

Attachment D

Cost Estimate Worksheets

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Life Cycle - 50 Year Summary		PROJECT: Klamath River Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: Jul-10
		FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\01 - Copco 1\MP\Copco 1 - MP - Probable.xlsx\Life Cycle Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$95,000.00
		Periodic Costs - Year 8					\$32,566.50
		Periodic Costs - Year 17					\$31,689.00
		Periodic Costs - Year 25					\$16,380.90
		Periodic Costs - Year 33					\$16,596.72
		Periodic Costs - Year 42					\$8,239.50
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance					\$525,752.00
		(Assumes gov't service / construction contracts)					
		Subtotal 1					\$726,224.62
		Mobilization	5%	+/-			\$36,000.00
		Subtotal 1 with Mobilization					\$762,224.62
		Escalation to Notice to Proceed (NTP), from Unit Price Level (July 2010) to NTP (July 2020),					\$262,141.38
		at 3.00% per year for 120 months.					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$1,024,366.00
		Design Contingencies	10%	+/-			\$125,634.00
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$1,150,000.00
		Allowance for Procurement Strategies (APS)		+/-			
		Type of solicitation assumed: Competitive Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$1,150,000.00
		CONTRACT COST					\$1,150,000.00
		Construction Contingencies	20%	+/-			\$200,000.00
		FIELD COST					\$1,350,000.00
		Non-Contract Costs	30%	+/-			\$400,000.00
		(Environmental Cultural / Mitigation ~ 7%, Engineering Design ~ 5%, Maintenance Service Contract ~ 5% Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$1,750,000.00
		Note: initial estimate completed 4/17/11, revised non-contract costs 5/12/11, design contingencies costs 6/9/11					
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Akins</i> Greg Akins	CHECKED <i>Debra L...</i> 6/9/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 6/9/11	PEER REVIEW / DATE <i>NCB</i> 6/13/11

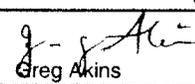
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Life Cycle	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\01 - Copco 1\MP\Copco 1 - MP - Probable.xlsx\Template Sheet 1
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Furnish, install, and maintain a 7-foot-high chain link fence along the west side of the powerhouse (assume two double 12ft wide gates for vehicle access) (assume replace two times)	86-68130	300	lf	\$60.00	\$18,000.00
	2	Repaint exposed portion of penstocks and vertical vents (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2% area</i>	86-68130	8,900	ft2	\$5.00	\$44,500.00
	3	Remove paint on east side of powerhouse (assume paint contains heavy metals)	86-68130	1,300	ft2	\$25.00	\$32,500.00
LIFE CYCLE SUBTOTAL							\$95,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY Greg Akins <i>Greg Akins</i>	CHECKED <i>Shane Mayers</i> 5/13/11
DATE PREPARED 03/21/11	PEER REVIEW / DATE Tom Hepler P.E. 3/24/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE <i>DCD</i> 5/13/11

FEATURE: Klamath River Dams Removal Partial Removal Option Removal Site Maintenance Most Probable Life Cycle - 50 Year Operation and Maintenance - Periodic Costs	PROJECT: Klamath River Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MPL MPH01 - Copco 1\MPL\Copco 1 - MP - Probable.xlsx\Template Sheet 1
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Site Maintenance - Annual: Copco 1 Site only*		1	LS	\$25,000.00	\$25,000.00
		Labor needed per year - threes sites:	86-68130	120	mdy**		
		3-Man maintenance crew					
		6 Months active inspection/maintenance					
		2 Weeks full time (1 month each spring)					
		4 Full days, 2 times each month (5 months)					
		Site maintenance required at JC Boyle, Copco 1 & Copco 2					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Equipment needed per year	86-68130	40	dy***		
		1-Service truck					
		Includes compressor, welder, generator and general tools					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Materials needed per year (percentage of labor & equipment)	86-68130	15%			
		Road maintenance needed per year (percentage of labor & equipment)	86-68130	10%			
		<i>*Total estimated cost for all 3 sites is approximately \$160,000 annually: prorated ±15% for the Copco 1 site only</i>					
		<i>** Man days per year for 50 years</i>					
		<i>***Days per year for 50 years</i>					
SUBTOTAL THIS SHEET							\$25,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED 
DATE PREPARED 04/18/11	PEER REVIEW / DATE Tom Hepler P.E. 4/18/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE  5/13/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge taken from Iron Gate Reservoir. Barge is used to modify diversion tunnel intake structure. Barge is also used to remove spillway gates, piers, bridge and concrete in spillway crest. Barge is located on reservoir for approximately 5 months.	86-68130	1	ls		\$350,000.00
	2	Remove Sediment from Diversion Tunnel Intake to provide access. Requires removing sediment 115 feet deep using clamshell or suction dredge.	86-68130	30	cy	\$2,000.00	\$60,000.00
	3	Furnish, Install, and Remove Large Crane on Right Abutment. Crane used to deliver equipment and materials and to remove waste materials as required. Crane in place for 4 months.	86-68130	1	ls		Included in the mobilization item
	4	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	200,000	gals	\$0.01	\$2,000.00
	5	Riprap Protection on Cofferdam. Riprap protects cofferdam from diversion tunnel releases.	86-68130	260	cy	\$150.00	\$39,000.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$35,000.00
SUBTOTAL THIS SHEET							\$486,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED CAG 4/14/11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Tom Hepler P.E. 10/26/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE NEW 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Diversion and Care	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
		CIVIL					
	7	Remove Current Diversion Tunnel Plug <i>Plug located in the middle of the tunnel</i> <i>Reinforced concrete</i> <i>Tunnel work</i>	86-68130	195	yd3	\$1,500.00	\$292,500.00
	8	Construct Embankment Cofferdam in Tailrace to remove Powerhouse in dry. <i>Assumes 10 ft wide crest with 2:1 side slopes, approximately 250 ft long and up to 12 ft high.</i> <i>Embankment material taken from Iron Gate Dam Removal, approximately 10 mile haul distance.</i>	86-68130	1,700	yd3	\$85.00	\$144,500.00
SUBTOTAL THIS SHEET							\$437,000.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY <i>g</i> Craig A. Grush, P.E.	CHECKED <i>cm</i> 4/14/11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>DCD</i> 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			
		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
		CIVIL					
		Concrete and Structural Steel Items:					
	10	Remove Concrete Dam down to Elev. 2476 <i>Elev. 2476 represents original streambed channel at downstream face of dam. Concrete in foundation to remain. Spillway crest at Elev. 2593.5. Includes concrete in dam, spillway crest, piers (390 cy), bridge deck (72 cy) and left abutment. Concrete is reinforced. 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. Assume ten notches, 12 ft deep, alternating sides with five on each side for removal of final 60 feet of dam. Each notch overlaps the previous alternating notch in 6 foot lifts. Each notch is approximately 20 ft wide with an average 6 ft thickness to be removed by blasting below reservoir surface.</i>	86-68130	36,000	yd3	\$300.00	\$10,800,000.00
	11	Remove Concrete Intake Structure on Right Abutment <i>Includes concrete in gate houses and headworks for units 1 and 2.</i>	86-68130	21,000	yd3	\$350.00	\$7,350,000.00
	12	Remove Structural Steel from Spillway <i>Includes rails, misc. steel Does not include spillway gates Assume contains paint with heavy metals. By barge and crane</i>	86-68130	55,000	lbs	\$1.00	\$55,000.00
	13	Install Diversion Tunnel Plugs <i>Plug upstream (6 cy) and downstream ends Assume 2' thick each</i>	86-68130	30	yd3	\$1,200.00	\$36,000.00
	14	Remove Diversion Tunnel Control Structure <i>Concrete Includes guide boxes Assume reinforced</i>	86-68130	350	yd3	\$215.00	\$75,250.00
SUBTOTAL THIS SHEET							\$18,316,250.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> Cmm 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> NCO 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 4/14/11
DATE PREPARED	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	22	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	23	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		DAM SUBTOTAL					\$18,845,400.00

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

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	24	Remove Powerhouse Concrete down to top of rock under the PH, Elev. 2482.75 (USGS datum). Local datum is converted to USGS datum by adding 2411 feet. (Elev. 71.75 + 2411 = Elev. 2482.75.) All concrete is reinforced. Includes all exterior & interior walls, columns, & beams, and concrete in foundations for transformers	86-68130	3,100	yd3	\$350.00	\$1,085,000.00
	25	Remove Powerhouse Structural Steel Roof truss members, purlins, and crane rail Assume contains paint with heavy metals.	86-68130	110,000	lbs	\$0.85	\$93,500.00
		SUBTOTAL THIS SHEET					\$1,178,500.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE 4/14/11

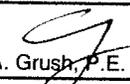
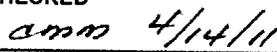
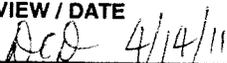
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	26	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
	27	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products) (encased in concrete)	86-68420	11,000	lb	\$0.85	\$9,350.00
	28	4 - Horizontal Tandem Francis Turbines (includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	452,000	lb	\$0.85	\$384,200.00
	29	2 - 40 Ton indoor cranes 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
	30	Compressed Air system (Assume contains paint with heavy metals & petroleum products)	86-68420	1,000	lb	\$0.85	\$850.00
	31	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	3,100	lb	\$0.85	\$2,635.00
	32	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	2,600	lb	\$0.85	\$2,210.00
		SUBTOTAL THIS SHEET					\$550,545.00

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

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	33	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	5,400	lb	\$0.85	\$4,590.00
	34	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	27,000	lb	\$0.85	\$22,950.00
	35	Drainage Piping (Assume contains paint with heavy metals)	86-68420	5,000	lb	\$0.85	\$4,250.00
		SUBTOTAL THIS SHEET					\$31,790.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY  Craig A. Grush, P.E.	CHECKED  am 4/14/11
DATE PREPARED 0/28/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE  ACD 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	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 3ft 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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

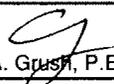
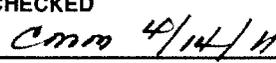
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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	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 <i>C.A.G.</i> Craig A. Grush, P.E.	CHECKED <i>amm</i> 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>DCR</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	49	40-Ton Travelling Crane control equipment (5 cubicles), Total weight approximately: 500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	50	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
	51	Four 15-Ton Overhead Crane motors - hoist (10Hp*), hoist trolley (5Hp*), gantry (2-5Hp*) (Hp* Approx.) Total weight approximately: 350 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	52	15-Ton Overhead Crane control equipment (1 cubicle), Total weight approximately: 100 lbs.	86-68430	1	EA	\$300.00	\$300.00
	53	15-Ton Overhead Crane Festoon Cable (approx. 100 lin. Ft. cable) Total weight approximately: 250 lbs.	86-68430	1	EA	\$500.00	\$500.00
		SUBTOTAL THIS SHEET					\$13,300.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Gruss, 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: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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 <i>[Signature]</i> Craig A. Grush P.E.	CHECKED <i>[Signature]</i> 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 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\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
		CIVIL					
		Concrete and Structural Steel Items:					
	63	Remove gate house #1 from top of dam	86-68130	570	ft2	\$60.00	\$34,200.00
	64	Remove gate house #2 from top of dam	86-68130	690	ft2	\$60.00	\$41,400.00
	65	Remove Concrete Items associated with 10-foot diameter Penstocks, concrete is reinforced	86-68130	1,050	yd3	\$215.00	\$225,750.00
	66	Plug 14-foot diameter penstock with concrete Plug upstream and downstream ends Assume 2' thick each	86-68130	23	yd3	\$1,200.00	\$27,600.00
		SUBTOTAL THIS SHEET					\$328,950.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY <i>CG</i> Craig A. Grush, P.E.	CHECKED <i>cmw 4/14/11</i>
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>ACD 4/14/11</i>

FEATURE:
REVISION #1
Klamath River Dams Removal
Full Removal Option
Copco No. 1 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\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 <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 4/14/11
DATE PREPARED 2/28/10	PEER REVIEW / DATE Dan Drake 10/29/2010	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 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					
	73	SPRING GROUND SEEDING: 420 acres	86-68220	420	Acres	\$3,500.00	\$1,470,000.00
		Idaho fescue (Festuca idahoensis)	1680	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1680	lbs	PLS		
		Small fescue (Vulpia microstachys)	1680	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2520	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	210	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	105	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1680	lbs	PLS		
		California brome (Bromus carinatus)	3360	lbs	PLS		
		Squirreltail (Elymus elymoides)	1680	lbs	PLS		
		Wood mulch	840000	lbs			
		Tackifier	50400	lbs			
	74	SPRING BARGE SEEDING: 82 acres	86-68220	82	Acres	\$6,500.00	\$533,000.00
		Idaho fescue (Festuca idahoensis)	328	lbs	PLS		
		Blue wildrye (Elymus glaucus)	328	lbs	PLS		
		Small fescue (Vulpia microstachys)	328	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	492	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	41	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	21	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	328	lbs	PLS		
		California brome (Bromus carinatus)	656	lbs	PLS		
		Squirreltail (Elymus elymoides)	328	lbs	PLS		
		Wood mulch	164000	lbs			
		Tackifier	9840	lbs			
SUBTOTAL THIS SHEET							\$2,003,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 4/14/11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

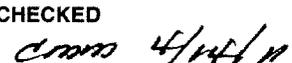
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	75	SPRING AERIAL SEEDING: 300 acres	86-68220	300	Acres	\$7,500.00	\$2,250,000.00
		Idaho fescue (Festuca idahoensis)	1200	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1200	lbs	PLS		
		Small fescue (Vulpia microstachys)	1200	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1800	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	150	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	75	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1200	lbs	PLS		
		California brome (Bromus carinatus)	2400	lbs	PLS		
		Squirreltail (Elymus elymoides)	1200	lbs	PLS		
		Wood mulch	600000	lbs			
		Tackifier	36000	lbs			
	76	FALL GROUND SEEDING: 401 acres	86-68220	401	Acres	\$3,500.00	\$1,403,500.00
		Idaho fescue (Festuca idahoensis)	1604	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1604	lbs	PLS		
		Small fescue (Vulpia microstachys)	1604	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2406	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	201	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	100	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1604	lbs	PLS		
		California brome (Bromus carinatus)	3208	lbs	PLS		
		Squirreltail (Elymus elymoides)	1604	lbs	PLS		
		Wood mulch	123385	lbs			
		Tackifier	7403	lbs			
SUBTOTAL THIS SHEET							\$3,653,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04/14/11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 04/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	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 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 O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  Scott A. O'Meara
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE  Blair P. Greimann

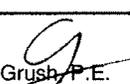
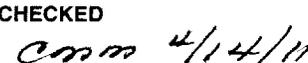
FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Road Improvements				Klamath River Northern California/Southern Oregon			
VOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				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 Estimated haul distance 1 mile. Disposed concrete estimated to be 10' deep and traffic compacted (50% bulking factor). For Copco 1 and Copco 2	86-68313	7	acre	\$6,000.00	\$42,000.00
	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 50% contingency for excavation 100% contingency for backfill	86-68313	320	ton	\$100.00	\$32,000.00
		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 Assume the 2 lane county road from I-5 to the Copco Dams will be overlayed after construction with chip seal.	86-68313	19	mi	\$40,000.00	\$760,000.00
		ROAD IMPROVEMENTS SUBTOTAL					\$3,142,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> C. Grush 4/14/11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Recreational Facilities to be Removed	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mallard Cove					
	89	Concrete total	BLM	106	CY	\$300.00	\$31,800.00
		Boat ramp: 100'x25'x1' (93 CY)					
		Dock abutment: 6'x8'x3' (6 CY)					
		8 Concrete wheel stops (0.5 CY)					
		4 Campfire ring foundations (1 CY)					
		6 Concrete sign bases (3 CY)					
		3 Concrete fire rings (2 CY)					
	90	25'x5' Dock made of composite decking and poly floats	BLM	1	EA	\$2,500.00	\$2,500.00
	91	20'x5' Gangway w/ aluminum frame and railings	BLM	1	EA	\$2,000.00	\$2,000.00
	92	Signs to be removed and hauled away	BLM	6	EA	\$300.00	\$1,800.00
	93	Wood plank tables to be removed and hauled away	BLM	8	EA	\$100.00	\$800.00
	94	Parking area to be regraded, ripped, seeded and planted this area is made of fill about 6 ft deep	BLM	2.5	ACRE	\$25,000.00	\$62,500.00
		Copco Cove					
	95	Concrete total	BLM	84	CY	\$300.00	\$25,200.00
		Boat ramp: 80'x25'x1' (74 CY)					
		Dock abutment: 14'x5'x3' (8 CY)					
		6 Concrete sign bases (2 CY)					
	96	Dock abutment railing made of 2.5" dia. steel pipe	BLM	25	LF	\$40.00	\$1,000.00
	97	Signs to be removed and hauled away	BLM	6	EA	\$300.00	\$1,800.00
	98	Wood plank tables to be removed and hauled away	BLM	2	EA	\$100.00	\$200.00
	99	Regrade, rip, seed and plant disturbed areas	BLM	2.3	ACRE	\$25,000.00	\$57,500.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL							\$187,100.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  Renee Snyder 4/14/11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  Renee Snyder 4/14/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable SUMMARY				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\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					\$1,530,500.00
		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: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$37,000,000.00
		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	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	Craig A. Brush, P.E.	<i>[Signature]</i> 09-18-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	04/18/11	<i>[Signature]</i> 4/20/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge taken from Iron Gate Reservoir. Barge is used to modify diversion tunnel intake structure. Barge is also used to remove spillway gates, piers, bridge and concrete in spillway crest. Barge is located on reservoir for approximately 5 months.	86-68130	1	ls		\$350,000.00
	2	Remove Sediment from Diversion Tunnel Intake to provide access. Requires removing sediment 115 feet deep using clamshell or suction dredge.	86-68130	30	cy	\$2,000.00	\$60,000.00
	3	Furnish, Install, and Remove Large Crane on Right Abutment. Crane used to deliver equipment and materials and to remove waste materials as required. Crane in place for 4 months.	86-68130	1	ls		Included in the mobilization item
	4	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	200,000	gale		DELEED
	5	Riprap Protection on Cofferdam. Riprap protects cofferdam from diversion tunnel releases.	86-68130	260	cy		DELEED
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		DELEED
SUBTOTAL THIS SHEET							\$410,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED 11/18/10	PEER REVIEW / DATE Tom Hepler 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 Copco No. 1 Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	7	Remove Current Diversion Tunnel Plug <i>Plug located in the middle of the tunnel</i> <i>Reinforced concrete</i> <i>Tunnel work</i>	86-68130	195	yd3	\$1,500.00	\$292,500.00
	8	Construct Embankment Cofferdam in Tailrace to remove Powerhouse in dry. <i>Assumes 10 ft wide crest with 2:1 side slopes, approximately 250 ft long and up to 12 ft high.</i> <i>Embankment material taken from Iron Gate Dam Removal, approximately 10 mile haul distance.</i>	86-68130	1,700	yd3		DELETED
SUBTOTAL THIS SHEET							\$292,500.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 04-22-11
DATE PREPARED 11/18/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

FEATURE:		PROJECT:			
Klamath River Dams Removal Partial Removal Option Copco No. 1 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\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 <i>Elev. 2476 represents original streambed channel at downstream face of dam. Concrete in foundation to remain. Spillway crest at Elev. 2593.5. Includes concrete in dam, spillway crest, piers (390 cy), bridge deck (72 cy) and left abutment. Concrete is reinforced. 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. Assume ten notches, 12 ft deep, alternating sides with five on each side for removal of final 60 feet of dam. Each notch overlaps the previous alternating notch in 6 foot lifts. Each notch is approximately 20 ft wide with an average 6 ft thickness to be removed by blasting below reservoir surface.</i>	86-68130	36,000	yd3	\$300.00	\$10,800,000.00
	11	Remove Concrete Intake Structure on Right Abutment <i>Includes concrete in gate houses and headworks for units 1 and 2.</i>	86-68130	21,000	yd3		DELETED
	12	Remove Structural Steel from Spillway <i>Includes rails, misc. steel Does not include spillway gates Assume contains paint with heavy metals. By barge and crane</i>	86-68130	55,000	lbs	\$1.00	\$55,000.00
	13	Install Diversion Tunnel Plugs <i>Plug upstream (6 cy) and downstream ends Assume 2' thick each</i>	86-68130	24	yd3	\$1,200.00	\$28,800.00
	14	Remove Diversion Tunnel Control Structure <i>Concrete Includes guide boxes Assume reinforced</i>	86-68130	350	yd3		DELETED
SUBTOTAL THIS SHEET							\$10,883,800.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED DAN 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 DCE 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
	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\Summmary	

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		DELETED
	20	3 - 72" butterfly valves (embedded) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lb		DELETED
	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					\$429,500.00

QUANTITIES		PRICES	
BY K. Converse 10/28/10	CHECKED T Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED November 18, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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 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\Ssummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	22	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	23	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		DAM SUBTOTAL					\$11,320,300.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grash, P.E.	CHECKED  04-22-11
DATE PREPARED 11/18/10	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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	24	Remove Powerhouse Concrete down to top of rock under the PH, Elev. 2482.75 (USGS datum). Local datum is converted to USGS datum by adding 2411 feet. (Elev. 71.75 + 2411 = Elev. 2482.75.) All concrete is reinforced. Includes all exterior & interior walls, columns, & beams, and concrete in foundations for transformers	86-68130	3,100	yd3		DELETED
	25	Remove Powerhouse Structural Steel Roof truss members, purlins, and crane rail. Assume contains paint with heavy metals.	86-68130	110,000	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 09-22-11
DATE PREPARED 11/18/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

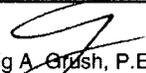
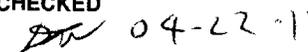
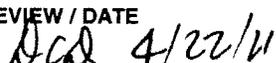
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	26	2— Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	38,000	lb		DELETED
	27	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products) (encased in concrete)	86-68420	11,000	lb		DELETED
	28	4— Horizontal Tandem Francis Turbines (includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	452,000	lb		DELETED
	29	2— 40 Ton indoor cranes Includes crane and rail, not steel rail base (Assume contains paint with heavy metals & petroleum products)	86-68420	140,000	lb		DELETED
	30	Compressed Air system (Assume contains paint with heavy metals & petroleum products)	86-68420	1,000	lb		DELETED
	31	2— CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	3,100	lb		DELETED
	32	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	2,600	lb		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES				PRICES			
BY K. Converse	CHECKED T Turnage	BY <i>[Signature]</i>	CHECKED <i>[Signature]</i> 04-22-11				
		Craig A. Grish, P.E.					
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11				

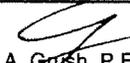
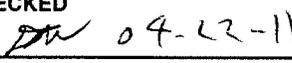
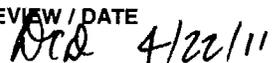
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	33	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	5,400	lb		DELETED
	34	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	27,000	lb		DELETED
	35	Drainage Piping (Assume contains paint with heavy metals)	86-68420	5,000	lb		DELETED
	35A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 28, Units 1 & 2, both east & west turbine bearings and generator bearings. DTE heavy oil, 280 gal. per unit, 560 gal. total. From Item 26, Units 1 & 2, governor oil sumps and accumulator tanks. Hydraulic oil, 340 gal. per unit, 680 gal. total. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	1,250	gal	\$10.00	\$12,500.00
SUBTOTAL THIS SHEET							\$12,500.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY 	CHECKED  04-22-11
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: 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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	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		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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\Ssummary
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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	1	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	1	EA		DELETED
	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		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, 4,165 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	1	EA		DELETED
		SUBTOTAL THIS SHEET					\$10,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 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 Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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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:					
	49	40-Ton Travelling Crane control equipment (5 cubicles), Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	50	40-Ton Travelling Crane Fostoon Cable (approx. 200 lin. Ft. cable) Total weight approximately: 800 lbs.	86-68430	1	EA		DELETED
	51	Four 15-Ton Overhead Crane motors - hoist (10Hp*), hoist trolley (5Hp*), gantry (2-5Hp*) (Hp* Approx.) Total weight approximately: 350 lbs.	86-68430	1	EA		DELETED
	52	15-Ton Overhead Crane control equipment (1 cubicle), Total weight approximately: 100 lbs.	86-68430	1	EA		DELETED
	53	15-Ton Overhead Crane Fostoon Cable (approx. 100 lin. Ft. cable) Total weight approximately: 250 lbs.	86-68430	1	EA		DELETED
	53A	Remove Oil from Oil-filled Step-up Transformers. From Item 46, four transformers (includes one spare) @ 1,500 gallons each. From Item 47, four transformers (includes one spare) @ 1,175 gallons each.	86-68430	10,500	gal	\$10.00	\$105,000.00
SUBTOTAL THIS SHEET							\$105,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 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 Copco No. 1 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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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							\$256,200.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 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 Copco No. 1 Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	63	Remove gate house #1 from top of dam	86-68130	570	#2		DELETED
	64	Remove gate house #2 from top of dam	86-68130	690	#2		DELETED
	65	Remove Concrete Items associated with 10-foot diameter Penstocks, concrete is reinforced	86-68130	1,050	yd3		DELETED
	66	Plug 14-foot diameter penstock with concrete Plug upstream and downstream ends Assume 2' thick each	86-68130	23	yd3		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED 12/08/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

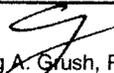
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\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
		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		DELETED
	68	8 Water Gates (Assume contains paint with heavy metals)	86-68420	18,000	lb		DELETED
	69	3 - 30"Ø x 25' stand pipes (Assume contains paint with heavy metals)	86-68420	6,000	lb		DELETED
	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		DELETED
	71	10' Ø penstock pipe (includes intake and main conduit) (Assume contains paint with heavy metals)	86-68420	270,000	lb		DELETED
		PENSTOCK SUBTOTAL					

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY  Craig A. Grish, P.E.	CHECKED  04-22-11
DATE PREPARED 11/19/10	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 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	
	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\SSummary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	73	SPRING GROUND SEEDING: 420 acres	86-68220	420	Acres	\$3,500.00	\$1,470,000.00
		Idaho fescue (Festuca idahoensis)	1680	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1680	lbs	PLS		
		Small fescue (Vulpia microstachys)	1680	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2520	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	210	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	105	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1680	lbs	PLS		
		California brome (Bromus carinatus)	3360	lbs	PLS		
		Squirreltail (Elymus elymoides)	1680	lbs	PLS		
		Wood mulch	840000	lbs			
		Tackifier	50400	lbs			
	74	SPRING BARGE SEEDING: 82 acres	86-68220	82	Acres	\$6,500.00	\$533,000.00
		Idaho fescue (Festuca idahoensis)	328	lbs	PLS		
		Blue wildrye (Elymus glaucus)	328	lbs	PLS		
		Small fescue (Vulpia microstachys)	328	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	492	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	41	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	21	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	328	lbs	PLS		
		California brome (Bromus carinatus)	656	lbs	PLS		
		Squirreltail (Elymus elymoides)	328	lbs	PLS		
		Wood mulch	164000	lbs			
		Tackifier	9840	lbs			
SUBTOTAL THIS SHEET							\$2,003,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/11	BY  Craig A. Gush, P.E.	CHECKED  04-22-11
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 Copco No. 1 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\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
		WATER AND ENVIRONMENTAL					
	75	SPRING AERIAL SEEDING: 300 acres	86-68220	300	Acres	\$7,500.00	\$2,250,000.00
		Idaho fescue (Festuca idahoensis)	1200	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1200	lbs	PLS		
		Small fescue (Vulpia microstachys)	1200	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1800	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	150	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	75	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1200	lbs	PLS		
		California brome (Bromus carinatus)	2400	lbs	PLS		
		Squirreltail (Elymus elymoides)	1200	lbs	PLS		
		Wood mulch	600000	lbs			
		Tackifier	36000	lbs			
	76	FALL GROUND SEEDING: 401 acres	86-68220	401	Acres	\$3,500.00	\$1,403,500.00
		Idaho fescue (Festuca idahoensis)	1604	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1604	lbs	PLS		
		Small fescue (Vulpia microstachys)	1604	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2406	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	201	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	100	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1604	lbs	PLS		
		California brome (Bromus carinatus)	3208	lbs	PLS		
		Squirreltail (Elymus elymoides)	1604	lbs	PLS		
		Wood mulch	123385	lbs			
		Tackifier	7403	lbs			
		SUBTOTAL THIS SHEET					\$3,653,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/11	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 04-22-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 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 <i>[Signature]</i> 4/22/11

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Road Improvements		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 Estimated haul distance 1 mile. Disposed concrete estimated to be 10' deep and traffic compacted (50% bulking factor). For Copco 1 and Copco 2	86-68313	5.5	acre	\$6,000.00	\$33,000.00
	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 50% contingency for excavation 100% contingency for backfill	86-68313	320	ton	\$100.00	\$32,000.00
		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 Assume the 2 lane county road from I-5 to the Copco Dams will be overlayed after construction with chip seal.	86-68313	19	mi	\$40,000.00	\$760,000.00
		ROAD IMPROVEMENTS SUBTOTAL					\$2,883,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 09-22-11
DATE PREPARED 11/29/10	PEER REVIEW / DATE Daniel W. Osmun 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE DCD 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Recreational Facilities to be Removed	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
		Mallard Cove					
	89	Concrete total	BLM	106	CY	\$300.00	\$31,800.00
		Boat ramp: 100'x25'x1' (93 CY)					
		Dock abutment: 6'x8'x3' (6 CY)					
		8 Concrete wheel stops (0.5 CY)					
		4 Campfire ring foundations (1 CY)					
		6 Concrete sign bases (3 CY)					
		3 Concrete fire rings (2 CY)					
	90	25'x5' Dock made of composite decking and poly floats	BLM	1	EA	\$2,500.00	\$2,500.00
	91	20'x5' Gangway w/ aluminum frame and railings	BLM	1	EA	\$2,000.00	\$2,000.00
	92	Signs to be removed and hauled away	BLM	6	EA	\$300.00	\$1,800.00
	93	Wood plank tables to be removed and hauled away	BLM	8	EA	\$100.00	\$800.00
	94	Parking area to be regraded, ripped, seeded and planted this area is made of fill about 6 ft deep	BLM	2.5	ACRE	\$25,000.00	\$62,500.00
		Copco Cove					
	95	Concrete total	BLM	84	CY	\$300.00	\$25,200.00
		Boat ramp: 80'x25'x1' (74 CY)					
		Dock abutment: 14'x5'x3' (8 CY)					
		6 Concrete sign bases (2 CY)					
	96	Dock abutment railing made of 2.5" dia. steel pipe	BLM	25	LF	\$40.00	\$1,000.00
	97	Signs to be removed and hauled away	BLM	6	EA	\$300.00	\$1,800.00
	98	Wood plank tables to be removed and hauled away	BLM	2	EA	\$100.00	\$200.00
	99	Regrade, rip, seed and plant disturbed areas	BLM	2.3	ACRE	\$25,000.00	\$57,500.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL							\$187,100.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grash, P.E.	CHECKED [Signature] 04-22-11
DATE PREPARED 11/19/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE [Signature] 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 <hr/> 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\SSummary
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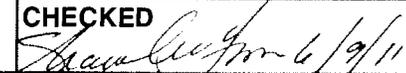
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		1,453,800	CY	\$0.00	\$0.00
		Diversion and Care					\$1,310,000.00
		Dam Removal					\$11,320,300.00
		Powerhouse/Switchyard/Transmission Line Removal					\$256,200.00
		Penstock Removal					\$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 (assumes 3%/yr compounding over 10 years)					\$9,256,544.00
		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: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	65%	+/-			\$31,000,000.00
		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. Grush, P.E.	CHECKED [Signature] 04-22-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE [Signature] 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Life Cycle - 50 Year Summary	PROJECT: Klamath River Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: Jul-10
	FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\02 - Copco 2\MP\Copco 2 Probable.xlsx\Life Cycle Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$216,040.00
		Periodic Costs - Year 8					\$119,410.50
		Periodic Costs - Year 17					\$110,660.00
		Periodic Costs - Year 25					\$60,063.30
		Periodic Costs - Year 33					\$57,956.80
		Periodic Costs - Year 42					\$30,211.50
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance					\$967,383.00
		(Assumes gov't service / construction contracts)					
		Subtotal 1					\$1,561,725.10
		Mobilization	5%	+/-			\$78,000.00
		Subtotal 1 with Mobilization					\$1,639,725.10
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					\$563,927.90
		at 3.0% per year for 120 months.					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$2,203,653.00
		Design Contingencies	10%	+/-			\$196,347.00
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$2,400,000.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$2,400,000.00
		CONTRACT COST					\$2,400,000.00
		Construction Contingencies	20%	+/-			\$500,000.00
		FIELD COST					\$2,900,000.00
		Non-Contract Costs	30%	+/-			\$900,000.00
		(Environmental Cultural / Mitigation ~ 7%, Engineering Design ~ 5%, Maintenance Service Contract ~ 5%					
		Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$3,800,000.00

Note: initial estimate completed 4/17/11, revised non-contract costs 5/12/11, design contingency costs 6/9/11
 Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC: 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Atkins	CHECKED  6/9/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 6/9/11	PEER REVIEW / DATE  6/13/11

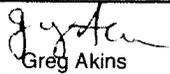
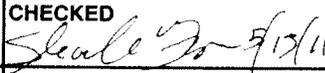
FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Life Cycle		Klamath River Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: Jul-10
		FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\02 - Copco 2\MP\Copco 2 Probable.xlsx\Life Cycle Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Furnish, install, and maintain a 7-foot-high chain link fence on all four sides of the powerhouse (assume a double 12ft wide gate for vehicle access) (assume replace two times)	86-68130	500	lf	\$60.00	\$30,000.00
	2	Repaint exposed portion of penstocks (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2% area</i>	86-68130	18,300	ft2	\$4.50	\$82,350.00
	3	Repaint sloping trashrack at penstock intake (quantity based on repainting all four sides of each 4" by 1/2" bar in trashrack, 48-ft-wide by 32-ft-high vertical opening, includes top plate) (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2% area</i>	86-68130	8,900	ft2	\$5.00	\$44,500.00
	4	Repaint gratings at penstock intake (quantity based on repainting all four sides of each 5/16" by 2 1/4" bar in grating, assume repaint five times) <i>Estimate assume minor paint repair ~ 2% area</i>	86-68130	1,300	ft2	\$7.50	\$9,750.00
	5	Repaint caterpillar gate (assume access available to both sides of gate, assume repaint five times)	86-68130	1,800	ft2	\$7.50	\$13,500.00
	6	Repaint caterpillar gate hoist structure (assume repaint five times) <i>Estimate assume minor paint repair ~ 2% area</i>	86-68130	1,400	ft2	\$7.50	\$10,500.00
	7	Repaint trashrake superstructure (assume repaint five times) <i>Estimate assume minor paint repair ~ 2% area</i>	86-68130	370	ft2	\$12.00	\$4,440.00
	8	Furnish, install, and maintain a 7-foot-high chain link fence on all four sides of penstock intake structure (assume single 3ft wide gate for access) (assume replace two times)	86-68130	350	lf	\$60.00	\$21,000.00
LIFE CYCLE SUBTOTAL							\$216,040.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Akins</i> Greg Akins	CHECKED <i>5/13/11</i>
DATE PREPARED 03/21/11	PEER REVIEW / DATE Tom Hepler P.E. 3/24/11	DATE PREPARED <i>5/13/11</i>	PEER REVIEW / DATE <i>5/13/11</i>

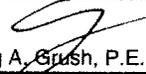
FEATURE: Klamath River Dams Removal Partial Removal Option Removal Site Maintenance Most Probable Life Cycle - 50 Year Operation and Maintenance - Periodic Costs	PROJECT: Klamath River Oregon	
	WOID: AF484	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: Jul-10
	FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\02 - Copco 2\MP\Copco 2 Probable.xlsx\Template Sheet 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Site Maintenance - Annual: Copco 2 Site only*		1	LS	\$46,000.00	\$46,000.00
		Labor needed per year - threes sites:	86-68130	120	mdy**		
		3-Man maintenance crew					
		6 Months active inspection/maintenance					
		2 Weeks full time (1 month each spring)					
		4 Full days, 2 times each month (5 months)					
		Site maintenance required at JC Boyle, Copco 1 & Copco 2					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Equipment needed per year	86-68130	40	dy***		
		1-Service truck					
		Includes compressor, welder, generator and general tools					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Materials needed per year (percentage of labor & equipment)	86-68130	15%			
		Road maintenance needed per year (percentage of labor & equipment)	86-68130	10%			
		*Total estimated cost for all 3 sites is approximately \$161,000 annually: prorated ±30% for Copco 2 site					
		** Man days per year for 50 years					
		***Days per year for 50 years					
SUBTOTAL THIS SHEET							\$46,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED 
DATE PREPARED 04/18/11	PEER REVIEW / DATE Tom Hepler P.E. 4/18/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE  5/13/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Construct and Remove Embankment Cofferdam to Remove Right Side of Dam. 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.	86-68130	3,100	cy	\$85.00	\$263,500.00
	2	Furnish, Install and Remove Riprap Upstream cofferdam 280 cy Downstream cofferdam 185 cy	86-68130	465	cy	\$150.00	\$69,750.00
	3	Provide Dewatering behind Cofferdams Assume two 3 inch portable trash pump operating for approximately 4 months.	86-68130	1	ls		\$45,000.00
	4	Remove Water from behind Cofferdams Upstream cofferdam 230,000 gals Downstream cofferdam 11,000 gals Assume 3 inch portable trash pump	86-68130	241,000	gals	\$0.01	\$2,410.00
	5	Construct and Remove Embankment Cofferdam to Remove Left Side of Dam. 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.	86-68130	1,100	cy	\$85.00	\$93,500.00
	6	Furnish, Install and Remove Riprap Reuse riprap from right side cofferdam.	86-68130	250	cy	\$150.00	\$37,500.00
SUBTOTAL THIS SHEET							\$511,660.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Sheena Barnes	BY  Craig A. Grush, 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 Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	7	Provide Dewatering behind Left Side Cofferdam Assume 3 inch portable trash pump operating for approximately 4 months.	86-68130	1	ls		\$45,000.00
	8	Remove Water from behind Cofferdam Assume 3 inch portable trash pump	86-68130	36,000	gals	\$0.05	\$1,800.00
	9	Remove Water from behind Tailrace Cofferdam Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump	86-68130	400,000	gals	\$0.01	\$4,000.00
	10	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$35,000.00
	11	Construct Embankment Cofferdam across Tailrace to remove Powerhouse in dry. Assumes 10 ft wide crest with 2:1 side slopes, approximately 110 ft long and 12 ft high. Embankment material taken from Iron Gate Dam Removal, approximately 10 mile haul distance.	86-68130	1,700	yd3	\$85.00	\$144,500.00
		SUBTOTAL THIS SHEET					\$230,300.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 10/19/10	PEER REVIEW / DATE Tom Hepler P.E. 10/20/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerplant Access Road Bridge	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Appraisal <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	12	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft ² of deck for similar concrete bridge at Upper San Joaquin priced out in 2000.	86-68130	7,440	ft ²		Deleted
	13	Remove and dispose of existing bridge. Bridge is approximately 231 feet long. Consists of 4 steel girder spans: One @ 40', one @ 75', one @ 56', one @ 60'. Timber deck (15'-16' wide) with wood running planks. Rails and wheel guards along both sides are timber. Two piers are concrete, third pier appears to be timber posts. Assume wood is pressure treated. Assume girders contain paint with heavy metals.	86-68130	1	ls		Deleted
DIVERSION AND CARE SUBTOTAL							\$741,960.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Grish, P.E.	CHECKED 04-14-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE 4/14/11

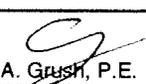
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Dam. Reinforced concrete in ogee overflow section and in D/S apron and sidewalls, gate piers, hoist deck, & north wingwall (on right side, upstream of dam).	86-68130	4,400	yd3	\$315.00	\$1,386,000.00
	15	Remove concrete equipment slab from top of embankment wing dam on right abutment.	86-68130	5	yd3	\$215.00	\$1,075.00
	16	Remove Concrete Wingwall. Located on left side of spill tunnel outfall channel. Assume wall is unreinforced concrete.	86-68130	220	yd3	\$215.00	\$47,300.00
		SUBTOTAL THIS SHEET					\$1,434,375.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  09-14-11
DATE PREPARED 10/19/10	PEER REVIEW / DATE Rick Benik P.E. 10/19/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

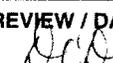
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to remove the earth fill embankment and concrete cutoff wall of Copco 2 Dam to original ground surface.					
		Right Abutment Removal					
	17	Random Fill	86-68313	1,200	yd3	\$15.00	\$18,000.00
	18	Remove Hand Placed Riprap average size 12-inches, 8 inches thick	86-68313	7,800	ft2	\$1.00	\$7,800.00
	19	Gunite Curtain Wall similar to a concrete cutoff wall remove to 5' below excavated grade.	86-68313	210	yd3	\$215.00	\$45,150.00
		SUBTOTAL THIS SHEET					\$70,950.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED  09-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

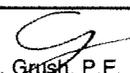
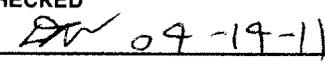
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath 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
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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:					
	20	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lb	\$0.85	\$4,250.00
	21	Radial Gates and Hoists 5 radial gates, 2 hoists (2,900 lbs. each) (Assume contains paint with heavy metals & petroleum products)	86-68420	66,000	lb	\$0.85	\$56,100.00
	22	5 - Radial Gate stoplogs & slots (steel) (stoplog slots embedded in concrete ~1,500 lb each) (Assume contains paint with heavy metals)	86-68420	95,800	lb	\$0.85	\$81,430.00
SUBTOTAL THIS SHEET							\$141,780.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY  Craig A. Grush, 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 Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	23	Spillway intake gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	24	Spillway radial gate motors & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	25	Spillway trashrake motor, festoon cable & control Total weight approximately: 100 lbs.	86-68430	1	EA	\$500.00	\$500.00
	26	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$4,500.00	\$4,500.00
		DAM SUBTOTAL					\$1,654,105.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  DW 09-19-11
DATE PREPARED 10/19/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE  RCD 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 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	27	Remove Copper Shingles from Roof of Powerhouse for Recycling.	86-68130	7,000	ft2	\$2.50	\$17,500.00
	28	Remove Powerhouse Concrete down to springline 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		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED DW 04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE RKL 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 <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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 seperator 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 <hr/> 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
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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:					
	45	AC Generator, Indoor Vertical Unit 1 & 2 ea: 15 MVA (13.5 MW); 0.9PF, 6,600V, 171.5 RPM, 3 Ph, including rotating exciter Total weight each approximately: 230,000 lbs. Stator: 113,000 lbs., Rotor: 117,000 lbs. Exciter Assembly: 3,260 lbs. Heaviest lift: 117,000 lbs.	86-68430	2	EA	\$125,000.00	\$250,000.00
	46	Excitation equipment for 15 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	2	EA	\$6,000.00	\$12,000.00
	47	Surge protection equip. for 15 MVA Generator Total weight approximately: 800 lbs.	86-68430	2	EA	\$2,000.00	\$4,000.00
	48	Neutral grounding equip. for 15 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$2,000.00	\$4,000.00
SUBTOTAL THIS SHEET							\$270,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  04-14-11
DATE PREPARED 10/19/10	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 Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	49	Generator Switchgear, 7.2kV-includes unit breaker (2 Sections @ 2,400 lbs each section) 3 ft x 7.5 ft x 95 inches high Total weight approximately: 4,800 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	50	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	51	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	52	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
	53	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
	54	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
		SUBTOTAL THIS SHEET					\$85,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grass, P.E.	CHECKED  04-14-11
DATE PREPARED 10/19/10	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 Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

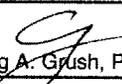
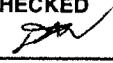
FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath 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. <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	\$215.00	\$322,500.00
	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. 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>	86-68130	1,300	yd3	\$215.00	\$279,500.00
	63	Place Concrete Plugs for Tunnels. <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: Tunnel No. 1, Sta. 0+20; Upper portal is a 16-ft dia., concrete-lined, horseshoe shape. 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. 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.</i>	86-68130	100	yd3	\$1,200.00	\$120,000.00
SUBTOTAL THIS SHEET							\$722,000.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grish, P.E.	CHECKED DK 07-19-11
DATE PREPARED 10/19/10	PEER REVIEW / DATE Rick Benik P.E. 10/19/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE DK 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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
	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	\$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. Grush, P.E.	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
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 (assumes 3%/yr compounding over 10 years)					\$3,046,036.00
		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: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$8,500,000.00
		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 DOD 4/20/11

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Diversion and Care		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. 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.	86-68130	3,100	cy	\$85.00	\$263,500.00
	2	Furnish, Install and Remove Riprap Upstream cofferdam 280 cy Downstream cofferdam 185 cy	86-68130	465	cy	\$150.00	\$69,750.00
	3	Provide Dewatering behind Cofferdams Assume two 3 inch portable trash pump operating for approximately 4 months.	86-68130	1	ls		\$45,000.00
	4	Remove Water from behind Cofferdams Upstream cofferdam 230,000 gals Downstream cofferdam 11,000 gals Assume 3 inch portable trash pump	86-68130	241,000	gals	\$0.01	\$2,410.00
	5	Construct and Remove Embankment Cofferdam to Remove Left Side of Dam. 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.	86-68130	1,100	cy	\$85.00	\$93,500.00
	6	Furnish, Install and Remove Riprap Reuse riprap from right side cofferdam.	86-68130	250	cy	\$150.00	\$37,500.00
SUBTOTAL THIS SHEET							\$511,660.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 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 <i>[Signature]</i> 4/22/11

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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	7	Provide Dewatering behind Left Side Cofferdam Assume 3 inch portable trash pump operating for approximately 4 months.	86-68130	1	ls		\$45,000.00
	8	Remove Water from behind Cofferdam Assume 3 inch portable trash pump	86-68130	36,000	gals	\$0.05	\$1,800.00
	9	Remove Water from behind Tailrace Cofferdam Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump	86-68130	400,000	gals		DELETED
	10	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	4	ls		DELETED
	11	Construct Embankment Cofferdam across Tailrace to remove Powerhouse in dry. Assumes 10 ft wide crest with 2:1 side slopes, approximately 110 ft long and 12 ft high. Embankment material taken from Iron Gate Dam Removal, approximately 10 mile haul distance.	86-68130	1,700	yd3		DELETED
		SUBTOTAL THIS SHEET					\$46,800.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 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 <i>[Signature]</i> 4/22/11

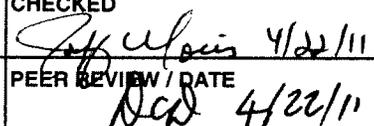
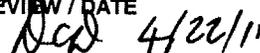
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerplant Access Road Bridge	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Appraisal <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	12	Construct 240-ft long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft ² of deck for similar concrete bridge at Upper San Joaquin priced out in 2000.	86-68130	7,440	ft ²		DELETED
	13	Remove and dispose of existing bridge. Bridge is approximately 231 feet long. Consists of 4 steel girder spans: One @ 40', one @ 75', one @ 56', one @ 60'. Timber deck (15'-16' wide) with wood running planks. Rails and wheel guards along both sides are timber. Two piers are concrete, third pier appears to be timber posts. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	1	ls		DELETED
DIVERSION AND CARE SUBTOTAL							\$558,460.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Grush, P.E.	CHECKED Tom Hepler 4/22/11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE Stephen Latham 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Dam. Reinforced concrete in ogee overflow section and in D/S apron, left sidewall, right sidewall , gate piers, hoist deck, & north wingwall (on right side, upstream of dam) .	86-68130	4,200	yd3	\$315.00	\$1,323,000.00
	15	Remove concrete equipment slab from top of embankment wing dam on right abutment.	86-68130	5	yd3	\$215.00	\$1,075.00
	16	Remove Concrete Wingwall. Located on left side of spill tunnel outfall channel. Assume wall is unreinforced concrete.	86-68130	220	yd3	\$215.00	\$47,300.00
		SUBTOTAL THIS SHEET					\$1,371,375.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  4/22/11
DATE PREPARED 11/19/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

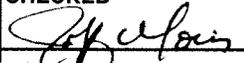
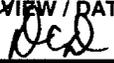
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to remove the earth fill embankment and concrete cutoff wall of Copco 2 Dam to original ground surface.					
		Right Abutment Removal					
	17	Random Fill	86-68313	1,200	yd3		DELETED
	18	Remove Hand Placed Riprap average size 12 inches, 8 inches thick	86-68313	7,800	ft2		DELETED
	19	Gunite Curtain Wall similar to a concrete cutoff wall remove to 5' below excavated grade.	86-68313	210	yd3		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 4/22/11
DATE PREPARED 11/19/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

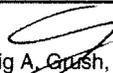
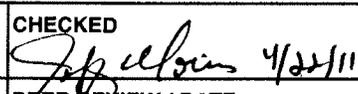
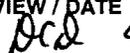
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	20	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lb	\$0.85	\$4,250.00
	21	Radial Gates and Hoists 5 radial gates, 2 hoists (2,900 lbs. each) (Assume contains paint with heavy metals & petroleum products)	86-68420	66,000	lb	\$0.85	\$56,100.00
	22	5 - Radial Gate stoplogs & slots (steel) (stoplog slots embedded in concrete ~1,500 lb each) (Assume contains paint with heavy metals)	86-68420	95,800	lb	\$0.85	\$81,430.00
SUBTOTAL THIS SHEET							\$141,780.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY  Craig A. Grush, P.E.	CHECKED  4/22/11
DATE PREPARED 11/19/10	PEER REVIEW / DATE Dan Drake 12/16/10	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 Dam	PROJECT: Klamath River Northern California/Southern Oregon
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	23	Spillway intake gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	24	Spillway radial gate motors & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	25	Spillway trashrake motor, festoon cable & control Total weight approximately: 100 lbs.	86-68430	1	EA	\$500.00	\$500.00
	26	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$4,500.00	\$4,500.00
		DAM SUBTOTAL					\$1,520,155.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  4/22/11
DATE PREPARED 11/19/10	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

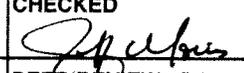
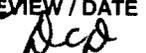
FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF121	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		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
		CIVIL					
		Concrete and Structural Steel Items:					
	27	Remove Copper Shingles from Roof of Power-house for Recycling.	86-68130	7,000	ft2		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 [Signature] 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 [Signature] 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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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		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 separator 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 	CHECKED 
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

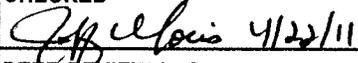
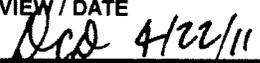
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following petroleum products at or near the Power House:					
	44A	Remove Petroleum Products from Mechanical Equipment.	86-68420	3,300	gal	\$10.00	\$33,000.00
		Includes quantities for the following equipment: From Item 35, Units 1 & 2, bearing oil systems. DTE heavy oil, 470 gal. per unit, 940 gal. total. From Item 31, Units 1 & 2, governor oil sumps and accumulator tanks. Hydraulic oil, 1,200 gal. per unit, 2,400 gal. total. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.					
	44B	Remove Petroleum Products at or near the Power House.	86-68420	2,000	gal	\$10.00	\$20,000.00
		Includes quantities for the following: Oil supply storage area drums. New oil, approx. 7 drums @ 55 gal. Oil storage area drums. New and used oil, approx. 2 drums @ 55 gal. Convault fuel tanks. Diesel fuel tank @ 500 gal., Gasoline tank @ 1,000 gal. Tanks to remain on-site.					
		SUBTOTAL THIS SHEET					\$53,000.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY <i>Craig A. Grush P.E.</i>	CHECKED <i>Jeff Lewis</i> 4/22/11
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/10	DATE PREPARED 4/22/11	PEER REVIEW / DATE <i>DED</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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	45	AC Generator, Indoor-Vertical Unit 1 & 2 ea: 15 MVA (13.5 MW); 0.9PF, 6,600V, 171.5 RPM, 3 Ph, including rotating exciter Total weight each approximately: 230,000 lbs. Stator: 113,000 lbs., Rotor: 117,000 lbs. Exciter Assembly: 3,260 lbs. Heaviest lift: 117,000 lbs.	86-68430	2	EA		DELETED
	46	Excitation equipment for 15 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	2	EA		DELETED
	47	Surge protection equip. for 15 MVA Generator Total weight approximately: 800 lbs.	86-68430	2	EA		DELETED
	48	Neutral grounding equip. for 15 MVA Generator includes transformer Total weight approximately: 600 lbs.	86-68430	2	EA		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	CHECKED  4/22/11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/16/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

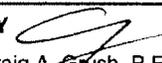
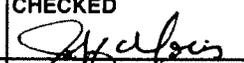
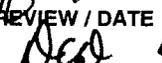
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	49	Generator Switchgear, 7.2kV- includes unit breaker (2 Sections @ 2,400 lbs each section) 3 ft x 7.5 ft x 95 inches high- Total weight approximately: 4,800 lbs.-	86-68430	1	EA		DELETED
	50	Station Service Switchgear, 600 volt (5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high- Total weight approximately: 2,000 lbs.-	86-68430	1	EA		DELETED
	51	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high- Total weight approximately: 2,000 lbs.-	86-68430	1	EA		DELETED
	52	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
	53	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		DELETED
	54	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		DELETED
SUBTOTAL THIS SHEET							\$10,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grysh, P.E.	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/15/10	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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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	4	EA		DELETED
	56	40-Ton Travelling Crane control equipment (5 cubic feet), Total weight approximately: 500 lbs.	86-68430	4	EA		DELETED
	57	40-Ton Travelling Crane Festoon 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: 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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment from switchyard:	86-68430				
	58A	Remove Oil from Oil-filled Step-up Transformers. From Item 56, six transformers @ 1,700 gallons each. From Item 57, two transformers @ 6,220 gallons each. (Note that three single-phase transformers were replaced with two 3-phase transformers.)	86-68430	23,000	gal	\$10.00	\$230,000.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$306,625.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>Craig A. Grush, P.E.</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 12/08/10	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 4/22/2011	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

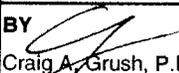
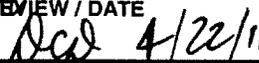
FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Copco 2\Klamath Dams Removal - COPCO 2 - 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:					
	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. 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>	86-68130	1,300	yd3		DELETED
	63	Place Concrete Plugs for Tunnels. <i>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.</i>	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 [Signature] 4/22/11
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE [Signature] 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Copco No. 2 Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the intake:					
	66	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 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/10	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 SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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 (assumes 3%/yr compounding over 10 years)					\$1,398,739.00
		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: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	65%	+/-			\$4,800,000.00
		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 [Signature] 4/22/11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE [Signature] 4/22/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate 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\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					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$200,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12-inch diameter HDPE pipe.	86-68130	150	#		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,500.00	\$46,500.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$215.00	\$645.00
	5	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals	\$0.01	\$3,000.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$35,000.00
SUBTOTAL THIS SHEET							\$285,145.00

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

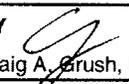
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Appraisal <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft ² of deck for similar concrete bridge at Upper San Joaquin priced out in 2000.	86-68130	7,440	#2		DELETED
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	+	ls		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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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							\$3,494,445.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Brush, 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: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate 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\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\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. 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.	86-68130	580	yd3	\$215.00	\$124,700.00
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure. Remove concrete upstream of Sta. 3+00. Concrete removal requires a dive depth of 150 feet.	86-68130	530	yd3	\$215.00	\$113,950.00
	16	Remove Concrete in Diversion Tunnel Gate Tower. Remove concrete down to elev. 2254.	86-68130	410	yd3	\$215.00	\$88,150.00
	17	Remove Steel Footbridge to Gate Tower. This bridge provides access from the dam crest to the gate tower for the diversion tunnel. Assume contains paint with heavy metal.	86-68130	13,000	lbs	\$0.85	\$11,050.00
	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. 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.	86-68130	43	yd3	\$1,200.00	\$51,600.00
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 [Signature] 07-19-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE [Signature] 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate 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\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Rec Fac Removal		

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

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED  09-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 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 Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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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. Stem weight is 50 lbs/ft. (Assume contains paint with heavy metals & petroleum products)	86-68420	7,500	lbs	\$0.85	\$6,375.00
SUBTOTAL THIS SHEET							\$84,400.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	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 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.xls\Rec Fac Removal			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	4,650	lbs	\$2.00	\$9,300.00
	33	Transition Gate Structure Flap Gate- 96 in. Dia. With 4 ft. pipe Total weight approximately: (Assume contains paint with heavy metals) Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	30,250	lbs	\$2.00	\$60,500.00
	35	Outlet Works Stop Logs Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately: (Assume contains paint with heavy metals)	86-68420	2,670	lbs	\$0.85	\$2,269.50
SUBTOTAL THIS SHEET							\$72,069.50

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

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate 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\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
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$350.00	\$350.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$1,700.00	\$1,700.00
	38	Power Cable and 4" Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$35.00	\$28,000.00
		DAM SUBTOTAL					\$14,159,019.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>CAG</i> Craig A. Grush, P.E.	CHECKED <i>SW</i> 09-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>NSD</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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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 Crane is presently used at J. C. Boyle	86-68420	24,000	lbs	\$0.85	\$20,400.00
		(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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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.xls\Rec Fac Removal
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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 <i>DN</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>DCO</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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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:	86-68420	19,291	lbs	\$0.85	\$16,397.35
		(Assume contains paint with heavy metals & petroleum products)					
	50	Unwatering Piping- Various sizes of piping and valves					
		Total weight approximately:	86-68420	19,291	lbs	\$0.85	\$16,397.35
		(Assume contains paint with heavy metals)					
	51	Drainage Piping- Various sizes of piping and valves					
		Total weight approximately:	86-68420	9,518	lbs	\$0.85	\$8,090.30
		(Assume contains paint with heavy metals)					
	52	Transformer Oil and Fire Protection- 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 & petroleum products)					
	53	Compressed Air System- Various sizes of piping and valves					
		Total weight approximately:	86-68420	1,450	lbs	\$0.85	\$1,232.50
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$49,922.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 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 Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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.xls\Rec Fac Removal
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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:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,500 lbs. Stator: 124,600 lbs., Rotor: 189,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA	\$125,000.00	\$125,000.00
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA	\$4,000.00	\$4,000.00
	58	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
SUBTOTAL THIS SHEET							\$173,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>Cy</i> Craig A. Grush, P.E.	CHECKED <i>DK</i> 09-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>ACD</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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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:					
	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: 9,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	62	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
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA	\$250.00	\$500.00
	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					\$42,900.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

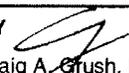
FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\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:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$215.00	\$98,900.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$215.00	\$180,600.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$215.00	\$408,500.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure. Assume contains paint with heavy metals.	86-68130	11,000	lbs	\$0.85	\$9,350.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$215.00	\$1,075.00
SUBTOTAL THIS SHEET							\$698,425.00

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: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Power Conduit (Penstock):					
	76	Intake Structure-					
		Wheel Gate- 16.75 ft. H. x 22.33 ft. W. Gate weight approximately: 30,000 lbs					
		Wheel Gate Hoist- 2-6-in. Dia. Hydraulic Cylinders Wheel gate hoist weight approx: 10,000 lbs					
		Framework- I-Beam framework securing hoists Total framework weight approx: 10,000 lbs					
		Trash rack- 17.5 ft. W. x 45.75 ft. H. Trashrack weight approximately: 44,400 lbs					
		Stop logs- Total logs weight approximately: 29,250 lbs Total guide weight approximately: 3,600 lbs					
		Slide Gate- 30-in. W. x 42-in. H. Slide Gate weight approximately: 3,240 lbs					
		Sluice Gate- 12-in. W. x 12-in. H. Sluice Gate weight approximately: 1,140 lbs					
		Total weight approximately:	86-68420	131,630	lbs	\$0.85	\$111,885.50
		(Assume contains paint with heavy metals & petroleum products)					
	77	Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Stem weight 45 lbs/ft.	86-68420	1,800	lbs	\$0.85	\$1,530.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$113,415.50

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  09-14-11
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 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\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 Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,350	lbs	\$0.85	\$1,147.50
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,600	lbs	\$0.85	\$1,360.00
		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. (Assume contains paint with heavy metals)	86-68420	1,300	lbs	\$0.85	\$1,105.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,440	lbs	\$0.85	\$6,324.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft. (Assume contains paint with heavy metals)	86-68420	294,428	lbs	\$0.85	\$250,263.80
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft. (Assume contains paint with heavy metals)	86-68420	12,850	lbs	\$0.85	\$10,922.50
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	18,000	lbs	\$0.85	\$15,300.00
SUBTOTAL THIS SHEET							\$287,538.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 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
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,500.00	\$2,500.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$70,000.00	\$70,000.00
		PENSTOCK SUBTOTAL					\$1,172,878.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 07-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING: 370 acres	86-68220	370	Acres	\$3,500.00	\$1,295,000.00
		Idaho fescue (Festuca idahoensis)	1578	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1578	lbs	PLS		
		Small fescue (Vulpia microstachys)	1578	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2366	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	197	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	99	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1578	lbs	PLS		
		California brome (Bromus carinatus)	3155	lbs	PLS		
		Squirreltail (Elymus elymoides)	1578	lbs	PLS		
		Wood mulch	788760	lbs			
		Tackifier	47326	lbs			
	90	SPRING BARGE SEEDING: 296 acres	86-68220	296	Acres	\$6,500.00	\$1,924,000.00
		Idaho fescue (Festuca idahoensis)	1262	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1262	lbs	PLS		
		Small fescue (Vulpia microstachys)	1262	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1893	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	158	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	79	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1262	lbs	PLS		
		California brome (Bromus carinatus)	2524	lbs	PLS		
		Squirreltail (Elymus elymoides)	1262	lbs	PLS		
		Wood mulch	631008	lbs			
		Tackifier	37860	lbs			
SUBTOTAL THIS SHEET							\$3,219,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>CG</i> Craig A. Grush, P.E.	CHECKED <i>EW</i> 04-14-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>NCA</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING: 159 acres	86-68220	159	Acres	\$7,500.00	\$1,192,500.00
		Idaho fescue (Festuca idahoensis)	460	lbs	PLS		
		Blue wildrye (Elymus glaucus)	460	lbs	PLS		
		Small fescue (Vulpia microstachys)	460	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	691	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	58	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	29	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	460	lbs	PLS		
		California brome (Bromus carinatus)	921	lbs	PLS		
		Squirreltail (Elymus elymoides)	460	lbs	PLS		
		Wood mulch	230233	lbs			
		Tackifier	13814	lbs			
	92	FALL GROUND SEEDING: 413 acres	86-68220	413	Acres	\$3,500.00	\$1,445,500.00
		Idaho fescue (Festuca idahoensis)	1650	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1650	lbs	PLS		
		Small fescue (Vulpia microstachys)	1650	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2475	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	206	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	103	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1650	lbs	PLS		
		California brome (Bromus carinatus)	3300	lbs	PLS		
		Squirreltail (Elymus elymoides)	1650	lbs	PLS		
		Wood mulch	126923	lbs			
		Tackifier	7615	lbs			
SUBTOTAL THIS SHEET							\$2,638,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	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 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.xls\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 (<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 O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Crush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	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 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\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					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Estimated haul distance 1 1/4 mile. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor).	86-68313	29	acre	\$6,000.00	\$174,000.00
		Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers					
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	13,500	yd3	\$40.00	\$540,000.00
	99	Clear and grub, 40' width for 1 mile	86-68313	5	acre	\$6,000.00	\$30,000.00
	100	4' thick gravel surfacing	86-68313	5,300	ton	\$70.00	\$371,000.00
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$1,115,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	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	
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. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$60.00	\$48,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$60.00	\$65,280.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$215.00	\$204,250.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$215.00	\$90,300.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$215.00	\$81,700.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders. Assume contains paint with heavy metals.</i>	86-68130	12,000	lbs	\$0.85	\$10,200.00
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.	<i>[Signature]</i> 09-19-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
11/02/10	Rick Benik P.E. 11/2/10	04/14/11	<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	
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.xls\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> 07-17-11
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: 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 <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$20.00	\$5,200.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$50.00	\$1,250.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to wase area by truck</i>	86-68313	53,000	yd3	\$13.00	\$689,000.00
SUBTOTAL THIS SHEET							\$695,450.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 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 Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Fish Structures:					
	117	Intake Structures Trashracks- 8.5ft. W. x 10.75 ft. H.					
		Trashracks weight approximately:	86-68420	5,000	lbs	\$0.75	\$3,750.00
	118	Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft. Pipe Weight 80 lbs/ft. (Assume contains paint with heavy metals)	86-68420	76,640	lbs	\$0.85	\$65,144.00
	119	Sluice Gate Valve- 30-in. H. x x30-in. W. Gate weight Approximately: 3,000 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	3,000	lbs	\$0.85	\$2,550.00
SUBTOTAL THIS SHEET							\$71,444.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 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					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	360	lbs	\$0.85	\$306.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	2,435	lbs	\$0.85	\$2,069.75
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,200	lbs	\$0.85	\$6,120.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft. (Assume contains paint with heavy metals)	86-68420	15,872	lbs	\$0.85	\$13,491.20
	123	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft. (Assume contains paint with heavy metals)	86-68420	4,505	lbs	\$0.85	\$3,829.25
	124	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft. (Assume contains paint with heavy metals)	86-68420	29,088	lbs	\$0.85	\$24,724.80
	125	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft. (Assume contains paint with heavy metals)	86-68420	6,972	lbs	\$0.85	\$5,926.20
SUBTOTAL THIS SHEET							\$56,467.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  09-14-11
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 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.xls\Rec Fac Removal			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	126	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft. (Assume contains paint with heavy metals)	86-68420	2,176	lbs	\$0.85	\$1,849.60
	127	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,932	lbs	\$0.85	\$1,642.20
	128	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft. (Assume contains paint with heavy metals)	86-68420	3,588	lbs	\$0.85	\$3,049.80
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,088	lbs	\$0.85	\$924.80
	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: (Assume contains paint with heavy metals & petroleum products)	86-68420	21,792	lbs	\$0.85	\$18,523.20
SUBTOTAL THIS SHEET							\$25,989.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 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.xls\Rec Fac Removal

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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

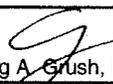
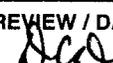
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT 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 <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

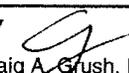
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: 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.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Fish Facilities:					
	139	Misc: motors, control panels, cables and conduit Total weight approximately: 800 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
		FISH SPAWNING FACILITY SUBTOTAL					\$1,662,033.80

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  09-14-11
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	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
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$300.00	\$8,400.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$40.00	\$2,400.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$20.00	\$2,500.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$25,000.00	\$62,500.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$300.00	\$900.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$20.00	\$1,500.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$300.00	\$5,700.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$100.00	\$3,200.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$100.00	\$800.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$300.00	\$1,200.00
	151	Dock pipe railing	BLM	50	LF	\$40.00	\$2,000.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$20.00	\$5,000.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$20.00	\$2,000.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$25,000.00	\$50,000.00
		SUBTOTAL THIS SHEET					\$148,600.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 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 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.xls\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 DCW 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 DCW 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Reservoir Most Probable	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.xls\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$300.00	\$26,700.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$100.00	\$16,000.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$20.00	\$6,000.00
	175	Double pipe railings on dock		80	LF	\$40.00	\$3,200.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$25,000.00	\$75,000.00
	178	Signs to be removed and hauled away		7	EA	\$300.00	\$2,100.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$300.00	\$300.00
	180	Steel frame table to be removed and hauled away		1	EA	\$100.00	\$100.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$25,000.00	\$12,500.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$300.00	\$7,500.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$100.00	\$200.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$25,000.00	\$1,250.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL							\$520,725.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED <i>Don</i> 09-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>DCD</i> 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 <hr/> 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
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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 (assumes 3%/yr compounding over 10 years)					\$12,124,687.00
		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: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$35,000,000.00
		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. Grush, P.E.	CHECKED [Signature] 04-18-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE [Signature] 4/20/11

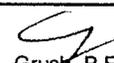
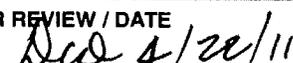
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath 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
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal.	86-68130	1	ls		\$200,000.00
		Barge is used for removal of existing closure gates and installation of new roller gate.					
		Barge is located on reservoir for approximately 1 week.					
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure.	86-68130	150	#		DELETED
		Installation requires a dive depth of approximately 150 feet.					
		Air vent consists of 12-inch diameter HDPE pipe.					
	3	Remove Reinforced Concrete Ring.	86-68130	31	cy	\$1,500.00	\$46,500.00
		Located just downstream of closure gate and upstream of flap gate.					
		Tunnel work					
	4	Remove Reinforced Concrete Stoplog Structure.	86-68130	3	cy	\$215.00	\$645.00
		Located at downstream end of diversion tunnel.					
	5	Remove Water from behind Tailrace Cofferdam.	86-68130	300,000	gals		DELETED
		Unwatering of tailrace for removal of the powerhouse in the dry.					
		Assume 3 inch portable trash pump operating for 1 day.					
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry.	86-68130	1	ls		DELETED
		Assume 3 inch portable trash pump operating for approximately 3 months.					
		SUBTOTAL THIS SHEET					\$247,145.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/19/11	PEER REVIEW / DATE Tom Hepler P.E. 2/19/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

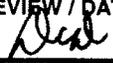
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath 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
		CIVIL					
	8	Construct 240-ft long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft ² of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	7,440	ft ²		DELETED
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	4	ls		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  Dec 4/22/11

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

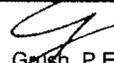
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx)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. Grish, P.E.	CHECKED <i>MA</i>
DATE PREPARED 02/19/11	PEER REVIEW / DATE Rick Benik P.E. 2/22/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>

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

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grish, P.E.	CHECKED 
DATE PREPARED 11/24/10	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 Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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					
		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. Stem weight is 50 lbs/ft. (Assume contains paint with heavy metals & petroleum products)	86-68420	7,500	lbs	\$0.85	\$6,375.00
		SUBTOTAL THIS SHEET					\$84,400.00

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

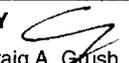
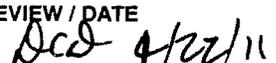
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Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam				Klamath River Northern California/Southern Oregon			
WOID:		AF121		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				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
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	4,650	lbs	\$2.00	\$9,300.00
	33	Transition Gate Structure Flap Gate - 06 in. Dia. With 4 ft. pipe Total weight approximately: (Assume contains paint with heavy metals) Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	30,250	lbs	\$2.00	\$60,500.00
	35	Outlet Works Stop Logs Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately: (Assume contains paint with heavy metals)	86-68420	2,670	lbs	\$0.85	\$2,269.50
SUBTOTAL THIS SHEET							\$72,069.50

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	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 Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$350.00	\$350.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$1,700.00	\$1,700.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$35.00	\$28,000.00
		DAM SUBTOTAL					\$14,159,019.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	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 Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx: (Assume contains paint with heavy metals & petroleum products)	86-68420	344,058	lbs		DELETED
	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: (Assume contains paint with heavy metals)	86-68420	16,500	lbs		DELETED
		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 Crane is presently used at J. C. Boyle (Assume contains paint with heavy metals & petroleum products)	86-68420	24,000	lbs		DELETED
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	20,310	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	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 Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs		DELETED
	45	CO2 System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	2,568	lbs		DELETED
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,182	lbs		DELETED
	47	Sump Pumps- 2 Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately: (Assume contains petroleum products)	86-68420	2,000	lbs		DELETED
	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: (Assume contains paint with heavy metals & petroleum products)	86-68420	22,000	lbs		DELETED
		SUBTOTAL THIS SHEET					

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

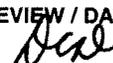
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	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. Tumage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

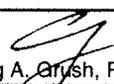
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	54	AC Generator, Outdoor Horizontal 18.075 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,500 lbs. Stator: 124,600 lbs., Rotor: 180,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA		DELETED
	55	Excitation equipment for 18.075 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA		DELETED
	56	Surge protection equip. for 18.075 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA		DELETED
	57	Neutral grounding equip. for 18.075 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	58	Station Service Switchgear, 600-volt (5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. 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 
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 Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
		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: 9,000 lbs.	86-68430	1	EA		DELETED
	62	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		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 Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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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:					
	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							\$179,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>CAG</i> Craig A. Grush, P.E.	CHECKED <i>MA</i>
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>SCD</i> 4/22/11

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Iron Gate 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\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.dsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$215.00	\$98,900.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$215.00	\$180,600.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$215.00	\$408,500.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure. Assume contains paint with heavy metals.	86-68130	11,000	lbs	\$0.85	\$9,350.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$215.00	\$1,075.00
SUBTOTAL THIS SHEET							\$698,425.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, 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 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 Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,350	lbs	\$0.85	\$1,147.50
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,600	lbs	\$0.85	\$1,360.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells- 10-in. Dia. STD x 32 ft. weights 41 lbs/ft. 12-in. Dia. STD x 26 ft. weights 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,312	lbs	\$0.85	\$1,115.20
			86-68420	1,300	lbs	\$0.85	\$1,105.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,440	lbs	\$0.85	\$6,324.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft. (Assume contains paint with heavy metals)	86-68420	294,428	lbs	\$0.85	\$250,263.80
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft. (Assume contains paint with heavy metals)	86-68420	12,850	lbs	\$0.85	\$10,922.50
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	18,000	lbs	\$0.85	\$15,300.00
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 DCD 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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,500.00	\$2,500.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$70,000.00	\$70,000.00
PENSTOCK SUBTOTAL							\$1,172,878.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

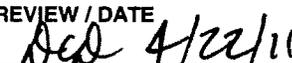
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: 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
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING: 370 acres	86-68220	370	Acres	\$3,500.00	\$1,295,000.00
		Idaho fescue (Festuca idahoensis)	1578	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1578	lbs	PLS		
		Small fescue (Vulpia microstachys)	1578	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2366	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	197	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	99	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1578	lbs	PLS		
		California brome (Bromus carinatus)	3155	lbs	PLS		
		Squirreltail (Elymus elymoides)	1578	lbs	PLS		
		Wood mulch	788760	lbs			
		Tackifier	47326	lbs			
	90	SPRING BARGE SEEDING: 296 acres	86-68220	296	Acres	\$6,500.00	\$1,924,000.00
		Idaho fescue (Festuca idahoensis)	1262	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1262	lbs	PLS		
		Small fescue (Vulpia microstachys)	1262	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1893	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	158	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	79	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1262	lbs	PLS		
		California brome (Bromus carinatus)	2524	lbs	PLS		
		Squirreltail (Elymus elymoides)	1262	lbs	PLS		
		Wood mulch	631008	lbs			
		Tackifier	37860	lbs			
		SUBTOTAL THIS SHEET					\$3,219,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/11	BY <i>[Signature]</i> Craig A. Crush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/03/11	PEER REVIEW / DATE	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 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\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
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING: 159 acres	86-68220	159	Acres	\$7,500.00	\$1,192,500.00
		Idaho fescue (Festuca idahoensis)	460	lbs	PLS		
		Blue wildrye (Elymus glaucus)	460	lbs	PLS		
		Small fescue (Vulpia microstachys)	460	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	691	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	58	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	29	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	460	lbs	PLS		
		California brome (Bromus carinatus)	921	lbs	PLS		
		Squirreltail (Elymus elymoides)	460	lbs	PLS		
		Wood mulch	230233	lbs			
		Tackifier	13814	lbs			
	92	FALL GROUND SEEDING: 413 acres	86-68220	413	Acres	\$3,500.00	\$1,445,500.00
		Idaho fescue (Festuca idahoensis)	1650	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1650	lbs	PLS		
		Small fescue (Vulpia microstachys)	1650	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2475	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	206	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	103	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1650	lbs	PLS		
		California brome (Bromus carinatus)	3300	lbs	PLS		
		Squirreltail (Elymus elymoides)	1650	lbs	PLS		
		Wood mulch	126923	lbs			
		Tackifier	7615	lbs			
		SUBTOTAL THIS SHEET					\$2,638,000.00

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

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		
	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
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 O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

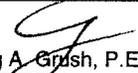
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath 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
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Estimated haul distance 1 1/4 mile. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor). Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers	86-68313	29	acre	\$6,000.00	\$174,000.00
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	13,500	yd3	\$40.00	\$540,000.00
	99	Clear and grub, 40' width for 1 mile	86-68313	5	acre	\$6,000.00	\$30,000.00
	100	4' thick gravel surfacing	86-68313	5,300	ton	\$70.00	\$371,000.00
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$1,115,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/24/10	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 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	
	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
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$60.00	\$48,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$60.00	\$65,280.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$215.00	\$204,250.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$215.00	\$90,300.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$215.00	\$81,700.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders. Assume contains paint with heavy metals.</i>	86-68130	12,000	lbs	\$0.85	\$10,200.00
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

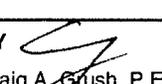
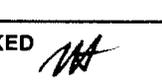
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath 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
		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 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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$20.00	\$5,200.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$50.00	\$1,250.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to wase area by truck</i>	86-68313	53,000	yd3	\$13.00	\$689,000.00
		SUBTOTAL THIS SHEET					\$695,450.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/24/10	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 Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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					
		Remove and dispose of the following equipment of the Fish Structures:					
	117	Intake Structures Trashracks- 8.5ft. W. x 10.75 ft. H. Trashracks weight approximately:	86-68420	5,000	lbs	\$0.75	\$3,750.00
	118	Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft. Pipe Weight 80 lbs/ft. (Assume contains paint with heavy metals)	86-68420	76,640	lbs	\$0.85	\$65,144.00
	119	Sluice Gate Valve- 30-in. H. x 30-in. W. Gate weight Approximately: 3,000 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	3,000	lbs	\$0.85	\$2,550.00
SUBTOTAL THIS SHEET							\$71,444.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

FEATURE:				PROJECT:			
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility				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					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	360	lbs	\$0.85	\$306.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	2,435	lbs	\$0.85	\$2,069.75
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,200	lbs	\$0.85	\$6,120.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft. (Assume contains paint with heavy metals)	86-68420	15,872	lbs	\$0.85	\$13,491.20
	123	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft. (Assume contains paint with heavy metals)	86-68420	4,505	lbs	\$0.85	\$3,829.25
	124	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft. (Assume contains paint with heavy metals)	86-68420	29,088	lbs	\$0.85	\$24,724.80
	125	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft. (Assume contains paint with heavy metals)	86-68420	6,972	lbs	\$0.85	\$5,926.20
		SUBTOTAL THIS SHEET					\$56,467.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Crush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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					
	126	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft. (Assume contains paint with heavy metals)	86-68420	2,176	lbs	\$0.85	\$1,849.60
	127	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,932	lbs	\$0.85	\$1,642.20
	128	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft. (Assume contains paint with heavy metals)	86-68420	3,588	lbs	\$0.85	\$3,049.80
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,088	lbs	\$0.85	\$924.80
	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: (Assume contains paint with heavy metals & petroleum products)	86-68420	21,792	lbs	\$0.85	\$18,523.20
SUBTOTAL THIS SHEET							\$25,989.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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					
	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. Gash, 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

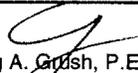
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath 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					
	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. Tumage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	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 <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
		ELECTRICAL					
		Remove and dispose of the following equipment at the Fish Facilities:					
	139	Misc: motors, control panels, cables and conduit Total weight approximately: 800 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
		FISH SPAWNING FACILITY SUBTOTAL					\$1,662,033.80

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	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	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
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$300.00	\$8,400.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$40.00	\$2,400.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$20.00	\$2,500.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$25,000.00	\$62,500.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$300.00	\$900.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$20.00	\$1,500.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$300.00	\$5,700.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$100.00	\$3,200.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$100.00	\$800.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$300.00	\$1,200.00
	151	Dock pipe railing	BLM	50	LF	\$40.00	\$2,000.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$20.00	\$5,000.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$20.00	\$2,000.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$25,000.00	\$50,000.00
		SUBTOTAL THIS SHEET					\$148,600.00

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 Reservoir Most Probable	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\SSummary		

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 <i>[Signature]</i> Craig A. Grush, 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:				PROJECT:			
Klamath River Dams Removal Partial Removal Option Iron Gate Reservoir Most Probable				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			

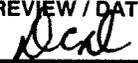
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$300.00	\$26,700.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$100.00	\$16,000.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$20.00	\$6,000.00
	175	Double pipe railings on dock		80	LF	\$40.00	\$3,200.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$25,000.00	\$75,000.00
	178	Signs to be removed and hauled away		7	EA	\$300.00	\$2,100.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$300.00	\$300.00
	180	Steel frame table to be removed and hauled away		1	EA	\$100.00	\$100.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$25,000.00	\$12,500.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$300.00	\$7,500.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$100.00	\$200.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$25,000.00	\$1,250.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL							\$520,725.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED 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 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 (assumes 3%/yr compounding over 10 years)					\$11,360,075.00
		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: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	65%	+/-			\$38,000,000.00
		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. Grush, P.E.	CHECKED 
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/03/11

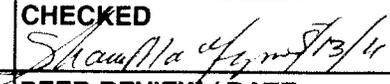
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable 50 Year Life Cycle Summary		PROJECT: Klamath River Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: Jul-10
		FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\MP\JC Boyle	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$348,520.00
		Periodic Costs - Year 8					\$166,451.00
		Periodic Costs - Year 17					\$165,990.00
		Periodic Costs - Year 25					\$83,724.60
		Periodic Costs - Year 33					\$86,935.20
		Periodic Costs - Year 42					\$42,113.00
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance					\$1,892,705.00
		(Assumes gov't service / construction contracts)					
		Subtotal 1					\$2,786,438.80
		Mobilization	5%	+/-			\$140,000.00
		Subtotal 1 with Mobilization					\$2,926,438.80
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					\$1,006,450.20
			at	3.0%	per year for	120	months.
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$3,932,889.00
		Design Contingencies	10%	+/-			\$367,111.00
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$4,300,000.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$4,300,000.00
		TERO Fee (__% of Total Contract)		+/-			
		Subtotal 5 = Subtotal 4 + TERO Fee					\$4,300,000.00
		CONTRACT COST					\$4,300,000.00
		Construction Contingencies	20%	+/-			\$900,000.00
		FIELD COST					\$5,200,000.00
		Non-Contract Costs	30%	+/-			\$1,600,000.00
		(Environmental Cultural / Mitigation ~ 7%, Engineering Design ~ 5%, Maintenance Service Contract ~ 5% Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$6,800,000.00
		Note: initial estimate completed 4/17/11, revised non-contract costs 5/12/11, design contingency costs 6/9/11					
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Akins</i> Greg Akins	CHECKED <i>Shawn</i> Shawn 6/9/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 6/9/11	PEER REVIEW / DATE DCD 6/13/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Life Cycle	PROJECT: Klamath River Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: Jul-10
	FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MPL MPH\03 - JC Boyle\MPL\JC Boyle	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Remove paint on downstream face of power house (assume paint contains heavy metals)	86-68130	900	ft2	\$30.00	\$27,000.00
	2	Furnish, install, and maintain a 7-foot-high chain line fence around both ends of the 14-foot diameter penstock and the intake structure (assume fence includes two 3-foot-wide access gates) (assume replace two times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,450	lf	\$60.00	\$87,000.00
	3	Repaint 14-foot-diameter penstock pipe between intake structure at dam and headgate structure (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	32,000	ft2	\$4.00	\$128,000.00
	4	Repaint rocker bent penstock pipe supports (assume repaint 5 times)	86-68130	3,000	ft2	\$6.00	\$18,000.00
	5	Repaint penstock intake structure trashracks (four separate 11.5-ft-wide by 40-ft-high openings) (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	4,200	ft2	\$6.00	\$25,200.00
	6	Repaint outside of fish screen building on top of penstock intake structure (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	3,900	ft2	\$6.00	\$23,400.00
	7	Repaint wheel gate in penstock intake structure (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	510	ft2	\$12.00	\$6,120.00
	8	Repaint wheel gate hoist frame (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	2,000	ft2	\$7.00	\$14,000.00
LIFE CYCLE SUBTOTAL: SHEET 1							\$328,720.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Atkins	CHECKED 
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE DCD 5/13/11

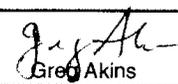
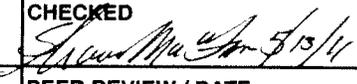
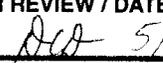
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Life Cycle	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jul-10 FILE: U:\2011
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	9	Repaint stop log storage beams & columns on intake structure and walkway (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,000	ft2	\$9.00	\$9,000.00
	10	Repaint stop logs for wheel gate (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,200	ft2	\$9.00	\$10,800.00
	11	Maintain existing 7-ft-high chain link fence around headgate structure (fence includes 12-foot-wide access gate) (assume replace two times)	86-68130	180	lf	0	0
LIFE CYCLE SUBTOTAL: SHEET 2							\$19,800.00
LIFE CYCLE TOTAL: JC BOYLE							\$348,520.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Akins</i> Greg Akins	CHECKED <i>Se Campbell</i> Se Campbell
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE <i>DCW</i> 5/13/11

FEATURE: Klamath River Dams Removal Partial Removal Option Removal Site Maintenance Most Probable Life Cycle - 50 Year Operation and Maintenance - Periodic Costs	PROJECT: Klamath River Oregon	
	WOID: AF484	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: Jul-10
	FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MPL MPL MPH\03 - JC Boyle\MPL\JC Boyle Probable.xlsx\O&M	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Site Maintenance - Annual: JC Boyle site only*		1	LS	\$90,000.00	\$90,000.00
		Labor needed per year - three sites	86-68130	120	mdy**		
		3-Man maintenance crew					
		6 Months active inspection/maintenance					
		2 Weeks full time (1 month each spring)					
		4 Full days, 2 times each month (5 months)					
		Site maintenance required at JC Boyle, Copco 1 & Copco 2					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Equipment needed per year	86-68130	40	dy***		
		1-Service truck					
		Includes compressor, welder, generator and general tools					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Materials needed per year (percentage of labor & equipment)	86-68130	15%			
		Road maintenance needed per year (percentage of labor & equipment)	86-68130	10%			
		*Total estimated cost for all 3 sites is approximately \$161,000 annually: prorated +55% for the JC Boyle site					
		** Man days per year for 50 years					
		***Days per year for 50 years					
SUBTOTAL THIS SHEET							\$90,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED  5/13/11
DATE PREPARED 04/18/11	PEER REVIEW / DATE Tom Hepler P.E. 4/18/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE  5/13/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Removal of Diversion Conduit Bulkheads. Includes removing two 9.5'x10' concrete bulkheads, one at a time by blasting. Waste in scour hole	86-68130	14	CY	\$850.00	\$11,900.00
	2	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 2 days.	86-68130	500,000	gals	\$0.01	\$5,000.00
	3	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$30,000.00
SUBTOTAL THIS SHEET							\$46,900.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY Craig A. Gush, P.E.	CHECKED
DATE PREPARED 11/01/10	PEER REVIEW / DATE Tom Hepler P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE BCD 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:					
	5	Remove Spillway Concrete 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	86-68130	2,500	yd3	\$260.00	\$650,000.00
	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 <i>MA</i>
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>Dec 4/19/11</i>

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 DCD 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$9.00	\$19,980.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$9.00	\$16,650.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$9.00	\$1,192,500.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$260.00	\$18,200.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$10.00	\$2,850.00
		SUBTOTAL THIS SHEET					\$1,250,180.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

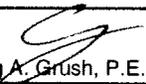
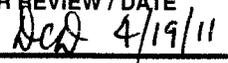
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	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
SUBTOTAL THIS SHEET							\$146,380.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE DCB 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$600.00	\$600.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		DAM SUBTOTAL					\$2,820,005.00

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: 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 <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3	\$370.00	\$555,000.00
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs	\$0.65	\$61,100.00
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$40.00	\$208,000.00
		SUBTOTAL THIS SHEET					\$824,100.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Crush, 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

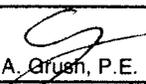
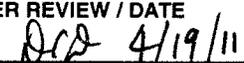
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs	\$0.65	\$34,125.00
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.65	\$4,225.00
	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	\$0.65	\$364,000.00
	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	\$0.65	\$715.00
	37	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs	\$0.65	\$4,290.00
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs	\$0.65	\$2,015.00
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.65	\$4,225.00
		SUBTOTAL THIS SHEET					\$569,595.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, 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
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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 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 	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 <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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:					
	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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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 <hr/> 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
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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 (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. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3	\$260.00	\$416,000.00
	62	Remove Fish Screen Building 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.	86-68130	1,300	ft2	\$40.00	\$52,000.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe 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.	86-68130	22,000	lbs	\$0.65	\$14,300.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe. 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	86-68130	1,100	yd3	\$260.00	\$286,000.00
	65	Remove Open Concrete Flume. 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	86-68130	26,000	yd3	\$260.00	\$6,760,000.00
		SUBTOTAL THIS SHEET					\$7,528,300.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers. Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.	86-68130	11,500	lbs	\$0.65	\$7,475.00
	67	Remove Forebay Concrete 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	86-68130	2,500	yd3	\$260.00	\$650,000.00
	68	Place Concrete Plugs at Tunnel Portals 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.	86-68130	30	yd3	\$1,000.00	\$30,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel. 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	86-68130	1,800	yd3	\$260.00	\$468,000.00
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$40.00	\$13,200.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$40.00	\$22,800.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$40.00	\$18,800.00
SUBTOTAL THIS SHEET							\$1,210,275.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.65	\$4,615.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$40.00	\$2,880.00
SUBTOTAL THIS SHEET							\$7,495.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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
		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	\$0.65	\$35,750.00
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbs	\$0.50	\$37,500.00
	77	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs	\$0.65	\$88,400.00
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products)	86-68420	124,000	lbs	\$0.65	\$80,600.00
	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	\$0.65	\$396,500.00
		SUBTOTAL THIS SHEET					\$638,750.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.65	\$10,725.00
	81	Trash rack and trash rake (steel)	86-68420	43,500	lbs	\$0.50	\$21,750.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.65	\$9,425.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals)	86-68420	1,600,000	lbs	\$0.65	\$1,040,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals)	86-68420	79,000	lbs	\$0.65	\$51,350.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lbs	\$0.65	\$96,200.00
		SUBTOTAL THIS SHEET					\$1,229,450.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 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 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals & petroleum products)	86-68420	28,000	lbs	\$0.65	\$18,200.00
	87	Steel Transition Manifolds on Upstream and Downstream	86-68420	250,000	lbs	\$0.50	\$125,000.00
		PENSTOCK SUBTOTAL					\$10,757,470.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED October 20, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING: 247 acres	86-68220	247	Acres	\$3,500.00	\$864,500.00
		Idaho fescue (Festuca idahoensis)	988	lbs	PLS		
		Blue wildrye (Elymus glaucus)	988	lbs	PLS		
		Small fescue (Vulpia microstachys)	988	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1482	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	124	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	62	lbs	PLS		
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	99	SPRING BARGE SEEDING:	86-68220		Acres		DELETED
SUBTOTAL THIS SHEET							\$864,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	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	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	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	
		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 O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Road Improvements	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
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	10	acre	\$5,000.00	\$50,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$5,000.00	\$12,000.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$30.00	\$64,500.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1-way traffic - off road dumps	86-68313	4	acre		Deleted
	101	Clear and grub, 20' width	86-68313	4	acree		Deleted
	102	4" thick gravel surfacing	86-68313	660	ton		Deleted
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	13,000	yd3	\$140.00	\$1,820,000.00
		SUBTOTAL THIS SHEET					\$1,946,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE DCD 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 <hr/> 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
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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: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$21,000,000.00
		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 Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE [Signature] 4/19/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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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. 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	86-68130	2,500	yd3	\$260.00	\$650,000.00
	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		DELETED
	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							\$1,083,505.00

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

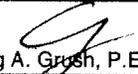
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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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		DELETED
	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		DELETED
	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							\$31,420.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$9.00	\$19,980.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$9.00	\$16,650.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$9.00	\$1,192,500.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$260.00	\$18,200.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$10.00	\$2,850.00
		SUBTOTAL THIS SHEET					\$1,250,180.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/12/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

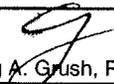
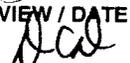
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

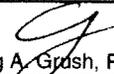
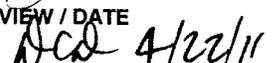
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$600.00	\$600.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		DAM SUBTOTAL					\$2,534,085.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 12, 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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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3		DELETED
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbe		DELETED
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$40.00	\$208,000.00
SUBTOTAL THIS SHEET							\$208,000.00

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

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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, sump 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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	33,000	lbe		DELETED
	41	Drainage Piping (Assume contains paint with heavy metals)	86-68420	10,000	lbe		DELETED
	42	2-Oil Sump pumps (Assume contains paint with heavy metals & petroleum products)	86-68420	2,000	lbe		DELETED
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	86-68420	65,000	lbe		DELETED
		4-Draft Tube Bulk Head Gates (12,000 lbs ea.)	48,000	lbe			
		4-Guides(2,400 lbs for the pair)	9,600	lbe			
		2-Hoist (3,700 lbs ea.)	7,400	lbe			
		(Assume contains paint with heavy metals & petroleum products)					
	43A	Remove Petroleum Products from Mechanical Equipment.	86-68420	2,700	gal	\$10.00	\$27,000.00
		Includes quantities for the following equipment: From Item 34, Units 1 & 2, bearing oil systems. DTE heavy oil, 400 gal. per unit, 800 gal. total.					
		From Item 32, Units 1 & 2, governor oil sumps and accumulator tanks. Hydraulic oil, 925 gal. per unit, 1,850 gal. total.					
		The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.					
		SUBTOTAL THIS SHEET					\$27,000.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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 3ft 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 6ft x 90 inches high Total weight approximately: 4,500 lbs.	86-68430	1	EA		DELETED
	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		DELETED
		SUBTOTAL THIS SHEET					\$400,000.00

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

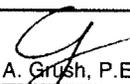
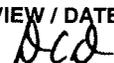
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 6 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	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	1	EA		DELETED
	53	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
		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 <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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 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							\$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

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3		DELETED
	62	Remove Fish Screen Building 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.	86-68130	1,300	#2		DELETED
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe 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.	86-68130	22,000	lbs	\$0.65	\$14,300.00
	64	Remove Concrete Items associated with the 14-ft diameter Steel Pipe. 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	86-68130	1,100	yd3		DELETED
	65	Remove Open Concrete Flume Walls. 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	86-68130	12,200	yd3	\$260.00	\$3,172,000.00
		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

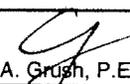
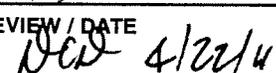
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers. Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.	86-68130	11,500	lbs	\$0.65	\$7,475.00
	67	Remove Forebay Concrete Walls 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	86-68130	1,500	yd3	\$260.00	\$390,000.00
	68	Place Concrete Plugs at Tunnel Portals 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.	86-68130	30	yd3	\$1,000.00	\$30,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel. 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	86-68130	1,800	yd3	\$260.00	\$468,000.00
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$40.00	\$13,200.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$40.00	\$22,800.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$40.00	\$18,800.00
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 DCD 4/22/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.65	\$4,615.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$40.00	\$2,880.00
SUBTOTAL THIS SHEET							\$7,495.00

QUANTITIES		PRICES	
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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	lbe		DELETED
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbe		DELETED
	77	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbe		DELETED
	78	Traveling Water Screen 4 traveling water screens 4 spray water pumps (Assume contains petroleum products)	86-68420	124,000	lbe		DELETED
	79	Fish By-Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Door Escape Flume (Assume contains paint with heavy metals)	86-68420	610,000	lbe		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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 Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.65	\$10,725.00
	81	Trash rack and trash rake (steel)	86-68420	43,500	lbs	\$0.50	\$21,750.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.65	\$9,425.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals)	86-68420	1,600,000	lbs	\$0.65	\$1,040,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals)	86-68420	79,000	lbs	\$0.65	\$51,350.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lbs		DELETED
SUBTOTAL THIS SHEET							\$1,133,250.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 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 Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals & petroleum products)	86-68420	28,000	lbs	\$0.65	\$18,200.00
	87	Steel Transition Manifolds on Upstream and Downstream	86-68420	250,000	lbs	\$0.50	\$125,000.00
	87A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 85, Units 1 & 2, butterfly valves and HPUs. Hydraulic oil, 191 gal. per valve, 382 gal. total. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	380	gal	\$10.00	\$3,800.00
		PENSTOCK SUBTOTAL					\$5,424,320.00

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

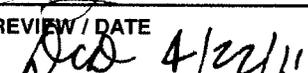
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath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

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	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. Orush, P.E.	CHECKED Blair P. Greimann
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 04/22/11	PEER REVIEW / DATE Blair P. Greimann 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					
	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 O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	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 Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> 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
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	10	acre	\$5,000.00	\$50,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$5,000.00	\$12,000.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$30.00	\$64,500.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	4	acre		DELETED
	101	Clear and grub, 20' width	86-68313	4	acres		DELETED
	102	4" thick gravel surfacing	86-68313	660	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	13,000	yd3	\$140.00	\$1,820,000.00
		SUBTOTAL THIS SHEET					\$1,946,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 12/10/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Reservoir Most Probable	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
		Topsy Recreation Site					
	108	Concrete total	BLM	68	CY	\$220.00	\$14,960.00
		Boat ramp 20'x100'x8" (55 CY)					
		Concrete abutment 7'x12'x2' (6.3 CY)					
		Fishing deck footer (6 CY)					
	109	6'x80' Floating dock made of lumber and composite decking	BLM	1	EA	\$5,000.00	\$5,000.00
	110	5'x20' Walkway leading to hex fishing platform Consists of lumber frame with composite decking and railing	BLM	200	FT ²	\$13.00	\$2,600.00
	111	Regrade to natural contour and reseed	BLM	300	FT ²	\$4.00	\$1,200.00
		Pioneer Park					
	112	Picnic tables to be removed and hauled away	BLM	12	EA	\$60.00	\$720.00
	113	12 Concrete fire rings	BLM	5	CY	\$220.00	\$1,100.00
	114	Portable toilets to be removed and hauled away	BLM	2	EA	\$1,000.00	\$2,000.00
	115	Signs to be removed and hauled away	BLM	6	EA	\$150.00	\$900.00
	116	Dumpster to be removed and hauled away	BLM	1	EA	\$1,000.00	\$1,000.00
	117	Remove paved access road	BLM	200	LF	\$250.00	\$50,000.00
	118	Regrage to natural contour, rip, plant and seed parking and recreation site	BLM	0.5	ACRE	\$20,000.00	\$10,000.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL THIS SHEET							\$89,480.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/18/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

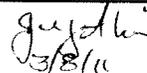
FEATURE: Klamath River Dams Removal Partial Removal Option JC Bolye Dam & Powerplant Removal Most Probable SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - 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 (assumes 3%/yr compounding over 10 years)					\$4,929,280.00
		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: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	65%	+/-			\$16,000,000.00
		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 Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE DCD 4/22/11

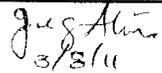
FEATURE: <p style="text-align: center;">Klamath River Dams Removal Yreka water supply Dam A modifications</p> <p style="text-align: center;">Most Probable</p>	PROJECT: <p style="text-align: center;">Klamath River Northern California/Southern Oregon</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">WOID: AF652</td> <td style="width:50%;">ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table> <p>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</p>	WOID: AF652	ESTIMATE LEVEL: Appraisal	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF652	ESTIMATE LEVEL: Appraisal				
REGION: MP	UNIT PRICE LEVEL: July-2010				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Remove & dispose steel frame with slide gates/weirs 14 ft wide x 9 ft tall, weight unknown assume contains heavy metals	86-68140	1	ea	\$6,500.00	\$6,500.00
	2	Remove & dispose by steel bulkhead panel 3'-2" ft wide x 5'-6" tall assume contains heavy metals	86-68140	1	ea	\$1,000.00	\$1,000.00
	3	Remove & dispose fish screen panels 3 ft wide x 5'-6" tall each assume contains heavy metals	86-68140	6	ea	\$1,000.00	\$6,000.00
	4	Cut, remove concrete deck 3 ft x 1'-7" x 6 in	86-68140	2.4	cf	\$150.00	\$360.00
	5	Remove & dipose wood frame building 16 ft x 12 ft with roll up door	86-68140	1	ea	\$25,000.00	\$25,000.00
	6	Furnish, install wood frame building 16 ft x 12 ft with two roll up doors 9 ft x 7 ft door, 12 ft x 7 ft door	86-68140	1	ea	\$50,000.00	\$50,000.00
	7	Furnish & install steel slide gate with pedestal lift 30" wide x 42", 500 lb ea.	86-68140	2	ea	\$4,000.00	\$8,000.00
	7a	Furnish and place concrete walls 3 @ 5-6 h x 5 w x 1 ft thick reinf. - 115 lb ea 27 #5 dowels, drill and grout		3	ey		DELETED
	7b	Extend 220v power to the site distance is about 350 ft, lots of clearing		350	lf		DELETED
	7c	Diversion & care assume 10 cfs for 40 days		1	ls		DELETED
		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 Sayer	CHECKED	BY  Craig A. Grush, P.E.	CHECKED  3/8/11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE NCE 3/9/11

FEATURE: Klamath River Dams Removal Yreka water supply Dam A 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.xls\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	8	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Inclined track length = 10 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with internal propellar drives and 12 volt DC winch	86-68410	1	ea	\$100,000.00	\$100,000.00
		Furnish and install three bulkheads, welded structural steel construction, protective coating.	86-68410				
	9a	- 3 Bulkheads, 500 lbs. ea.		1,500	lbs	\$7.50	\$11,250.00
	9b	-30 - 1/2" dia. x 9" epoxy anchors		30	ea	\$25.00	\$750.00
		DAM A MODIFICATIONS SUBTOTAL					\$208,860.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY  Craig A. Grush, P.E.	CHECKED  3/3/11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE  3/9/11

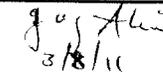
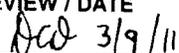
FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary
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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 & dipose 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 <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 3/8/11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>[Signature]</i> 3/9/11

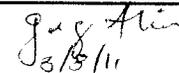
FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, 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
		MECHANICAL					
	18	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Vertical track length = 12 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with internal propellar drives and 12 volt DC winch	86-68410	1	ea	\$100,000.00	\$100,000.00
		Furnish and install bulkhead to replace trashrack, welded structural steel construction, protective coating.	86-68410				
	19a	- 1 Bulkhead, 1,200 lbs.		1,200	lbs	\$7.50	\$9,000.00
	19b	-18 - 1/2" dia. x 9" epoxy anchors		18	ea	\$25.00	\$450.00
		DAM B MODIFICATIONS SUBTOTAL					\$212,950.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY  Craig A. Grush, P.E.	CHECKED  3/8/11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE  3/9/11

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing Iron Gate Reservoir Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WIOD: 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					
	20	Three span, pre-engineered pipe support access bridge, with 7.5' box truss Span lengths are 100', 200', 100'. Support one 24" Dia. Welded steel pipe. Steel pipe and supports, Wt.=150 lbs/linear ft Water, Wt.=200 lbs/linear ft	86-68140	1	ea	\$700,000.00	\$700,000.00
		Finish & place reinforced concrete caps for abutment 1 and pier 1 (4' diameter column)					
	21	Concrete	86-68140	25	cy	\$2,500.00	\$62,500.00
	22	Reinforcement, epoxy coated Drilled shafts	86-68140	10,000	lb	\$2.00	\$20,000.00
	23	5'-0" Diameter @ pier 1 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	16	lf	\$6,000.00	\$96,000.00
	24	3'-0" Diameter @ abutment 1 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	52	lf	\$1,500.00	\$78,000.00
		SUBTOTAL THIS SHEET					\$956,500.00

QUANTITIES		PRICES	
BY Sayer	CHECKED Clough 1/11/11	BY  Craig A. Grush, P.E.	CHECKED  3/3/11
DATE PREPARED 01/10/11	PEER REVIEW / DATE Jesus Romero, PE 1/12/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE  3/9/11

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing Iron Gate Reservoir 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.xls\Summary	

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 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	16	lf	\$6,000.00	\$96,000.00
	28	3'-0" Diameter @ abutment 2 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	52	lf	\$1,500.00	\$78,000.00
	29	Remove & dispose existing steel pipe, 1/4 inch wall, 24" dia. assume contains heavy metals	86-68140	20	lf	\$50.00	\$1,000.00
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia. epoxy primer, polyurethane top coat, exterior coal-tar epoxy lined	86-68140	490	lf	\$200.00	\$98,000.00
	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 Sayer	CHECKED	BY Craig A. Grush, P.E.	CHECKED <i>J. G. Thin</i> 3/9/11
DATE PREPARED 01/10/11	PEER REVIEW / DATE	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>Doc</i> 3/9/11

FEATURE: <p style="text-align: center;">Klamath River Dams Removal Yreka water supply</p> <p style="text-align: center;">Most Probable SUMMARY</p>	PROJECT: <p style="text-align: center;">Klamath River Northern California/Southern Oregon</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID:</td> <td style="width:20%;">AF484</td> <td style="width:30%;">ESTIMATE LEVEL:</td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>MP</td> <td>UNIT PRICE LEVEL:</td> <td>July-2010</td> </tr> </table> <p>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</p>	WOID:	AF484	ESTIMATE LEVEL:	Appraisal	REGION:	MP	UNIT PRICE LEVEL:	July-2010
WOID:	AF484	ESTIMATE LEVEL:	Appraisal						
REGION:	MP	UNIT PRICE LEVEL:	July-2010						

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 (assumes 3%/yr compounding over 10 years)					\$637,590.00
		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: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$2,000,000.00
		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	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	Craig A. Grush, P.E.	<i>[Signature]</i> 04-19-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	04/19/11	<i>[Signature]</i> 4/19/11