

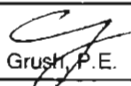
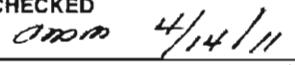
Attachment D

Cost Estimate Worksheets

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Dam				Klamath River Northern California/Southern Oregon			
				WOID:	AF484	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Division & Care			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	10	Remove Concrete Dam down to Elev. 2476	86-68130	36,000	yd3	\$300.00	\$10,800,000.00
		<i>Elev. 2476 represents original streambed channel at downstream face of dam.</i>					
		<i>Concrete in foundation to remain. Spillway crest at Elev. 2593.5.</i>					
		<i>Includes concrete in dam, spillway crest, piers (390 cy), bridge</i>					
		<i>deck (72 cy) and left abutment. Concrete is reinforced.</i>					
		<i>Requires notching of concrete dam under head below approximately Elev. 2536</i>					
		<i>for an average water year. Approx. 17,000 cy of concrete in dam above El. 2536.</i>					
		<i>Assume ten notches, 12 ft deep, alternating sides with five on each side for</i>					
		<i>removal of final 60 feet of dam.</i>					
		<i>Each notch overlaps the previous alternating notch in 6 foot lifts.</i>					
		<i>Each notch is approximately 20 ft wide with an average 6 ft thickness to be</i>					
		<i>removed by blasting below reservoir surface.</i>					
	11	Remove Concrete Intake Structure on Right	86-68130	21,000	yd3	\$350.00	\$7,350,000.00
		Abutment					
		<i>Includes concrete in gate houses and headworks for units 1 and 2.</i>					
	12	Remove Structural Steel from Spillway	86-68130	55,000	lbs	\$1.00	\$55,000.00
		<i>Includes rails, misc. steel</i>					
		<i>Does not include spillway gates</i>					
		<i>Assume contains paint with heavy metals.</i>					
		<i>By barge and crane</i>					
	13	Install Diversion Tunnel Plugs	86-68130	30	yd3	\$1,200.00	\$36,000.00
		<i>Plug upstream (6 cy) and downstream ends</i>					
		<i>Assume 2' thick each</i>					
	14	Remove Diversion Tunnel Control Structure	86-68130	350	yd3	\$215.00	\$75,250.00
		Concrete					
		<i>Includes guide boxes</i>					
		<i>Assume reinforced</i>					
		SUBTOTAL THIS SHEET					\$18,316,250.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
Jonathan East		Sheena Barnes		Craig A. Grush, P.E.		Cmm 4/14/11	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
11/01/10		Rick Benik P.E. 11/1/10		04/14/11		JCO 4/14/11	

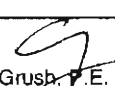
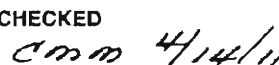
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Dam		Klamath River Northern California/Southern Oregon	
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		REGION: MP	UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	15	Hand Rails (Assume contains paint with heavy metals) By barge and crane	86-68420	11,000	lb	\$1.00	\$11,000.00
	16	Radial Gates 13 radial gates, wall and sillplates and 3-hoists (Assume contains paint with heavy metals & petroleum products) By barge and crane	86-68420	140,500	lb	\$1.00	\$140,500.00
				Revised 8.26.10 TJT			
	17	Radial Gate stoplogs 8 stop logs and 13 sets of guides (Assume contains paint with heavy metals & petroleum products) By barge and crane	86-68420	18,000	lb	\$1.00	\$18,000.00
	18	Stoplog hoist, track and supports (Assume contains paint with heavy metals & petroleum products) By barge and crane	86-68420	26,000	lb	\$1.00	\$26,000.00
		Remove and dispose of the following equipment at the waste tunnel:					
	19	3 sections of 23' of 72"Ø steel lining (embedded) (Assume contains paint with heavy metals)	86-68420	54,000	lb	\$0.85	\$45,900.00
	20	3 - 72" butterfly valves (embedded) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lb	\$0.85	\$46,750.00
	21	3-72" flapper valves with remote mechanical control (embedded) (Assume contains paint with heavy metals) Removal requires a dive depth of 115 ft.	86-68420	78,000	lb	\$3.00	\$234,000.00
		SUBTOTAL THIS SHEET					\$522,150.00

QUANTITIES		PRICES	
BY K. Converse 10/28/10	CHECKED T Turnage	BY  Craig A. Grush, P.E.	CHECKED  4/14/11
DATE PREPARED	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE DCS 4/14/11

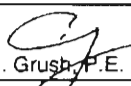
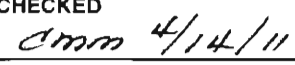
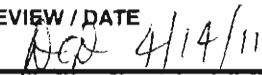
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Diversion & Care	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	36	Horizontal AC Generator, Indoor Open Frame Unit 1 & 2 ea: 12.5 MVA (10 MW); 0.8PF, 2,300V, 200 RPM, 3 Ph, including rotating exciter Total weight each approximately: 123,500 lbs. Stator: 32,250 lbs., Rotor: 55,000 lbs. Base: 17,000 lbs., Exciter Assembly: 7,550 lbs. Heaviest lift: 55,000 lbs.	86-68430	2	EA	\$35,000.00	\$70,000.00
	37	Excitation equipment for 12.5 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	2	EA	\$6,000.00	\$12,000.00
	38	Surge protection equip. for 12.5 MVA Generator Total weight approximately: 800 lbs.	86-68430	2	EA	\$2,000.00	\$4,000.00
	39	Neutral grounding equip. for 12.5 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$2,000.00	\$4,000.00
	40	Generator Switchgear, 5kV-includes unit breakers (6 Sections @ 400 lbs each section) 3 ft x 3 ft x 90 inches high Total weight approximately: 2,400 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	41	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each section), 3 ft x 3 ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
		SUBTOTAL THIS SHEET					\$130,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  CMM 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  DCO 4/14/11

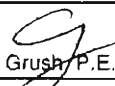
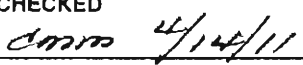
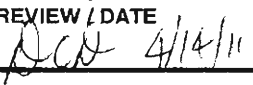
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Division & Care	

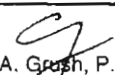
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	42	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	43	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	44	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	45	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
	46	Step-up Transformers, indoor, oil-filled, 1-phase, 5,000 kVA, 2,300/72,000 volt Total weight approximately each: 31,500 lbs.	86-68430	3	EA	\$50,000.00	\$150,000.00
	47	Step-up Transformers, indoor, oil-filled, 1-phase, 4,165 kVA, 2,300/72,000 volt Total weight approximately each: 31,500 lbs.	86-68430	3	EA	\$50,000.00	\$150,000.00
	48	Seven 40-Ton Travelling Crane motors - hoist (2-30Hp*), hoist trolley (7.5Hp*), gantry (4-15Hp*) (Hp* Approx.) Total weight approximately: 600 lbs.	86-68430	1	EA	\$2,500.00	\$2,500.00
		SUBTOTAL THIS SHEET					\$347,500.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush P.E.	CHECKED  4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
WOID: AF484		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Switchyard:					
		All equipment is on wood-pole structures					
	54	69-kV circuit breakers, oil-filled, PCB	86-68430	2	EA	\$3,000.00	\$6,000.00
	55	69-kV disconnect switches, group-operated	86-68430	2	EA	\$1,500.00	\$3,000.00
	56	60-foot wood poles	86-68430	12	EA	\$1,000.00	\$12,000.00
	57	30-foot wood crossarms	86-68430	24	EA	\$500.00	\$12,000.00
	58	69-kV insulator strings	86-68430	12	EA	\$400.00	\$4,800.00
		Remove and dispose of the following wood-pole transmission lines:					
	59	Transmission Line No. 3 From Copco No. 1 switchyard to Fall Creek 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$30,000.00	\$49,800.00
	60	Transmission Line No. 15 From Copco No. 1 switchyard to Copco No. 2 266.8 ACSR, 69-kV	86-68430	1.23	mile	\$30,000.00	\$36,900.00
	61	Transmission Line No. 26-1 From Copco No. 1 powerhouse to Copco No. 1 switchyard 2/0 copper, 69-kV	86-68430	0.07	mile	\$30,000.00	\$2,100.00
	62	Transmission Line No. 26-2 From Copco No. 1 powerhouse to Copco No. 1 switchyard 2/0 copper, 69-kV	86-68430	0.07	mile	\$30,000.00	\$2,100.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$2,380,335.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush P.E.	CHECKED  4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Penstock				Klamath River Northern California/Southern Oregon			
				WOID: AF484		ESTIMATE LEVEL: Feasibility	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Diversion & Care			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Intake:					
	67	8 screens (Assume contains paint with heavy metals)	86-68420	18,000	lb	\$0.85	\$15,300.00
	68	8 Water Gates (Assume contains paint with heavy metals)	86-68420	18,000	lb	\$0.85	\$15,300.00
	69	3 - 30"Ø x 25' stand pipes (Assume contains paint with heavy metals)	86-68420	6,000	lb	\$0.85	\$5,100.00
	70	14' Ø penstock pipe (includes encased and open air intake up to underground portion-Revised 9/14/2010) (Assume contains paint with heavy metals)	86-68420	256,000	lb	\$0.85	\$217,600.00
	71	10' Ø penstock pipe (includes intake and main conduit) (Assume contains paint with heavy metals)	86-68420	270,000	lb	\$0.85	\$229,500.00
		PENSTOCK SUBTOTAL					\$811,750.00
QUANTITIES				PRICES			
BY K. Converse		CHECKED T Turnage	BY 		CHECKED 		
DATE PREPARED 2/8/10		PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11		PEER REVIEW / DATE  4/14/11		

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
				WOID:	AF484	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Diversion & Care			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	77	RIPARIAN POLE PLANTING: 170 acres	86-68220	170	Acres	\$8,500.00	\$1,445,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	71400	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	11900	cutting			
		Shining willow (<i>Salix lucida</i>)	11900	cutting			
		Three-leaf sumac (<i>Rhus trilobata</i>)	11900	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	5950	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	5950	transplant			
		Herbivore screen	119000	each			
		Chemical herbivore deterrent	2380	gal			
		Polymer	375	lbs			
	78	WEED MANAGEMENT: 401 acres	86-68220	401	Acres	\$1,500.00	\$601,500.00
		Herbicide, post-emergent	802	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	79	FALL GROUND SEEDING: 321 acres	86-68220	321	Acres	\$3,500.00	\$1,123,500.00
		Idaho fescue (<i>Festuca idahoensis</i>)	1283	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	1283	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	1283	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1925	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	160	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	80	lbs PLS			
		Western needlegrass (<i>Achnatherum occidentale</i>)	1283	lbs PLS			
		California brome (<i>Bromus carinatus</i>)	2566	lbs PLS			
		Squirreltail (<i>Elymus elymoides</i>)	1283	lbs PLS			
		Wood mulch	641600	lbs			
		Tackifier	38496	lbs			
	80	WEED MANAGEMENT: 321 acres	86-68220	321	Acres	\$1,500.00	\$481,500.00
		Herbicide, post-emergent	30	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					
							\$9,658,000.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
O'Meara, Scott A		Greimann, Blair P		Craig A. Grush, P.E.		Crom 4/14/11	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
04/12/11		04/12/11		04/14/11		SCA 4/14/11	

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Road Improvements				Klamath River Northern California/Southern Oregon			
				WOID:	AF484	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Diversion & Care			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and improve the haul road to the disposal site for Copco 1 and Copco 2. In addition it provides the length of county road required to be repaired after construction.					
		General Sitework Copco 1 And Copco 2					
	81	Clear and Grub Disposal Area	86-68313	7	acre	\$6,000.00	\$42,000.00
		Estimated haul distance 1 mile.					
		Disposed concrete estimated to be 10' deep and traffic compacted (50% bulking factor).					
		For Copco 1 and Copco 2					
	82	Soil Cover for Disposal Area	86-68313	23,000	yd3	\$50.00	\$1,150,000.00
		Access/Haul Road Improvements					
		maximum 12% grades					
		4 reaches required improvement					
	83	Soil Excavation	86-68313	4,500	yd3	\$13.00	\$58,500.00
	84	Rock Excavation	86-68313	4,500	yd3	\$40.00	\$180,000.00
	85	Soil Backfill	86-68313	16,000	yd3	\$50.00	\$800,000.00
	86	4" Gravel Surfacing	86-68313	320	ton	\$100.00	\$32,000.00
		50% contingency for excavation					
		100% contingency for backfill					
		County Road Improvements					
	87	Asphalt Overlay Repair - Juniper Road	86-68313	3	mi	\$40,000.00	\$120,000.00
	88	Asphalt Overlay Repair - Copco Road	86-68313	19	mi	\$40,000.00	\$760,000.00
		Assume the 2 lane county road from I-5 to the Copco Dams will be overlayed after construction with chip seal.					
		ROAD IMPROVEMENTS SUBTOTAL					\$3,142,500.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
Randy Kuzniakowski		Tuti Tierney		Craig A. Grush, P.E.		Cmm 4/14/11	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
11/01/10		Daniel W. Osmun 11/1/10		04/14/11		Dec 4/14/11	

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		1,453,800	CY	\$0.00	\$0.00
		Diversion and Care					\$1,530,500.00
		Dam Removal					\$18,845,400.00
		Powerhouse/Switchyard/Transmission Line Removal					\$2,380,335.00
		Penstock Removal					\$811,750.00
		Reservoir Vegetative Restoration					\$9,658,000.00
		Road Improvements					\$3,142,500.00
		Recreational Facilities to be Removed					\$187,100.00
		Subtotal					\$36,555,585.00
		Mobilization	5%	+/-			\$1,850,000.00
		Subtotal 1 with Mobilization					\$38,405,585.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$13,208,310.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$51,613,895.00
		Design Contingencies	10%	+/-			\$5,386,105.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$57,000,000.00
		Construction Contingencies	20%	+/-			\$11,000,000.00
		FIELD COST					\$68,000,000.00
		Non-Contract Costs:	55%	+/-			\$37,000,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 35%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$105,000,000.00
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.							

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Brush, P.E.	CHECKED 09-18-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE 4/20/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Dam				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 1\Klamath Dams Removal - COPCO 1 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	10	Remove Concrete Dam down to Elev. 2476	86-68130	36,000	yd3	\$300.00	\$10,800,000.00
		<i>Elev. 2476 represents original streambed channel at downstream face of dam.</i>					
		<i>Concrete in foundation to remain. Spillway crest at Elev. 2593.5.</i>					
		<i>Includes concrete in dam, spillway crest, piers (390 cy), bridge deck (72 cy) and left abutment. Concrete is reinforced.</i>					
		<i>Requires notching of concrete dam under head below approximately Elev. 2536 for an average water year. Approx. 17,000 cy of concrete in dam above El. 2536.</i>					
		<i>Assume ten notches, 12 ft deep, alternating sides with five on each side for removal of final 60 feet of dam.</i>					
		<i>Each notch overlaps the previous alternating notch in 6 foot lifts.</i>					
		<i>Each notch is approximately 20 ft wide with an average 6 ft thickness to be removed by blasting below reservoir surface.</i>					
	11	Remove Concrete Intake Structure on Right Abutment	86-68130	21,000	yd3		DELETED
		<i>Includes concrete in gate houses and headworks for units 1 and 2.</i>					
	12	Remove Structural Steel from Spillway	86-68130	55,000	lbs	\$1.00	\$55,000.00
		<i>Includes rails, misc. steel</i>					
		<i>Does not include spillway gates</i>					
		<i>Assume contains paint with heavy metals.</i>					
		<i>By barge and crane</i>					
	13	Install Diversion Tunnel Plugs	86-68130	24	yd3	\$1,200.00	\$28,800.00
		<i>Plug upstream (6 cy) and downstream ends</i>					
		<i>Assume 2' thick each</i>					
	14	Remove Diversion Tunnel Control Structure	86-68130	350	yd3		DELETED
		<i>Concrete</i>					
		<i>Includes guide boxes</i>					
		<i>Assume reinforced</i>					
SUBTOTAL THIS SHEET							\$10,883,800.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 09-22-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Rick Benik P.E. 2/22/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Dam				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121	ESTIMATE LEVEL: Feasibility		
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	15	Hand Rails	86-68420	11,000	lb	\$1.00	\$11,000.00
		(Assume contains paint with heavy metals)					
		By barge and crane					
	16	Radial Gates	86-68420	140,500	lb	\$1.00	\$140,500.00
		13 radial gates, wall and sillplates and 3-hoists		Revised 8.26.10 TJT			
		(Assume contains paint with heavy metals & petroleum products)					
		By barge and crane					
	17	Radial Gate stoplogs	86-68420	18,000	lb	\$1.00	\$18,000.00
		8 stop logs and 13 sets of guides					
		(Assume contains paint with heavy metals & petroleum products)					
		By barge and crane					
	18	Stoplog hoist, track and supports	86-68420	26,000	lb	\$1.00	\$26,000.00
		(Assume contains paint with heavy metals & petroleum products)					
		By barge and crane					
		Remove and dispose of the following equipment at the waste tunnel:					
	19	3 sections of 23' of 72" Ø steel lining (embedded)	86-68420	54,000	lb		DELETED
		(Assume contains paint with heavy metals)					
	20	3 - 72" butterfly valves (embedded)	86-68420	56,000	lb		DELETED
		(Assume contains paint with heavy metals & petroleum products)					
	21	3-72" flapper valves with remote mechanical control (embedded)	86-68420	78,000	lb	\$3.00	\$234,000.00
		(Assume contains paint with heavy metals)					
		Removal requires a dive depth of 115 ft.					
		SUBTOTAL THIS SHEET					\$429,500.00

QUANTITIES		PRICES	
BY K. Converse 10/28/10	CHECKED T Turnage	BY  Craig A. Grish, P.E.	CHECKED  04-22-11
DATE PREPARED November 18, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE:						PROJECT:																																																																																																																																																																																																																															
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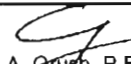
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">WOID: AF121</td> <td style="width: 50%;">ESTIMATE LEVEL: Feasibility</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 1\Klamath Dams Removal - COPCO 1 - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary	WOID: AF121	ESTIMATE LEVEL: Feasibility	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF121	ESTIMATE LEVEL: Feasibility				
REGION: MP	UNIT PRICE LEVEL: July-2010				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	36	Horizontal AC Generator, Indoor Open Frame Unit 1 & 2 ea: 12.5 MVA (10 MW); 0.8 PF, 2,300V, 200 RPM, 3 Ph, including rotating exciter Total weight each approximately: 123,500 lbs. Stator: 32,250 lbs., Rotor: 65,000 lbs. Base: 17,000 lbs., Exciter Assembly: 7,550 lbs. Heaviest lift: 65,000 lbs.	86-68430	2	EA		DELETED
	37	Excitation equipment for 12.5 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	2	EA		DELETED
	38	Surge protection equip. for 12.5 MVA Generator Total weight approximately: 800 lbs.	86-68430	2	EA		DELETED
	39	Neutral grounding equip. for 12.5 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA		DELETED
	40	Generator Switchgear, 5kV includes unit breakers (6 Sections @ 400 lbs each section) 3 ft x 3 ft x 90 inches high Total weight approximately: 2,400 lbs.	86-68430	1	EA		DELETED
	41	Station Service Switchgear, 600 volt (5 sections) (400 lbs each section), 3 ft x 3 ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	42	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	4	EA		DELETED
	43	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	44	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	4	EA		DELETED
	45	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 0 in Total weight approximately: 500 lbs.	86-68430	4	EA		DELETED
	46	Step-up Transformers, indoor, oil-filled, 1 phase, 5,000 kVA, 2,300/72,000 volt Total weight approximately each: 31,500 lbs.	86-68430	3	EA		DELETED
	47	Step-up Transformers, indoor, oil-filled, 1 phase, 4,166 kVA, 2,300/72,000 volt Total weight approximately each: 31,500 lbs.	86-68430	3	EA		DELETED
	48	Seven 40 Ton Travelling Crane motors - hoist (2-30Hp*), hoist trolley (7.5Hp*), gantry (4-15Hp*) (Hp* Approx.) Total weight approximately: 600 lbs.	86-68430	4	EA		DELETED
		SUBTOTAL THIS SHEET					\$10,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	CHECKED  04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

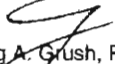
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">WOID: AF121</td> <td style="width:33%;">ESTIMATE LEVEL: Feasibility</td> <td style="width:34%;"></td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> <td></td> </tr> </table>		WOID: AF121	ESTIMATE LEVEL: Feasibility		REGION: MP	UNIT PRICE LEVEL: July-2010	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Switchyard:					
		All equipment is on wood-pole structures					
	54	69-kV circuit breakers, oil-filled, PCB	86-68430	2	EA	\$3,000.00	\$6,000.00
	55	69-kV disconnect switches, group-operated	86-68430	2	EA	\$1,500.00	\$3,000.00
	56	60-foot wood poles	86-68430	12	EA	\$1,000.00	\$12,000.00
	57	30-foot wood crossarms	86-68430	24	EA	\$500.00	\$12,000.00
	58	69-kV insulator strings	86-68430	12	EA	\$400.00	\$4,800.00
		Remove and dispose of the following wood-pole transmission lines:					
	59	Transmission Line No. 3	86-68430	1.66	mile	\$30,000.00	\$49,800.00
		From Copco No. 1 switchyard to Fall Creek					
		266.8 ACSR, 69-kV					
	60	Transmission Line No. 15	86-68430	1.23	mile	\$30,000.00	\$36,900.00
		From Copco No. 1 switchyard to Copco No. 2					
		266.8 ACSR, 69-kV					
	61	Transmission Line No. 26-1	86-68430	0.07	mile	\$30,000.00	\$2,100.00
		From Copco No. 1 powerhouse to					
		Copco No. 1 switchyard					
		2/0 copper, 69-kV					
	62	Transmission Line No. 26-2	86-68430	0.07	mile	\$30,000.00	\$2,100.00
		From Copco No. 1 powerhouse to					
		Copco No. 1 switchyard					
		2/0 copper, 69-kV					
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$256,200.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

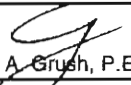
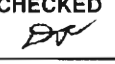
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	77	RIPARIAN POLE PLANTING: 170 acres	86-68220	170	Acres	\$8,500.00	\$1,445,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	71400	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	11900	cutting			
		Shining willow (<i>Salix lucida</i>)	11900	cutting			
		Three-leaf sumac (<i>Rhus trilobata</i>)	11900	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	5950	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	5950	transplant			
		Herbivore screen	119000	each			
		Chemical herbivore deterrent	2380	gal			
		Polymer	375	lbs			
	78	WEED MANAGEMENT: 401 acres	86-68220	401	Acres	\$1,500.00	\$601,500.00
		Herbicide, post-emergent	802	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	79	FALL GROUND SEEDING: 321 acres	86-68220	321	Acres	\$3,500.00	\$1,123,500.00
		Idaho fescue (<i>Festuca idahoensis</i>)	1283	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	1283	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	1283	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1925	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	160	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	80	lbs PLS			
		Western needlegrass (<i>Achnatherum occidentale</i>)	1283	lbs PLS			
		California brome (<i>Bromus carinatus</i>)	2566	lbs PLS			
		Squirreltail (<i>Elymus elymoides</i>)	1283	lbs PLS			
		Wood mulch	641600	lbs			
		Tackifier	38496	lbs			
	80	WEED MANAGEMENT: 321 acres	86-68220	321	Acres	\$1,500.00	\$481,500.00
		Herbicide, post-emergent	30	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$9,658,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  04-22-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

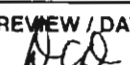
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 1\Klamath Dams Removal - COPCO 1 - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and improve the haul road to the disposal site for Copco 1 and Copco 2. In addition it provides the length of county road required to be repaired after construction.					
		General Sitework Copco 1 And Copco 2					
	81	Clear and Grub Disposal Area	86-68313	5.5	acre	\$6,000.00	\$33,000.00
		Estimated haul distance 1 mile.					
		Disposed concrete estimated to be 10' deep and traffic compacted (50% bulking factor).					
		For Copco 1 and Copco 2					
	82	Soil Cover for Disposal Area	86-68313	18,000	yd3	\$50.00	\$900,000.00
		Access/Haul Road Improvements					
		maximum 12% grades					
		4 reaches required improvement					
	83	Soil Excavation	86-68313	4,500	yd3	\$13.00	\$58,500.00
	84	Rock Excavation	86-68313	4,500	yd3	\$40.00	\$180,000.00
	85	Soil Backfill	86-68313	16,000	yd3	\$50.00	\$800,000.00
	86	4" Gravel Surfacing	86-68313	320	ton	\$100.00	\$32,000.00
		50% contingency for excavation					
		100% contingency for backfill					
		County Road Improvements					
	87	Asphalt Overlay Repair - Juniper Road	86-68313	3	mi	\$40,000.00	\$120,000.00
	88	Asphalt Overlay Repair - Copco Road	86-68313	19	mi	\$40,000.00	\$760,000.00
		Assume the 2 lane county road from I-5 to the Copco Dams will be overlayed after construction with chip seal.					
		ROAD IMPROVEMENTS SUBTOTAL					\$2,883,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED  04-22-11
DATE PREPARED 11/29/10	PEER REVIEW / DATE Daniel W. Osmun 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

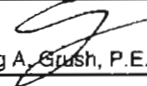
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 1\Klamath Dams Removal - COPCO 1 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SUMMARY					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		1,453,800	CY	\$0.00	\$0.00
		Diversion and Care					\$1,310,000.00
		Dam Removal					\$11,320,300.00
		Powerhouse/Switchyard/Transmission Line Removal					\$256,200.00
		Penstock Removal					\$0.00
		Reservoir Vegetative Restoration					\$9,658,000.00
		Road Improvements					\$2,883,500.00
		Recreational Facilities to be Removed					\$187,100.00
		Subtotal					\$25,615,100.00
		Mobilization	5%	+/-			\$1,300,000.00
		Subtotal 1 with Mobilization					\$26,915,100.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$9,256,544.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$36,171,644.00
		Design Contingencies	10%	+/-			\$3,828,356.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$40,000,000.00
		Construction Contingencies	20%	+/-			\$8,000,000.00
		FIELD COST					\$48,000,000.00
		Non-Contract Costs:	65%	+/-			\$31,000,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 45%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$79,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY  Craig A. Brush, P.E.	CHECKED  04-22-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Diversion and Care		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 2\Klamath Dams Removal - COPCO 2 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Penstock	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Construct and Remove Embankment Cofferdam to Remove Right Side of Dam.	86-68130	3,100	cy	\$85.00	\$263,500.00
		Upstream cofferdam 2,300 cy					
		Downstream cofferdam 800 cy					
		Assumes 10 ft wide crest with 2:1 side slopes.					
		Embankment material taken from borrow/waste area on left abutment of Iron Gate Dam, approximately 10 mile haul distance.					
	2	Furnish, Install and Remove Riprap	86-68130	465	cy	\$150.00	\$69,750.00
		Upstream cofferdam 280 cy					
		Downstream cofferdam 185 cy					
	3	Provide Dewatering behind Cofferdams	86-68130	1	ls		\$45,000.00
		Assume two 3 inch portable trash pump operating for approximately 4 months.					
	4	Remove Water from behind Cofferdams	86-68130	241,000	gals	\$0.01	\$2,410.00
		Upstream cofferdam 230,000 gals					
		Downstream cofferdam 11,000 gals					
		Assume 3 inch portable trash pump					
	5	Construct and Remove Embankment Cofferdam to Remove Left Side of Dam.	86-68130	1,100	cy	\$85.00	\$93,500.00
		Also allows for removal of trashracks, caterpillar gate, and concrete intake structure, and to construct tunnel plug in the dry.					
		Assumes 10 ft wide crest with 2:1 side slopes, approximately 300 ft long and 5 ft high.					
		Embankment material taken from right side cofferdam.					
	6	Furnish, Install and Remove Riprap	86-68130	250	cy	\$150.00	\$37,500.00
		Reuse riprap from right side cofferdam.					
		SUBTOTAL THIS SHEET					\$511,660.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Sheena Barnes	BY  Craig A. Brush, P.E.	CHECKED  04-14-11
DATE PREPARED 10/19/10	PEER REVIEW / DATE Tom Hepler P.E. 10/20/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

FEATURE:

REVISION #1
 Klamath River Dams Removal
 Full Removal Option
 Copco No. 2 Dam & Powerplant Removal
 Most Probable
 Powerhouse, Switchyard, and Transmission Line

PROJECT:

Klamath River
 Northern California/Southern Oregon

WOID: AF484 ESTIMATE LEVEL: Feasibility

REGION: MP UNIT PRICE LEVEL: July-2010

FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 2\Klamath Dams Removal - COPCO 2 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Penstock

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	27	Remove Copper Shingles from Roof of Power-house for Recycling.	86-68130	7,000	ft2	\$2.50	\$17,500.00
	28	Remove Powerhouse Concrete down to spring-line of the turbines, Elev. 2338 (USGS datum). Local datum is converted to USGS datum by adding 2211 feet. (Elev. 127.0 + 2211 = Elev. 2338.) All concrete is reinforced. Includes all exterior & interior walls, columns, & beams, and concrete in foundations for transformers (outside powerhouse).	86-68130	1,050	yd3	\$350.00	\$367,500.00
	29	Remove Structural Steel Items associated with Powerhouse. Includes columns, beams, crane girders, bracing, misc. shapes, roof trusses, purlins, etc. Assume contains paint with heavy metals.	86-68130	220,000	lb	\$0.85	\$187,000.00
	30	Remove Control House Concrete. Control house is located between the powerhouse and the switchyards. All concrete is reinforced.	86-68130	30	yd3	\$215.00	\$6,450.00
	31	Remove Control House Structural Steel Items. This is actually total metal weight for steel gutter frames (2174 lbs) with aluminum tread plate (1344 lbs). Assume contains paint with heavy metals.	86-68130	3,500	lb	\$0.85	\$2,975.00
	32	Remove Shop Building. Located just SW of the switchyards. See dwg PB-45621. Assume single story steel bldg on concrete slab. Estimate 40 ft x 90 ft.	86-68130	3,600	ft2	\$60.00	\$216,000.00
		SUBTOTAL THIS SHEET					\$797,425.00

QUANTITIES

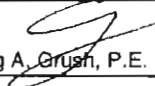
BY Stephen Latham
 CHECKED Jonathan East
 DATE PREPARED 11/01/10
 PEER REVIEW / DATE Rick Benik P.E. 11/1/10

PRICES

BY Craig A. Gush, P.E.
 CHECKED *SW* 04-14-11
 DATE PREPARED 04/14/11
 PEER REVIEW / DATE *REA* 4/14/11

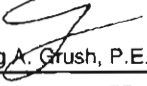
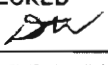
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 2\Klamath Dams Removal - COPCO 2 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Penstock	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	33	2 - Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	38,000	lb	\$0.85	\$32,300.00
	34	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	13,300	lb	\$0.85	\$11,305.00
	35	Oil / Water separator tank and piping (Assume contains paint with heavy metals & petroleum products)	86-68420	2,700	lb	\$0.85	\$2,295.00
	36	12 - Cast Iron Columns (encased in concrete) (Assume contains paint with heavy metals)	86-68420	54,000	lb	\$0.85	\$45,900.00
	37	2 - Francis Turbines (includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	660,000	lb	\$0.85	\$561,000.00
	38	2-40 Ton indoor crane Includes crane and rail, not steel rail base (Assume contains paint with heavy metals & petroleum products)	86-68420	140,000	lb	\$0.85	\$119,000.00
	39	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,000	lb	\$0.85	\$850.00
	40	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	2,100	lb	\$0.85	\$1,785.00
	41	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lb	\$0.85	\$2,635.00
	42	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lb	\$0.85	\$5,525.00
	43	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	32,000	lb	\$0.85	\$27,200.00
	44	Drainage Piping (Assume contains paint with heavy metals)	86-68420	10,000	lb	\$0.85	\$8,500.00
		SUBTOTAL THIS SHEET					\$818,295.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY 	CHECKED  09-14-11
DATE PREPARED 10/28/10	PEER REVIEW / DATE Dan Drake 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon								
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WOID:	AF484	ESTIMATE LEVEL:	Feasibility						
REGION:	MP	UNIT PRICE LEVEL:	July-2010						
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	55	7 40-Ton Travelling Crane motors-hoist (2-30Hp*) hoist trolley (7.5Hp*), gantry (4-15Hp*) (Hp* Approx.) Total weight approximately: 600 lbs.	86-68430	1	EA	\$2,500.00	\$2,500.00
	56	40-Ton Travelling Crane control equipment (5 cubicles), Total weight approximately: 500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	57	40-Ton Travelling Crane Festoon Cable (approx. 200 lin. Ft. cable) Total weight approximately: 800 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
		Remove and dispose of the following equipment outside the Powerplant:					
	58	Step-up Transformers, outdoor, oil-filled, 1-phase, 10/20 MVA, 6,600/72,000 volt Total weight approximately each: 40,300 lbs.	86-68430	6	EA		Deleted
	59	Step-up Transformers, outdoor, oil-filled, 1-phase, 10/20 MVA, 73,800/230,000 volt Total weight approximately each: 58,200 lbs.	86-68430	3	EA		Deleted
		Remove and dispose of the following equipment from switchyard:	86-68430				
	60	Transmission Line No. 15 From Copco No. 2 switchyard to Copco No. 2 plant 556 AAC, 69-kV	86-68430	0.14	mile	\$30,000.00	\$4,200.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$1,988,920.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

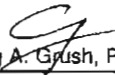
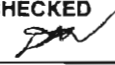
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 2\Klamath Dams Removal - COPCO 2 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Penstock	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete.	86-68130	1,500	yd3	\$215.00	\$322,500.00
		<i>All reinforced concrete. Includes structure plus entrance transition (to tunnel No. 1) D/S to construction joint at Sta. 0+20.00.</i>					
	62	Remove Concrete Items associated with					
		16-foot I.D. Wood Stave Pipe.	86-68130	1,300	yd3	\$215.00	\$279,500.00
		<i>Assume reinforced concrete conduit sections will be removed between Tunnel No. 1 exit portal at Sta. 24+40 and the D/S end of concrete at Sta. 24+55, and between the U/S end of concrete at Sta. 37+70 and tunnel No. 2 entrance portal at Sta. 37+85. Assume the concrete conduit sections will be sawcut at the tunnel portals. Quantity also includes reinforced concrete in cradle footings for pipeline (148 footings spaced on 8- to 10-foot centers).</i>					
	63	Place Concrete Plugs for Tunnels.	86-68130	100	yd3	\$1,200.00	\$120,000.00
		<i>There will be 9 plugs total (4 for tunnel No. 1 and 5 for tunnel No. 2). Plugs will be 2 feet thick, reinforced concrete, 3000 psi min. Location of plugs and info about openings is as follows:</i>					
		<i>Tunnel No. 1, Sta. 0+20; Upper portal is a 16-ft dia., concrete-lined, horseshoe shape.</i>					
		<i>Tunnel No. 1, Sta. 24+40; Lower portal is a 16-ft dia., concrete-lined, circular shape.</i>					
		<i>Tunnel No. 1, Sta. 9+77.25; Top of air vent shaft is a 4-ft x 6-ft, concrete-box-lined (assumed) shaft.</i>					
		<i>Tunnel No. 1, Sta. 9+96.96; Adit entrance (300 ft from tunnel) is a 7-ft x 7-ft, timber-lined opening.</i>					
		<i>Tunnel No. 2, Sta. 37+85; Upper portal is a 16-ft dia., concrete-lined, horseshoe shape.</i>					
		<i>Tunnel No. 2, Sta. 48+80; Lower portal is a double-barrel conduit; Each barrel is a 13.5-ft dia., steel-lined, circular shape.</i>					
		<i>Tunnel No. 2, Sta. 47+75; Top of surge chamber air vent shaft is a 4-ft x 6-ft (assumed), concrete-box-lined (assumed) shaft.</i>					
		<i>Tunnel No. 2; D/S end of Spill Tunnel, Sta. 3+30, is an approx. 15-ft to 16-ft dia., gunite-lined, horseshoe shape.</i>					
		SUBTOTAL THIS SHEET					\$722,000.00

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Stephen Latham	Jonathan East	Craig A. Gresh, P.E.	<i>DK</i> 04-19-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
10/19/10	Rick Benik P.E. 10/19/10	04/14/11	<i>DCW</i> 4/14/11

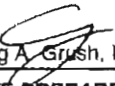
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REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 2\Klamath Dams Removal - COPCO 2 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Penstock	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Intake:					
	65	Caterpillar Gate : Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	50,000	lb	\$0.85	\$42,500.00
	66	Trash rack and trash rake (steel)	86-68420	86,000	lb	\$0.75	\$64,500.00
	67	Stop Logs and slots for intake (steel) stop log slots embedded in concrete (~10,000 lb) (Assume contains paint with heavy metals)	86-68420	220,000	lb	\$0.85	\$187,000.00
		Middle section of Penstock					
	68	Wood staves soaked in creosote	86-68420	1,100,000	lb	\$0.70	\$770,000.00
	69	Cradles (steel) (Assume contains paint with heavy metals)	86-68420	290,000	lb	\$0.85	\$246,500.00
	70	Bands (steel) (Assume contains paint with heavy metals)	86-68420	463,000	lb	\$0.85	\$393,550.00
	71	Penstock after bifurcation to butterfly valves includes pipe, expansion joint and support rings (steel, partially encased in concrete supports) (Assume contains paint with heavy metals)	86-68420	860,000	lb	\$0.85	\$731,000.00
	72	Bifurcated vent pipes and support structure (Assume contains paint with heavy metals)	86-68420	19,500	lb	\$0.85	\$16,575.00
	73	2 - 138" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lb	\$0.85	\$125,800.00
		PENSTOCK SUBTOTAL					\$4,051,925.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY  Craig A. Gush, P.E.	CHECKED  04-14-11
DATE PREPARED 10/28/10	PEER REVIEW / DATE Dan Drake 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

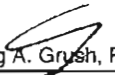
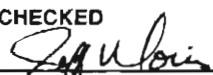
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF484	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 2\Klamath Dams Removal - COPCO 2 - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Diversion and Care					\$741,960.00
		Dam Removal					\$1,654,105.00
		Powerhouse/Switchyard/Transmission Line Removal					\$1,988,920.00
		Penstock Removal					\$4,051,925.00
		Reservoir Vegetative Restoration					\$0.00
		Road Improvements					\$0.00
		Recreational Facilities to be Removed					\$0.00
		Subtotal					\$8,436,910.00
		Mobilization	5%	+/-			\$420,000.00
		Subtotal 1 with Mobilization					\$8,856,910.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$3,046,036.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$11,902,946.00
		Design Contingencies	10%	+/-			\$1,197,054.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$13,100,000.00
		Construction Contingencies	20%	+/-			\$2,400,000.00
		FIELD COST					\$15,500,000.00
		Non-Contract Costs:	55%	+/-			\$8,500,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 35%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$24,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY  Craig A. Grush, P.E.	CHECKED  04-18-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/20/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT:	
	Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Construct and Remove Embankment Cofferdam to Remove Right Side of Dam.	86-68130	3,100	cy	\$85.00	\$263,500.00
		Upstream cofferdam 2,300 cy					
		Downstream cofferdam 800 cy					
		Assumes 10 ft wide crest with 2:1 side slopes.					
		Embankment material taken from borrow/waste area on left abutment of Iron Gate Dam, approximately 10 mile haul distance.					
	2	Furnish, Install and Remove Riprap	86-68130	465	cy	\$150.00	\$69,750.00
		Upstream cofferdam 280 cy					
		Downstream cofferdam 185 cy					
	3	Provide Dewatering behind Cofferdams	86-68130	1	ls		\$45,000.00
		Assume two 3 inch portable trash pump operating for approximately 4 months.					
	4	Remove Water from behind Cofferdams	86-68130	241,000	gals	\$0.01	\$2,410.00
		Upstream cofferdam 230,000 gals					
		Downstream cofferdam 11,000 gals					
		Assume 3 inch portable trash pump					
	5	Construct and Remove Embankment Cofferdam to Remove Left Side of Dam.	86-68130	1,100	cy	\$85.00	\$93,500.00
		Also allows for removal of trashracks, caterpillar gate, and concrete intake structure, and to construct tunnel plug in the dry.					
		Assumes 10 ft wide crest with 2:1 side slopes, approximately 300 ft long and 5 ft high.					
		Embankment material taken from right side cofferdam.					
	6	Furnish, Install and Remove Riprap	86-68130	250	cy	\$150.00	\$37,500.00
		Reuse riprap from right side cofferdam.					
		SUBTOTAL THIS SHEET					\$511,660.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  4/22/11
DATE PREPARED 11/19/10	PEER REVIEW / DATE Tom Hepler P.E. 12/10/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121	ESTIMATE LEVEL: Feasibility				
		REGION: MP	UNIT PRICE LEVEL: July-2010				
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	27	Remove Copper Shingles from Roof of Power-house for Recycling.	86-68130	7,000	#2		DELETED
	28	Remove Powerhouse Concrete down to spring-line of the turbines, Elev. 2338 (USGS datum). Local datum is converted to USGS datum by adding 2211 feet. (Elev. 127.0 + 2211 = Elev. 2338.) All concrete is reinforced. Includes all exterior & interior walls, columns, & beams, and concrete in foundations for transformers (outside powerhouse).	86-68130	1,050	yd3		DELETED
	29	Remove Structural Steel Items associated with Powerhouse. Includes columns, beams, crane girders, bracing, misc. shapes, roof trusses, purlins, etc. Assume contains paint with heavy metals.	86-68130	220,000	lb		DELETED
	30	Remove Control House Concrete. Control house is located between the powerhouse and the switchyards. All concrete is reinforced.	86-68130	30	yd3	\$215.00	\$6,450.00
	31	Remove Control House Structural Steel Items. This is actually total metal weight for steel gutter frames (2174 lbs) with aluminum tread plate (1344 lbs). Assume contains paint with heavy metals.	86-68130	3,500	lb	\$0.85	\$2,975.00
	32	Remove Shop Building. Located just SW of the switchyards. See dwg PB 45621. Assume single story steel bldg on concrete slab. Estimate 40 ft x 90 ft.	86-68130	3,600	ft2		DELETED
		SUBTOTAL THIS SHEET					\$9,425.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 11/19/10	PEER REVIEW / DATE Rick Benik P.E. 12/1/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE DCD 4/22/11

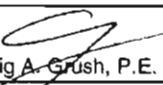
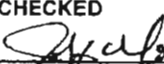
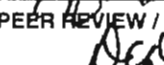
FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
WOID: AF121		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx)Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	33	2-Governor oil systems governor, pump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	38,000	lb		DELETED
	34	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	13,300	lb		DELETED
	35	Oil / Water coperator tank and piping (Assume contains paint with heavy metals & petroleum products)	86-68420	2,700	lb		DELETED
	36	12-Cast Iron Columns (encased in concrete) (Assume contains paint with heavy metals)	86-68420	54,000	lb		DELETED
	37	2-Francis Turbines (includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	660,000	lb		DELETED
	38	2-40 Ton indoor crane Includes crane and rail, not steel rail base) (Assume contains paint with heavy metals & petroleum products)	86-68420	140,000	lb		DELETED
	39	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,000	lb		DELETED
	40	2-CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	2,100	lb		DELETED
	41	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lb		DELETED
	42	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lb		DELETED
	43	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	32,000	lb		DELETED
	44	Drainage Piping (Assume contains paint with heavy metals)	86-68420	10,000	lb		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	55	7-40 Ton Travelling Crane motor hoist (2-30Hp*) hoist trolley (7-5Hp*), gantry (4-15Hp*) (Hp* Approx.) Total weight approximately: 600 lbs.	86-68430	4	EA		DELETED
	56	40-Ton Travelling Crane control equipment (5 cubicles), Total weight approximately: 500 lbs.	86-68430	4	EA		DELETED
	57	40-Ton Travelling Crane Festeon Cable (approx. 200 lin. Ft. cable) Total weight approximately: 800 lbs.	86-68430	4	EA		DELETED
		Remove and dispose of the following equipment outside the Powerplant:					
	58	Step-up Transformers, outdoor, oil filled, 1-phase 10/20 MVA, 6,600/72,000 volt Total weight approximately each: 40,300 lbs.	86-68430	6	EA		DELETED
	59	Step-up Transformers, outdoor, oil filled, 1-phase 10/20 MVA, 73,800/230,000 volt Total weight approximately each: 58,200 lbs.	86-68430	3	EA		DELETED
		Remove and dispose of the following equipment from switchyard:	86-68430				
	60	Transmission Line No. 15 From Copco No. 2 switchyard to Copco No. 2 plant 556 AAC, 69-kV	86-68430	0.14	mile	\$30,000.00	\$4,200.00
		SUBTOTAL THIS SHEET					\$4,200.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  4/22/11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE:		PROJECT:					
Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon					
		WOID: AF121		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete. <i>All reinforced concrete. Includes structure plus entrance transition (to tunnel No. 1) D/S to construction joint at Sta. 0+20.00.</i>	86-68130	1,500	yd3		DELETED
	62	Remove Concrete Items associated with 16-foot I.D. Wood Stave Pipe. <i>Assume reinforced concrete conduit sections will be removed between Tunnel No. 1 exit portal at Sta. 24+40 and the D/S end of concrete at Sta. 24+55, and between the U/S end of concrete at Sta. 27+70 and tunnel No. 2 entrance portal at Sta. 37+85. Assume the concrete conduit sections will be sawcut at the tunnel portals. Quantity also includes reinforced concrete in cradle footings for pipeline (148 footings spaced on 8- to 10-foot centers).</i>	86-68130	1,300	yd3		DELETED
	63	Place Concrete Plugs for Tunnels. There will be 6 plugs total (4 for tunnel No. 1 and 5 for tunnel No. 2). Plugs will be 2 feet thick, reinforced concrete, 3000 psi min. Location of plugs and info about openings is as follows: Tunnel No. 1, Sta. 0+20; Upper portal is a 16-ft dia., concrete-lined, horseshoe shape. Close gate. Tunnel No. 1, Sta. 24+40; Lower portal is a 16-ft dia., concrete-lined, circular shape. Tunnel No. 1, Sta. 9+77.25; Top of air vent shaft is a 4-ft x 6-ft, concrete-box-lined (assumed) shaft. Tunnel No. 1, Sta. 9+96.96; Adit entrance (300 ft from tunnel) is a 7-ft x 7-ft, timber-lined opening. Tunnel No. 2, Sta. 37+85; Upper portal is a 16-ft dia., concrete-lined, horseshoe shape. Tunnel No. 2, Sta. 48+80; Lower portal is a double barrel conduit. Each barrel is a 13.5-ft dia., steel-lined, circular shape. Keep penstocks. Tunnel No. 2, Sta. 47+75; Top of surge chamber air vent shaft is a 4-ft x 6-ft (assumed), concrete-box-lined (assumed) shaft. Tunnel No. 2; D/S end of Spill Tunnel, Sta. 3+30, is an approx. 15-ft to 16-ft dia., gunite-lined, horseshoe shape.	86-68130	64	yd3	\$1,200.00	\$76,800.00
		SUBTOTAL THIS SHEET					\$76,800.00
QUANTITIES			PRICES				
BY Stephen Latham		CHECKED Jonathan East		BY Craig A. Grush, P.E.		CHECKED 7/22/11	
DATE PREPARED 11/24/10		PEER REVIEW / DATE Rick Benik P.E. 12/11/10		DATE PREPARED 04/22/11		PEER REVIEW / DATE 4/22/11	

FEATURE:		PROJECT:					
Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon					
		WOID: AF121		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.dwg Summary					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Intake:					
	65	Caterpillar Gate: Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	50,000	lb		DELETED
	66	Trash rack and trash rake (steel)	86-68420	86,000	lb		DELETED
	67	Stop Logs and slots for intake (steel) stop log slots embedded in concrete (~10,000 lb) (Assume contains paint with heavy metals)	86-68420	220,000	lb		DELETED
	68	Middle section of Penstock Wood staves soaked in creosote	86-68420	1,100,000	lb	\$0.70	\$770,000.00
	69	Cradles (steel) (Assume contains paint with heavy metals)	86-68420	290,000	lb	\$0.85	\$246,500.00
	70	Bands (steel) (Assume contains paint with heavy metals)	86-68420	463,000	lb	\$0.85	\$393,550.00
	71	Penstock after bifurcation to butterfly valves includes pipe, expansion joint and support rings (steel, partially encased in concrete supports) (Assume contains paint with heavy metals)	86-68420	860,000	lb		DELETED
	72	Bifurcated vent pipes and support structure (Assume contains paint with heavy metals)	86-68420	10,500	lb		DELETED
	73	2-138" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lb		DELETED
		PENSTOCK SUBTOTAL					\$1,486,850.00
QUANTITIES			PRICES				
BY	K. Converse	CHECKED	T Turnage	BY	CHECKED		
					Craig A. Grush, P.E.		
DATE PREPARED	11/24/10	PEER REVIEW / DATE	Dan Drake 12/16/10	DATE PREPARED	04/22/11		
					4/22/11		

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121		ESTIMATE LEVEL: Feasibility	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SUMMARY			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Diversion and Care					\$558,460.00
		Dam Removal					\$1,520,155.00
		Powerhouse/Switchyard/Transmission Line Removal					\$306,625.00
		Penstock Removal					\$1,486,850.00
		Reservoir Vegetative Restoration					\$0.00
		Road Improvements					\$0.00
		Recreational Facilities to be Removed					\$0.00
		Subtotal					\$3,872,090.00
		Mobilization	5%	+/-			\$195,000.00
		Subtotal 1 with Mobilization					\$4,067,090.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$1,398,739.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$5,465,829.00
		Design Contingencies	10%	+/-			\$534,171.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$6,000,000.00
		Construction Contingencies	20%	+/-			\$1,200,000.00
		FIELD COST					\$7,200,000.00
		Non-Contract Costs:	65%	+/-			\$4,800,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 45%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$12,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED 4/22/11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension.	86-68130	580	yd3	\$215.00	\$124,700.00
		Observation Platform is reinforced concrete slab located on right abutment.					
		Buried crest wall on left abutment consists of unreinforced controlled low strength material.					
		Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.					
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure.	86-68130	530	yd3	\$215.00	\$113,950.00
		Remove concrete upstream of Sta. 3+00.					
		Concrete removal requires a dive depth of 150 feet.					
	16	Remove Concrete in Diversion Tunnel Gate Tower.	86-68130	410	yd3	\$215.00	\$88,150.00
		Remove concrete down to elev. 2254.					
	17	Remove Steel Footbridge to Gate Tower.	86-68130	13,000	lbs	\$0.85	\$11,050.00
		This bridge provides access from the dam crest to the gate tower for the diversion tunnel.					
		Assume contains paint with heavy metal.					
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$215.00	\$4,300.00
	19	Place Concrete Plugs for Diversion Tunnel.	86-68130	43	yd3	\$1,200.00	\$51,600.00
		There will be 3 plugs total. Two placed vertically and one horiz.					
		Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min.					
		Location of plugs and info about openings is as follows:					
		Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0.					
		Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5.					
		Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.					
		SUBTOTAL THIS SHEET					\$393,750.00

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Rose Reynolds, Stephen Latham	Sheena Barnes, Jonathan East	Craig A. Brush, P.E.	04-19-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
11/02/10	Rick Benik P.E. 11/2/10	04/14/11	4/14/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam		Klamath River Northern California/Southern Oregon	
WOID: AF484		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap	86-68313	80,000	yd3	\$13.00	\$1,040,000.00
		Assume max size 250 lbs, ave. 100 lbs.					
		to waste area by truck					
	22	Downstream Riprap	86-68313	30,000	yd3	\$13.00	\$390,000.00
		Assume max size 2500 lbs, ave. 500 lbs.					
		to waste area by truck					
	23	Miscellaneous Excavation	86-68313	880,000	yd3	\$13.00	\$11,440,000.00
		Consists of finer earth fill materials					
		300,000 cy to spillway chute by truck					
		remainder to waste area by truck					
	24	Cutoff Wall Concrete Demolition	86-68313	1,250	yd3	\$215.00	\$268,750.00
		The 2 concrete cutoff walls are embedded					
		in the Zone III core but do not appear to					
		be anchored into bedrock.					
	25	Earth Fill Crest Raise	86-68313	13,000	yd3	\$13.00	\$169,000.00
		Treat as miscellaneous excavation					
		to waste area by truck					
	26	Sheetpile Crest Raise	86-68313	800	lin ft	\$250.00	\$200,000.00
		Remove sheetpile wall crest raise					
		Total height 13', embedded 9', type CS55.					
		Monitoring Well Removal					
	27	Remove 5 monitoring wells	86-68313	5	each	\$2,000.00	\$10,000.00
		assume 150 length, 6" diameter					
		remove as excavation progresses					
		SUBTOTAL THIS SHEET					\$13,517,750.00

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Randy Kuzniakowski	Tuti Tierney	Craig A. Grush, P.E.	DAW 04-14-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
11/01/10	Daniel W. Osmun 11/1/10	04/14/11	DAW 4/14/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
WOID: AF484		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit					
		25,000 hp, 158 ft. of head, 180 RPM					
		D3 is calculated at 8.85 ft.					
		Turbine weight calculated approx:	86-68420	344,058	lbs	\$0.85	\$292,449.30
		(Assume contains paint with heavy metals & petroleum products)					
	41	Draft Tube Bulkheads-					
		3-Bulkhead approx. 10 ft. W. x 10 ft. H					
		Bulkhead weight approximately: 3000 lbs each					
		3-Framework weight approx: 2500 lbs each					
		Total bulkhead weight approx:	86-68420	16,500	lbs	\$0.85	\$14,025.00
		(Assume contains paint with heavy metals)					
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane-					
		No Crane at Site, but embedded rails still exist					
		Above Ground Steel Rails-200 ft. length	86-68420	24,000	lbs	\$0.85	\$20,400.00
		Crane is presently used at J. C. Boyle					
		(Assume contains paint with heavy metals & petroleum products)					
	43	Governor-					
		Accumulator tank for air over oil cylinders					
		Governor control panel cabinet					
		Pump for Oil					
		Total weight approximately:	86-68420	20,310	lbs	\$0.85	\$17,263.50
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$344,137.80

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED 09-19-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE 4/14/11

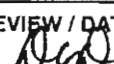
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately:	86-68420	9,182	lbs	\$0.85	\$7,804.70
		(Assume contains paint with heavy metals & petroleum products)					
	45	CO2 System- Various sizes of piping and valves Total weight approximately:	86-68420	2,568	lbs	\$0.85	\$2,182.80
		(Assume contains paint with heavy metals & petroleum products)					
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs	\$0.85	\$7,804.70
		(Assume contains paint with heavy metals)					
	47	Sump Pumps- 2-Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately:	86-68420	2,000	lbs	\$0.85	\$1,700.00
		(Assume contains petroleum products)					
	48	Pumps- 4-Large pumps near outlet Pump weight approximately: 3000 lbs each 4-Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately:	86-68420	22,000	lbs	\$0.85	\$18,700.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$38,192.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE 4/14/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Fees Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$100,000.00	\$100,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$5,000.00	\$5,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$35,000.00	\$35,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$2,000.00	\$6,000.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$2,099,152.20

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  04-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock				PROJECT: Klamath River Northern California/Southern Oregon					
				WOID: AF484		ESTIMATE LEVEL: Feasibility			
				REGION: MP		UNIT PRICE LEVEL: July-2010			
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		MECHANICAL							
	78	Water fill line- 12-in. Dia. STD x 27 ft	86-68420	1,350	lbs	\$0.85	\$1,147.50		
		Pipe weight 50 lbs/ft.							
		(Assume contains paint with heavy metals)							
	79	Air Vent- 12-in. Dia. STD x 32 ft.	86-68420	1,600	lbs	\$0.85	\$1,360.00		
		Pipe weight 50 lbs/ft.							
		(Assume contains paint with heavy metals)							
		Power Conduit (Penstock) Continued:							
	80	Gage Wells-							
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$0.85	\$1,115.20		
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft.	86-68420	1,300	lbs	\$0.85	\$1,105.00		
		(Assume contains paint with heavy metals)							
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft.	86-68420	7,440	lbs	\$0.85	\$6,324.00		
		Pipe weight 124 lbs/ft.							
		(Assume contains paint with heavy metals)							
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft.	86-68420	294,428	lbs	\$0.85	\$250,263.80		
		Pipe weight 386 lbs/ft.							
		(Assume contains paint with heavy metals)							
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft.	86-68420	12,850	lbs	\$0.85	\$10,922.50		
		Pipe weight 257 lbs/ft.							
		(Assume contains paint with heavy metals)							
	84	Outlet Valve on bypass outlet- 66-in. Dia.							
		Assumed to be a Fixed Cone Valve with controls							
		Valve weight approximately:	86-68420	18,000	lbs	\$0.85	\$15,300.00		
		(Assume contains paint with heavy metals & petroleum products)							
		SUBTOTAL THIS SHEET					\$287,538.00		
QUANTITIES				PRICES					
BY		CHECKED		BY		CHECKED			
M. Gulsvig		T. J. Turnage		Craig A. Grush, P.E.		04-14-11			
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE			
10/29/10		Dan Drake 10/29/2010		04/14/11		DCS 4/14/11			

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Res Reveg	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING: 50 acres	86-68220	50	Acres	\$8,500.00	\$425,000.00
		Narrowleaf willow (Salix exigua)	24500	cutting			
		Arroyo willow (Salix lasiolepis)	7000	cutting			
		Shining willow (Salix lucida)	3500	cutting			
		Herbivore screen	35000	each			
		Chemical herbivore deterrent	700	gal			
	94	WEED MANAGEMENT: 413 acres	86-68220	413	Acres	\$1,500.00	\$619,500.00
		Herbicide, post-emergent	825	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING: 330 acres	86-68220	330	Acres	\$3,500.00	\$1,155,000.00
		Idaho fescue (Festuca idahoensis)	1320	lbs PLS			
		Blue wildrye (Elymus glaucus)	1320	lbs PLS			
		Small fescue (Vulpia microstachys)	1320	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1980	lbs PLS			
		Sandberg bluegrass (Poa secunda)	165	lbs PLS			
		Spike bentgrass (Agrostis exarata)	82.5	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1320	lbs PLS			
		California brome (Bromus carinatus)	2640	lbs PLS			
		Squirreltail (Elymus elymoides)	1320	lbs PLS			
		Wood mulch	660000	lbs			
		Tackifier	39600	lbs			
	96	WEED MANAGEMENT: 330 acres	86-68220	330	Acres	\$1,500.00	\$495,000.00
		Herbicide, post-emergent	31	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$9,331,500.00

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
O'Meara, Scott A	Greimann, Blair P	Craig A. Crush, P.E.	04-14-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
04/12/11	04/12/11	04/14/11	4/14/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility				Klamath River Northern California/Southern Oregon			
				WOID:	AF484	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2.	86-8130	800	ft2	\$60.00	\$48,000.00
		<i>Located just north of the Powerhouse.</i>					
		<i>Single story, hip roof, prefab metal structure on concrete slab.</i>					
		<i>Office, lockers, and shop. 20 ft x 40 ft.</i>					
	102	Remove Building No. 3.	86-68130	1,088	ft2	\$60.00	\$65,280.00
		<i>Located between circular holding ponds.</i>					
		<i>Single story, hip roof, prefab metal structure on concrete walls.</i>					
		<i>Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>					
	103	Remove Concrete in Fish Ladder.	86-68130	950	yd3	\$215.00	\$204,250.00
		<i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20,</i>					
		<i>and retaining wall (which serves as a support for part of</i>					
		<i>the fish ladder, and which is the left wall of the tunnel</i>					
		<i>outlet structure).</i>					
	104	Remove Concrete in Holding Ponds #1 thru #6.	86-68130	420	yd3	\$215.00	\$90,300.00
		<i>Includes 6 circular ponds.</i>					
	105	Remove Concrete in Fish Facility Items.	86-68130	380	yd3	\$215.00	\$81,700.00
		<i>Includes holding tank between pool 20 and Bldg. No. 3,</i>					
		<i>tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3,</i>					
		<i>flumes (to holding ponds), and gate basins #1 thru #6.</i>					
	106	Remove Miscellaneous Metalwork in Fish Facilities.	86-68130	12,000	lbs	\$0.85	\$10,200.00
		<i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank),</i>					
		<i>fish basket (in dope tank), rotating sweeps & stationary</i>					
		<i>sweeps (in circular ponds), frames, gratings, handrail, and ladders.</i>					
		<i>Assume contains paint with heavy metals.</i>					
SUBTOTAL THIS SHEET							\$499,730.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
Rose Reynolds, Stephen Latham		Jonathan East, Sheena Barnes		Craig A. Grush, P.E.		09-14-11	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
11/02/10		Rick Benik P.E. 11/2/10		04/14/11		4/14/11	

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$215.00	\$14,620.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$215.00	\$10,750.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.70	\$4,200.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps. Assume contains paint with heavy metals.</i>	86-68130	2,500	lbs	\$0.85	\$2,125.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$6.00	\$234,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$60.00	\$20,400.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$60.00	\$5,400.00
		SUBTOTAL THIS SHEET					\$291,495.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

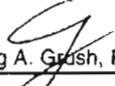
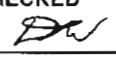
FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	126	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft.	86-68420	2,176	lbs	\$0.85	\$1,849.60
		Pipe weight 34 lbs/ft.					
		(Assume contains paint with heavy metals)					
	127	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft.	86-68420	1,932	lbs	\$0.85	\$1,642.20
		Pipe weight 28 lbs/ft.					
		(Assume contains paint with heavy metals)					
	128	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft.	86-68420	3,588	lbs	\$0.85	\$3,049.80
		Pipe weight 23 lbs/ft.					
		(Assume contains paint with heavy metals)					
	130	Piping- 3-in. Dia. STD x 64 ft.	86-68420	1,088	lbs	\$0.85	\$924.80
		Pipe weight 8 lbs/ft.					
		(Assume contains paint with heavy metals)					
	131	Gate Valves-					
		24-in. Dia. Gate Valve- 1 total					
		24-in. Gate Valve weight approx: 3,800 lbs					
		18-in. Dia. Gate Valve- 7 total					
		18-in. Gate Valve weight approx: 1748 lbs ea					
		16-in. Dia. Gate Valve- 2 total					
		16-in. Gate Valve weight approx: 1465 lbs ea					
		12-in. Dia. Gate Valve- 1 total					
		12-in. Gate Valve weight approx: 722 lbs					
		8-in. Dia. Gate Valve- 6 total					
		8-in. Gate Valve weight approx: 339 lbs ea					
		3-in. Dia. Gate Valve- 1 total					
		3-in. Gate Valve weight approx: 70 lbs					
		Total weight approximately:	86-68420	21,792	lbs	\$0.85	\$18,523.20
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$25,989.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grish, P.E.	CHECKED 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE DCD 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,580	lbs	\$0.85	\$3,043.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
		SUBTOTAL THIS SHEET					\$5,491.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grish, P.E.	CHECKED  04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Reservoir Most Probable		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$300.00	\$33,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$25.00	\$21,375.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$100.00	\$16,000.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$20.00	\$4,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$20.00	\$4,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$100.00	\$16,000.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$5,000.00	\$5,000.00
	163	Power poles and lines	BLM	3	POLES	\$1,500.00	\$4,500.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$5.00	\$3,000.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	167	Relocate concrete tables	BLM	12	EA	\$100.00	\$1,200.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$25,000.00	\$100,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$300.00	\$2,100.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$300.00	\$6,600.00
	171	Double pipe railing	BLM	100	LF	\$40.00	\$4,000.00
		SUBTOTAL THIS SHEET					\$221,275.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Brush, P.E.	CHECKED Du 04-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE DCO 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$3,494,445.00
		Dam Removal					\$14,159,019.50
		Powerhouse/Switchyard/Transmission Line Removal					\$2,099,152.20
		Penstock Removal					\$1,172,878.50
		Reservoir Vegetative Restoration					\$9,331,500.00
		Road Improvements					\$1,115,000.00
		Fish Spawning Facility Removal					\$1,662,033.80
		Recreational Facilities to be Removed					\$520,725.00
		Subtotal					\$33,554,754.00
		Mobilization	5%	+/-			\$1,700,000.00
		Subtotal 1 with Mobilization					\$35,254,754.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$12,124,687.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$47,379,441.00
		Design Contingencies	10%	+/-			\$4,620,559.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$52,000,000.00
		Construction Contingencies	20%	+/-			\$11,000,000.00
		FIELD COST					\$63,000,000.00
		Non-Contract Costs:	55%	+/-			\$35,000,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 35%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$98,000,000.00
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.							

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Gosh, P.E.	CHECKED 04-18-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE 4/20/11

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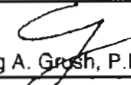
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SUmmary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		Furnish, install and Remove the following necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$2.00	\$38,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$2.00	\$5,800.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$15.00	\$1,650,000.00
		DIVERSION AND CARE SUBTOTAL					\$3,340,945.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xls\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension.	86-68130	580	yd3	\$215.00	\$124,700.00
		Observation Platform is reinforced concrete slab located on right abutment.					
		Buried crest wall on left abutment consists of unreinforced controlled low strength material.					
		Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.					
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure.	86-68130	530	yd3	\$215.00	\$113,950.00
		Remove concrete upstream of Sta. 3+00.					
		Concrete removal requires a dive depth of 150 feet.					
	16	Remove Concrete in Diversion Tunnel Gate Tower.	86-68130	410	yd3	\$215.00	\$88,150.00
		Remove concrete down to elev. 2254.					
	17	Remove Steel Footbridge to Gate Tower.	86-68130	13,000	lbs	\$0.85	\$11,050.00
		This bridge provides access from the dam crest to the gate tower for the diversion tunnel.					
		Assume contains paint with heavy metal.					
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$215.00	\$4,300.00
	19	Place Concrete Plugs for Diversion Tunnel.	86-68130	43	yd3	\$1,200.00	\$51,600.00
		There will be 3 plugs total. Two placed vertically and one horiz.					
		Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min.					
		Location of plugs and info about openings is as follows:					
		Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0.					
		Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5.					
		Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.					
SUBTOTAL THIS SHEET							\$393,750.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 02/19/11	PEER REVIEW / DATE Rick Benik P.E. 2/22/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

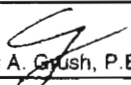
FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam		Klamath River Northern California/Southern Oregon	
WOID: AF121		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx)Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap	86-68313	80,000	yd3	\$13.00	\$1,040,000.00
		Assume max size 250 lbs, ave. 100 lbs.					
		to waste area by truck					
	22	Downstream Riprap	86-68313	30,000	yd3	\$13.00	\$390,000.00
		Assume max size 2500 lbs, ave. 500 lbs.					
		to waste area by truck					
	23	Miscellaneous Excavation	86-68313	880,000	yd3	\$13.00	\$11,440,000.00
		Consists of finer earth fill materials					
		300,000 cy to spillway chute by truck					
		remainder to waste area by truck					
	24	Cutoff Wall Concrete Demolition	86-68313	1,250	yd3	\$215.00	\$268,750.00
		The 2 concrete cutoff walls are embedded					
		in the Zone III core but do not appear to					
		be anchored into bedrock.					
	25	Earth Fill Crest Raise	86-68313	13,000	yd3	\$13.00	\$169,000.00
		Treat as miscellaneous excavation					
		to waste area by truck					
	26	Sheetpile Crest Raise	86-68313	800	lin ft	\$250.00	\$200,000.00
		Remove sheetpile wall crest raise					
		Total height 13', embedded 9', type CS55.					
		Monitoring Well Removal					
	27	Remove 5 monitoring wells	86-68313	5	each	\$2,000.00	\$10,000.00
		assume 150 length, 6" diameter					
		remove as excavation progresses					
		SUBTOTAL THIS SHEET					\$13,517,750.00

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Randy Kuzniakowski	Tuti Tierney	Craig A. Grush, P.E.	<i>[Signature]</i>
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
11/24/10	Daniel W. Osmun 12/9/10	04/22/11	<i>[Signature]</i> 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H					
		Total gate weight approximately: 3500 lbs.					
		Total gate hoist weight approximately: 1000 lbs					
		Total weight approximately:	86-68420	4,500	lbs	\$0.85	\$3,825.00
		(Assume contains paint with heavy metals & petroleum products)					
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure					
		Trash Racks- 4 rack each 10 ft. W x 33 ft. H					
		Each rack weights approximately: 18,000 lbs					
		Total weight approximately:	86-68420	72,000	lbs	\$0.70	\$50,400.00
	30	Sluice and Diversion Tunnel Gate					
		Gate Hoist- 2-10-in. Dia. Hydraulic cylinders					
		Gate hoist weight approx: 10,000 lbs ea.					
		Framework- I-Beam framework securing hoists					
		Total framework weight approx: 8,000 lbs					
		Total weight approximately:	86-68420	28,000	lbs	\$0.85	\$23,800.00
		(Assume contains paint with heavy metals & petroleum products)					
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft.	86-68420	7,500	lbs	\$0.85	\$6,375.00
		Stem weight is 50 lbs/ft.					
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$84,400.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE:		PROJECT:	
Klamath River Dams Removal		Klamath River	
Partial Removal Option		Northern California/Southern Oregon	
Iron Gate Dam & Powerplant Removal		WOID: AF121	ESTIMATE LEVEL: Feasibility
Most Probable		REGION: MP	UNIT PRICE LEVEL: July-2010
Powerhouse, Switchyard, and Transmission Line		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit					
		25,000 hp, 158 ft. of head, 180 RPM					
		D3 is calculated at 8.85 ft.					
		Turbine weight calculated approx:	86-68420	344,058	lbs		DELETED
		(Assume contains paint with heavy metals & petroleum products)					
	41	Draft Tube Bulkheads					
		3 Bulkhead approx. 10 ft. W. x 10 ft. H					
		Bulkhead weight approximately: 3000 lbs each					
		3 Framework weight approx: 2500 lbs each					
		Total bulkhead weight approx:	86-68420	16,500	lbs		DELETED
		(Assume contains paint with heavy metals)					
		Remove and dispose of the following					
		equipment of the Powerhouse Structure:					
	42	Crane					
		No Crane at Site, but embedded rails still exist					
		Above Ground Steel Rails 200 ft. length	86-68420	24,000	lbs		DELETED
		Crane is presently used at J. C. Boyle					
		(Assume contains paint with heavy metals & petroleum products)					
	43	Governor					
		Accumulator tank for air over oil cylinders					
		Governor control panel cabinet					
		Pump for Oil					
		Total weight approximately:	86-68420	20,310	lbs		DELETED
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
M. Gulsvig	T. J. Turnage	Craig A. Grish, P.E.	<i>MA</i>
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
12/08/10	Dan Drake 12/16/2010	04/22/11	<i>DCD 4/22/11</i>

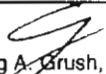
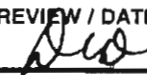
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT:	
	Klamath River	
	Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System-					
		Steel Piping of various sizes					
		Valves of various sizes					
		Total weight approximately:	86-68420	0,182	lbs		DELETED
		(Assume contains paint with heavy metals & petroleum products)					
	45	CO2 System-					
		Various sizes of piping and valves					
		Total weight approximately:	86-68420	2,668	lbs		DELETED
		(Assume contains paint with heavy metals & petroleum products)					
	46	Plant Water and Fire Protection System-					
		Various sizes of piping and valves					
		Total weight approximately:	86-68420	0,182	lbs		DELETED
		(Assume contains paint with heavy metals)					
	47	Sump Pumps-					
		2 Powerhouse water removal sump pumps					
		Sump weight approximately: 1000 lbs each					
		Total weight approximately:	86-68420	2,000	lbs		DELETED
		(Assume contains petroleum products)					
	48	Pumps-					
		4 Large pumps near outlet					
		Pump weight approximately: 3000 lbs each					
		4 Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W.					
		Bulkhead weight approximately: 2500 lbs each					
		Total weight approximately:	86-68420	22,000	lbs		DELETED
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
M. Gulsvig	T. J. Turnage	Craig A. Brush, P.E.	<i>HA</i>
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
12/08/10	Dan Drake 12/16/2010	04/22/11	<i>Dec 4/22/11</i>

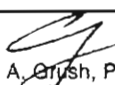
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	49	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	10,204	lbs		DELETED
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	10,204	lbs		DELETED
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,518	lbs		DELETED
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs		DELETED
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	1,450	lbs		DELETED
	53A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 42, unit bearing oil system, DTE heavy oil, 275 gal. From Item 41, unit governor oil sump and accumulator tank, hydraulic oil, 800 gal. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	1,100	gal	\$10.00	\$11,000.00
		SUBTOTAL THIS SHEET					\$11,000.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
WOID: AF121		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx)Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 0,000 lbs.	86-68430	1	EA		DELETED
	62	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 0 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA		DELETED
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$600.00	\$2,400.00
		SUBTOTAL THIS SHEET					\$12,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED 
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121	ESTIMATE LEVEL: Feasibility				
		REGION: MP	UNIT PRICE LEVEL: July-2010				
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft	86-68420	1,350	lbs	\$0.85	\$1,147.50
		Pipe weight 50 lbs/ft.					
		(Assume contains paint with heavy metals)					
	79	Air Vent- 12-in. Dia. STD x 32 ft.	86-68420	1,600	lbs	\$0.85	\$1,360.00
		Pipe weight 50 lbs/ft.					
		(Assume contains paint with heavy metals)					
		Power Conduit (Penstock) Continued:					
	80	Gage Wells-					
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$0.85	\$1,115.20
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft.	86-68420	1,300	lbs	\$0.85	\$1,105.00
		(Assume contains paint with heavy metals)					
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft.	86-68420	7,440	lbs	\$0.85	\$6,324.00
		Pipe weight 124 lbs/ft.					
		(Assume contains paint with heavy metals)					
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft.	86-68420	294,428	lbs	\$0.85	\$250,263.80
		Pipe weight 386 lbs/ft.					
		(Assume contains paint with heavy metals)					
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft.	86-68420	12,850	lbs	\$0.85	\$10,922.50
		Pipe weight 257 lbs/ft.					
		(Assume contains paint with heavy metals)					
	84	Outlet Valve on bypass outlet- 66-in. Dia.					
		Assumed to be a Fixed Cone Valve with controls					
		Valve weight approximately:	86-68420	18,000	lbs	\$0.85	\$15,300.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$287,538.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

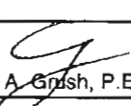
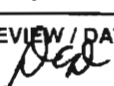
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon								
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REGION:	MP	UNIT PRICE LEVEL:	July-2010						
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING: 50 acres	86-68220	50	Acres	\$8,500.00	\$425,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	24500	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	7000	cutting			
		Shining willow (<i>Salix lucida</i>)	3500	cutting			
		Herbivore screen	35000	each			
		Chemical herbivore deterrent	700	gal			
	94	WEED MANAGEMENT: 413 acres	86-68220	413	Acres	\$1,500.00	\$619,500.00
		Herbicide, post-emergent	825	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING: 330 acres	86-68220	330	Acres	\$3,500.00	\$1,155,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	1320	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	1320	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	1320	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1980	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	165	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	82.5	lbs PLS			
		Western needlegrass (<i>Achnatherum occidentale</i>)	1320	lbs PLS			
		California brome (<i>Bromus carinatus</i>)	2640	lbs PLS			
		Squirreltail (<i>Elymus elymoides</i>)	1320	lbs PLS			
		Wood mulch	660000	lbs			
		Tackifier	39600	lbs			
	96	WEED MANAGEMENT: 330 acres	86-68220	330	Acres	\$1,500.00	\$495,000.00
		Herbicide, post-emergent	31	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$9,331,500.00

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
O'Meara, Scott A	Greimann, Blair P	Craig A. Grush, P.E.	
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
04/12/11	Greimann, Blair P 4/12/2011	04/22/11	 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121		ESTIMATE LEVEL: Feasibility	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2.	86-8130	800	ft2	\$60.00	\$48,000.00
		<i>Located just north of the Powerhouse.</i>					
		<i>Single story, hip roof, prefab metal structure on concrete slab.</i>					
		<i>Office, lockers, and shop. 20 ft x 40 ft.</i>					
	102	Remove Building No. 3.	86-68130	1,088	ft2	\$60.00	\$65,280.00
		<i>Located between circular holding ponds.</i>					
		<i>Single story, hip roof, prefab metal structure on concrete walls.</i>					
		<i>Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>					
	103	Remove Concrete in Fish Ladder.	86-68130	950	yd3	\$215.00	\$204,250.00
		<i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20,</i>					
		<i>and retaining wall (which serves as a support for part of</i>					
		<i>the fish ladder, and which is the left wall of the tunnel</i>					
		<i>outlet structure).</i>					
	104	Remove Concrete in Holding Ponds #1 thru #6.	86-68130	420	yd3	\$215.00	\$90,300.00
		<i>Includes 6 circular ponds.</i>					
	105	Remove Concrete in Fish Facility Items.	86-68130	380	yd3	\$215.00	\$81,700.00
		<i>Includes holding tank between pool 20 and Bldg. No. 3,</i>					
		<i>tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3,</i>					
		<i>flumes (to holding ponds), and gate basins #1 thru #6.</i>					
	106	Remove Miscellaneous Metalwork in Fish Facilities.	86-68130	12,000	lbs	\$0.85	\$10,200.00
		<i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank),</i>					
		<i>fish basket (in dope tank), rotating sweeps & stationary</i>					
		<i>sweeps (in circular ponds), frames, gratings, handrail, and ladders.</i>					
		<i>Assume contains paint with heavy metals.</i>					
		SUBTOTAL THIS SHEET					\$499,730.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY  Craig A. Grish, P.E.	CHECKED 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

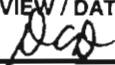
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT:	
	Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$215.00	\$14,620.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$215.00	\$10,750.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.70	\$4,200.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps. Assume contains paint with heavy metals.</i>	86-68130	2,500	lbs	\$0.85	\$2,125.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$6.00	\$234,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$60.00	\$20,400.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$60.00	\$5,400.00
		SUBTOTAL THIS SHEET					\$291,495.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

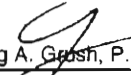
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon				
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REGION: MP	UNIT PRICE LEVEL: July-2010				
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	126	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft.	86-68420	2,176	lbs	\$0.85	\$1,849.60
		Pipe weight 34 lbs/ft.					
		(Assume contains paint with heavy metals)					
	127	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft.	86-68420	1,932	lbs	\$0.85	\$1,642.20
		Pipe weight 28 lbs/ft.					
		(Assume contains paint with heavy metals)					
	128	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft.	86-68420	3,588	lbs	\$0.85	\$3,049.80
		Pipe weight 23 lbs/ft.					
		(Assume contains paint with heavy metals)					
	130	Piping- 3-in. Dia. STD x 64 ft.	86-68420	1,088	lbs	\$0.85	\$924.80
		Pipe weight 8 lbs/ft.					
		(Assume contains paint with heavy metals)					
	131	Gate Valves-					
		24-in. Dia. Gate Valve- 1 total					
		24-in. Gate Valve weight approx: 3,800 lbs					
		18-in. Dia. Gate Valve- 7 total					
		18-in. Gate Valve weight approx: 1748 lbs ea					
		16-in. Dia. Gate Valve- 2 total					
		16-in. Gate Valve weight approx: 1465 lbs ea					
		12-in. Dia. Gate Valve- 1 total					
		12-in. Gate Valve weight approx: 722 lbs					
		8-in. Dia. Gate Valve- 6 total					
		8-in. Gate Valve weight approx: 339 lbs ea					
		3-in. Dia. Gate Valve- 1 total					
		3 -in. Gate Valve weight approx: 70 lbs					
		Total weight approximately:	86-68420	21,792	lbs	\$0.85	\$18,523.20
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$25,989.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grish, P.E.	CHECKED 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

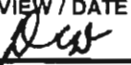
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121		ESTIMATE LEVEL: Feasibility	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	132	Basin #1-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$0.85	\$2,448.00
	133	Basin #2-					
		Slide Gate- 4-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,860	lbs	\$0.85	\$3,281.00
	134	Basin #3-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$0.85	\$2,448.00
		SUBTOTAL THIS SHEET					\$8,177.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Gosh, P.E.	CHECKED 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT:	
	Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,580	lbs	\$0.85	\$3,043.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
		SUBTOTAL THIS SHEET					\$5,491.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

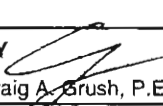
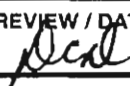
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Reservoir Most Probable				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121		ESTIMATE LEVEL: Feasibility	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$300.00	\$33,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform plers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$25.00	\$21,375.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$100.00	\$16,000.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$20.00	\$4,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$20.00	\$4,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$100.00	\$16,000.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$5,000.00	\$5,000.00
	163	Power poles and lines	BLM	3	POLES	\$1,500.00	\$4,500.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$5.00	\$3,000.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	167	Relocate concrete tables	BLM	12	EA	\$100.00	\$1,200.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$25,000.00	\$100,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$300.00	\$2,100.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$300.00	\$6,600.00
	171	Double pipe railing	BLM	100	LF	\$40.00	\$4,000.00
		SUBTOTAL THIS SHEET					\$221,275.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

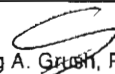
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121		ESTIMATE LEVEL: Feasibility	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$3,340,945.00
		Dam Removal					\$14,159,019.50
		Powerhouse/Switchyard/Transmission Line Removal					\$179,400.00
		Penstock Removal					\$1,172,878.50
		Reservoir Vegetative Restoration					\$9,331,500.00
		Road Improvements					\$1,115,000.00
		Fish Spawning Facility Removal					\$1,662,033.80
		Recreational Facilities to be Removed					\$520,725.00
		Subtotal					\$31,481,501.80
		Mobilization	5%	+/-			\$1,550,000.00
		Subtotal 1 with Mobilization					\$33,031,501.80
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$11,360,075.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$44,391,576.80
		Design Contingencies	10%	+/-			\$4,608,423.20
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$49,000,000.00
		Construction Contingencies	20%	+/-			\$10,000,000.00
		FIELD COST					\$59,000,000.00
		Non-Contract Costs:	65%	+/-			\$38,000,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 45%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$97,000,000.00
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.							

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/03/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete.	86-68130	2,500	yd3	\$260.00	\$650,000.00
		Includes removal of two diversion culverts beneath spillway block 1.					
		Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5.					
		Waste in scour hole					
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.65	\$9,750.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5. Waste in scour hole	86-68130	1,600	yd3	\$260.00	\$416,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3	\$260.00	\$156,000.00
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.55	\$5,775.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.55	\$1,980.00
		SUBTOTAL THIS SHEET					\$1,239,505.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

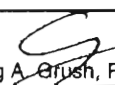
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2	\$40.00	\$69,120.00
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2	\$40.00	\$76,800.00
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$40.00	\$15,400.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$40.00	\$13,240.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed. Waste in scour hole	86-68130	6	cy	\$260.00	\$1,560.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs. Waste in scour hole	86-68130	1	cy	\$260.00	\$260.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$40.00	\$960.00
		SUBTOTAL THIS SHEET					\$177,340.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE 4/19/11

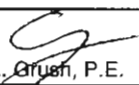
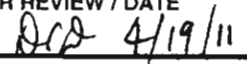
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems	86-68420	52,500	lbs	\$0.65	\$34,125.00
		governor, sump tanks, accumulator tank, piping					
		(Assume contains paint with heavy metals & petroleum products)					
	33	Cooling water and bearing oil systems	86-68420	6,500	lbs	\$0.65	\$4,225.00
		(Assume contains paint with heavy metals & petroleum products)					
	34	2 - Francis Turbines	86-68420	560,000	lbs	\$0.65	\$364,000.00
		(Includes runner, scroll case, draft tube and shaft)					
		(Assume contains paint with heavy metals & petroleum products)					
	35	150 Ton crane	86-68420	240,000	lbs	\$0.65	\$156,000.00
		(Includes crane and embedded steel rail)					
		(Assume contains paint with heavy metals & petroleum products)					
	36	Compressed Air systems	86-68420	1,100	lbs	\$0.65	\$715.00
		(Assume contains paint with heavy metals & petroleum products)					
	37	2 - CO2 systems	86-68420	6,600	lbs	\$0.65	\$4,290.00
		(Assume contains paint with heavy metals & petroleum products)					
	38	Plant Water and Fire Protection	86-68420	3,100	lbs	\$0.65	\$2,015.00
		(Assume contains paint with heavy metals)					
	39	Transformer Oil Fire protection	86-68420	6,500	lbs	\$0.65	\$4,225.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$569,595.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484	ESTIMATE LEVEL: Feasibility				
		REGION: MP	UNIT PRICE LEVEL: July-2010				
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$200,000.00	\$400,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	2	EA	\$12,500.00	\$25,000.00
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.	86-68430	2	EA	\$7,000.00	\$14,000.00
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$3,000.00	\$6,000.00
	48	Generator Switchgear, 15kV - (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	49	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
SUBTOTAL THIS SHEET							\$474,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				Klamath River Northern California/Southern Oregon			
				WOID: AF484	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\WPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx)Summary			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$8,000.00	\$8,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$11,000.00	\$11,000.00
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
SUBTOTAL THIS SHEET							\$38,000.00
QUANTITIES				PRICES			
BY D. Berk	CHECKED T. Griess	BY Craig A. Brush, P.E.	CHECKED 				
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11				

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following					
		Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
		Remove and dispose of the following					
		Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$25,000.00	\$41,500.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$25,000.00	\$6,000.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by PacifiCorp	86-68430	1.66	mile	\$25,000.00	\$41,500.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$2,078,195.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grish, P.E.	CHECKED
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF484	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete	86-68130	1,600	yd3	\$260.00	\$416,000.00
		3000 psi, reinforced concrete.					
		Waste in scour hole					
	62	Remove Fish Screen Building	86-68130	1,300	ft2	\$40.00	\$52,000.00
		Building is located on top of intake structure.					
		Wood frame construction, with metal rib roof and metal siding.					
		Some wood is pressure-treated, which may be considered a					
		hazardous material.					
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe	86-68130	22,000	lbs	\$0.65	\$14,300.00
		Pipe is located alongside the 14-ft-dia. steel pipe.					
		Length is estimated to be approx. 340 feet long					
		from Sta. 0+15.25 to the outlet at the Klamath River.					
		Assume contains paint with heavy metals.					
	64	Remove Concrete Items associated with the					
		14-ft-diameter Steel Pipe.	86-68130	1,100	yd3	\$260.00	\$286,000.00
		Includes anchors for horiz. pipe bends, piers,					
		14-ft dia. concrete conduit section, outlet transition					
		with newer (2002) headgate vault section,					
		siphon spillway structure, and 22-ft-long spillway flume.					
		Waste in scour hole					
	65	Remove Open Concrete Flume.	86-68130	26,000	yd3	\$260.00	\$6,760,000.00
		3000 psi, reinforced concrete.					
		Total flume length = 10,761 feet.					
		Includes both 2-wall and 1-wall flume reaches.					
		Includes 2,300 CY of unreinforced porous concrete					
		(gunite or shotcrete) on 1-wall flume reaches.					
		Waste in scour hole					
		SUBTOTAL THIS SHEET					\$7,528,300.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE:		PROJECT:					
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon					
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the					
		Forebay Trashrack Piers.	86-68130	11,500	lbs	\$0.65	\$7,475.00
		Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks.					
		Assume contains paint with heavy metals.					
	67	Remove Forebay Concrete	86-68130	2,500	yd3	\$260.00	\$650,000.00
		3000 psi, reinforced concrete.					
		Includes forebay, forebay spillway, forebay sluiceway,					
		and forebay drainage items (man-hole,					
		12-inch concrete drain pipe).					
		Waste in scour hole					
	68	Place Concrete Plugs at Tunnel Portals	86-68130	30	yd3	\$1,000.00	\$30,000.00
		3000 psi, reinforced concrete min., two plugs @ 2-ft thick.					
		Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide.					
		Lower portal is a grouted, steel-lined conduit 16 feet in diameter.					
	69	Remove Concrete Items associated with					
		Penstocks D/S from Tunnel.	86-68130	1,800	yd3	\$260.00	\$468,000.00
		Includes surge tank support and anchor block #1,					
		anchor block #2, two anchor blocks at P.I. #3,					
		and all ring girder supports.					
		Waste in scour hole					
	70	Headgate Control Bldg. at Flume Entrance.	86-68130	330	ft2	\$40.00	\$13,200.00
		Concrete block on concrete slab.					
	71	Forebay Spillway Gate House	86-68130	570	ft2	\$40.00	\$22,800.00
		Metal building on wood frame covering forebay spillway radial gates.					
	72	Forebay Control Building.	86-68130	470	ft2	\$40.00	\$18,800.00
		Wood building on metal frame.					
SUBTOTAL THIS SHEET							\$1,210,275.00
QUANTITIES			PRICES				
BY	CHECKED	BY	CHECKED				
Stephen Latham	Jonathan East	Craig A. Grush, P.E.	NA				
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE				
11/01/10	Rick Benik P.E. 11/1/10	04/18/11	DCA 4/19/11				

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
				WOID:	AF484	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE: C:\Estimating\Klamath\Klamath River Dams Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.dsx\Summary			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING: 54 acres	86-68220	54	Acres	\$8,500.00	\$459,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	26460	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	3780	cutting			
		Shining willow (<i>Salix lucida</i>)	3780	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	1890	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	1890	transplant			
		Herbivore screen	37800	each			
		Chemical herbivore deterrent	756	gal			
		Polymer	119	lbs			
	94	WEED MANAGEMENT: 124 acres	86-68220	124	Acres	\$1,500.00	\$186,000.00
		Herbicide, post-emergent	247	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING: 99 acres	86-68220	99	Acres	\$3,500.00	\$346,500.00
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT: 99 acres	86-68220	99	Acres	\$1,500.00	\$148,500.00
		Herbicide, post-emergent	9	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					
							\$2,738,500.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
O'Meara, Scott A		Greimann, Blair P		Craig A. Grush, P.E.		PH	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
04/12/11		04/12/11		04/18/11		DED 4/19/11	

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Summary					

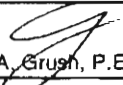
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00 ✓
		Diversion and Care					\$166,900.00 ✓
		Dam Removal					\$2,820,005.00 ✓
		Powerhouse/Switchyard/Transmission Line Removal					\$2,078,195.00 ✓
		Penstock Removal					\$10,757,470.00 ✓
		Reservoir Vegetative Restoration					\$2,738,500.00 ✓
		Road Improvements					\$1,946,500.00 ✓
		Recreational Facilities to be Removed					\$89,480.00 ✓
		Subtotal					\$20,597,050.00 ✓
		Mobilization	5%	+/-			\$1,050,000.00 ✓
		Subtotal 1 with Mobilization					\$21,647,050.00 ✓
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$7,444,775.00 ✓
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$29,091,825.00 ✓
		Design Contingencies	10%	+/-			\$2,908,175.00 ✓
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$32,000,000.00 ✓
		Construction Contingencies	20%	+/-			\$6,000,000.00 ✓
		FIELD COST					\$38,000,000.00 ✓
		Non-Contract Costs:	55%	+/-			\$21,000,000.00 ✓
		(Environmental & Cultural Resources					
		Mitigation ~ 35%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$59,000,000.00 ✓
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.							

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	Craig A. Grish, P.E.	
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	04/18/11	Dec 4/19/11

FEATURE:				PROJECT:			
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam				Klamath River Northern California/Southern Oregon			
				WOID:	AF121	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary		
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete	86-68130	2,500	yd3	\$260.00	\$650,000.00
		3000 psi, reinforced and mass concrete.					
		Includes removal of two diversion culverts beneath spillway block 1.					
		Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5.					
		Waste in scour hole					
	6	Remove Monorail Structural Steel Components	86-68130	15,000	lbs	\$0.65	\$9,750.00
		This structure used for installing steel stoplogs in spillway radial gate openings.					
		Assume contains paint with heavy metals.					
	7	Remove Fish Ladder Concrete	86-68130	1,600	yd3	\$260.00	\$416,000.00
		3000 psi, reinforced concrete.					
		Includes fish ladder intake at upstream end, diffusion box at downstream end,					
		and north abutment wall (which supports dam embankment).					
		This quantity is for concrete to the right of dam Sta. 3+36.5.					
		Waste in scour hole					
	8	Remove Gravity Dam Section Concrete	86-68130	600	yd3		DELETED
		3000 psi, mass concrete.					
		Waste in scour hole					
	9	Remove Timber Equipment Ramp on left side of dam.	86-68130	10,500	lbs	\$0.55	\$5,775.00
		Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3.					
		Volume of timber to be removed is approximately 290 ft3.					
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure.	86-68130	3,600	lbs	\$0.55	\$1,980.00
		2 in by 8 in Lumber assumed to weigh 30 lb/ft3.					
		Volume of lumber to be removed is approximately 120 ft3.					
SUBTOTAL THIS SHEET							\$1,083,505.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
Stephen Latham		Jonathan East		Craig A. Grush, P.E.			
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
11/17/10		Rick Benik P.E. 12/11/10		04/22/11		 4/22/11	

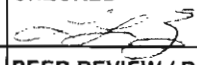
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lbs	\$0.65	\$3,250.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	124,000	lbs	\$0.65	\$80,600.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	92,000	lbs	\$0.65	\$59,800.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure (Assume contains paint with heavy metals & petroleum products)	86-68420	4,200	lbs	\$0.65	\$2,730.00
	26A	Remove Petroleum Products from Red Barn Area Includes quantities for the following: Steel shed oil storage drums. Misc. oil products, approx. 2 drums @ 55 gal. Convault fuel tanks. Diesel fuel tank @ 500 gal., Gasoline tank @ 1,000 gal. Tanks to remain on-site.	86-68420	1,600	gal	\$10.00	\$16,000.00
		SUBTOTAL THIS SHEET					\$162,380.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

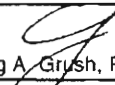
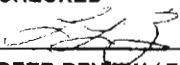
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2-Governor oil systems governor, pump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs		DELETED
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs		DELETED
	34	2-Francis Turbines (Includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	560,000	lbs		DELETED
	35	150 Ton crane (Includes crane and embedded steel rail) (Assume contains paint with heavy metals & petroleum products)	86-68420	240,000	lbs	\$0.65	\$156,000.00
	36	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,100	lbs		DELETED
	37	2-CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs		DELETED
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs		DELETED
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs		DELETED
		SUBTOTAL THIS SHEET					\$156,000.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grish, P.E.	CHECKED 
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

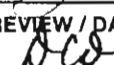
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$200,000.00	\$400,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets) (400 lbs each), 3 ft x 3 ft x 90 inches high Total weight approximately: 2,000 lbs-	86-68430	2	EA		DELETED
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs-	86-68430	2	EA		DELETED
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs-	86-68430	2	EA		DELETED
	48	Generator Switchgear, 15kV (6 sections) (750 lbs each), 3 ft x 6 ft x 90 inches high Total weight approximately: 4,500 lbs-	86-68430	4	EA		DELETED
	49	Station Service Switchgear, 600 volt (5 sections) (400 lbs each), 3 ft x 3 ft x 90 inches high Total weight approximately: 2,000 lbs-	86-68430	4	EA		DELETED
		SUBTOTAL THIS SHEET					\$400,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED 
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

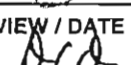
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 6 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	4	EA		DELETED
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$8,000.00	\$8,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	4	EA		DELETED
	53	Micro-power & control boards 40 boards (50 lbs each) 3ft x 2 ft x 0 in Total weight approximately: 500 lbs.	86-68430	4	EA		DELETED
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
SUBTOTAL THIS SHEET							\$16,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Orush, P.E.	CHECKED 
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

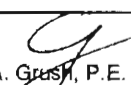
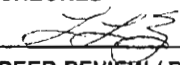
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon						
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REGION: MP	UNIT PRICE LEVEL: July-2010						
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following					
		Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable	86-68430	1	EA	\$10,000.00	\$10,000.00
		(approx. 3000 lin. Ft. power & control cable, 100					
		lin. Ft. power cable from reel, 1000 lin. Ft conduit)					
		Total weight approximately: 8,000 lbs.					
	57	Exterior Lighting	86-68430	1	EA	\$2,000.00	\$2,000.00
		6 poles with lights (250 lbs. each)					
		Total weight approximately: 1,500 lbs.					
		Remove and dispose of the following					
		Transmission Lines:					
	58	Transmission Line No. 59	86-68430	1.66	mile	\$25,000.00	\$41,500.00
		From Boyle Substation to Line Tie					
		266.8 ACSR, 69-kV					
	59	Transmission Line No. 98	86-68430	0.24	mile	\$25,000.00	\$6,000.00
		From Boyle Substation to Line Tie on Line 18					
		#2 AAC, 69-kV					
	60	Transmission Line No. 58	86-68430	1.66	mile	\$25,000.00	\$41,500.00
		From Boyle Substation to Line Tie					
		266.8 ACSR, 69-kV					
		Major substation equipment (transformers,					
		circuit breakers, etc.) to be salvaged by PacifiCorp					
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$908,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

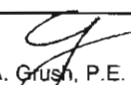
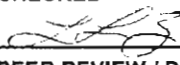
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121	ESTIMATE LEVEL: Feasibility		
				REGION: MP	UNIT PRICE LEVEL: July-2010		
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete	86-68130	1,600	yd3		DELETED
		3000 psi, reinforced concrete.					
		Waste in scour hole					
	62	Remove Fish Screen Building	86-68130	1,300	#2		DELETED
		Building is located on top of intake structure.					
		Wood frame construction, with metal rib roof and metal siding.					
		Some wood is pressure treated, which may be considered a					
		hazardous material.					
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe	86-68130	22,000	lbs	\$0.65	\$14,300.00
		Pipe is located alongside the 14-ft-dia. steel pipe.					
		Length is estimated to be approx. 340 feet long					
		from Sta. 0+15.25 to the outlet at the Klamath River.					
		Assume contains paint with heavy metals.					
	64	Remove Concrete Items associated with the					
		14-ft diameter Steel Pipe.	86-68130	1,100	yd3		DELETED
		Includes anchors for horiz. pipe bends, piers,					
		14-ft dia. concrete conduit section, outlet transition					
		with newer (2002) headgate vault section,					
		siphon spillway structure, and 22-ft long spillway flume.					
		Waste in scour hole					
	65	Remove Open Concrete Flume Walls.	86-68130	12,200	yd3	\$260.00	\$3,172,000.00
		3000 psi, reinforced concrete.					
		Total flume length = 10,761 feet.					
		Includes both 2-wall and 1-wall flume reaches.					
		Includes 2,300 CY of unreinforced porous concrete					
		(gunite or shotcrete) on 1-wall flume reaches.					
		Waste in scour hole					
SUBTOTAL THIS SHEET							\$3,186,300.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grish, P.E.	CHECKED 
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

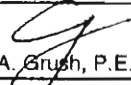
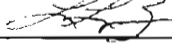
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121	ESTIMATE LEVEL: Feasibility				
		REGION: MP	UNIT PRICE LEVEL: July-2010				
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the					
		Forebay Trashrack Piers.	86-68130	11,500	lbs	\$0.65	\$7,475.00
		Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks.					
		Assume contains paint with heavy metals.					
	67	Remove Forebay Concrete Walls	86-68130	1,500	yd3	\$260.00	\$390,000.00
		3000 psi, reinforced concrete.					
		Includes forebay, forebay spillway, forebay sluiceway,					
		and forebay drainage items (man-hole,					
		12-inch concrete drain pipe).					
		Waste in scour hole					
	68	Place Concrete Plugs at Tunnel Portals	86-68130	30	yd3	\$1,000.00	\$30,000.00
		3000 psi, reinforced concrete min., two plugs @ 2-ft thick.					
		Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide.					
		Lower portal is a grouted, steel-lined conduit 16 feet in diameter.					
	69	Remove Concrete Items associated with					
		Penstocks D/S from Tunnel.	86-68130	1,800	yd3	\$260.00	\$468,000.00
		Includes surge tank support and anchor block #1,					
		anchor block #2, two anchor blocks at P.I. #3,					
		and all ring girder supports.					
		Waste in scour hole					
	70	Headgate Control Bldg. at Flume Entrance.	86-68130	330	ft2	\$40.00	\$13,200.00
		Concrete block on concrete slab.					
	71	Forebay Spillway Gate House	86-68130	570	ft2	\$40.00	\$22,800.00
		Metal building on wood frame covering forebay spillway radial gates.					
	72	Forebay Control Building.	86-68130	470	ft2	\$40.00	\$18,800.00
		Wood building on metal frame.					
		SUBTOTAL THIS SHEET					\$950,275.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

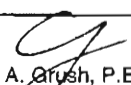
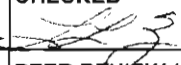
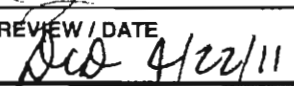
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121	ESTIMATE LEVEL: Feasibility				
		REGION: MP	UNIT PRICE LEVEL: July-2010				
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	75	Fixed Wheel Gate Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lbs		DELETED
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbs		DELETED
	77	Stop Logs and slots (steel) stop-log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs		DELETED
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products)	86-68420	124,000	lbs		DELETED
	79	Fish By Pass and Supports (steel), 4 Pronged Inlet to Forebay, Spillway, Deer Escape Flume (Assume contains paint with heavy metals)	86-68420	610,000	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF121		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	01	SPRING AERIAL SEEDING:	86-68220		Acres		DELETED
	92	FALL GROUND SEEDING: 124 acres	86-68220	124	Acres	\$3,500.00	\$434,000.00
		Idaho fescue (Festuca idahoensis)	494	lbs PLS			
		Blue wildrye (Elymus glaucus)	494	lbs PLS			
		Small fescue (Vulpia microstachys)	494	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	741	lbs PLS			
		Sandberg bluegrass (Poa secunda)	62	lbs PLS			
		Spike bentgrass (Agrostis exarata)	31	lbs PLS			
		Wood mulch	38000	lbs			
		Tackifier	2280	lbs			
SUBTOTAL THIS SHEET							\$434,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

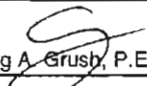
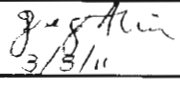
FEATURE:				PROJECT:			
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
				WOID:	AF121	ESTIMATE LEVEL:	Feasibility
				REGION:	MP	UNIT PRICE LEVEL:	July-2010
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx)Summary			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING: 54 acres	86-68220	54	Acres	\$8,500.00	\$459,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	26460	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	3780	cutting			
		Shining willow (<i>Salix lucida</i>)	3780	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	1890	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	1890	transplant			
		Herbivore screen	37800	each			
		Chemical herbivore deterrent	756	gal			
		Polymer	119	lbs			
	94	WEED MANAGEMENT: 124 acres	86-68220	124	Acres	\$1,500.00	\$186,000.00
		Herbicide, post-emergent	247	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING: 99 acres	86-68220	99	Acres	\$3,500.00	\$346,500.00
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT: 99 acres	86-68220	99	Acres	\$1,500.00	\$148,500.00
		Herbicide, post-emergent	9	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$2,738,500.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
O'Meara, Scott A		Greimann, Blair P		Craig A. Grish, P.E.			
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
04/12/11		Greimann, Blair P 4/12/2011		04/22/11		 4/22/11	

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
				WOID: AF121		ESTIMATE LEVEL: Feasibility	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
				FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx)Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$11,900.00
		Dam Removal					\$2,534,085.00
		Powerhouse/Switchyard/Transmission Line Removal					\$908,000.00
		Penstock Removal					\$5,424,320.00
		Reservoir Vegetative Restoration					\$2,738,500.00
		Road Improvements					\$1,946,500.00
		Recreational Facilities to be Removed					\$89,480.00
		Subtotal					\$13,652,785.00
		Mobilization	5%	+/-			\$680,000.00
		Subtotal 1 with Mobilization					\$14,332,785.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$4,929,280.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$19,262,065.00
		Design Contingencies	10%	+/-			\$1,737,935.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$21,000,000.00
		Construction Contingencies	20%	+/-			\$4,000,000.00
		FIELD COST					\$25,000,000.00
		Non-Contract Costs:	65%	+/-			\$16,000,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 45%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$41,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	Craig A. Grush, P.E.	
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	04/22/11	Dec 4/22/11

FEATURE:		PROJECT:					
Klamath River Dams Removal		Klamath River					
Yreka water supply		Northern California/Southern Oregon					
Dam A modifications		WOID: AF652		ESTIMATE LEVEL: Appraisal			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
Most Probable		FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Remove & dispose steel frame with slide gates/weirs	86-68140	1	ea	\$6,500.00	\$6,500.00
		14 ft wide x 9 ft tall, weight unknown					
		assume contains heavy metals					
	2	Remove & dispose by steel bulkhead panel	86-68140	1	ea	\$1,000.00	\$1,000.00
		3'-2' ft wide x 5'-6" tall					
		assume contains heavy metals					
	3	Remove & dispose fish screen panels	86-68140	6	ea	\$1,000.00	\$6,000.00
		3 ft wide x 5'-6" tall each					
		assume contains heavy metals					
	4	Cut, remove concrete deck	86-68140	2.4	cf	\$150.00	\$360.00
		3 ft x 1'-7" x 6 in					
	5	Remove & dipsose wood frame building	86-68140	1	ea	\$25,000.00	\$25,000.00
		16 ft x 12 ft with roll up door					
	6	Furnish, install wood frame building	86-68140	1	ea	\$50,000.00	\$50,000.00
		16 ft x 12 ft with two roll up doors					
		9 ft x 7 ft door, 12 ft x 7 ft door					
	7	Furnish & install steel slide gate with pedestal lift	86-68140	2	ea	\$4,000.00	\$8,000.00
		30" wide x 42", 500 lb ea.					
	7a	Furnish and place concrete walls		3.1	cy		DELETED
		3 @ 5-6 in x 5 w x 1 ft thick					
		reinf. - 115 lb ea					
		27 #5 dowels, drill and grout					
	7b	Extend 220v power to the site		350	lf		DELETED
		distance is about 350 ft, lots of clearing					
	7c	Diversion & care		1	ls		DELETED
		assume 10 cfs for 40 days					
		Note: All work on this sheet takes place on existing					
		diversion dam with water flowing. Workers will					
		be above flowing water on diversion structure.					
		SUBTOTAL THIS SHEET					\$96,860.00
QUANTITIES			PRICES				
BY		CHECKED		BY		CHECKED	
Sayer				Craig A. Grush, P.E.		3/8/11	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
01/15/11		Dave Edwards 1/24/11		03/08/11		3/9/11	

FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable			PROJECT: Klamath River Northern California/Southern Oregon WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary				
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	10	Excavation for structure	86-68140	40	cy	\$80.00	\$3,200.00
	11	Compacted backfill for structure	86-68140	30	cy	\$60.00	\$1,800.00
	12	Concrete removal, 2'x2' cut opening	86-68140	4	cf	\$150.00	\$600.00
	13	Furnish & place concrete in structure	86-68140	8	cy	\$1,300.00	\$10,400.00
	14	Remove & dispose existing trashrack 5 ft x 9 ft assume contains heavy metals	86-68140	1	ea	\$2,500.00	\$2,500.00
	15	Furnish & install grating	86-68140	25	sf	\$200.00	\$5,000.00
	15a	Furnish and place concrete wall size, 0.5 ft tall, 5 ft w, 1 ft thick 11 #5 dowels, drill and grout reinf - 200 lb		1.8	cy		DELETED
	15b	Extend 220v power to the site distance is about 280 ft, lots of clearing		280	#		DELETED
	16	Diversion & care assume 10 cfs for 10 days	86-68140	1	ls		\$50,000.00
	17	Create access to dam	86-68140	1	ls		\$30,000.00
		SUBTOTAL THIS SHEET					\$103,500.00
QUANTITIES			PRICES				
BY Sayer		CHECKED 	BY  Craig A. Grush, P.E.		CHECKED  3/5/11		
DATE PREPARED 01/15/11		PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 03/08/11		PEER REVIEW / DATE  3/9/11		

FEATURE:				PROJECT:			
Klamath River Dams Removal Yreka water supply Yreka pipe crossing Iron Gate Reservoir Most Probable				Klamath River Northern California/Southern Oregon			
				WOID: AF652		ESTIMATE LEVEL: Appraisal	
				REGION: MP		UNIT PRICE LEVEL: July-2010	
				FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\SSummary			
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Furnish & place reinforced concrete caps for abutment 2 and pier 2 (4' diameter column)					
	25	Concrete	86-68140	25	cy	\$2,500.00	\$62,500.00
	26	Reinforcement, epoxy coated	86-68140	10,000	lb	\$2.00	\$20,000.00
		Drilled shafts					
	27	5'-0" Diameter @ pier 2	86-68140	16	lf	\$6,000.00	\$96,000.00
		(Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)					
	28	3'-0" Diameter @ abutment 2	86-68140	52	lf	\$1,500.00	\$78,000.00
		(Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)					
	29	Remove & dispose existing steel pipe, 1/4 inch wall, 24" dia.	86-68140	20	lf	\$50.00	\$1,000.00
		assume contains heavy metals					
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia.	86-68140	490	lf	\$200.00	\$98,000.00
		epoxy primer, polyurethane top coat, exterior coal-tar epoxy lined					
	31	Install/Remove 2 access ramps for piers, dumped compacted gravel in river	86-68140	270	cy	\$100.00	\$27,000.00
	32	Excavation for pipe trench	86-68140	70	cy	\$15.00	\$1,050.00
	33	CLSM pipe bedding	86-68140	8	cy	\$300.00	\$2,400.00
	34	Backfill in pipe trench	86-68140	55	cy	\$30.00	\$1,650.00
		PIPE CROSSING SUBTOTAL					\$1,344,100.00
QUANTITIES				PRICES			
BY		CHECKED		BY		CHECKED	
Sayer				Craig A. Grush, P.E.		Jug A. bin 3/9/11	
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE	
01/10/11				03/08/11		3/9/11	

FEATURE: Klamath River Dams Removal Yreka water supply Most Probable SUMMARY				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Appraisal			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
		FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Dam A Modifications					\$208,860.00
		Dam B Modifications					\$212,950.00
		Pipe Crossing					\$1,344,100.00
		Subtotal					\$1,765,910.00
		Mobilization	5%	+/-			\$88,000.00
		Subtotal 1 with Mobilization					\$1,853,910.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$637,590.00
		(assumes 3%/yr compounding over 10 years)					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$2,491,500.00
		Design Contingencies	15%	+/-			\$408,500.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$2,900,000.00
		Construction Contingencies	25%	+/-			\$700,000.00
		FIELD COST					\$3,600,000.00
		Non-Contract Costs:	55%	+/-			\$2,000,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 35%, Design Data Collection ~ 1%,					
		Engineering Design ~ 4%, Permitting ~ 3%,					
		Procurement ~ 1%, Construction Management					
		~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$5,600,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED 04-19-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/19/11	PEER REVIEW / DATE 04/19/11