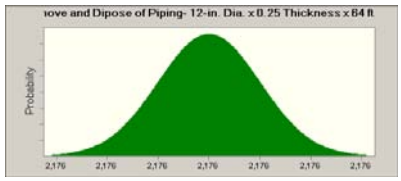
Minimum	$0.60	(=Q140)
Likeliest	$0.85	(=R140)
Maximum	$1.00	(=S140)



Assumption: 127 Remove and Dipose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Quan **Cell: L141**

Normal distribution with parameters:

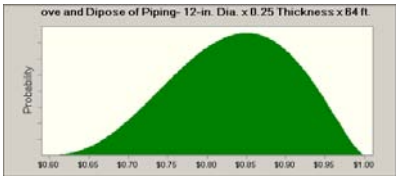
Mean	2,176	(=L141)
Std. Dev.	0	(=0.000001)



Assumption: 127 Remove and Dipose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Cell: R141

BetaPERT distribution with parameters:

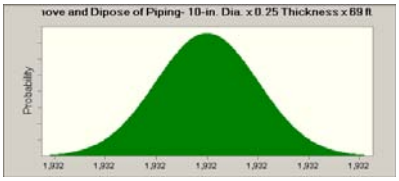
Minimum	$0.60	(=Q141)
Likeliest	$0.85	(=R141)
Maximum	$1.00	(=S141)



Assumption: 128 Remove and Dipose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Cell: L142

Normal distribution with parameters:

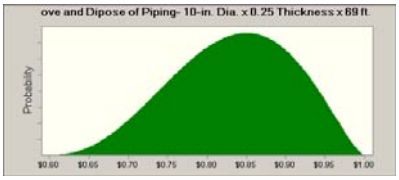
Mean	1,932	(=L142)
Std. Dev.	0	(=0.000001)



Assumption: 128 Remove and Dipose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Cell: R142

BetaPERT distribution with parameters:

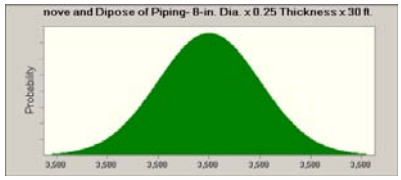
Minimum	$0.60	(=Q142)
Likeliest	$0.85	(=R142)
Maximum	$1.00	(=S142)



Assumption: 129 Remove and Dipose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Quantity **Cell: L143**

Normal distribution with parameters:

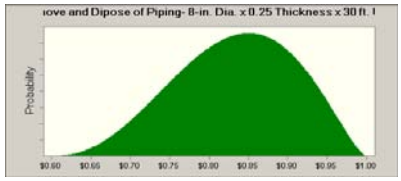
Mean	3,588	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: 129 Remove and Dipose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Unit Price **Cell: R143**

BetaPERT distribution with parameters:

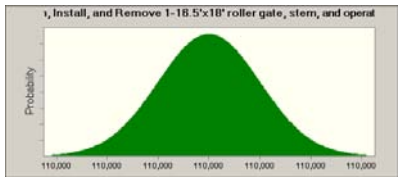
Minimum	$0.60	(=Q143)
Likeliest	$0.85	(=R143)
Maximum	$1.00	(=S143)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operator Quantity **Cell: L26**

Normal distribution with parameters:

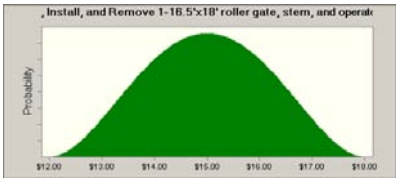
Mean	110,000	(=L26)
Std. Dev.	0	(=0.000001)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operat Cell: R26

BetaPERT distribution with parameters:

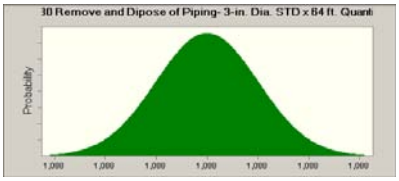
Minimum	$12.00	(=Q26)
Likeliest	$15.00	(=R26)
Maximum	$18.00	(=S26)



Assumption: 130 Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft. Quantity Cell: L144

Normal distribution with parameters:

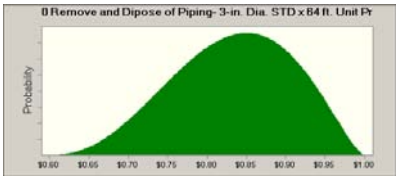
Mean	1,088	(=L144)
Std. Dev.	0	(=0.000001)



Assumption: 130 Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft. Unit Price Cell: R144

BetaPERT distribution with parameters:

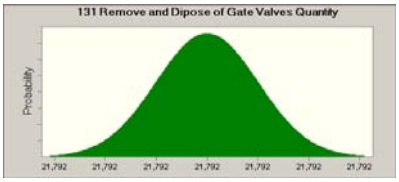
Minimum	$0.60	(=Q144)
Likeliest	$0.85	(=R144)
Maximum	$1.00	(=S144)



Assumption: 131 Remove and Dipose of Gate Valves Quantity **Cell: L145**

Normal distribution with parameters:

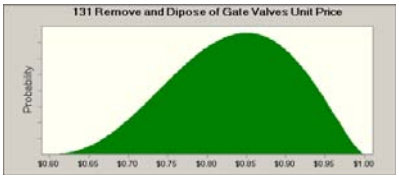
Mean	21,792	(=L145)
Std. Dev.	0	(=0.000001)



Assumption: 131 Remove and Dipose of Gate Valves Unit Price **Cell: R145**

BetaPERT distribution with parameters:

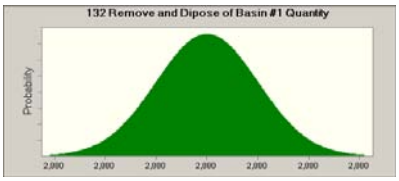
Minimum	$0.60	(=Q145)
Likeliest	$0.85	(=R145)
Maximum	$1.00	(=S145)



Assumption: 132 Remove and Dipose of Basin #1 Quantity **Cell: L146**

Normal distribution with parameters:

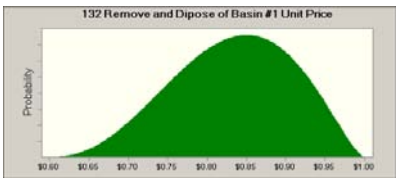
Mean	2,880	(=L146)
Std. Dev.	0	(=0.000001)



Assumption: 132 Remove and Dipose of Basin #1 Unit Price **Cell: R146**

BetaPERT distribution with parameters:

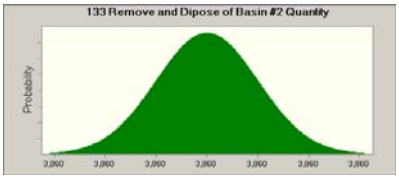
Minimum	$0.60	(=Q146)
Likeliest	$0.85	(=R146)
Maximum	$1.00	(=S146)



Assumption: 133 Remove and Dipose of Basin #2 Quantity **Cell: L147**

Normal distribution with parameters:

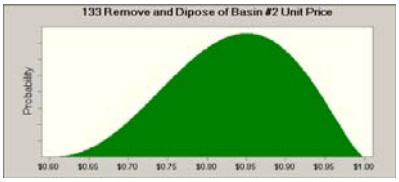
Mean	3,860	(=L147)
Std. Dev.	0	(=0.000001)



Assumption: 133 Remove and Dipose of Basin #2 Unit Price **Cell: R147**

BetaPERT distribution with parameters:

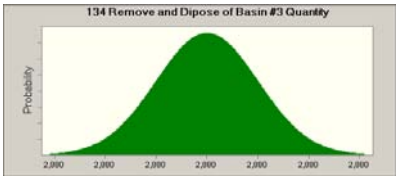
Minimum	$0.60	(=Q147)
Likeliest	$0.85	(=R147)
Maximum	$1.00	(=S147)



Assumption: 134 Remove and Dipose of Basin #3 Quantity **Cell: L148**

Normal distribution with parameters:

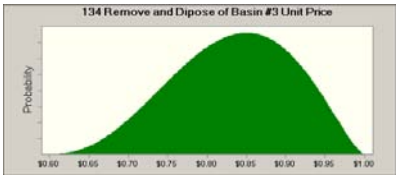
Mean	2,880	(=L148)
Std. Dev.	0	(=0.000001)



Assumption: 134 Remove and Dipose of Basin #3 Unit Price **Cell: R148**

BetaPERT distribution with parameters:

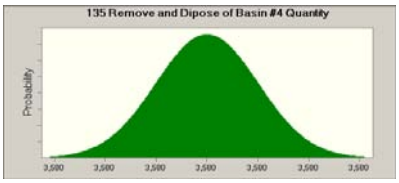
Minimum	$0.60	(=Q148)
Likeliest	$0.85	(=R148)
Maximum	$1.00	(=S148)



Assumption: 135 Remove and Dipose of Basin #4 Quantity **Cell: L149**

Normal distribution with parameters:

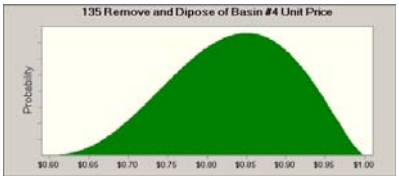
Mean	3,580	(=L149)
Std. Dev.	0	(=0.000001)



Assumption: 135 Remove and Dipose of Basin #4 Unit Price **Cell: R149**

BetaPERT distribution with parameters:

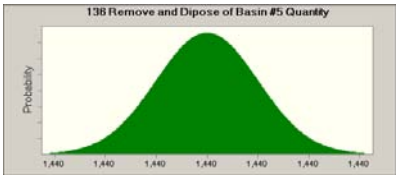
Minimum	$0.60	(=Q149)
Likeliest	$0.85	(=R149)
Maximum	$1.00	(=S149)



Assumption: 136 Remove and Dipose of Basin #5 Quantity **Cell: L150**

Normal distribution with parameters:

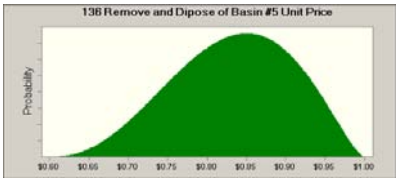
Mean	1,440	(=L150)
Std. Dev.	0	(=0.000001)



Assumption: 136 Remove and Dipose of Basin #5 Unit Price **Cell: R150**

BetaPERT distribution with parameters:

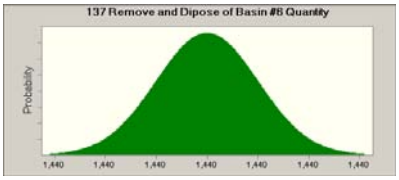
Minimum	$0.60	(=Q150)
Likeliest	$0.85	(=R150)
Maximum	$1.00	(=S150)



Assumption: 137 Remove and Dipose of Basin #6 Quantity **Cell: L151**

Normal distribution with parameters:

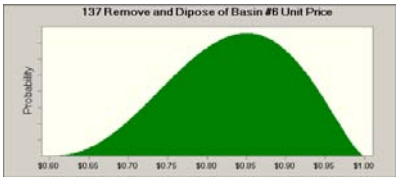
Mean	1,440	(=L151)
Std. Dev.	0	(=0.000001)



Assumption: 137 Remove and Dipose of Basin #6 Unit Price **Cell: R151**

BetaPERT distribution with parameters:

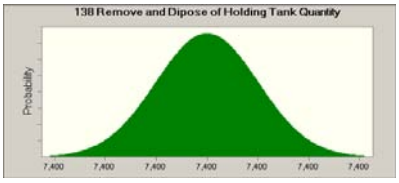
Minimum	$0.60	(=Q151)
Likeliest	$0.85	(=R151)
Maximum	$1.00	(=S151)



Assumption: 138 Remove and Dipose of Holding Tank Quantity **Cell: L152**

Normal distribution with parameters:

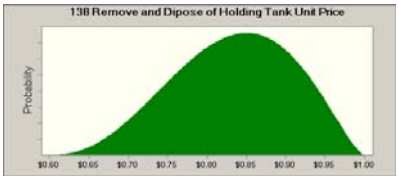
Mean	7,400	(=L152)
Std. Dev.	0	(=0.000001)



Assumption: 138 Remove and Dipose of Holding Tank Unit Price **Cell: R152**

BetaPERT distribution with parameters:

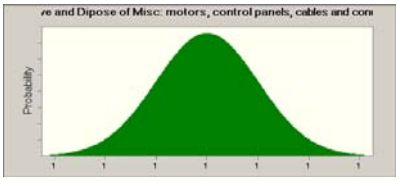
Minimum	$0.60	(=Q152)
Likeliest	$0.85	(=R152)
Maximum	$1.00	(=S152)



Assumption: 139 Remove and Dipose of Misc: motors, control panels, cables and conduit **Cell: L153**

Normal distribution with parameters:

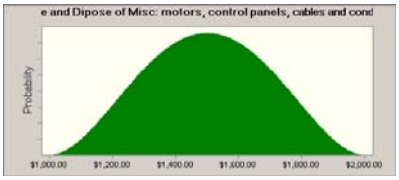
Mean	1	(=L153)
Std. Dev.	0	(=0.000001)



Assumption: 139 Remove and Dipose of Misc: motors, control panels, cables and conduit **Cell: R153**

BetaPERT distribution with parameters:

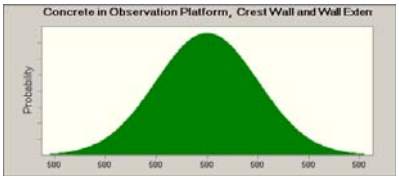
Minimum	$1,000.00	(=Q153)
Likeliest	$1,500.00	(=R153)
Maximum	$2,000.00	(=S153)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extension **Cell: L27**

Normal distribution with parameters:

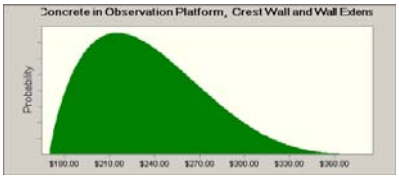
Mean	580	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extension **Cell: R27**

BetaPERT distribution with parameters:

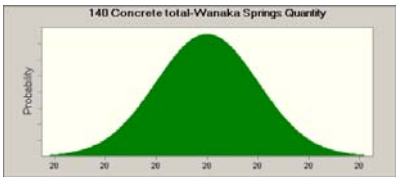
Minimum	$170.00	(=Q27)
Likeliest	$215.00	(=R27)
Maximum	$380.00	(=S27)



Assumption: 140 Concrete total-Wanaka Springs Quantity **Cell: L154**

Normal distribution with parameters:

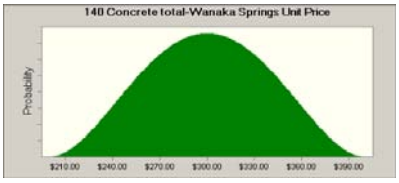
Mean	28	(=L154)
Std. Dev.	0	(=0.000001)



Assumption: 140 Concrete total-Wanaka Springs Unit Price **Cell: R154**

BetaPERT distribution with parameters:

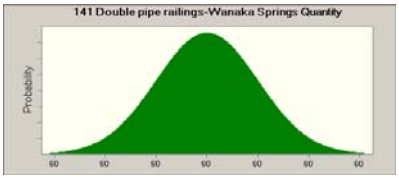
Minimum	$200.00	(=Q154)
Likeliest	$300.00	(=R154)
Maximum	$400.00	(=S154)



Assumption: 141 Double pipe railings-Wanaka Springs Quantity **Cell: L155**

Normal distribution with parameters:

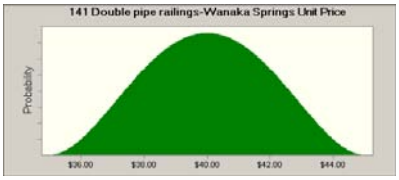
Mean	60	(=L155)
Std. Dev.	0	(=0.000001)



Assumption: 141 Double pipe railings-Wanaka Springs Unit Price **Cell: R155**

BetaPERT distribution with parameters:

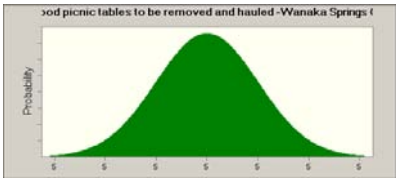
Minimum	$35.00	(=Q155)
Likeliest	$40.00	(=R155)
Maximum	$45.00	(=S155)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Quantity **Cell: L156**

Normal distribution with parameters:

Mean	5	(=L156)
Std. Dev.	0	(=0.000001)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Unit Price **Cell: R156**

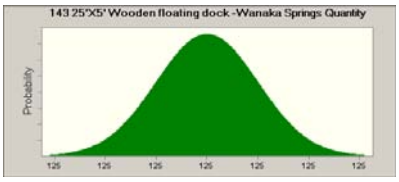
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q156)
Likeliest	$100.00	(=R156)
Maximum	$120.00	(=S156)

Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Quantity **Cell: L157**

Normal distribution with parameters:

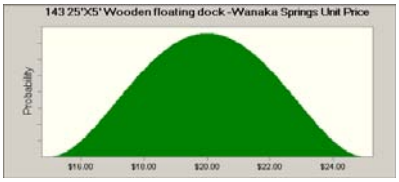
Mean	125	(=L157)
Std. Dev.	0	(=0.000001)



Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Unit Price **Cell: R157**

BetaPERT distribution with parameters:

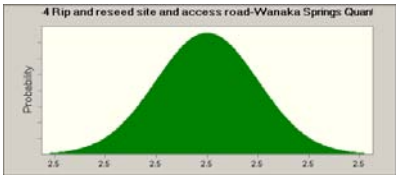
Minimum	$15.00	(=Q157)
Likeliest	$20.00	(=R157)
Maximum	$25.00	(=S157)



Assumption: 144 Rip and reseed site and access road-Wanaka Springs Quantity **Cell: L158**

Normal distribution with parameters:

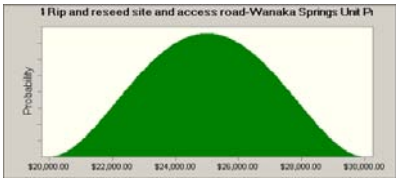
Mean	2.5	(=L158)
Std. Dev.	0.0	(=0.000001)



Assumption: 144 Rip and reseed site and access road-Wanaka Springs Unit Price **Cell: R158**

BetaPERT distribution with parameters:

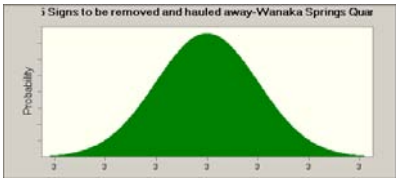
Minimum	$20,000.00	(=Q158)
Likeliest	$25,000.00	(=R158)
Maximum	$30,000.00	(=S158)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Quantity Cell: L159

Normal distribution with parameters:

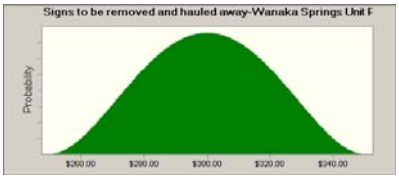
Mean	3	(=L159)
Std. Dev.	0	(=0.000001)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Unit PriceCell: R159

BetaPERT distribution with parameters:

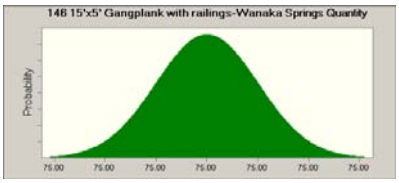
Minimum	$250.00	(=Q159)
Likeliest	$300.00	(=R159)
Maximum	$350.00	(=S159)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Quantity Cell: L160

Normal distribution with parameters:

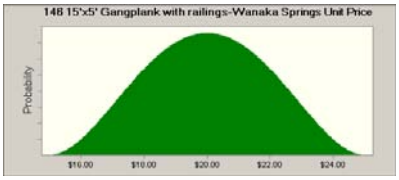
Mean	75.00	(=L160)
Std. Dev.	0.00	(=0.000001)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Unit Price **Cell: R160**

BetaPERT distribution with parameters:

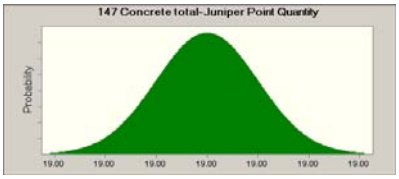
Minimum	$15.00	(=Q160)
Likeliest	$20.00	(=R160)
Maximum	$25.00	(=S160)



Assumption: 147 Concrete total-Juniper Point Quantity **Cell: L161**

Normal distribution with parameters:

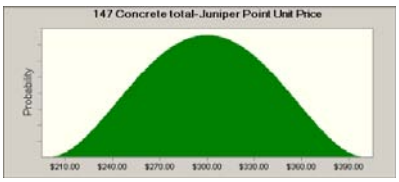
Mean	19.00	(=L161)
Std. Dev.	0.00	(=0.000001)



Assumption: 147 Concrete total-Juniper Point Unit Price **Cell: R161**

BetaPERT distribution with parameters:

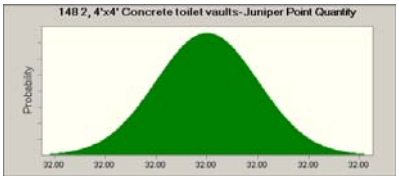
Minimum	$200.00	(=Q161)
Likeliest	$300.00	(=R161)
Maximum	$400.00	(=S161)



Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Quantity **Cell: L162**

Normal distribution with parameters:

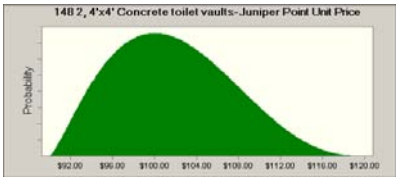
Mean	32.00	(=L162)
Std. Dev.	0.00	(=0.000001)



Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Unit Price **Cell: R162**

BetaPERT distribution with parameters:

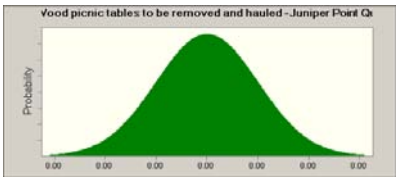
Minimum	$90.00	(=Q162)
Likeliest	$100.00	(=R162)
Maximum	$120.00	(=S162)



Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Quantity **Cell: L163**

Normal distribution with parameters:

Mean	8.00	(=L163)
Std. Dev.	0.00	(=0.000001)



Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Unit Price **Cell: R163**

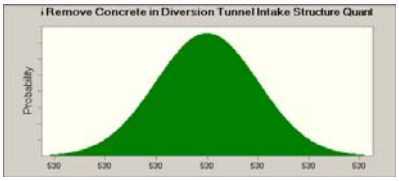
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q163)
Likeliest	$100.00	(=R163)
Maximum	$120.00	(=S163)

Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Quantity **Cell: L28**

Normal distribution with parameters:

Mean	530	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Unit Price **Cell: R28**

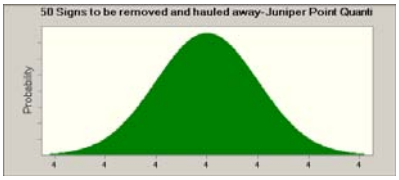
BetaPERT distribution with parameters:

Minimum	$170.00	(=Q28)
Likeliest	$215.00	(=R28)
Maximum	$380.00	(=S28)

Assumption: 150 Signs to be removed and hauled away-Juniper Point Quantity **Cell: L164**

Normal distribution with parameters:

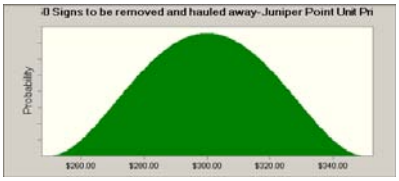
Mean	4	(=L164)
Std. Dev.	0	(=0.000001)



Assumption: 150 Signs to be removed and hauled away-Juniper Point Unit Price **Cell: R164**

BetaPERT distribution with parameters:

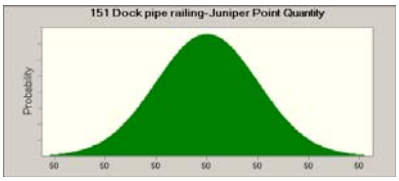
Minimum	$250.00	(=Q164)
Likeliest	$300.00	(=R164)
Maximum	$350.00	(=S164)



Assumption: 151 Dock pipe railing-Juniper Point Quantity **Cell: L165**

Normal distribution with parameters:

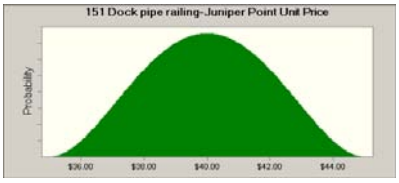
Mean	50	(=L165)
Std. Dev.	0	(=0.000001)



Assumption: 151 Dock pipe railing-Juniper Point Unit Price **Cell: R165**

BetaPERT distribution with parameters:

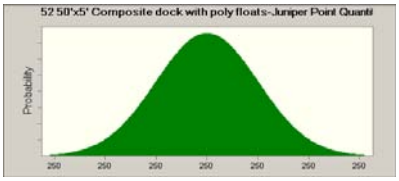
Minimum	$35.00	(=Q165)
Likeliest	$40.00	(=R165)
Maximum	$45.00	(=S165)



Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Quantity **Cell: L166**

Normal distribution with parameters:

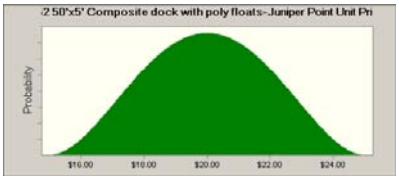
Mean	250	(=L166)
Std. Dev.	0	(=0.000001)



Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Unit Price **Cell: R166**

BetaPERT distribution with parameters:

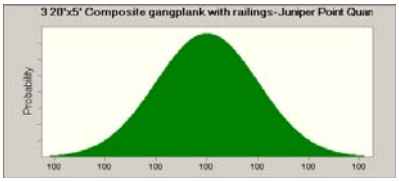
Minimum	$15.00	(=Q166)
Likeliest	$20.00	(=R166)
Maximum	$25.00	(=S166)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Quantity Cell: L167

Normal distribution with parameters:

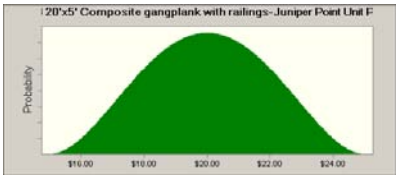
Mean	100	(=L167)
Std. Dev.	0	(=0.000001)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Unit PriceCell: R167

BetaPERT distribution with parameters:

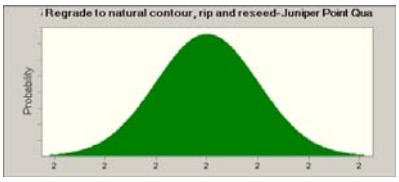
Minimum	$15.00	(=Q167)
Likeliest	$20.00	(=R167)
Maximum	$25.00	(=S167)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point QuantityCell: L169

Normal distribution with parameters:

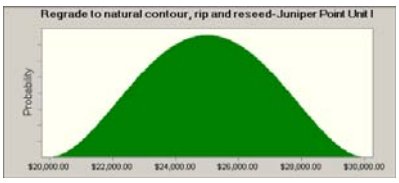
Mean	2	(=L169)
Std. Dev.	0	(=0.000001)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point Unit Price **Cell: R169**

BetaPERT distribution with parameters:

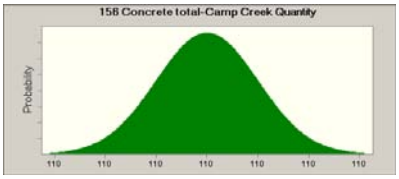
Minimum	$20,000.00	(=Q169)
Likeliest	$25,000.00	(=R169)
Maximum	$30,000.00	(=S169)



Assumption: 156 Concrete total-Camp Creek Quantity **Cell: L170**

Normal distribution with parameters:

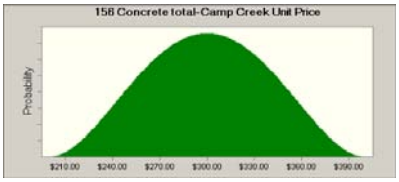
Mean	110	(=L170)
Std. Dev.	0	(=0.000001)



Assumption: 156 Concrete total-Camp Creek Unit Price **Cell: R170**

BetaPERT distribution with parameters:

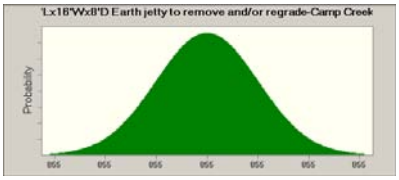
Minimum	$200.00	(=Q170)
Likeliest	$300.00	(=R170)
Maximum	$400.00	(=S170)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Quantity Cell: L171

Normal distribution with parameters:

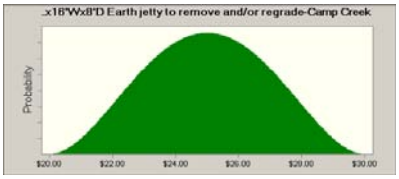
Mean	855	(=L171)
Std. Dev.	0	(=0.000001)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Unit Price Cell: R171

BetaPERT distribution with parameters:

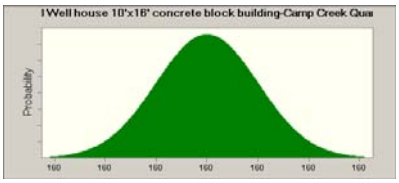
Minimum	$20.00	(=Q171)
Likeliest	$25.00	(=R171)
Maximum	$30.00	(=S171)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Quantity Cell: L172

Normal distribution with parameters:

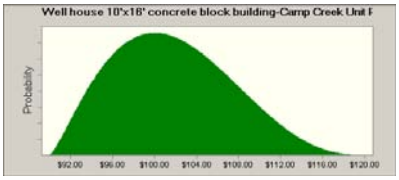
Mean	160	(=L172)
Std. Dev.	0	(=0.000001)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Unit Price Cell: R172

BetaPERT distribution with parameters:

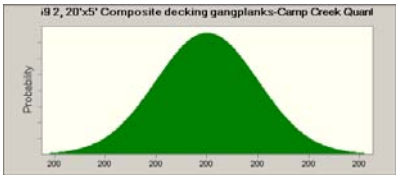
Minimum	$90.00	(=Q172)
Likeliest	$100.00	(=R172)
Maximum	$120.00	(=S172)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Quantity Cell: L173

Normal distribution with parameters:

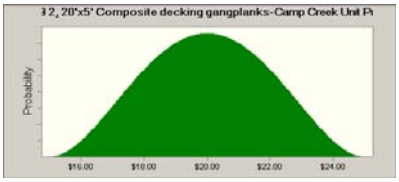
Mean	200	(=L173)
Std. Dev.	0	(=0.000001)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Unit Price Cell: R173

BetaPERT distribution with parameters:

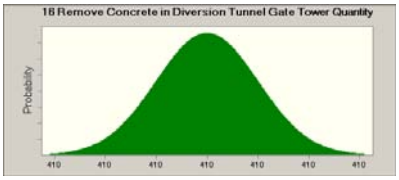
Minimum	$15.00	(=Q173)
Likeliest	$20.00	(=R173)
Maximum	$25.00	(=S173)



Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Quantity **Cell: L29**

Normal distribution with parameters:

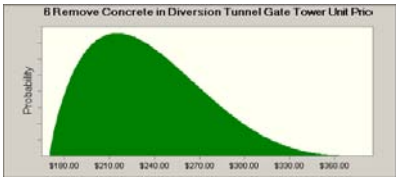
Mean	410	(=L29)
Std. Dev.	0	(=0.000001)



Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Unit Price **Cell: R29**

BetaPERT distribution with parameters:

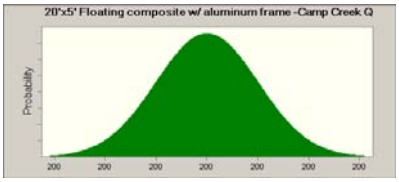
Minimum	$170.00	(=Q29)
Likeliest	$215.00	(=R29)
Maximum	$380.00	(=S29)



Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Quantity **Cell: L174**

Normal distribution with parameters:

Mean	200	(=L174)
Std. Dev.	0	(=0.000001)



Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Unit Price Cell: R174

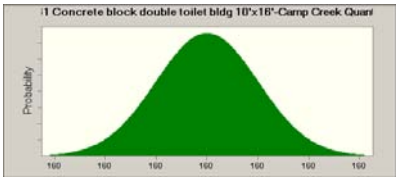
BetaPERT distribution with parameters:

Minimum	$15.00	(=Q174)
Likeliest	$20.00	(=R174)
Maximum	$25.00	(=S174)

Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Quantity Cell: L175

Normal distribution with parameters:

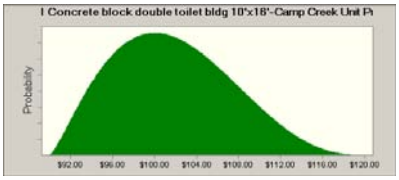
Mean	160	(=L175)
Std. Dev.	0	(=0.000001)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Unit Price Cell: R175

BetaPERT distribution with parameters:

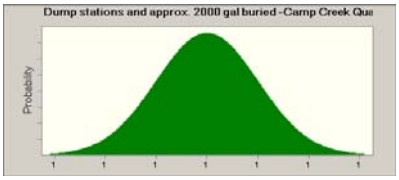
Minimum	$90.00	(=Q175)
Likeliest	$100.00	(=R175)
Maximum	$120.00	(=S175)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Quantity **Cell: L176**

Normal distribution with parameters:

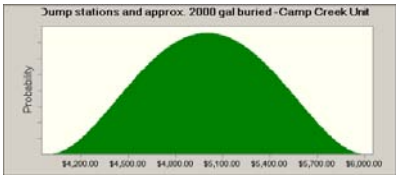
Mean	1	(=L176)
Std. Dev.	0	(=0.000001)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Unit Price **Cell: R176**

BetaPERT distribution with parameters:

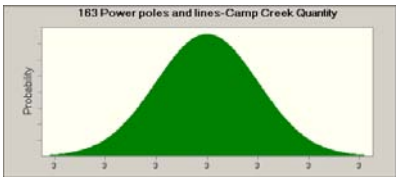
Minimum	$4,000.00	(=Q176)
Likeliest	$5,000.00	(=R176)
Maximum	$6,000.00	(=S176)



Assumption: 163 Power poles and lines-Camp Creek Quantity **Cell: L177**

Normal distribution with parameters:

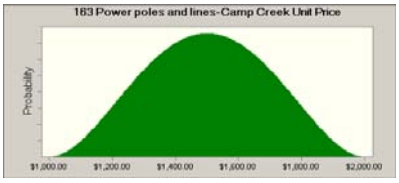
Mean	3	(=L177)
Std. Dev.	0	(=0.000001)



Assumption: 163 Power poles and lines-Camp Creek Unit Price **Cell: R177**

BetaPERT distribution with parameters:

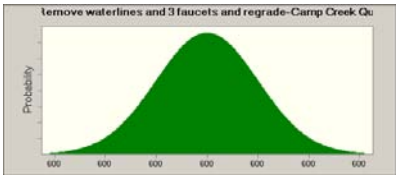
Minimum	$1,000.00	(=Q177)
Likeliest	$1,500.00	(=R177)
Maximum	$2,000.00	(=S177)



Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Quantity **Cell: L178**

Normal distribution with parameters:

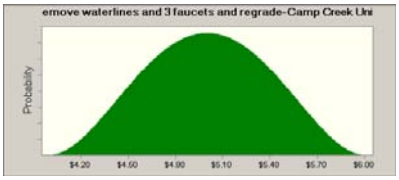
Mean	600	(=L178)
Std. Dev.	0	(=0.000001)



Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Unit Price **Cell: R178**

BetaPERT distribution with parameters:

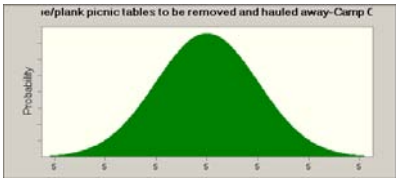
Minimum	$4.00	(=Q178)
Likeliest	$5.00	(=R178)
Maximum	$6.00	(=S178)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp C **Cell: L180**

Normal distribution with parameters:

Mean	5	(=L180)
Std. Dev.	0	(=0.000001)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp C **Cell: R180**

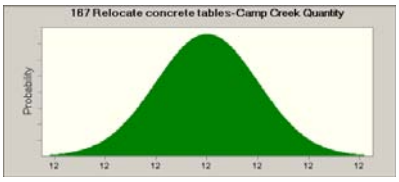
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q180)
Likeliest	$100.00	(=R180)
Maximum	$120.00	(=S180)

Assumption: 167 Relocate concrete tables-Camp Creek Quantity **Cell: L181**

Normal distribution with parameters:

Mean	12	(=L181)
Std. Dev.	0	(=0.000001)



Assumption: 167 Relocate concrete tables-Camp Creek Unit Price **Cell: R181**

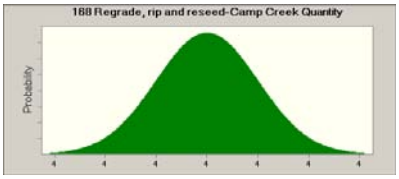
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q181)
Likeliest	$100.00	(=R181)
Maximum	$120.00	(=S181)

Assumption: 168 Regrade, rip and reseed-Camp Creek Quantity **Cell: L182**

Normal distribution with parameters:

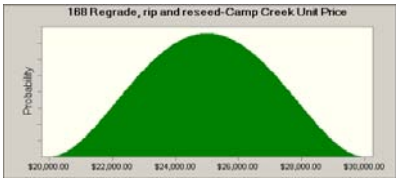
Mean	4	(=L182)
Std. Dev.	0	(=0.000001)



Assumption: 168 Regrade, rip and reseed-Camp Creek Unit Price **Cell: R182**

BetaPERT distribution with parameters:

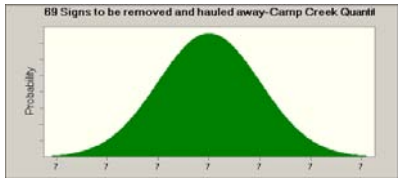
Minimum	$20,000.00	(=Q182)
Likeliest	$25,000.00	(=R182)
Maximum	$30,000.00	(=S182)



Assumption: 169 Signs to be removed and hauled away-Camp Creek Quantity **Cell: L183**

Normal distribution with parameters:

Mean	7	(=L183)
Std. Dev.	0	(=0.000001)



Assumption: 169 Signs to be removed and hauled away-Camp Creek Unit Price **Cell: R183**

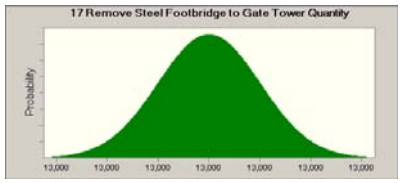
BetaPERT distribution with parameters:

Minimum	$250.00	(=Q183)
Likeliest	$300.00	(=R183)
Maximum	$350.00	(=S183)

Assumption: 17 Remove Steel Footbridge to Gate Tower Quantity **Cell: L30**

Normal distribution with parameters:

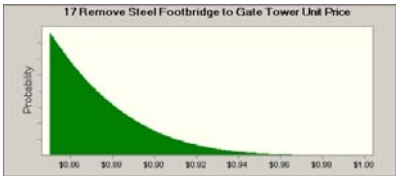
Mean	13,000	(=L30)
Std. Dev.	0	(=0.000001)



Assumption: 17 Remove Steel Footbridge to Gate Tower Unit Price **Cell: R30**

BetaPERT distribution with parameters:

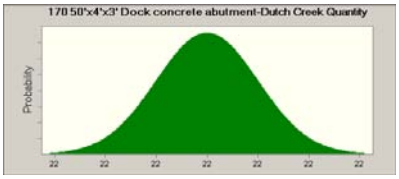
Minimum	$0.85	(=Q30)
Likeliest	$0.85	(=R30)
Maximum	$1.00	(=S30)



Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Quantity **Cell: L184**

Normal distribution with parameters:

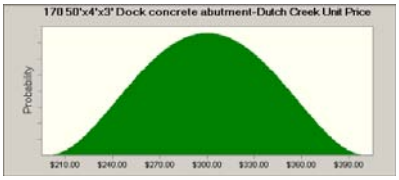
Mean	22	(=L184)
Std. Dev.	0	(=0.000001)



Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Unit Price **Cell: R184**

BetaPERT distribution with parameters:

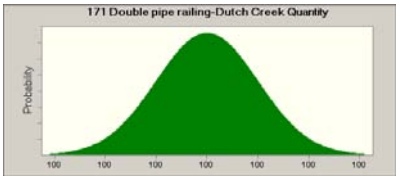
Minimum	$200.00	(=Q184)
Likeliest	$300.00	(=R184)
Maximum	$400.00	(=S184)



Assumption: 171 Double pipe railing-Dutch Creek Quantity **Cell: L185**

Normal distribution with parameters:

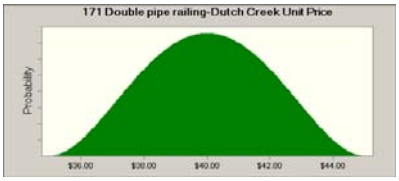
Mean	100	(=L185)
Std. Dev.	0	(=0.000001)



Assumption: 171 Double pipe railing-Dutch Creek Unit Price **Cell: R185**

BetaPERT distribution with parameters:

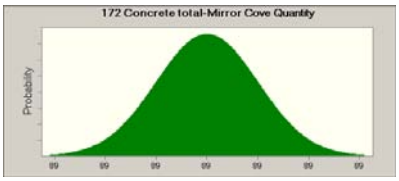
Minimum	$35.00	(=Q185)
Likeliest	$40.00	(=R185)
Maximum	$45.00	(=S185)



Assumption: 172 Concrete total-Mirror Cove Quantity **Cell: L186**

Normal distribution with parameters:

Mean	89	(=L186)
Std. Dev.	0	(=0.000001)



Assumption: 172 Concrete total-Mirror Cove Unit Price **Cell: R186**

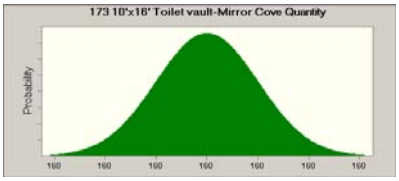
BetaPERT distribution with parameters:

Minimum	$200.00	(=Q186)
Likeliest	$300.00	(=R186)
Maximum	$400.00	(=S186)

Assumption: 173 10'x16' Toilet vault-Mirror Cove Quantity **Cell: L187**

Normal distribution with parameters:

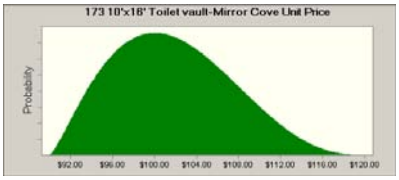
Mean	160	(=L187)
Std. Dev.	0	(=0.000001)



Assumption: 173 10'x16' Toilet vault-Mirror Cove Unit Price **Cell: R187**

BetaPERT distribution with parameters:

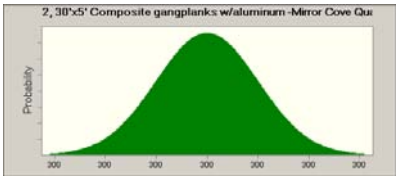
Minimum	$90.00	(=Q187)
Likeliest	$100.00	(=R187)
Maximum	$120.00	(=S187)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Quantity **Cell: L188**

Normal distribution with parameters:

Mean	300	(=L188)
Std. Dev.	0	(=0.000001)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Unit Price **Cell: R188**

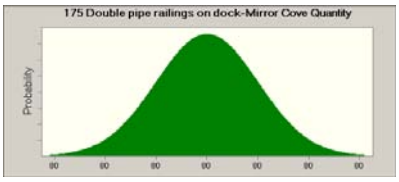
BetaPERT distribution with parameters:

Minimum	$15.00	(=Q188)
Likeliest	$20.00	(=R188)
Maximum	$25.00	(=S188)

Assumption: 175 Double pipe railings on dock-Mirror Cove Quantity **Cell: L189**

Normal distribution with parameters:

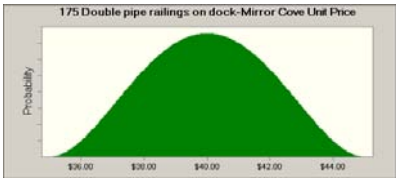
Mean	80	(=L189)
Std. Dev.	0	(=0.000001)



Assumption: 175 Double pipe railings on dock-Mirror Cove Unit Price **Cell: R189**

BetaPERT distribution with parameters:

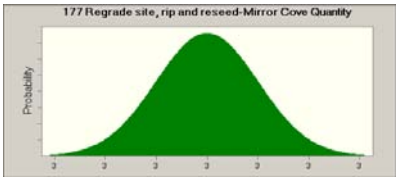
Minimum	$35.00	(=Q189)
Likeliest	$40.00	(=R189)
Maximum	$45.00	(=S189)



Assumption: 177 Regrade site, rip and reseed-Mirror Cove Quantity **Cell: L191**

Normal distribution with parameters:

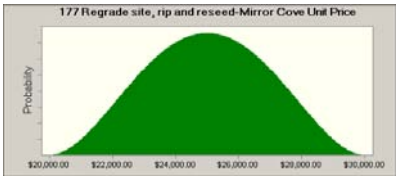
Mean	3	(=L191)
Std. Dev.	0	(=0.000001)



Assumption: 177 Regrade site, rip and reseed-Mirror Cove Unit Price **Cell: R191**

BetaPERT distribution with parameters:

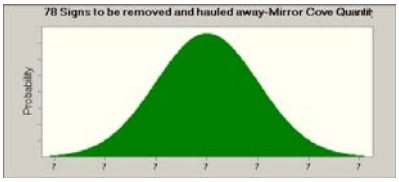
Minimum	$20,000.00	(=Q191)
Likeliest	$25,000.00	(=R191)
Maximum	$30,000.00	(=S191)



Assumption: 178 Signs to be removed and hauled away-Mirror Cove Quantity **Cell: L192**

Normal distribution with parameters:

Mean	7	(=L192)
Std. Dev.	0	(=0.000001)



Assumption: 178 Signs to be removed and hauled away-Mirror Cove Unit Price **Cell: R192**

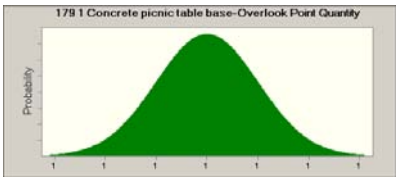
BetaPERT distribution with parameters:

Minimum	$250.00	(=Q192)
Likeliest	$300.00	(=R192)
Maximum	$350.00	(=S192)

Assumption: 179 1 Concrete picnic table base-Overlook Point Quantity **Cell: L193**

Normal distribution with parameters:

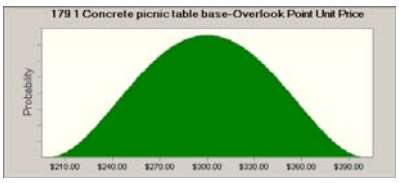
Mean	1	(=L193)
Std. Dev.	0	(=0.000001)



Assumption: 179 1 Concrete picnic table base-Overlook Point Unit Price **Cell: R193**

BetaPERT distribution with parameters:

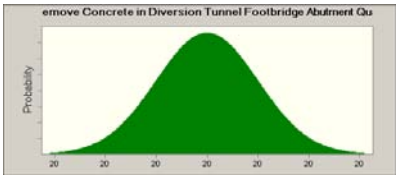
Minimum	$200.00	(=Q193)
Likeliest	$300.00	(=R193)
Maximum	$400.00	(=S193)



Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Quantity **Cell: L31**

Normal distribution with parameters:

Mean	20	(=L31)
Std. Dev.	0	(=0.000001)



Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Unit Pri **Cell: R31**

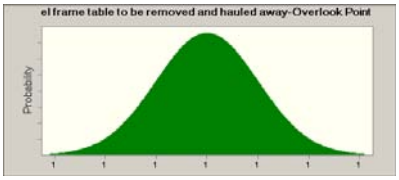
BetaPERT distribution with parameters:

Minimum	$170.00	(=Q31)
Likeliest	$215.00	(=R31)
Maximum	$380.00	(=S31)

Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Quantity **Cell: L194**

Normal distribution with parameters:

Mean	1	(=L194)
Std. Dev.	0	(=0.000001)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Unit Price **Cell: R194**

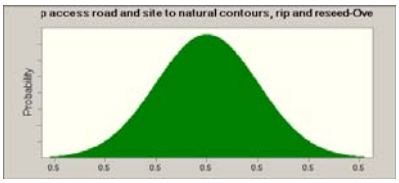
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q194)
Likeliest	$100.00	(=R194)
Maximum	$120.00	(=S194)

Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-L **Cell: L195**

Normal distribution with parameters:

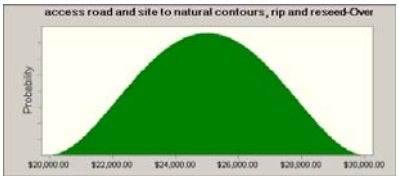
Mean	0.5	(=L195)
Std. Dev.	0.0	(=0.000001)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Over Cell: R195

BetaPERT distribution with parameters:

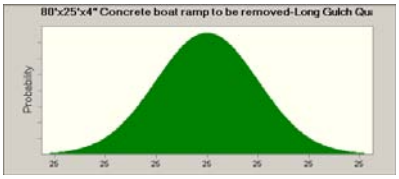
Minimum	$20,000.00	(=Q195)
Likeliest	$25,000.00	(=R195)
Maximum	$30,000.00	(=S195)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Quantity Cell: L196

Normal distribution with parameters:

Mean	25	(=L196)
Std. Dev.	0	(=0.000001)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Unit Price Cell: R196

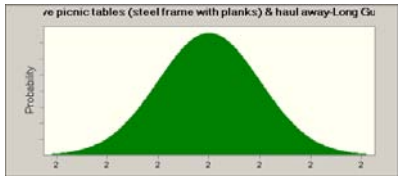
BetaPERT distribution with parameters:

Minimum	$200.00	(=Q196)
Likeliest	$300.00	(=R196)
Maximum	$400.00	(=S196)

Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch L197 **Cell: L197**

Normal distribution with parameters:

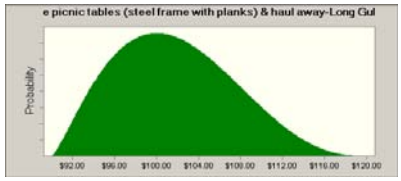
Mean	2	(=L197)
Std. Dev.	0	(=0.000001)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch R197 **Cell: R197**

BetaPERT distribution with parameters:

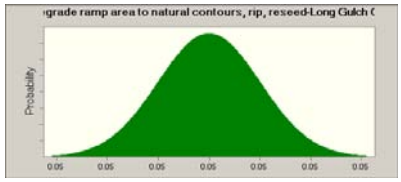
Minimum	$90.00	(=Q197)
Likeliest	$100.00	(=R197)
Maximum	$120.00	(=S197)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Quantity **Cell: L198**

Normal distribution with parameters:

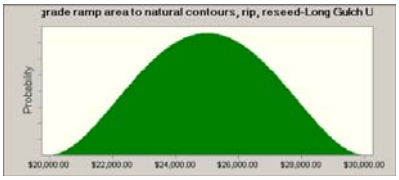
Mean	0.05	(=L198)
Std. Dev.	0.00	(=0.000001)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Unit Price **Cell: R198**

BetaPERT distribution with parameters:

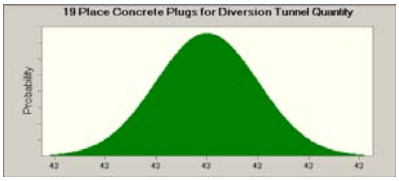
Minimum	$20,000.00	(=Q198)
Likeliest	$25,000.00	(=R198)
Maximum	$30,000.00	(=S198)



Assumption: 19 Place Concrete Plugs for Diversion Tunnel Quantity **Cell: L32**

Normal distribution with parameters:

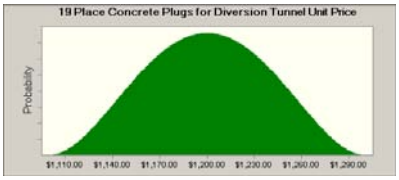
Mean	43	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 19 Place Concrete Plugs for Diversion Tunnel Unit Price **Cell: R32**

BetaPERT distribution with parameters:

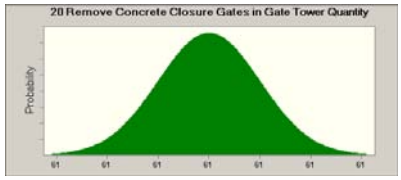
Minimum	$1,100.00	(=Q32)
Likeliest	$1,200.00	(=R32)
Maximum	$1,300.00	(=S32)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Quantity **Cell: L33**

Normal distribution with parameters:

Mean	61	(=L33)
Std. Dev.	0	(=0.000001)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Unit Price **Cell: R33**

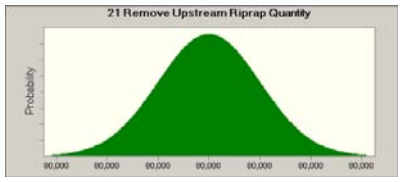
BetaPERT distribution with parameters:

Minimum	$900.00	(=Q33)
Likeliest	$1,000.00	(=R33)
Maximum	$1,300.00	(=S33)

Assumption: 21 Remove Upstream Riprap Quantity **Cell: L34**

Normal distribution with parameters:

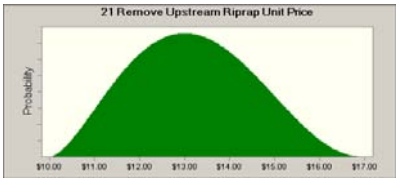
Mean	80,000	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 21 Remove Upstream Riprap Unit Price **Cell: R34**

BetaPERT distribution with parameters:

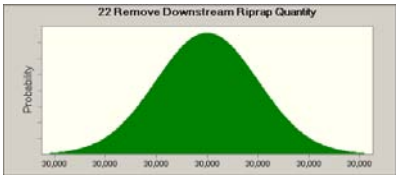
Minimum	$10.00	(=Q34)
Likeliest	$13.00	(=R34)
Maximum	$17.00	(=S34)



Assumption: 22 Remove Downstream Riprap Quantity **Cell: L35**

Normal distribution with parameters:

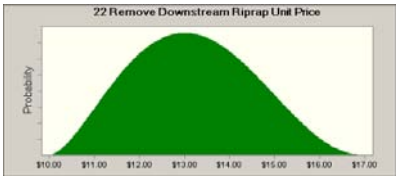
Mean	30,000	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Remove Downstream Riprap Unit Price **Cell: R35**

BetaPERT distribution with parameters:

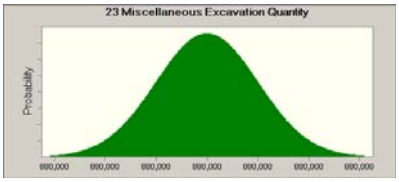
Minimum	$10.00	(=Q35)
Likeliest	$13.00	(=R35)
Maximum	$17.00	(=S35)



Assumption: 23 Miscellaneous Excavation Quantity **Cell: L36**

Normal distribution with parameters:

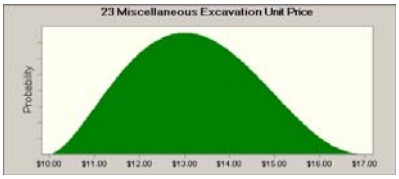
Mean	880,000	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Miscellaneous Excavation Unit Price **Cell: R36**

BetaPERT distribution with parameters:

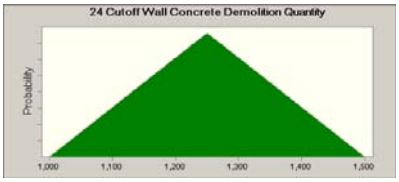
Minimum	$10.00	(=Q36)
Likeliest	$13.00	(=R36)
Maximum	$17.00	(=S36)



Assumption: 24 Cutoff Wall Concrete Demolition Quantity **Cell: L37**

Triangular distribution with parameters:

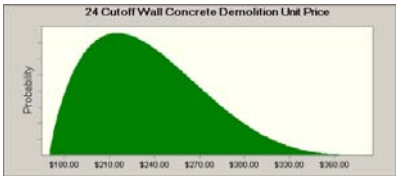
Minimum	1,000	(=K37)
Likeliest	1,250	(=L37)
Maximum	1,500	(=M37)



Assumption: 24 Cutoff Wall Concrete Demolition Unit Price **Cell: R37**

BetaPERT distribution with parameters:

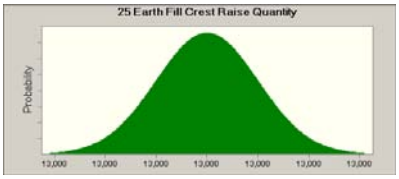
Minimum	$170.00	(=Q37)
Likeliest	$215.00	(=R37)
Maximum	$380.00	(=S37)



Assumption: 25 Earth Fill Crest Raise Quantity **Cell: L38**

Normal distribution with parameters:

Mean	13,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Earth Fill Crest Raise Unit Price **Cell: R38**

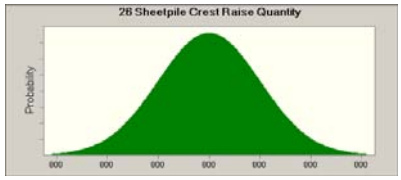
BetaPERT distribution with parameters:

Minimum	$10.00	(=Q38)
Likeliest	$13.00	(=R38)
Maximum	$17.00	(=S38)

Assumption: 26 Sheetpile Crest Raise Quantity **Cell: L39**

Normal distribution with parameters:

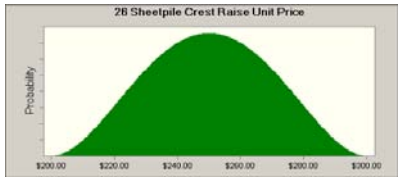
Mean	800	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Sheetpile Crest Raise Unit Price **Cell: R39**

BetaPERT distribution with parameters:

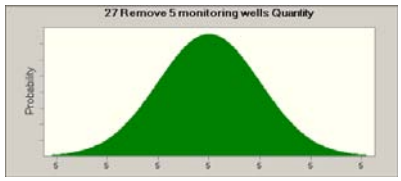
Minimum	$200.00	(=Q39)
Likeliest	$250.00	(=R39)
Maximum	$300.00	(=S39)



Assumption: 27 Remove 5 monitoring wells Quantity **Cell: L40**

Normal distribution with parameters:

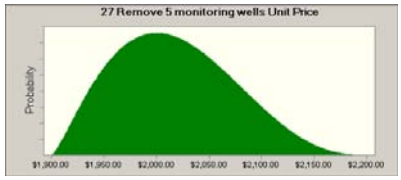
Mean	5	(=L40)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove 5 monitoring wells Unit Price **Cell: R40**

BetaPERT distribution with parameters:

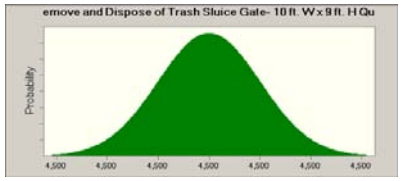
Minimum	$1,900.00	(=Q40)
Likeliest	$2,000.00	(=R40)
Maximum	$2,200.00	(=S40)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H Quantity **Cell: L41**

Normal distribution with parameters:

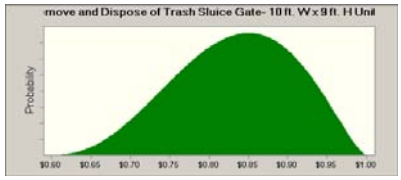
Mean	4,500	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H Unit Price **Cell: R41**

BetaPERT distribution with parameters:

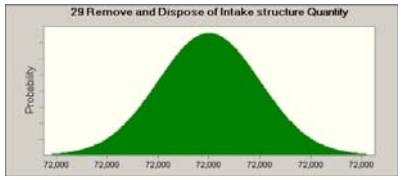
Minimum	$0.60	(=Q41)
Likeliest	$0.85	(=R41)
Maximum	$1.00	(=S41)



Assumption: 29 Remove and Dispose of Intake structure Quantity **Cell: L42**

Normal distribution with parameters:

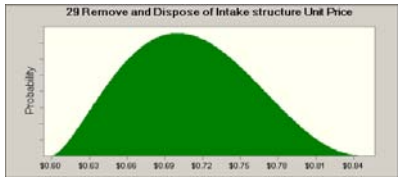
Mean	72,000	(=L42)
Std. Dev.	0	(=0.000001)



Assumption: 29 Remove and Dispose of Intake structure Unit Price **Cell: R42**

BetaPERT distribution with parameters:

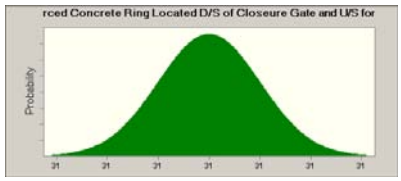
Minimum	$0.60	(=Q42)
Likeliest	$0.70	(=R42)
Maximum	$0.85	(=S42)



Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closeure Gate and U/S fo **Cell: L16**

Normal distribution with parameters:

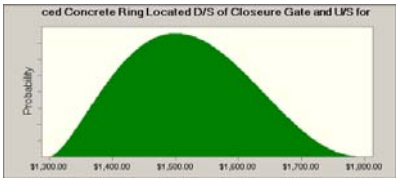
Mean	31	(=L16)
Std. Dev.	0	(=0.000001)



Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closeure Gate and U/S for **Cell: R16**

BetaPERT distribution with parameters:

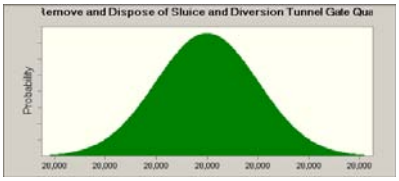
Minimum	$1,300.00	(=Q16)
Likeliest	$1,500.00	(=R16)
Maximum	$1,800.00	(=S16)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Quantity **Cell: L43**

Normal distribution with parameters:

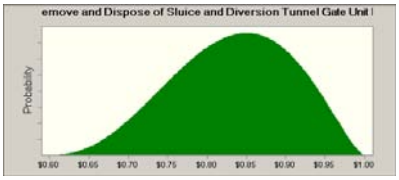
Mean	28,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Unit Price **Cell: R43**

BetaPERT distribution with parameters:

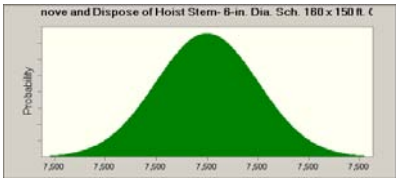
Minimum	$0.60	(=Q43)
Likeliest	$0.85	(=R43)
Maximum	$1.00	(=S43)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Quantity **Cell: L44**

Normal distribution with parameters:

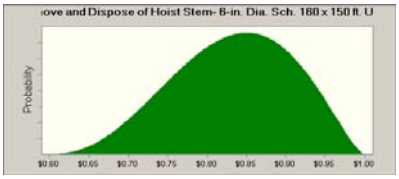
Mean	7,500	(=L44)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Unit Price **Cell: R44**

BetaPERT distribution with parameters:

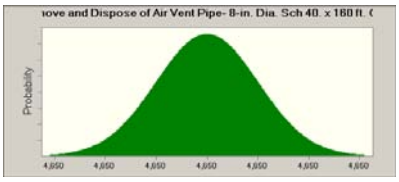
Minimum	$0.60	(=Q44)
Likeliest	$0.85	(=R44)
Maximum	$1.00	(=S44)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Quantity **Cell: L45**

Normal distribution with parameters:

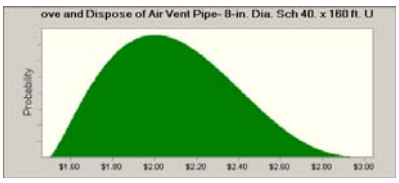
Mean	4,650	(=L45)
Std. Dev.	0	(=0.000001)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Unit Price **Cell: R45**

BetaPERT distribution with parameters:

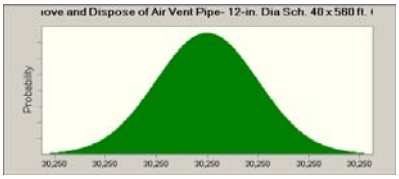
Minimum	$1.50	(=Q45)
Likeliest	$2.00	(=R45)
Maximum	$3.00	(=S45)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Quantity **Cell: L47**

Normal distribution with parameters:

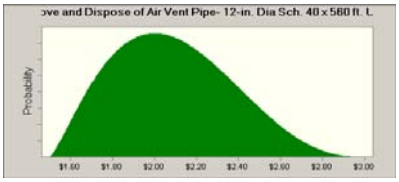
Mean	30,250	(=L47)
Std. Dev.	0	(=0.000001)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Unit Price **Cell: R47**

BetaPERT distribution with parameters:

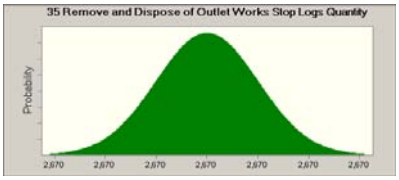
Minimum	$1.50	(=Q47)
Likeliest	$2.00	(=R47)
Maximum	$3.00	(=S47)



Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Quantity **Cell: L48**

Normal distribution with parameters:

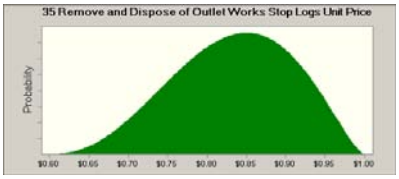
Mean	2,670	(=L48)
Std. Dev.	0	(=0.000001)



Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Unit Price **Cell: R48**

BetaPERT distribution with parameters:

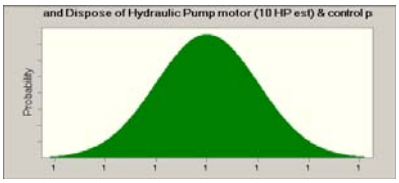
Minimum	$0.60	(=Q48)
Likeliest	$0.85	(=R48)
Maximum	$1.00	(=S48)



Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel **Cell: L49**

Normal distribution with parameters:

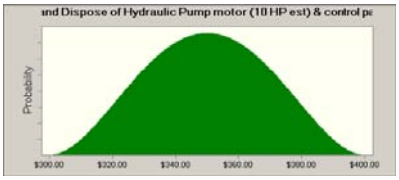
Mean	1	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control pa **Cell: R49**

BetaPERT distribution with parameters:

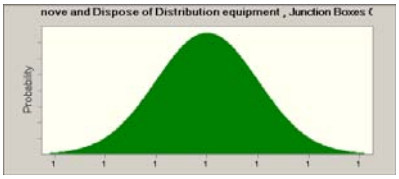
Minimum	$300.00	(=Q49)
Likeliest	$350.00	(=R49)
Maximum	$400.00	(=S49)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Quantity **Cell: L50**

Normal distribution with parameters:

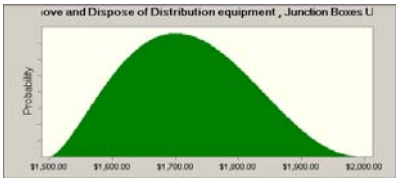
Mean	1	(=L50)
Std. Dev.	0	(=0.000001)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Unit Pri **Cell: R50**

BetaPERT distribution with parameters:

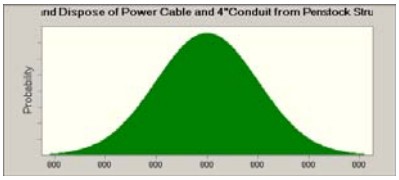
Minimum	$1,500.00	(=Q50)
Likeliest	$1,700.00	(=R50)
Maximum	$2,000.00	(=S50)



Assumption: 38 Remove and Dispose of Power Cable and 4"Conduit from Penstock Struct **Cell: L51**

Normal distribution with parameters:

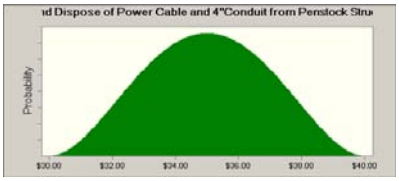
Mean	800	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove and Dispose of Power Cable and 4"Conduit from Penstock Struct **Cell: R51**

BetaPERT distribution with parameters:

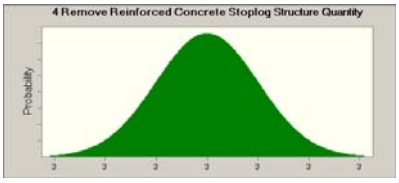
Minimum	$30.00	(=Q51)
Likeliest	$35.00	(=R51)
Maximum	$40.00	(=S51)



Assumption: 4 Remove Reinforced Concrete Stoplog Structure Quantity **Cell: L17**

Normal distribution with parameters:

Mean	3	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Remove Reinforced Concrete Stoplog Structure Unit Price **Cell: R17**

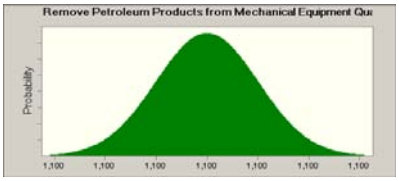
BetaPERT distribution with parameters:

Minimum	$170.00	(=Q17)
Likeliest	$215.00	(=R17)
Maximum	$380.00	(=S17)

Assumption: 53A Remove Petroleum Products from Mechanical Equipment Quantity **Cell: L67**

Normal distribution with parameters:

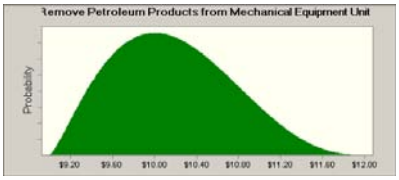
Mean	1,100	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 53A Remove Petroleum Products from Mechanical Equipment Unit Price **Cell: R67**

BetaPERT distribution with parameters:

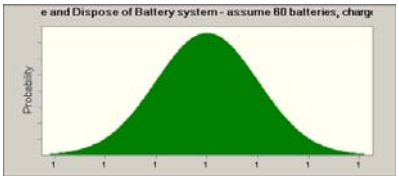
Minimum	$9.00	(=Q67)
Likeliest	$10.00	(=R67)
Maximum	$12.00	(=S67)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge, L74 **Cell: Q74**

Normal distribution with parameters:

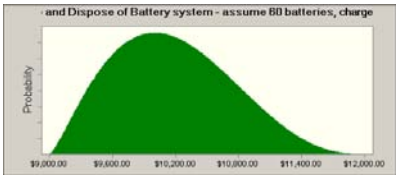
Mean	1	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge, L74 **Cell: R74**

BetaPERT distribution with parameters:

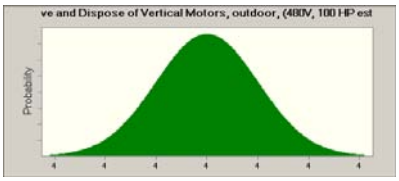
Minimum	$9,000.00	(=Q74)
Likeliest	$10,000.00	(=R74)
Maximum	$12,000.00	(=S74)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.), L79 **Cell: Q79**

Normal distribution with parameters:

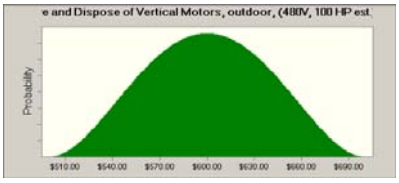
Mean	4	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.) Cell: R79

BetaPERT distribution with parameters:

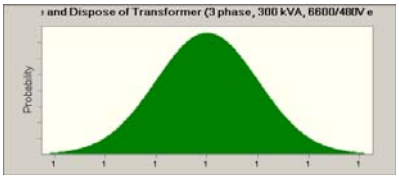
Minimum	$500.00	(=Q79)
Likeliest	$600.00	(=R79)
Maximum	$700.00	(=S79)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est.) Cell: Q80

Normal distribution with parameters:

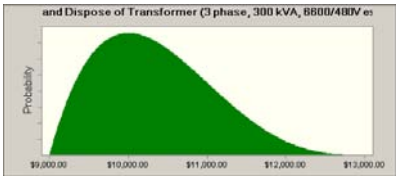
Mean	1	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est.) Cell: R80

BetaPERT distribution with parameters:

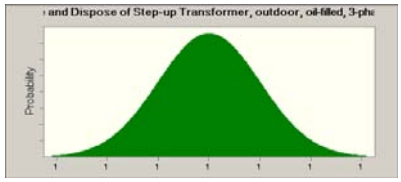
Minimum	$9,000.00	(=Q80)
Likeliest	$10,000.00	(=R80)
Maximum	$13,000.00	(=S80)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase, Cell: L81

Normal distribution with parameters:

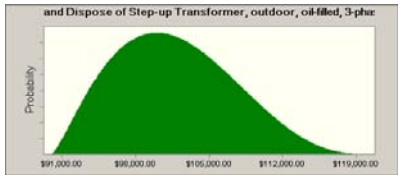
Mean	1	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase, Cell: R81

BetaPERT distribution with parameters:

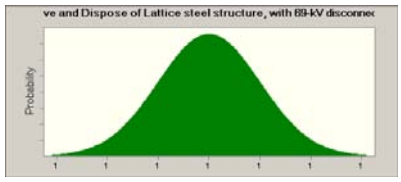
Minimum	$90,000.00	(=Q81)
Likeliest	$100,000.00	(=R81)
Maximum	$120,000.00	(=S81)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect, Cell: L82

Normal distribution with parameters:

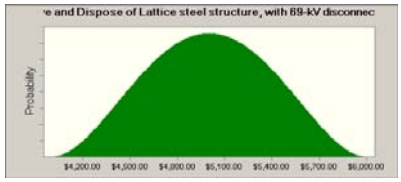
Mean	1	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect Unit **Cell: R82**

BetaPERT distribution with parameters:

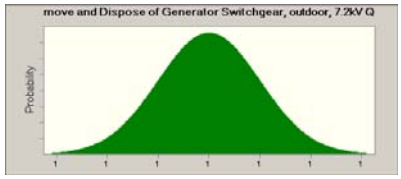
Minimum	$4,000.00	(=Q82)
Likeliest	$5,000.00	(=R82)
Maximum	$6,000.00	(=S82)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Quantity **Cell: L83**

Normal distribution with parameters:

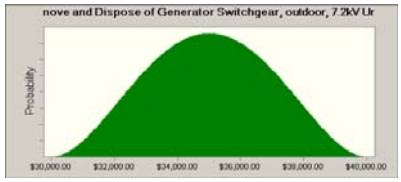
Mean	1	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Unit Price **Cell: R83**

BetaPERT distribution with parameters:

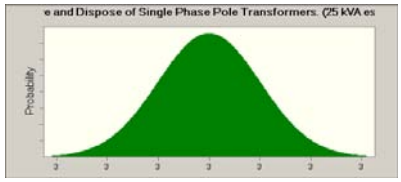
Minimum	$30,000.00	(=Q83)
Likeliest	$35,000.00	(=R83)
Maximum	$40,000.00	(=S83)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es **Cell: L84**

Normal distribution with parameters:

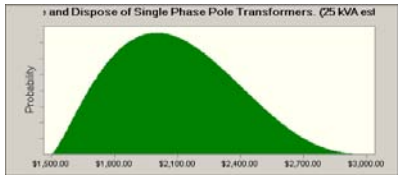
Mean	3	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es **Cell: R84**

BetaPERT distribution with parameters:

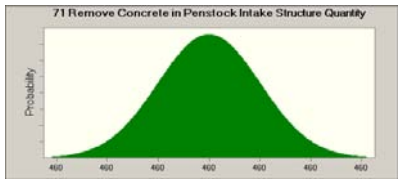
Minimum	$1,500.00	(=Q84)
Likeliest	$2,000.00	(=R84)
Maximum	$3,000.00	(=S84)



Assumption: 71 Remove Concrete in Penstock Intake Structure Quantity **Cell: L85**

Normal distribution with parameters:

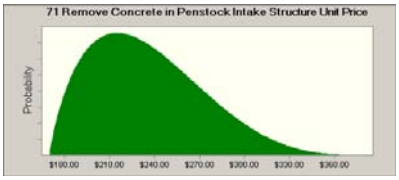
Mean	460	(=L85)
Std. Dev.	0	(=0.000001)



Assumption: 71 Remove Concrete in Penstock Intake Structure Unit Price **Cell: R85**

BetaPERT distribution with parameters:

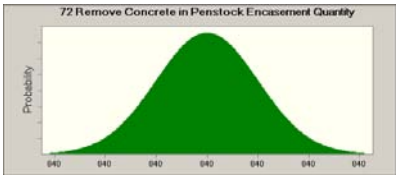
Minimum	$170.00	(=Q85)
Likeliest	$215.00	(=R85)
Maximum	$380.00	(=S85)



Assumption: 72 Remove Concrete in Penstock Encasement Quantity **Cell: L86**

Normal distribution with parameters:

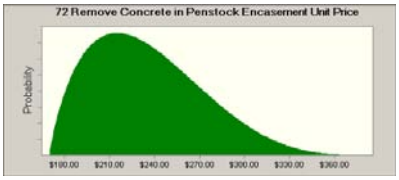
Mean	840	(=L86)
Std. Dev.	0	(=0.000001)



Assumption: 72 Remove Concrete in Penstock Encasement Unit Price **Cell: R86**

BetaPERT distribution with parameters:

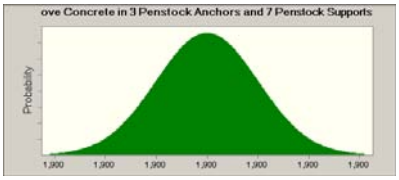
Minimum	$170.00	(=Q86)
Likeliest	$215.00	(=R86)
Maximum	$380.00	(=S86)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports Quantity **Cell: L87**

Normal distribution with parameters:

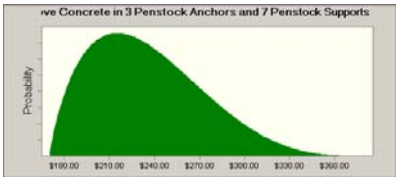
Mean	1,900	(=L87)
Std. Dev.	0	(=0.000001)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports Unit Price **Cell: R87**

BetaPERT distribution with parameters:

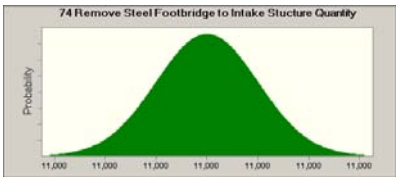
Minimum	$170.00	(=Q87)
Likeliest	$215.00	(=R87)
Maximum	$380.00	(=S87)



Assumption: 74 Remove Steel Footbridge to Intake Stucture Quantity **Cell: L88**

Normal distribution with parameters:

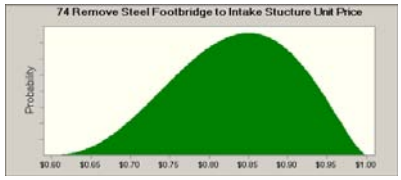
Mean	11,000	(=L88)
Std. Dev.	0	(=0.000001)



Assumption: 74 Remove Steel Footbridge to Intake Stucture Unit Price **Cell: R88**

BetaPERT distribution with parameters:

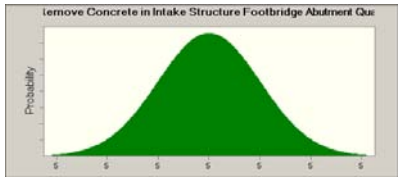
Minimum	$0.60	(=Q88)
Likeliest	$0.85	(=R88)
Maximum	$1.00	(=S88)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Quantity **Cell: L89**

Normal distribution with parameters:

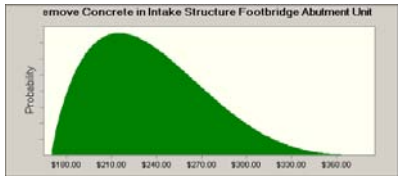
Mean	5	(=L89)
Std. Dev.	0	(=0.000001)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Unit Price **Cell: R89**

BetaPERT distribution with parameters:

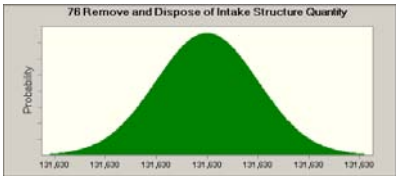
Minimum	$170.00	(=Q89)
Likeliest	$215.00	(=R89)
Maximum	$380.00	(=S89)



Assumption: 76 Remove and Dispose of Intake Structure Quantity **Cell: L90**

Normal distribution with parameters:

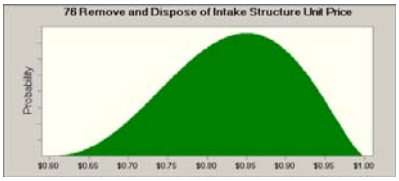
Mean	131,630	(=L90)
Std. Dev.	0	(=0.000001)



Assumption: 76 Remove and Dispose of Intake Structure Unit Price **Cell: R90**

BetaPERT distribution with parameters:

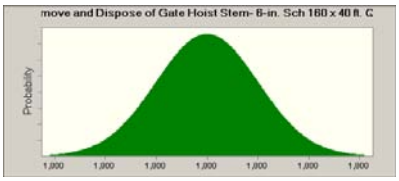
Minimum	$0.60	(=Q90)
Likeliest	$0.85	(=R90)
Maximum	$1.00	(=S90)



Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Quantity **Cell: L91**

Normal distribution with parameters:

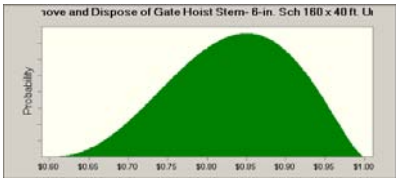
Mean	1,800	(=L91)
Std. Dev.	0	(=0.000001)



Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Unit Price Cell: R91

BetaPERT distribution with parameters:

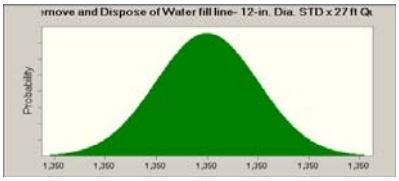
Minimum	$0.60	(=Q91)
Likeliest	$0.85	(=R91)
Maximum	$1.00	(=S91)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Quantity Cell: L92

Normal distribution with parameters:

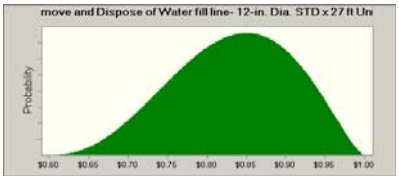
Mean	1,350	(=L92)
Std. Dev.	0	(=0.000001)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Unit Price Cell: R92

BetaPERT distribution with parameters:

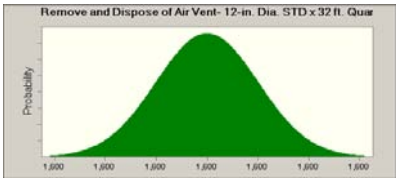
Minimum	$0.60	(=Q92)
Likeliest	$0.85	(=R92)
Maximum	$1.00	(=S92)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Quantity **Cell: L93**

Normal distribution with parameters:

Mean	1,600	(=L93)
Std. Dev.	0	(=0.000001)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Unit Price **Cell: R93**

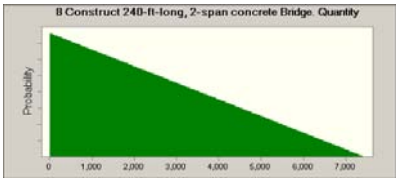
BetaPERT distribution with parameters:

Minimum	$0.60	(=Q93)
Likeliest	$0.85	(=R93)
Maximum	$1.00	(=S93)

Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Quantity **Cell: L21**

Triangular distribution with parameters:

Minimum	0	(=K21)
Likeliest	0	(=L21)
Maximum	7,440	(=M21)



Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Unit Price **Cell: R21**

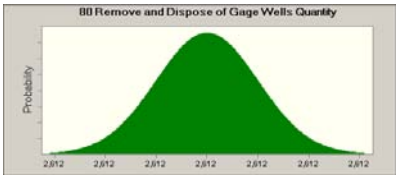
BetaPERT distribution with parameters:

Minimum	$200.00	(=Q21)
Likeliest	$300.00	(=R21)
Maximum	$600.00	(=S21)

Assumption: 80 Remove and Dispose of Gage Wells Quantity **Cell: L94**

Normal distribution with parameters:

Mean	2,612	(=L94)
Std. Dev.	0	(=0.000001)



Assumption: 80 Remove and Dispose of Gage Wells Unit Price **Cell: R94**

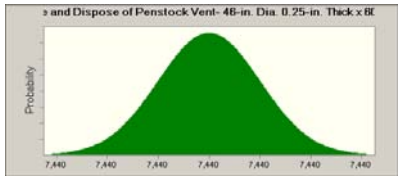
BetaPERT distribution with parameters:

Minimum	$0.60	(=Q94)
Likeliest	$0.85	(=R94)
Maximum	$1.00	(=S94)

Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Qty. L95

Normal distribution with parameters:

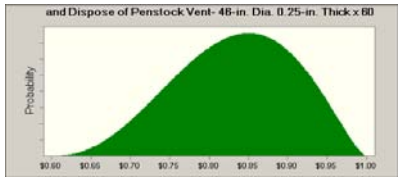
Mean	7,440	(=L95)
Std. Dev.	0	(=0.000001)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Unit Cost R95

BetaPERT distribution with parameters:

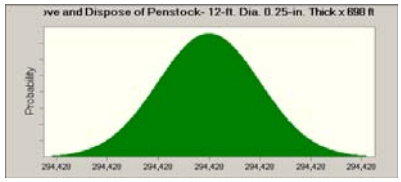
Minimum	$0.60	(=Q95)
Likeliest	$0.85	(=R95)
Maximum	$1.00	(=S95)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Qty. L96

Normal distribution with parameters:

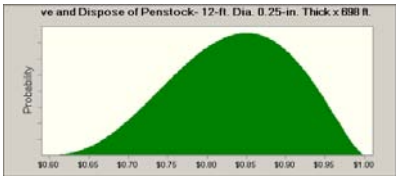
Mean	294,428	(=L96)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Unit: R96 **Cell: R96**

BetaPERT distribution with parameters:

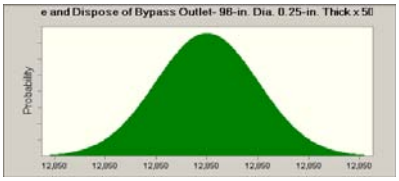
Minimum	$0.60	(=Q96)
Likeliest	$0.85	(=R96)
Maximum	$1.00	(=S96)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Unit: L97 **Cell: L97**

Normal distribution with parameters:

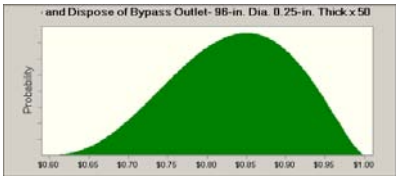
Mean	12,850	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Unit: R97 **Cell: R97**

BetaPERT distribution with parameters:

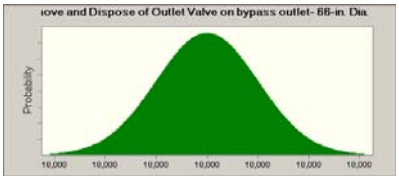
Minimum	$0.60	(=Q97)
Likeliest	$0.85	(=R97)
Maximum	$1.00	(=S97)



Assumption: 84 Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia. Quantity **Cell: L98**

Normal distribution with parameters:

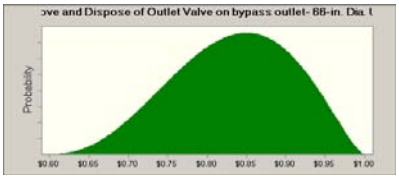
Mean	18,000	(=L98)
Std. Dev.	0	(=0.000001)



Assumption: 84 Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia. Unit Price **Cell: R98**

BetaPERT distribution with parameters:

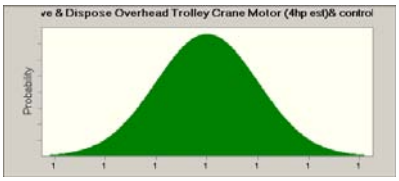
Minimum	$0.60	(=Q98)
Likeliest	$0.85	(=R98)
Maximum	$1.00	(=S98)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control Quantity **Cell: L99**

Normal distribution with parameters:

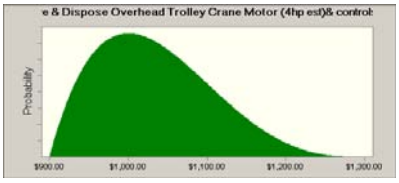
Mean	1	(=L99)
Std. Dev.	0	(=0.000001)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control Unit **Cell: R99**

BetaPERT distribution with parameters:

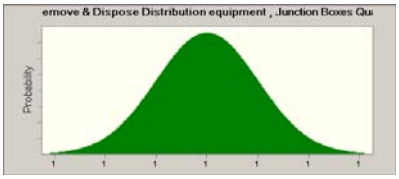
Minimum	$900.00	(=Q99)
Likeliest	$1,000.00	(=R99)
Maximum	$1,300.00	(=S99)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Quantity **Cell: L100**

Normal distribution with parameters:

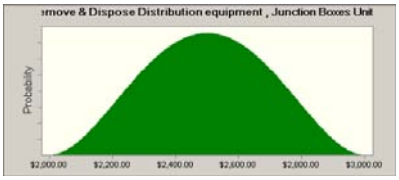
Mean	1	(=L100)
Std. Dev.	0	(=0.000001)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Unit Price **Cell: R100**

BetaPERT distribution with parameters:

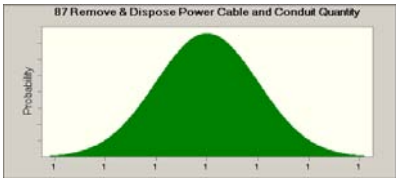
Minimum	$2,000.00	(=Q100)
Likeliest	$2,500.00	(=R100)
Maximum	$3,000.00	(=S100)



Assumption: 87 Remove & Dispose Power Cable and Conduit Quantity **Cell: L101**

Normal distribution with parameters:

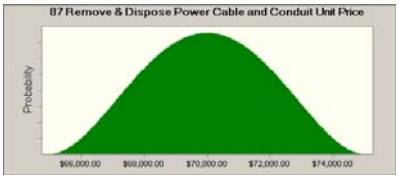
Mean	1	(=L101)
Std. Dev.	0	(=0.000001)



Assumption: 87 Remove & Dispose Power Cable and Conduit Unit Price **Cell: R101**

BetaPERT distribution with parameters:

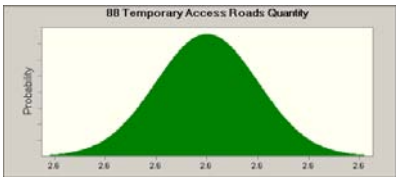
Minimum	$65,000.00	(=Q101)
Likeliest	$70,000.00	(=R101)
Maximum	$75,000.00	(=S101)



Assumption: 88 Temporary Access Roads Quantity **Cell: L102**

Normal distribution with parameters:

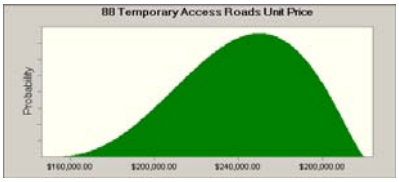
Mean	2.6	(=L102)
Std. Dev.	0.0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price **Cell: R102**

BetaPERT distribution with parameters:

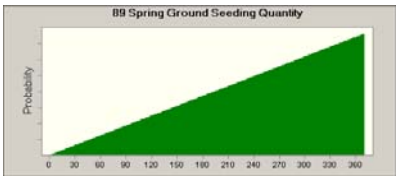
Minimum	$150,000.00	(=Q102)
Likeliest	$250,000.00	(=S102)
Maximum	$300,000.00	(=R102)



Assumption: 89 Spring Ground Seeding Quantity **Cell: L103**

Triangular distribution with parameters:

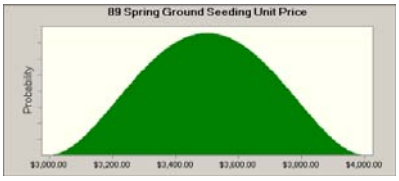
Minimum	0	(=M103)
Likeliest	370	(=L103)
Maximum	370	(=K103)



Assumption: 89 Spring Ground Seeding Unit Price **Cell: R103**

BetaPERT distribution with parameters:

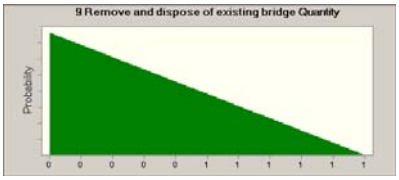
Minimum	$3,000.00	(=Q103)
Likeliest	$3,500.00	(=R103)
Maximum	$4,000.00	(=S103)



Assumption: 9 Remove and dispose of existing bridge Quantity **Cell: L22**

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	1	(=M22)



Assumption: 9 Remove and dispose of existing bridge Unit Price **Cell: R22**

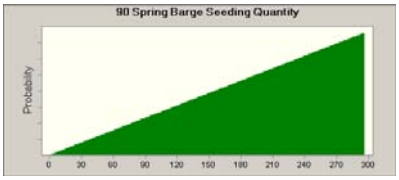
BetaPERT distribution with parameters:

Minimum	$300,000.00	(=Q22)
Likeliest	$400,000.00	(=R22)
Maximum	$800,000.00	(=S22)

Assumption: 90 Spring Barge Seeding Quantity **Cell: L104**

Triangular distribution with parameters:

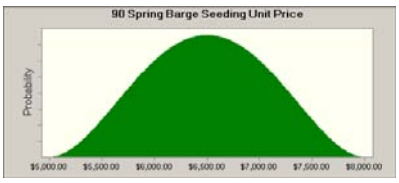
Minimum	0	(=M104)
Likeliest	296	(=L104)
Maximum	296	(=K104)



Assumption: 90 Spring Barge Seeding Unit Price **Cell: R104**

BetaPERT distribution with parameters:

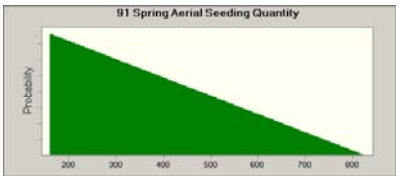
Minimum	$5,000.00	(=Q104)
Likeliest	$6,500.00	(=R104)
Maximum	$8,000.00	(=S104)



Assumption: 91 Spring Aerial Seeding Quantity **Cell: L105**

Triangular distribution with parameters:

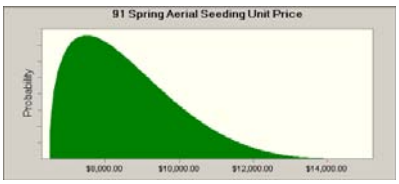
Minimum	159	(=K105)
Likeliest	159	(=L105)
Maximum	825	(=M105)



Assumption: 91 Spring Aerial Seeding Unit Price **Cell: R105**

BetaPERT distribution with parameters:

Minimum	$6,500.00	(=Q105)
Likeliest	$7,500.00	(=R105)
Maximum	$15,000.00	(=S105)



Assumption: 92 Fall Ground Seeding Quantity **Cell: L106**

Triangular distribution with parameters:

Minimum	207	(=K106)
Likeliest	413	(=L106)
Maximum	619	(=M106)

Assumption: 92 Fall Ground Seeding Unit Price **Cell: R106**

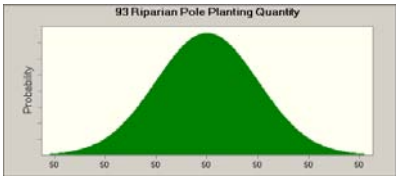
BetaPERT distribution with parameters:

Minimum	$3,000.00	(=Q106)
Likeliest	$3,500.00	(=R106)
Maximum	$4,000.00	(=S106)

Assumption: 93 Riparian Pole Planting Quantity **Cell: L107**

Normal distribution with parameters:

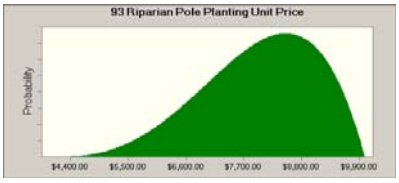
Mean	50	(=L107)
Std. Dev.	0	(=0.000001)



Assumption: 93 Riparian Pole Planting Unit Price **Cell: R107**

BetaPERT distribution with parameters:

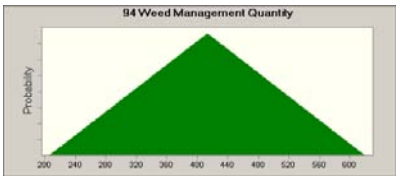
Minimum	$4,000.00	(=Q107)
Likeliest	$8,500.00	(=R107)
Maximum	$10,000.00	(=S107)



Assumption: 94 Weed Management Quantity **Cell: L108**

Triangular distribution with parameters:

Minimum	206	(=K108)
Likeliest	413	(=L108)
Maximum	619	(=M108)



Assumption: 94 Weed Management Unit Price **Cell: R108**

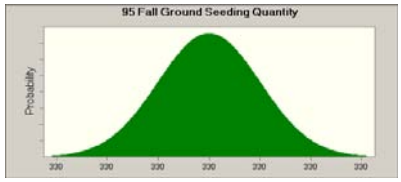
BetaPERT distribution with parameters:

Minimum	$1,000.00	(=Q108)
Likeliest	$1,500.00	(=R108)
Maximum	$2,000.00	(=S108)

Assumption: 95 Fall Ground Seeding Quantity **Cell: L109**

Normal distribution with parameters:

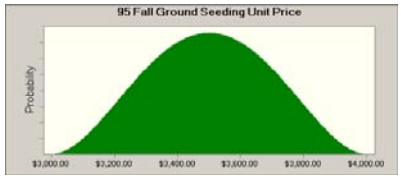
Mean	330	(=L109)
Std. Dev.	0	(=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price **Cell: R109**

BetaPERT distribution with parameters:

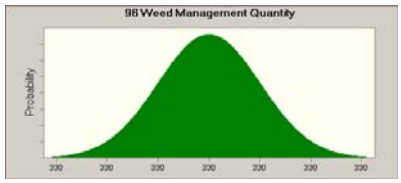
Minimum	$3,000.00	(=Q109)
Likeliest	$3,500.00	(=R109)
Maximum	$4,000.00	(=S109)



Assumption: 96 Weed Management Quantity **Cell: L110**

Normal distribution with parameters:

Mean	330	(=L110)
Std. Dev.	0	(=0.000001)



Assumption: 96 Weed Management Unit Price **Cell: R110**

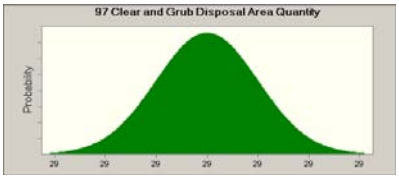
BetaPERT distribution with parameters:

Minimum	$1,000.00	(=Q110)
Likeliest	$1,500.00	(=R110)
Maximum	$2,000.00	(=S110)

Assumption: 97 Clear and Grub Disposal Area Quantity **Cell: L111**

Normal distribution with parameters:

Mean	29	(=L111)
Std. Dev.	0	(=0.000001)



Assumption: 97 Clear and Grub Disposal Area Unit Price **Cell: R111**

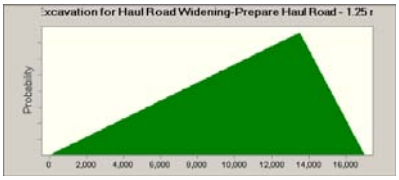
BetaPERT distribution with parameters:

Minimum	$5,000.00	(=Q111)
Likeliest	$6,000.00	(=R111)
Maximum	$7,000.00	(=S111)

Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Qu Cell: L112

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	13,500	(=L112)
Maximum	17,000	(=M112)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Uni Cell: R112

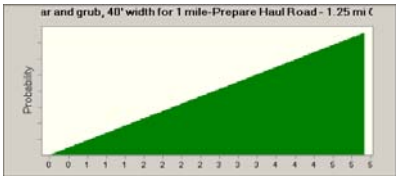
BetaPERT distribution with parameters:

Minimum	$35.00	(=Q112)
Likeliest	$40.00	(=R112)
Maximum	$45.00	(=S112)

Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Quantity Cell: L113

Triangular distribution with parameters:

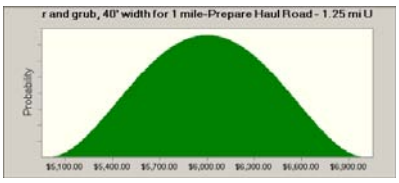
Minimum	0	(=K113)
Likeliest	5	(=L113)
Maximum	5	(=M113)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Unit Price **Cell: R113**

BetaPERT distribution with parameters:

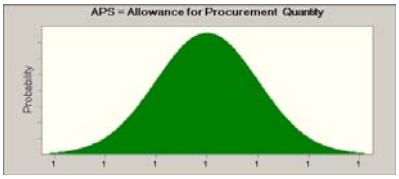
Minimum	$5,000.00	(=Q113)
Likeliest	$6,000.00	(=R113)
Maximum	$7,000.00	(=S113)



Assumption: APS = Allowance for Procurement Quantity **Cell: L207**

Normal distribution with parameters:

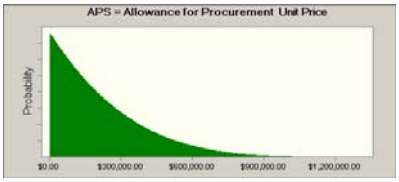
Mean	1	(=L207)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price **Cell: R207**

BetaPERT distribution with parameters:

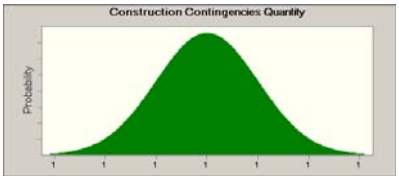
Minimum	$0.00	(=Q207)
Likeliest	$0.00	(=R207)
Maximum	$1,321,067.00	(=S207)



Assumption: Construction Contingencies Quantity **Cell: L210**

Normal distribution with parameters:

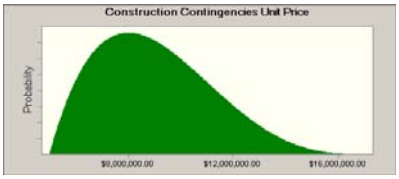
Mean	1	(=L210)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price **Cell: R210**

BetaPERT distribution with parameters:

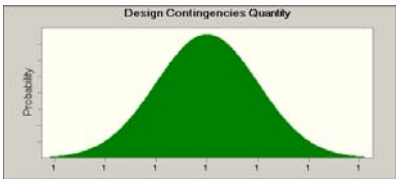
Minimum	$5,000,000.00	(=Q210)
Likeliest	$8,000,000.00	(=R210)
Maximum	$17,000,000.00	(=S210)



Assumption: Design Contingencies Quantity **Cell: L206**

Normal distribution with parameters:

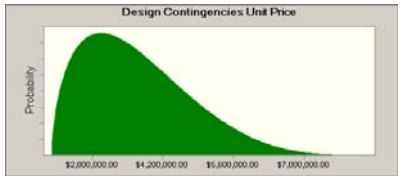
Mean	1	(=L206)
Std. Dev.	0	(=0.000001)



Assumption: Design Contingencies Unit Price **Cell: R206**

BetaPERT distribution with parameters:

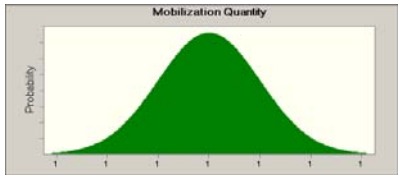
Minimum	$1,987,310.20	(=Q206)
Likeliest	$2,968,498.20	(=R206)
Maximum	$8,241,250.00	(=S206)



Assumption: Mobilization Quantity **Cell: L201**

Normal distribution with parameters:

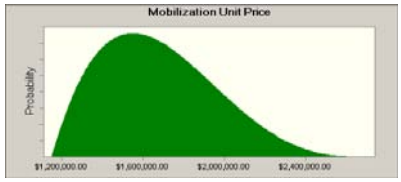
Mean	1	(=L201)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price **Cell: R201**

BetaPERT distribution with parameters:

Minimum	$1,150,000.00	(=Q201)
Likeliest	$1,550,000.00	(=R201)
Maximum	$2,700,000.00	(=S201)



Assumption: Non-Contract Cost Quantity **Cell: L212**

Normal distribution with parameters:

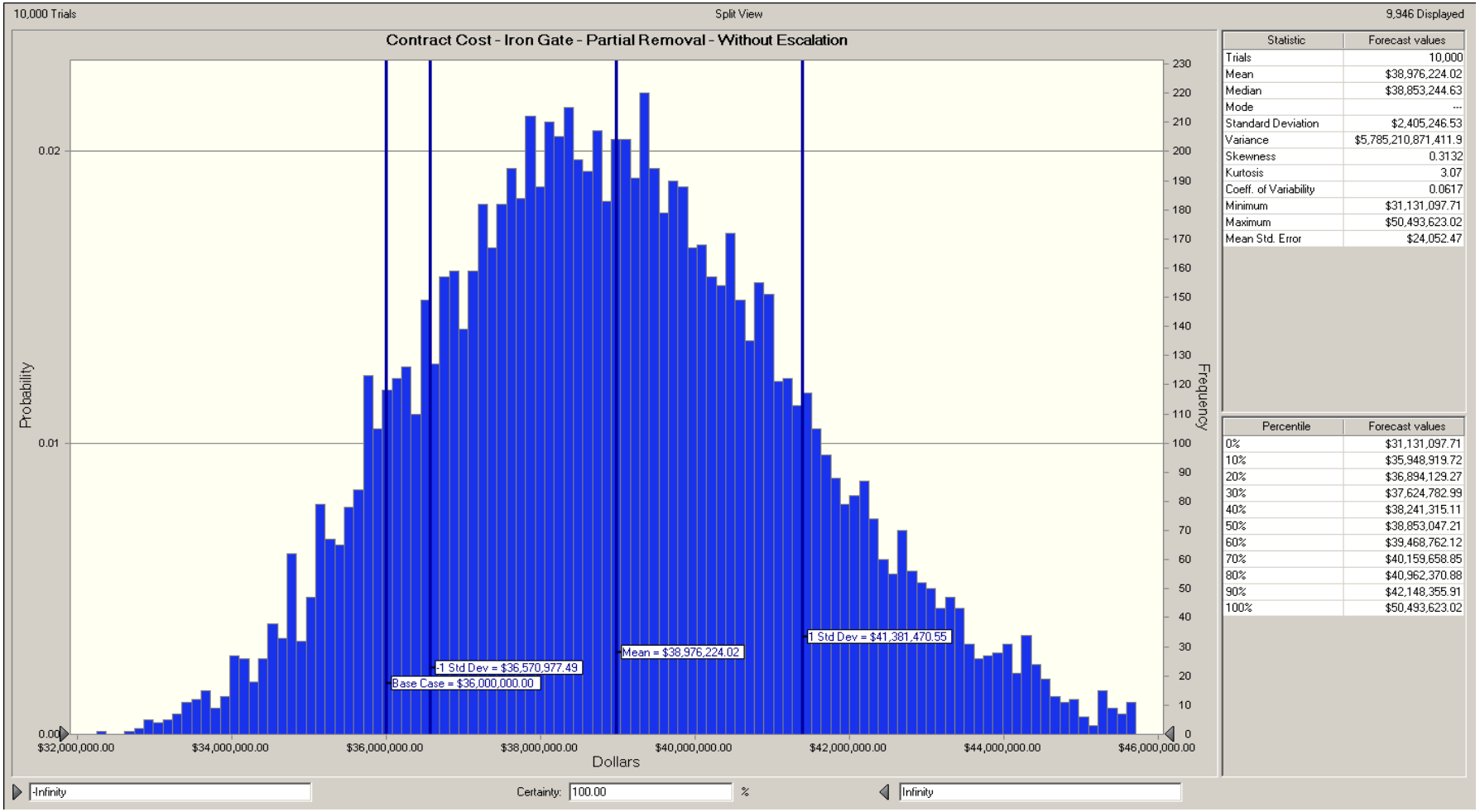
Mean	1	(=L212)
Std. Dev.	0	(=0.000001)

Assumption: Non-Contract Cost Unit Price **Cell: R212**

BetaPERT distribution with parameters:

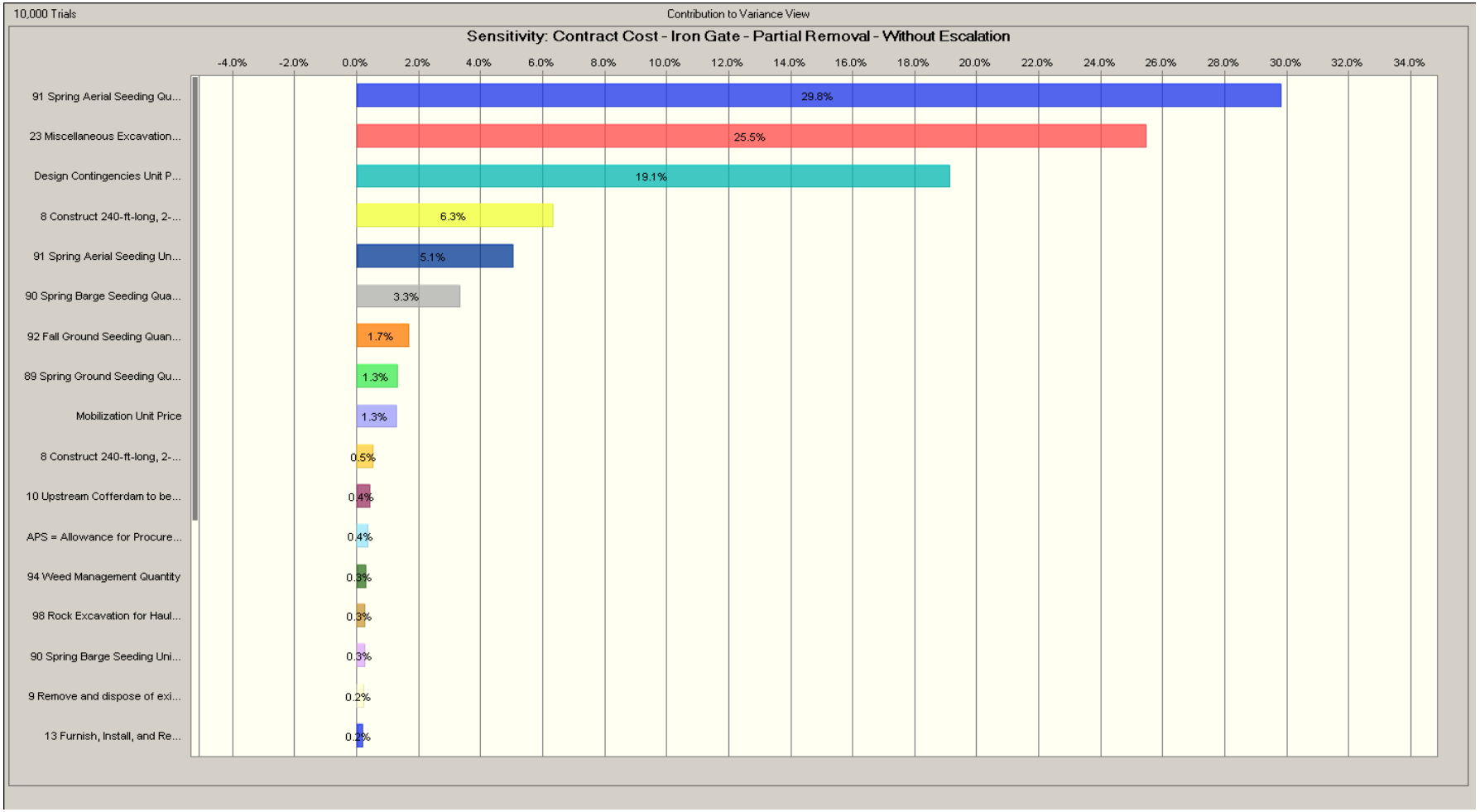
Minimum	$19,000,000.00	(=Q212)
Likeliest	$29,000,000.00	(=R212)
Maximum	$61,000,000.00	(=S212)

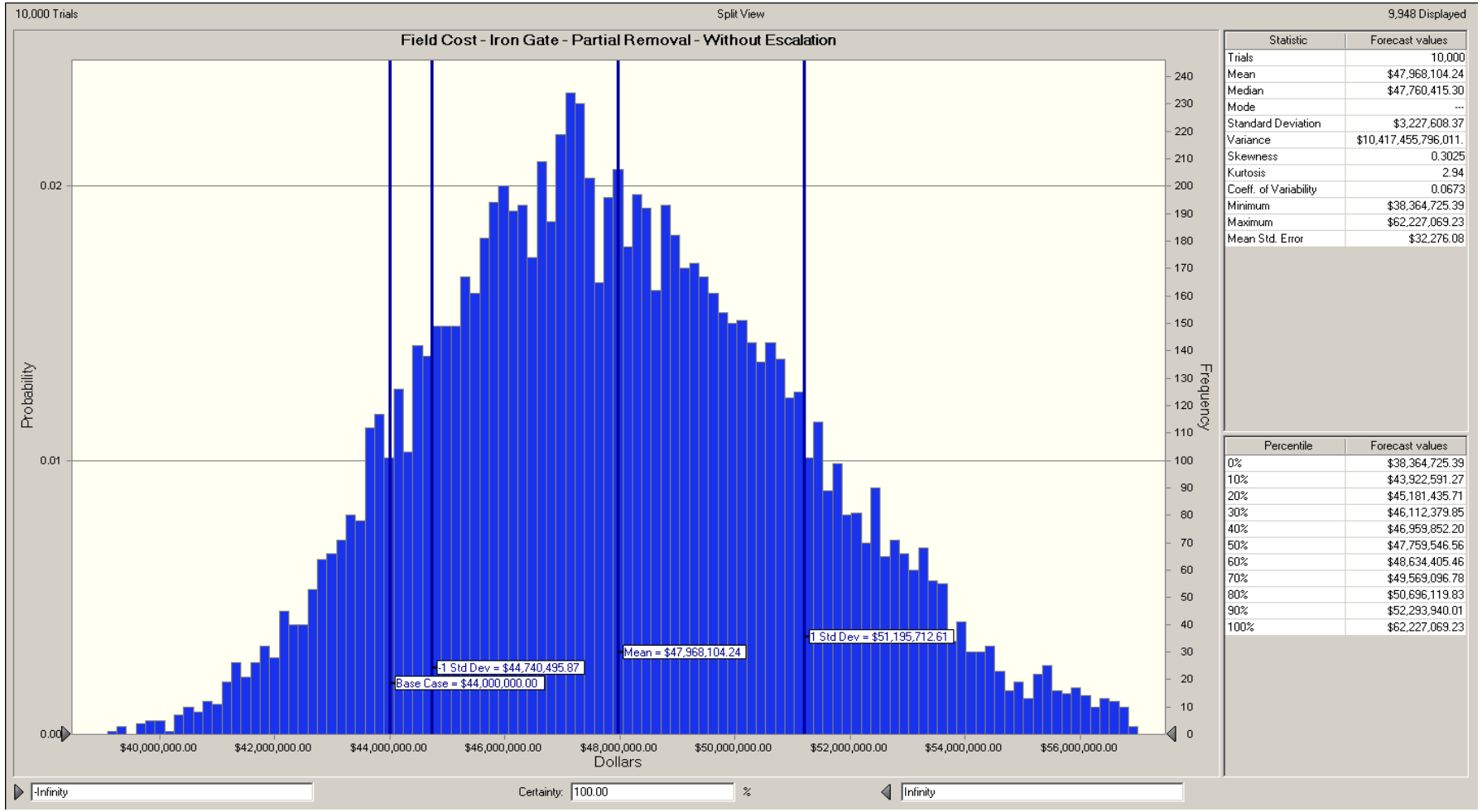
End of Assumptions



Statistic	Forecast values
Trials	10,000
Mean	$38,976,224.02
Median	$38,853,244.63
Mode	---
Standard Deviation	$2,405,246.53
Variance	$5,785,210,871,411.9
Skewness	0.3132
Kurtosis	3.07
Coeff. of Variability	0.0617
Minimum	$31,131,097.71
Maximum	$50,493,623.02
Mean Std. Error	$24,052.47

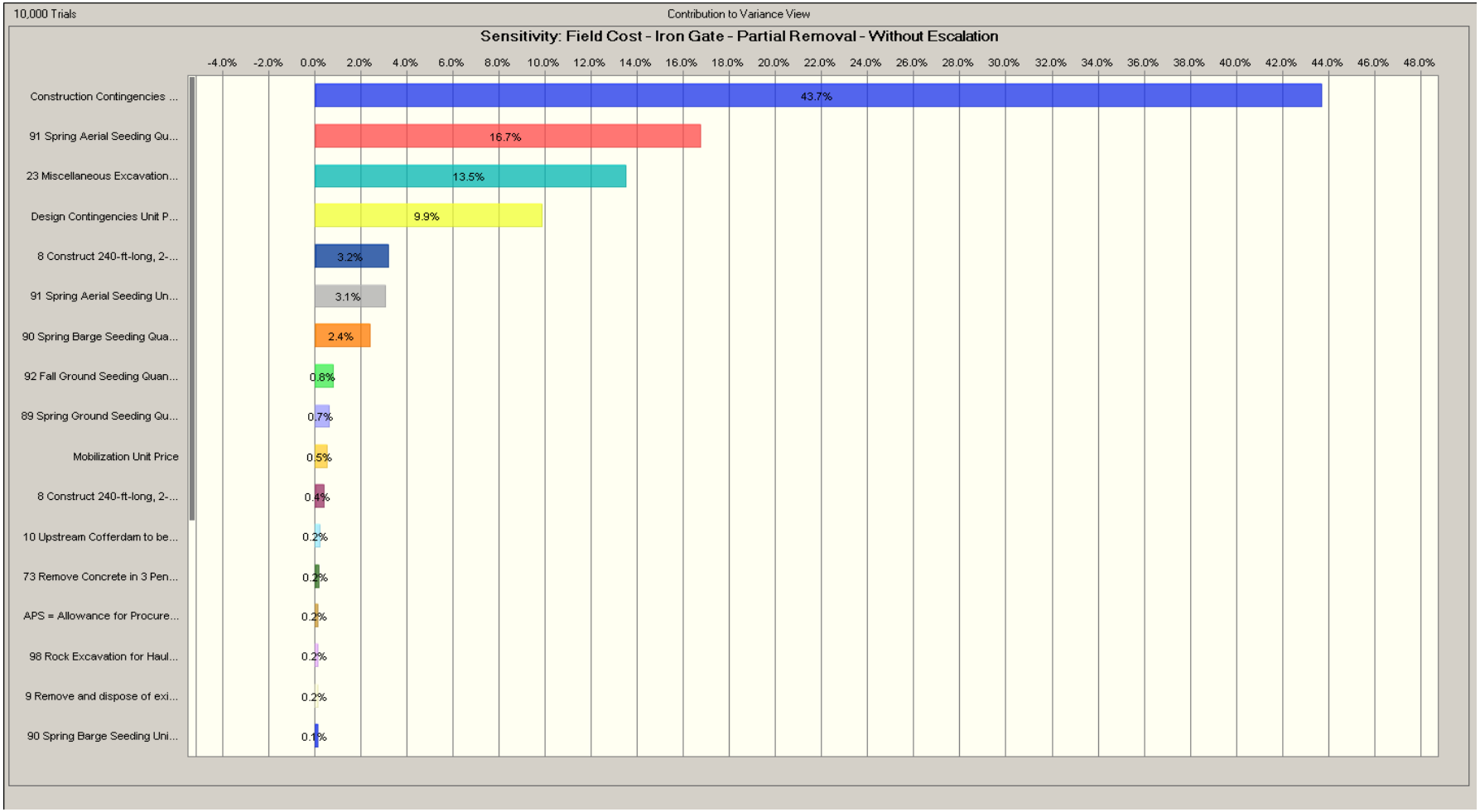
Percentile	Forecast values
0%	$31,131,097.71
10%	$35,948,919.72
20%	$36,894,129.27
30%	$37,624,782.99
40%	$38,241,315.11
50%	$38,853,047.21
60%	$39,468,762.12
70%	$40,159,658.85
80%	$40,962,370.88
90%	$42,148,355.91
100%	$50,493,623.02

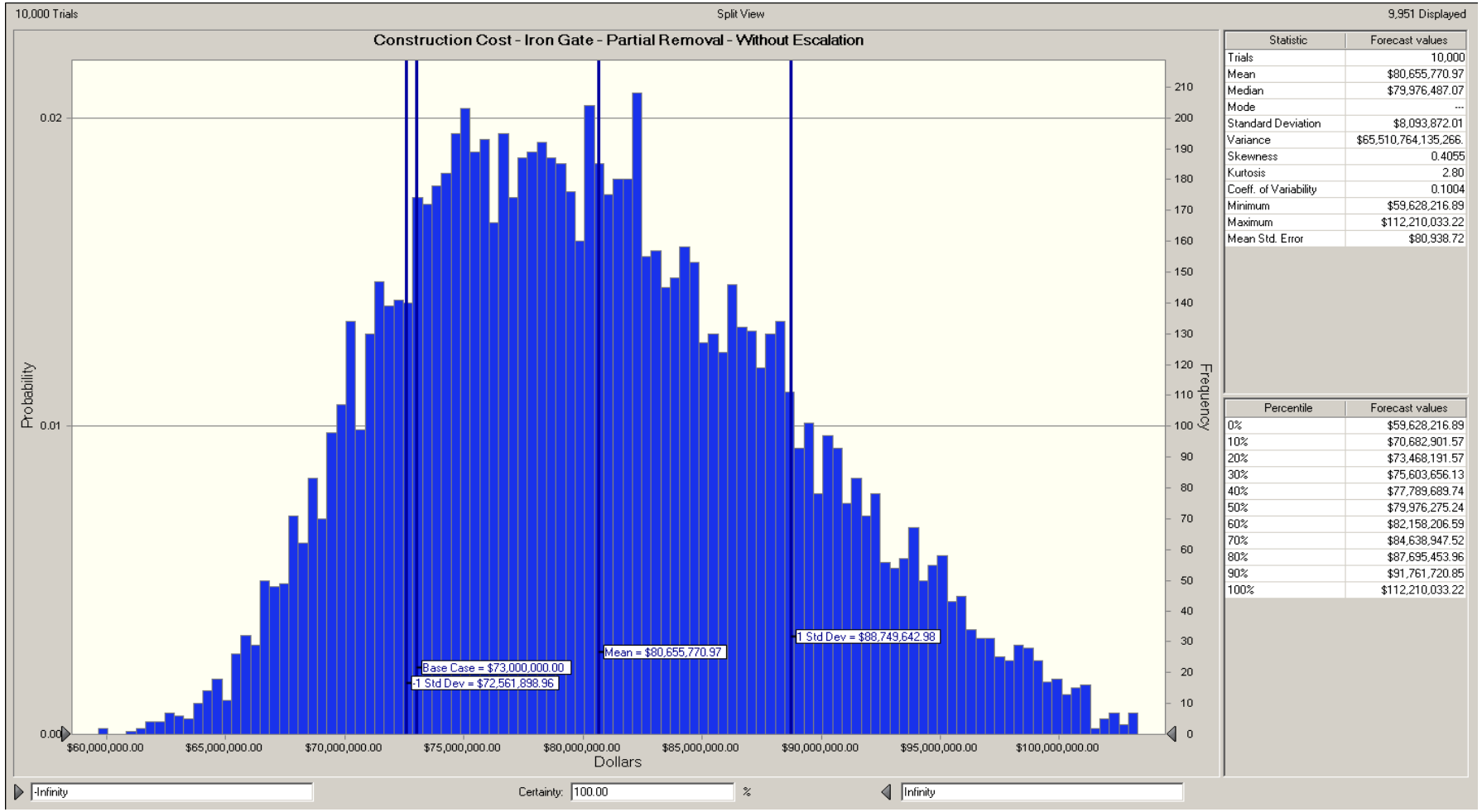

10,000 Trials
Contribution to Variance View
Sensitivity: Contract Cost - Iron Gate - Partial Removal - Without Escalation
-4.0%
-2.0%
0.0%
2.0%
4.0%
6.0%
8.0%
10.0%
12.0%
14.0%
16.0%
18.0%
20.0%
22.0%
24.0%
26.0%
28.0%
30.0%
32.0%
34.0%
91 Spring Aerial Seeding Qu...
29.8%
23 Miscellaneous Excavation...
25.5%
Design Contingencies Unit P...
19.1%
8 Construct 240-ft-long, 2-...
6.3%
91 Spring Aerial Seeding Un...
5.1%
90 Spring Barge Seeding Qua...
3.3%
92 Fall Ground Seeding Quan...
1.7%
89 Spring Ground Seeding Qu...
1.3%
Mobilization Unit Price
1.3%
8 Construct 240-ft-long, 2-...
0.5%
10 Upstream Cofferdam to be...
0.4%
APS = Allowance for Procure...
0.4%
94 Weed Management Quantity
0.3%
98 Rock Excavation for Haul...
0.3%
90 Spring Barge Seeding Uni...
0.3%
9 Remove and dispose of exi...
0.2%
13 Furnish, Install, and Re...
0.2%



Statistic	Forecast values
Trials	10,000
Mean	$47,968,104.24
Median	$47,760,415.30
Mode	---
Standard Deviation	$3,227,608.37
Variance	$10,417,455,796,011.
Skewness	0.3025
Kurtosis	2.94
Coeff. of Variability	0.0673
Minimum	$38,364,725.39
Maximum	$62,227,069.23
Mean Std. Error	$32,276.08

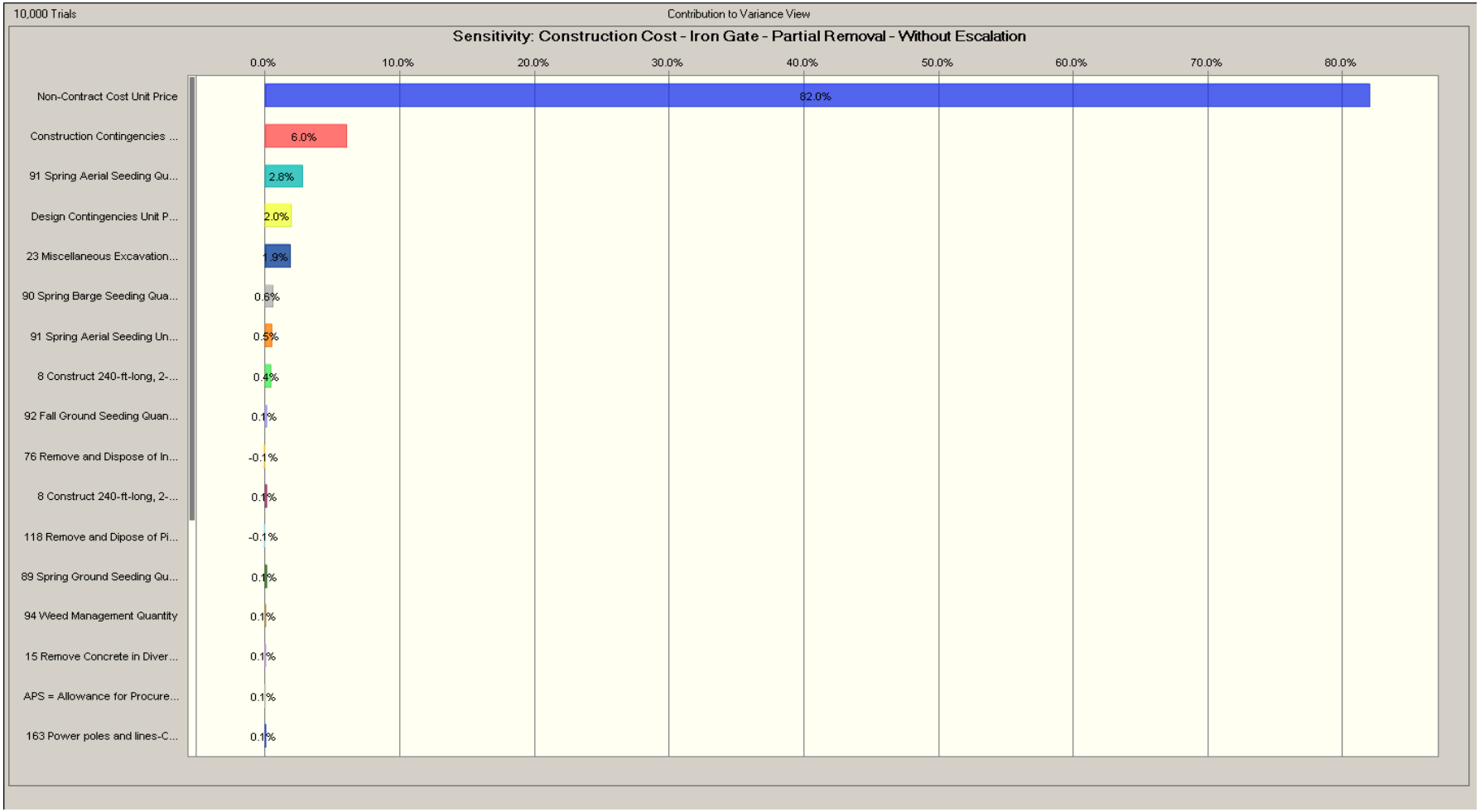
Percentile	Forecast values
0%	$38,364,725.39
10%	$43,922,591.27
20%	$45,181,435.71
30%	$46,112,379.85
40%	$46,959,852.20
50%	$47,759,546.56
60%	$48,634,405.46
70%	$49,569,096.78
80%	$50,696,119.83
90%	$52,293,940.01
100%	$62,227,069.23


10,000 Trials
Contribution to Variance View
Sensitivity: Field Cost - Iron Gate - Partial Removal - Without Escalation
-4.0% -2.0% 0.0% 2.0% 4.0% 6.0% 8.0% 10.0% 12.0% 14.0% 16.0% 18.0% 20.0% 22.0% 24.0% 26.0% 28.0% 30.0% 32.0% 34.0% 36.0% 38.0% 40.0% 42.0% 44.0% 46.0% 48.0%
Construction Contingencies ... 43.7%
91 Spring Aerial Seeding Qu... 16.7%
23 Miscellaneous Excavation... 13.5%
Design Contingencies Unit P... 9.9%
8 Construct 240-ft-long, 2-... 3.2%
91 Spring Aerial Seeding Un... 3.1%
90 Spring Barge Seeding Qua... 2.4%
92 Fall Ground Seeding Quan... 0.8%
89 Spring Ground Seeding Qu... 0.7%
Mobilization Unit Price 0.5%
8 Construct 240-ft-long, 2-... 0.4%
10 Upstream Cofferdam to be... 0.2%
73 Remove Concrete in 3 Pen... 0.2%
APS = Allowance for Procure... 0.2%
98 Rock Excavation for Haul... 0.2%
9 Remove and dispose of exi... 0.2%
90 Spring Barge Seeding Uni... 0.1%



Statistic	Forecast values
Trials	10,000
Mean	$80,655,770.97
Median	$79,976,487.07
Mode	---
Standard Deviation	$8,093,872.01
Variance	$65,510,764,135,266.
Skewness	0.4055
Kurtosis	2.80
Coeff. of Variability	0.1004
Minimum	$59,628,216.89
Maximum	$112,210,033.22
Mean Std. Error	$80,938.72

Percentile	Forecast values
0%	$59,628,216.89
10%	$70,682,901.57
20%	$73,468,191.57
30%	$75,603,656.13
40%	$77,789,689.74
50%	$79,976,275.24
60%	$82,158,206.59
70%	$84,638,947.52
80%	$87,695,453.96
90%	$91,761,720.85
100%	$112,210,033.22


10,000 Trials
Contribution to Variance View
Sensitivity: Construction Cost - Iron Gate - Partial Removal - Without Escalation
0.0%
10.0%
20.0%
30.0%
40.0%
50.0%
60.0%
70.0%
80.0%
Non-Contract Cost Unit Price
82.0%
Construction Contingencies ...
6.0%
91 Spring Aerial Seeding Qu...
2.8%
Design Contingencies Unit P...
2.0%
23 Miscellaneous Excavation...
1.9%
90 Spring Barge Seeding Qua...
0.6%
91 Spring Aerial Seeding Un...
0.5%
8 Construct 240-ft-long, 2-...
0.4%
92 Fall Ground Seeding Quan...
0.1%
76 Remove and Dispose of In...
-0.1%
8 Construct 240-ft-long, 2-...
0.1%
118 Remove and Dipose of Pi...
-0.1%
89 Spring Ground Seeding Qu...
0.1%
94 Weed Management Quantity
0.1%
15 Remove Concrete in Diver...
0.1%
APS = Allowance for Procure...
0.1%
163 Power poles and lines-C...
0.1%