BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

FEATURE:

REVISION #1
Klamath River Dams Removal
Full Removal Option
Copco No. 1 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\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\[Copco 1 - Full Removal Crystal Ball - with Escalation - 2011-04.xls]Copco 1 - Full - with 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 for Dam Removal	8130	1	1	1	LS	$340,000.00	$350,000.00	$370,000.00	$340,000.00	$350,000.00	$370,000.00
	2	Remove Sediment from Diversion Tunnel Intake to provide access	8130	30	30	30	CY	$1,700.00	$2,000.00	$3,000.00	$51,000.00	$60,000.00	$90,000.00
	3	Furnish, Install, and Remove Large Crane on Right Abutment	8130	1	1	1	LS				$0.00	$0.00	$0.00
	4	Remove Water from behind Tailrace Cofferdam	8130	200,000	200,000	200,000	GAL	$0.01	$0.01	$0.01	$2,000.00	$2,000.00	$2,000.00
	5	Riprap Protection on Cofferdam	8130	260	260	260	CY	$120.00	$150.00	$200.00	$31,200.00	$39,000.00	$52,000.00
	6	Provide Dewatering behind Tailrace Cofferdam	8130	1	1	1	LS	$30,000.00	$35,000.00	$200,000.00	$30,000.00	$35,000.00	$200,000.00
	7	Remove Current Diversion Tunnel Plug	8130	195	195	195	CY	$1,400.00	$1,500.00	$1,800.00	$273,000.00	$292,500.00	$351,000.00
	8	Construct Embankment Cofferdam in Tailrace	8130	1,700	1,700	1,700	CY	$70.00	$85.00	$130.00	$119,000.00	$144,500.00	$221,000.00
	9	Furnish, Install & Remove 3-6'x6' Fabricated Slide Gates	8420	40,500	40,500	40,500	LBS	$12.00	$15.00	$18.00	$486,000.00	$607,500.00	$729,000.00
	10	Remove Concrete Dam down to Elev. 2476	8130	36,000	36,000	36,000	CY	$290.00	$300.00	$320.00	$10,440,000.00	$10,800,000.00	$11,520,000.00
	11	Remove Concrete Intake Structure on Right Abutment	8130	21,000	21,000	21,000	CY	$340.00	$350.00	$390.00	$7,140,000.00	$7,350,000.00	$8,190,000.00
	12	Remove Structural Steel from Spillway	8130	55,000	55,000	55,000	LBS	$0.70	$1.00	$1.50	$38,500.00	$55,000.00	$82,500.00
	13	Install Diversion Tunnel Plugs	8130	30	30	30	CY	$1,100.00	$1,200.00	$1,300.00	$33,000.00	$36,000.00	$39,000.00
	14	Remove Diversion Tunnel Control Structure Concrete	8130	350	350	350	CY	$170.00	$215.00	$380.00	$59,500.00	$75,250.00	$133,000.00
	15	Remove & Dispose of Hand Rails	8420	11,000	11,000	11,000	LBS	$0.70	$1.00	$1.50	$7,700.00	$11,000.00	$16,500.00
	16	Remove & Dispose of Radial Gates	8420	140,500	140,500	140,500	LBS	$0.70	$1.00	$1.50	$98,350.00	$140,500.00	$210,750.00
	17	Remove & Dispose of Radial Gate stoplogs	8420	18,000	18,000	18,000	LBS	$0.70	$1.00	$1.50	$12,600.00	$18,000.00	$27,000.00
	18	Remove & Dispose of Stoplog hoist, track and supports	8420	26,000	26,000	26,000	LBS	$0.70	$1.00	$1.50	$18,200.00	$26,000.00	$39,000.00
	19	Remove & Dispose of 3 sections of 23' of 72"Ø steel lining (embedded)	8420	54,000	54,000	54,000	LBS	$0.60	$0.85	$1.00	$32,400.00	$45,900.00	$54,000.00
	20	Remove & Dispose of 3 - 72" butterfly valves (embedded)	8420	55,000	55,000	55,000	LBS	$0.60	$0.85	$5.00	$33,000.00	$46,750.00	$275,000.00
	21	Remove & Dispose of 3-72" flapper valves with remote mechanical	8420	78,000	78,000	78,000	LBS	$2.50	$3.00	$5.00	$195,000.00	$234,000.00	$390,000.00
	22	Remove & Dispose of Spillway gate motor & control panel	8430	1	1	1	EA	$900.00	$1,000.00	$1,500.00	$900.00	$1,000.00	$1,500.00
	23	Remove & Dispose of Distribution equipment , panelboards	8430	1	1	1	EA	$5,000.00	$6,000.00	$7,000.00	$5,000.00	$6,000.00	$7,000.00
	24	Remove Powerhouse Concrete down to top of rock under the Powerhouse	8130	3,100	3,100	3,100	CY	$270.00	$350.00	$1,000.00	$837,000.00	$1,085,000.00	$3,100,000.00
	25	Remove Powerhouse Structural Steel	8130	110,000	110,000	110,000	LBS	$0.60	$0.85	$1.00	$66,000.00	$93,500.00	$110,000.00
	26	Remove & Dispose of 2 - Governor oil systems	8420	38,000	38,000	38,000	LBS	$0.60	$0.85	$1.00	$22,800.00	$32,300.00	$38,000.00
	27	Remove & Dispose of Cooling water and bearing oil systems	8420	11,000	11,000	11,000	LBS	$0.60	$0.85	$1.00	$6,600.00	$9,350.00	$11,000.00
	28	Remove & Dispose of 4 - Horizontal Tandem Francis Turbines	8420	452,000	452,000	452,000	LBS	$0.60	$0.85	$1.00	$271,200.00	$384,200.00	$452,000.00
	29	Remove & Dispose of 2 - 40 Ton indoor cranes	8420	140,000	140,000	140,000	LBS	$0.60	$0.85	$1.00	$84,000.00	$119,000.00	$140,000.00
	30	Remove & Dispose of Compressed Air system	8420	1,000	1,000	1,000	LBS	$0.60	$0.85	$1.00	$600.00	$850.00	$1,000.00
	31	Remove & Dispose of 2 - CO2 systems	8420	3,100	3,100	3,100	LBS	$0.60	$0.85	$1.00	$1,860.00	$2,635.00	$3,100.00
	32	Remove & Dispose of Plant Water and Fire Protection	8420	2,600	2,600	2,600	LBS	$0.60	$0.85	$1.00	$1,560.00	$2,210.00	$2,600.00
	33	Remove & Dispose of Transformer Oil Fire protection	8420	5,400	5,400	5,400	LBS	$0.60	$0.85	$1.00	$3,240.00	$4,590.00	$5,400.00
	34	Remove & Dispose of Unwatering Piping	8420	27,000	27,000	27,000	LBS	$0.60	$0.85	$1.00	$16,200.00	$22,950.00	$27,000.00
	35	Remove & Dispose of Drainage Piping	8420	5,000	5,000	5,000	LBS	$0.60	$0.85	$1.00	$3,000.00	$4,250.00	$5,000.00
	36	Remove & Dispose of Horizontal AC Generator, Indoor Open Frame	8430	2	2	2	EA	$30,000.00	$35,000.00	$40,000.00	$60,000.00	$70,000.00	$80,000.00
	37	Remove & Dispose of Excitation equipment for 12.5 MVA Generator	8430	2	2	2	EA	$5,000.00	$6,000.00	$7,000.00	$10,000.00	$12,000.00	$14,000.00
	38	Remove & Dispose of Surge protection equip. for 12.5 MVA Generator	8430	2	2	2	EA	$1,500.00	$2,000.00	$3,000.00	$3,000.00	$4,000.00	$6,000.00
	39	Remove & Dispose of Neutral grounding equip. for 12.5 MVA Generator	8430	2	2	2	EA	$1,500.00	$2,000.00	$3,000.00	$3,000.00	$4,000.00	$6,000.00
	40	Remove & Dispose of Generator Switchgear, 5kV-includes unit breakers	8430	1	1	1	EA	$15,000.00	$20,000.00	$25,000.00	$15,000.00	$20,000.00	$25,000.00
	41	Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	1	1	1	EA	$15,000.00	$20,000.00	$25,000.00	$15,000.00	$20,000.00	$25,000.00
	42	Remove & Dispose of Unit and plant control switchboard	8430	1	1	1	EA	$14,000.00	$15,000.00	$17,000.00	$14,000.00	$15,000.00	$17,000.00
	43	Remove & Dispose of Battery system	8430	1	1	1	EA	$9,000.00	$10,000.00	$12,000.00	$9,000.00	$10,000.00	$12,000.00
	44	Remove & Dispose of Raceways, Conduit and Cable	8430	1	1	1	EA	$14,000.00	$15,000.00	$17,000.00	$14,000.00	$15,000.00	$17,000.00
	45	Remove & Dispose of Misc. power & control boards	8430	1	1	1	EA	$4,000.00	$5,000.00	$7,000.00	$4,000.00	$5,000.00	$7,000.00
	46	Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-phase, 5000kVA	8430	3	3	3	EA	$40,000.00	$50,000.00	$60,000.00	$120,000.00	$150,000.00	$180,000.00
	47	Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-phase, 4165 kVA	8430	3	3	3	EA	$40,000.00	$50,000.00	$60,000.00	$120,000.00	$150,000.00	$180,000.00

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	48	Remove & Dispose of Seven 40-Ton Travelling Crane motors - hoist	8430	1	1	1	EA	$2,000.00	$2,500.00	$3,000.00	$2,000.00	$2,500.00	$3,000.00
	49	Remove & Dispose of 40-Ton Travelling Crane control equipment	8430	1	1	1	EA	$9,000.00	$10,000.00	$12,000.00	$9,000.00	$10,000.00	$12,000.00
	50	Remove & Dispose of 40-Ton Travelling Crane Festoon Cable	8430	1	1	1	EA	$1,000.00	$1,500.00	$2,000.00	$1,000.00	$1,500.00	$2,000.00
	51	Remove & Dispose of Four 15-Ton Overhead Crane motors - hoist	8430	1	1	1	EA	$900.00	$1,000.00	$1,300.00	$900.00	$1,000.00	$1,300.00
	52	Remove & Dispose of 15-Ton Overhead Crane control equipment	8430	1	1	1	EA	$250.00	$300.00	$350.00	$250.00	$300.00	$350.00
	53	Remove & Dispose of 15-Ton Overhead Crane Festoon Cable	8430	1	1	1	EA	$400.00	$500.00	$600.00	$400.00	$500.00	$600.00
	54	Remove & Dispose of 69-kV circuit breakers, oil-filled, PCB	8430	2	2	2	EA	$2,500.00	$3,000.00	$3,500.00	$5,000.00	$6,000.00	$7,000.00
	55	Remove & Dispose of 69-kV disconnect switches, group-operated	8430	2	2	2	EA	$1,000.00	$1,500.00	$2,000.00	$2,000.00	$3,000.00	$4,000.00
	56	Remove & Dispose of 60-foot wood poles	8430	12	12	12	EA	$900.00	$1,000.00	$1,300.00	$10,800.00	$12,000.00	$15,600.00
	57	Remove & Dispose of 30-foot wood crossarms	8430	24	24	24	EA	$400.00	$500.00	$600.00	$9,600.00	$12,000.00	$14,400.00
	58	Remove & Dispose of 69-kV insulator strings	8430	12	12	12	EA	$300.00	$400.00	$500.00	$3,600.00	$4,800.00	$6,000.00
	59	Remove & Dispose of Transmission Line No. 3	8430	1.66	1.66	1.66	MILE	$25,000.00	$30,000.00	$40,000.00	$41,500.00	$49,800.00	$66,400.00
	60	Remove & Dispose of Transmission Line No. 15	8430	1.23	1.23	1.23	MILE	$25,000.00	$30,000.00	$40,000.00	$30,750.00	$36,900.00	$49,200.00
	61	Remove & Dispose of Transmission Line No. 26-1	8430	0.07	0.07	0.07	MILE	$25,000.00	$30,000.00	$40,000.00	$1,750.00	$2,100.00	$2,800.00
	62	Remove & Dispose of Transmission Line No. 26-2	8430	0.07	0.07	0.07	MILE	$25,000.00	$30,000.00	$40,000.00	$1,750.00	$2,100.00	$2,800.00
	63	Remove gate house #1 from top of dam	8130	570	570	570	SF	$55.00	$60.00	$65.00	$31,350.00	$34,200.00	$37,050.00
	64	Remove gate house #2 from top of dam	8130	690	690	690	SF	$55.00	$60.00	$65.00	$37,950.00	$41,400.00	$44,850.00
	65	Remove Concrete Items associated with 10 ft. diam. Penstocks, reinf. Concrete	8130	1,050	1,050	1,050	CY	$170.00	$215.00	$380.00	$178,500.00	$225,750.00	$399,000.00
	66	Plug 14-foot diameter penstock with concrete	8130	23	23	23	CY	$1,100.00	$1,200.00	$1,500.00	$25,300.00	$27,600.00	$34,500.00
	67	Remove & Dispose of 8 screens	8420	18,000	18,000	18,000	LBS	$0.60	$0.85	$1.00	$10,800.00	$15,300.00	$18,000.00
	68	Remove & Dispose of 8 Water Gates	8420	18,000	18,000	18,000	LBS	$0.60	$0.85	$1.00	$10,800.00	$15,300.00	$18,000.00
	69	Remove & Dispose of 3 - 30"Ø x 25' stand pipes	8420	6,000	6,000	6,000	LBS	$0.60	$0.85	$1.00	$3,600.00	$5,100.00	$6,000.00
	70	Remove & Dispose of 14' Ø penstock pipe	8420	256,000	256,000	256,000	LBS	$0.60	$0.85	$1.00	$153,600.00	$217,600.00	$256,000.00
	71	Remove & Dispose of 10' Ø penstock pipe	8140	270,000	270,000	270,000	LBS	$0.60	$0.85	$1.00	$162,000.00	$229,500.00	$270,000.00
	72	Temporary Access Roads	8220	7	7	7	MILE	$60,000.00	$50,000.00	$100,000.00	$420,000.00	$350,000.00	$700,000.00
	73	Spring Ground Seeding	8220	420	420	0	ACRES	$3,000.00	$3,500.00	$4,000.00	$1,260,000.00	$1,470,000.00	$0.00
	74	Spring Barge Seeding	8220	82	82	0	ACRES	$5,000.00	$6,500.00	$8,000.00	$410,000.00	$533,000.00	$0.00
	75	Spring Aerial Seeding	8220	300	300	802	ACRES	$6,500.00	$7,500.00	$15,000.00	$1,950,000.00	$2,250,000.00	$12,030,000.00
	76	Fall Ground Seeding	8220	201	401	602	ACRES	$3,000.00	$3,500.00	$4,000.00	$603,000.00	$1,403,500.00	$2,408,000.00
	77	Riparian Pole Planting	8220	170	170	170	ACRES	$4,000.00	$8,500.00	$10,000.00	$680,000.00	$1,445,000.00	$1,700,000.00
	78	Weed Management	8220	201	401	602	ACRES	$1,000.00	$1,500.00	$2,000.00	$201,000.00	$601,500.00	$1,204,000.00
	79	Fall Ground Seeding	8220	321	321	321	ACRES	$3,000.00	$3,500.00	$4,000.00	$963,000.00	$1,123,500.00	$1,284,000.00
	80	Weed Management	8220	321	321	321	ACRES	$1,000.00	$1,500.00	$2,000.00	$321,000.00	$481,500.00	$642,000.00
	81	Sitework - Clear and Grub Disposal Area	8313	7	7	7	ACRES	$5,000.00	$6,000.00	$7,000.00	$35,000.00	$42,000.00	$49,000.00
	82	Sitework - Soil Cover for Disposal Area	8313	23,000	23,000	35,000	CY	$45.00	$50.00	$60.00	$1,035,000.00	$1,150,000.00	$2,100,000.00
	83	Access/Haul Road Improvements - Soil Excavation	8313	4,500	4,500	9,000	CY	$12.00	$13.00	$14.00	$54,000.00	$58,500.00	$126,000.00
	84	Access/Haul Road Improvements - Rock Excavation	8313	4,500	4,500	9,000	CY	$35.00	$40.00	$45.00	$157,500.00	$180,000.00	$405,000.00
	85	Access/Haul Road Improvements - Soil Backfill	8313	16,000	16,000	30,000	CY	$45.00	$50.00	$55.00	$720,000.00	$800,000.00	$1,650,000.00
	86	Access/Haul Road Improvements - 4" Gravel Surfacing	8313	0	320	320	TON	$80.00	$100.00	$120.00	$0.00	$32,000.00	$38,400.00
	87	County Road Improvements - Asphalt Overlay Repair - Juniper Road	8313	3	3	3	MILE	$35,000.00	$40,000.00	$350,000.00	$105,000.00	$120,000.00	$1,050,000.00
	88	County Road Improvements - Asphalt Overlay Repair - Copco Road	8313	19	19	19	MILE	$35,000.00	$40,000.00	$350,000.00	$665,000.00	$760,000.00	$6,650,000.00
	89	Mallard Cove - Concrete total	BLM	106	106	106	CY	$200.00	$300.00	$400.00	$21,200.00	$31,800.00	$42,400.00
	90	Mallard Cove - 25'x5' Dock made of composite decking and poly floats	BLM	1	1	1	EA	$2,000.00	$2,500.00	$3,000.00	$2,000.00	$2,500.00	$3,000.00
	91	Mallard Cove - 20'x5' Gangway w/ aluminum frame and railings	BLM	1	1	1	EA	$1,500.00	$2,000.00	$2,500.00	$1,500.00	$2,000.00	$2,500.00
	92	Mallard Cove - Signs to be removed and hauled away	BLM	6	6	6	EA	$250.00	$300.00	$350.00	$1,500.00	$1,800.00	$2,100.00
	93	Mallard Cove - Wood plank tables to be removed and hauled away	BLM	8	8	8	EA	$90.00	$100.00	$120.00	$720.00	$800.00	$960.00
	94	Mallard Cove - Parking area to be regraded, ripped, seeded and planted	BLM	2.5	2.5	2.5	ACRES	$20,000.00	$25,000.00	$30,000.00	$50,000.00	$62,500.00	$75,000.00
	95	Copco Cove - Concrete total	BLM	84	84	84	CY	$200.00	$300.00	$400.00	$16,800.00	$25,200.00	$33,600.00

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	96	Copco Cove - Dock abutment railing made of 2.5" dia. steel pipe	BLM	25	25	25	LF	$35.00	$40.00	$45.00	$875.00	$1,000.00	$1,125.00
	97	Copco Cove - Signs to be removed and hauled away	BLM	6	6	6	EA	$250.00	$300.00	$350.00	$1,500.00	$1,800.00	$2,100.00
	98	Copco Cove - Wood plank tables to be removed and hauled away	BLM	2	2	2	EA	$90.00	$100.00	$120.00	$180.00	$200.00	$240.00
	99	Copco Cove - Regrade, rip, seed and plant disturbed areas	BLM	2.3	2.3	2.3	ACRES	$20,000.00	$25,000.00	$30,000.00	$46,000.00	$57,500.00	$69,000.00
		Subtotal 1									$31,603,385.00	$36,555,585.00	$61,003,625.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	$1,600,000.00	$1,850,000.00	$3,100,000.00	$1,600,000.00	$1,850,000.00	$3,100,000.00
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP)											
		NOT INCLUDED											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	$2,796,615.00	$3,594,415.00	$9,421,992.00	$2,796,615.00	$3,594,415.00	$9,421,992.00
		APS = Allowance for Procurement		1	1	1	ls	$0.00	$0.00	$1,474,383.00	$0.00	$0.00	$1,474,383.00
		Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)											
		CONTRACT COST									**$36,000,000.00**	**$42,000,000.00**	**$75,000,000.00**
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	$6,000,000.00	$9,000,000.00	$19,000,000.00	$6,000,000.00	$9,000,000.00	$19,000,000.00
		FIELD COST									**$42,000,000.00**	**$51,000,000.00**	**$94,000,000.00**
		Non-Contract Cost (MPL ~ 52%; MP ~ 55%; MPH ~ 61%)		1	1	1	ls	$22,000,000.00	$28,000,000.00	$56,000,000.00	$22,000,000.00	$28,000,000.00	$56,000,000.00
		CONSTRUCTION COST									**$64,000,000.00**	**$79,000,000.00**	**$150,000,000.00**

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 06-01-11
DATE PREPARED	1/20/2011	PEER REVIEW: See Group Worksheets	DATE PREPARED	06/01/11	PEER REVIEW ACD 6/3/11

Crystal Ball Report - Full
Simulation started on 6/8/2011 at 10:56:41
Simulation stopped on 6/8/2011 at 10:57:47

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)	66.34
Trials/second (average)	151
Random numbers per sec	31,053
Crystal Ball data:	
Assumptions	206
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP
UNIT PRICES BY Craig A. Grosh
DATE 6/8/2011

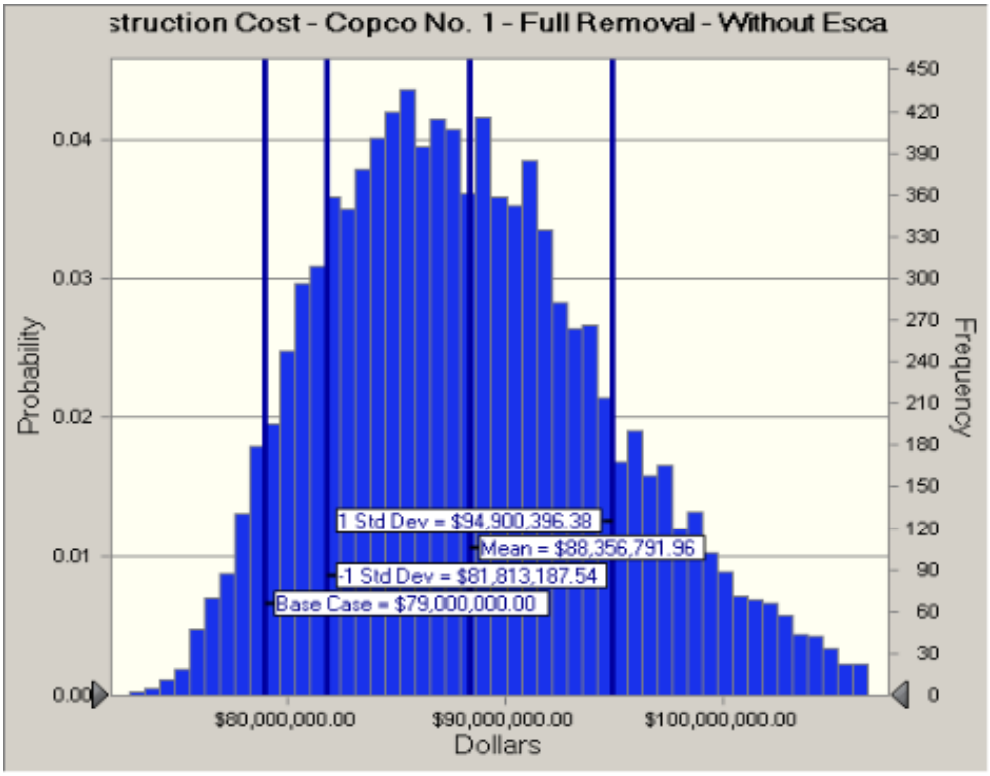
DATE	PEER REVIEWER(S)	CODE
6/8/11	Signature DAN MAAG Printed Name	8170
	Signature Printed Name	
Author Initials	PEER REVIEW NOT REQUIRED	

Forecasts

Worksheet: [Copco 1 - Full Removal Crystal Ball - without Escalation - 2011-04.xls]Copco 1 - F

Forecast: Construction Cost - Copco No. 1 - Full Removal - Without Escalation **Cell: U127**

Summary:
Entire range is from $72,736,574.03 to $113,529,206.28
Base case is $79,000,000.00
After 10,000 trials, the std. error of the mean is $65,436.04



Forecast: Construction Cost - Copco No. 1 - Full Removal - Without Escalation (cont'd) **Cell: U127**

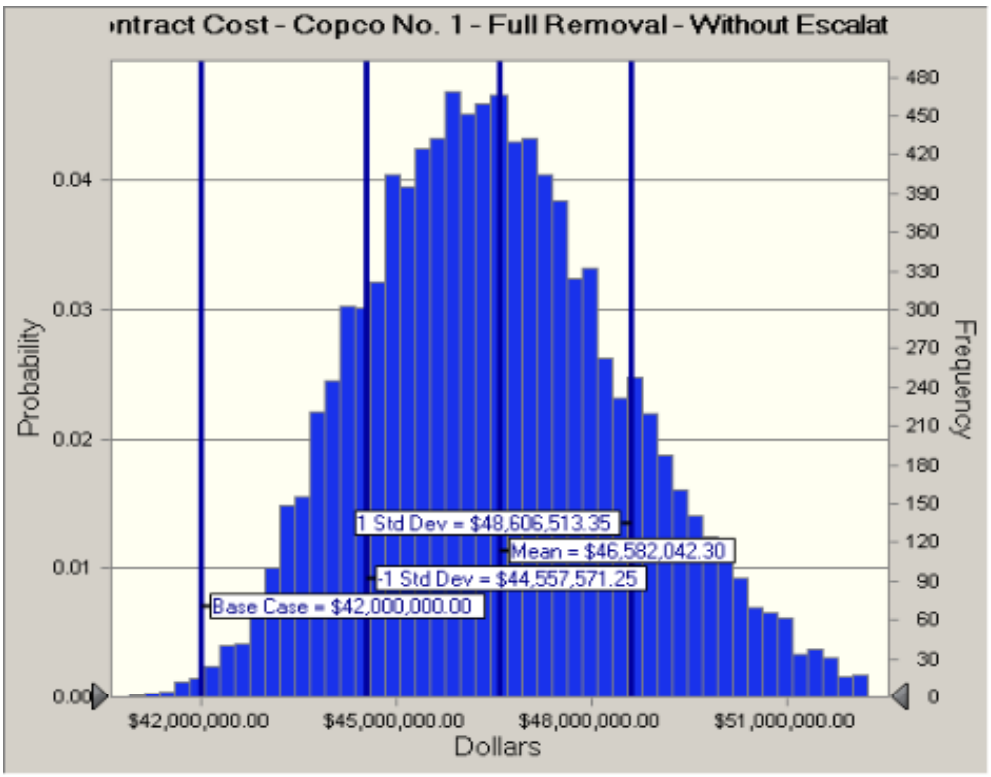
Statistics:	Forecast values
Trials	10,000
Mean	$88,356,791.96
Median	$87,713,342.90
Mode	---
Standard Deviation	$6,543,604.42
Variance	$42,818,758,765,244.40
Skewness	0.4940
Kurtosis	2.93
Coeff. of Variability	0.0741
Minimum	$72,736,574.03
Maximum	$113,529,206.28
Range Width	$40,792,632.25
Mean Std. Error	$65,436.04

Percentiles:	Forecast values
0%	$72,736,574.03
10%	$80,365,791.16
20%	$82,522,922.75
30%	$84,363,523.51
40%	$85,993,016.78
50%	$87,712,673.96
60%	$89,473,718.53
70%	$91,392,514.83
80%	$93,725,152.82
90%	$97,321,089.32
100%	$113,529,206.28

Forecast: Contract Cost - Copco No. 1 - Full Removal - Without Escalation **Cell: U123**

Summary:

Entire range is from $40,891,609.66 to $55,589,627.14
Base case is $42,000,000.00
After 10,000 trials, the std. error of the mean is $20,244.71



Forecast: Contract Cost - Copco No. 1 - Full Removal - Without Escalation (cont'd) Cell: U123

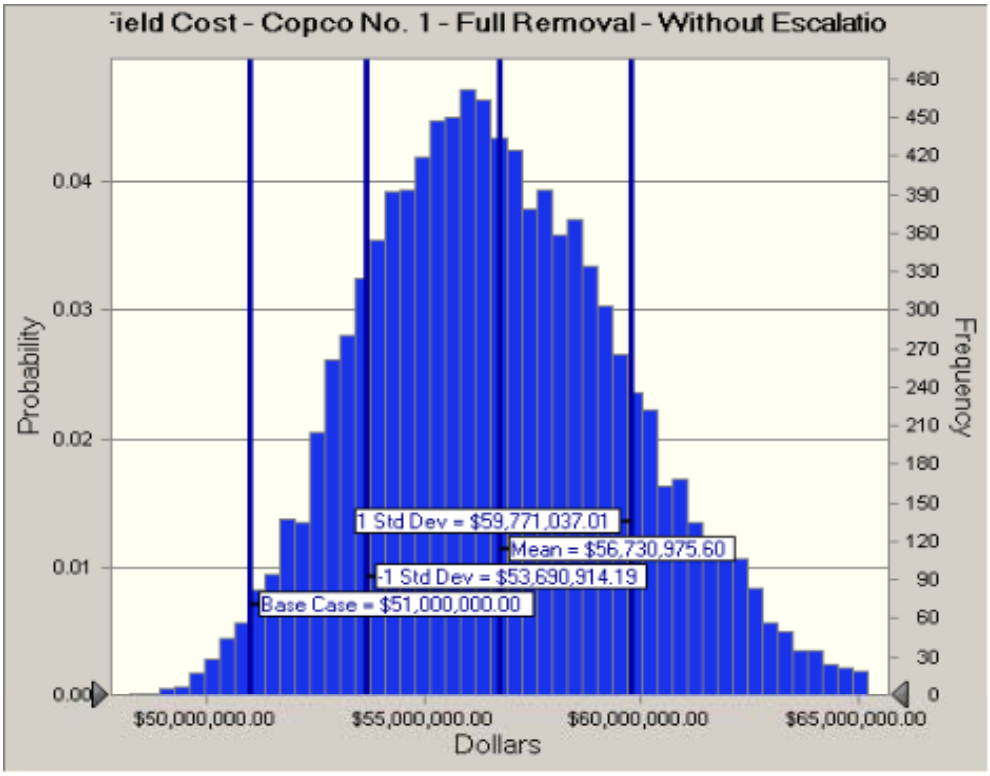
Statistics:	Forecast values
Trials	10,000
Mean	$46,582,042.30
Median	$46,446,898.70
Mode	---
Standard Deviation	$2,024,471.05
Variance	$4,098,483,029,595.18
Skewness	0.3949
Kurtosis	3.07
Coeff. of Variability	0.0435
Minimum	$40,891,609.66
Maximum	$55,589,627.14
Range Width	$14,698,017.48
Mean Std. Error	$20,244.71

Percentiles:	Forecast values
0%	$40,891,609.66
10%	$44,066,771.29
20%	$44,841,018.84
30%	$45,411,795.22
40%	$45,938,733.76
50%	$46,446,625.78
60%	$46,958,390.02
70%	$47,517,386.16
80%	$48,248,521.59
90%	$49,284,250.21
100%	$55,589,627.14

Forecast: Field Cost - Copco No. 1 - Full Removal - Without Escalation **Cell: U125**

Summary:

Entire range is from $48,046,227.47 to $70,717,499.74
Base case is $51,000,000.00
After 10,000 trials, the std. error of the mean is $30,400.61



Forecast: Field Cost - Copco No. 1 - Full Removal - Without Escalation (cont'd) **Cell: U125**

Statistics:	Forecast values
Trials	10,000
Mean	$56,730,975.60
Median	$56,494,037.13
Mode	---
Standard Deviation	$3,040,061.41
Variance	$9,241,973,388,518.85
Skewness	0.3786
Kurtosis	3.05
Coeff. of Variability	0.0536
Minimum	$48,046,227.47
Maximum	$70,717,499.74
Range Width	$22,671,272.27
Mean Std. Error	$30,400.61

Percentiles:	Forecast values
0%	$48,046,227.47
10%	$52,978,382.43
20%	$54,084,510.21
30%	$54,963,177.84
40%	$55,765,498.46
50%	$56,493,859.60
60%	$57,306,083.62
70%	$58,236,980.41
80%	$59,252,646.47
90%	$60,794,616.90
100%	$70,717,499.74

End of Forecasts

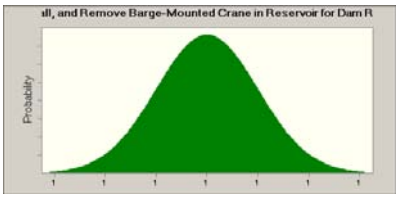
Assumptions

Worksheet: [Copco 1 - Full Removal Crystal Ball - without Escalation - 2011-04.xls]Copco 1 - F

Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam R **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 for Dam R **Cell: R14**

BetaPERT distribution with parameters:

Minimum	$340,000.00	(=Q14)
Likeliest	$350,000.00	(=R14)
Maximum	$370,000.00	(=S14)

Assumption: 10 Remove Concrete Dam down to Elev. 2476 Quantity **Cell: L23**

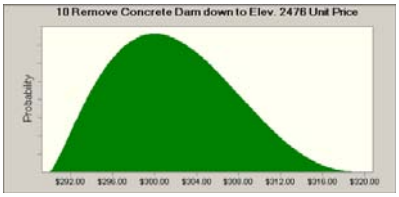
Normal distribution with parameters:

Mean	36,000	(=L23)
Std. Dev.	0	(=0.000001)

Assumption: 10 Remove Concrete Dam down to Elev. 2476 Unit Price **Cell: R23**

BetaPERT distribution with parameters:

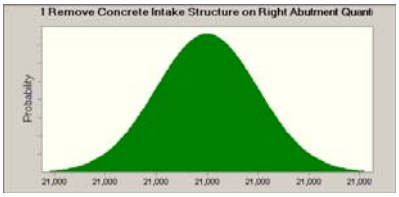
Minimum	$290.00	(=Q23)
Likeliest	$300.00	(=R23)
Maximum	$320.00	(=S23)



Assumption: 11 Remove Concrete Intake Structure on Right Abutment Quantity **Cell: L24**

Normal distribution with parameters:

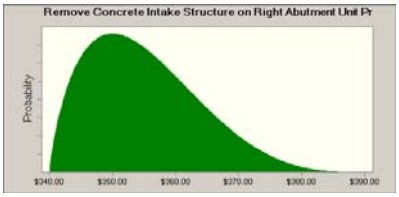
Mean	21,000	(=L24)
Std. Dev.	0	(=0.000001)



Assumption: 11 Remove Concrete Intake Structure on Right Abutment Unit Price **Cell: R24**

BetaPERT distribution with parameters:

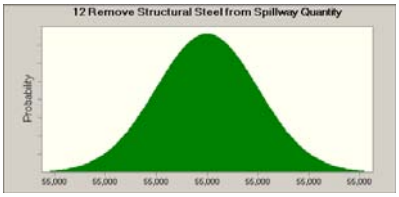
Minimum	$340.00	(=Q24)
Likeliest	$350.00	(=R24)
Maximum	$390.00	(=S24)



Assumption: 12 Remove Structural Steel from Spillway Quantity **Cell: L25**

Normal distribution with parameters:

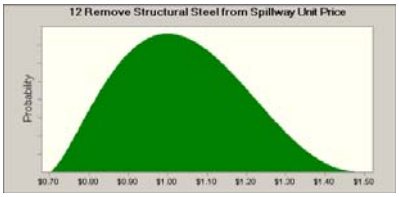
Mean	55,000	(=L25)
Std. Dev.	0	(=0.000001)



Assumption: 12 Remove Structural Steel from Spillway Unit Price **Cell: R25**

BetaPERT distribution with parameters:

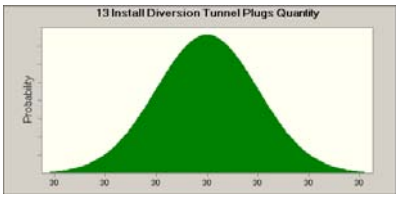
Minimum	$0.70	(=Q25)
Likeliest	$1.00	(=R25)
Maximum	$1.50	(=S25)



Assumption: 13 Install Diversion Tunnel Plugs Quantity **Cell: L26**

Normal distribution with parameters:

Mean	30	(=L26)
Std. Dev.	0	(=0.000001)



Assumption: 13 Install Diversion Tunnel Plugs Unit Price **Cell: R26**

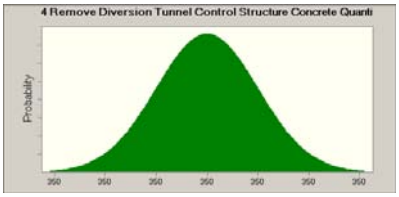
BetaPERT distribution with parameters:

Minimum	$1,100.00	(=Q26)
Likeliest	$1,200.00	(=R26)
Maximum	$1,300.00	(=S26)

Assumption: 14 Remove Diversion Tunnel Control Structure Concrete Quantity **Cell: L27**

Normal distribution with parameters:

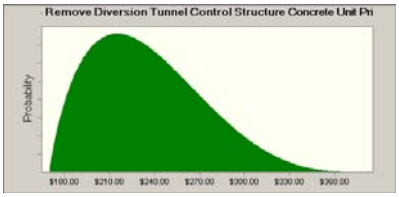
Mean	350	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Diversion Tunnel Control Structure Concrete Unit Price **Cell: R27**

BetaPERT distribution with parameters:

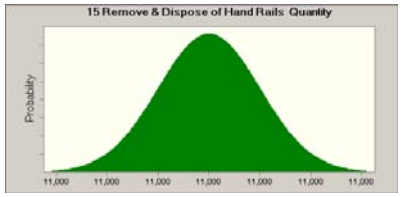
Minimum	$170.00	(=Q27)
Likeliest	$215.00	(=R27)
Maximum	$380.00	(=S27)



Assumption: 15 Remove & Dispose of Hand Rails Quantity **Cell: L28**

Normal distribution with parameters:

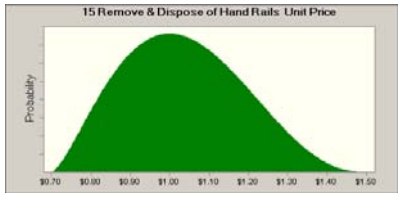
Mean	11,000	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove & Dispose of Hand Rails Unit Price **Cell: R28**

BetaPERT distribution with parameters:

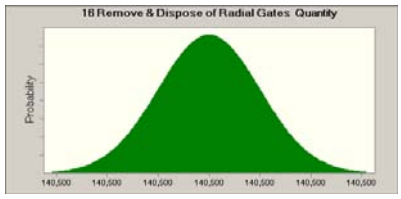
Minimum	$0.70	(=Q28)
Likeliest	$1.00	(=R28)
Maximum	$1.50	(=S28)



Assumption: 16 Remove & Dispose of Radial Gates Quantity **Cell: L29**

Normal distribution with parameters:

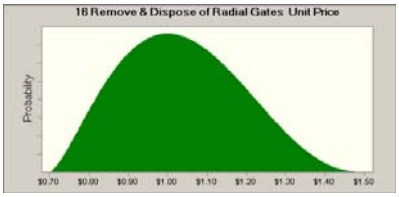
Mean	140,500	(=L29)
Std. Dev.	0	(=0.000001)



Assumption: 16 Remove & Dispose of Radial Gates Unit Price **Cell: R29**

BetaPERT distribution with parameters:

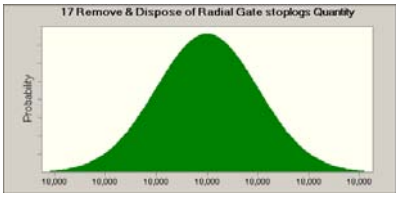
Minimum	$0.70	(=Q29)
Likeliest	$1.00	(=R29)
Maximum	$1.50	(=S29)



Assumption: 17 Remove & Dispose of Radial Gate stoplogs Quantity **Cell: L30**

Normal distribution with parameters:

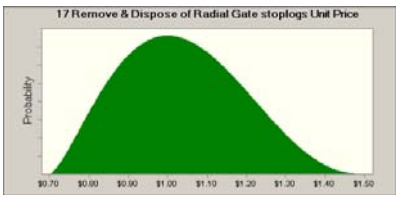
Mean	18,000	(=L30)
Std. Dev.	0	(=0.000001)



Assumption: 17 Remove & Dispose of Radial Gate stoplogs Unit Price **Cell: R30**

BetaPERT distribution with parameters:

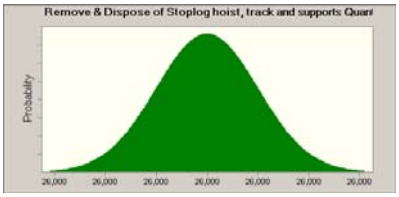
Minimum	$0.70	(=Q30)
Likeliest	$1.00	(=R30)
Maximum	$1.50	(=S30)



Assumption: 18 Remove & Dispose of Stoplog hoist, track and supports Quantity **Cell: L31**

Normal distribution with parameters:

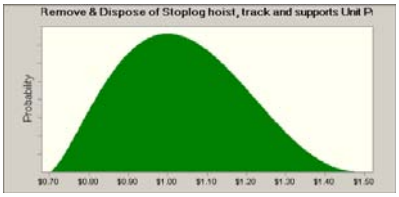
Mean	26,000	(=L31)
Std. Dev.	0	(=0.000001)



Assumption: 18 Remove & Dispose of Stoplog hoist, track and supports Unit Price **Cell: R31**

BetaPERT distribution with parameters:

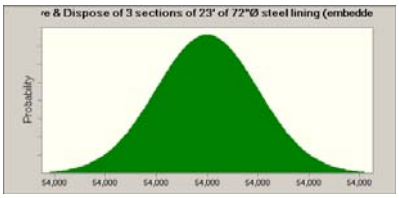
Minimum	$0.70	(=Q31)
Likeliest	$1.00	(=R31)
Maximum	$1.50	(=S31)



Assumption: 19 Remove & Dispose of 3 sections of 23' of 72"Ø steel lining (embedded) Qu **Cell: L32**

Normal distribution with parameters:

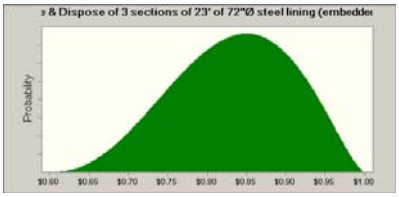
Mean	54,000	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 19 Remove & Dispose of 3 sections of 23' of 72"Ø steel lining (embedded) UR **Cell: R32**

BetaPERT distribution with parameters:

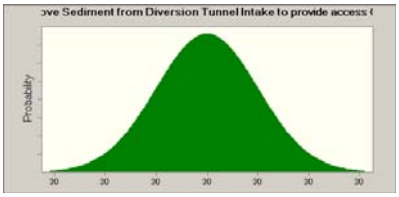
Minimum	$0.60	(=Q32)
Likeliest	$0.85	(=R32)
Maximum	$1.00	(=S32)



Assumption: 2 Remove Sediment from Diversion Tunnel Intake to provide access Quantity **Cell: L15**

Normal distribution with parameters:

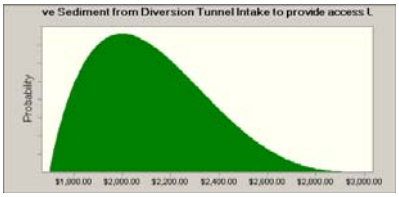
Mean	30	(=L15)
Std. Dev.	0	(=0.000001)



Assumption: 2 Remove Sediment from Diversion Tunnel Intake to provide access Unit Price **Cell: R15**

BetaPERT distribution with parameters:

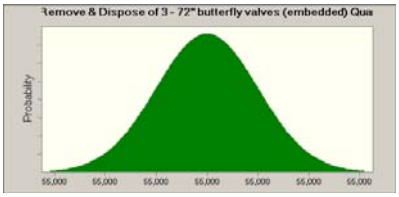
Minimum	$1,700.00	(=Q15)
Likeliest	$2,000.00	(=R15)
Maximum	$3,000.00	(=S15)



Assumption: 20 Remove & Dispose of 3 - 72" butterfly valves (embedded) Quantity Cell: L33

Normal distribution with parameters:

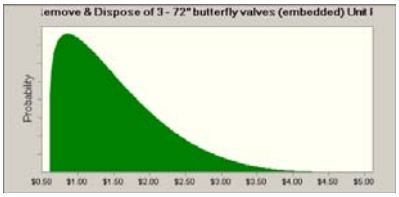
Mean	55,000	(=L33)
Std. Dev.	0	(=0.000001)



Assumption: 20 Remove & Dispose of 3 - 72" butterfly valves (embedded) Unit Price Cell: R33

BetaPERT distribution with parameters:

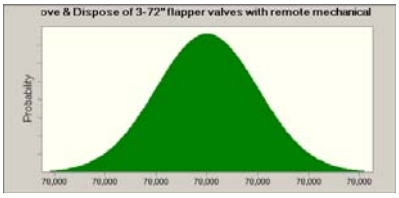
Minimum	$0.60	(=Q33)
Likeliest	$0.85	(=R33)
Maximum	$5.00	(=S33)



Assumption: 21 Remove & Dispose of 3-72" flapper valves with remote mechanical Quantity Cell: L34

Normal distribution with parameters:

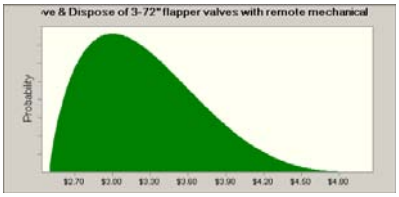
Mean	78,000	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 21 Remove & Dispose of 3-72" flapper valves with remote mechanical Cell: R34

BetaPERT distribution with parameters:

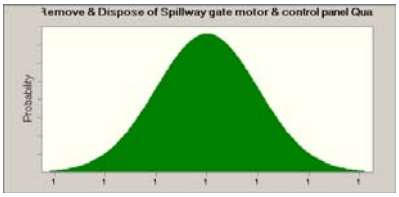
Minimum	$2.50	(=Q34)
Likeliest	$3.00	(=R34)
Maximum	$5.00	(=S34)



Assumption: 22 Remove & Dispose of Spillway gate motor & control panel Quantity Cell: L35

Normal distribution with parameters:

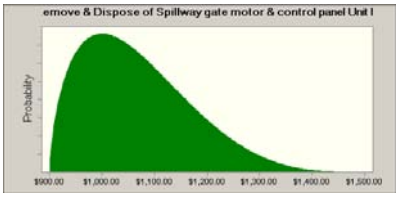
Mean	1	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Remove & Dispose of Spillway gate motor & control panel Unit Price Cell: R35

BetaPERT distribution with parameters:

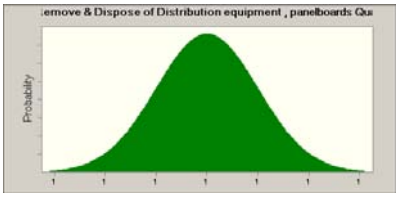
Minimum	$900.00	(=Q35)
Likeliest	$1,000.00	(=R35)
Maximum	$1,500.00	(=S35)



Assumption: 23 Remove & Dispose of Distribution equipment , panelboards Quantity **Cell: L36**

Normal distribution with parameters:

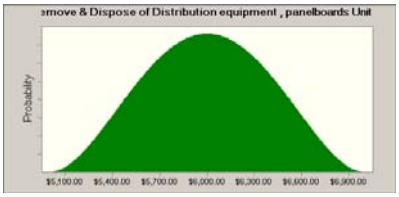
Mean	1	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Remove & Dispose of Distribution equipment , panelboards Unit Price **Cell: R36**

BetaPERT distribution with parameters:

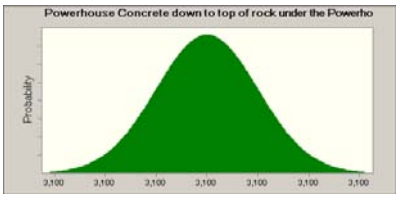
Minimum	$5,000.00	(=Q36)
Likeliest	$6,000.00	(=R36)
Maximum	$7,000.00	(=S36)



Assumption: 24 Remove Powerhouse Concrete down to top of rock under the Powerhouse **Cell: L37**

Normal distribution with parameters:

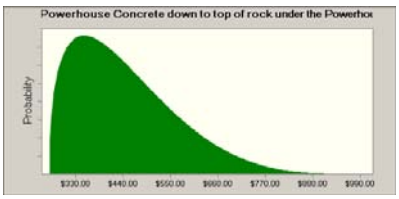
Mean	3,100	(=L37)
Std. Dev.	0	(=0.000001)



Assumption: 24 Remove Powerhouse Concrete down to top of rock under the Powerhouse **Cell: R37**

BetaPERT distribution with parameters:

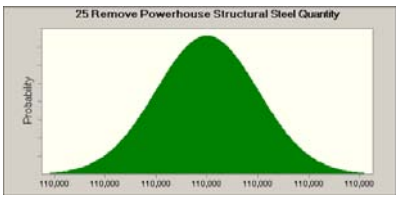
Minimum	$270.00	(=Q37)
Likeliest	$350.00	(=R37)
Maximum	$1,000.00	(=S37)



Assumption: 25 Remove Powerhouse Structural Steel Quantity **Cell: L38**

Normal distribution with parameters:

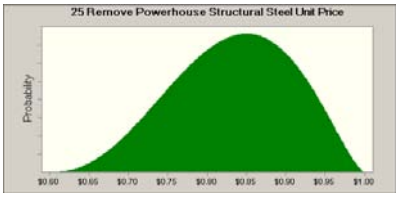
Mean	110,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Remove Powerhouse Structural Steel Unit Price **Cell: R38**

BetaPERT distribution with parameters:

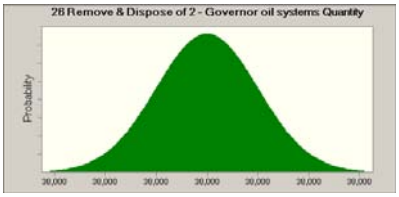
Minimum	$0.60	(=Q38)
Likeliest	$0.85	(=R38)
Maximum	$1.00	(=S38)



Assumption: 26 Remove & Dispose of 2 - Governor oil systems Quantity **Cell: L39**

Normal distribution with parameters:

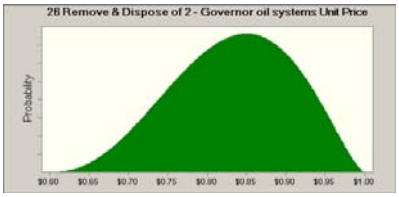
Mean	38,000	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Remove & Dispose of 2 - Governor oil systems Unit Price **Cell: R39**

BetaPERT distribution with parameters:

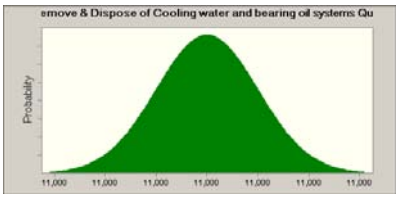
Minimum	$0.60	(=Q39)
Likeliest	$0.85	(=R39)
Maximum	$1.00	(=S39)



Assumption: 27 Remove & Dispose of Cooling water and bearing oil systems Quantity **Cell: L40**

Normal distribution with parameters:

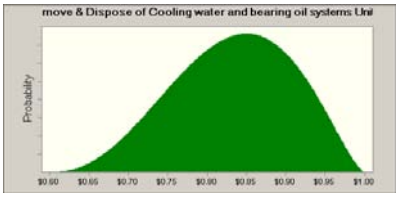
Mean	11,000	(=L40)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove & Dispose of Cooling water and bearing oil systems Unit Price **Cell: R40**

BetaPERT distribution with parameters:

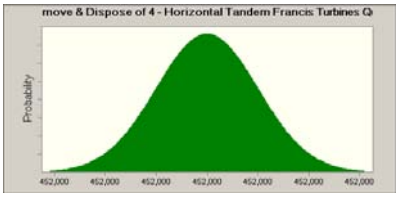
Minimum	$0.60	(=Q40)
Likeliest	$0.85	(=R40)
Maximum	$1.00	(=S40)



Assumption: 28 Remove & Dispose of 4 - Horizontal Tandem Francis Turbines Quantity **Cell: L41**

Normal distribution with parameters:

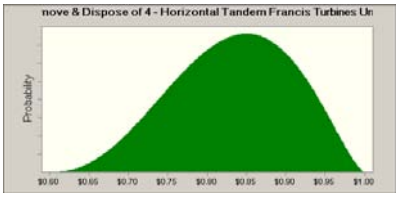
Mean	452,000	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove & Dispose of 4 - Horizontal Tandem Francis Turbines Unit Price **Cell: R41**

BetaPERT distribution with parameters:

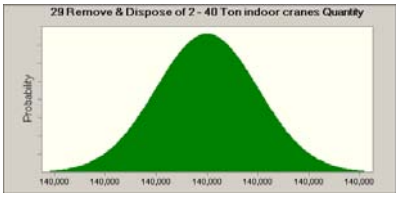
Minimum	$0.60	(=Q41)
Likeliest	$0.85	(=R41)
Maximum	$1.00	(=S41)



Assumption: 29 Remove & Dispose of 2 - 40 Ton indoor cranes Quantity **Cell: L42**

Normal distribution with parameters:

Mean	140,000	(=L42)
Std. Dev.	0	(=0.000001)



Assumption: 29 Remove & Dispose of 2 - 40 Ton indoor cranes Unit Price **Cell: R42**

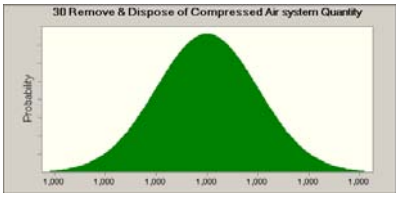
BetaPERT distribution with parameters:

Minimum	$0.60	(=Q42)
Likeliest	$0.85	(=R42)
Maximum	$1.00	(=S42)

Assumption: 30 Remove & Dispose of Compressed Air system Quantity **Cell: L43**

Normal distribution with parameters:

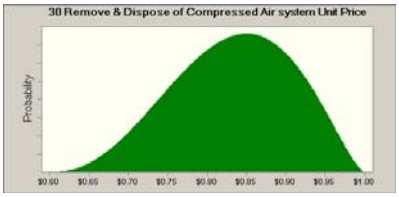
Mean	1,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove & Dispose of Compressed Air system Unit Price **Cell: R43**

BetaPERT distribution with parameters:

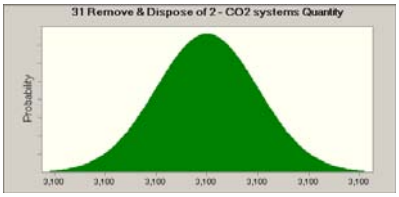
Minimum	$0.60	(=Q43)
Likeliest	$0.85	(=R43)
Maximum	$1.00	(=S43)



Assumption: 31 Remove & Dispose of 2 - CO2 systems Quantity **Cell: L44**

Normal distribution with parameters:

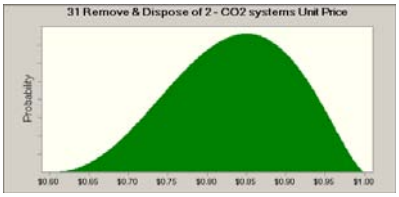
Mean	3,100	(=L44)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove & Dispose of 2 - CO2 systems Unit Price **Cell: R44**

BetaPERT distribution with parameters:

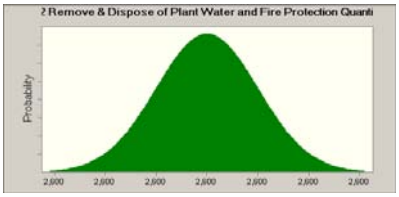
Minimum	$0.60	(=Q44)
Likeliest	$0.85	(=R44)
Maximum	$1.00	(=S44)



Assumption: 32 Remove & Dispose of Plant Water and Fire Protection Quantity **Cell: L45**

Normal distribution with parameters:

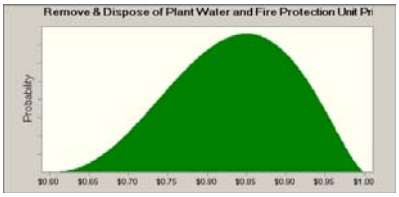
Mean	2,600	(=L45)
Std. Dev.	0	(=0.000001)



Assumption: 32 Remove & Dispose of Plant Water and Fire Protection Unit Price **Cell: R45**

BetaPERT distribution with parameters:

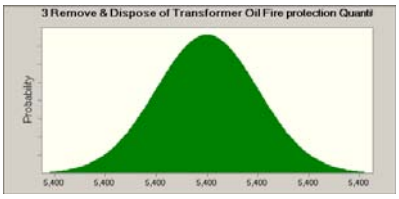
Minimum	$0.60	(=Q45)
Likeliest	$0.85	(=R45)
Maximum	$1.00	(=S45)



Assumption: 33 Remove & Dispose of Transformer Oil Fire protection Quantity **Cell: L46**

Normal distribution with parameters:

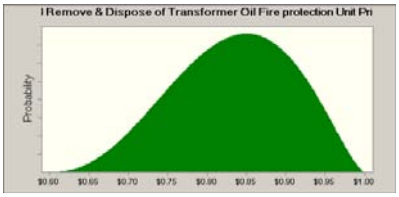
Mean	5,400	(=L46)
Std. Dev.	0	(=0.000001)



Assumption: 33 Remove & Dispose of Transformer Oil Fire protection Unit Price **Cell: R46**

BetaPERT distribution with parameters:

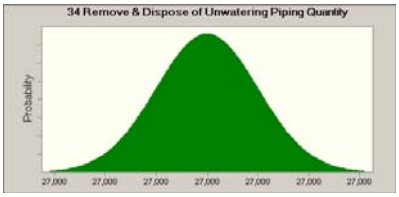
Minimum	$0.60	(=Q46)
Likeliest	$0.85	(=R46)
Maximum	$1.00	(=S46)



Assumption: 34 Remove & Dispose of Unwatering Piping Quantity **Cell: L47**

Normal distribution with parameters:

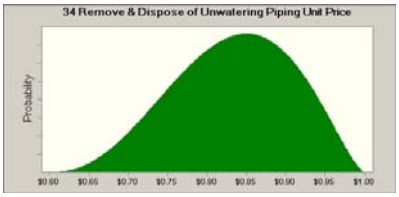
Mean	27,000	(=L47)
Std. Dev.	0	(=0.000001)



Assumption: 34 Remove & Dispose of Unwatering Piping Unit Price **Cell: R47**

BetaPERT distribution with parameters:

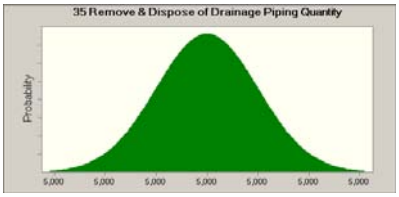
Minimum	$0.60	(=Q47)
Likeliest	$0.85	(=R47)
Maximum	$1.00	(=S47)



Assumption: 35 Remove & Dispose of Drainage Piping Quantity **Cell: L48**

Normal distribution with parameters:

Mean	5,000	(=L48)
Std. Dev.	0	(=0.000001)



Assumption: 35 Remove & Dispose of Drainage Piping Unit Price **Cell: R48**

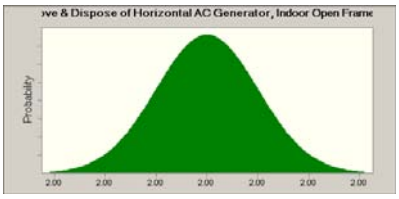
BetaPERT distribution with parameters:

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

Assumption: 36 Remove & Dispose of Horizontal AC Generator, Indoor Open Frame Quant **Cell: L49**

Normal distribution with parameters:

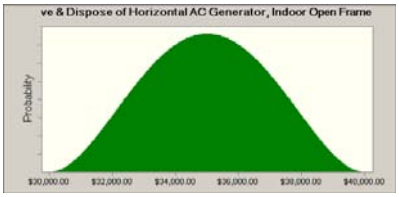
Mean	2.00	(=L49)
Std. Dev.	0.00	(=0.000001)



Assumption: 36 Remove & Dispose of Horizontal AC Generator, Indoor Open Frame Cell: R49

BetaPERT distribution with parameters:

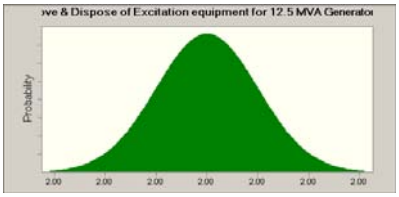
Minimum	$30,000.00	(=Q49)
Likeliest	$35,000.00	(=R49)
Maximum	$40,000.00	(=S49)



Assumption: 37 Remove & Dispose of Excitation equipment for 12.5 MVA Generator Cell: L50

Normal distribution with parameters:

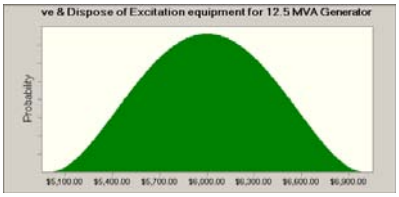
Mean	2.00	(=L50)
Std. Dev.	0.00	(=0.000001)



Assumption: 37 Remove & Dispose of Excitation equipment for 12.5 MVA Generator Cell: R50

BetaPERT distribution with parameters:

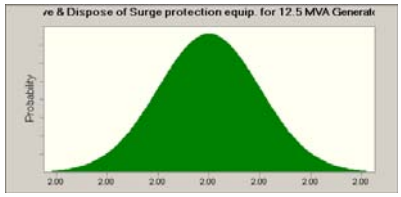
Minimum	$5,000.00	(=Q50)
Likeliest	$6,000.00	(=R50)
Maximum	$7,000.00	(=S50)



Assumption: 38 Remove & Dispose of Surge protection equip. for 12.5 MVA Generator Cell: Q51

Normal distribution with parameters:

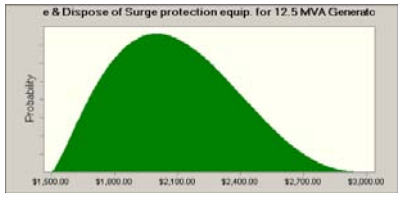
Mean	2.00	(=L51)
Std. Dev.	0.00	(=0.000001)



Assumption: 38 Remove & Dispose of Surge protection equip. for 12.5 MVA Generator Cell: R51

BetaPERT distribution with parameters:

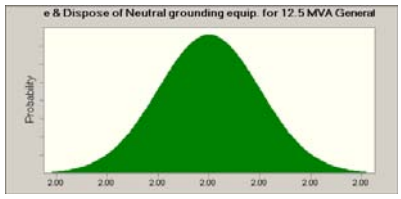
Minimum	$1,500.00	(=Q51)
Likeliest	$2,000.00	(=R51)
Maximum	$3,000.00	(=S51)



Assumption: 39 Remove & Dispose of Neutral grounding equip. for 12.5 MVA Generator Cell: Q52

Normal distribution with parameters:

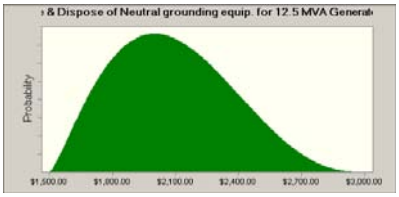
Mean	2.00	(=L52)
Std. Dev.	0.00	(=0.000001)



Assumption: 39 Remove & Dispose of Neutral grounding equip. for 12.5 MVA Generat **Cell: R52**

BetaPERT distribution with parameters:

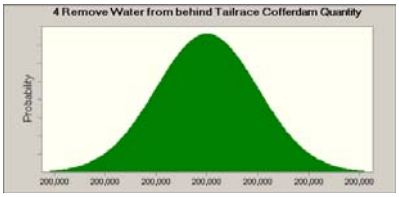
Minimum	$1,500.00	(=Q52)
Likeliest	$2,000.00	(=R52)
Maximum	$3,000.00	(=S52)



Assumption: 4 Remove Water from behind Tailrace Cofferdam Quantity **Cell: L17**

Normal distribution with parameters:

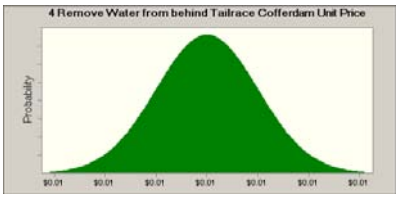
Mean	200,000	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Remove Water from behind Tailrace Cofferdam Unit Price **Cell: R17**

Normal distribution with parameters:

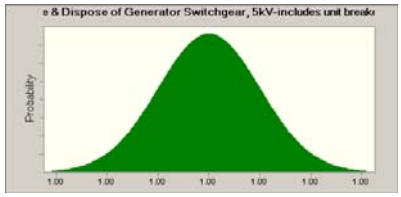
Mean	$0.01	(=R17)
Std. Dev.	$0.00	(=0.000001)



Assumption: 40 Remove & Dispose of Generator Switchgear, 5kV-includes unit breaks: Q **Cell: L53**

Normal distribution with parameters:

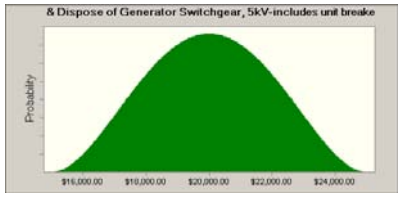
Mean	1.00	(=L53)
Std. Dev.	0.00	(=0.000001)



Assumption: 40 Remove & Dispose of Generator Switchgear, 5kV-includes unit breaks: R **Cell: R53**

BetaPERT distribution with parameters:

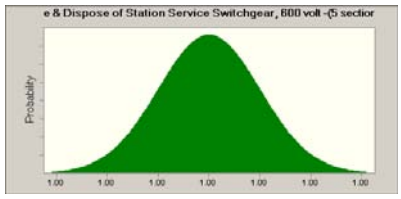
Minimum	$15,000.00	(=Q53)
Likeliest	$20,000.00	(=R53)
Maximum	$25,000.00	(=S53)



Assumption: 41 Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections): Q **Cell: L54**

Normal distribution with parameters:

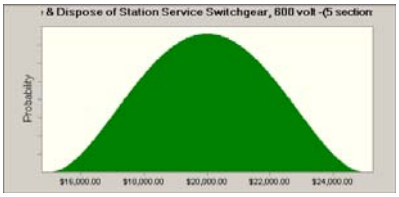
Mean	1.00	(=L54)
Std. Dev.	0.00	(=0.000001)



Assumption: 41 Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections) Cell: R54

BetaPERT distribution with parameters:

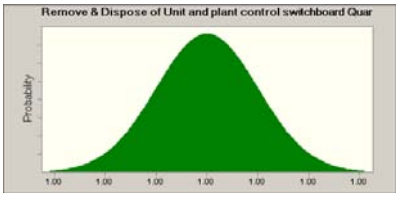
Minimum	$15,000.00	(=Q54)
Likeliest	$20,000.00	(=R54)
Maximum	$25,000.00	(=S54)



Assumption: 42 Remove & Dispose of Unit and plant control switchboard Quantity Cell: L55

Normal distribution with parameters:

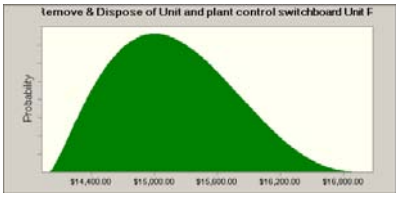
Mean	1.00	(=L55)
Std. Dev.	0.00	(=0.000001)



Assumption: 42 Remove & Dispose of Unit and plant control switchboard Unit Price Cell: R55

BetaPERT distribution with parameters:

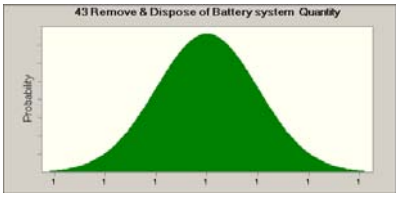
Minimum	$14,000.00	(=Q55)
Likeliest	$15,000.00	(=R55)
Maximum	$17,000.00	(=S55)



Assumption: 43 Remove & Dispose of Battery system Quantity **Cell: L56**

Normal distribution with parameters:

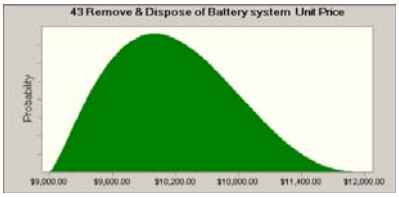
Mean	1	(=L56)
Std. Dev.	0	(=0.000001)



Assumption: 43 Remove & Dispose of Battery system Unit Price **Cell: R56**

BetaPERT distribution with parameters:

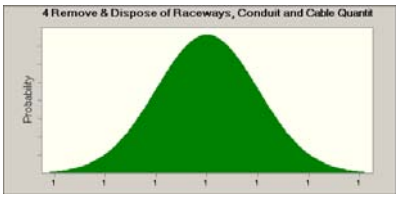
Minimum	$9,000.00	(=Q56)
Likeliest	$10,000.00	(=R56)
Maximum	$12,000.00	(=S56)



Assumption: 44 Remove & Dispose of Raceways, Conduit and Cable Quantity **Cell: L57**

Normal distribution with parameters:

Mean	1	(=L57)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove & Dispose of Raceways, Conduit and Cable Unit Price **Cell: R57**

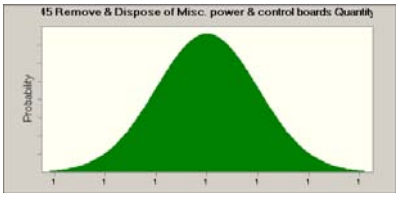
BetaPERT distribution with parameters:

Minimum	$14,000.00	(=Q57)
Likeliest	$15,000.00	(=R57)
Maximum	$17,000.00	(=S57)

Assumption: 45 Remove & Dispose of Misc. power & control boards Quantity **Cell: L58**

Normal distribution with parameters:

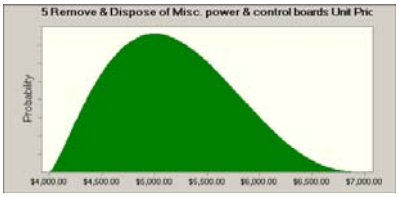
Mean	1	(=L58)
Std. Dev.	0	(=0.000001)



Assumption: 45 Remove & Dispose of Misc. power & control boards Unit Price **Cell: R58**

BetaPERT distribution with parameters:

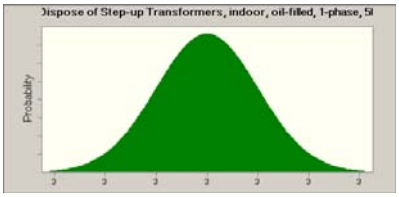
Minimum	$4,000.00	(=Q58)
Likeliest	$5,000.00	(=R58)
Maximum	$7,000.00	(=S58)



Assumption: 46 Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-phase, 50 Cell: L59

Normal distribution with parameters:

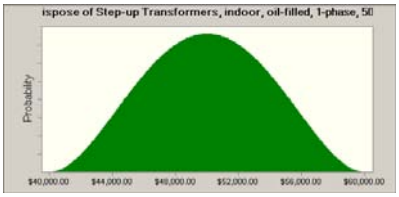
Mean	3	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 46 Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-phase, 50 Cell: R59

BetaPERT distribution with parameters:

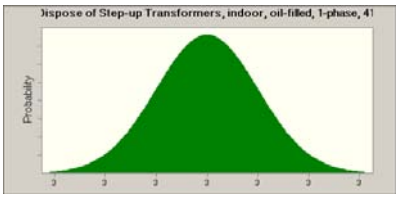
Minimum	$40,000.00	(=Q59)
Likeliest	$50,000.00	(=R59)
Maximum	$60,000.00	(=S59)



Assumption: 47 Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-phase, 41 Cell: L60

Normal distribution with parameters:

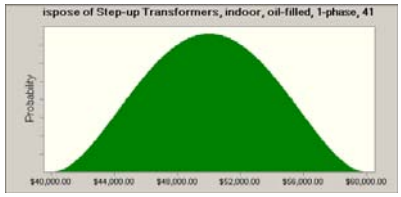
Mean	3	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: 47 Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-phase, 41 **Cell: R60**

BetaPERT distribution with parameters:

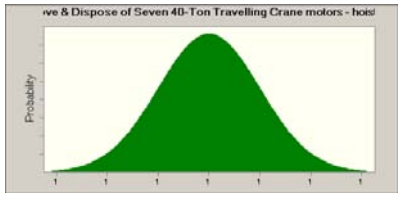
Minimum	$40,000.00	(=Q60)
Likeliest	$50,000.00	(=R60)
Maximum	$60,000.00	(=S60)



Assumption: 48 Remove & Dispose of Seven 40-Ton Travelling Crane motors - hoist Qty **Cell: L61**

Normal distribution with parameters:

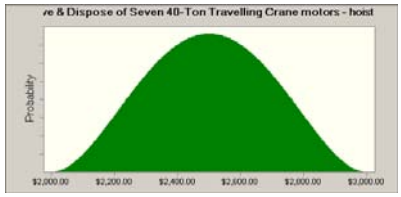
Mean	1	(=L61)
Std. Dev.	0	(=0.000001)



Assumption: 48 Remove & Dispose of Seven 40-Ton Travelling Crane motors - hoist Unit P **Cell: R61**

BetaPERT distribution with parameters:

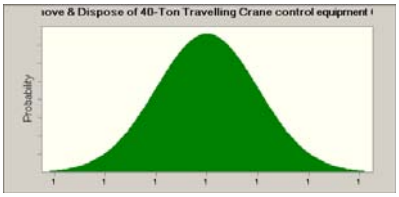
Minimum	$2,000.00	(=Q61)
Likeliest	$2,500.00	(=R61)
Maximum	$3,000.00	(=S61)



Assumption: 49 Remove & Dispose of 40-Ton Travelling Crane control equipment Quantity **Cell: L62**

Normal distribution with parameters:

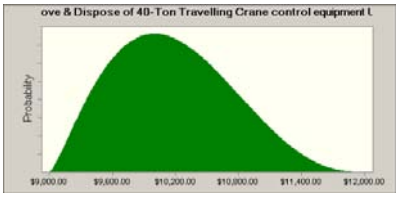
Mean	1	(=L62)
Std. Dev.	0	(=0.000001)



Assumption: 49 Remove & Dispose of 40-Ton Travelling Crane control equipment Unit Price **Cell: R62**

BetaPERT distribution with parameters:

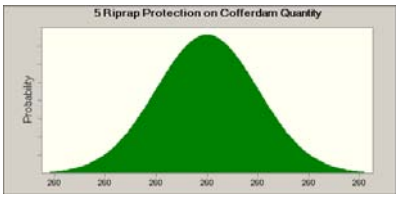
Minimum	$9,000.00	(=Q62)
Likeliest	$10,000.00	(=R62)
Maximum	$12,000.00	(=S62)



Assumption: 5 Riprap Protection on Cofferdam Quantity **Cell: L18**

Normal distribution with parameters:

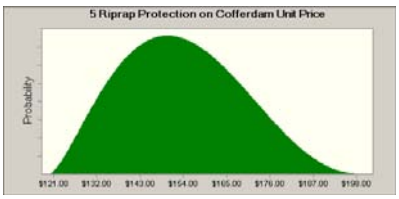
Mean	260	(=L18)
Std. Dev.	0	(=0.000001)



Assumption: 5 Riprap Protection on Cofferdam Unit Price **Cell: R18**

BetaPERT distribution with parameters:

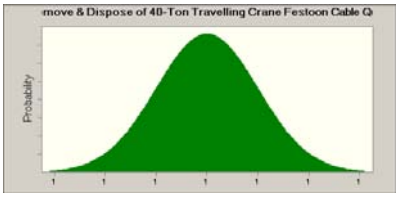
Minimum	$120.00	(=Q18)
Likeliest	$150.00	(=R18)
Maximum	$200.00	(=S18)



Assumption: 50 Remove & Dispose of 40-Ton Travelling Crane Festoon Cable Quantity **Cell: L63**

Normal distribution with parameters:

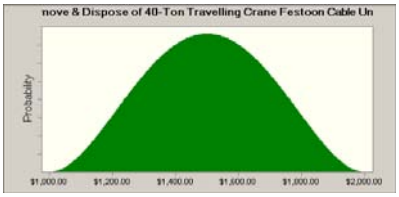
Mean	1	(=L63)
Std. Dev.	0	(=0.000001)



Assumption: 50 Remove & Dispose of 40-Ton Travelling Crane Festoon Cable Unit Price **Cell: R63**

BetaPERT distribution with parameters:

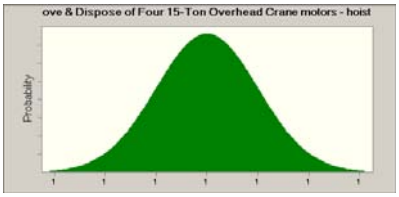
Minimum	$1,000.00	(=Q63)
Likeliest	$1,500.00	(=R63)
Maximum	$2,000.00	(=S63)



Assumption: 51 Remove & Dispose of Four 15-Ton Overhead Crane motors - hoist Quantity **Cell: L64**

Normal distribution with parameters:

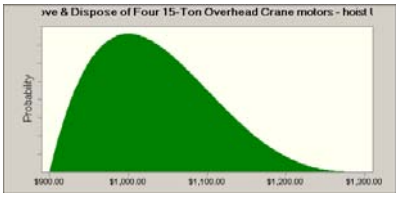
Mean	1	(=L64)
Std. Dev.	0	(=0.000001)



Assumption: 51 Remove & Dispose of Four 15-Ton Overhead Crane motors - hoist Unit Price **Cell: R64**

BetaPERT distribution with parameters:

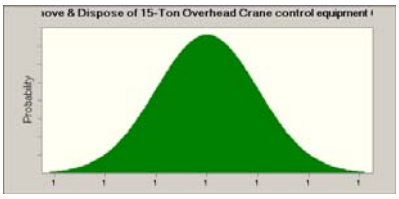
Minimum	$900.00	(=Q64)
Likeliest	$1,000.00	(=R64)
Maximum	$1,300.00	(=S64)



Assumption: 52 Remove & Dispose of 15-Ton Overhead Crane control equipment Quantity **Cell: L65**

Normal distribution with parameters:

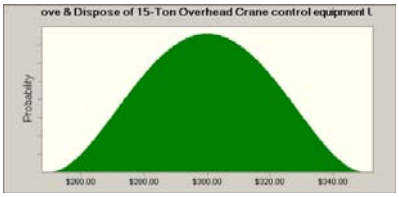
Mean	1	(=L65)
Std. Dev.	0	(=0.000001)



Assumption: 52 Remove & Dispose of 15-Ton Overhead Crane control equipment Unit Pri **Cell: R65**

BetaPERT distribution with parameters:

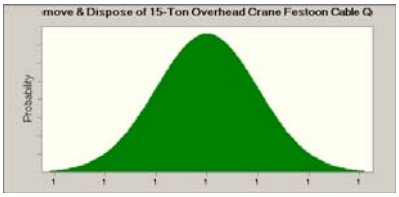
Minimum	$250.00	(=Q65)
Likeliest	$300.00	(=R65)
Maximum	$350.00	(=S65)



Assumption: 53 Remove & Dispose of 15-Ton Overhead Crane Festoon Cable Quantity **Cell: L66**

Normal distribution with parameters:

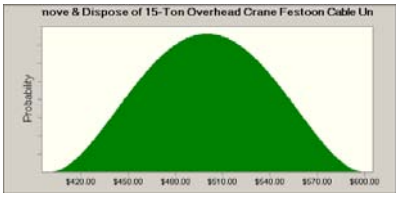
Mean	1	(=L66)
Std. Dev.	0	(=0.000001)



Assumption: 53 Remove & Dispose of 15-Ton Overhead Crane Festoon Cable Unit Price **Cell: R66**

BetaPERT distribution with parameters:

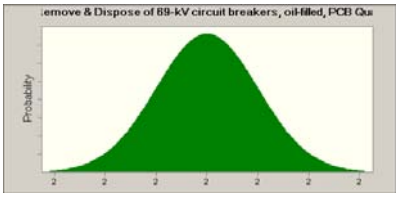
Minimum	$400.00	(=Q66)
Likeliest	$500.00	(=R66)
Maximum	$600.00	(=S66)



Assumption: 54 Remove & Dispose of 69-kV circuit breakers, oil-filled, PCB Quantity **Cell: L67**

Normal distribution with parameters:

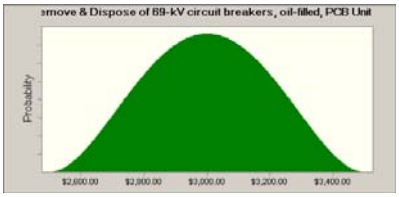
Mean	2	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove & Dispose of 69-kV circuit breakers, oil-filled, PCB Unit Price **Cell: R67**

BetaPERT distribution with parameters:

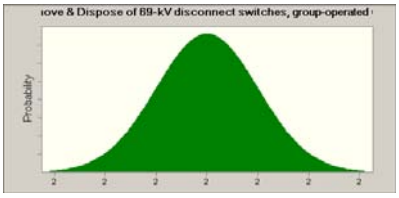
Minimum	$2,500.00	(=Q67)
Likeliest	$3,000.00	(=R67)
Maximum	$3,500.00	(=S67)



Assumption: 55 Remove & Dispose of 69-kV disconnect switches, group-operated Quantity **Cell: L68**

Normal distribution with parameters:

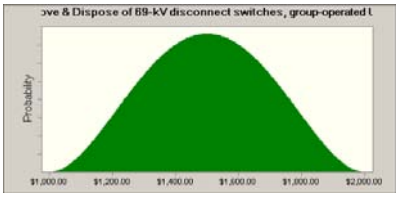
Mean	2	(=L68)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove & Dispose of 69-kV disconnect switches, group-operated Unit Price **Cell: R68**

BetaPERT distribution with parameters:

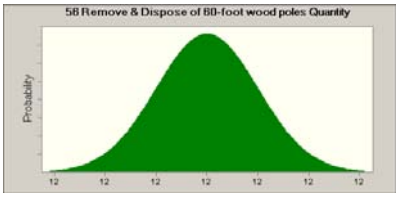
Minimum	$1,000.00	(=Q68)
Likeliest	$1,500.00	(=R68)
Maximum	$2,000.00	(=S68)



Assumption: 56 Remove & Dispose of 60-foot wood poles Quantity **Cell: L69**

Normal distribution with parameters:

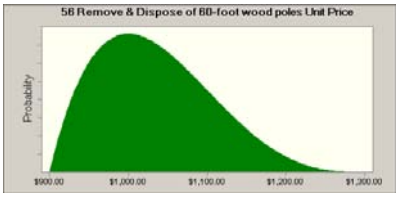
Mean	12	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: 56 Remove & Dispose of 60-foot wood poles Unit Price **Cell: R69**

BetaPERT distribution with parameters:

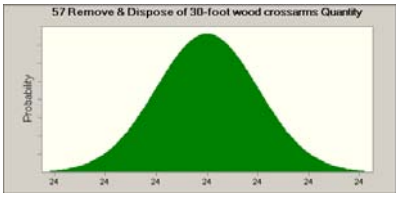
Minimum	$900.00	(=Q69)
Likeliest	$1,000.00	(=R69)
Maximum	$1,300.00	(=S69)



Assumption: 57 Remove & Dispose of 30-foot wood crossarms Quantity **Cell: L70**

Normal distribution with parameters:

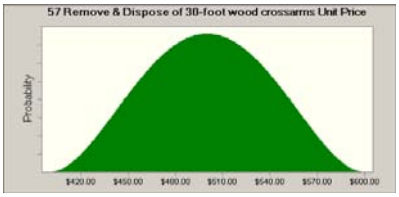
Mean	24	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove & Dispose of 30-foot wood crossarms Unit Price **Cell: R70**

BetaPERT distribution with parameters:

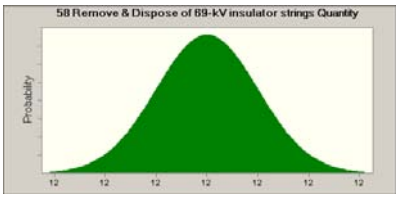
Minimum	$400.00	(=Q70)
Likeliest	$500.00	(=R70)
Maximum	$600.00	(=S70)



Assumption: 58 Remove & Dispose of 69-kV insulator strings Quantity **Cell: L71**

Normal distribution with parameters:

Mean	12	(=L71)
Std. Dev.	0	(=0.000001)



Assumption: 58 Remove & Dispose of 69-kV insulator strings Unit Price **Cell: R71**

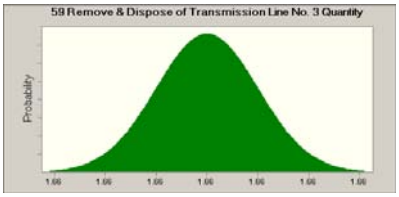
BetaPERT distribution with parameters:

Minimum	$300.00	(=Q71)
Likeliest	$400.00	(=R71)
Maximum	$500.00	(=S71)

Assumption: 59 Remove & Dispose of Transmission Line No. 3 Quantity **Cell: L72**

Normal distribution with parameters:

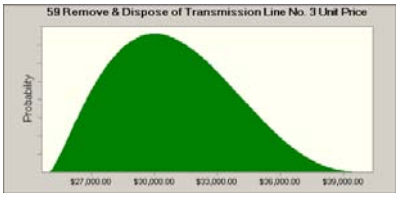
Mean	1.66	(=L72)
Std. Dev.	0.00	(=0.000001)



Assumption: 59 Remove & Dispose of Transmission Line No. 3 Unit Price **Cell: R72**

BetaPERT distribution with parameters:

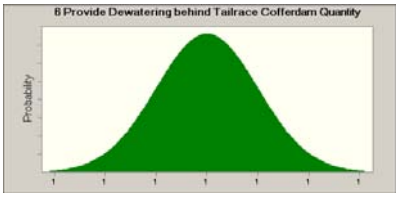
Minimum	$25,000.00	(=Q72)
Likeliest	$30,000.00	(=R72)
Maximum	$40,000.00	(=S72)



Assumption: 6 Provide Dewatering behind Tailrace Cofferdam Quantity **Cell: L19**

Normal distribution with parameters:

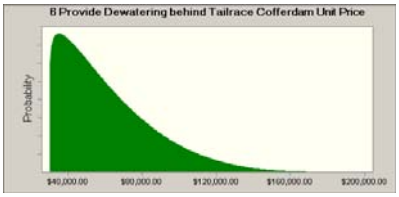
Mean	1	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 6 Provide Dewatering behind Tailrace Cofferdam Unit Price **Cell: R19**

BetaPERT distribution with parameters:

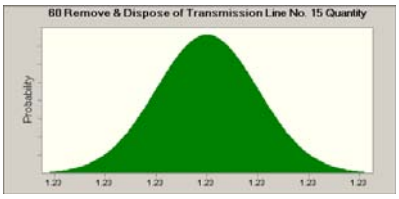
Minimum	$30,000.00	(=Q19)
Likeliest	$35,000.00	(=R19)
Maximum	$200,000.00	(=S19)



Assumption: 60 Remove & Dispose of Transmission Line No. 15 Quantity **Cell: L73**

Normal distribution with parameters:

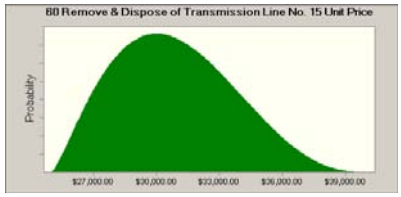
Mean	1.23	(=L73)
Std. Dev.	0.00	(=0.000001)



Assumption: 60 Remove & Dispose of Transmission Line No. 15 Unit Price **Cell: R73**

BetaPERT distribution with parameters:

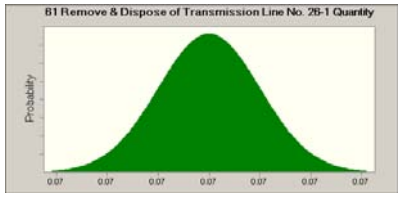
Minimum	$25,000.00	(=Q73)
Likeliest	$30,000.00	(=R73)
Maximum	$40,000.00	(=S73)



Assumption: 61 Remove & Dispose of Transmission Line No. 26-1 Quantity **Cell: L74**

Normal distribution with parameters:

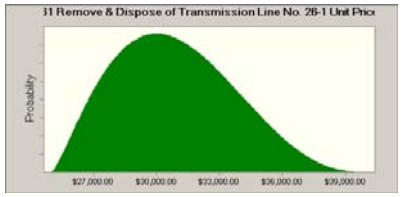
Mean	0.07	(=L74)
Std. Dev.	0.00	(=0.000001)



Assumption: 61 Remove & Dispose of Transmission Line No. 26-1 Unit Price **Cell: R74**

BetaPERT distribution with parameters:

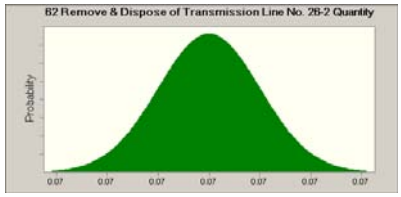
Minimum	$25,000.00	(=Q74)
Likeliest	$30,000.00	(=R74)
Maximum	$40,000.00	(=S74)



Assumption: 62 Remove & Dispose of Transmission Line No. 26-2 Quantity **Cell: L75**

Normal distribution with parameters:

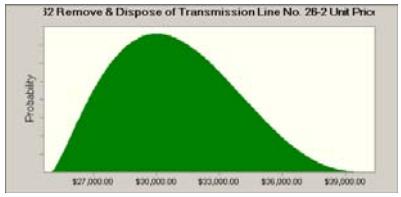
Mean	0.07	(=L75)
Std. Dev.	0.00	(=0.000001)



Assumption: 62 Remove & Dispose of Transmission Line No. 26-2 Unit Price **Cell: R75**

BetaPERT distribution with parameters:

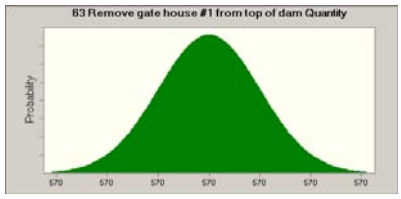
Minimum	$25,000.00	(=Q75)
Likeliest	$30,000.00	(=R75)
Maximum	$40,000.00	(=S75)



Assumption: 63 Remove gate house #1 from top of dam Quantity **Cell: L76**

Normal distribution with parameters:

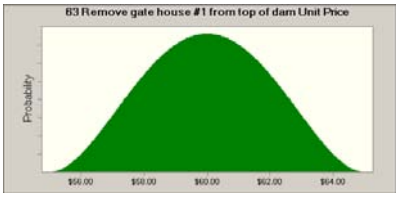
Mean	570	(=L76)
Std. Dev.	0	(=0.000001)



Assumption: 63 Remove gate house #1 from top of dam Unit Price **Cell: R76**

BetaPERT distribution with parameters:

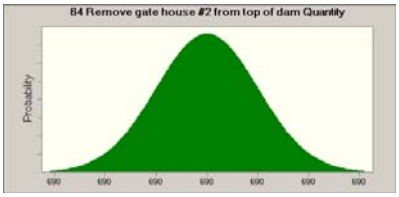
Minimum	$55.00	(=Q76)
Likeliest	$60.00	(=R76)
Maximum	$65.00	(=S76)



Assumption: 64 Remove gate house #2 from top of dam Quantity **Cell: L77**

Normal distribution with parameters:

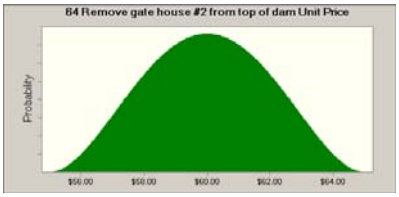
Mean	690	(=L77)
Std. Dev.	0	(=0.000001)



Assumption: 64 Remove gate house #2 from top of dam Unit Price **Cell: R77**

BetaPERT distribution with parameters:

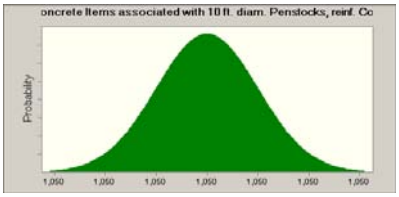
Minimum	$55.00	(=Q77)
Likeliest	$60.00	(=R77)
Maximum	$65.00	(=S77)



Assumption: 65 Remove Concrete Items associated with 10 ft. diam. Penstocks, reinf. Co **Cell: L78**

Normal distribution with parameters:

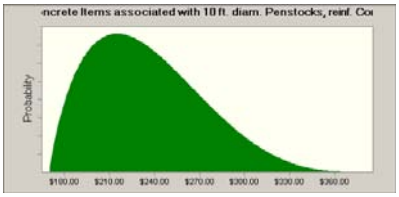
Mean	1,050	(=L78)
Std. Dev.	0	(=0.000001)



Assumption: 65 Remove Concrete Items associated with 10 ft. diam. Penstocks, reinf. Co **Cell: R78**

BetaPERT distribution with parameters:

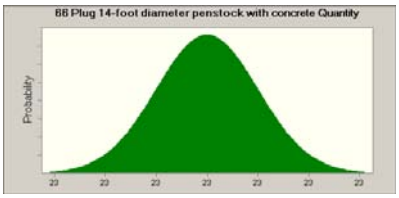
Minimum	$170.00	(=Q78)
Likeliest	$215.00	(=R78)
Maximum	$380.00	(=S78)



Assumption: 66 Plug 14-foot diameter penstock with concrete Quantity **Cell: L79**

Normal distribution with parameters:

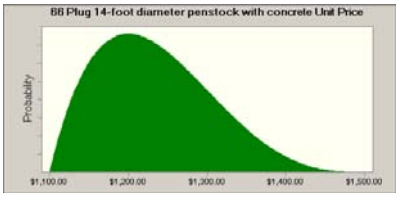
Mean	23	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 66 Plug 14-foot diameter penstock with concrete Unit Price **Cell: R79**

BetaPERT distribution with parameters:

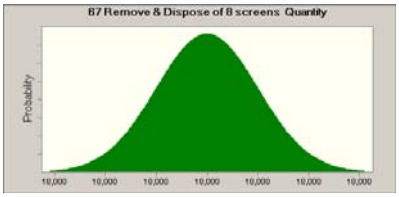
Minimum	$1,100.00	(=Q79)
Likeliest	$1,200.00	(=R79)
Maximum	$1,500.00	(=S79)



Assumption: 67 Remove & Dispose of 8 screens Quantity **Cell: L80**

Normal distribution with parameters:

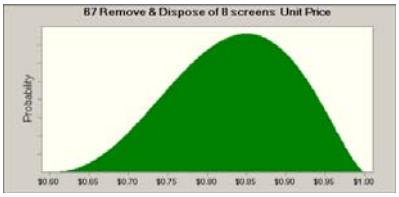
Mean	18,000	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove & Dispose of 8 screens Unit Price **Cell: R80**

BetaPERT distribution with parameters:

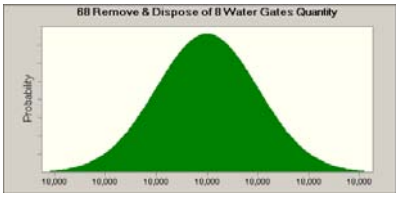
Minimum	$0.60	(=Q80)
Likeliest	$0.85	(=R80)
Maximum	$1.00	(=S80)



Assumption: 68 Remove & Dispose of 8 Water Gates Quantity **Cell: L81**

Normal distribution with parameters:

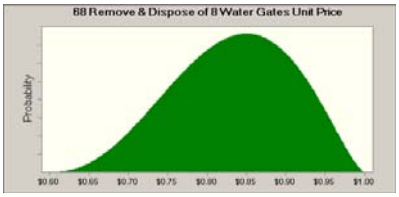
Mean	18,000	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 68 Remove & Dispose of 8 Water Gates Unit Price **Cell: R81**

BetaPERT distribution with parameters:

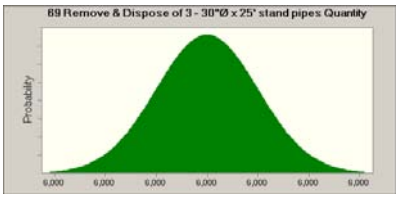
Minimum	$0.60	(=Q81)
Likeliest	$0.85	(=R81)
Maximum	$1.00	(=S81)



Assumption: 69 Remove & Dispose of 3 - 30"Ø x 25' stand pipes Quantity **Cell: L82**

Normal distribution with parameters:

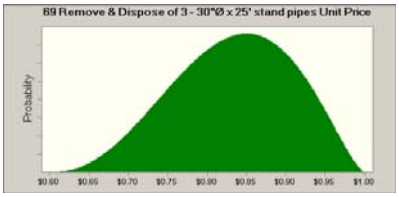
Mean	6,000	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove & Dispose of 3 - 30"Ø x 25' stand pipes Unit Price **Cell: R82**

BetaPERT distribution with parameters:

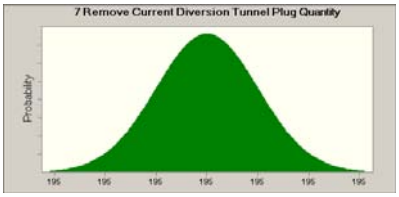
Minimum	$0.60	(=Q82)
Likeliest	$0.85	(=R82)
Maximum	$1.00	(=S82)



Assumption: 7 Remove Current Diversion Tunnel Plug Quantity **Cell: L20**

Normal distribution with parameters:

Mean	195	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 7 Remove Current Diversion Tunnel Plug Unit Price **Cell: R20**

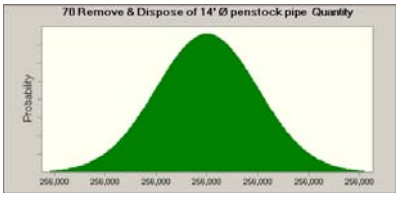
BetaPERT distribution with parameters:

Minimum	$1,400.00	(=Q20)
Likeliest	$1,500.00	(=R20)
Maximum	$1,800.00	(=S20)

Assumption: 70 Remove & Dispose of 14' Ø penstock pipe Quantity **Cell: L83**

Normal distribution with parameters:

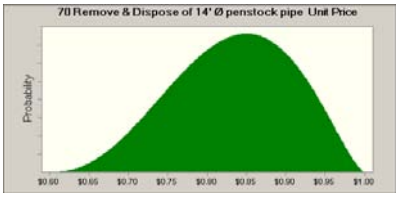
Mean	256,000	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 70 Remove & Dispose of 14' Ø penstock pipe Unit Price **Cell: R83**

BetaPERT distribution with parameters:

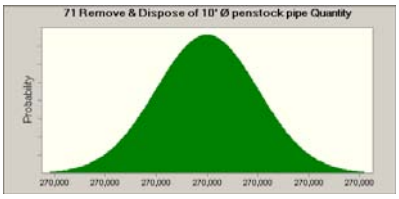
Minimum	$0.60	(=Q83)
Likeliest	$0.85	(=R83)
Maximum	$1.00	(=S83)



Assumption: 71 Remove & Dispose of 10' Ø penstock pipe Quantity **Cell: L84**

Normal distribution with parameters:

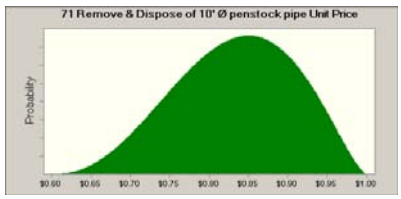
Mean	270,000	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 71 Remove & Dispose of 10' Ø penstock pipe Unit Price **Cell: R84**

BetaPERT distribution with parameters:

Minimum	$0.60	(=Q84)
Likeliest	$0.85	(=R84)
Maximum	$1.00	(=S84)



Assumption: 72 Temporary Access Roads Quantity **Cell: L85**

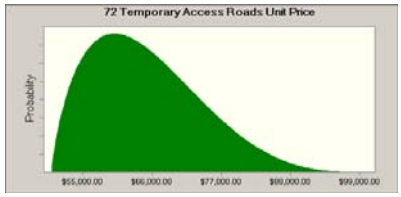
Normal distribution with parameters:

Mean	7	(=L85)
Std. Dev.	0	(=0.000001)

Assumption: 72 Temporary Access Roads Unit Price **Cell: R85**

BetaPERT distribution with parameters:

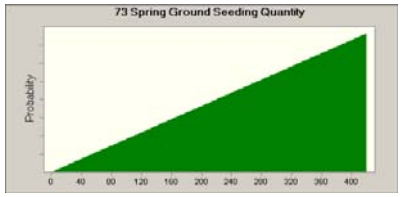
Minimum	$50,000.00	(=R85)
Likeliest	$60,000.00	(=Q85)
Maximum	$100,000.00	(=S85)



Assumption: 73 Spring Ground Seeding Quantity **Cell: L86**

Triangular distribution with parameters:

Minimum	0	(=M86)
Likeliest	420	(=L86)
Maximum	420	(=K86)



Assumption: 73 Spring Ground Seeding Unit Price **Cell: R86**

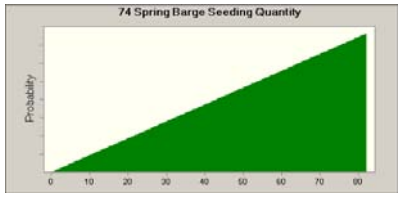
BetaPERT distribution with parameters:

Minimum	$3,000.00	(=Q86)
Likeliest	$3,500.00	(=R86)
Maximum	$4,000.00	(=S86)

Assumption: 74 Spring Barge Seeding Quantity **Cell: L87**

Triangular distribution with parameters:

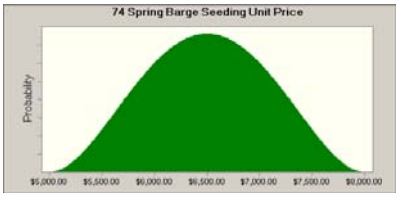
Minimum	0	(=M87)
Likeliest	82	(=L87)
Maximum	82	(=K87)



Assumption: 74 Spring Barge Seeding Unit Price **Cell: R87**

BetaPERT distribution with parameters:

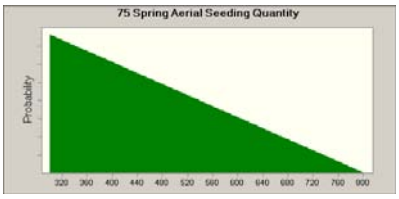
Minimum	$5,000.00	(=Q87)
Likeliest	$6,500.00	(=R87)
Maximum	$8,000.00	(=S87)



Assumption: 75 Spring Aerial Seeding Quantity **Cell: L88**

Triangular distribution with parameters:

Minimum	300	(=K88)
Likeliest	300	(=L88)
Maximum	802	(=M88)



Assumption: 75 Spring Aerial Seeding Unit Price **Cell: R88**

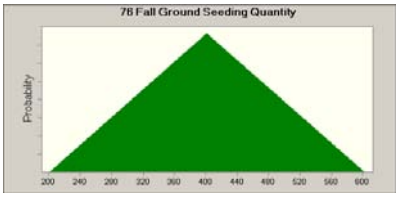
BetaPERT distribution with parameters:

Minimum	$6,500.00	(=Q88)
Likeliest	$7,500.00	(=R88)
Maximum	$15,000.00	(=S88)

Assumption: 76 Fall Ground Seeding Quantity **Cell: L89**

Triangular distribution with parameters:

Minimum	201	(=K89)
Likeliest	401	(=L89)
Maximum	602	(=M89)



Assumption: 76 Fall Ground Seeding Unit Price **Cell: R89**

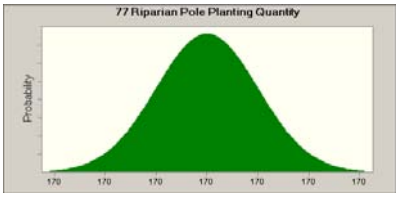
BetaPERT distribution with parameters:

Minimum	$3,000.00	(=Q89)
Likeliest	$3,500.00	(=R89)
Maximum	$4,000.00	(=S89)

Assumption: 77 Riparian Pole Planting Quantity **Cell: L90**

Normal distribution with parameters:

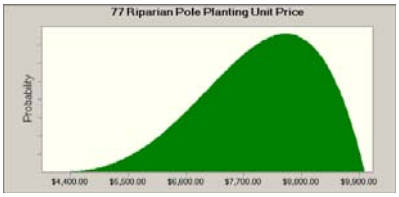
Mean	170	(=L90)
Std. Dev.	0	(=0.000001)



Assumption: 77 Riparian Pole Planting Unit Price **Cell: R90**

BetaPERT distribution with parameters:

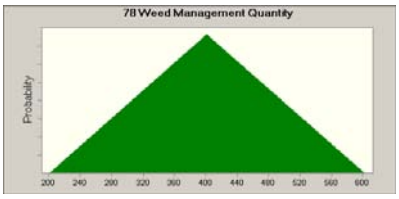
Minimum	$4,000.00	(=Q90)
Likeliest	$8,500.00	(=R90)
Maximum	$10,000.00	(=S90)



Assumption: 78 Weed Management Quantity **Cell: L91**

Triangular distribution with parameters:

Minimum	201	(=K91)
Likeliest	401	(=L91)
Maximum	602	(=M91)



Assumption: 78 Weed Management Unit Price **Cell: R91**

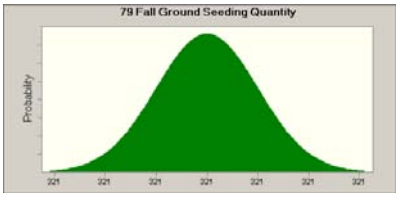
BetaPERT distribution with parameters:

Minimum	$1,000.00	(=Q91)
Likeliest	$1,500.00	(=R91)
Maximum	$2,000.00	(=S91)

Assumption: 79 Fall Ground Seeding Quantity **Cell: L92**

Normal distribution with parameters:

Mean	321	(=L92)
Std. Dev.	0	(=0.000001)



Assumption: 79 Fall Ground Seeding Unit Price **Cell: R92**

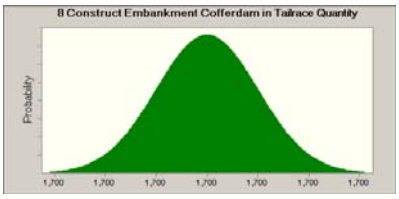
BetaPERT distribution with parameters:

Minimum	$3,000.00	(=Q92)
Likeliest	$3,500.00	(=R92)
Maximum	$4,000.00	(=S92)

Assumption: 8 Construct Embankment Cofferdam in Tailrace Quantity **Cell: L21**

Normal distribution with parameters:

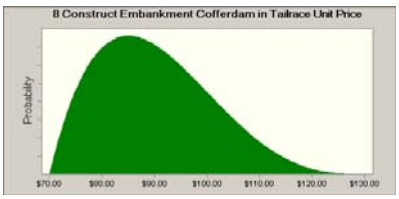
Mean	1,700	(=L21)
Std. Dev.	0	(=0.000001)



Assumption: 8 Construct Embankment Cofferdam in Tailrace Unit Price **Cell: R21**

BetaPERT distribution with parameters:

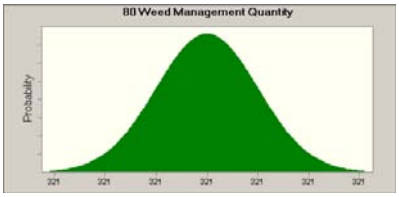
Minimum	$70.00	(=Q21)
Likeliest	$85.00	(=R21)
Maximum	$130.00	(=S21)



Assumption: 80 Weed Management Quantity **Cell: L93**

Normal distribution with parameters:

Mean	321	(=L93)
Std. Dev.	0	(=0.000001)



Assumption: 80 Weed Management Unit Price **Cell: R93**

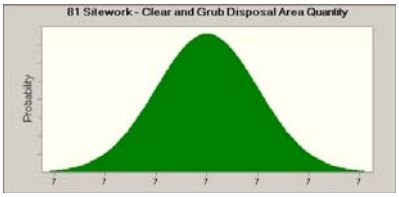
BetaPERT distribution with parameters:

Minimum	$1,000.00	(=Q93)
Likeliest	$1,500.00	(=R93)
Maximum	$2,000.00	(=S93)

Assumption: 81 Sitework - Clear and Grub Disposal Area Quantity **Cell: L94**

Normal distribution with parameters:

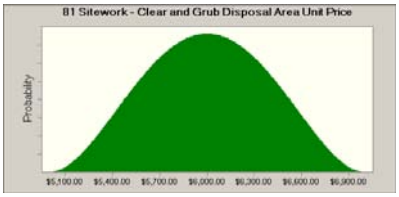
Mean	7	(=L94)
Std. Dev.	0	(=0.000001)



Assumption: 81 Sitework - Clear and Grub Disposal Area Unit Price **Cell: R94**

BetaPERT distribution with parameters:

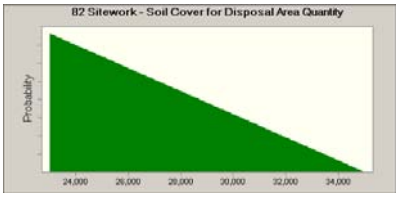
Minimum	$5,000.00	(=Q94)
Likeliest	$6,000.00	(=R94)
Maximum	$7,000.00	(=S94)



Assumption: 82 Sitework - Soil Cover for Disposal Area Quantity **Cell: L95**

Triangular distribution with parameters:

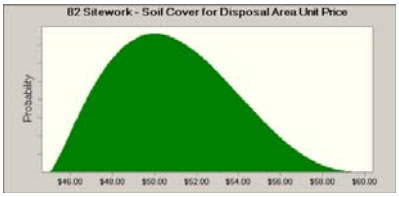
Minimum	23,000	(=K95)
Likeliest	23,000	(=L95)
Maximum	35,000	(=M95)



Assumption: 82 Sitework - Soil Cover for Disposal Area Unit Price **Cell: R95**

BetaPERT distribution with parameters:

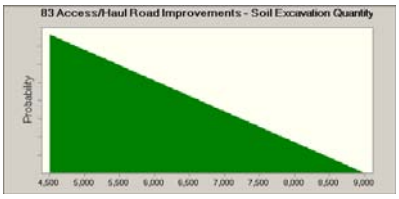
Minimum	$45.00	(=Q95)
Likeliest	$50.00	(=R95)
Maximum	$60.00	(=S95)



Assumption: 83 Access/Haul Road Improvements - Soil Excavation Quantity **Cell: L96**

Triangular distribution with parameters:

Minimum	4,500	(=K96)
Likeliest	4,500	(=L96)
Maximum	9,000	(=M96)



Assumption: 83 Access/Haul Road Improvements - Soil Excavation Unit Price **Cell: R96**

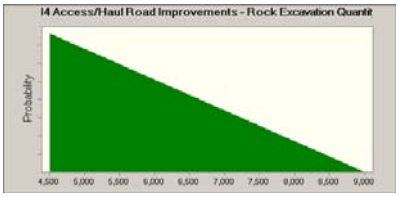
BetaPERT distribution with parameters:

Minimum	$12.00	(=Q96)
Likeliest	$13.00	(=R96)
Maximum	$14.00	(=S96)

Assumption: 84 Access/Haul Road Improvements - Rock Excavation Quantity **Cell: L97**

Triangular distribution with parameters:

Minimum	4,500	(=K97)
Likeliest	4,500	(=L97)
Maximum	9,000	(=M97)



Assumption: 84 Access/Haul Road Improvements - Rock Excavation Unit Price **Cell: R97**

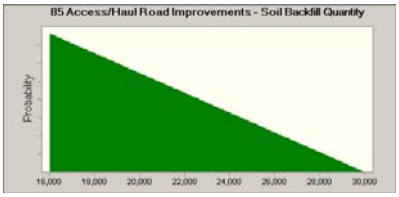
BetaPERT distribution with parameters:

Minimum	$35.00	(=Q97)
Likeliest	$40.00	(=R97)
Maximum	$45.00	(=S97)

Assumption: 85 Access/Haul Road Improvements - Soil Backfill Quantity **Cell: L98**

Triangular distribution with parameters:

Minimum	16,000	(=K98)
Likeliest	16,000	(=L98)
Maximum	30,000	(=M98)



Assumption: 85 Access/Haul Road Improvements - Soil Backfill Unit Price **Cell: R98**

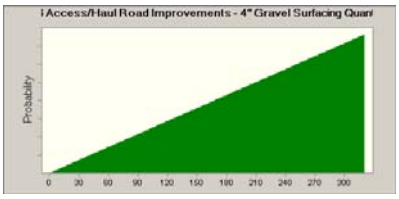
BetaPERT distribution with parameters:

Minimum	$45.00	(=Q98)
Likeliest	$50.00	(=R98)
Maximum	$55.00	(=S98)

Assumption: 86 Access/Haul Road Improvements - 4" Gravel Surfacing Quantity **Cell: L99**

Triangular distribution with parameters:

Minimum	0	(=K99)
Likeliest	320	(=L99)
Maximum	320	(=M99)



Assumption: 86 Access/Haul Road Improvements - 4" Gravel Surfacing Unit Price **Cell: R99**

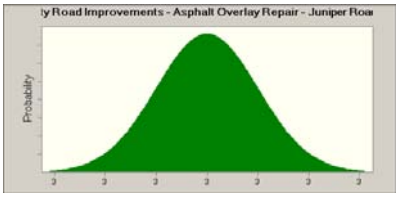
BetaPERT distribution with parameters:

Minimum	$80.00	(=Q99)
Likeliest	$100.00	(=R99)
Maximum	$120.00	(=S99)

Assumption: 87 County Road Improvements - Asphalt Overlay Repair - Juniper Road Quant **C/Q100**

Normal distribution with parameters:

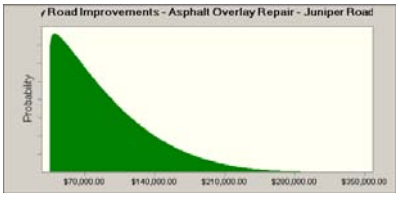
Mean	3	(=L100)
Std. Dev.	0	(=0.000001)



Assumption: 87 County Road Improvements - Asphalt Overlay Repair - Juniper Road Unit **C/UnitR100**

BetaPERT distribution with parameters:

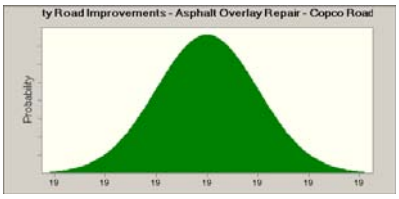
Minimum	$35,000.00	(=Q100)
Likeliest	$40,000.00	(=R100)
Maximum	$350,000.00	(=S100)



Assumption: 88 County Road Improvements - Asphalt Overlay Repair - Copco Road Quant **C/Quant101**

Normal distribution with parameters:

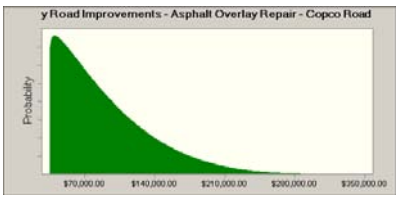
Mean	19	(=L101)
Std. Dev.	0	(=0.000001)



Assumption: 88 County Road Improvements - Asphalt Overlay Repair - Copco Road Cell: R101

BetaPERT distribution with parameters:

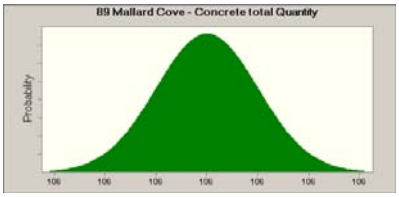
Minimum	$35,000.00	(=Q101)
Likeliest	$40,000.00	(=R101)
Maximum	$350,000.00	(=S101)



Assumption: 89 Mallard Cove - Concrete total Quantity **Cell: L102**

Normal distribution with parameters:

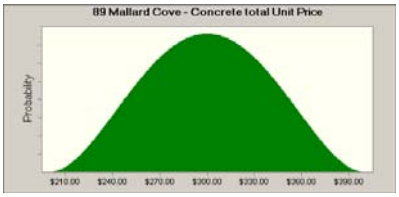
Mean	106	(=L102)
Std. Dev.	0	(=0.000001)



Assumption: 89 Mallard Cove - Concrete total Unit Price **Cell: R102**

BetaPERT distribution with parameters:

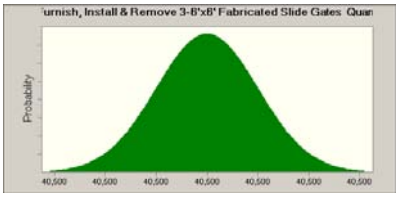
Minimum	$200.00	(=Q102)
Likeliest	$300.00	(=R102)
Maximum	$400.00	(=S102)



Assumption: 9 Furnish, Install & Remove 3-6'x6' Fabricated Slide Gates Quantity Cell: L22

Normal distribution with parameters:

Mean	40,500	(=L22)
Std. Dev.	0	(=0.000001)



Assumption: 9 Furnish, Install & Remove 3-6'x6' Fabricated Slide Gates Unit Price Cell: R22

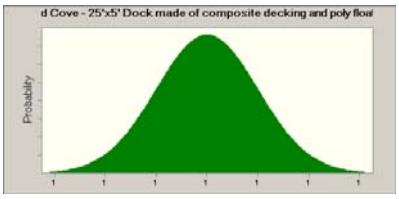
BetaPERT distribution with parameters:

Minimum	$12.00	(=Q22)
Likeliest	$15.00	(=R22)
Maximum	$18.00	(=S22)

Assumption: 90 Mallard Cove - 25'x5' Dock made of composite decking and poly floats Qu Cell: L103

Normal distribution with parameters:

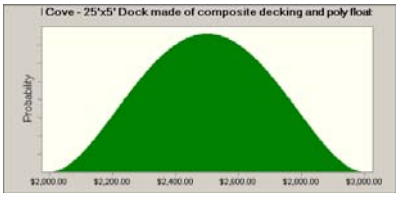
Mean	1	(=L103)
Std. Dev.	0	(=0.000001)



Assumption: 90 Mallard Cove - 25'x5' Dock made of composite decking and poly flo **Cell: R103**

BetaPERT distribution with parameters:

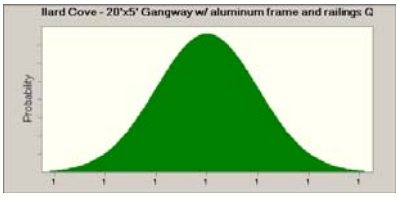
Minimum	$2,000.00	(=Q103)
Likeliest	$2,500.00	(=R103)
Maximum	$3,000.00	(=S103)



Assumption: 91 Mallard Cove - 20'x5' Gangway w/ aluminum frame and railings Quantity **Cell: L104**

Normal distribution with parameters:

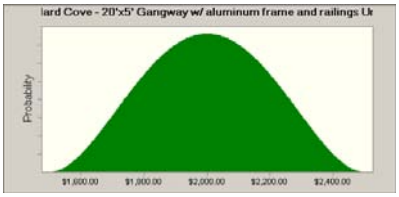
Mean	1	(=L104)
Std. Dev.	0	(=0.000001)



Assumption: 91 Mallard Cove - 20'x5' Gangway w/ aluminum frame and railings Unit Price **Cell: R104**

BetaPERT distribution with parameters:

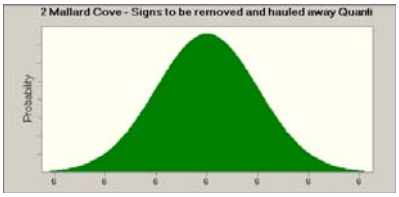
Minimum	$1,500.00	(=Q104)
Likeliest	$2,000.00	(=R104)
Maximum	$2,500.00	(=S104)



Assumption: 92 Mallard Cove - Signs to be removed and hauled away Quantity **Cell: L105**

Normal distribution with parameters:

Mean	6	(=L105)
Std. Dev.	0	(=0.000001)



Assumption: 92 Mallard Cove - Signs to be removed and hauled away Unit Price **Cell: R105**

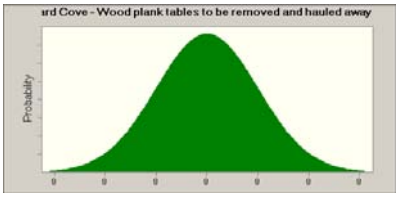
BetaPERT distribution with parameters:

Minimum	$250.00	(=Q105)
Likeliest	$300.00	(=R105)
Maximum	$350.00	(=S105)

Assumption: 93 Mallard Cove - Wood plank tables to be removed and hauled away Quantity **Cell: L106**

Normal distribution with parameters:

Mean	8	(=L106)
Std. Dev.	0	(=0.000001)



Assumption: 93 Mallard Cove - Wood plank tables to be removed and hauled away Cell: R106

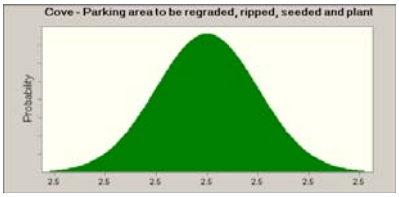
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q106)
Likeliest	$100.00	(=R106)
Maximum	$120.00	(=S106)

Assumption: 94 Mallard Cove - Parking area to be regraded, ripped, seeded and planted Cell: Q107

Normal distribution with parameters:

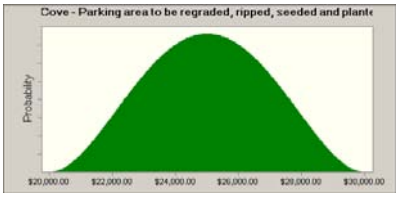
Mean	2.5	(=L107)
Std. Dev.	0.0	(=0.000001)



Assumption: 94 Mallard Cove - Parking area to be regraded, ripped, seeded and planted Cell: R107

BetaPERT distribution with parameters:

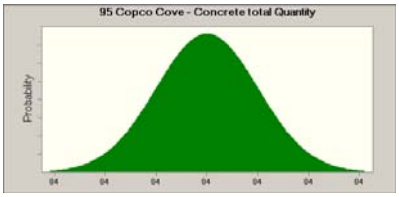
Minimum	$20,000.00	(=Q107)
Likeliest	$25,000.00	(=R107)
Maximum	$30,000.00	(=S107)



Assumption: 95 Copco Cove - Concrete total Quantity **Cell: L108**

Normal distribution with parameters:

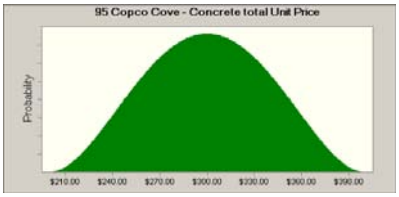
Mean	84	(=L108)
Std. Dev.	0	(=0.000001)



Assumption: 95 Copco Cove - Concrete total Unit Price **Cell: R108**

BetaPERT distribution with parameters:

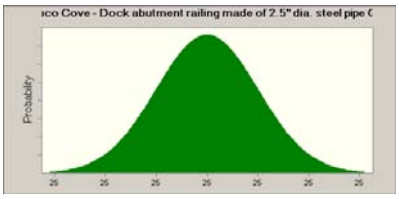
Minimum	$200.00	(=Q108)
Likeliest	$300.00	(=R108)
Maximum	$400.00	(=S108)



Assumption: 96 Copco Cove - Dock abutment railing made of 2.5" dia. steel pipe Quantity **Cell: L109**

Normal distribution with parameters:

Mean	25	(=L109)
Std. Dev.	0	(=0.000001)



Assumption: 96 Copco Cove - Dock abutment railing made of 2.5" dia. steel pipe Unit Price **Cell: R109**

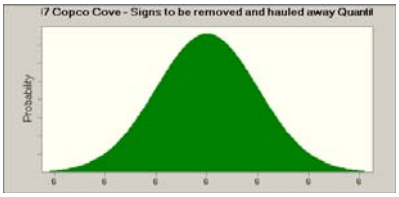
BetaPERT distribution with parameters:

Minimum	$35.00	(=Q109)
Likeliest	$40.00	(=R109)
Maximum	$45.00	(=S109)

Assumption: 97 Copco Cove - Signs to be removed and hauled away Quantity **Cell: L110**

Normal distribution with parameters:

Mean	6	(=L110)
Std. Dev.	0	(=0.000001)



Assumption: 97 Copco Cove - Signs to be removed and hauled away Unit Price **Cell: R110**

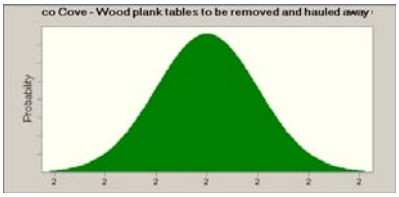
BetaPERT distribution with parameters:

Minimum	$250.00	(=Q110)
Likeliest	$300.00	(=R110)
Maximum	$350.00	(=S110)

Assumption: 98 Copco Cove - Wood plank tables to be removed and hauled away Quantity Cell: L111

Normal distribution with parameters:

Mean	2	(=L111)
Std. Dev.	0	(=0.000001)



Assumption: 98 Copco Cove - Wood plank tables to be removed and hauled away Unit Price Cell: R111

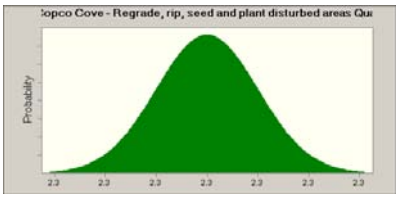
BetaPERT distribution with parameters:

Minimum	$90.00	(=Q111)
Likeliest	$100.00	(=R111)
Maximum	$120.00	(=S111)

Assumption: 99 Copco Cove - Regrade, rip, seed and plant disturbed areas Quantity Cell: L112

Normal distribution with parameters:

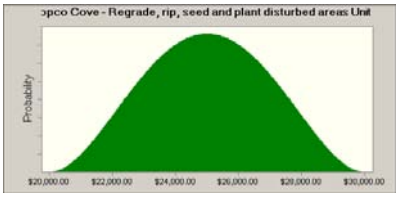
Mean	2.3	(=L112)
Std. Dev.	0.0	(=0.000001)



Assumption: 99 Copco Cove - Regrade, rip, seed and plant disturbed areas Unit Price **Cell: R112**

BetaPERT distribution with parameters:

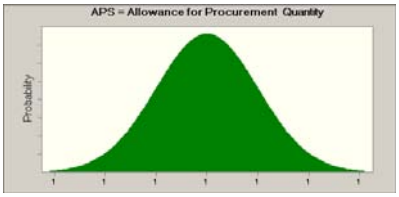
Minimum	$20,000.00	(=Q112)
Likeliest	$25,000.00	(=R112)
Maximum	$30,000.00	(=S112)



Assumption: APS = Allowance for Procurement Quantity **Cell: L121**

Normal distribution with parameters:

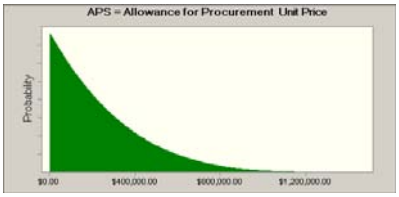
Mean	1	(=L121)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price **Cell: R121**

BetaPERT distribution with parameters:

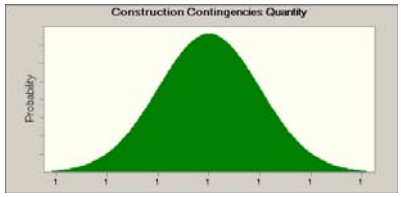
Minimum	$0.00	(=Q121)
Likeliest	$0.00	(=R121)
Maximum	$1,474,383.00	(=S121)



Assumption: Construction Contingencies Quantity **Cell: L124**

Normal distribution with parameters:

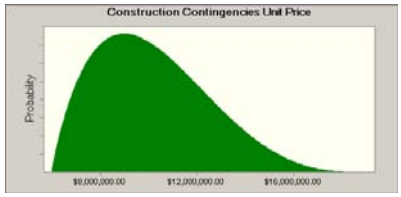
Mean	1	(=L124)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price **Cell: R124**

BetaPERT distribution with parameters:

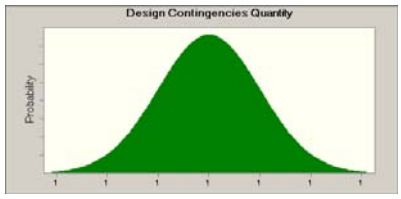
Minimum	$6,000,000.00	(=Q124)
Likeliest	$9,000,000.00	(=R124)
Maximum	$19,000,000.00	(=S124)



Assumption: Design Contingencies Quantity **Cell: L120**

Normal distribution with parameters:

Mean	1	(=L120)
Std. Dev.	0	(=0.000001)



Assumption: Design Contingencies Unit Price **Cell: R120**

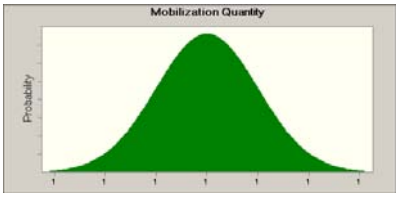
BetaPERT distribution with parameters:

Minimum	$2,796,615.00	(=Q120)
Likeliest	$3,594,415.00	(=R120)
Maximum	$9,421,992.00	(=S120)

Assumption: Mobilization Quantity **Cell: L115**

Normal distribution with parameters:

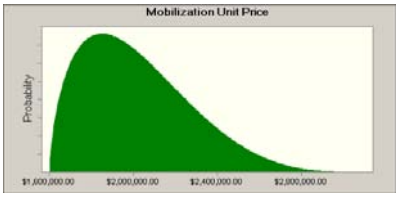
Mean	1	(=L115)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price **Cell: R115**

BetaPERT distribution with parameters:

Minimum	$1,600,000.00	(=Q115)
Likeliest	$1,850,000.00	(=R115)
Maximum	$3,100,000.00	(=S115)



Assumption: Non-Contract Cost Quantity **Cell: L126**

Normal distribution with parameters:

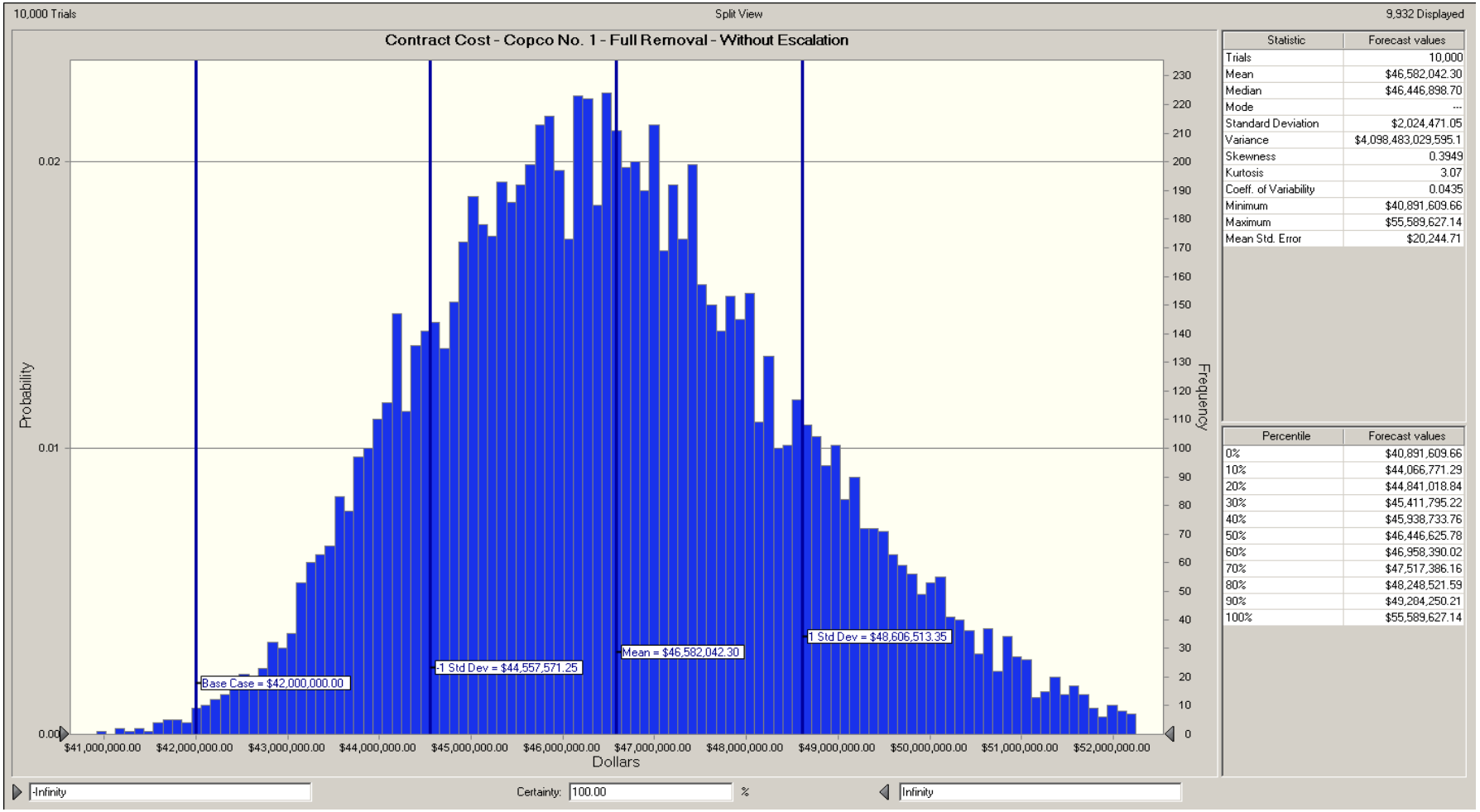
Mean	1	(=L126)
Std. Dev.	0	(=0.000001)

Assumption: Non-Contract Cost Unit Price **Cell: R126**

BetaPERT distribution with parameters:

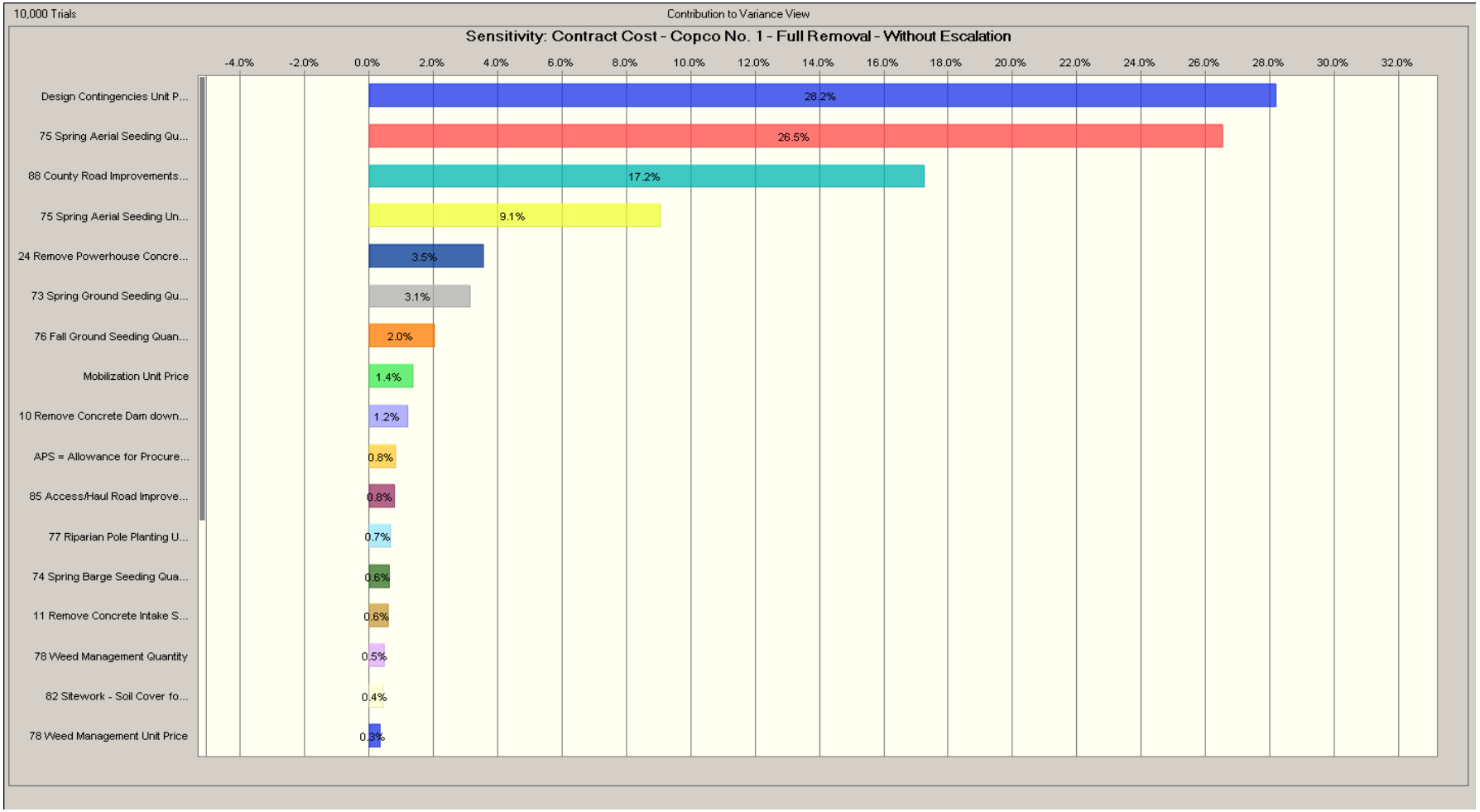
Minimum	$22,000,000.00	(=Q126)
Likeliest	$28,000,000.00	(=R126)
Maximum	$56,000,000.00	(=S126)

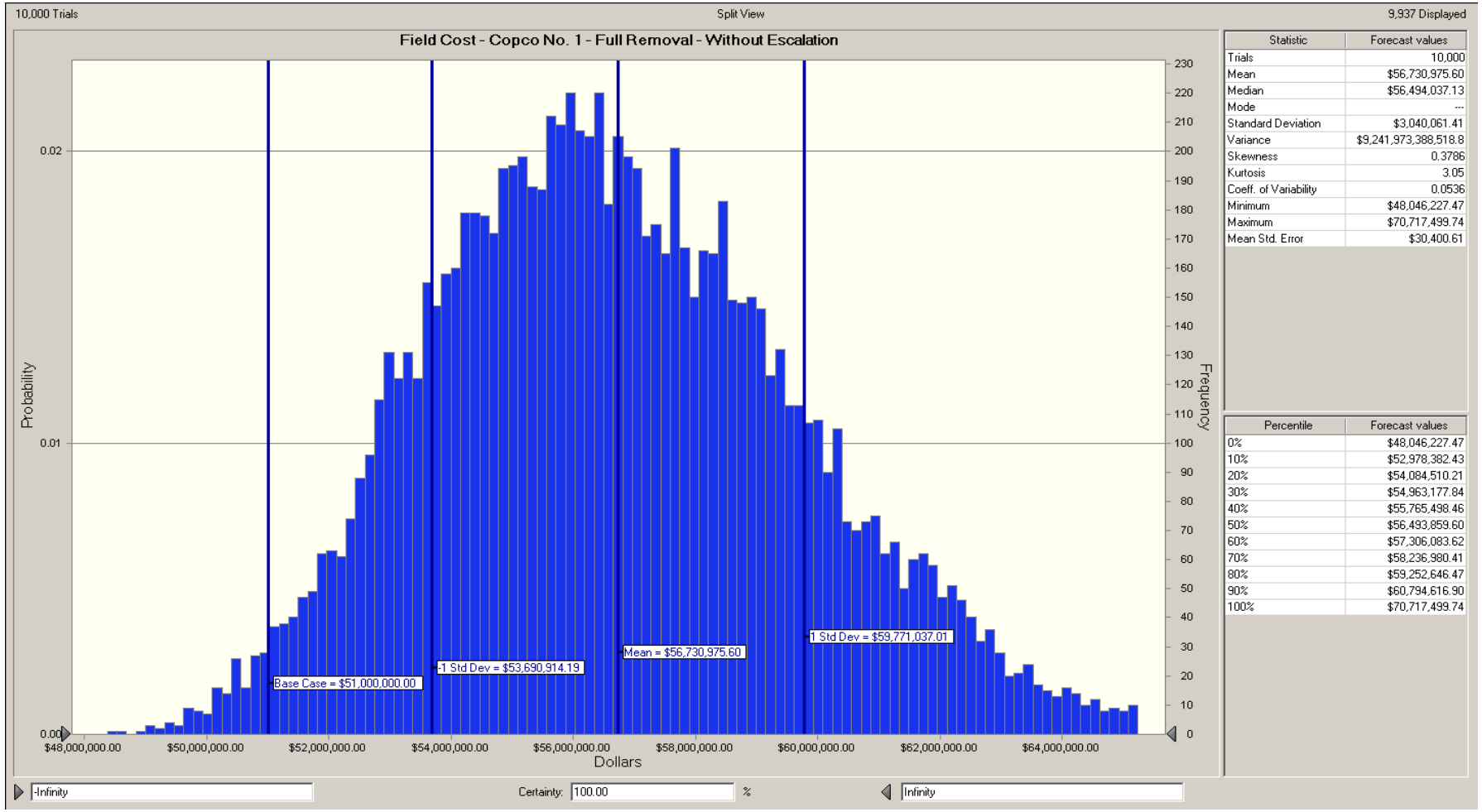
End of Assumptions



Statistic	Forecast values
Trials	10,000
Mean	$46,582,042.30
Median	$46,446,898.70
Mode	---
Standard Deviation	$2,024,471.05
Variance	$4,098,483,029,595.1
Skewness	0.3949
Kurtosis	3.07
Coeff. of Variability	0.0435
Minimum	$40,891,609.66
Maximum	$55,589,627.14
Mean Std. Error	$20,244.71

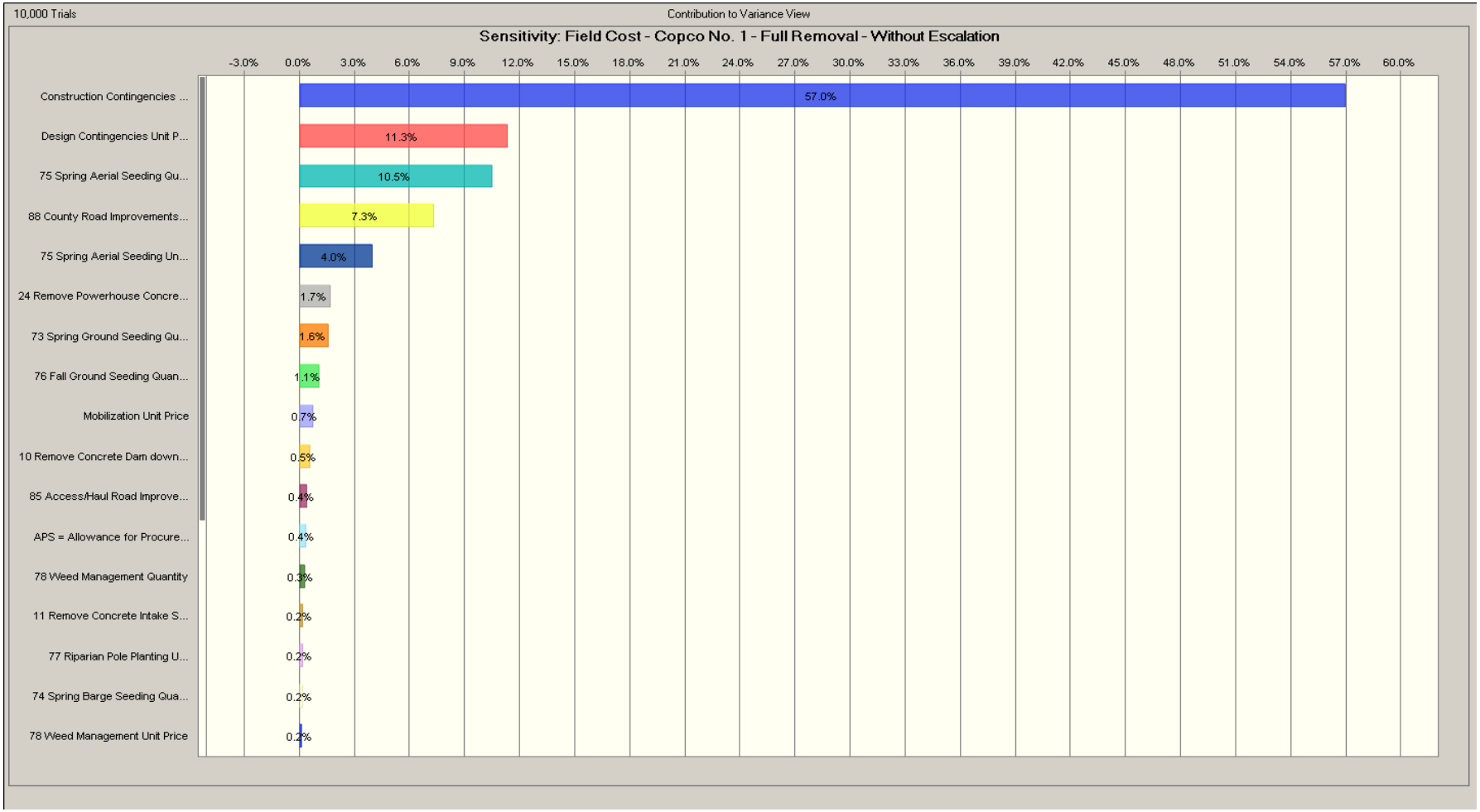
Percentile	Forecast values
0%	$40,891,609.66
10%	$44,066,771.29
20%	$44,841,018.84
30%	$45,411,795.22
40%	$45,938,733.76
50%	$46,446,625.78
60%	$46,958,390.02
70%	$47,517,386.16
80%	$48,248,521.59
90%	$49,204,250.21
100%	$55,589,627.14

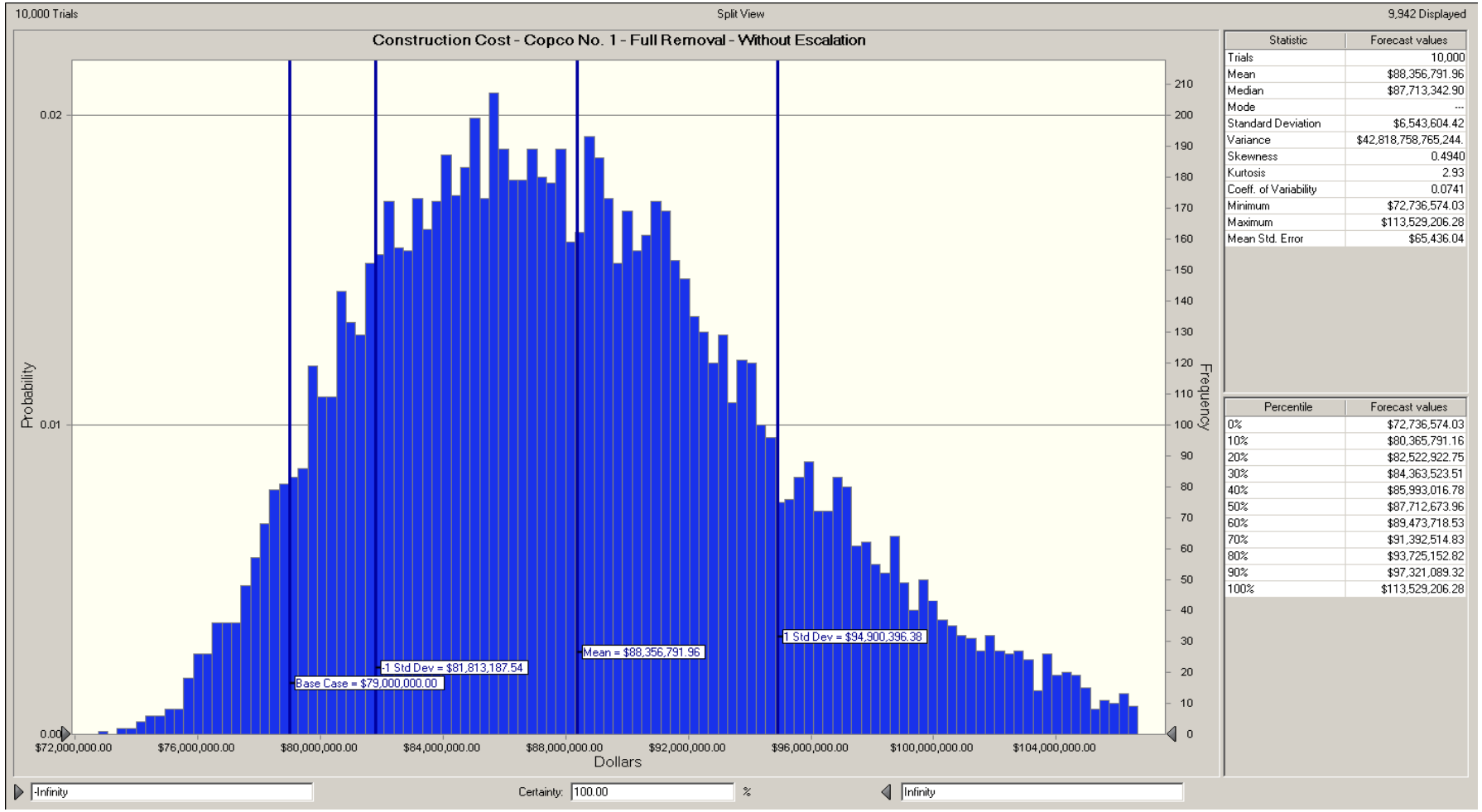

10,000 Trials
Contribution to Variance View
Sensitivity: Contract Cost - Copco No. 1 - Full Removal - Without Escalation
-4.0%
-2.0%
0.0%
2.0%
4.0%
6.0%
8.0%
10.0%
12.0%
14.0%
16.0%
18.0%
20.0%
22.0%
24.0%
26.0%
28.0%
30.0%
32.0%
Design Contingencies Unit P...
28.2%
75 Spring Aerial Seeding Qu...
26.5%
88 County Road Improvements...
17.2%
75 Spring Aerial Seeding Un...
9.1%
24 Remove Powerhouse Concre...
3.5%
73 Spring Ground Seeding Qu...
3.1%
76 Fall Ground Seeding Quan...
2.0%
Mobilization Unit Price
1.4%
10 Remove Concrete Dam down...
1.2%
APS = Allowance for Procure...
0.8%
85 Access/Haul Road Improve...
0.8%
77 Riparian Pole Planting U...
0.7%
74 Spring Barge Seeding Qua...
0.6%
11 Remove Concrete Intake S...
0.6%
78 Weed Management Quantity
0.5%
82 Sitework - Soil Cover fo...
0.4%
78 Weed Management Unit Price
0.3%



Statistic	Forecast values
Trials	10,000
Mean	$56,730,975.60
Median	$56,494,037.13
Mode	---
Standard Deviation	$3,040,061.41
Variance	$9,241,973,388,518.8
Skewness	0.3786
Kurtosis	3.05
Coeff. of Variability	0.0536
Minimum	$48,046,227.47
Maximum	$70,717,499.74
Mean Std. Error	$30,400.61

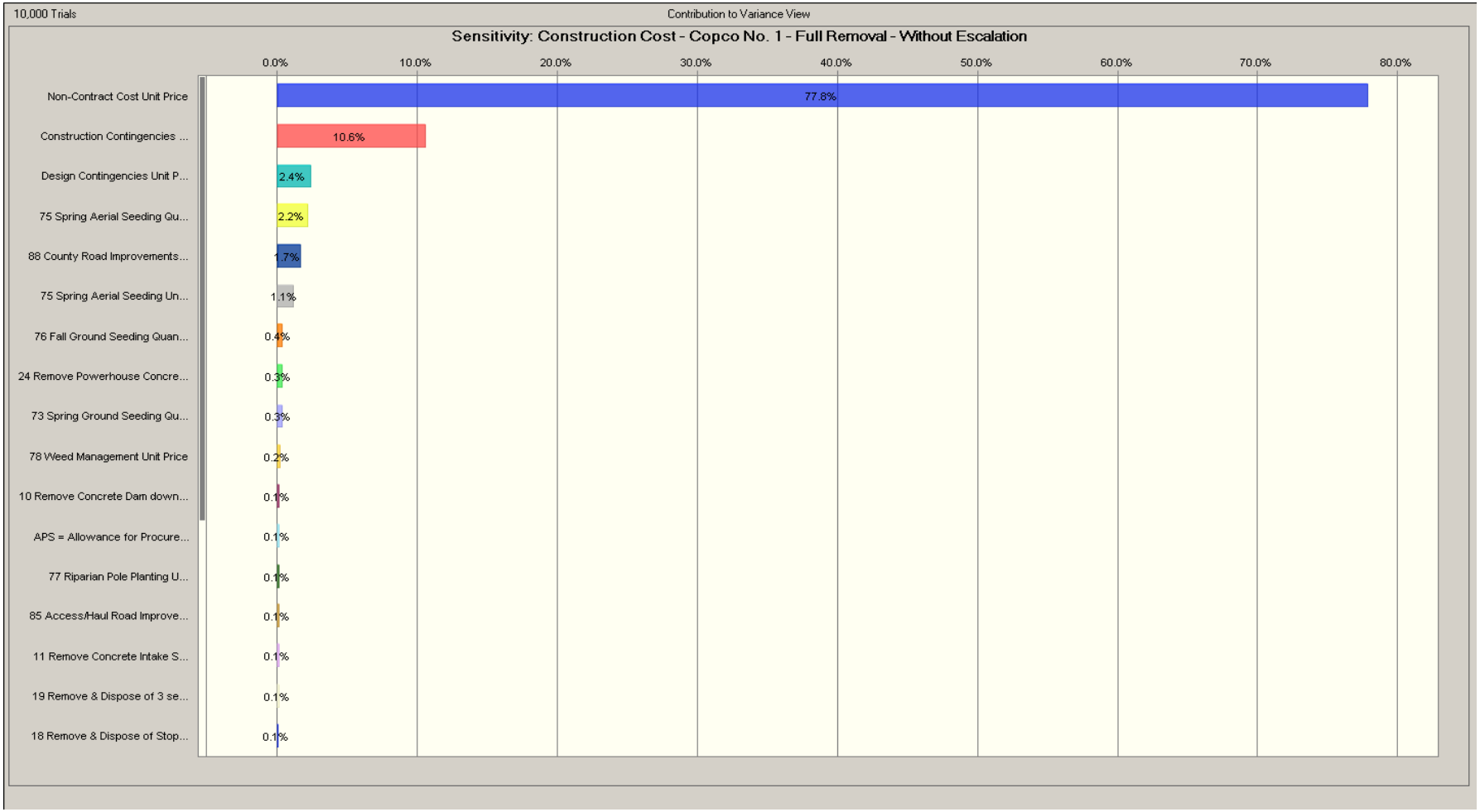
Percentile	Forecast values
0%	$48,046,227.47
10%	$52,978,382.43
20%	$54,084,510.21
30%	$54,963,177.84
40%	$55,765,498.46
50%	$56,493,859.60
60%	$57,306,083.62
70%	$58,236,980.41
80%	$59,252,646.47
90%	$60,794,616.90
100%	$70,717,499.74


10,000 Trials
Contribution to Variance View
Sensitivity: Field Cost - Copco No. 1 - Full Removal - Without Escalation
-3.0% 0.0% 3.0% 6.0% 9.0% 12.0% 15.0% 18.0% 21.0% 24.0% 27.0% 30.0% 33.0% 36.0% 39.0% 42.0% 45.0% 48.0% 51.0% 54.0% 57.0% 60.0%
Construction Contingencies ... 57.0%
Design Contingencies Unit P... 11.3%
75 Spring Aerial Seeding Qu... 10.5%
88 County Road Improvements... 7.3%
75 Spring Aerial Seeding Un... 4.0%
24 Remove Powerhouse Concre... 1.7%
73 Spring Ground Seeding Qu... 1.6%
76 Fall Ground Seeding Quan... 1.1%
Mobilization Unit Price 0.7%
10 Remove Concrete Dam down... 0.5%
85 Access/Haul Road Improve... 0.4%
APS = Allowance for Procure... 0.4%
78 Weed Management Quantity 0.3%
11 Remove Concrete Intake S... 0.2%
77 Riparian Pole Planting U... 0.2%
74 Spring Barge Seeding Qua... 0.2%
78 Weed Management Unit Price 0.2%



Statistic	Forecast values
Trials	10,000
Mean	$88,356,791.96
Median	$87,713,342.90
Mode	---
Standard Deviation	$6,543,604.42
Variance	$42,818,758,765,244.
Skewness	0.4940
Kurtosis	2.93
Coeff. of Variability	0.0741
Minimum	$72,736,574.03
Maximum	$113,529,206.28
Mean Std. Error	$65,436.04

Percentile	Forecast values
0%	$72,736,574.03
10%	$80,365,791.16
20%	$82,522,922.75
30%	$84,363,523.51
40%	$85,993,016.78
50%	$87,712,673.96
60%	$89,473,718.53
70%	$91,392,514.83
80%	$93,725,152.82
90%	$97,321,089.32
100%	$113,529,206.28


10,000 Trials
Contribution to Variance View
Sensitivity: Construction Cost - Copco No. 1 - Full 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
77.8%
Construction Contingencies ...
10.6%
Design Contingencies Unit P...
2.4%
75 Spring Aerial Seeding Qu...
2.2%
88 County Road Improvements...
1.7%
75 Spring Aerial Seeding Un...
1.1%
76 Fall Ground Seeding Quan...
0.4%
24 Remove Powerhouse Concre...
0.3%
73 Spring Ground Seeding Qu...
0.3%
78 Weed Management Unit Price
0.2%
10 Remove Concrete Dam down...
0.1%
APS = Allowance for Procure...
0.1%
77 Riparian Pole Planting U...
0.1%
85 Access/Haul Road Improve...
0.1%
11 Remove Concrete Intake S...
0.1%
19 Remove & Dispose of 3 se...
0.1%
18 Remove & Dispose of Stop...
0.1%