Attachment C4

Cost Estimate Worksheets

Temperance Flat Reservoir at RM 279 (Chapter 4)

TF279_900_RCC_1

CODE:D-81	70	ESTIMATE WORKSHEE	Т			SHEET_1_OF	2			
FEAT	URE:		PROJE	CT:						
	RM27	79 Dam		USJRBSI						
	Elev.		DIVISION:							
		crete Gravity Dam (RCC)								
			FILE:	_Joaquin_Phase_1\Doc products\Cost Sheets -						
PLANT	PAY			Sept 2003 - Updated Opt	ions/[pac 900 F1	UNIT	J3			
ACCT.	ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT			
	1	Diversion and care of river		_						
		Upstream Cofferdam (Crest @ El. 635)		707,430	CY	\$16.00	\$11,318,880			
		Excavation for Left Abutment Diversion Tunnel		77,350	CY	\$140.00	\$10,829,000			
		Concrete Liner for Left Abutment Diversion Tunnel		17,130	CY	\$245.00	\$4,196,850			
		Rock Bolts - Left Abt. Div. Tunnel		1,800	Bolts	\$500.00	\$900,000			
		Total Drilling - Left Abt. Div. Tunnel		32,400	LF	\$20.00	\$648,000			
		Excavation for Right Abutment Diversion Tunnel		143,650	CY	\$140.00	\$20,111,000			
		Concrete Liner for Right Abutment Diversion Tunnel		24,940	LBS	\$245.00	\$6,110,300			
		Rock Bolts - Right Abt. Div. Tunnel		1,560	Bolts	\$600.00	\$936,000			
		Total Drilling - Right Abt. Div. Tunnel		35,880	LF	\$20.00	\$717,600			
		Downstream Cofferdam (Crest @ El. 578)		531,600	CY	\$16.00	\$8,505,600			
	2	Excavation, all classes, for dam foundation		50,820	CY	\$15.00	\$762,300			
	3	RCC in dam		1,635,100	CY	\$37.00	\$60,498,700			
		Concrete facing elements		51,520	CY	\$100.00	\$5,152,000			
		Concrete cap on top of dam		1,600	CY	\$250.00	\$400,000			
	6	Leveling concrete in dam foundation		12,700	CY	\$180.00	\$2,286,000			
	7	Concrete in spillway crest		2,300	CY	\$200.00	\$460,000			
	8	Concrete in spillway training walls		315	CY	\$350.00	\$110,250			
	9	Concrete in Outlet Works Intake Structure		3,110	CY	\$280.00	\$870,800			
	10	Excavation of Outlet Shaft and Gate Structure		10,630	CY	\$270.00	\$2,870,100			
	11	Temp. Supports - Rock Bolts		410	Bolts	\$380.00	\$155,800			
	12	Total Drilling for Rock Bolts		4,720	LF	\$20.00	\$94,400			
	13	Concrete in Outlet Shaft and Gate Structure		4,890	CY	\$430.00	\$2,102,700			
		Subtotal					\$140,036,280			
		QUANTITIES		PRIC	ES		. ,,			
BY		CHECKED	BY		CHECKED					
	S. Higin REPARE	botham	DATE	R. Baumgarten	PRICE LEVI	=1				
	LFARE			09/09/03		∟ Appraisal 03				

TF279_900_RCC_2

CODE:D-81	70		ESTIMATE WORKS	HEET			SHEET_2 OF	2
FEAT	URE:			PROJE	CT:			
		RM279 [Dam		USJRBSI			
		Elev. 900) e Gravity Dam (RCC)	DIVISION	:			
		Concrete		FILE:	P:\US_Bureau_Reclam ments\Surface Storage Sept 2003 - Updated Op	Option TMs\T	I Temperance\US	BR products\Cost She
PLANT ACCT.	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	14	Excavation	for Powerplant		170,620	CY	\$15.00	\$2,559,300
	15	Concrete in	Powerplant		42,350	CY	\$350.00	\$14,822,500
	16	Furnishing a	and Handling Cement		354,000	TONS	\$90.00	\$31,860,000
	17	Furnishing a	and Handling Reinforcement		14,496,000	LBS	\$0.60	\$8,697,600
	18	Grout Hole	Drillilng		22,950	LF	\$35.00	\$803,250
	19	Foundation	Grouting		22,950	Sacks	\$29.00	\$665,550
	20	Set up for D	Drain Holes in Gallery		153	Holes	\$200.00	\$30,600
	21	Drilling Drai	n Holes		20,770	LF	\$55.00	\$1,142,350
	22	Outlet Work	ks Trashracks		495,000	LBS	\$2.50	\$1,237,500
	23	Steel Pipe			11,735,310	LBS	\$1.50	\$17,602,965
			Sizes and Types		4,460,000	LBS	\$5.00	\$22,300,000
		Turbines			1,956,000	LBS	\$6.50	\$12,714,000
		Generators			1,500,000	LBS	\$8.00	\$12,000,000
	27	Governors,			3-Units	LS		\$3,600,000
		Mobilization Subtotal	1 (5%)					\$13,500,000 \$283,571,895
		Unlited I	tems (15%)					\$46,428,105
		Contract C	ost					\$330,000,000
		Continge	encies (30%)					\$100,000,00
		Field Cost						\$430,000,000
		Q	UANTITIES		PRIC			
BY	S. Higir REPARE	botham	CHECKED	BY	R. Baumgarten	CHECKED	=1	
		0	AFFROVED	DATE	09/09/03		Appraisal 03	

TF279_985_RCC_1

	E:D-8		ESTIMATE WORKSHEET		ECT.		SHEET_1	OF2			
CAI	URE	•		PROJ	USJRBSI						
	RM279	9 Dam			0358851						
		985 (Interpolate	ed)	DIVISION:							
		ete Gravity Da									
		-		FILE:	C:\Documents and	0					
					Fedak\Desktop\ter			Interpolated 960			
PLANT	PAY						UNIT				
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT			
	1	Diversion a	nd care of river								
	- '		Cofferdam (Crest @ El. 635)		707.430	CY	\$16.00	\$11,318,88			
			for Left Abutment Diversion Tunnel		81,354	-	\$140.00	\$11,389,49			
			iner for Left Abutment Diversion Tunnel		18,014		\$245.00	\$4,413,43			
			- Left Abt. Div. Tunnel		2,136		\$542.50	\$1,158,64			
			g - Left Abt. Div. Tunnel		38,444	LF	\$20.00	\$768,87			
		Excavation	for Right Abutment Diversion Tunnel		150,833	CY	\$140.00	\$21,116,55			
			iner for Right Abutment Diversion Tunne	e	26,185	LBS	\$245.00	\$6,415,38			
			- Right Abt. Div. Tunnel		2,108	Bolts	\$600.00	\$1,264,95			
			g - Right Abt. Div. Tunnel		48,490		\$20.00	\$969,79			
		Downstrear	n Cofferdam (Crest @ El. 578)		526,245	CY	\$16.00	\$8,419,92			
	2	Excavation,	, all classes, for dam foundation		77,965	CY	\$14.58	\$1,136,33			
	3	RCC in dan	n		3,049,190	CY	\$34.88	\$106,340,49			
	4	Concrete fa	cing elements		79,256	CY	\$91.50	\$7,251,87			
	5	Concrete ca	ap on top of dam		2,799	CY	\$250.00	\$699,62			
	6	Leveling co	ncrete in dam foundation		19,487	CY	\$180.00	\$3,507,70			
	7	Concrete in	spillway crest	1	2,300	CY	\$200.00	\$460,00			
	8	Concrete in	spillway training walls		396	CY	\$350.00	\$138,51			
	9	Concrete in	Outlet Works Intake Structure		3,110	CY	\$280.00	\$870,80			
	10	Excavation	of Outlet Shaft and Gate Structure		11,480	CY	\$274.25	\$3,148,39			
	11	Temp. Sup	oorts - Rock Bolts		478	Bolts	\$380.00	\$181,64			
	12	Total Drillin	g for Rock Bolts		5,502	LF	\$20.00	\$110,04			
	13	Concrete in	Outlet Shaft and Gate Structure		5,128	CY	\$434.25	\$2,226,83			
				-							
		Subtotal		<u> </u>				\$193,308,10			
			NTITIES		I PR	ICES	11	φ193,300,10			
BY		B. Foster	CHECKED S. Osgood 11/21/03	ΒΥ	B. Foster	CHECKED	S. Osgood	11/21/2003			
	PREPA		APPROVED	DATE	D. POSter	PRICE LEV		11/21/2003			
	NEFA	11/10/2003			11/10/03		Appraisal 03				

TF279_985_RCC_2

CODE:	D-8170	ESTIMATE WORKSHEET				SHEET_2	OF2			
EATU	RE:		PROJE	CT:						
		9 Dam	DIVIDIO							
		85 (Interpolated) ete Gravity Dam (RCC)	DIVISION:							
	CONCI	ele Gravity Dail (NGC)	FILE:							
				C:\Documents an	d Settings\Re	hecca I				
							s]Interpolated 960			
PLANT						UNIT				
ACCT.	ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT			
	14	Excavation for Powerplant		131,384	CY	\$15.00	\$1,970,760			
	15	Concrete in Powerplant		42,350	CY	\$350.00	\$14,822,500			
	16	Furnishing and Handling Cement		630,096	TONS	\$90.00	\$56,708,654			
	17	Furnishing and Handling Reinforcement		15,042,656	LBS	\$0.60	\$9,025,594			
	18	Grout Hole DrilliIng		49.640	LF	\$32.88	\$1,631,915			
	19	Foundation Grouting		49,640	Sacks	\$26.03	\$1,291,88 ⁻			
	20	Set up for Drain Holes in Gallery		234	Holes	\$200.00	\$46,75			
	21	Drilling Drain Holes		44,638	LF	\$53.73	\$2,398,17			
	22	Outlet Works Trashracks		495,000	LBS	\$2.50	\$1,237,50			
	23	Steel Pipe		14,851,453	LBS	\$1.50	\$22,277,179			
	24	Valves, all Sizes and Types		7,262,195	LBS	\$5.00	\$36,310,97			
	25	Turbines		1,927,950	LBS	\$6.50	\$12,531,67			
	26	Generators		1,857,000	LBS	\$8.00	\$14,856,00			
	27	Governors, Motors, etc.		3-Units	LS		\$3,600,00			
	21			3-01118						
		Subtotal pg 1					\$193,308,16			
		Subtotal pg 2					\$178,709,55			
		Mabilization					¢10,000,000			
		Mobilization Subtotal				<u>├</u>	\$19,000,000 \$391,017,728			
		Oubiotal					<i>4331,017,72</i>			
		Unlited Items (15%)					\$58,982,272			
		Contract Cost					\$450,000,00			
		Contingencies (30%)					¢120.000.000			
							\$130,000,000			
		Field Cost					\$580,000,000			
		QUANTITIES	 	PRI	CES					
BY		CHECKED B. Foster S. Osgood	BY CHECKED B. Foster S. Osgood 11/21/2003			1/21/2003				
	REPA		DATE		PRICE LEV	<u> </u>				
	A	11/10/2003		11/10/03		Appraisal 03				

TF279_1100_CFR_1

CODE:D-81	70	ESTIMATE WORKSHEET				SHEET_1_ OF _3_	_		
FEA ⁻	FURE:		PRO	JECT:					
				USJRBSI					
	RM270	Dam Site							
	Elev. 1		DIVISI	ON:					
	Concre	ete Faced Rockfill Dam (CFR)							
			FILE: P:\US_Bureau_Reclamation\\DIQ_01CS20210B\Upper_San_Joaquin uments\Surface Storage Option TMs\TM Temperance\Pilorin cost s CFRF 2003.xls]MP279_900						
PLANT ACCT.	PAY ITEM	DESCRIPTION	CODE		UNIT	UNIT PRICE	AMOUNT		
	1	Diversion and care of river							
		Upstream Cofferdam (Crest @ El. 635)	1	1,792,470	СҮ	\$13.50	\$24,198,34		
		Excavation for Left Abutment Diversion Tunnel	1	147.970	<u> </u>	\$140.00	\$20,715,80		
		Concrete Liner for Left Abutment Diversion Tunnel	1	32,760	CY	\$245.00	\$8,026,20		
		Rock Bolts - Left Abt. Div. Tunnel	1	3,430	Bolts	\$600.00	\$2,058,00		
		Total Drilling - Left Abt. Div. Tunnel		61,740	LF	\$20.00	\$1,234,80		
		Excavation for Right Abutment Diversion Tunnel		278,850	CY	\$140.00	\$39,039,00		
		Concrete Liner for Right Abutment Diversion Tunnel		48,400	CY	\$245.00	\$11,858,00		
		Rock Bolts - Right Abt. Div. Tunnel		3,010	Bolts	\$600.00	\$1,806,00		
		Total Drilling - Right Abt. Div. Tunnel		69,230	LF	\$20.00	\$1,384,60		
		Furnishing and Handling Cement		22,900	TONS	\$100.00	\$2,290,00		
		Furnishing and Handling Reinforcement		12,174,000	LBS	\$0.60	\$7,304,40		
		Diversion and Care of River Subtotal					\$119,915,145		
		Spillway							
		Excavation for Spillway		1,271,750		\$8.50	\$10,809,87		
		Concrete in spillway crest		6,250	CY	\$180.00	\$1,125,00		
		Concrete in spillway training walls and Apron		2,750		\$220.00	\$605,00		
		Furnishing and Handling Cement		4,420	TONS	\$110.00	\$486,20		
		Furnishing and Handling Reinforcement		2,350,500		\$0.65	\$1,527,82		
		Concrete in Gravity Wall Spillway subtotal		6,670	CY	\$250.00	\$1,667,50 \$16,221,400		
							φ10,221, 4 00		
		QUANTITIES		PF	RICES				
ΒΥ			ΒΥ		CHECKED				
	S. Higinbo			R. Baumgarten					
	PREPARED		DATE	09/09/03	PRICE LEVE	L Appraisal 03			

TF279_1100_CFR_2

CODE:D-81	70	ESTIMATE WORKSHE	ET			SHEET_2_ OF _3_			
FEA	FURE:		PRO	JECT:					
				USJRBSI					
	RM279) Dam Site							
	Elev. 1		DIVISI						
			DIVISI	ON.					
	Concr	ete Faced Rockfill Dam (CFR)							
			FILE: P:\US_Bureau_Reclamation\IDIQ_01CS20210B\Upper_San_Joaquin, uments\Surface Storage Option TMs\TM Temperance\Pilorin cost sh CFRF 2003.xls]MP279_900						
PLANT ACCT.	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		OutletWorks							
		Concrete in Outlet Works Intake Structure		3,110	CY	\$265.00	\$824,15		
		Excavatioon of Outlet Shaft and Gate Structure		12,470	CY	\$280.00	\$3,491,60		
		Rock Bolt Supports		280	Bolts	\$380.00	\$106,40		
		Total Drilling for Rock Bolts		6,440	LF	\$20.00	\$128,80		
		Concrete in Outlet Shaft and Gate Structure		5,450	CY	\$435.00	\$2,370,75		
		Furnishing and Handling Cement		2,360	TONS	\$120.00	\$283,20		
		Furnishing and Handling Reinforcement		1,284,000	LBS	\$0.65	\$834,60		
		Outlet Works Trashracks Outlet Works subtotal		495,000	LBS	\$2.50	\$1,237,50 \$9,277,000		
							\$9,277,000		
		Powerplant							
		Steel Pipe		19,067,410	LBS	\$1.50	\$28,601,11		
		Valves, all Sizes and Types		11,053,400	LBS	\$5.00	\$55,267,00		
		Hydraulic Control System		150,000	LBS	\$10.00	\$1,500,00		
		Concrete in Powerplant		42,350	CY	\$350.00	\$14,822,50		
		Excavation for Powerplant		346,900	CY	\$13.00	\$4,509,70		
		Furnishing and Handling Cement		11,945	TONS	\$100.00	\$1,194,50		
		Furnishing and Handling Reinforcement		6,352,500	LBS LBS	\$0.60	\$3,811,50		
		Turbines Generators		1,890,000 2,340,000	LBS	\$6.50 \$8.00	\$12,285,00 \$18,720,00		
		Governors, Motors, etc.		2,340,000 3-Units	LBS	φο.00	\$3,600,000		
		Powerplant subtotal		3-01113	L3		\$144,311,315		
							· · · · · · · · · · · · · · · · · · ·		
		QUANTITIES		Pr	ICES				
BY	S. Higinbo	CHECKED	BY	R. Baumgarten	CHECKED				
DATE F	REPAREI	D APPROVED	DATE	09/09/03	PRICE LEVE	EL Appraisal 03			

TF279_1100_CFR_3

CODE:D-81	70		ESTIMATE WORKSHEET				SHEET_3_ OF _3	
FEAT	TURE:			IPRO.	JECT:			
_/ .								
	DM270	Dam Site						
	-		8					
	Elev. 1	100		DIVISI	ON:			
	Concre	ete Faced	l Rockfill Dam (CFR)					
				FILE:	PILLS BURDON Roc	amation\IDIO (10520210B\Uppo	r_San_Joaquin_Phase_1\
								e\Pilorin cost sheets\[MP2
<u> </u>					CFRF 2003.xls]MP2	79_900		
PLANT	PAY		DECODIDITION	0005			UNIT	
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT
							╉────╂	
		CFRF Dam					+	
			- common (removal of alluvium, rock slope				1 1	
	20		dozer to sound rock, minimal ripping.)	8313	208,000	CY	\$6.50	\$1,352,000
			Exc, haul, & place (CL, SM, GM in 6" lifts to		,			
	30	98% Procto	r, 2 mile haul) Toe slab imperv. Cap	8313	30,000	CY	\$9.00	\$270,000
		Zone 1B - E	xc, haul, & place (random in 18" lifts to 95%					
	40	Proctor, 0.5	mile haul) Shell for Zone 1A	8313	50,000	CY	\$7.00	\$350,000
			c, haul, & place processed SM, GM in 18" lifts					
	50		ctor, 0.5 mile haul) Deck foundation	8313	290,000	CY	\$16.00	\$4,640,000
			xc, haul, & place (processed GP in 18" lifts to				040.50	¢ 4 705 000
	60		r, 0.5 mile haul) Transition to Shell	8313	290,000	CY	\$16.50	\$4,785,000
	70		xc, haul, & place (rockfill, 18" max in 3' lifts,		10,000,000	CV/	¢7.75	\$77,500,000
	70		eration 0.5 mile away) Upstream Shell	8313	10,000,000	CT	\$7.75	\$77,500,000
	00		Exc, haul, & place (rockfill, 4' max in 4' lifts,	0040	10,500,000	cv	\$7.50	\$78,750,000
			eration 0.5 mile away) Downstream Shell eck (3,000 psi strength, 0.4% reinforcing)	8313	97,500		\$205.00	\$19,987,500
			e slab (3,000 psi strength, 0.4% reinforcing)	8313 8313	5,500		\$205.00	\$1,127,500
			s for toe slab (4' deep grouted into granite)	8313		anchors	\$40.00	\$988,000
			all (3,000 psi, 0.4% reinforcing)	8313	4,050		\$400.00	\$1,620,000
			grout program (setup, drill, test), setups=1153	8313	71,000		\$31.00	\$2,201,000
			rout injection into competent granite.	8313	53,000		\$22.00	\$1,166,000
		0.0	(assumes 48 month construction duration)	8313	1	LS	\$ <u>22.00</u>	\$2,400,000
	100	onnatoring	Subtotal, CFRF Dam	0010				\$197,137,000
								` <i>```````````````````````````````</i>
		SUMMARY	OF COSTS					
		Diversion a	nd Care of River					\$119,900,000
		Spillway						\$16,200,000
		Outlet Work	(S					\$9,300,000
		Powerplant						\$144,300,000
		CFRF Dam						\$197,100,000
		Mobilization	n - 5%					\$24,000,000
		Subtotal						\$510,800,000
		Unlisted Ite						\$79,200,000
		Contract C						\$590,000,000
\square		Contingenc	ies - 30%				+	\$180,000,000
\vdash		Field Cost		I			↓↓	\$770,000,000
							$ \longrightarrow$	
			QUANTITIES	<u> </u>		PRICES		
BY				BY		CHECKED		
-	Mark Pabs			<u> </u>	R. Baumgarten			
DATE P	PREPARED)		DATE		PRICE LEV		
	8/11/2002				09/09/03		Appraisal 03	

TF279_1115_CFR_1

ODE:D-8		ESTIMATE WORKSHEET	-			SHEET_1_OF	_2	
EATU		Dam Office	PROJI	ECT: USJRBSI				
	Elev. 1	∂ Dam Site I115 (Interpolated) ete Faced Rockfill Dam (CFR)	DIVISION:					
	Concr		FILE:	Phase_1\Documer	nts\Surface S	Storage Option	B\Upper_San_Joaqui TMs\TM 52003.xls]MP279_110	
PLANT	PAY					UNIT		
ACCT.	ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT	
	1	Diversion and care of river						
		Upstream Cofferdam (Crest @ El. 635)		1,858,060	CY	\$13.43	\$24,944,45	
		Excavation for Left Abutment Diversion Tunnel		152,892	CY	\$140.00	\$21,404,91	
		Concrete Liner for Left Abutment Diversion Tunnel		33,851	CY	\$245.75	\$8,318,76	
		Rock Bolts - Left Abt. Div. Tunnel		3,544	Bolts	\$592.50	\$2,099,82	
		Total Drilling - Left Abt. Div. Tunnel		63,792	LF	\$20.00	\$1,275,84	
		Excavation for Right Abutment Diversion Tunnel		281,936	CY	\$140.00	\$39,471,07	
		Concrete Liner for Right Abutment Diversion Tunnel		48,940	CY	\$245.75	\$12,027,00	
		Rock Bolts - Right Abt. Div. Tunnel		3,075	Bolts	\$600.00	\$1,844,70	
		Total Drilling - Right Abt. Div. Tunnel		70,714	LF	\$20.00	\$1,414,27	
		Furnishing and Handling Cement		23,359	TONS	\$100.00	\$2,335,90	
		Furnishing and Handling Reinforcement		12,418,575	LBS	\$0.60	\$7,451,14	
		Diversion and Care of River Subtotal	-				\$122,587,88	
		Spillway						
		Excavation for Spillway		1,299,519	CY	\$8.50	\$11,045,90	
		Concrete in spillway crest		6,357	CY	\$180.00	\$1,144,17	
		Concrete in spillway training walls and Apron		3,106	CY	\$219.25	\$681,04	
		Furnishing and Handling Cement		4,410	TONS	\$110.00	\$485,04	
		Furnishing and Handling Reinforcement		2,344,875	LBS	\$0.65	\$1,524,16	
		Spillway subtotal					\$14,880,33	
		QUANTITIES		PF	RICES	·		
Y		CHECKED	BY		CHECKED)		
	B. Fost	er S. Osgood		B. Foster		S. Osgood	11/21/2003	
ATE P	REPARI	ED APPROVED	DATE		PRICE LE	VEL		
		11/10/2003		11/10/03		Appraisal 03	1	

TF279_1115_CFR_2

CODE:D-8		ESTIMATE WORKSHEE				SHEET_2_OF	3	
-EAT	URE		PRO	JECT:				
				USJRBSI				
	RM279) Dam Site						
	Elev. 1	115 (Interpolated)	DIVISI	ON:				
		ete Faced Rockfill Dam (CFR)						
	Concr	ele Faced Rockilli Dalli (CFR)						
			FILE:				B\Upper_San_Joaqui	
				Phase_1\Documer			TMs\TM ⁻ 2003.xls]MP279 11(
PLANT	PAY				in cost sheet	UNIT	2000.213 [11] 213 11	
ACCT.	ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT	
					-			
		Outlet Works						
		Concrete in Outlet Works Intake Structure		3,110	CY	\$265.00	\$824,15	
		Excavatioon of Outlet Shaft and Gate Structure		12.490	CY	\$280.00	\$3,497,06	
		Rock Bolt Supports		295	Bolts	\$378.50	\$111,65	
		Total Drilling for Rock Bolts		6,389	LF	\$20.00	\$127,78	
		Concrete in Outlet Shaft and Gate Structure		5,570	CY	\$436.13	\$2,429,21	
		Furnishing and Handling Cement		2,398		\$119.25	\$285,99	
		Furnishing and Handling Reinforcement		1,302,000	LBS	\$0.65	\$846,30	
		Outlet Works Trashracks		495,000	LBS	\$2.50	\$1,237,50	
		Outlet Works subtotal					\$9,359,65	
		Powerplant						
		Steel Pipe		19,605,077	LBS	\$1.50	\$29,407,61	
		Valves, all Sizes and Types		10,998,575	LBS	\$5.00	\$54,992,87	
		Hydraulic Control System		152,775	LBS	\$10.00	\$1,527,75	
		Concrete in Powerplant		42,350	CY	\$350.00	\$14,822,50	
		Excavation for Powerplant Furnishing and Handling Cement		340,930 11,945	CY	\$13.00 \$100.00	\$4,432,09 \$1,194,50	
		Furnishing and Handling Reinforcement		6,352,500	LBS	\$0.60	\$3,811,50	
				1,898,250	LBS	\$6.50	\$12,338,62	
		Generators		2,352,000	LBS	\$8.00	\$18,816,00	
		Governors, Motors, etc.		3-Units	LS	ψ0.00	\$3,600,00	
		Powerplant subtotal		0 01113			\$144,943,45	
							<i>•••••••••••••••••••••••••••••••••••••</i>	
		QUANTITIES	PRICES					
3Y			ву снескер					
	B. Fost		1	B. Foster		, S. Osgood 1	1/21/2003	
	REPARI		DATE		PRICE LE			
		11/10/2003		11/10/03		Appraisal 03		

TF279_1115_CFR_3

EAT		ESTIMATE WORKSHEET	PRO.	JECT:		SHEET_3_ OF	`		
-71	0.\L								
	RM279) Dam Site							
		115 (Interpolated)	DIVISI						
		nkment Dam (CFR)		ON.					
	Empai								
			FILE:	P:\US_Bureau_Re Phase_1\Docume			B\Upper_San_Joaqu		
							F 2003.xls]MP279 11		
PLANT	PAY					UNIT			
CCT.	ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT		
		CFRF Dam							
		Excavation - common (removal of alluvium, rock slope							
	20	cleaning by dozer to sound rock, minimal ripping.)	8313	271,900	CY	\$6.35	\$1,726,5		
	20	Zone 1A - Exc, haul, & place (CL, SM, GM in 6" lifts to 98%	8313	37,500	CV	\$8.89	\$333,2		
	30	Proctor, 2 mile haul) Toe slab imperv. Cap Zone 1B - Exc, haul, & place (random in 18" lifts to 95%	6313	37,500		\$0.09	φ333,20		
	40	Proctor, 0.5 mile haul) Shell for Zone 1A	8313	106,250	CY	\$6.89	\$731,7		
		Zone 2 - Exc, haul, & place processed SM, GM in 18" lifts to				,	÷ / j.		
	50	98% Proctor, 0.5 mile haul) Deck foundation	8313	320,825	CY	\$15.93	\$5,109,1		
		Zone 3A - Exc, haul, & place (processed GP in 18" lifts to				•··· · · ·	·- · · · ·		
	60	95% Proctor, 0.5 mile haul) Transition to Shell	8313	320,825	CY	\$16.35	\$5,245,4		
	70	Zone 3B - Exc, haul, & place (rockfill, 18" max in 3' lifts,	0040	11 251 075	CV	\$7.69	¢07 220 /		
	70	blasting operation 0.5 mile away) Upstream Shell Zone 3C - Exc, haul, & place (rockfill, 4' max in 4' lifts,	8313	11,351,875		\$7.09	\$87,338,4		
	80	blasting operation 0.5 mile away) Downstream Shell	8313	11,857,500	CY	\$7.44	\$88,264,2		
		Concrete deck (3,000 psi strength, 0.4% reinforcing)	8313	108,199		\$202.38	\$21,896,7		
	-	Concrete toe slab (3,000 psi strength, 0.3% reinforcing	8313			\$202.38	\$1,126,1		
	110	Anchor bars for toe slab (4' deep grouted into granite)	8313	24,993	anchors	\$40.00	\$999,7		
		Parapet Wall (3,000 psi, 0.4% reinforcing)	8313	4,319		\$395.50	\$1,707,9		
		Drilling for grout program (setup, drill, test)	8313	72,526		\$30.85	\$2,237,4		
	-	Grouting (grout injection into competent granite.	8313	54,163		\$22.00	\$1,191,5		
	150	Unwatering Subtotal, CFRF Dam	8313	1	LS		\$2,512,5 \$220,421,03		
							ψ220,421,03		
		RCC Dike							
		Excavation, all classes, for Dike Foundation		699	CY	\$8.50	\$5,94		
		RCC in Dike		6,350	CY	\$48.00	\$304,77		
		Concrete facing elements in Dike		714	CY	\$180.00	\$128,52		
		Concrete cap on top of Dike		84	CY	\$250.00	\$21,00		
		Leveling concrete in Dike Foundation Subtotal, RCC Dike		140	CY	\$200.00	\$28,05		
							\$488,28		
		SUMMARY OF COSTS							
							\$122,600,00		
		Diversion and Care of River							
		Diversion and Care of River Spillway					\$14,900,00		
		Diversion and Care of River Spillway Outlet Works					\$9,400,00		
		Diversion and Care of River Spillway Outlet Works Powerplant					\$9,400,00 \$144,900,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam					\$9,400,00 \$144,900,00 \$220,400,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5%					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00 \$538,700,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5%					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00 \$538,700,00 \$81,300,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal Unlisted Items - 15%					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00 \$538,700,00 \$81,300,00 \$620,000,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal Unlisted Items - 15% Contract Cost					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00 \$538,700,00 \$81,300,00 \$620,000,00 \$190,000,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal Unlisted Items - 15% Contract Cost Contingencies - 30% Field Cost					\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00 \$538,700,00 \$81,300,00 \$620,000,00 \$190,000,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal Unlisted Items - 15% Contract Cost Contingencies - 30% Field Cost			PRICE		\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$26,000,00 \$538,700,00 \$81,300,00 \$620,000,00 \$190,000,00		
		Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal Unlisted Items - 15% Contract Cost Contingencies - 30% Field Cost QUANTITIES CHECKED	BY		PRICE)	\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$538,700,00 \$81,300,00 \$620,000,00 \$190,000,00 \$810,000,00		
	B. Fost	Diversion and Care of River Spillway Outlet Works Powerplant CFRF Dam RCC Dike Mobilization - 5% Subtotal Unlisted Items - 15% Contract Cost Contingencies - 30% Field Cost QUANTITIES er S. Osgood 11/21/2003	BY	B. Foster	8) S. Osgood 1	\$9,400,00 \$144,900,00 \$220,400,00 \$500,00 \$538,700,00 \$81,300,00 \$620,000,00 \$190,000,00 \$810,000,00		

TF279_1200_CFR_1

CODE:D-8	170	ESTIMATE WORKSHEET				SHEET_1_0	F_2	
FEAT		'9 Dam Site	PROJ	ECT: USJRBSI				
	Elev.	1200 (Interpolated) rete Faced Rockfill Dam (CFR)	DIVISION:					
			FILE: P:\US_Bureau_Reclamation\DIQ_01CS20210B\Upper_San e_1\Documents\Surface Storage Option TMs\TM Temperar sheets\[MP279 CFRF 2003.xis]MP279_1100					
PLANT ACCT.	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	Diversion and care of river						
		Upstream Cofferdam (Crest @ El. 635)		2,229,735	CY	\$13.00	\$28,986,55	
		Excavation for Left Abutment Diversion Tunnel	1	180,785	-	\$140.00	\$25,309,90	
		Concrete Liner for Left Abutment Diversion Tunnel	1	40,030	-	\$250.00	\$10,007,50	
		Rock Bolts - Left Abt. Div. Tunnel		4,190	Bolts	\$550.00	\$2,304,50	
		Total Drilling - Left Abt. Div. Tunnel		75,420	LF	\$20.00	\$1,508,40	
		Excavation for Right Abutment Diversion Tunnel		299,425	CY	\$140.00	\$41,919,5	
		Concrete Liner for Right Abutment Diversion Tunnel		52,000	CY	\$250.00	\$13,000,0	
		Rock Bolts - Right Abt. Div. Tunnel		3,440	Bolts	\$600.00	\$2,064,0	
		Total Drilling - Right Abt. Div. Tunnel		79,120	LF	\$20.00	\$1,582,4	
		Furnishing and Handling Cement		25,960	TONS	\$100.00	\$2,596,0	
		Furnishing and Handling Reinforcement		13,804,500	LBS	\$0.60	\$8,282,7	
		Diversion and Care of River Subtotal					\$137,561,45	
		Spillway						
		Excavation for Spillway		1,456,875		\$8.50	\$12,383,43	
		Concrete in spillway crest		6,960	-	\$180.00	\$1,252,80	
		Concrete in spillway training walls and Apron		5,125		\$215.00	\$1,101,87	
		Furnishing and Handling Cement		4,350		\$110.00	\$478,50	
		Furnishing and Handling Reinforcement		2,313,000	LBS	\$0.65	\$1,503,45	
		Spillway subtotal					\$16,720,06	
			1					
		QUANTITIES	+	l PR	RICES			
3Y	B. Fost	CHECKED er S. Osgood	BY	B. Foster	CHECKED	S. Osgood 1	1/21/2003	
DATE P	REPARE		DATE		PRICE LE	-		

TF279_1200_CFR_2

CODE:D-8	170	ESTIMATE WORKSHEET				SHEET_2_ O	F3		
FEAT	URE:		PRO.	JECT:					
				USJRBSI					
	RM27	79 Dam Site							
	Elev.	1200 (Interpolated)							
		rete Faced Rockfill Dam (CFR)	DIVISION:						
	•••••								
			FILE	P:\US_Bureau_Recla	amation\IDIQ	_01CS20210B\Up	oper_San_Joaquin_Pha Femperance\Pilorin cos		
				sheets\[MP279 CFR			remperance(Filonin cos		
PLANT	PAY					UNIT			
ACCT.	ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT		
		Outlet Works							
		Concrete in Outlet Works Intake Structure		3,110	CY	\$265.00	\$824,15		
		Excavatioon of Outlet Shaft and Gate Structure		12,600	CY	\$280.00	\$3,528,00		
		Rock Bolt Supports		380		\$370.00	\$140,60		
		Total Drilling for Rock Bolts		6,100		\$20.00	\$122,00		
		Concrete in Outlet Shaft and Gate Structure		6,250		\$442.50	\$2,765,62		
		Furnishing and Handling Cement			TONS	\$115.00	\$300,72		
		Furnishing and Handling Reinforcement		1,404,000		\$0.65	\$912,60		
		Outlet Works Trashracks		495,000	LBS	\$2.50	\$1,237,50		
		Outlet Works subtotal					\$9,831,200		
		Powerplant							
		Steel Pipe		22,651,855		\$1.50	\$33,977,783		
		Valves, all Sizes and Types		10,687,900	-	\$5.00	\$53,439,500		
		Hydraulic Control System		168,500		\$10.00	\$1,685,000		
		Concrete in Powerplant		42,350	CY	\$350.00	\$14,822,500		
		Excavation for Powerplant		307,100		\$13.00	\$3,992,300		
		Furnishing and Handling Cement Furnishing and Handling Reinforcement	_		TONS	\$100.00	\$1,194,500		
		Turbines		6,352,500 1,945,000		\$0.60 \$6.50	\$3,811,500 \$12,642,500		
		Generators		2,420,000	LBS	\$8.00	\$19,360,000		
		Governors, Motors, etc.		3-Units	LS	ψ0.00	\$3,600,000		
		Powerplant subtotal					\$148,525,583		
		QUANTITIES		l PR	ICES				
BY		CHECKED	BY	-	CHECKED				
	B. Fost	er S. Osgood 11/21/2003		B. Foster		S. Osgood 11	1/21/2003		
DATE P	TE PREPARED APPROVED		DATE	11/10/03	PRICE LE				

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CODE:D-8	3170		ESTIMATE WORKSHEET				SHEET_3_C	DF3	
FEATURE:			PRO.	PROJECT:					
_/ ···	•··								
	RM279 Dam Site								
Elev. 1200 (Interpolated) Embankment Dam			DIVISI	DIVISION:					
		- ·							
				FILE:	P:\US_Bureau_Recl	amation\IDIQ	_01CS20210B\L	Ipper_San_Joaquin_Phas	
					e_1\Documents\Sur sheets\[MP279 CFR			Temperance\Pilorin cost	
PLANT	PAY				Sheets (IMP 273 Crit	1 2003.213/141	UNIT		
ACCT.	ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	PRICE	AMOUNT	
/.001.					Q0/ WITT		TRICE	74000111	
				-					
		CFRF Dan	n						
	<u> </u>		common (removal of alluvium, rock slope						
	20		dozer to sound rock, minimal ripping.)	8313	634,000	CY	\$5.50	\$3,487,000	
	20		xc, haul, & place (CL, SM, GM in 6" lifts to 98%	0010	004,000		ψ0.00	ψ0,407,000	
	30		ile haul) Toe slab imperv. Cap	8313	80,000	CY	\$8.25	\$660,000	
			xc, haul, & place (random in 18" lifts to 95%	0010	00,000		ψ0.20	φ000,000	
	40		mile haul) Shell for Zone 1A	8313	425,000	CY	\$6.25	\$2,656,250	
	0		c, haul, & place processed SM, GM in 18" lifts to	0010	420,000		ψ0.20	ψ2,000,200	
	50		r, 0.5 mile haul) Deck foundation	8313	495,500	CY	\$15.50	\$7,680,250	
			xc, haul, & place (processed GP in 18" lifts to	0010	400,000		ψ10.00	ψ1,000,200	
	60		r, 0.5 mile haul) Transition to Shell	8313	495,500	CY	\$15.50	\$7,680,250	
			xc, haul, & place (rockfill, 18" max in 3' lifts,	0010	435,500		ψ10.00	ψ1,000,200	
	70		ration 0.5 mile away) Upstream Shell	8313	19,012,500	CV	\$7.38	\$140,217,188	
	70		xc, haul, & place (rockfill, 4' max in 4' lifts,	0313	19,012,300		φ1.30	φ140,217,100	
	90		ration 0.5 mile away) Downstream Shell	8313	19,550,000	cv	\$7.13	\$139,293,750	
<u> </u>			ck (3,000 psi strength, 0.4% reinforcing)	8313	168,825		\$187.50	\$31,654,688	
<u> </u>			e slab (3,000 psi strength, 0.4% reinforcing)	_	5,930		\$187.50		
				8313	,			\$1,111,875	
			for toe slab (4' deep grouted into granite)	8313		anchors		\$1,066,000	
			II (3,000 psi, 0.4% reinforcing)	8313	5,840		\$370.00	\$2,160,800	
			rout program (setup, drill, test)	8313	- , -		\$30.00	\$2,435,250	
			out injection into competent granite.	8313	60,750		\$22.00	\$1,336,500	
	150	Unwatering		8313	1	LS		\$3,150,000	
			Subtotal, CFRF Dam					\$344,589,800	
		RCC Dike	- All alara and fan Dillas Frans da tian		4.000		* 0.50	\$00.010	
			n, all classes, for Dike Foundation		4,660	CY	\$8.50	\$39,610	
		RCC in Dil			42,330	CY	\$48.00	\$2,031,840	
			acing elements in Dike		4,760	CY	\$180.00	\$856,800	
			ap on top of Dike		560	CY	\$250.00	\$140,000	
		Leveling co	oncrete in Dike Foundation		935	CY	\$200.00	\$187,000	
			Subtotal, RCC Dike					\$3,255,250	
L	<u> </u>								
			Y OF COSTS						
			and Care of River	1				\$137,600,000	
L		Spillway		1				\$16,700,000	
		Outlet Wor						\$9,800,000	
		Powerplan						\$148,500,000	
		CFRF Dan	n					\$344,600,000	
		RCC Dike						\$3,300,000	
		Mobilizatio	n - 5%					\$33,000,000	
		Subtotal						\$693,500,000	
		Unlisted Ite	ems - 15%					\$106,500,000	
	Contract Cost						\$800,000,000		
	Contingencies - 30%						\$240,000,000		
	Field Cost							\$1,040,000,000	
					1				
		•	QUANTITIES	PRICES					
BY			CHECKED	BY CHECKED					
	B. Fost	er	S. Osgood 11/21/2003		B. Foster	GILGREL	, S. Osgood 1	1/21/2003	
DATE P			APPROVED	DATE	5.1 03(6)		-		
		11/10/03		DATE PRICE LEVEL 11/10/03 Appraisal 03		3			
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CODE:D-81	70	ESTIMATE WORKSH	IEET	ET SHEET_1_OF_2					
FEATURE:			PROJ	PROJECT:					
RM279 Dam Site Elev. 1300 Concrete Faced Rockfill Dam (CFR)			DIVISION:						
				E: P:\US_Bureau_Reclamation\UDIQ_01CS20210B\Upper_San_Joaquin_Phase ments\Surface Storage Option TMs\TM Temperance\Pilorin cost sheets\[MF CFRF 2003.xls]MP279_1100					
PLANT ACCT.	PAY ITEM	DESCRIPTION	CODE		UNIT	UNIT PRICE	AMOUNT		
	1	Diversion and care of river							
		Upstream Cofferdam (Crest @ El. 635)		2,667,000	CY	\$12.50	\$33,337,50		
		Excavation for Left Abutment Diversion Tunnel		213,600		\$140.00	\$29,904,00		
		Concrete Liner for Left Abutment Diversion Tunnel		47,300		\$255.00	\$12,061,50		
		Rock Bolts - Left Abt. Div. Tunnel		4,950	Bolts	\$500.00	\$2,475,00		
		Total Drilling - Left Abt. Div. Tunnel		89,100		\$20.00	\$1,782,00		
		Excavation for Right Abutment Diversion Tunnel		320,000		\$140.00	\$44,800,00		
		Concrete Liner for Right Abutment Diversion Tunnel		55,600	CY	\$255.00	\$14,178,00		
		Rock Bolts - Right Abt. Div. Tunnel		3,870		\$600.00	\$2,322,00		
		Total Drilling - Right Abt. Div. Tunnel		89,010		\$20.00	\$1,780,20		
		Furnishing and Handling Cement		29,020		\$100.00	\$2,902,000		
		Furnishing and Handling Reinforcement		15,435,000		\$0.60	\$9,261,000		
		Diversion and Care of River Subtota	1	,		,	\$154,803,200		
		Spillway							
		Excavation for Spillway		1,642,000	CY	\$8.50	\$13,957,00		
		Concrete in spillway crest		7,670	CY	\$180.00	\$1,380,60		
		Concrete in spillway training walls and Apron		7,500	CY	\$210.00	\$1,575,00		
		Furnishing and Handling Cement		4,280	TONS	\$110.00	\$470,80		
		Furnishing and Handling Reinforcement		2,275,500	LBS	\$0.65	\$1,479,07		
		Spillway subtotal					\$18,862,475		
			_						
		QUANTITIES		PR	ICES				
ВΥ	S. Higi	CHECKED	BY	R. Baumgarten	CHECKED				
		ED APPROVED	DATE	~	PRICE LEVI	EL Appraisal 03			

TF279_1300_CFR_2

CODE:D-8170 ESTIMATE WOR									
FEATURE: RM279 Dam Site Elev. 1300 Concrete Faced Rockfill Dam (CFR)			PROJECT: DIVISION: FILE: P:\US_Bureau_Reclamation\\DIQ_01C\$20210B\Upper_San_Joaquin_Phase ments\Surface Storage Option TMs\TM Temperance\Pilorin cost sheets\\MF CFRF 2003.xIs\MP279 1100						
PLANT ACCT.	PAY ITEM								DESCRIPTION
		OutletWorks							
		Concrete in Outlet	Works Intake Structure		3,110	CY	\$265.00	\$824,15	
\rightarrow			let Shaft and Gate Structure		12,730	CY	\$280.00	\$3,564,40	
		Rock Bolt Supports			480	Bolts	\$360.00	\$172,80	
		Total Drilling for Ro			5,760	LF	\$20.00	\$115,20	
		Concrete in Outlet	Shaft and Gate Structure		7,050	CY	\$450.00	\$3,172,50	
		Furnishing and Har	ndling Cement		2,870	TONS	\$110.00	\$315,70	
		Furnishing and Har	ndling Reinforcement		1,524,000	LBS	\$0.65	\$990,60	
		Outlet Works Trash	nracks		495,000	LBS	\$2.50	\$1,237,50	
			Outlet Works subtotal					\$10,392,850	
		Powerplant							
		Steel Pipe			26,236,300	LBS	\$1.50	\$39,354,45	
		Valves, all Sizes ar			10,322,400	LBS	\$5.00	\$51,612,00	
		Hydraulic Control S			187,000	LBS	\$10.00	\$1,870,00	
		Concrete in Power			42,350	CY	\$350.00	\$14,822,50	
		Excavation for Pow			267,300	CY	\$13.00	\$3,474,90	
		Furnishing and Har			11,945	TONS	\$100.00	\$1,194,50	
			ndling Reinforcement		6,352,500	LBS	\$0.60	\$3,811,50	
		Turbines			2,000,000	LBS	\$6.50	\$13,000,00	
		Generators			2,500,000	LBS	\$8.00	\$20,000,00	
		Governors, Motors,	, etc. Powerplant subtotal		3-Units	LS		\$3,600,000 \$152,739,850	
								\$152,759,650	
		 QUANT	ITIES		PR	ICES			
BY .	S. Higinbo		CHECKED	BY	R. Baumgarten	CHECKED			
S. Higinbotham DATE PREPARED 7/01/2003		APPROVED	DATE		PRICE LEV	EL Appraisal 03			

TF279_1300_CFR_3

CODE:D-8170 ESTIMATE WORKSHE			WORKSHEET	ET SHEET_3 OF3					
FEA	FURE:		PRC	PROJECT:					
	Elev. 13		DIVIS	ION:					
Embankment Dam (CFR)			FILE:	P:\US_Bureau_Reclamation\\DIQ_01CS20210B\\Upper_San_Joaquin_Phase_ ments\Surface Storage Option TMs\TM Temperance\Pilorin cost sheets\{MP: CFRF 2003.xts]MP279_1100					
PLANT ACCT.	PAY ITEM	DESCRIPTION	CODE		UNIT	UNIT PRICE	AMOUNT		
		CFRF Dam							
	20	Excavation - common (removal of alluvium, roc cleaning by dozer to sound rock, minimal rippir		3 1,060,000	CV	\$4.50	\$4,770,000		
	20	Zone 1A - Exc, haul, & place (CL, SM, GM in 6		3 1,000,000		φ4.30	\$4,770,000		
	30	Proctor, 2 mile haul) Toe slab imperv. Cap	831	3 130,000	CY	\$7.50	\$975,000		
		Zone 1B - Exc, haul, & place (random in 18" lift	s to 95%						
	40	Proctor, 0.5 mile haul) Shell for Zone 1A	831	3 800,000	CY	\$5.50	\$4,400,000		
	50	Zone 2 - Exc, haul, & place processed SM, GN		704 000		¢45.00	¢40 545 000		
	50	98% Proctor, 0.5 mile haul) Deck foundation Zone 3A - Exc, haul, & place (processed GP in	831: 10" lifts to	3 701,000	CY	\$15.00	\$10,515,000		
	60	95% Proctor, 0.5 mile haul) Transition to Shell	831	3 701,000	CY	\$14.50	\$10,164,500		
	00	Zone 3B - Exc, haul, & place (rockfill, 18" max					<i>,</i>		
	70	blasting operation 0.5 mile away) Upstream Sh		3 28,025,000	CY	\$7.00	\$196,175,000		
		Zone 3C - Exc, haul, & place (rockfill, 4' max in			a .(** **	* / • • • • • • • • •		
		blasting operation 0.5 mile away) Downstream				\$6.75 \$170.00	\$193,050,000		
		Concrete deck (3,000 psi strength, 0.4% reinfo Concrete toe slab (3,000 psi strength, 0.3% rei			-	\$170.00	\$40,825,500 \$1,081,200		
		Anchor bars for toe slab (4' deep grouted into g		· /	anchors	\$40.00	\$1,144,000		
		Parapet Wall (3,000 psi, 0.4% reinforcing)	831			\$340.00	\$2,594,200		
		Drilling for grout program (setup, drill, test), set			LF	\$29.00	\$2,649,150		
	140	Grouting (grout injection into competent granite	831	3 68,500		\$22.00	\$1,507,000		
	150	Unwatering (assumes 36 month construction d	uration) 831	3 1	LS		\$3,900,000		
		Subtotal, CFRF Dam					\$473,750,550		
		RCC Dike							
		Excavation, all classes, for Dike Foundation		9,320	CY	\$8.50	\$79,220		
		RCC in Dike		84,660	CY	\$48.00	\$4,063,680		
		Concrete facing elements in Dike		9,520	CY	\$180.00	\$1,713,600		
		Concrete cap on top of Dike		1,120	CY	\$250.00	\$280,000		
		Leveling concrete in Dike Foundation		1,870	CY	\$200.00	\$374,000		
		Subtotal, RCC Dike					\$6,510,500		
		SUMMARY OF COSTS							
		Diversion and Care of River					\$154,800,000		
		Spillway					\$18,900,000		
		Outlet Works					\$10,400,000		
		Powerplant					\$152,700,000		
		CFRF Dam					\$473,800,000		
		Saddle Dam - RCC Dike					\$6,500,000		
		Mobilization - 5% Subtotal					\$41,000,000 \$858,100,000		
		Unlisted Items - 15%					\$131,900,000		
	Contract Cost Contingencies - 30%						\$990,000,000		
				1			\$300,000,000		
Field Cost						\$1,300,000,000			
		QUANTITIES			PRICES				
ВΥ	Y CHECKED		BY		CHECKED				
		Higinbotham Mark Pabst		R Baumgarten	<u> </u>				
DATE F	REPARED	APPROVED	DATE		PRICE LEVE				
		7/1/2003				Appraisal 03			

Description	A.m.o.unt		
Description 900 Foot RCC, including Powerhouse (from TF279 900 RCC 2)	Amount \$330,000,000		
40MW Powerhouse	\$330,000,000		
RM279 PH (40MW), 2003 prices, from Phase 1 est. for 900 Foot RCC Dam	\$91,568,965		
Less portion of pipes and valves attributable to O.VV., from below	-\$32,146,777		
Subtotal	\$59,422,188		
Mobilization (5%)	\$3,000,000		
Subtotal	\$62,422,188		
Unlisted items (~15%)	\$9,577,812		
Powerhouse Contract Cost Contract Costs for RM279 900 Foot RCC Dam, excluding 40MW Powerhouse (Jul-Jul-2003 cos	\$72,000,000		
	· · ·		
985 Foot RCC, including Powerhouse (from TF279_985_RCC_2)	\$450,000,000		
40MW Powerhouse RM279 PH (40MW), 2003 prices, from Phase 1 est. for 985 Foot RCC Dam	\$91,568,965		
RM275 Fn (4014WV), 2005 prices, from Finalse Fest, 101 505 Fold (CC Dami Less portion of pipes and values attributable to O.W., from bolow	-\$32,146,777		
Subtotal	\$59,422,188		
Mobilization (5%)	\$3,000,000		
Subtotal	\$62,422,188		
Unlisted items (~15%)	\$9,577,812		
Powerhouse Contract Cost	\$72,000,000		
Contract Costs for RM279 985 Foot RCC Dam, excluding 40MW Powerhouse (Jul-2003 costs)	\$380,000,000		
1100 Foot CFR, including Powerhouse (from TF279 1100 CFR 3)	\$590,000,000		
60MW Powerhouse	,,		
40MW Powerhouse Contract Cost (reference above)	\$72,000,000		
80MW Powerhouse Contract Cost (reference below)	\$105,000,000		
Powerhouse Average Contract Cost	\$88,500,000		
Contract Costs for RM279 1100 Foot CFR Dam, excluding 60MW Powerhouse (Jul-2003 costs)	\$500,000,000		
1115 Foot CFR, including Powerhouse (from TF279_1115_CFR_3)	\$620,000,000		
60MW Powerhouse 40MW/ Powerhouse Contract Cost (reference above)	\$72,000,000		
ADMW Fowerhouse Contract Cost (reference above)	\$105,000,000		
Powerhouse Average Contract Cost	\$88,500,000		
Contract Costs for RM279 1115 Foot CFR Dam, excluding 60MW Powerhouse (Jul-2003 costs)	\$530,000,000		
1200 Foot CFR, including Powerhouse (from TF279 1200 CFR 3)	\$800,000,000		
720W Powerhouse	\$000,000,000		
40MW Powerhouse Contract Cost (reference above)	\$89,000,000		
80MW Powerhouse Contract Cost (reference below)	\$105,000,000		
Powerhouse Average Contract Cost	\$97,000,000		
Contract Costs for RM279 1200 Foot CFR Dam, excluding 70MW Powerhouse (Jul-2003 costs)	\$700,000,000		
1300 Foot CFR, including Powerhouse (from TF279_1300_CFR_3)	\$990,000,000		
80MW Powerhouse			
	£150 700 050		
RM279 PH (80MW), 2003 prices, from Phase 1 est. for 1300 Foot CFR Dam	\$152,739,850 \$65,960,727		
Less portion of pipes and valves attributable to O.W., from below	-\$65,960,727		
Less portion of pipes and valves attributable to O.W., from below Subtotal	-\$65,960,727 \$86,779,123		
Less portion of pipes and valves attributable to O.W., from below	-\$65,960,727		
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%)	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877		
Less portion of pipe's and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000		
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%)	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877		
Less portion of pipe's and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000	% to PH %	6 to OVA
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs)	-\$65,960,727 \$66,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 Capacity (MW)	% to PH %	6 to OW
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost	-\$65,960,727 \$66,779,123 \$43,00,000 \$91,079,123 \$13,920,877 \$ 105,000,000 \$890,000,000 Capacity (MW) 180		
Less portion of pipe's and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1)	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 Capacity (MW) 180 40 60	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1)	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 Capacity (MW) 180 40 60	41% 19%	59% 81%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1) (reference TF286_ADJ COSTS_1) (reference TF286_ADJ COSTS_1) (reference TF286_ADJ COSTS_1) (reference TF286_ADJ COSTS_1)	-\$65,960,727 \$66,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 Capacity (MW) 180 40 60 80	41% 19% 24%	59% 81% 76%
Less portion of pipe's and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 Steel pipe, from Phase 1 est. for 900 Foot RCC Dam	- \$65,960,727 \$66,779,123 \$43,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 Capacity (MW) 180 40 60 80 \$17,602,965	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 (re	-\$65,960,727 \$66,779,123 \$43,300,000 \$91,079,123 \$13,920,877 \$ 105,000,000 \$890,000,000 \$890,000,000 Capacity (MW) 180 40 60 80 \$17,602,965 \$22,300,000	41% 19% 24%	59% 81% 76%
Less portion of pipe's and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 Steel pipe, from Phase 1 est, for 900 Foot RCC Dam Valves, from Phase 1 est, for 900 Foot RCC Dam Subtotal, pipe and valves	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 (Capacity (MW) 180 40 60 80 \$17,602,965 \$22,300,000 \$39,902,965	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1) (reference TF286_ADJ COSTS_1)	- \$65,960,727 \$66,779,123 \$43,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000 \$177,602,965 \$22,300,000 \$39,902,965 \$32,146,777	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 Portion of pipes and valves attributable to 0.W. Portion of pipes and valves attributable to 40MW PH	-\$65,960,727 \$86,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 (Capacity (MW) 180 40 60 80 \$17,602,965 \$22,300,000 \$39,902,965	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1) (reference TF286_ADJ COSTS_1)	- \$65,960,727 \$66,779,123 \$43,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000 \$177,602,965 \$22,300,000 \$39,902,965 \$32,146,777	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 For 900 Foot RCC Dam (w/ 40MW PH), Jul-2003 costs Steel pipe, from Phase 1 est. for 900 Foot RCC Dam Subtotal, pipe and valves Portion of pipes and valves attributable to 40MW PH For 1300 Foot CFR Dam (w/ 80MW PH), Jul-2003 costs Steel pipe, from Phase 1 est. for 1300 Foot CFR Dam Valves, from Phase 1 est. for 1300 Foot CFR Dam Valves, from Phase 1 est. for 1300 Foot CFR Dam	- \$65,960,727 \$66,779,123 \$43,900,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$39,902,965 \$22,300,000 \$39,902,965 \$32,146,777 \$7,756,188 \$39,354,450 \$51,612,000	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 Steel pipe, from Phase 1 est, for 900 Foot RCC Dam Valves, from Phase 1 est, for 900 Foot RCC Dam Subtotal, pipe and valves attributable to 40MW PH For 1300 Foot CFR Dam (w/ 40MW PH), Jul-2003 costs Steel pipe, from Phase 1 est, for 1300 Foot CFR Dam Valves, from Phase 1 est, for 1300 Foot CFR Dam Valves, fom Phase 1 est, for 1300 Foot CFR Dam Valves, fom Phase 1 est, for 1300 Foot CFR Dam Valves, fom Phase 1 est, for 1300 Foot CFR Dam Valves, fom Phase 1 est, for 1300 Foot CFR Dam	- \$65,960,727 \$66,779,123 \$4,300,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000 \$0,000 \$39,902,965 \$22,300,000 \$39,92,965 \$32,146,777 \$7,756,188 \$39,354,450 \$51,612,000 \$50,966,450	41% 19% 24%	59% 81% 76%
Less portion of pipes and valves attributable to O.W., from below Subtotal Mobilization (5%) Subtotal Unlisted items (~15%) Powerhouse Contract Cost Contract Costs for RM279 1300 Foot CFR Dam, excluding 80MW Powerhouse (Jul-2003 costs) (reference TF286_ADJ COSTS_1 (reference TF286_ADJ COSTS_1 For 900 Foot RCC Dam (w/ 40MW PH), Jul-2003 costs Steel pipe, from Phase 1 est. for 900 Foot RCC Dam Subtotal, pipe and valves Portion of pipes and valves attributable to 40MW PH For 1300 Foot CFR Dam (w/ 80MW PH), Jul-2003 costs Steel pipe, from Phase 1 est. for 1300 Foot CFR Dam Valves, from Phase 1 est. for 1300 Foot CFR Dam Valves, from Phase 1 est. for 1300 Foot CFR Dam	- \$65,960,727 \$66,779,123 \$43,900,000 \$91,079,123 \$13,920,877 \$105,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$890,000,000 \$39,902,965 \$22,300,000 \$39,902,965 \$32,146,777 \$7,756,188 \$39,354,450 \$51,612,000	41% 19% 24%	59% 81% 76%

RESERVOIR CONTRACT COST FOR VARIOUS TF279 STORAGE SIZES

CONTRACT COST FOR NEW POWERHOUSE AT RM279

40MW Contrat Cost (from above)	\$72,000,000
40MW Contrat Cost (from above) 60MW Contrat Cost (from above)	
BUIMW Contrat Cost (from above,	000,000,000
Description	Amount
15MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.61
Adjusted Contract Cost for 15MW Powerhouse at RM279 (Jul-2003 costs)	\$45,000,000
120MW Powerhouse	
Conversion Factor (square root of MW ratio)	1.41
Adjusted Contract Cost for 120MW Powerhouse at RM279 (Jul-2003 costs)	\$125,000,000
CONTRACT COST FOR NEW POWERHOUSE AT MILLERTON LAKE	
4X45MW Contrat Cost (from MILL LK_NEW PH_1)	\$115,000,000
Description	Amount
120MM Powerbouse	

120MW Powerhouse	
Conversion Factor (square root of MW ratio)	0.82
Adjusted Contract Cost for 120MW Powerhouse at Millerton Lake (Jul-2004 costs)	\$94,000,000