Attachment C5

Cost Estimate Worksheets

Temperance Flat Reservoir at RM 286 (Chapter 5)

TF286_1200_RCC_1

El Co PLANT P	M286 E lev. 120 oncrete PAY FEM 1 Div Up Exc Co Ro Tot	Dam		Upper San Joa I: EVEL: E:\US_Bureau_Re _FR-EIS-EIR_(Pha	MP Regination NID Appraisa	DN II IQ_01CS20210B\/ Imation products\T	Upper_San_Joaquii SC products\Cost C 6-26-04.xls]Page AMOUNT
	PAY TEM 1 Div Up Exc Co Ro Tot	00 ee Gravity Dam (RCC) DESCRIPTION version and care of river estream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne increte Liner for Left Abutment Diversion Tunne	CODE	I: EVEL: E:\US_Bureau_Re _FR-EIS-EIR_(Pha worksheets\Group	MP Regination	DN II IIQ_01CS20210B\ IIQ_01CS20210B\ III III III IIII IIII IIII IIII IIII	SC products\Cost C 6-26-04.xls]Page
	PAY TEM 1 Div Up Exc Co Ro Tot	00 ee Gravity Dam (RCC) DESCRIPTION version and care of river estream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne increte Liner for Left Abutment Diversion Tunne	CODE	EVEL: E:\US_Bureau_Re _FR-EIS-EIR_(Pha worksheets\Group	Appraisa clamation\ID ase_2)\Recla 1 - July04\[F	II IIQ_01CS20210B\ Imation products\T RM286@1200 RC UNIT	SC products\Cost C 6-26-04.xls]Pag
CC PLANT P	PAY TEM 1 Div Exc Co Ro Tot	Version and care of river Instream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne Increte Liner for Left Abutment Diversion Tunne	CODE	EVEL: E:\US_Bureau_Re _FR-EIS-EIR_(Pha worksheets\Group	Appraisa clamation\ID ase_2)\Recla 1 - July04\[F	II IIQ_01CS20210B\ Imation products\T RM286@1200 RC UNIT	SC products\Cost C 6-26-04.xls]Pag
PLANT P	PAY FEM 1 Div Up Exc Co Ro To	DESCRIPTION version and care of river Istream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne Increte Liner for Left Abutment Diversion Tu	FILE: CODE	E:\US_Bureau_Re _FR-EIS-EIR_(Pha worksheets\Group	clamation\ID ase_2)\Recla 1 - July04\[F	IQ_01CS20210B\/ Imation products\T RM286@1200 RC UNIT	SC products\Cost C 6-26-04.xls]Pag
	TEM 1 Div Up Exc Co Ro Tot	version and care of river Istream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne Increte Liner for Left Abutment Diversion Tu	CODE	_FR-EIS-EIR_(Pha worksheets\Group	ase_2)\Recla 1 - July04\[F	Imation products\T RM286@1200 RC UNIT	SC products\Cost C 6-26-04.xls]Page
	TEM 1 Div Up Exc Co Ro Tot	version and care of river Istream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne Increte Liner for Left Abutment Diversion Tu	el	QUANTITY	UNIT	-	AMOUNT
	1 Div Up Exc Co Ro Tot	version and care of river Istream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne Increte Liner for Left Abutment Diversion Tu	el	QUANTITY	UNIT	PRICE	AMOUNT
	Up Exc Co Ro Tot	stream Cofferdam (Crest @ El. 850) cavation for Left Abutment Diversion Tunne ncrete Liner for Left Abutment Diversion Tu					
	Exc Co Ro Tot	cavation for Left Abutment Diversion Tunne ncrete Liner for Left Abutment Diversion Tu					
	Co Ro Tot	ncrete Liner for Left Abutment Diversion Tu		197,100	CY	\$20.00	\$3,942,00
	Ro Tot			147,600	CY	\$140.00	\$20,664,00
	Tot	ick Bolts - Left Abt, Div, Tunnel	unnel	25,620	CY	\$245.00	\$6,276,90
				1,600	Bolts	\$600.00	\$960,00
	Fx	tal Drilling - Left Abt. Div. Tunnel		36,800	LF	\$20.00	\$736,00
		cavation for Right Abutment Diversion Tun	nel	77,700	CY	\$140.00	\$10,878,00
	Co	ncrete Liner for Right Abutment Diversion	Funnel	17,200	CY	\$245.00	\$4,214,00
	Ro	ck Bolts - Right Abt. Div. Tunnel		1,800	Bolts	\$500.00	\$900,00
	Tot	tal Drilling - Right Abt. Div. Tunnel		32,400	LF	\$20.00	\$648,00
	Do	wnstream Cofferdam (Crest @ El. 770)		13,000	CY	\$22.00	\$286,00
	2 Ex(cavation, all classes, for dam foundation		249,800	CY	\$6.00	\$1,498,80
		C in dam		1,329,030	CY	\$38.00	\$50,503,14
		ncrete facing elements (Assume 2 ft thick)		41,220	CY	\$110.00	\$4,534,20
	5 Co	ncrete cap on top of dam		860	CY	\$250.00	\$215,00
	6 Lev	veling concrete in dam foundation (1 ft thick	()	9,990	CY	\$190.00	\$1,898,10
	7 Co	ncrete in spillway crest		2,300	CY	\$200.00	\$460,00
	0.00	e e e transferie e com lle		200		¢250.00	¢405.00
	8 00	ncrete in spillway training walls		300	CY	\$350.00	\$105,00
	9 Co	ncrete in Outlet Works Intake Structure		3,110	CY	\$265.00	\$824,15
	10 Ex	cavation of Outlet Shaft and Gate Structure		11,010	CY	\$280.00	\$3,082,80
	11 Tei	mp. Supports - Rock Bolts		390	Bolts	\$380.00	\$148,20
	12 Tot	tal Drilling for Rock Bolts		4,680	LF	\$20.00	\$93,60
	13 Co	ncrete in Outlet Shaft and Gate Structure		5,390	CY	\$440.00	\$2,371,60
	Sul	btotal					\$115,239,49
		QUANTITIES		PR	CES		
Y		CHECKED	ΒΥ		CHECKED		
S. H	Higinboth	nam		R. Baumgarten			
ATE PREPA	RED	APPROVED	DATE PR	EPARED	PEER REV	IEW	

TF286_1200_RCC_2

EATU	JRE:		31-May-	5 PROJECT:					
				Upper San Joaquin River Basin					
	RM28	6 Dam				·			
	Elev.	1200		REGIO	N:	MP Region			
	Conc	rete Gravity	Dam (RCC)	PRICE	LEVEL:	Appraisal			
				FILE:				Upper_San_Joaqui	
								TSC products\Cost	
PLANT	PAY				worksneets/Group	1 - July04 (I	UNIT	C 6-26-04.xls]Pag	
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT	
	14	Furnishing and	Handling Cement		279,744	TONS	\$90.00	\$25,176,960	
	15	Furnishing and	Handling Reinforcement		14,398,500	LBS	\$0.60	\$8,639,10	
	16	Grout Hole Dril	lilng (2" Diam, 40 % height)		10,300	LF	\$36.00	\$370,80	
	17	Foundation Gro	outing (Assume 1 sack / LF)		10,300	Sacks	\$32.00	\$329,60	
	18	Set up for Drair	Holes in Gallery (10' O.C.)		100	Holes	\$200.00	\$20,00	
	19	Drilling Drain H	oles (4" diam, 20 % dam height)		19,000	LF	\$55.00	\$1,045,00	
	20	Outlet Works T	rashracks		495,000	LBS	\$2.50	\$1,237,50	
	21	Intake Structure	e Bulkhead and Seats		96,000	LBS	\$5.00	\$480,00	
	22	Gate Chamber	Fixed Wheel Gates		1,682,000	LBS	\$5.00	\$8,410,00	
		Subtotal pg 1 Subtotal pg 2						\$115,239,49 \$45,708,96	
	<u> </u>					 		A O CO	
		Mobilization	btotals from pgs 1 and 2 + Mo	hilingtion				\$8,000,00	
			btotals from pgs 1 and 2 + Mo July 2003 to July 2004 dollars (2.			15		\$168,948,45 \$4,200,00	
		i i i i i i i i i i i i i i i i i i i	btotal 1 + Escalation)		1			\$173,148,45	
			ns (15% +/-)					\$26,851,55	
		Contract Cost						\$200,000,00	
		Contingenci	es (25% +/-)					\$50,000,00	
		Field Cost						\$250,000,00	
	1		NTITIES	-	PR	ICES		ψ230,000,00	
Y		QUAI	CHECKED	BY		CHECKED	1		
	S. Higin	botham			R. Baumgarten	CHECKED			
ATE PRI	EPARED		APPROVED	DATE PR	EPARED 05/31/05	PEER REV	/IEW Dan Donaldson		

TF286_1300_RCC_1

ODE:D-817			ESTIMATE WORI	PROJ			SHEET_1_ OF _2_			
	RM286 Dam Elev. 1300				Upper San Joaquin River Basin					
					N:	MP Region				
	Concrete Gravity Dam (RCC)			PRICE	LEVEL:	Appraisal				
						clamation\II	DIQ_01CS20210B	Upper_San_Joaqui		
				FILE:				SC products\Cost C 6-26-04.xls]Page		
PLANT	PAY						UNIT			
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT		
	1	Diversion and o								
			rdam (Crest @ El. 850)		197,100	CY	\$20.00	\$3,942,000		
			eft Abutment Diversion Tunnel		147,600	CY	\$140.00	\$20,664,00		
			or Left Abutment Diversion Tunn		25,620	CY	\$245.00	\$6,276,90		
			t Abt. Div. Tunnel		1,600	Bolts	\$600.00	\$960,000		
			eft Abt. Div. Tunnel	+	36,800	LF CY	\$20.00	\$736,00		
			Right Abutment Diversion Tunnel or Right Abutment Diversion Tun	nel	76,340	CY	\$140.00 \$245.00	\$10,687,60 \$4,140,50		
			ht Abt. Div. Tunnel		1,770	Bolts	\$243.00	\$885,00		
		×	ight Abt. Div. Tunnel		31,860	LF	\$20.00	\$637,20		
		×	fferdam (Crest @ El. 770)		15,920	CY	\$22.00	\$350.24		
								,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	2	Excavation, all c	lasses, for dam foundation		361,100	CY	\$6.00	\$2,166,60		
	3	RCC in dam			1,922,165	CY	\$35.00	\$67,275,77		
	4	Concrete facing	elements (Assume 2 ft thick)		61,780	CY	\$90.00	\$5,560,200		
	5	Concrete cap or	n top of dam		1,440	CY	\$250.00	\$360,000		
	6	Leveling concret	te in dam foundation (1 ft thick)		16,100	CY	\$185.00	\$2,978,500		
	<u> </u>							A (A A A A A A A A A A		
		Concrete in spill	way crest		2,300	CY	\$200.00	\$460,000		
		Concrete in enill			340	CY	\$350.00	¢110.000		
	0		way training walls		340		\$350.00	\$119,000		
	9	Concrete in Out	et Works Intake Structure		3,110	CY	\$265.00	\$824,15		
	Ť				0,110	0,	\$200.00	φ02 I, IO		
	10	Excavation of O	utlet Shaft and Gate Structure		11,010	CY	\$280.00	\$3,082,800		
					, , , , , , , , , , , , , , , , , , ,			. , ,		
	11	Temp. Supports	- Rock Bolts		192	Bolts	\$380.00	\$72,96		
	12	Total Drilling for	Rock Bolts		2,310	LF	\$20.00	\$46,20		
	13	Concrete in Outl	et Shaft and Gate Structure	ļ	5,910	CY	\$480.00	\$2,836,80		
				ļ						
					1		├			
				+	1					
					1					
		Subtotal		<u> </u>	1		├	\$135,062,42		
	1		TITIES	1	L PR	ICES		ψ100,002,42		
Y	S. Higin		CHECKED	вү		CHECKED)			
	Larry K.				R. Baumgarten	CHECKEL	,			
	EPARED		APPROVED		EPARED	PEER RE\	/IEW			
					05/31/05		Dan Donaldson			

TF286_1300_RCC_2

FEATL	ATURE: 31-May-0				ECT:		SHEET_2 OF2_			
					PROJECT: Upper San Joaquin River Basin					
	RM28	6 Dam								
	Elev.	1300		REGIO	N:	MP Region				
	Concrete Gravity Dam (RCC)				LEVEL:	Appraisa				
								Upper_San_Joaqui		
				FILE:				CC products\Cost C 6-26-04.xls]Page		
PLANT	PAY				worksneets\Group	i - July04\[i	UNIT	C 6-26-04.XISJPage		
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT		
						0		,		
	14	Furnishing and	I Handling Cement		399,011	TONS	\$90.00	\$35,910,990		
	15	Furnishing and	Handling Reinforcement		8,341,500	LBS	\$0.60	\$5,004,900		
	16	Grout Hole Dri	llilng (2" diam, 40% height)		24,700	LF	\$34.00	\$839,800		
	17	Foundation Gr	outing (Assume 1 sack / LF)		24,700	Sacks	\$28.00	\$691,600		
	18	Set up for Drai	n Holes in Gallery (10' O.C.)		190	Holes	\$200.00	\$38,000		
			loles (4" diam, 20% dam height)		13,300	LF	\$57.00	\$758,10		
	20	Outlet Works	Frashracks		495,000	LBS	\$2.50	\$1,237,500		
	21	Intake Structur	e Bulkhead and Seats		96,000	LBS	\$5.00	\$480,000		
	22	Gate Chambe	r Fixed Wheel Gates		1,682,000	LBS	\$5.00	\$8,410,000		
		Subtotal pg 1						\$135,062,42		
		Subtotal pg 2						\$53,370,89		
		Mobilization						\$9,400,00		
	ļ		ubtotals from pgs 1 and 2 + Mo		July 2003 dolla	rs		\$197,833,31		
		i i	July 2003 to July 2004 dollars (2	.ɔ‰ +/-)	1	┥		\$4,900,000		
			ubtotal 1 + Escalation)			┟──┤		\$202,733,31		
			ms (15% +/-)					\$27,266,68		
		Contract Cos						\$230,000,00		
		Contingenc	ies (25% +/-)					\$60,000,00		
		Field Cost			<u> </u>			\$290,000,00		
			NTITIES		PR	ICES				
Y	S. Higin	botham	CHECKED	BY	R. Baumgarten	CHECKED				
ATE PRI	EPARED		APPROVED	DATE PR	EPARED 05/31/05	PEER REV	IEW Dan Donaldson			

TF286_1400_RCC_1

CODE:D-817			ESTIMATE WOR	-			SHEET_1_ OF _2_			
FEAIL	EATURE: 31-May-05				5 PROJECT:					
	RM286 Dam Elev. 1400 Concrete Gravity Dam (RCC)				Upper San Joaquin River Basin					
					N:	MP Region Appraisal				
					LEVEL:					
				FILE:	E:\US_Bureau_Re			Upper_San_Joaquin		
								TSC products\Cost		
DIANT	DAV			-	worksheets\Group	1 - July04\[C 6-26-04.xls]Page		
PLANT	PAY						UNIT			
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT		
				_						
				_						
	1	Diversion and				-				
			rdam (Crest @ El. 850)		197,100	CY	\$20.00	\$3,942,000		
			eft Abutment Diversion Tunnel		147,600	CY	\$140.00	\$20,664,000		
		Concrete Liner f	or Left Abutment Diversion Tunr	iel	25,620	CY	\$245.00	\$6,276,900		
		1	t Abt. Div. Tunnel	_	1,600	Bolts	\$600.00	\$960,000		
		Total Drilling - Lo	eft Abt. Div. Tunnel	4	36,800	LF	\$20.00	\$736,000		
		Excavation for F	Right Abutment Diversion Tunnel		77,700	CY	\$140.00	\$10,878,000		
		Concrete Liner f	or Right Abutment Diversion Tur	nnel	17,200	CY	\$245.00	\$4,214,000		
		Rock Bolts - Rig	ht Abt. Div. Tunnel		1,800	Bolts	\$500.00	\$900,000		
		Total Drilling - R	ight Abt. Div. Tunnel		32,400	LF	\$20.00	\$648,000		
		Downstream Co	fferdam (Crest @ El. 770)		15,920	CY	\$22.00	\$350,240		
			· · · · ·							
	2	Excavation, all c	lasses, for dam foundation		519,750	CY	\$6.00	\$3,118,500		
		,			,	-		*-, -,		
	3	RCC in dam			3,680,310	CY	\$33.00	\$121,450,230		
			elements (Assume 2 ft thick)		69,580	CY	\$85.00	\$5,914,300		
		Concrete cap or			1.780	CY	\$250.00	\$445,000		
		Concrete cap of			1,700		\$200.00	φ++0,000		
	6		to in dom foundation (1 ft thick)		20,790	СҮ	\$180.00	\$3,742,200		
	0		te in dam foundation (1 ft thick)		20,790		\$180.00	φ3,742,200		
	7	Concerto in onill			0.000	<u> </u>	¢000.00	¢400.000		
		Concrete in spill	way crest		2,300	CY	\$200.00	\$460,000		
				_	450	01/	* • 5 ••••	.		
	8	Concrete in spill	way training walls	-	450	CY	\$350.00	\$157,500		
				_		-				
	9	Concrete in Out	et Works Intake Structure		3,110	CY	\$265.00	\$824,150		
	10	Excavation of O	utlet Shaft and Gate Structure		11,010	CY	\$280.00	\$3,082,800		
	11	Temp. Supports	- Rock Bolts		390	Bolts	\$380.00	\$148,200		
				_						
	12	Total Drilling for	Rock Bolts		4,680	LF	\$20.00	\$93,600		
	13	Concrete in Out	et Shaft and Gate Structure		6,420	CY	\$480.00	\$3,081,600		
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	İ			1	1					
				1	1	l				
		Subtotal		1	1	1		\$192,087,220		
	1		TITIES		PR	ICES		+··-,007,220		
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	S. Higin	boulani			R. Baumgarten		//=\			
	EPARED		APPROVED	DATE PR	EPARED	PEER REV				
					05/31/05		Dan Donaldson			

TF286_1400_RCC_2

EATU	ATURE: 31-May-05				5 PROJECT:					
				Upper San Joaquin River Basin						
	RM28	6 Dam								
	Elev. 1400				N:	MP Region				
	Concrete Gravity Dam (RCC)			PRICE	LEVEL:	Apprais	al			
		-		FILE:				\Upper_San_Joaqui		
								TSC products\Cost CC 6-26-04.xls]Page		
PLANT	PAY						UNIT			
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT		
				_						
				_						
				_						
	14	Furniching and	Handling Coment		722 402	TONS	00.003	¢cc 009 07		
	14	Furnishing and	Handling Cement		733,423	TONS	\$90.00	\$66,008,07		
	15	Furnishing and	Handling Reinforcement		18,969,000	LBS	\$0.60	\$11,381,40		
	13		rianding Reinforcement		10,303,000		ψ0.00	φ11,501, 4 0		
	16	Grout Hole Drill	ilng (2" Diam, 40 % height)		33,200	LF	\$33.00	\$1,095,60		
					, , , , , , , , , , , , , , , , , , ,					
	17	Foundation Gro	outing (Assume 1 sack / LF)		33,200	Sacks	\$25.00	\$830,00		
	18	Set up for Drair	Holes in Gallery (10' O.C/)		165	Holes	\$200.00	\$33,00		
	19	Drilling Drain H	oles (4" diam, 20 % dam height)	_	52,950	LF	\$52.00	\$2,753,40		
			<u> </u>					<u> </u>		
	20	Outlet Works T	rashracks	_	495,000	LBS	\$2.50	\$1,237,50		
	21	Intoleo Structure	Pull/hand and Costs		06.000	LBS	¢5.00	¢490.00		
	21	Intake Structure	e Bulkhead and Seats		96,000		\$5.00	\$480,00		
	22	Gate Chamber	Fixed Wheel Gates		1,682,000	LBS	\$5.00	\$8,410,00		
					,,					
		Subtotal pg 1		_				\$192,087,22		
		Subtotal pg 2						\$92,228,97		
		Mobilization						¢14.000.00		
			btotals from pgs 1 and 2 + Mo	bilization)	July 2003 dolla	irs l		\$14,000,00 \$298,316,19		
			uly 2003 to July 2004 dollars (2.)					\$7,500,00		
			btotal 1 + Escalation)					\$305,816,19		
		Unlisted Iten	<i>I</i>					\$44,183,81		
		Contract Cost						\$350,000,00		
				_						
		Contingencie	es (25% +/-)					\$90,000,00		
										
		Field Cost						\$440,000,00		
		QUAN			PR	ICES				
ŕ	e · ·	h a th a w	CHECKED	BY	D. Derman	CHECKED				
	S. Higin	botnam			R. Baumgarten					
ATE PREPARED APPROVED			APPROVED	DATE PR	EPARED 05/31/05	PEER REV	/IEW			

TF286_ADJ COSTS_1

RESERVOIR CONTRACT COST FOR VARIOUS TF286 STORAGE SIZES

Description	Amount		
1275 Foot RCC Dam, excluding Powerhouse			
1200 Foot RCC Dam (reference TF286_1200_RCC_2)	\$200,000,000		
1300 Foot RCC Dam (reference TF286_1300_RCC_2)	\$230,000,000		
Average Contract Costs for RM286 1275 Foot RCC Dam, excluding Powerhouse (Jul-2004 costs)	\$220,000,000		
Dementions to Determine Attribuatble Costs for 180MW PH and OW at RM286			
OW Portion of 300" (25) dia. Pipe, 456 ft	\$7,187,472	ow	
PH Portion of 300" (25) dia. Pipe, 194 ft	\$3,057,828		
360" dia, pipe	\$2,342,130	OW	
96" dia, pipe	\$807,360	OW	
120" dia, pipe	\$297,620	OW	
Ring follower gates	\$7,560,000	OW	
Fixed cone valves	\$4,335,000	OW	
Spherical valves	\$12,750,000	PH	
Total Pipes and Valves Cost	\$38,337,410		
Allocation of Pipe and Valves Costs Between 180MW PH and OW (Jul-2004 costs, from above)			
Cost of Valves and Pipes Allocated to PH	\$15,807,828		
Cost of Valves and Pipes Allocated to OW	\$22,529,582		
Adjustment of Pipe and Valve Allocation, scaling for capacity	Capacity (MW)		(% to OW)
(adjustment factor equivalent to sqrt of ratio of generating capacities)	180	41%	59%
	40	19%	81%
	60 80	24% 27%	76% 73%
For 1200 Foot RCC Dam with 40MW Powerhouse, Jul-2003 costs Steel pipe, from Phase 1 est. for 1200 Foot RCC Dam	\$17,602,965		
Valves, from Phase 1 est. for 1200 Foot RCC Dam	\$13,330,000		
Subtotal, pipe and valves	\$30,932,965		
Sociolar, pipe and valves Portion of pipes and valves attributable to O.W.	\$24,920,332		
Portion of pipes and valves attributable to 40MW PH	\$6,012,633		
For 1400 Foot RCC Dam with 60MW Powerhouse, Jul-2003 costs			
Steel pipe, from Phase 1 est, for 1400 Foot RCC Dam	\$28.601.115		
Valves, from Phase 1 est. for 1400 Foot RCC Dam	\$25,537,000		
Subtotal, pipe and valves	\$54,138,115		
Portion of pipes and valves attributable to O.W.	\$41,249,925		
Portion of pipes and valves attributable to 60MVV PH	\$12,888,190		

CONTRACT COST FOR OUTLET WORKS AT RM286

Description	Amount
River Outlet Works at RM 286 (1200 Foot Option)	
RM286 OW component, 2003 prices, from Phase 1 est. for RCC el. 1200	\$8,548,850
Pipes and valves attributable to O.W. (from above)	\$24,920,332
Subtotal	\$33,469,182
Mobilization (5%)	\$1,650,000
Subtotal	\$35,119,182
Unlisted items (~15%)	\$4,880,818
Contract Cost for 1200 Foot Option River Outlet Works at RM289 (Jul-2003 costs)	\$40,000,000
River Outlet Works at RM 286 (1275 and 1300 Foot Options)	
OW Cost for 1200 Foot Option (from above)	\$40,000,000
OW Cost for 1400 Foot Option (from below)	\$61,000,000
Average Contract Cost for 1275 and 1300 Foot Options River Outlet Works at RM289 (Jul-2003 costs)	\$51,000,000
River Outlet Works at RM 286 (1400 Foot Option)	
RM286 OW component, 2003 prices, from Phase 1 est. for RCC el. 1400	\$9,609,600
Pipes and valves attributable to O.W. (from above)	\$41,249,925
Subtotal	\$50,859,525
Mobilization (5%)	\$2,500,000
Subtotal	\$53,359,525
Unlisted items (~15%)	\$7,640,475
Contract Cost for 1400 Foot Option River Outlet Works at RM289 (Jul-2003 costs)	\$61,000,000

TF286_ADJ COSTS_2

CONTRACT COST FOR NEW POWERHOUSE AT RM286

Description	Amount
180MW Powerhouse, including OW and transmission at RM286	
Contract Cost (TF286_PH(180MW)+OW_1)	\$145,000,000
Construction Cost (Includes 25% contingencies and feature indirect costs, See Table C-1)	\$230,000,000
Outlet Works (1400' Option) Construction Cost (Includes 30% Contingency, 7% Price escalation, and 25% feature indirect costs. See	\$105,000,000
Construction Cost for 180MW Powerhouse w/o OW and Transmission Line (Jul-2004 costs)	\$125,000,000
150MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.91
Adjusted Construction Cost for 150MW Powerhouse w/o OW and Transmission Line (Jul-2004 costs)	\$115,000,000
160MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.94
Adjusted Construction Cost for 160MW Powerhouse w/o OW and Transmission Line (Jul-2004 costs)	\$120,000,000
170MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.97
Adjusted Construction Cost for 170MW Powerhouse w/o OW and Transmission Line (Jul-2004 costs)	\$120,000,000
NOTE: Contract Costs (in Table C-1) for RM286 PH (w/o OW and transmission) are calculated from the Construction Costs above	!
Description	Amount
Description ANWP Powerhouse at RM286 ANWP Powerhouse at RM286	Amount
MM286 PH (40MWV), 2003 prices, from Ph1 est, for CFRD el. 1200	\$87,763,065
less portion of pipes and values attributable to O.W. from below	-\$24,920,332
subtratal	\$62,842,733
Mobilization (5%)	\$3,100,000
Subtal	\$65,942,733
Unlisted items (~15%)	\$10,057,267
Contract Cost for 40MW Powerhouse at RM286 (Jul-2003 costs)	\$76,000,000
Confider Cost for Youry Foremouse at Nu200 (Survey) Costs	\$70,000,000
40MW Powerhouse (see above)	\$76,000,000
60MW Powerhouse (see below)	\$92,000,000
Average Contract Cost for 50MW Powerhouse at RM286 (Jul-2003 costs)	\$84,000,000
60MW Powerhouse at RM286	
RM286 PH (60MW), 2003 prices, from Ph1 est, for CFRD el. 1400	\$117,688,115
less portion of pipes and valves attributable to O.W., from below	-\$41,249,925
subtotal	\$76,438,190
Mobilization (5%)	\$3,800,000
Subtotal	\$80,238,190
Unlisted items (~15%)	\$11,761,810
Contract Cost for 60MW Powerhouse at RM286 (Jul-2003 costs)	\$92,000,000

CONTRACT COST FOR NEW POWERHOUSE AT MILLERTON LAKE

180MW Contrat Cost (from MILL LK_NEW PH_1) \$115,000,000

Description	Amount
170MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.97
Adjusted Contract Cost for 170MW Powerhouse at Millerton Lake (Jul-2004 costs)	\$110,000,000
185MW Powerhouse	
Conversion Factor (square root of MW ratio)	1.01
Adjusted Contract Cost for 185MW Powerhouse at Millerton Lake (Jul-2004 costs)	\$115,000,000
200MW Powerhouse	
Conversion Factor (square root of MW ratio)	1.05
Adjusted Contract Cost for 200MW Powerhouse at Millerton Lake (Jul-2004 costs)	\$120,000,000

CONTRACT COST FOR MODIFICATIONS TO KERCKHOFF NO. 2 DIVERSION INTAKE

Description	Amount
Kerckhoff No. 2 Diversion Intake (1275 and 1300 Foot Options)	
1200 Foot Option Cost (KER_PH2_DIV TNL_5)	\$20,000,000
1400 Foot Option Cost (KER_PH2_DIV TNL_7)	\$29,000,000
1275 Foot Option Interpolated Contract Cost (Jul-2004 costs)	\$23,000,000
1300 Foot Option Interpolated Contract Cost (Jul-2004 costs)	\$25,000,000

CONTRACT COST FOR KERCKHOFF NO. 2 TURBINE REPLACEMENT

186MW Turbine Replacement Cost (KER_PH2_TURB RPLC_1)	\$49,000,000
Description	Amount
140MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.88
Adjusted Contract Cost for 140MW Powerhouse Turbine Replacement (Jul-2004 costs)	\$43,000,000
155MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.93
Adjusted Contract Cost for 155MW Powerhouse Turbine Replacement (Jul-2004 costs)	\$45,000,000
160MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.94
Adjusted Contract Cost for 160MW Powerhouse Turbine Replacement (Jul-2004 costs)	\$45,000,000

TF286_SY&TRANS_1

BUREAU OF	RECLAMAT	TION ESTIMATE WO	RKSHEE	Г			SHEET_1_OF1
FEATU			PROJE	CT:			
		oaquin River Basin		Upper Sar	n Joaqui	n River Basin	
		at RM 286					
Apprai	sal Le	vel Quantity Estimates	REGION	MP	PRICE	LEVEL:	Appraisal
			FILE:	E:\US_Burea	u_Reclama	ation\IDIQ_01CS20210	B\Upper_San_Joaquin_
				FR-EIS-EIR_	(Phase_2)	Reclamation products	TSC products\Cost
Switchya	ard	REVISION		D8440latest.		ems - Nov 04\[RM 286 ard&T-Line	Powerplant -
μÅ	ПЕМ						
PLANT ACCOUNT	РАҮ ІТ	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		STRUCTURAL	D8120				
		Assume switchyard structures covered under					
		unlisted items.					
		ELECTRICAL					
		Switchyard					
		Furnish and Install:					
	1		D8440	2	EA	\$2,800,000.00	\$5,600,000.00
		transformer					
		200 MVA; 115-6.9kV, 3-phase		200	mva	\$14,000.00	\$2,800,000.00
	2	115-kV disconnect switches,	D8440	4	EA	\$40,000.00	\$160,000.00
		1200 amp, 3-phase					
	3	115-kV circuit breakers, 2000 amp	D8440	2	EA	\$250,000.00	\$500,000.00
	4	Construct Transmission Line	D8440	2	MILES	\$250,000.00	\$500,000.00
		115-kV H-frame wood-pole				, ,	
		1431 AWG conductor					
		Sheet Subtotal					\$9,560,000.00
		QUANTITIES	_			PRICES	
BY Lisa Gami	uciello	CHECKED	BY	D. Donaldsor	ı	CHECKED	
DATE PR		PEER REVIEW	DATE PRE	PARED 05/31/05		PEER REVIEW	

TF286_SY&TRANS_2

BUREAU OF	RECLAMAT	ΓΙΟΝ	ESTIMATE WORK	(SHEE		SHEET_1S_OF1		
FEATU	JRE:			PROJE	ECT:			
Upper Power	San J plant a	oaquin River Basi at RM 286	n		Upper Sar	n Joaqui	n River Basin	
		vel Quantity Estim	ates	REGION	MP	PRICE	LEVEL:	Appraisal
Switchya			REVISION	FILE:	FR-EIS-EIR	u_Reclama (Phase 2)		B\Upper_San_Joaquin_ TSC products\Cost
L Ż	Σ							
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
-								
		Subtotal (from Shee	et 1 of 1)					\$9,560,000.00
		Mobilization	+/	- 5%				\$480,000.00
		Subtotal w/ mobilizat	ion					\$10,040,000.00
		Unlisted Items	+/	- 15%				\$1,460,000.00
		CONTRACT COST						¢14 500 000 00
		CONTRACT COST						\$11,500,000.00
		Contingencies	+/	- 25%				\$3,000,000.00
								<u></u>
		FIELD COST						\$14,500,000.00
					<u> </u>			
			ANTITIES		l		PRICES	
вү			CHECKED	вү			CHECKED	
Lisa Gam	uciello				D. Donaldsor	1		
DATE PR)	PEER REVIEW	DATE PRI			PEER REVIEW	
11/1/2004					05/31/05			

BUREAU OF	RECLAMA	TION	ESTIMATE WO	RKSHEE	т			SHEET_1_OF_11_
FEAT	URE:			PROJI	ECT:			
		oaquin River Basi	n		Upper San	Joaquin	River Basin	
		at RM 286						
Apprai	isal Le	vel Quantity Estim	nates	REGION			LEVEL:	Appraisal
				FILE:	E:\US_Bureau FR-EIS-EIR (I_Reclamati Phase 2)\R	on\IDIQ_01CS20: eclamation produ	210B\Upper_San_Joaquin_ cts\TSC products\Cost
Summa	ry Shee	et						RM 286 v2.xls]Powerplant-
PLANT ACCOUNT	LEM							
CC0 PLA	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<	<u> </u>			_		_	ļ	
	-							
				_				
		Powerplant RM 286	with ROW					
		Cofferdam for Powe	rplant - Civil/Structural Subtotal					\$4,765,500.00
		Powerplant - Civil/St	ructural Subtotal					\$35,768,460.00
		Powerplant - Mecha	nical Subtotal					\$53,785,910.00
		Powerplant - Electri	cal Subtotal					\$12,315,000.00
						_		
		Switchyard & Transr	nission Line Subtotal					\$14,560,000.00
						_		
		Subtotal						\$121,194,870.00
		Subiolai						\$121,194,070.00
		Mobilization		+/- 5%				\$6,100,000.00
				., 0,0				\$0,100,000.00
		Subtotal w/Mobilizati	on					\$127,294,870.00
		Unlisted Items		+/- 15%				\$17,705,130.00
		CONTRACT COST						\$145,000,000.00
	ļ							
	 	Contingencies		+/- 25%				\$40,000,000.00
	<u> </u>					+		
		FIELD COST				-		\$185,000,000.00
	+				-	+		
						1		
	1				I		PRICES	1
BY	QUANTITIES BY CHECKED			вү			CHECKED	
 			SHECKED		D. Donaldson		GILGRED	
DATE PR	FPARE)	PEER REVIEW	DATE PR			PEER REVIEW	
						5		
				05/31/05				

BUREAU OF	RECLAMAT	ION	ESTIMATE WOR	RKSHEE	Г			SHEET_2_ OF11
FEATU	JRE:			PROJE	CT:			
Upper Power	San Je plant a	oaquin River Basi at RM 286	n		Upper San .	Joaquin	River Basin	
Apprai	sal Le	vel Quantity Estim	ates	REGION		PRICE		Appraisal
Cofferda	am for F	Powerplant		FILE:	n_FR-EIS-EIR_	(Phase_2)	on\IDIQ_01CS202 \Reclamation prod 04\[Powerplant - R	0B\Upper_San_Joaqui ucts\TSC products\Cost M 286
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL						
		Construct/Remove	Cellular Cofferdam					
		Assume constru	ct from shore without barge.					
		Assume circular	cellular cofferdam.					
		Length= 400) feet, 32-ft dia. cells, 40 ft high					
		Top of coffe	rdam - El. 740, Bottom of cofferdam	- El. 700				
		Furnish and install sh	aast sile welle		1 200	TONE	¢2 200 00	£2 640 000 00
	1	Furnish and install sh		D8120	1,200	TONS	\$2,200.00	\$2,640,000.00
		Arbed AS 500-12		D0100	20,400	CV	¢20.00	¢702.000.00
	2	Backfill cells with free	e-draining granular material	D8120	26,100	CY	\$30.00	\$783,000.00
	3	Unwater behind coffe	ardam	D8120	1	LS	Included in Pa	v Item 4
	3		and surface pumps	D0120	1	L3	Included III Fa	y item 4
	4	Operate unwatering		D8120	6	MOS	\$55,000.00	\$330,000.00
		Remove Cofferdam		_				
	5	Remove and stockpi	le granular material	D8120	26,100	CY	\$25.00	\$652,500.00
		Extract and salvage	-	D8120	1,200	TONS	\$300.00	\$360,000.00
				_				
				_				
				_				
		Cofferdam for Powe	erplant - Civil/Structural Subtotal					\$4,765,500.00
		QU	IANTITIES			Р	RICES	
ВҮ	M. R. O'		CHECKED	BY	D. Donaldson		CHECKED	
DATE PR	E PREPARED 6/14/04 PEER REVIEW		PEER REVIEW	DATE PREPARED PEER REVIEW 05/31/05				

		ION	ESTIMATE WORK	IPROJE				SHEET_3_ OF _11 _
	URE:		aain	PROJE	-		i Baain	
		oaquin River Ba at RM 286	asin		Upper San Jo	baquin F	liver Basin	
		vel Quantity Es	timates	REGION	MP	PRICE	LEVEL:	Appraisal
ppid				FILE:				0B\Upper_San_Joaqui
Power	olant - Ci	vil						\TSC products\Cost I 286 v2.xls]Powerplan
	1			1	workaneeta.orou	D I - Julyo	4 (I Owerplant - Kit	
PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Access Road						
	1	Clearing and Gru	bbing	D8140	4	AC	\$4,000.00	\$16,000.0
	2	Excavation	-	D8140	32,000	CY	\$8.00	\$256,000.0
	3	Compacted emba	ankment	D8140	5,000	CY	\$10.00	\$50,000.0
		Gravel surfacing		D8140	1,700	CY	\$25.00	\$42,500.0
	5	24" dia corrugate	d metal pipe	D8140	1,000	LF	\$65.00	\$65,000.0
	6	Metal Beam Guar	rd Rail	D8140	4,000	LF	\$30.00	\$120,000.0
	6a	Concrete for 200-	foot long, 16-foot clear width bridge	D8140	250	CY	\$900.00	\$225,000.0
	6b	Reinforcement fo	r bridge	D8140	70,000	LBS	\$1.00	\$70,000.0
	60	AASHTO Type IV	, 100-foot long beams	D8140	6	EA	\$20,000.00	\$120,000.0
		Powerplant Site						
	7	Rock excavation	to Service Yard El. 708.0	D8120	556,700	CY	\$11.00	\$6,123,700.0
		Dewatering Duri	ng Construction:					
		-	roundwater flows into excavation.					
		Structural Excav	ration and Backfill					
			ock excavation.					
		1	kpile rock for later use as riprap or rockfill.					
	8	Excavation of roc	k for structures (drill & shoot)	D8120	120,000	CY	\$15.00	\$1,800,000.0
			r structures (assume local borrow)	D8120	Unlisted Item	CY	Included in U	nlisted Items
	10	Place and compa	ct backfill around structures	D8120	Unlisted Item	CY	Included in U	nlisted Items
	11	Rock Exc. for ma	nifold pipe to edge of Service Yard	D8120	32,000	CY	\$20.00	\$640,000.0
			compact backfill for manifold pipe trench	D8120	Unlisted Item	CY	Included in U	•
		(assume local bo	rrow)					
			Sheet Subtotal					\$9,528,200.0
	QUANTITIES					Р	RICES	
Υ			ВΥ	D. Donaldson		CHECKED		
DATE PI	REPARED		PEER REVIEW	DATE PRE			PEER REVIEW	

BUREAU OF		ION ESTIMATE WORK	-				SHEET_4_ OF _11 _
FEATU			PROJE				
		oaquin River Basin at RM 286		Upper San Jo	baquin R	iver Basin	
	•	vel Quantity Estimates	DECION		DDICE		Annaical
Аррга	Salle	ver Quantity Estimates	REGION			LEVEL:	Appraisal 0B\Upper_San_Joaquin
Doworn	lant - St	ructural	FILE:	FR-EIS-EIR_(Pha	ase_2)\Rec	lamation products	TSC products\Cost
	1			worksheets\Grou	o 1 - July04	1\[Powerplant - RN	1 286 v2.xls]Powerplant
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		STRUCTURAL					
	40	Construct Building Structure	D0100	42,000	CV	¢250.00	£45 000 000 0
		Furnish, form, and place reinforced concrete Furnish and place concrete reinforcement.	D8120 D8120	43,800 4,818,000	CY LBS	\$350.00 \$0.80	\$15,330,000.0 \$3,854,400.0
	14	Assume 110 #/CY	D0120	4,010,000	LDO	φ 0. 60	\$3,654,400.0
	15	Furnish and handle cement (.282T/CY)	D8120	12,352	TONS	\$110.00	\$1,358,720.0
	15		D0120	12,302	10103	\$110.00	\$1,336,720.0
		Furnish & install precast, prestressed double tees for roof					
	16	8DT 24B+2 = 8' wide & 20" deep - 68' Span	D8120	48	EA	\$35,000.00	\$1,680,000.0
		Structural Steel					
	17	Included in Unlisted Items	D8120	Unlisted Item	LBS	Included in U	nlisted Items
		Miscellaneous Metalwork					
	18	Included in Unlisted Items	D8120	Unlisted Item	LBS	Included in U	l nlisted Items
			00120				
		Manifold Pipe Encasement					
	19	Furnish, form, and place reinforced concrete	D8120	7,525	CY	\$400.00	\$3,010,000.0
	20	Furnish and place concrete reinforcement.	D8120	940,625	LBS	\$0.80	\$752,500.0
		Assume 125 #/CY					
	21	Furnish and handle cement (.282T/CY)	D8120	2,122	TONS	\$120.00	\$254,640.0
		Shoot & Subject					\$26 240 260 0
		Sheet 4 Subtotal Sheet 3 Subtotal	+				\$26,240,260.0 \$9,528,200.0
		Glieet 5 Subtotal	1				ψ3,320,200.0
		Powerplant - Civil/Structural Subtotal (Sheets 3 and 4)	1				\$35,768,460.0
		QUANTITIES	t –		PF		,,
ВҮ		CHECKED	BY	D. Donaldson		CHECKED	
DATE PR	EPARED	PEER REVIEW	DATE PRE			PEER REVIEW	

BUREAU OF	RECLAMAT	ION	ESTIMATE W	ORKSHEE	Т			SHEET_5_ OF _11 _
FEATU	JRE:			PROJE	CT:			
		oaquin River Basi	n		Upper San Jo	aquin R	iver Basin	
		at RM 286						
Apprai	sal Le	vel Quantity Estin	nates	REGION		PRICE		Appraisal
Powerpl	ant - M	echanical		FILE:	EIS-EIR_(Phase_	2)\Reclam	\IDIQ_01CS20210B\Up ation products\TSC pro \[Powerplant - RM 286	
μĽ	тем							
PLANT ACCOUNT	ΡΑΥIT		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
¥	<u>۵</u>							
		Furnish and install	the following:					
		Cteal Dine for DOW/	and Denote all	D0400				
	1	Steel Pipe for ROW Steel plate used for		D8420				
			= 36 kpsi Sa = 18 kpsi					
		ASTINI A30. Sy =						
-		(All pipe sizes are i	nside diameters)					
	a	· · · ·	all, L= 650 ft., 7,881 lbs/ft		5,122,650	LBS	\$2.00	\$10,245,300.00
	- "	000 Dia., 2 1/10 W			0,122,000	LDO	φ2.00	φ10,2 10,000.00
	b	360" Dia., 2 7/8" wal	l, L= 105 ft., 11,153 lbs/ft		1,171,065	LBS	\$2.00	\$2,342,130.00
								. , ,
	с	96" Dia.,13/16" wall,	L= 480 ft., 841 lbs/ft		403,680	LBS	\$2.00	\$807,360.00
	d	120" Dia., 1" wall, L=	115 ft., 1,294 lbs/ft		148,810	LBS	\$2.00	\$297,620.00
	2	Valves		D8420				
	a	96" Dia. Ring Follow	er Gate					
		140,000 lbs. ead	:h					
		6 gates = 840,0	00 lbs.		840,000	LBS	\$9.00	\$7,560,000.00
	b	84" Dia. Fixed Cone						
		85,000 lbs. each			540.000	1.00	* 0.50	#4 005 000 00
		6 valves = 510,0	JUU IDS.		510,000	LBS	\$8.50	\$4,335,000.00
		96" Dia. Spherical V						
		250,000 lbs. ead						
		6 valves = 1,500			1,500,000	LBS	\$8.50	\$12,750,000.00
		0 valves = 1,000	,000 103.		1,000,000	LDO	φ0.00	φ12,730,000.00
	3	Turbine Weight - 4 u	nits	D8420				
		· · · · ·	Runner, 6.2' outlet dia.					
		Turbine-Vertical Fra						
		360 rpm, 520 ft. Des	ign Head		880,000	LBS	\$13.00	\$11,440,000.00
			h unit x 4 units = 880,000					· · ·
	4	Digital Governor - 4	units					
		130,000 ft-lb capacit	у		104,000	LBS	\$11.50	\$1,196,000.00
		26,000 lbs each	unit x 4 units = 104,000					
		L	Sheet Subtotal					\$50,973,410.00
		QL	JANTITIES			F	RICES	
BY			CHECKED	BY	D. Donaldson		CHECKED	
DATE PR	EPARED			DATE PRE	PARED		PEER REVIEW	
					05/31/05			

	F RECLAMA	TION	ESTIMATE WOR	-				SHEET_6_ OF _11 _
FEAT	-			PROJE				
		loaquin River Bas at RM 286	in		Upper San J	oaquin R	iver Basin	
		evel Quantity Estir	nates	REGION	MP	PRICE	EVEL	Appraisal
чррга	isai Le		nales					pper_San_Joaquin_FF
Dowerr	lant - M	lechanical			EIS-EIR_(Phase	_2)\Reclam	ation products\TSC pr	oducts\Cost
	1				worksheets\Grou	up 1 - July04	Powerplant - RM 286	o v2.xis/Powerplant-
PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	5		Fire Extinguishing System:	D-8410	2	EA	\$40,000.00	\$80.000.0
		1 ×	Cylinders w/ control panel	D-0410	2		φ40,000.00	\$00,000.0
		and appurtenances				-		
			l pipe, valves & fittings			1		
	6	Fire Suppression Sy	vstem:	D-8410	1	LS	\$60,000.00	\$60,000.0
		8 Fire hose reels w/	75 feet of hose					
		24 - Portable hand-l	neld 20# extinguishers					
		2,200 lbs. of sch. 40	carbon steel pipe, valves & fittings					
		1 - Fire pump, split-	case, 500 gpm @ 300 ft of head	_				
	7	Unit Cooling Water	Svetom:	D-8410	1	LS	\$250,000.00	\$250,000.0
	'	* *	imps, end-suction type, 150 gpm	D-0410			φ230,000.00	\$250,000.0
			, self-cleaning strainers					
			0 carbon steel pipe, valves & fittings					
			iron, mechanical joint pipe & fittings					
	8	Lubricating Oil Syste		D-8410	1	LS	\$45,000.00	\$45,000.0
		2- 500 gal carbon st						
		1 - 10 gpm @ 100 p	si oil pump		-			
		1 - lube oil filter		_				
		2,700 lbs. of sch. 40	carbon steel pipe, valves & fittings	_				
	g	Compressed Air Sys	stem:	D-8410	1	LS	\$70,000.00	\$70,000.0
			psi rotary screw air compressors				, ,,	
		1 - 250 gal. carbon :						
		1 - 100 cfm air drye						
		700 lbs. of sch. 40 c	arbon steel pipe, valves & fittings					
				-				
	10	Service Water Syste		D-8410	1	LS	\$100,000.00	\$100,000.0
			mp, 75 gpm @ 200 ft. of head			-		
	-	1 - Hydropneumatic						
		1,500 lbs. of type K	copper tubing, valves & fittings	_				
	11	Gravity Drainage Sy	rstem:	D-8410	1	LS	\$200,000.00	\$200,000.0
		54 - Floor drains, ca	st iron					
	1		on hub & spigot, service weight					
		soil pipe	-					
			Shaat Subtatal					¢005.000.4
	1		Sheet Subtotal JANTITIES				RICES	\$805,000.0
3Y			CHECKED	вү		F	CHECKED	
			Rick Frisz, D8420		D. Donaldson		SHEGRED	
	REPARED)		DATE PRE			PEER REVIEW	
		-			05/31/05			

BUREAU OF		ION ESTIMATE WORK	-				SHEET_7_ OF11
FEATU			PROJE	-			
		baquin River Basin		Upper San J	loaquin R	iver Basin	
		it RM 286	DEGION	MD			A
Apprai	sarte	vel Quantity Estimates	REGION	MP F:\US_Bureau	PRICE I		Appraisal Jpper_San_Joaquin_FF
Doworol	ont M	achanical		EIS-EIR_(Phase	e_2)\Reclam	ation products\TSC pr	oducts\Cost
		echanical	-	worksheets\Gro	up 1 - July04	[Powerplant - RM 28	6 v2.xls]Powerplant-
PLANT ACCOUNT	РАҮ ІТЕМ	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical (cont)					
	12	Plant Unwatering System:	D-8410	1	EA	\$70,000.00	\$70,000.0
		2 - Vertical turbine type sump pump, 500 gpm @ 50 ft hd	0 0 110	•		\$10,000.00	<i>\\</i> ,000.0
		1 - Drainage jet type drainage pump					
		1,500 lbs. of type K copper tube, valves & fittings					
		3,800 lbs. of ductile iron, mechanical joint pipe & fittings					
	13	Domestic Water and Sanitary Waste System:	D-8410	1	EA	\$60,000.00	\$60,000.0
		2 - Water Closets					
		1 - Urinal			_		
		2 - Lavatories & accessories			_		
		1 - Duplex Sewage Ejector			_		
		2,800 lbs. of cast iron hub & spigot service weight			-		
		sewer pipe			-		
		300 lbs. of type K copper tubing, valves & fittings					
	14	150-Ton overhead crane, 63'-0" span, one required	D-8410	210,000	LBS	\$6.00	\$1,260,000.0
	15	Electric traction elevator, overhead, geared,	D-8410	1	UNIT	\$400,000.00	\$400,000.0
		capacity = 3500 pounds, passenger elevator,				,	,
		travel = 58 feet, landings = 5, speed = 200 ft/min					
	16	Bulkhead gates, lifting beam, and guides	D-8410				
		(assumes one set of two bulkheads for isolation of 1					
		turbine, assumes four sets of guides for four units)					
		a. Structural steel A36:					
		1. Bulkhead gates = 8,000 #/gate x 2 = 16,000#		42,500	LBS	\$4.00	\$170,000.0
		2. Guides (excluding S.S) = 25,000#					
		3. Lifting frame = 1,500#					
		 Embedded anchor bolts,steel = 2,500# 		2,500	LBS	\$4.00	\$10,000.0
		c. Stainless steel for guides = 2,500#	$\left \right $	2 500		¢4E 00	¢27 500 (
		6. Stanness steer for guides = 2,500#		2,500	LBS	\$15.00	\$37,500.0
		Sheet Subtotal					\$2,007,500.0
		QUANTITIES	1		P	RICES	
Υ		CHECKED	BY CHECKED D. Donaldson				
ATE PRI	EPARED	PEER REVIEW	DATE PRE		5	PEER REVIEW	

BUREAU OF	RECLAMAT	ION	ESTIMATE WOR	KSHEE	т			SHEET_8_ OF11
FEATU	JRE:			PROJ	ECT:			
Upper Power	San J plant a	oaquin River Basi at RM 286	n		Upper San J	oaquin R	iver Basin	
Apprai	sal Le	vel Quantity Estim	nates	REGION		PRICE		Appraisal
Powerpl	ant - M	echanical		FILE:	EIS-EIR_(Phase	_2)\Reclam	\\IDIQ_01CS20210B\\ ation products\TSC p 4\[Powerplant - RM 28	
	ΕM							
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical (cont)						
						1		
		Cost of HVAC item	s assumed covered under					
		"Unlisted Items."						
			is for bulkhead gate assumed					
		covered under "U	nlisted Items."					
				-		-		
						-		
				_				
						+		
						+		
						1		
L				_				
	<u> </u>			_				
				_		+		
						+		
				_	+	+		
<u> </u>					1	1		
			Sheet 5 Subtotal				1	\$50,973,410.00
			Sheet 6 Subtotal			1		\$805,000.00
			Sheet 7 Subtotal			1		\$2,007,500.00
		Powerplant - Mecha	anical Subtotal					\$53,785,910.00
		QL	JANTITIES			F	PRICES	
BY			CHECKED	ΒΥ	D. Donaldson		CHECKED	
DATE PR	EPARED		PEER REVIEW	DATE PR			PEER REVIEW	
					05/31/05	5		

FEAT	F RECLAMA	ION	ESTIMATE WC	IPROJE				SHEET9 OF11
	-	oaquin River Basin		FROJE	-	looguin	River Basin	
		at RM 286			Opper San	Joaquin	River Dasin	
		vel Quantity Estimates		REGION	MP	PRICE	LEVEL:	Appraisal
Арріа				FILE:				Npper_San_Joaquin_
Powerr	olant - E	ectrical					eclamation products	SC products\Cost 286 v2.xls]Powerplant-
	1				WORKSHEELS/GIC	up i - July	04(Powerplant - Kin	206 v2.xisjP0werpiant-
PLANT ACCOUNT	РАҮ ІТЕМ	DESCR	IPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Furnishing, installing, & tes	ting 42,700 KVA, 60	D-8430	4	EA	\$2,000,000.00	\$8,000,000.00
		cycle, 360 RPM, 90 perce	nt power factor, 3					
		phase, 13,800 Volt, vertica	al-shaft, water-cooled					
		AC generator including sta	tic excitation system					
	2	Furnishing and installing 1	5 KV. 2000 amperes.	D-8430	400	LF	\$1,200.00	\$480,000.00
		non-segregated phase bu						
	3	Furnishing and installing g	enerator neutral	D-8430	4	EA	\$25,000.00	\$100,000.00
		grounding equipment						
		Furnishing and installing g	enerator metal-clad	D-8430	4	EA	\$500,000.00	\$2,000,000.00
		switchgear, 15 KV, 2000 a				LA	4000,000.00	φ2,000,000.00
	5	Furnishing and installing D	uplex control	D-8430	1	EA	\$1,000,000.00	\$1,000,000.00
		switchboard for operation of	of four generators, and					
		switchyard controls and pro	otection					
	6	Furnishing and installing in	door double-ended	D-8430	2	EA	\$100,000.00	\$200,000.00
		secondary unit substation		0.000			\$100,000.00	φ200,000.00
		transformer 13.8 KV-480Y	, ,,					
	7	Furnishing and installing pl 125 VDC, 200 ampere-ho		D-8430	1	LS	\$55,000.00	\$55,000.00
		123 VDC, 200 ampere-no	ar, with battery charger					
	8	Furnishing and installing lig	hting system	D-8430	1	LS	\$30,000.00	\$30,000.00
	9	Furnishing and installing 3	phase, 480 volt,	D-8430	6	EA	\$75,000.00	\$450,000.00
		distribution panels include:						
		1 - 225 Amp frame, 225 a	mp trip					
		2 - 100 Amp frame, 100 a	mp trip					
		4 - 100 Amp frame, 60 am	ip trip					
		4 - 100 Amp frame, 20 am	ip trip					
		4 - 100 Amp frame, 15 am	ıp trip					
		Powerplant - Electrical S						\$12,315,000.00
	QUANTITIES						PRICES	
BY	Richard	CHEC	KED	BY	D. Donaldson		CHECKED	
DATE PI	REPARED		REVIEW	DATE PRE			PEER REVIEW	
	June 1	0,2004			05/31/05			

BUREAU OF	RECLAMAT	10N	ESTIMATE WO	RKSHEET	F			SHEET_10_ OF11
FEATU	JRE:			PROJE	CT:			
		oaquin River Basi at RM 286	n		Upper San Joa	aquin Riv	ver Basin	
		vel Quantity Estim	atos	REGION	MP	DDICE	LEVEL:	Approioal
Арріаі	Saile		lates					Appraisal per San Joaquin FR-
Switchy	ard						tion products\TSC pro	
	1				worksneets/Group	I - July04\	Powerplant - Rivi 266	vz.xisiPowerplant-
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		STRUCTURAL		D8120				
		Assume switchy	ard structures covered under					
		unlisted items.						
		ELECTRICAL						
		Switchyard						
		Furnish and Install:						
	1		vator-type power	D8440	2	EA	\$1,200,000.00	\$2,400,000.00
		transformer						
		200 MVA; 230-6	.9kV, 3-phase					
	2	230-kV disconne	ect switches,	D8440	4	EA	\$60,000.00	\$240,000.00
		1200 amp, 3-ph	ase					
	3	230-kV circuit bi	reakers,	D8440	2	EA	\$600,000.00	\$1,200,000.00
	4	Construct Transmi	ssion Line	D8440	20	MILES	\$500,000.00	\$10,000,000.00
		230-kV H-frame	wood-pole					
		1431 AWG cond	luctor					
		New Bay in Existin	g Switchvard					
		Furnish and Install:						
	5	230-kV disconne 1200 amp, 3-ph	,	D8440	2	EA	\$60,000.00	\$120,000.00
	6			D8440	1	EA	\$600,000.00	\$600,000.00
		1200 amp, 3-ph	,				4000,000.00	4000,000.00
			Sheet Subtotal					\$14,560,000.00
	-	QL	JANTITIES	PRICES				
BY Lisa Gam	uciello		CHECKED	BY	D. Donaldson		CHECKED	
DATE PR 6/10/2004	EPARED		PEER REVIEW	DATE PRE			PEER REVIEW	

BUREAU OF	RECLAMAT	ΓΙΟΝ	ESTIMATE WORK	SHEE	SHEET SHEET_11_OF					
FEATURE:				PROJ	ECT:					
Upper San Joaquin River Basin				Upper San Joaquin River Basin						
Power	plant a	at RM 286								
Apprai	sal Le	vel Quantity Estim	ates	REGION		PRICE		Appraisal		
Switchya	ard			FILE:	EIS-EIR_(Phase_2)\Reclamat	DIQ_01CS20210B\Up tion products\TSC pro Powerplant - RM 286	per_San_Joaquin_FR- ducts\Cost v2.xls]Powerplant-		
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
Ā										
				-						
	7	SCADA		D8440	Unlisted Item	LS	Included in Unlis	ted Items		
				-						
			Sheet 11 Subtotal	1				\$0.00		
			Sheet 10 Subtotal					\$14,560,000.00		
L			smission Line Subtotal					\$14,560,000.00		
		QU	IANTITIES			P	RICES			
BY			CHECKED	BY	D. Donaldson		CHECKED			
Lisa Gam		1	PEER REVIEW	DATE PRI			PEER REVIEW			
DATE PREPARED PEER REVIEW 6/10/2004					05/31/05					

RED_OP EQUIP

CODE:D-8			ESTIMATE WORKS		_		SHEE	ET_1_0F_1_				
FEATU	JRE:		31-May-05	PROJEC		in Dine Denie						
Redinger Dam Decommissioning Spillway Gates and Hoist Removal Outlet Works Gates and Hoist Removal					Upper San Joaquin River Basin DIVISION:							
						Cor	ncrete Pier Re	moval to EL 1373	FILE:			\$20210B\Upper_San_Joaqu TSC products\Cost worksh
		ncrete Plug			04\(Redinger Dam D		-4-04.xls]Page 1	• •				
PLANT ACCT.	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT				
	1	Spillway Gates	and Hoists									
		Remove 4 - 40	'x 30' Radial Gates		480,000	LBS	\$2.00	\$960,000				
		Remove 4 Gati	e Hoists		120,000	LBS	\$2.00	\$240,000				
	2	Outlet Works G	ates and Hoists									
		Remove 2 - 8'	x 17'8" Fixed Wheel Gates		90,750	LBS	\$2.00	\$181,500				
		Remove 2 Gat	e Hoists		32,000	LBS	\$2.00	\$64,000				
		Remove Trash	racks		640,000	LBS	\$2.00	\$1,280,000				
		Remove Trash	rack Rake		1	LS	\$30,000.00	\$30,000				
	3	Sluiceway										
		Weld 2 - 5' x 6	'- 6" Slide Gates in Open Position		1	LS	\$10,000.00	\$10,000				
	4	Remove Reinfor	ced Concrete									
		Concrete from	Spillway Hoist Decks	ay	260	СҮ	\$350.00	\$91,000				
		Concrete from	Piers		1,385	СҮ	\$350.00	\$484,750				
		Concrete from	Chute Walls		1,500	СҮ	\$350.00	\$525,000				
	5	Concrete Plug										
		Rock Excavati			65	СҮ	\$125.00	\$8,125				
		Reinforced Cor	ncrete		130	СҮ	\$900.00	\$117,000				
		SUBTOTAL						\$3,991,375.00				
		Mobilization	(+/	-) 5%				\$200,000.00				
		Subtotal w/ mot	· · · · · · · · · · · · · · · · · · ·					\$4,191,375.00				
		Unlisted Items (+/		-) 15%				\$608,625.00				
		CONTRACT CO	OST					\$4,800,000.00				
		Contingencies (+/		-) 25%				\$1,200,000.00				
	FIELD COST						\$6,000,000.00					
QUANTITIES BY CHECKED			BY	PRIC	ICES CHECKED							
BY CHECKED S. Higinbotham			<u> </u>	D. Donaldson								
DATE PREPARED APPROVED			DATE PRICE LEVEL 05/31/05 Appraisal									

BUREAU OF	RECLAMAT	TION	ESTIM	ATE WORK					SHEET_1_OF6	
					PROJECT:					
Upper San Joaquin River Basin K2 Turbine Replacement					Upper San Joaquin River Basin					
		vel Quantity Estim	ates		REGION		PRICE		Appraisal	
Summa	ry Shee	et 1 of 1			FILE:	n_FR-EIS-EIR	_Reclamation\IDIQ_01CS202 R_(Phase_2)\Reclamation proc roup 2 - Sept 04\[K2 Turbine R		ducts\TSC products\Cost	
μų	M									
PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION		CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
<u> </u>										
		Powerplant - Civil/Sti	uctural Subtotal						\$10,052,580.00	
		Powerplant - Mechar							\$18,868,020.00	
		Powerplant - Electric	al Subtotal						\$11,994,970.00	
		Subtotal							\$40,915,570.00	
		Mobilization		+/-	5%				\$2,000,000.00	
		Subtotal w/ mobilizat	ion						\$42,915,570.00	
		Unlisted Items		+/-	15%				\$6,084,430.00	
[CONTRACT COST							\$49,000,000.00	
					250/					
		Contingencies		+/-	25%				\$13,000,000.00	
		FIELD COST							\$62,000,000.00	
		QL	ANTITIES				Р	RICES		
BY CHECKED				ВҮ	D. Donaldson		CHECKED			
DATE PREPARED PEER REVIEW				DATE PRE	EPARED 05/31/05		PEER REVIEW			

BUREAU OF	RECLAMA	TION	ESTIMATE WOR	KSHEE	г			SHEET_2_ OF 6	
FEATURE:					PROJECT:				
		Joaquin River Basi Replacement	n		Upper San Joaquin River Basin				
Appraisal Level Quantity Estimates					I MP	PRICE	LEVEL:	Appraisal	
	Powerplant - Civil/Structural				n_FR-EIS-EIR	(Phase_2)		0B\Upper_San_Joaqui ucts\TSC products\Cost eplacement - Qty	
۲	Σ								
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		All undergraound w	ork is unlined, self supporting, ar	d excavate	 d in granite. 	Water p	roblems will b	e minimal.	
	1	Construct Surge Ac	lit						
		Construct 1,700-ft lor	ng, 20.00-ft finished diameter and 23	.00-ft excava	ated diameter	radit. Ac	lit will be		
		excavated by drill and	d blast and driven uphill.	_					
		Excavation (26,2	00 CY, approx 16 CY/LF)	D-8140	1,700	LF	\$3,300.00	\$5,610,000.00	
	2	2 Construct Surge Ri	ser						
		Construct 129-ft dee	o, 20.00-ft finished diameter, 20.7-ft	excavated d	iameter, tunn	el. Shaft	will be		
		excavated by raise b	oring.						
		Excavation 1,600) CY, approx 13 CY/LF)	D-8140	129	LF	\$5,300.00	\$683,700.00	
	3	Construct Surge ta							
		Construct 550-ft dee	p, 91.00-ft finished diameter, 95.00-f	t excavated	diameter sha	ft. Shaft	will be		
		excavated by raise b	oring and slash down method. Slash	ning down wi	ll be by drill a	nd blast.			
		Excavation (144,	000 CY, approx 262 CY/LF)	D-8140	550	LF	\$5,500.00	\$3,025,000.00	
		Construct shaft plug	of unreinforced concrete (3 ksi)	D-8140	500	СҮ	\$400.00	\$200,000.00	
		Cementitious ma	, ,	D-8140	118	Tons	\$160.00	\$18,880.00	
		Excavate shaft top (s by drill and blast	urge tank) @ 115 ft diameter in granite	D-8140	16,000	CY	\$30.00	\$480,000.00	
	Rock excavation (and removal) within existing plant for new ring follower gate (guard valve) Blasting will be permissible.		, ,	D-8120	350	CY	\$100.00	\$35,000.00	
			<u> </u>						
	1								
		Powerplant - Civil/S	tructural Subtotal					\$10,052,580.00	
Powerplant - Civil/Structural Subtotal QUANTITIES						P	RICES	ψ10,002,000.00	
вү	Bill Tho		CHECKED	ΒΥ	D. Donaldson	-	CHECKED		
	Mike O	Shea	Kevin Atwater						
DATE PREPARED 8/19/04			PEER REVIEW	DATE PRE	DATE PREPARED PEER REVIEW				

BUREAU OF	RECLAMAT	ION	ESTIMATE V	VORKSHEE	Г			SHEET_3_ OF _6_		
FEATURE:					PROJECT:					
Upper San Joaquin River Basin				Upper San Joaquin River Basin						
		Replacement								
Appraisal Level Quantity Estimates				REGION FILE:	REGION MP PRICE LEVEL: Appra					
Powerpl	Powerplant - Mechanical				_FR-EIS-EIR_(F	hase_2)		s\TSC products\Cost		
PLANT ACCOUNT	ME									
PLA	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
<										
	1	Remove - Turbine W	eight - 1 unit	D-8420	890,000	LBS	\$0.50	\$445,000.00		
		Turbine-Vertical Fran		0 0 4 2 0	000,000	LDO	ψ0.00	\$440,000.00		
		180 rpm, 421 ft. Des								
		Reuse draft tube	<u> </u>							
	2	Install Turbine Weigh	nt - 1 unit	D-8420	682,540	LBS	\$13.00	\$8,873,020.00		
			tunner, 10.5' outlet dia.							
		Turbine-Vertical Fran								
		240 rpm, 604 ft. Des	-							
		Gross Head Range,	845 - 457 feet							
	2	Domovo openal eter		D 0420	200	OV	¢500.00	£450.000.00		
	3	old turbine	ge concrete to remove	D-8420	300	CY	\$500.00	\$150,000.00		
-		Furnish and Install th	e following:	D-8420						
			0							
		144" Dia. Ring-follow	ver gate		400,000	LBS	\$10.00	\$4,000,000.00		
		Gate leaf slided on w	heels on each side.							
		Includes hydraulic op	perating system.							
		400,000 lbs								
		New gate chamb	per will be needed.							
			Sheet Subtotal					\$13,468,020.00		
		QU	IANTITIES			F	PRICES			
BY	Dave Hu	llse	CHECKED	ВҮ	D. Donaldson		CHECKED			
DATE PREPARED PEER REVIEW		DATE PRE	PARED 05/31/05		PEER REVIEW					

BUREAU OF	RECLAMAT	FION	ESTIMATE WORK	SHEE	Г			SHEET4_ OF		
FEATURE:				PROJE						
Upper San Joaquin River Basin K2 Turbine Replacement				Upper San Joaquin River Basin						
				REGION	MP	PRICE	LEVEL:	Appraisal		
Powerplant - Mechanical				FILE:	_FR-EIS-EIR_	(Phase_2)	amation\IDIQ_01CS20210B\Upper_San_Joaqui e_2)\Reclamation products\TSC products\Cost			
	1				worksneets\Gr	bup 2 - Se	pt 04\[K2 Turbine Rep	blacement - Qty		
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	400 Ton Overhead C	rane, 85'-0" span, 32' long	D8410	1	LS	\$5,400,000.00	\$5,400,000.00		
		· · · · · · · · · · · · · · · · · · ·	00 lbs (includes 50 T aux.)							
		b. Trolley: 300,0								
		c. Rail: 32 ft x 2	e = 64 ft of 175# rail = 4000#							
		OTHER D-8410 MEC	CHANICAL EQUIPMENT:							
			HEAD GATES AND GUIDES,							
			K, HEATING/VENTILATING, AND							
			ASSUMED TO BE SATISFACTORY							
		AND WILL NOT REC	QUIRE REPLACEMENT.							
		ASSUMED EXISTIN	G OVERHEAD CRANE WOULD							
		ROTOR AND SHAF	FOR 182 MW UNIT							
						-				
						I				
			Sheet 4 Subtotal					\$5,400,000.00		
			Sheet 3 Subtotal					\$13,468,020.00		
								\$10,400,020100		
		Powerplant - Mecha	anical Subtotal					\$18,868,020.00		
		QU	ANTITIES				PRICES			
BY	Wayne	Delzer	CHECKED	BY	D. Donaldson		CHECKED			
DATE PR	EPARED		PEER REVIEW	DATE PRE	PARED		PEER REVIEW			
			05/31/05							

	F RECLAMA	TION	ESTIMATE WO	IPROJE				SHEET_5_ OF _6_	
	URE:		2		-	looguin F	Diver Desin		
Upper San Joaquin River Basin K2 Turbine Replacement				Upper San Joaquin River Basin					
Appraisal Level Quantity Estimates				REGION	MP	PRICE	LEVEL:	Appraisal	
ppio				FIL F	E:\US_Bureau_	Reclamati	on\IDIQ_01CS202	10B\Upper_San_Joaq	
ower	olant - E	lectrical					Reclamation proc 0t 04\[K2 Turbine R	lucts\TSC products\Cos	
	T				Worksheets (ore				
PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	1 Furnishing, installing	, & testing 182,300 KVA, 60	D-8430	1	LS	\$8,360,000	\$8,360,000.0	
		cycle, 240 RPM, 90	percent power factor, 3						
		phase, 13,800 Volt,	vertical-shaft, water-cooled						
			ng static excitation system						
			Cost curves: 1992 [200 mva and	l 175 mva avg	.]		6,860,500		
			Index number: 1992 - 2004	262			1.218605		
				215					
			III 45 147 40 000	D 0 400	100		04 500 00	0 450,000,0	
		· · ·	lling 15 KV, 10,000 amperes,	D-8430	100		\$1,500.00	\$150,000.0	
		Isolated phase bus		_					
		3 Furnishing and insta	lling generator neutral	D-8430	1	Each	\$20,000.00	\$20,000.0	
		grounding equipmen		0400		Laon	\$20,000.00	\$20,000.0	
		<u>99 - 1</u>	-						
-	4	4 Furnishing and insta	lling SF6 generator circuit	D-8430	1	Each	\$175,000.00	\$175,000.0	
		breaker switchgear,	15 KV, 10,000 amperes	reduce if pu	ffer-type breake	er allowed			
	5	5 Furnishing and insta		D-8430	1	Each	\$250,000.00	\$250,000.0	
			ation of one generator, and			ļ	ļ		
		switchyard controls a	and protection						
		C Furnishing and insta	lling indeer	D 0420	4	Each	\$00,000,00	\$00.000 A	
		6 Furnishing and insta unit substation with a		D-8430	1	Each	\$90,000.00	\$90,000.0	
			-480Y277 V; 1,500 KVA						
			-4001277 V, 1,300 KVA						
	7	7 Furnishing and insta	lling plant battery system	D-8430	1	LS	\$3,400.00	\$3,400.0	
		-	ere-hour, with battery charger	batts	25	ea	\$100.00	,	
		· ·		charger	1	ea	\$400.00		
				rack	1	ls	\$500.00		
	8	B Furnishing and insta	lling lighting system	D-8430	1	LS	\$83,400.00	\$83,400.0	
			lighting control panelboard		1	ea	\$5,000.00		
			overhead lighting:	**	<u>10,000</u>	ft2	\$7.50		
							0050.00		
			emergency lighting units		4	ea	\$650.00		
	-	** The square for	exit lighting tage is major guess - correct with actual flo	amlan info	4	ea	\$200.00		
		The square rec	quare foot is a mid-point value from the elec	-					
			lighting tables. Means elect. Pages 336 -						
			<u> </u>						
			Sheet Subtotal					\$9,131,800.0	
QUANTITIES					P	RICES			
BY CHECKED		ΒΥ	Larry Pedde		CHECKED				
	Richar		ļ				 		
DATE P	REPARE	D	PEER REVIEW	DATE PRE			PEER REVIEW		
					05/31/05				

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PROJECT:						
Upper San Joaquin River Basin						
GION	MP	PRICE	LEVEL:	Appraisal		
		Reclamatio	on\IDIQ_01CS202	10B\Upper_San_Joaqui		
				ducts\TSC products\Cost Replacement - Qty		
ODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
8430	1	LS	\$13,170.00	\$13,170.00		
0.00			¢.0,110100	\$10,110100		
	1	ea.	\$2,400.00			
	1	ea.	\$2,250.00			
	1	ea.	\$1,100.00			
	2	ea.	\$530.00			
	4	ea.	\$530.00			
	4	ea.	\$530.00			
	4	ea.	\$530.00			
8430	1	Each	\$50,000.00	\$50,000.00		
8440	1	LS	\$2,800,000	\$2,800,000.00		
	200	MVA	\$14,000.00			
4700						
7430	large unit					
1715	small unit					
0440						
8440	Assume covere	d by unliste	ed items.			
8120	Assume covere	d by unliste	ed items			
0.20						
				\$2,863,170.00		
				\$9,131,800.00		
				\$11,994,970.00		
		P	1			
	Larry Pedde		CHECKED			
TE PRE			PEER REVIEW			
ΓE	PRE	Larry Pedde PREPARED 05/31/05	Larry Pedde PREPARED	PREPARED PEER REVIEW		

AUXILIARY MECHANICAL SYSTEMS FOR RM286 POWERHOUSE

- 1. 150-Ton Overhead Crane
 - a. Span = Approx. 63 ft.
 - b. Heaviest load expected to be lifted is the rotor and shaft, approximately 250,000 lbs.
- 2. Electric Traction Elevator
 - a. Passenger elevator
 - b. Capacity = 3,500 lbs., typical size for passenger elevator
 - c. Travel = 58 ft., approximated from drawing
 - d. Landings = 5 (assumes elevator stops at each floor shown on drawing)
 - e. Speed = 200 ft/min., typical speed for elevator
- 3. Bulkhead Gates, lifting beam, and guides
 - a. Design head = 62.5 ft. [776.0 (Max TWS) 713.5 (Invert)]
 - b. Approx gate dimensions 10 ft wide x 7 ft high
 - c. Two gates required, to isolate 1 turbine draft tube.
 - d. Four sets of embedded guides, one for each turbine unit.
 - e. One lifting beam provided.
 - f. Material used is structural steel A36, except sealing surfaces of guides are stainless steel, and embedded anchor bolts are steel.
- 4. Powerplant Auxiliary Mechanical Systems
 - Includes the necessary auxiliary mechanical systems for operation of the turbine/generating equipment and for plant maintenance activities.
 - b. Systems provided include the following:
 - i) Unit Cooling Water System This system supplies cooling water for the main turbine/generating units and associated equipment.
 - ii) Lubricating Oil System This system stores and filters lubricating oil for use by the turbine/generator bearings.
 - iii) Compressed Air System This system provides compressed air for service hose outlets located throughout the plant for maintenance and repair, for operation of the plant sewage ejectors and for operation of any air operated control valves.
 - iv) Service Water System This system provides service water to hose outlets located throughout the plant for maintenance and repair. Irrigation water for the landscape features on the exterior of the plant is also provided from the service water system.
 - v) Fire Suppression System This system provides a water-based fire suppression system within the plant and a CO2 fire extinguishing system for the main unit generators.
 - vi) Domestic Water and Sanitary Waste System This system within the interior of the plant provides domestic water to the restrooms and collects sewage to be discharged from the plant.
 - vii) Gravity Drainage System This system conveys wastewater collected by plant floor drains through an embedded piping system to the plant drainage sump.
 - viii) Plant Unwatering System This system is provided to empty the plant sump of water from the gravity drainage system and water drained from the main unit penstock and draft tubes.
- All of these systems will be provided in accordance with the applicable industry codes and standards.

5. HVAC

a. Cost included in unlisted items.