# Appendix C



## CHINO BASIN DRY YEAR YIELD PROGRAM EXPANSION PROJECT COST DEVELOPMENT TOOL Capital and O&M Cost Assumptions

Construction Cost Criteria			O&M Cost Criteria				Einancing and General Cost Criteria		
Construction Cost Criteria	Unit	Cost	Cam Cost Chiena	Unit		Cost	r mancing and General Cost Chteria	Unit	Cost
Source Water Systems	onit	0031	Source Water Systems	Unit		COSI	Contingency	%	20%
New Well(s)			Misc. Well Maintenance	1.5	\$	25 000	Engineering/Administration/CM	%	12%
Drilling/casing/cap	15	\$ 900.000	Treatment		Ŷ	20,000	Energy Cost	\$/kWh	0.14
Equipping/sitework/elec/mech	LS	\$ 1,000,000	Regenerable IX	\$/1000 gal	\$	0.30	Midpoint of Construction	¢,	0.11
Emergency generator	LS	\$ 275,000	Non-Regenerable IX	\$/1000 gal	\$	0.30	No. of Years (2009-2012)	vr	3
Disinfection system	LS	\$ 200,000	Resin Replacement	\$/CF	\$	170.00	Escalation Rate	%	3%
Pumphouse/electrical bldg	LS	\$ 250,000	No. of Years	Years	Ŷ	10	General facility online factor	%	90%
New ASR Well(s)		+	Escalation Rate	%		3%	ASR facility production factor	%	50%
Drilling/casing/cap	LS	\$ 1,250,000	Conveyance				Financing amortization period	Years	25
Equipping/sitework/elec/mech	LS	\$ 1,100,000	Pipelines - general	\$/mile	\$	4.000	Financing discount rate	%	6%
Emergency generator	15	\$ 275,000	Pump station - general	% const	, i	2%	<b>J</b>		
Disinfection system	LS	\$ 200,000	SARI/NRW	/0 001101		270			
Pumphouse/electrical bldg	LS	\$ 250,000	Monthly Capacity Charges						
New Injection Well(s)		+,	North	\$/CU-mo.	\$	262.20			
Drilling/casing/cap	LS	\$ 900.000	South	\$/CU-mo.	\$	182.76			
Equipping/sitework/elec/mech	15	\$ 200,000	Monthly Volumetric Charge	<i>\$</i> /00 me.	Ŷ	102.10			
Building/enclosure	15	\$ 250,000	North	\$/MG/mo	S	1 395 50			
Well/ASR Conversion(s)	20	· 200,000	South	\$/MG/mo	ŝ	792.00			
Casing/can	15	\$ 500,000	Monthly CIP Charge	\$/CU-mo	ŝ	85.00			
Equipping/sitework/elec/mech	15	\$ 1 100 000	monany on onargo	<i>\$</i> ,00 me.	Ψ	00.00	1		
Equipping/sitework/elec/mech	1.5	\$ 275,000	-						
Disinfection system	1.5	\$ 200,000	-						
Pumphouse/electrical bldg	1.5	\$ 250,000	-						
Well(s) Rehabilitation	1.5	φ 230,000	-						
Casing/can	19	\$ 500,000							
Equipping/sitework/elec/mech	1.5	\$ 1,000,000	-						
Equipping/sitewont electriced	1.5	\$ 275,000	-						
Disinfection system	15	\$ 200,000							
Pumphouse/electrical bldg	1.5	\$ 250,000	-						
Treatment Facilities	20	φ 200,000							
Regenerable IX			1						
Typical	\$/gallon	\$ 0.76							
ISEP	\$/gallon	\$ 0.85							
Non-regenerable IX	\$/gallon	\$ 0.50							
Pre-Engineered Bldg	LS	\$ 200,000							
Conveyance Facilities	20	φ 200,000							
Pipelines			1						
Collection (welded steel pipe)	in-ft	\$ 15							
Distribution (welded steel pipe)	in-ft	\$ 15							
Brine (double PVC)	in-ft	\$ 15							
Pump Station(s)		<b>v</b> .0	1						
Distribution system booster station	\$/HP	\$ 5,000							
Plant booster station	\$/HP	\$ 2,500							
River Crossing	<b>4</b>	-,							
HDD	LS	\$ 1,800,000							
Bridge supported	\$/LF	\$ 900							
Freeway crossing (microtunnel)	\$/LF	\$ 1.080							
Railroad crossing (auger boring)	LS	\$ 200,000							
Storm channel crossing (auger boring)	LS	\$ 150,000							
Transmission pipeline turnout	LS	\$ 400,000							
Connection to storm channel	LS	\$ 50,000							
Misc. valves & FM for interconnections	LS	\$ 25,000							
SARI/NRW			1						
Brine connection	\$/C.U.	\$ 150,000	1						
Brine capacity unit	gpm	15	1						
Land			1						
Undeveloped	\$/acre	\$ 500,000	1						
General			1						
General mechanical (1)	% const.	3%	1						
General electrical (1)	% const.	10%							
General site work (1)	% const.	5%	1						
General requirements (mob/demob) (2)	% const.	2%	1						

Notes: (1) % of total construction cost for all IX facilities and booster stations (2) % of total construction cost for all components except land and SARI/NRW capacity charges

#### CHINO BASIN DRY YEAR YIELD PROGRAM EXPANSION PROJECT

COST DEVELOPMENT TOOL

Opinion of Probable Capital and O&M Cost Summary

#### **Cost Summary**

	Construction	Capital		Midpoint	Annual	ι	Jnit Water Cost
Facility	Cost	Cost	Сс	onstruction Cost	O&M Cost		(\$/AFY)
A-Chino Opt. A	\$ 6,975,000	\$ 9,207,000	\$	10,061,000	\$ 823,000	\$	363
A-Chino Opt. B	\$ 5,950,000	\$ 7,854,000	\$	8,582,000	\$ 686,000	\$	366
B-Chino Hills	\$ 1,632,000	\$ 2,154,000	\$	2,354,000	\$ 139,000	\$	134
C-Cucamonga	\$ 11,674,000	\$ 15,410,000	\$	16,839,000	\$ 1,108,000	\$	188
D-Jurupa	\$ 8,732,000	\$ 11,526,000	\$	12,595,000	\$ 1,310,000	\$	136
E-MVWD Opt.A	\$ 13,451,000	\$ 17,755,000	\$	19,401,000	\$ 965,000	\$	513
E-MVWD Opt.B	\$ 8,190,000	\$ 10,811,000	\$	11,813,000	\$ 501,000	\$	312
F-Ontario Opt.A	\$ 6,839,000	\$ 9,028,000	\$	9,865,000	\$ 9,000	\$	260
F-Ontario Opt.B	\$ 7,924,000	\$ 10,460,000	\$	11,430,000	\$ 10,000	\$	301
G-Pomona	\$ 5,567,000	\$ 7,348,000	\$	8,029,000	\$ 505,000	\$	242
H-Upland	\$ 2,397,000	\$ 3,164,000	\$	3,457,000	\$ 231,000	\$	311
I-TVMWD	\$ 4,856,000	\$ 6,410,000	\$	7,004,000	\$ 398,000	\$	95
J-WMWD Opt.A	\$ 9,185,000	\$ 12,124,000	\$	13,248,000	\$ 560,000	\$	319
J-WMWD Opt.B	\$ 18,211,000	\$ 24,038,000	\$	26,267,000	\$ 29,000	\$	417
TOTAL	\$ 111,583,000	\$ 147,289,000	\$	160,945,000	\$ 7,274,000		

A-Chino Opt. A (Wells 3 and 12 IX) Facility capacity

2,750 4,435 gpm AFY

Engineering C	riteria				Co	sts		
Criteria Source Water Systems	Unit	Value	Capital Costs Source Water Systems	-		Annual Cost Summary O&M		
New Well(s)	onit	Value	New Well(s)			Source Water Systems		
Drilling/casing/cap	No.		Drilling	\$	-	New Well(s)		
Equipping	No.		Equipping	\$	-	Power	\$	-
Disinfection system	NO.		Disinfection system	\$	-	ASR Well(s)	\$	-
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	\$	-	Power	\$	-
Total installed HP for well(s)	HP		Land	\$	-	Misc. well maintenance	\$	-
Land New ASR Well(s)	Acres		Drilling	¢		Injection Well(s) Misc. well maintenance	¢	-
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)	Ģ	
Equipping	No.		Emergency generator	\$	-	Power	\$	-
Emergency generator	No.		Disinfection system	\$	-	Misc. well maintenance	\$	-
Pumphouse/electrical bldg	No.		Land	ş		Power	s	62.000
Total installed HP for well(s)	HP		New Injection Well(s)	Ť		Misc. well maintenance	\$	25,000
Land	Acres		Drilling	\$	-	Treatment		
New Injection Well(s)	No		Equipping Building/enclosure	\$		Regenerable IX - Typ.		
Equipping	No.		Land	\$	-	General	\$	-
Building/enclosure	No.		Well/ASR Conversion(s)			Resin Replacement	\$	-
Land	Acres		Casing/cap	\$	-	Unit 2	~	
Casing/cap	No.		Equipping Emergency generator	ş		Resin Replacement	s s	-
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP	1	
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Disintection system	No.		Land Well(s) Repabilitation	\$	-	General Resin Replacement	\$	434,000
Total installed HP for well(s)	HP		Casing/cap	\$	-	Non-Regenerable IX	Ŷ	13,000
Land	Acres		Equipping	\$	1,000,000	Unit 1		
Well(s) Rehabilitation	N1-		Emergency generator	\$	-	General	\$	-
Equipping	NO.	1	Pumphouse/electrical bldg	\$	200,000	Covevance	\$	-
Emergency generator	No.		Land	\$	· ·	Collection Pipeline	\$	
Disinfection system	No.	1	Treatment Facilities			Distribution Pipeline	\$	
Pumphouse/electrical bldg	No.	75	Regenerable IX - Typ.	¢		Brine Pipeline Pump Station(s)	\$	3,000
Land	Acres	15	Pre-engineered building	\$		Distribution system booster station	1	
Treatment Facilities			Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$	-	General	\$	-
Unit 1	apm		Regenerable IX - ISEP	¢	3 366 000	Plant booster station Power	¢	247.000
Pre-engineered building	No.		Pre-engineered building	\$	200,000	General	\$	15,000
Resin volume	ft3		Non-regenerable IX			SARI/NRW		
Brine flow - average	gpm		Unit 1	\$	-	Brine - Capacity Charge		
NRWS connection	gpm N or S		Land	\$	-	Unit 1		
Brine capacity units	No.	0	Conveyance Facilities	Ť		Unit 2		
Land	Acres		Pipeline(s)			Regenerable IX - ISEP		
Unit 2	apm		Collection	\$		Unit 1 Non-Regenerable IX	\$	6,000
Pre-engineered building	No.		Brine	\$	315.000	Unit 1		
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		
Brine flow - max rate NRWS connection	gpm N or S		Plant booster station	\$	750,000	Unit 1 Unit 2		
Brine capacity units	No.	0	River Crossing	Ť		Regenerable IX - ISEP		
Land	Acres		HDD	\$	-	Unit 1	\$	14,000
Regenerable IX - ISEP			Bridge supported	\$	-	Non-Regenerable IX		
Installed treated capacity	gpm	2,750	Railroad crossing (auger boring)	\$		CIP Charge		
Pre-engineered building	No.	1	Storm channel crossing (auger boring)	\$	-	Regenerable IX - Typ.		
Resin volume	ft3	750	Transmission pipeline turnout	\$	-	Unit 1	\$	-
Brine flow - max rate	apm	30	Misc. valves & FM for interconnections	\$	-	Regenerable IX - ISEP	\$	-
NRWS connection	N or S	N	SARI/NRW			Unit 1	\$	2,000
Brine capacity units	No.	2	NRWS Initial Capacity Charge			Non-Regenerable IX		
Land Non-regenerable IX	Acres		Lipit 1	¢		Unit 1	\$	-
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	823,000
Installed treated capacity	gpm		Regenerable IX - ISEP			-		
Pre-engineered building Resin volume	No.		Unit 1	\$	300,000	Annualized Capital	\$	787,000
Brine flow - average	apm		Unit 1	\$	-	Total Annual Cost	\$	1,610.000
Brine flow - max rate	gpm		General					, ,
NRWS connection	N or S	^	General mechanical	\$	123,000	Total Unit Water Cost (\$/AF-yr)	\$	363
Brine capacity units	NO.	0	General electrical	\$	206.000			
Conveyance Facilities	10103		General requirements (mob/demob)	\$	103,000			
Pipeline(s)								
Collection	in		Total Construction Costs	\$	6,975,000			
Length	ft		Contingency	s	1.395.000			
Distribution			Engineering/administration/CM	\$	837,000			
Diameter	in							
Brine	π		Total Capital Cost	\$	9,207,000			
Diameter	in	6	Midpoint of Construction Costs	\$	10 <u>,061</u> ,000			
Length	ft	3,500						
Pump Station(s)	ЦВ		4					
Plant booster station	HP	300	1					
Land	Acres							
River Crossing(s)	N-		-					
Bridge supported	N0.		1					
Freeway crossing (microtunnel)	LF							
Railroad crossing (auger boring)	No.							
Storm channel crossing (auger boring)	No.		4					
Connection to storm channel	No.		1					
Misc. valves & FM for interconnections	No.							

A-Chino Opt. B (Well No. 14 IX an	d Injection Well)	
Facility capacity	gpm	2,300
	AFY	3,709

Engineering C	riteria			-	Co	sts		
Criteria	11-34	Malua	Capital Costs			Annual Cost Summary		
Now Woll(c)	Unit	value	Source water Systems			O&M Source Water Systems		
Drilling/casing/cap	No.		Drilling	S	-	New Well(s)		
Equipping	No.		Equipping	\$	-	Power	\$	-
Emergency generator	No.		Emergency generator	\$	-	Misc. well maintenance	\$	-
Disinfection system	No.		Disinfection system	\$	-	ASR Well(s)	_	
Pumphouse/electrical bldg Total installed HP for well(s)	NO. HP		Pumphouse/electrical bldg	ç	-	Power Misc well maintenance	8	
Land	Acres		New ASR Well(s)	Ŷ	-	Injection Well(s)	Ψ	
New ASR Well(s)			Drilling	\$	-	Misc. well maintenance	\$	25,000
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)	-	
Equipping	No.		Emergency generator	\$	-	Power Miss well maintenance	Ş	-
Disinfection system	No.		Pumphouse/electrical bldg	ə S		Well(s) Rehabilitation	\$	-
Pumphouse/electrical bldg	No.		Land	\$	-	Power	\$	-
Total installed HP for well(s)	HP		New Injection Well(s)			Misc. well maintenance	\$	-
Land New Injection Well(s)	Acres		Drilling	\$	200,000	Ireatment Recenerable IX - Typ		
Drilling/casing/cap	No.	1	Building/enclosure	\$	-	Unit 1		
Equipping	No.	1	Land	\$	-	General	\$	-
Building/enclosure	No.		Well/ASR Conversion(s)	¢		Resin Replacement	\$	-
Well/ASR Conversion(s)	Acres		Equipping	ə S		General	s	-
Casing/cap	No.		Emergency generator	\$	-	Resin Replacement	\$	-
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1	e	262.000
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation	φ		Resin Replacement	ŝ	14.000
Total installed HP for well(s)	HP		Casing/cap	\$	-	Non-Regenerable IX		
Land	Acres		Equipping	\$	-	Unit 1	_	
Well(s) Rehabilitation	No		Emergency generator	\$	-	General Regin Regionement	Ş	-
Equipping	No.		Pumphouse/electrical bldg	ş	-		ð	
Emergency generator	No.		Land	\$	-	Collection Pipeline	\$	-
Disinfection system	No.		Treatment Facilities			Distribution Pipeline	\$	-
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.	¢		Brine Pipeline	\$	-
Land	Acres		Drit 1 Pre-engineered building	\$	-	Distribution system booster station		
Treatment Facilities	710100		Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$	-	General	\$	-
Unit 1			Regenerable IX - ISEP	ê 0.	45.000	Plant booster station		0.47.000
Pre-engineered building	gpm No		Unit 1 Pre-engineered building	\$ 2,	200 000	General	\$	247,000
Resin volume	ft3		Non-regenerable IX	Ţ.	200,000	SARI/NRW	Ť	10,000
Brine flow - average	gpm		Unit 1	\$	-	Brine - Capacity Charge		
Brine flow - max rate	gpm		Pre-engineered building	\$	-	Regenerable IX - Typ.		
Brine capacity units	N OF S	0	Land Conveyance Facilities	2	-	Unit 1		
Land	Acres	Ū	Pipeline(s)			Regenerable IX - ISEP		
Unit 2			Collection	\$	-	Unit 1	\$	6,000
Installed treated capacity	gpm		Distribution	\$	-	Non-Regenerable IX		
Pre-engineered building Resin volume	INO. ft3		Brine Pump Station(s)	2	36,000	Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	\$	750,000	Unit 1		
NRWS connection	N or S	0	Land Diversities	\$	-	Unit 2		
Land	Acres	0	HDD	s		Linit 1	s	14 000
Regenerable IX - ISEP	710100		Bridge supported	\$	-	Non-Regenerable IX	Ť	11,000
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1		
Installed treated capacity Bro opgingered building	gpm	2,300	Railroad crossing (auger boring)	\$	-	CIP Charge Regenerable IX Typ		
Resin volume	ft3	690	Transmission pipeline turnout	\$	-	Unit 1	s	-
Brine flow - average	gpm	20	Connection to storm channel	\$	-	Unit 2	\$	-
Brine flow - max rate	gpm	30	Misc. valves & FM for interconnections	\$	-	Regenerable IX - ISEP		
NRWS connection	N or S	N 2	SARI/NRW			Unit 1	\$	2,000
Land	Acres	2	Regenerable IX - Typical			Unit 1	\$	-
Non-regenerable IX			Unit 1	\$	-			
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	686,000
Installed treated capacity Pre-engineered building	gpm No		Regenerable IX - ISEP	¢ .	300.000	Annualized Capital	e	671 000
Resin volume	ft3		Non-Regenerable IX	Ť.	- 50,500	oupnul	1	
Brine flow - average	gpm		Unit 1	\$	-	Total Annual Cost	\$	1,357,000
Brine flow - max rate	gpm		General		107.000			
NRWS connection Brine capacity units	N or S	0	General mechanical	\$	107,000	Total Unit Water Cost (\$/AF-yr)	\$	366
Land	Acres	<u> </u>	General site work	\$	178,000			
Conveyance Facilities			General requirements (mob/demob)	\$	107,000			
Pipeline(s)			<b>T</b> + 10 + + + + + + + + + + + + + + + + +					
Diameter	in		Total Construction Costs	\$ D,	950,000			
Length	ft		Contingency	\$ 1,	190,000			
Distribution			Engineering/administration/CM	\$	714,000			
Diameter	in 6		Total Capital Cast	\$ 7	PE 4 000			
Brine	n			φ <i>1</i> ,	JUUU,+UUU			
Diameter	in	6	Midpoint of Construction Costs	\$ 8,	582,000			
Length	ft	400						
Pump Station(s)	ЦВ		4					
Plant booster station	HP	300	1					
Land	Acres		1					
River Crossing(s)	-							
HDD Bridge supported	No.		4					
Freeway crossing (microtunnel)	LF		1					
Railroad crossing (auger boring)	No.		1					
Storm channel crossing (auger boring)	No.		1					
I ransmission pipeline turnout	No.		1					
Misc. valves & EM for interconnections	NO.		1					
			1					

B-Chino Hills Facility capacity

1,500 2,419 gpm AFY

Engineering C	riteria				Co	sts		
Criteria			Capital Costs			Annual Cost Summary		
Source Water Systems	Unit	Value	Source Water Systems			O&M		
New Well(s)	Nie		New Well(s)			Source Water Systems		
Drilling/casing/cap	NO.		Drilling	\$	-	New Well(s)	~	
Equipping	NU.		Equipping	\$	-	Miss well maintenance	\$	-
Disinfection system	NO.		Disinfection system	¢ 9	-	ASP Woll(c)	ð	-
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	ŝ	-	Power	s	-
Total installed HP for well(s)	HP.		Land	ŝ	-	Misc. well maintenance	ŝ	-
Land	Acres		New ASR Well(s)	*		Injection Well(s)	Ť	
New ASR Well(s)			Drilling	\$	-	Misc. well maintenance	\$	-
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)		
Equipping	No.		Emergency generator	\$	-	Power	\$	114,000
Emergency generator	No.		Disinfection system	\$	-	Misc. well maintenance	\$	25,000
Disinfection system	No.		Pumphouse/electrical bldg	\$		Well(s) Rehabilitation		
Pumphouse/electrical bldg	No.		Land	\$	-	Power	\$	-
Total installed HP for well(s)	HP		New Injection Well(s)	_		Misc. well maintenance	\$	-
Land	Acres		Drilling	\$	-	Treatment		
New Injection Well(s)	Nie		Equipping	\$	-	Regenerable IX - Typ.		
Drilling/casing/cap	NO.		Building/enclosure	\$	-	Unit 1	~	
Equipping	NU.		Lanu Well/ASB Conversion(a)	à	-	General Basis Basissement	\$	-
Land	Acres		Casing/can	\$	500.000	Unit 2	ę	-
Well/ASR Conversion(s)	Acres		Equipping	\$ 1	100,000	General	s	-
Casing/cap	No.	1	Emergency generator	\$	-	Resin Replacement	ŝ	-
Equipping	No.	1	Disinfection system	ŝ	-	Regenerable IX - ISEP	Ť	
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Disinfection system	No.		Land	\$	-	General	\$	-
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation			Resin Replacement	\$	-
Total installed HP for well(s)	HP	250	Casing/cap	\$		Non-Regenerable IX		
Land	Acres		Equipping	\$	-	Unit 1		
Well(s) Rehabilitation			Emergency generator	\$	-	General	\$	-
Casing/cap	No.		Disinfection system	\$	-	Resin Replacement	\$	-
Equipping	No.		Pumphouse/electrical bldg	\$	-	Coveyance	_	
Emergency generator	No.		Land	\$	-	Collection Pipeline	\$	-
Disinfection system	No.		Treatment Facilities			Distribution Pipeline	\$	-
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	\$	-
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)	_	
Land	Acres		Pre-engineered building	\$	-	Distribution system booster station		
Degenerable IX Turical			Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	à	-	Diant begates station	ð	-
Unit I Installed treated capacity	anm		Lipit 1	¢		Plant booster station	¢	
Pre-engineered building	No		Pre-engineered building	ş	-	General	¢	
Resin volume	ft3		Non-regenerable IX	Ψ		SARI/NRW	Ψ	
Brine flow - average	apm		Unit 1	s	-	Brine - Capacity Charge		
Brine flow - max rate	apm		Pre-engineered building	ŝ	-	Regenerable IX - Tvp		
NRWS connection	N or S		Land	ŝ	-	Unit 1		
Brine capacity units	No.	0	Conveyance Facilities			Unit 2		
Land	Acres		Pipeline(s)			Regenerable IX - ISEP		
Unit 2			Collection	\$	-	Unit 1		
Installed treated capacity	gpm		Distribution	\$		Non-Regenerable IX		
Pre-engineered building	No.		Brine	\$	-	Unit 1		
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	\$	-	Unit 1		
NRWS connection	N or S		Land	\$	-	Unit 2		
Brine capacity units	No.	0	River Crossing	¢		Regenerable IX - ISEP		
Lano Begenerekie IX JEED	Acres		HUU Bridge supported	\$	-	Unit 1		
Lipit 1			Enage supported	¢	-	Inoit-Regenerable IA		
Installed treated capacity	anm		Railroad crossing (nicrotunner)	¢ 2	-	CIP Charge		
Pre-engineered building	No		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Tvp		
Resin volume	ft3		Transmission pipeline turnout	ŝ	-	Unit 1	\$	-
Brine flow - average	apm		Connection to storm channel	ŝ	-	Unit 2	š	-
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	-	Regenerable IX - ISEP		
NRWS connection	N or S		SARI/NRW			Unit 1	\$	-
Brine capacity units	No.	0	NRWS Initial Capacity Charge			Non-Regenerable IX		
Land	Acres		Regenerable IX - Typical			Unit 1	\$	-
Non-regenerable IX			Unit 1	\$	-			
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	139,000
Installed treated capacity	gpm		Regenerable IX - ISEP	-				
Pre-engineered building	No.		Unit 1	\$	-	Annualized Capital	\$	184,000
Resin volume	113		Non-Regenerable IX	¢		Tatal Annual Cast		000.000
Brine flow - average	gpm		Unit 1	\$	-	Total Annual Cost	\$	323,000
NPWS connection	gpm Nor S		General mochanical	¢		Total Unit Water Cost (\$/AE-vr)	e	124
Rripo conscitu unito	No	0	General electrical	¢ ¢	-	Total Onit Water Cost (\$/AF-VI)	Ş	134
Land	Acres	U	General site work	¢	_			
Conveyance Facilities	Acies		General requirements (mob/demob)	ş	32 000			
Pipeline(s)			Conorda requiremente (mob/domob)	Ŷ	02,000			
Collection			Total Construction Costs	\$ 1	.632.000			
Diameter	in				,,			
Length	ft		Contingency	\$	326,000			
Distribution			Engineering/administration/CM	\$	196,000			
Diameter	in							
Length	ft		Total Capital Cost	\$ 2	,154,000			
Brine	L							
Diameter	in		Midpoint of Construction Costs	\$ 2	,354,000			
Length	ft		4					
Pump Station(s)	l		4					
Distribution system booster station	HP		4					
Plant booster station	HP		4					
Land	Acres		4					
Kiver Crossing(s)	N1-		4					
Ridge supported	INO.		1					
Energy crossing (microtuppel)			1					
Pailroad crossing (auges bering)	LF No		1					
Storm channel crossing (auger boring)	NO.		1					
Transmission pipeline turnout	No.		1					
Connection to storm channel	No.		1					
Connection to Storn charling	INU.		4					
Misc. valves & FM for interconnections	No							

C-CVWD Facility capacity

8,000 12,902 gpm AFY

Engineering C	riteria				Co	sts		
Criteria			Capital Costs			Annual Cost Summary		
Source Water Systems	Unit	Value	Source Water Systems			O&M		
Drilling/cosing/con	No		Drilling	¢		Source water Systems		
Equipping	No.		Equipping	¢		Power	¢	
Equipping Emergency generator	No.		Equipping Emergency generator	¢		Misc well maintenance	ŝ	
Disinfection system	No.		Disinfection system	ŝ	-	ASR Well(s)	Ŷ	_
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	ŝ	-	Power	\$	1.006.000
Total installed HP for well(s)	HP		Land	\$	-	Misc. well maintenance	ŝ	100,000
Land	Acres		New ASR Well(s)			Injection Well(s)		
New ASR Well(s)			Drilling	\$	5,000,000	Misc. well maintenance	\$	-
Drilling/casing/cap	No.	4	Equipping	\$	4,400,000	ASR Conversion(s)		
Equipping	No.	4	Emergency generator	\$	-	Power	\$	-
Emergency generator	No.		Disinfection system	\$	600,000	Misc. well maintenance	\$	-
Disinfection system	No.	3	Pumphouse/electrical bldg	\$	1,000,000	Well(s) Rehabilitation		
Pumphouse/electrical bldg	NO.	4	Land	\$	50,000	Power	\$	-
Lond	Acros	2,200	Drilling	¢		Troatmont	ð	-
New Injection Well(s)	Acies	0.10	Equipping	ŝ	-	Regenerable IX - Typ		
Drilling/casing/cap	No.		Building/enclosure	ŝ	-	Unit 1		
Equipping	No.		Land	Š	-	General	\$	-
Building/enclosure	No.		Well/ASR Conversion(s)			Resin Replacement	\$	-
Land	Acres		Casing/cap	\$	-	Unit 2		
Well/ASR Conversion(s)			Equipping	\$	-	General	\$	-
Casing/cap	No.		Emergency generator	\$	-	Resin Replacement	\$	-
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Disinfection system	No.		Land	\$	-	General	\$	-
Pumphouse/electrical blog	INO.		Vieli(s) Renabilitation	¢		Nep Begenerehle IX	\$	-
Lond	Acros		Equipping	ę		Loit 1		
Well(s) Rehabilitation	Acies		Equipping Emergency generator	ŝ		General	\$	
Casing/cap	No.		Disinfection system	ŝ	-	Resin Replacement	ŝ	-
Equipping	No.		Pumphouse/electrical bldg	ŝ	-	Covevance	Ÿ	-
Emergency generator	No.		Land	Ś	-	Collection Pipeline	\$	2.000
Disinfection system	No.		Treatment Facilities	1		Distribution Pipeline	Š	-
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	\$	-
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)		
Land	Acres		Pre-engineered building	\$	-	Distribution system booster station		
Treatment Facilities			Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$	-	General	\$	-
Unit 1			Regenerable IX - ISEP			Plant booster station		
Installed treated capacity	gpm		Unit 1	\$	-	Power	\$	-
Pre-engineered building	No.		Pre-engineered building	\$	-	General	\$	-
Resin volume	π3		Non-regenerable IX	0		SARI/NRW		
Brine flow - average	gpm		Unit 1 Dra appringered building	\$	-	Brine - Capacity Charge		
Brine now - max rate	gpm Nor S		Pre-engineered building	ş	-	Regenerable IX - Typ.		
Brine capacity units	No	0	Conveyance Facilities	Ŷ		Unit 2		
Land	Acres	U	Pipeline(s)			Regenerable IX - ISEP		
Unit 2	/10/00		Collection	\$	396.000	Unit 1		
Installed treated capacity	gpm		Distribution	\$	-	Non-Regenerable IX		
Pre-engineered building	No.		Brine	\$	-	Unit 1		
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	\$	-	Unit 1		
NRWS connection	N or S		Land	\$	-	Unit 2		
Brine capacity units	No.	0	River Crossing			Regenerable IX - ISEP	_	
Land Regenerable IX ISER	Acres		HDD Bridge supported	\$	-	Unit 1		
Lipit 1			Erroway crossing (microtuppel)	¢	-	Non-Regenerable IX		
Installed treated capacity	apm		Railroad crossing (auger boring)	\$	-	CIP Charge		
Pre-engineered building	No.		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Tvp.		
Resin volume	ft3		Transmission pipeline turnout	\$	-	Unit 1	\$	-
Brine flow - average	gpm		Connection to storm channel	\$	-	Unit 2	\$	-
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	-	Regenerable IX - ISEP		
NRWS connection	N or S		SARI/NRW			Unit 1	\$	-
Brine capacity units	No.	0	NRWS Initial Capacity Charge			Non-Regenerable IX		
Land	Acres		Regenerable IX - Typical	_		Unit 1	\$	-
Non-regenerable IX			Unit 1	\$	-	Tetel Amount ORM		4 400 000
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	1,108,000
Installed treated capacity	gpm		Regenerable IX - ISEP	¢		Appualized Capital	¢	1 217 000
Resin volume	1NU. ft3		Non-Regenerable IX	Ŷ	-	Annualized Capital	ş	1,317,000
Brine flow - average	apm		Unit 1	s	-	Total Annual Cost	\$	2,425 000
Brine flow - max rate	apm		General	Ť		<u>, ota / anda ooot</u>	Ť	2,120,000
NRWS connection	N or S		General mechanical	\$	-	Total Unit Water Cost (\$/AF-yr)	\$	188
Brine capacity units	No.	0	General electrical	\$	-			
Land	Acres		General site work	\$	-			
Conveyance Facilities			General requirements (mob/demob)	\$	228,000			
Pipeline(s)								
Collection			Total Construction Costs	\$	11,674,000			
Diameter	in	12						
Length	ft	2,200	Contingency	\$	2,335,000			
Distribution	la la		Engineering/administration/CM	\$	1,401,000			
Diameter	in A		Total Capital Cast		15 410 000			
Brine	л			\$	15,410,000			
Diameter	in		Midpoint of Construction Costs	\$	16.839.000			
Length	ft				.,,	•		
Pump Station(s)			1					
Distribution system booster station	HP		1					
Plant booster station	HP							
Land	Acres							
River Crossing(s)			1					
HDD	No.		_					
Bridge supported	LF							
Freeway crossing (microtunnel)	LF		-					
Railroad crossing (auger boring)	NO.		-					
Transmission pipeline turpeut	INO.		-					
Connection to storm channel	NO.		-					
Misc, valves & EM for interconnections	NO.		-					
million values a number interconnections	INU.							

D-JCSD Facility capacity

10,500 16,934 gpm AFY

Engineering C	Costs							
Criteria			Capital Costs			Annual Cost Summary		
Source Water Systems	Unit	Value	Source Water Systems			O&M Source Water Susteme	_	
Drilling/casing/cap	No.	3	Drilling	s	2,700,000	New Well(s)	-	
Equipping	No.	3	Equipping	\$	3,000,000	Power	\$	1,235,000
Emergency generator	No.	3	Emergency generator	\$	825,000	Misc. well maintenance	\$	75,000
Disinfection system	No.	3	Disinfection system	\$	600,000	ASR Well(s)	~	
Total installed HP for well(s)	HP	1.500	Land	ş	615.000	Misc. well maintenance	ŝ	
Land	Acres	1.23	New ASR Well(s)			Injection Well(s)		
New ASR Well(s)			Drilling	\$	-	Misc. well maintenance	\$	-
Drilling/casing/cap	No.		Equipping Emergency generator	\$	-	ASR Conversion(s)	¢	
Equipping Emergency generator	No.		Disinfection system	ş		Misc. well maintenance	\$	
Disinfection system	No.		Pumphouse/electrical bldg	\$	-	Well(s) Rehabilitation	-	-
Pumphouse/electrical bldg	No.		Land	\$	-	Power	\$	-
Total installed HP for well(s)	HP		New Injection Well(s)			Misc. well maintenance	\$	
New Injection Well(s)	Acres		Equipping	ş		Regenerable IX - Tvp.	-	-
Drilling/casing/cap	No.		Building/enclosure	\$	-	Unit 1		-
Equipping	No.		Land	\$	-	General	\$	-
Building/enclosure	No.		Well/ASR Conversion(s)	_		Resin Replacement	\$	-
Land Well/ASR Conversion(s)	Acres		Casing/cap Equipping	\$		Unit 2 General	•	
Casing/cap	No.		Emergency generator	ŝ	-	Resin Replacement	ŝ	
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Disinfection system	No.		Land Woll(c) Robabilitation	\$	-	General Resin Replacement	\$	-
Total installed HP for well(s)	HP		Casing/cap	s	-	Non-Regenerable IX	\$	
Land	Acres		Equipping	\$	-	Unit 1		-
Well(s) Rehabilitation			Emergency generator	\$	-	General	\$	-
Casing/cap	No.		Disinfection system	\$	-	Resin Replacement	\$	-
Equipping Emorgonau gonorator	No.		Pumphouse/electrical bldg	\$	-	Collection Binoline	¢	
Disinfection system	No.		Treatment Facilities	¢	-	Distribution Pipeline	\$	
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	\$	-
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)		
Land	Acres		Pre-engineered building	\$	-	Distribution system booster station	_	
Regenerable IX - Typical			Unit 2 Pre-engineered building	\$		Power	\$	
Unit 1			Regenerable IX - ISEP	Ŷ		Plant booster station	φ	
Installed treated capacity	gpm		Unit 1	\$	-	Power	\$	-
Pre-engineered building	No.		Pre-engineered building	\$	-	General	\$	-
Resin volume	ft3		Non-regenerable IX			SARI/NRW	_	
Brine flow - average Brine flow max rate	gpm		Unit 1 Pro opgingered building	\$	-	Brine - Capacity Charge	_	
NRWS connection	N or S		Land	\$	-	Unit 1		
Brine capacity units	No.	0	Conveyance Facilities			Unit 2		
Land	Acres		Pipeline(s)			Regenerable IX - ISEP		
Unit 2			Collection	\$	-	Unit 1	_	
Pre-engineered building	gpm		Brine	¢ ¢	83,000	Non-Regenerable IX	_	
Resin volume	ft3		Pump Station(s)	Ŷ	-	Brine - Volumetric Charge	-	
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	\$	-	Unit 1	_	
NRWS connection	N or S	0	Land Biver Crossing	\$	-	Unit 2 Regenerable IX ISER	_	
Land	Acres	0	HDD	\$		Unit 1	-	
Regenerable IX - ISEP			Bridge supported	\$	-	Non-Regenerable IX		
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1	_	
Installed treated capacity Bro opgingered building	gpm		Railroad crossing (auger boring)	\$	-	CIP Charge Regenerable IX Typ	_	
Resin volume	ft3		Transmission pipeline turnout	\$		Unit 1	s	-
Brine flow - average	gpm		Connection to storm channel	\$	-	Unit 2	\$	-
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	-	Regenerable IX - ISEP	-	
NRWS connection	N or S	0	SARI/NRW			Unit 1	\$	-
Brine capacity units	Acres	U	Regenerable IX - Typical			Inon-Regenerable IX	s	
Non-regenerable IX	710100		Unit 1	\$	-	one i		-
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	1,310,000
Installed treated capacity	gpm		Regenerable IX - ISEP	_			-	
Pre-engineered building Resin volume	N0. #3		Unit 1 Non-Regenerable IX	\$	-	Annualized Capital	\$	985,000
Brine flow - average	apm		Unit 1	\$	-	Total Annual Cost	s	2.295.000
Brine flow - max rate	gpm		General	Ť			- <b>T</b>	
NRWS connection	N or S		General mechanical	\$	-	Total Unit Water Cost (\$/AF-yr)	\$	136
Brine capacity units	No.	0	General electrical	\$	-			
Land Convoyance Escilition	Acres		General site work	\$	150.000			
Pipeline(s)			Ocheran equirements (mob/demob)	ų	100,000			
Collection			Total Construction Costs	\$	8,732,000			
Diameter	in							
Length	ft		Contingency	\$	1,746,000			
Distribution	in	16	Engineering/administration/CM	\$	1,048,000			
Length	ft	345	Total Capital Cost	s	11.526.000			
Brine					,			
Diameter	in		Midpoint of Construction Costs	\$	12,595,000			
Length	ft		-					
Distribution system booster station	HP		-					
Plant booster station	HP		1					
Land	Acres		]					
River Crossing(s)			4					
HDD Bridge supported	No.		4					
Freeway crossing (microtunnel)	LF		1					
Railroad crossing (auger boring)	No.		1					
Storm channel crossing (auger boring)	No.							
Transmission pipeline turnout	No.		-					
Connection to storm channel	No.		4					
IVIISC. VAIVES & FIVI IOF INTERCONNECTIONS	110.							

E-MVWD Opt. A (New ASR Well IX Facil	ity, Well No. 2 R	eplacement and I)	()
Facility capacity	gpm	3,000	
	AFY	4,838	

Engineering C	riteria	1		1	Costs		
Criteria Source Water Systems	Unit	Value	Capital Costs		Annual Cost Summary		
New Well(s)	Unit	value	New Well(s)		Source Water Systems		-
Drilling/casing/cap	No.	1	Drilling	\$ 900.0	00 New Well(s)		
Equipping	No.	1	Equipping	\$ 1,000,0	00 Power	\$	165,000
Emergency generator	No.		Emergency generator	\$	Misc. well maintenance	\$	25,000
Disinfection system	No.	1	Disinfection system	\$ 200,0	00 ASR Well(s)		
Pumphouse/electrical bldg	No.	200	Pumphouse/electrical bldg	\$ .	Power Miss well maintenance	\$	252,000
Land	Acres	200	Land New ASR Well(s)	ъ.	Injection Well(s)	2	25,000
New ASR Well(s)	710100		Drilling	\$ 1.250.0	00 Misc. well maintenance	s	-
Drilling/casing/cap	No.	1	Equipping	\$ 1,100,0	00 ASR Conversion(s)		
Equipping	No.	1	Emergency generator	\$	Power	\$	-
Emergency generator	No.		Disinfection system	\$ 200,0	00 Misc. well maintenance	\$	-
Disinfection system	No.	1	Pumphouse/electrical bldg	\$ 250,0	00 Well(s) Rehabilitation	-	
Total installed HP for well(s)	HP	550	New Injection Well(s)	φ	Misc well maintenance	ŝ	
Land	Acres	550	Drilling	\$	Treatment	Ŷ	
New Injection Well(s)			Equipping	\$ .	Regenerable IX - Typ.	-	
Drilling/casing/cap	No.		Building/enclosure	\$	Unit 1		
Equipping	No.		Land	\$	General	\$	290,000
Building/enclosure	No.		Well/ASR Conversion(s)	¢	Resin Replacement	\$	20,000
Well/ASR Conversion(s)	Acres		Equipping	\$	General	s	143.000
Casing/cap	No.		Emergency generator	\$ .	Resin Replacement	ŝ	10,000
Equipping	No.		Disinfection system	\$ .	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	Unit 1		
Disinfection system	No.		Land	\$	General	\$	-
Total installed HP for well(s)	INO. HP		Casing/cap	¢	Non-Regenerable IX	2	
Land	Acres		Equipping	ŝ	Unit 1	-	
Well(s) Rehabilitation			Emergency generator	\$	General	\$	
Casing/cap	No.		Disinfection system	\$	Resin Replacement	\$	
Equipping	No.		Pumphouse/electrical bldg	\$ .	Coveyance	<u> </u>	
Emergency generator	NO.		Land	\$	Collection Pipeline	\$	-
Pumphouse/electrical bldg	NO.		Regenerable IX - Typ		Brine Pipeline	\$	9,000
Total installed HP for well(s)	HP.		Unit 1	\$ 2,009.0	00 Pump Station(s)	Ŷ	4,000
Land	Acres		Pre-engineered building	\$ 200,0	00 Distribution system booster station		
Treatment Facilities			Unit 2	\$ 995,0	00 Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$ 200,0	00 General	\$	-
Unit 1		4.000	Regenerable IX - ISEP	¢	Plant booster station		
Pre-engineered building	gpm	1,830	Unit 1 Pre-engineered building	3	General		
Resin volume	ft3	981	Non-regenerable IX	Ų	SARI/NRW	Ŷ	
Brine flow - average	gpm	10	Unit 1	\$ .	Brine - Capacity Charge		
Brine flow - max rate	gpm	115	Pre-engineered building	\$	Regenerable IX - Typ.		
NRWS connection	N or S	N	Land	\$ .	Unit 1	\$	3,000
Brine capacity units	No.	1	Conveyance Facilities		Unit 2	\$	3,000
Land	Acres		Collection	¢	Lipit 1		
Installed treated capacity	gpm	909	Distribution	\$ 3,540,0	00 Non-Regenerable IX		
Pre-engineered building	No.	1	Brine	\$ 488,0	00 Unit 1		
Resin volume	ft3	485	Pump Station(s)		Brine - Volumetric Charge		
Brine flow - average	gpm	10	Distribution system booster station	\$ .	Regenerable IX - Typ.		
Brine flow - max rate	gpm	85 N	Plant booster station	\$ ·	Unit 1	\$	7,000
Brine capacity units	No	1	River Crossing	ъ.	Regenerable IX - ISEP		7,000
Land	Acres		HDD	\$ .	Unit 1		
Regenerable IX - ISEP			Bridge supported	\$ .	Non-Regenerable IX	-	
Unit 1			Freeway crossing (microtunnel)	\$	Unit 1	_	
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$	CIP Charge		
Pre-engineered building	INO. #2		Storm channel crossing (auger boring)	\$ ·	Regenerable IX - Typ.	e	1 000
Brine flow - average	apm		Connection to storm channel	\$	Unit 2	ŝ	1,000
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$ 25,0	00 Regenerable IX - ISEP		.,
NRWS connection	N or S		SARI/NRW		Unit 1	\$	-
Brine capacity units	No.	0	NRWS Initial Capacity Charge		Non-Regenerable IX	_	
Land	Acres		Regenerable IX - Typical	¢ 450.0	Unit 1	\$	
Inon-regenerable IX			Unit 1	\$ 150,0	00 Total Annual O&M	e	965 000
Installed treated capacity	gpm		Regenerable IX - ISEP	÷ 150,0		-	
Pre-engineered building	No.		Unit 1	\$ .	Annualized Capital	\$	1,518,000
Resin volume	ft3		Non-Regenerable IX	1.		_	
Brine flow - average	gpm		Unit 1	\$ .	Total Annual Cost	\$	2,483,000
NRWS connection	gpm NorS		General mechanical	\$ 000	00 Total Unit Water Cost (\$/AE-vr)	e	510
Brine capacity units	No.	0	General electrical	\$ 300.0		Ŷ	515
Land	Acres	, , , , , , , , , , , , , , , , , , ,	General site work	\$ 150.0	00		
Conveyance Facilities			General requirements (mob/demob)	\$ 254,0	00		
Pipeline(s)							
Collection	1		Total Construction Costs	\$ 13,451,0	00		
Length	in ft		Contingency	\$ 2600.0	00		
Distribution	iii.		Engineering/administration/CM	\$ 1.614.0	00		
Diameter	in	20		.,,.			
Length	ft	11,800	Total Capital Cost	\$ 17,755,0	00		
Brine	1	6	Midneint of Construction Cont-	¢ 10.101 -	00		
Langth	in e	5 420	mildpoint of Construction Costs	ə 19,401,0	00		
Pump Station(s)	n	3,420	1				
Distribution system booster station	HP		1				
Plant booster station	HP						
Land	Acres						
River Crossing(s)			4				
Bridge supported	NO.		1				
Freeway crossing (microtunnel)	LF		1				
Railroad crossing (auger boring)	No.		1				
Storm channel crossing (auger boring)	No.						
Transmission pipeline turnout	No.						
Connection to storm channel	No.		-				
IVIISC. VAIVES & FM for interconnections	NO.	1	J				

E-MVWD Opt. B (Well Nos. 4 and 27 IX) Facility capacity

gpm 2,830 AFY 4,564

Engineering C	riteria	r			Co	sts		
Criteria	Unit	Value	Capital Costs			Annual Cost Summary		
New Well(s)	Unit	Value	New Well(s)			Source Water Systems		
Drilling/casing/cap	No.		Drilling	\$	-	New Well(s)		
Equipping	No.		Equipping	\$	-	Power	\$	-
Emergency generator	No.		Emergency generator	\$	-	Misc. well maintenance	\$	-
Disinfection system	NO.		Disinfection system	\$	-	ASR Well(s)	¢	
Total installed HP for well(s)	HP		Land	ŝ	-	Misc. well maintenance	ŝ	
Land	Acres		New ASR Well(s)	Ŷ		Injection Well(s)	Ŷ	
New ASR Well(s)			Drilling	\$	-	Misc. well maintenance	\$	-
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)		
Equipping	No.		Emergency generator	\$	-	Power	\$	-
Emergency generator	NO.		Disinfection system	\$	-	Misc. well maintenance	\$	-
Pumphouse/electrical bldg	No.		Land	ŝ	-	Power	s	-
Total installed HP for well(s)	HP		New Injection Well(s)			Misc. well maintenance	\$	-
Land	Acres		Drilling	\$	-	Treatment		
New Injection Well(s)			Equipping	\$	-	Regenerable IX - Typ.		
Drilling/casing/cap	No.		Building/enclosure	\$	-	Unit 1		140.000
Equipping Building/opclosure	NO.		Land Woll/ASR Conversion(c)	\$	-	Bosin Bonlacomont	\$	443,000
Land	Acres		Casing/cap	s	-	Unit 2	Ŷ	30,000
Well/ASR Conversion(s)			Equipping	\$	-	General	\$	-
Casing/cap	No.		Emergency generator	\$	-	Resin Replacement	\$	-
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Pumphouse/electrical.bldg	NO.		Land Well(s) Rebabilitation	\$	-	Besin Replacement	\$	
Total installed HP for well(s)	HP.		Casing/cap	\$	-	Non-Regenerable IX	Ŷ	
Land	Acres		Equipping	\$		Unit 1		
Well(s) Rehabilitation	1		Emergency generator	\$	-	General	\$	-
Casing/cap	No.		Disinfection system	\$	-	Resin Replacement	\$	-
Equipping Emergency generator	NO.		Pumphouse/electrical bldg	\$	-	Collection Pipeline	e	
Disinfection system	No.		Treatment Facilities	ş	-	Distribution Pipeline	ş	9 000
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	\$	4,000
Total installed HP for well(s)	HP		Unit 1	\$	3,077,000	Pump Station(s)	Ĺ	
Land	Acres		Pre-engineered building	\$	200,000	Distribution system booster station		
Treatment Facilities			Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$	-	General Diant baseter station	\$	-
Installed treated capacity	apm	2 812	Linit 1	s	-	Plant booster station	s	-
Pre-engineered building	No.	1	Pre-engineered building	ŝ	-	General	\$	-
Resin volume	ft3	1,503	Non-regenerable IX			SARI/NRW		
Brine flow - average	gpm	15	Unit 1	\$	-	Brine - Capacity Charge		
Brine flow - max rate	gpm	120	Pre-engineered building	\$	-	Regenerable IX - Typ.		
NRWS connection	N or S	1	Land Convoyance Escilition	\$	-	Unit 1	\$	3,000
Land	Acres	1	Pipeline(s)			Regenerable IX - ISEP		
Unit 2	710100		Collection	\$	-	Unit 1		
Installed treated capacity	gpm		Distribution	\$	3,540,000	Non-Regenerable IX		
Pre-engineered building	No.		Brine	\$	486,000	Unit 1		
Resin volume Bring flow average	ft3		Pump Station(s)	¢		Brine - Volumetric Charge		
Brine flow - average Brine flow - max rate	gpm		Plant booster station	ş		Linit 1	s	11 000
NRWS connection	N or S		Land	\$	-	Unit 2	Ψ	
Brine capacity units	No.	0	River Crossing			Regenerable IX - ISEP		
Land	Acres		HDD	\$	-	Unit 1		
Regenerable IX - ISEP			Bridge supported	\$	-	Non-Regenerable IX	_	
Installed treated capacity	apm		Preeway crossing (microtunnel) Railroad crossing (auger boring)	¢ Ş		CIP Charge		
Pre-engineered building	No.		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Tvp.		
Resin volume	ft3		Transmission pipeline turnout	\$	-	Unit 1	\$	1,000
Brine flow - average	gpm		Connection to storm channel	\$	-	Unit 2	\$	-
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	25,000	Regenerable IX - ISEP	-	
NRWS connection	N or S	0	SARI/NRW NRWS Initial Canacity Charge			Unit 1 Non Regenerable IX	\$	-
Land	Acres	0	Regenerable IX - Typical	-		Unit 1	\$	-
Non-regenerable IX			Unit 1	\$	150,000		*	
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	501,000
Installed treated capacity	gpm		Regenerable IX - ISEP	-			-	
Pre-engineered building	NO. #2		Unit 1 Non-Regenerable IV	\$	-	Annualized Capital	\$	924,000
Brine flow - average	apm		Unit 1	\$	-	Total Annual Cost	\$	1,425 000
Brine flow - max rate	gpm		General		-		-	.,.20,000
NRWS connection	N or S		General mechanical	\$	92,000	Total Unit Water Cost (\$/AF-yr)	\$	312
Brine capacity units	No.	0	General electrical	\$	308,000			
Land	Acres		General site work	\$	154,000			
Pipeline(s)	1		General requirements (mob/demob)	\$	158,000			
Collection			Total Construction Costs	s	8.190.000			
Diameter	in			Ľ				
Length	ft		Contingency	\$	1,638,000			
Distribution			Engineering/administration/CM	\$	983,000			
Diameter	in ft	20	Total Capital Cost	e	10 911 000			
Brine	n	11,000		~	10,011,000			
Diameter	in	6	Midpoint of Construction Costs	\$	11,813,000			
Length	ft	5,400				-		
Pump Station(s)			4					
Distribution system booster station	HP		4					
Land	Acres		1					
River Crossing(s)	10100		1					
HDD	No.		1					
Bridge supported	LF		4					
Freeway crossing (microtunnel)	LF		4					
Storm channel crossing (auger boring)	NO.		1					
Transmission pipeline turnout	No.		1					
Connection to storm channel	No.		]					
Misc. valves & FM for interconnections	No.	1	]					

F-Ontario Opt. A Facility capacity

1,860 3,000 gpm AFY

Engineering C	riteria	1	Capital Caste	1	Co	Appual Cost Summany	1	
Source Water Systems	Unit	Value	Source Water Systems			O&M		
New Well(s)			New Well(s)			Source Water Systems		
Drilling/casing/cap	No.		Drilling	\$	-	New Well(s)	~	
Equipping Emergency generator	NO.		Equipping Emergency generator	¢ ¢		Power Misc well maintenance	¢ ¢	
Disinfection system	No.		Disinfection system	\$	-	ASR Well(s)	Ť	
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	\$	-	Power	\$	-
Total installed HP for well(s)	HP		Land	\$	-	Misc. well maintenance	\$	-
New ASR Well(s)	Acres		Drilling	s	-	Misc. well maintenance	s	-
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)	Ť	
Equipping	No.		Emergency generator	\$	-	Power	\$	-
Emergency generator	No.		Disinfection system	\$	-	Misc. well maintenance	\$	
Pumphouse/electrical bldg	No.		Land	\$		Power	s	-
Total installed HP for well(s)	HP		New Injection Well(s)			Misc. well maintenance	\$	-
Land	Acres		Drilling	\$	-	Treatment		
Drilling/casing/can	No		Equipping Building/enclosure	¢ ¢		Lipit 1		
Equipping	No.		Land	\$	-	General	\$	
Building/enclosure	No.		Well/ASR Conversion(s)			Resin Replacement	\$	-
Land	Acres		Casing/cap	\$	-	Unit 2		
Casing/can	No		Equipping Emergency generator	¢ ¢		General Resin Replacement	¢ ¢	
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP	Ŷ	
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Disinfection system	No.		Land	\$	-	General	\$	-
Total installed HP for well(s)	HP		Casing/cap	s	-	Non-Regenerable IX	\$	-
Land	Acres		Equipping	\$	-	Unit 1		-
Well(s) Rehabilitation			Emergency generator	\$	-	General	\$	-
Casing/cap	No.		Disinfection system	\$	-	Resin Replacement	\$	
Equipping Emergency generator	No.		Land	ş		Collection Pipeline	s	-
Disinfection system	No.		Treatment Facilities	Ť		Distribution Pipeline	\$	9,000
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	\$	-
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)		
Treatment Facilities	Acres		I Init 2	\$		Power	s	
Regenerable IX - Typical			Pre-engineered building	\$	-	General	\$	-
Unit 1			Regenerable IX - ISEP			Plant booster station		
Installed treated capacity	gpm		Unit 1	\$	-	Power	\$	
Resin volume	ft3		Non-regenerable IX	à	-	SARI/NRW	\$	
Brine flow - average	gpm		Unit 1	\$	-	Brine - Capacity Charge		
Brine flow - max rate	gpm		Pre-engineered building	\$	-	Regenerable IX - Typ.		
NRWS connection	N or S	0	Land	\$	-	Unit 1		
Land	Acres	U	Pipeline(s)			Regenerable IX - ISEP		
Unit 2	/10/00		Collection	\$	-	Unit 1		
Installed treated capacity	gpm		Distribution	\$	6,480,000	Non-Regenerable IX		
Pre-engineered building	No.		Brine Bump Station(c)	\$	-	Unit 1 Bring Volumetric Charge	_	
Brine flow - average	apm		Distribution system booster station	s	-	Regenerable IX - Tvp.		
Brine flow - max rate	gpm		Plant booster station	\$	-	Unit 1		
NRWS connection	N or S		Land	\$	-	Unit 2		
Brine capacity units	No.	0	River Crossing	e		Regenerable IX - ISEP		
Regenerable IX - ISEP	Acies		Bridge supported	\$	-	Non-Regenerable IX		
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1		
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$	200,000	CIP Charge		
Pre-engineered building Resin volume	INO. ft3		Storm channel crossing (auger boring)	¢		Lipit 1	¢	
Brine flow - average	gpm		Connection to storm channel	\$	-	Unit 2	\$	-
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	25,000	Regenerable IX - ISEP		
NRWS connection	N or S	0	SARI/NRW			Unit 1	\$	-
Brine capacity units	NO. Acres	0	Regenerable IX - Typical			Non-Regenerable IX	s	
Non-regenerable IX	710100		Unit 1	\$	-	one i	Ť	
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	9,000
Installed treated capacity	gpm		Regenerable IX - ISEP	~		Annualized Canital		772.000
Resin volume	ft3		Non-Regenerable IX	à		Annualized Capital	\$	112,000
Brine flow - average	gpm		Unit 1	\$	-	Total Annual Cost	\$	781,000
Brine flow - max rate	gpm		General					
NRWS connection	N or S	0	General mechanical	\$	-	Total Unit Water Cost (\$/AF-yr)	\$	260
Land	Acres	0	General site work	ş				
Conveyance Facilities	710100		General requirements (mob/demob)	\$	134,000			
Pipeline(s)								
Collection	in		Total Construction Costs	\$	6,839,000			
Length	ft		Contingency	\$	1.368.000			
Distribution			Engineering/administration/CM	\$	821,000			
Diameter	in	36						
Brine	tt	12,000	Total Capital Cost	\$	9,028,000			
Diameter	in		Midpoint of Construction Costs	\$	9,865,000			
Length	ft					•		
Pump Station(s)	118							
Plant booster station	HP							
Land	Acres							
River Crossing(s)								
HDD Bridge game start	No.							
Bridge supported Freeway crossing (microtuppel)								
Railroad crossing (auger boring)	No.	1						
Storm channel crossing (auger boring)	No.							
Transmission pipeline turnout	No.							
Misc valves & EM for interconnections	NO.	1						
THE REPORT OF TH	INU.		1					

F-Ontario Opt. B Facility capacity

1,860 3,000 gpm AFY

Engineering C	riteria			Co	sts		
Criteria			Capital Costs		Annual Cost Summary		
Source Water Systems	Unit	Value	Source Water Systems		O&M		
New Well(s)			New Well(s)		Source Water Systems		
Drilling/casing/cap	No.		Drilling	\$ -	New Well(s)		
Equipping	No.		Equipping	\$-	Power	\$	-
Emergency generator	No.		Emergency generator	\$-	Misc. well maintenance	\$	-
Disinfection system	No.		Disinfection system	\$ -	ASR Well(s)		
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	\$-	Power	\$	-
Total installed HP for well(s)	HP		Land	\$ -	Misc. well maintenance	\$	-
Land	Acres		New ASR Well(s)		Injection Well(s)		
New ASR Well(s)			Drilling	\$-	Misc. well maintenance	\$	-
Drilling/casing/cap	No.		Equipping	\$-	ASR Conversion(s)		
Equipping	No.		Emergency generator	\$-	Power	\$	-
Emergency generator	No.		Disinfection system	\$ -	Misc. well maintenance	\$	-
Disinfection system	No.		Pumphouse/electrical bldg	\$-	Well(s) Rehabilitation		
Pumphouse/electrical bldg	No.		Land	\$-	Power	\$	-
Total installed HP for well(s)	HP		New Injection Well(s)		Misc. well maintenance	\$	-
Land	Acres		Drilling	\$ -	Treatment		
New Injection Well(s)			Equipping	\$-	Regenerable IX - Typ.		
Drilling/casing/cap	No.		Building/enclosure	\$-	Unit 1		
Equipping	No.		Land	\$-	General	\$	-
Building/enclosure	No.		Well/ASR Conversion(s)		Resin Replacement	\$	-
Land	Acres		Casing/cap	\$-	Unit 2		
Well/ASR Conversion(s)			Equipping	\$-	General	\$	-
Casing/cap	No.		Emergency generator	\$-	Resin Replacement	\$	-
Equipping	No.		Disinfection system	\$ -	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$ -	Unit 1		
Disinfection system	No.		Land	\$ -	General	\$	-
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation		Resin Replacement	\$	-
Total installed HP for well(s)	HP		Casing/cap	\$-	Non-Regenerable IX		
Land	Acres		Equipping	ş -	Unit 1		
Well(s) Rehabilitation			Emergency generator	\$ -	General	\$	
Casing/cap	No.		Disinfection system	ş -	Resin Replacement	\$	-
Equipping	No.		Pumphouse/electrical bldg	ş -	Coveyance		
Emergency generator	No.		Land	\$ -	Collection Pipeline	\$	
Disinfection system	No.		Treatment Facilities		Distribution Pipeline	\$	10,000
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.		Brine Pipeline	\$	-
Total installed HP for well(s)	HP		Unit 1	\$-	Pump Station(s)		
Land	Acres		Pre-engineered building	\$ -	Distribution system booster station		
Treatment Facilities			Unit 2	\$ -	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$ -	General	\$	-
Unit 1			Regenerable IX - ISEP		Plant booster station		
Installed treated capacity	gpm		Unit 1	\$ -	Power	\$	-
Pre-engineered building	No.		Pre-engineered building	\$ -	General	\$	-
Resin volume	ft3		Non-regenerable IX		SARI/NRW		
Brine flow - average	gpm		Unit 1	\$-	Brine - Capacity Charge		
Brine flow - max rate	gpm		Pre-engineered building	\$ -	Regenerable IX - Typ.		
NRWS connection	N or S		Land	\$-	Unit 1		
Brine capacity units	No.	0	Conveyance Facilities		Unit 2		
Land	Acres		Pipeline(s)		Regenerable IX - ISEP		
Unit 2			Collection	ş -	Unit 1		
Installed treated capacity	gpm		Distribution	\$ 7,344,000	Non-Regenerable IX		
Pre-engineered building	No.		Brine	\$-	Unit 1		
Resin volume	ft3		Pump Station(s)	-	Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$ -	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	ş -	Unit 1		
NRWS connection	N or S		Land	\$ -	Unit 2		
Brine capacity units	NO.	0	River Crossing	•	Regenerable IX - ISEP		
Land	Acres		HDD	\$ -	Unit 1		
Regenerable IX - ISEP			Bildge supported	3 -	Non-Regenerable IX	_	
Unit 1			Freeway crossing (microtunnel)	\$ -	Unit 1		
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$ 400,000	CIP Charge		
Pre-engineered building	INU.		Storm channel crossing (auger boring)	э - с	Regenerable IX - Typ.	¢	
Resin volume	11.3		Connection to storm shonnel	\$ -	Unit 1	\$	
Brine flow - average	gpm		Miss velves 8 FM for interconnections	- -	Utilit 2 Begenerekle IV ISED	Ŷ	
NPWS connection	S Nor S		SADI/NDW	φ 23,000	Lipit 1	¢	-
Brine capacity units	No	0	NRWS Initial Capacity Charge		Non-Regenerable IX	Ŷ	
Land	Acres	0	Regenerable IX - Typical	+		¢	· · · · ·
Non regenerable IX	Acres		Lipit 1	¢	Office 1	Ŷ	
Unit 1			Unit 2	\$ .	Total Annual O&M	e	10 000
Installed treated capacity	anm		Regenerable IX - ISEP	Ŷ.			
Pre-engineered building	No		Unit 1	s -	Annualized Capital	\$	894 000
Resin volume	ft3		Non-Regenerable IX	Ť	anzoa ouprial	-	
Brine flow - average	dpm		Unit 1	s -	Total Annual Cost	\$	904 000
Brine flow - max rate	gpm		General	1		1	
NRWS connection	N or S		General mechanical	s -	Total Unit Water Cost (\$/AF-vr)	\$	301
Brine capacity units	No.	0	General electrical	\$ -			
Land	Acres	-	General site work	s -			
Conveyance Facilities			General requirements (mob/demob)	\$ 155.000	1		
Pipeline(s)		l		,	1		
Collection			Total Construction Costs	\$ 7.924.000			
Diameter	in			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1		
Length	ft		Contingency	\$ 1,585,000			
Distribution			Engineering/administration/CM	\$ 951,000			
Diameter	in	36	· · · · · · · · · · · · · · · · · · ·		1		
Length	ft	13,600	Total Capital Cost	\$ 10,460,000			
Brine							
Diameter	in		Midpoint of Construction Costs	\$ 11,430,000	]		
Length	ft				-		
Pump Station(s)			]				
Distribution system booster station	HP		]				
Plant booster station	HP						
Land	Acres						
River Crossing(s)	L		1				
HDD	No.						
Bridge supported	LF						
Freeway crossing (microtunnel)	LF						
Railroad crossing (auger boring)							
	No.	2					
Storm channel crossing (auger boring)	No. No.	2	-				
Transmission pipeline turnout	No. No. No.	2					
Transmission pipeline turnout Connection to storm channel	No. No. No.	2					

G-Pomona Facility capacity

gpm 2,900 AFY 4,677

Engineering C	riteria				Co	sts		
Criteria			Capital Costs			Annual Cost Summary		
Source Water Systems	Unit	Value	Source Water Systems			O&M		
Drilling/casing/can	No		New Well(s)	¢	-	New Well(s)		
Equipping	No.		Equipping	s	-	Power	s	-
Emergency generator	No.		Emergency generator	ŝ	-	Misc. well maintenance	Š	-
Disinfection system	No.		Disinfection system	\$	-	ASR Well(s)		
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	\$	-	Power	\$	-
Total installed HP for well(s)	HP		Land	\$	-	Misc. well maintenance	\$	-
Land	Acres		New ASR Well(s)	¢		Injection Well(s)		
New ASR Well(s)	No		Drilling	\$	-	Misc. well maintenance	\$	-
Equipping	No.		Equipping Emergency generator	э S	-	Power	s	-
Emergency generator	No.		Disinfection system	s	-	Misc. well maintenance	ŝ	-
Disinfection system	No.		Pumphouse/electrical bldg	ŝ	-	Well(s) Rehabilitation	Ť	
Pumphouse/electrical bldg	No.		Land	\$	-	Power	\$	-
Total installed HP for well(s)	HP		New Injection Well(s)			Misc. well maintenance	\$	-
Land	Acres		Drilling	\$	-	Treatment		
New Injection Well(s)			Equipping	\$	-	Regenerable IX - Typ.		
Drilling/casing/cap	NO.		Building/enclosure	\$	-	Unit 1	¢	426.000
Equipping Building/enclosure	No.			Ъ.	-	Resin Replacement	ې د	428,000
Land	Acres		Casing/cap	s	-	Unit 2	Ŷ	23,000
Well/ASR Conversion(s)	710/00		Equipping	ŝ	-	General	\$	-
Casing/cap	No.		Emergency generator	\$	-	Resin Replacement	\$	-
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1		
Disinfection system	No.		Land	\$	-	General	\$	-
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation	¢		Resin Replacement	\$	-
Lond	Acros		Casing/cap	3 6	-	Non-Regenerable IX		
Well(s) Rehabilitation	Acres		Equipping Emergency generator	э S	-	General	s	-
Casing/cap	No.		Disinfection system	s	-	Resin Replacement	ŝ	-
Equipping	No.		Pumphouse/electrical bldg	Š	-	Covevance	Ť	
Emergency generator	No.		Land	\$	-	Collection Pipeline	\$	-
Disinfection system	No.		Treatment Facilities			Distribution Pipeline	\$	-
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	\$	9,000
Total installed HP for well(s)	HP		Unit 1	\$ 2,959	,000	Pump Station(s)		
Land	Acres		Pre-engineered building	\$ 200	,000	Distribution system booster station		
Treatment Facilities			Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$	-	General	\$	-
Unit 1		2 704	Regenerable IX - ISEP	¢		Plant booster station	~	
Installed treated capacity	gpm	2,704	Unit 1 Pro opgingered building	3	-	Power	\$	-
Pre-engineered building Rosin volumo	110.	1 446	Non regenerable IX	à	-	SADI/NDW/	Ŷ	-
Brine flow - average	apm	40	Linit 1	¢		Brine - Canacity Charge		
Brine flow - max rate	gpm	117	Pre-engineered building	ŝ	-	Regenerable IX - Tvp		
NRWS connection	N or S	N	Land	Š	-	Unit 1	\$	9.000
Brine capacity units	No.	3	Conveyance Facilities	•		Unit 2		
Land	Acres		Pipeline(s)			Regenerable IX - ISEP		
Unit 2			Collection	\$	-	Unit 1		
Installed treated capacity	gpm		Distribution	\$	-	Non-Regenerable IX		
Pre-engineered building	No.		Brine	\$ 1,125	,000	Unit 1		
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.	¢	00.000
Brine flow - max rate	gpm Nor S		Plant booster station	\$	-	Unit 1	\$	29,000
Brino conocity units	No No	0	Lanu River Crossing	ф.	-	Dilit 2 Regenerable IX ISER		
Land	Acres	0	HDD	s	-	Linit 1		
Regenerable IX - ISEP			Bridge supported	ŝ	-	Non-Regenerable IX		
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1		
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$ 200	,000	CIP Charge		
Pre-engineered building	No.		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Typ.		
Resin volume	ft3		Transmission pipeline turnout	\$	-	Unit 1	\$	3,000
Brine flow - average	gpm		Connection to storm channel	\$	-	Unit 2	\$	-
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	-	Regenerable IX - ISEP	<i>c</i>	
Brine capacity units	No	0	NRWS Initial Capacity Charge			Non-Regenerable IX	Ŷ	-
Land	Acres	0	Regenerable IX - Typical			Linit 1	s	-
Non-regenerable IX	710/00		Unit 1	\$ 450	0.000	one -	Ŷ	
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	505,000
Installed treated capacity	gpm		Regenerable IX - ISEP					
Pre-engineered building	No.		Unit 1	\$	-	Annualized Capital	\$	628,000
Resin volume	ft3		Non-Regenerable IX					
Brine flow - average	gpm		Unit 1	\$	-	Total Annual Cost	\$	1,133,000
NRW/S connection	gpm Nor S		General mechanical	¢ 00	000	Total Unit Water Cost (\$/AE vr)	e	040
Brine capacity units	NOT S	0	General electrical	⇒ 89 € 200	,000	Total Offit Water COST (\$/AF-YF)	\$	242
Land	Acres	0	General site work		1,000			
Conveyance Facilities	Acies		General requirements (mob/demob)	\$ 100	0.000			
Pipeline(s)				.00	,- 50			
Collection	l		Total Construction Costs	\$ 5,567	,000			
Diameter	in							
Length	ft		Contingency	\$ 1,113	,000			
Distribution			Engineering/administration/CM	\$ 668	8,000			
Diameter	in		Tatal Carliel Cart		000			
Length	ft		lotal Capital Cost	\$ 7,348	,000			
Diameter	in	F	Midpoint of Construction Costs	\$ 0.000	000			
Length	111 ft	12 500	mapoint or consudction costs	φ 0,029	,000	I		
Pump Station(s)	n	12,300						
Distribution system booster station	HP		1					
Plant booster station	HP		1					
Land	Acres		1					
River Crossing(s)			]					
HDD	No.							
Bridge supported	LF							
Freeway crossing (microtunnel)	LF							
Kaliroad crossing (auger boring)	No.	1						
Storm channel crossing (auger boring)	No.							
Connection to storm shannel	INO.		1					
Misc valves & EM for interconnections	NO.		1					
IVINGO, VAIVES & ENVIRONMENTONINECTIONS	INU.		1					

H-Upland Facility capacity

1,000 1,613 gpm AFY

Engineering Criteria			Costs						
Criteria Source Water Systems	Unit	Value	Capital Costs	_		Annual Cost Summary			
New Well(s)	Onit	Value	New Well(s)			Source Water Systems			
Drilling/casing/cap	No.	1	Drilling	\$	900,000	New Well(s)			
Equipping	No.	1	Equipping	\$	1,000,000	Power	\$	206,000	
Emergency generator	NO.	1	Emergency generator	\$	200.000	Misc. well maintenance	\$	25,000	
Pumphouse/electrical bldg	No.	1	Pumphouse/electrical bldg	\$	250,000	Power	\$	-	
Total installed HP for well(s)	HP	250	Land	\$	-	Misc. well maintenance	\$	-	
Land	Acres		New ASR Well(s)	~		Injection Well(s)	¢		
Drilling/casing/cap	No.		Equipping	s		ASR Conversion(s)	\$		
Equipping	No.		Emergency generator	\$	-	Power	\$	-	
Emergency generator	No.		Disinfection system	\$	-	Misc. well maintenance	\$	-	
Disinfection system	No.		Pumphouse/electrical bldg	Ş	-	Well(s) Rehabilitation	¢		
Total installed HP for well(s)	HP		New Injection Well(s)	Ŷ		Misc. well maintenance	ŝ		
Land	Acres		Drilling	\$	-	Treatment			
New Injection Well(s)			Equipping	\$	-	Regenerable IX - Typ.			
Drilling/casing/cap Equipping	No.		Building/enclosure	\$	-	Unit 1 General	¢		
Building/enclosure	No.		Well/ASR Conversion(s)	Ŷ		Resin Replacement	ŝ		
Land	Acres		Casing/cap	\$	-	Unit 2			
Well/ASR Conversion(s)			Equipping	\$	-	General	\$	-	
Casing/cap Equipping	NO.		Emergency generator	s e		Resin Replacement	\$		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1			
Disinfection system	No.		Land	\$	-	General	\$	-	
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation	~		Resin Replacement	\$	-	
Land	Acres		Equipping	\$		Unit 1		-	
Well(s) Rehabilitation	710100		Emergency generator	\$	-	General	\$	-	
Casing/cap	No.		Disinfection system	\$	-	Resin Replacement	\$	-	
Equipping	No.		Pumphouse/electrical bldg	\$	-	Coveyance			
Disinfection system	NO.		Land Treatment Facilities	2	-	Distribution Pipeline	¢		
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	ŝ		
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)			
Land	Acres		Pre-engineered building	\$	-	Distribution system booster station			
Treatment Facilities			Unit 2 Pro opgingered building	\$	-	Power	\$		
Unit 1			Regenerable IX - ISEP	Ŷ		Plant booster station	Ŷ		
Installed treated capacity	gpm		Unit 1	\$	-	Power	\$	-	
Pre-engineered building	No.		Pre-engineered building	\$	-	General	\$	-	
Resin volume	ft3		Non-regenerable IX	~		SARI/NRW			
Brine flow - max rate	apm		Pre-engineered building	ş		Regenerable IX - Tvp.			
NRWS connection	N or S		Land	\$	-	Unit 1			
Brine capacity units	No.	0	Conveyance Facilities			Unit 2			
Land	Acres		Pipeline(s)	¢		Regenerable IX - ISEP		-	
Installed treated capacity	apm		Distribution	ŝ		Non-Regenerable IX			
Pre-engineered building	No.		Brine	\$	-	Unit 1			
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge			
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		-	
NRWS connection	N or S		Land	\$		Unit 2			
Brine capacity units	No.	0	River Crossing	Ť		Regenerable IX - ISEP			
Land	Acres		HDD	\$	-	Unit 1			
Regenerable IX - ISEP			Bridge supported	\$	-	Non-Regenerable IX			
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$	-	CIP Charge			
Pre-engineered building	No.		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Typ.			
Resin volume	ft3		Transmission pipeline turnout	\$	-	Unit 1	\$	-	
Brine flow - average Brine flow - max rate	gpm		Misc valves & EM for interconnections	3		Unit 2 Regenerable IX - ISEP	\$		
NRWS connection	N or S		SARI/NRW	Ť		Unit 1	\$	-	
Brine capacity units	No.	0	NRWS Initial Capacity Charge			Non-Regenerable IX			
Land	Acres		Regenerable IX - Typical	-		Unit 1	\$	-	
Non-regenerable IX			Unit 1	\$		Total Appual O&M	e	231 000	
Installed treated capacity	gpm		Regenerable IX - ISEP	Ŷ			-	201,000	
Pre-engineered building	No.		Unit 1	\$	-	Annualized Capital	\$	270,000	
Resin volume	ft3		Non-Regenerable IX	-		<b>T</b> · · · · · · · · · · · · · · · · · · ·			
Brine flow - average Brine flow - max rate	gpm gpm		General	\$	-	Total Annual COSt	\$	501,000	
NRWS connection	N or S		General mechanical	\$	-	Total Unit Water Cost (\$/AF-yr)	\$	311	
Brine capacity units	No.	0	General electrical	\$	-				
Land	Acres		General site work	\$	-				
Conveyance Facilities			General requirements (mob/demob)	\$	47,000				
Collection			Total Construction Costs	s	2.397.000				
Diameter	in				1				
Length	ft		Contingency	\$	479,000				
Distribution	in		Engineering/administration/CM	\$	288,000				
Length	ft		Total Capital Cost	s	3.164.000				
Brine									
Diameter	in		Midpoint of Construction Costs	\$	3,457,000	l			
Length Rump Station(s)	ft		4						
Distribution system booster station	HP		1						
Plant booster station	HP		1						
Land	Acres		_						
River Crossing(s)	No		-						
Bridae supported	LF		-						
Freeway crossing (microtunnel)	LF		1						
Railroad crossing (auger boring)	No.		-						
Storm channel crossing (auger boring)	No.		4						
Connection to storm channel	No.		-						
Misc. valves & FM for interconnections	No.		1						
-									

I-TVMWD Facility capacity

6,200 9,999 gpm AFY

Engineering Criteria			Costs						
Criteria	11-14	Waltura	Capital Costs			Annual Cost Summary			
New Well(s)	Unit	value	New Well(s)			O&M Source Water Systems	-		
Drilling/casing/cap	No.		Drilling	s	-	New Well(s)			
Equipping	No.		Equipping	\$	-	Power	\$	-	
Emergency generator	No.		Emergency generator	\$	-	Misc. well maintenance	\$	-	
Disinfection system	No.		Disinfection system	\$	-	ASR Well(s)			
Pumphouse/electrical bldg Total installed HP for well(s)	NO. HP		Pumphouse/electrical bldg	\$	-	Power Misc well maintenance	s e		
Land	Acres		New ASR Well(s)	Ŷ		Injection Well(s)	Ŷ		
New ASR Well(s)			Drilling	\$	-	Misc. well maintenance	\$	-	
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)			
Equipping	No.		Emergency generator	\$	-	Power	\$	-	
Emergency generator	NO.		Disinfection system	\$	-	Misc. well maintenance	\$		
Pumphouse/electrical bldg	No.		Land	ŝ	-	Power	s	-	
Total installed HP for well(s)	HP		New Injection Well(s)			Misc. well maintenance	\$	-	
Land	Acres		Drilling	\$	-	Treatment			
New Injection Well(s)			Equipping	\$	-	Regenerable IX - Typ.			
Drilling/casing/cap Equipping	NO.		Building/enclosure	\$	-	Unit 1 General	¢		
Building/enclosure	No.		Well/ASR Conversion(s)	Ŷ	-	Resin Replacement	ŝ		
Land	Acres		Casing/cap	\$	-	Unit 2	Ť		
Well/ASR Conversion(s)			Equipping	\$	-	General	\$		
Casing/cap	No.		Emergency generator	\$	-	Resin Replacement	\$	-	
Equipping	No.		Disinfection system	Ş	-	Regenerable IX - ISEP	_		
Disinfection system	No.		Land	ŝ		General	\$		
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation	Ť		Resin Replacement	\$	-	
Total installed HP for well(s)	HP		Casing/cap	\$	-	Non-Regenerable IX			
Land	Acres		Equipping	\$	-	Unit 1			
Well(s) Renabilitation	No		Emergency generator	\$	-	General Basis Basissement	\$		
Equipping	No.		Pumphouse/electrical bldg	ŝ	-	Covevance	Ŷ		
Emergency generator	No.		Land	\$	-	Collection Pipeline	\$	-	
Disinfection system	No.		Treatment Facilities			Distribution Pipeline	\$	4,000	
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.	-		Brine Pipeline	\$	-	
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)			
Land Treatment Excilities	Acres		Pre-engineered building	\$	-	Distribution system booster station	¢		
Regenerable IX - Typical			Pre-engineered building	ŝ	-	General	ŝ		
Unit 1			Regenerable IX - ISEP	Ť		Plant booster station	Ť	-	
Installed treated capacity	gpm		Unit 1	\$	-	Power	\$	371,000	
Pre-engineered building	No.		Pre-engineered building	\$	-	General	\$	23,000	
Resin volume Bring flow, average	ft3		Non-regenerable IX	¢		SARI/NRW Bring Capacity Charge			
Brine flow - max rate	gpm		Pre-engineered building	ŝ		Regenerable IX - Tvp			
NRWS connection	N or S		Land	Š	-	Unit 1			
Brine capacity units	No.	0	Conveyance Facilities			Unit 2			
Land	Acres		Pipeline(s)			Regenerable IX - ISEP			
Unit 2	0000		Distribution	\$	-	Unit 1			
Pre-engineered building	No		Brine	\$ 2	,000,000	Linit 1			
Resin volume	ft3		Pump Station(s)	Ť		Brine - Volumetric Charge			
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.			
Brine flow - max rate	gpm		Plant booster station	\$ 1	,125,000	Unit 1			
NRWS connection	N or S	0	Land Diver Creasing	\$	-	Unit 2 Begenereble IX ISED			
Land	Acres	U	HDD	s	-	Linit 1			
Regenerable IX - ISEP	710100		Bridge supported	\$	-	Non-Regenerable IX			
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1			
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$	-	CIP Charge			
Pre-engineered building Bosin volume	NO. #2		Storm channel crossing (auger boring)	\$	150,000	Regenerable IX - Typ.	¢		
Brine flow - average	apm		Connection to storm channel	ŝ	50.000	Unit 2	ŝ		
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	25,000	Regenerable IX - ISEP	*		
NRWS connection	N or S		SARI/NRW			Unit 1	\$	-	
Brine capacity units	No.	0	NRWS Initial Capacity Charge			Non-Regenerable IX			
Land Non regenerable IX	Acres		Lipit 1	e		Unit 1	2		
Unit 1			Unit 2	ŝ		Total Annual O&M	s	398.000	
Installed treated capacity	gpm		Regenerable IX - ISEP						
Pre-engineered building	No.		Unit 1	\$	-	Annualized Capital	\$	548,000	
Resin volume	tt3		Non-Regenerable IX	6		Total Annual Coat		040.000	
Brine flow - max rate	gpm		General	\$	-		\$	946,000	
NRWS connection	N or S		General mechanical	\$	34,000	Total Unit Water Cost (\$/AF-yr)	\$	95	
Brine capacity units	No.	0	General electrical	\$	113,000				
Land	Acres		General site work	\$	56,000				
Conveyance Facilities			General requirements (mob/demob)	\$	95,000				
Collection			Total Construction Costs	\$ 4	856 000				
Diameter	in		Total Construction Costs	3 4	,030,000				
Length	ft		Contingency	\$	971,000				
Distribution			Engineering/administration/CM	\$	583,000				
Diameter	in	36	Tatal Casilal Cast		440.000				
Brine		5,200		\$ 0	,410,000				
Diameter	in		Midpoint of Construction Costs	\$ 7	,004,000				
Length	ft								
Pump Station(s)			4						
Distribution system booster station	HP	450	4						
Land	Acres	430	1						
River Crossing(s)	7.0103		1						
HDD	No.								
Bridge supported	LF		4						
Preeway crossing (microtunnel)	LF		4						
Storm channel crossing (auger boring)	No.	1	1						
Transmission pipeline turnout	No.	1	]						
Connection to storm channel	No.	1	4						
Misc. valves & FM for interconnections	No.	1	1						

J-WMWD Opt. A (RC Feeder Interconnection) Facility capacity gpm AFY

3,100 5,000

Engineering Criteria					Co	sts		
Criteria			Capital Costs			Annual Cost Summary		
Source Water Systems	Unit	Value	Source Water Systems			<u>0&amp;M</u>		
New Well(s)	No		New Well(s)			Source Water Systems		
Drilling/casing/cap	NO.		Drilling	\$	-	New Well(s)	¢	
Equipping Emergency generator	No.		Equipping Emergency generator	¢ ¢	-	Misc well maintenance	¢	
Disinfection system	No.		Disinfection system	ŝ		ASR Well(s)	Ş	-
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	ŝ	-	Power	\$	-
Total installed HP for well(s)	HP		Land	\$	-	Misc. well maintenance	\$	-
Land	Acres		New ASR Well(s)			Injection Well(s)		
New ASR Well(s)			Drilling	\$	-	Misc. well maintenance	\$	-
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)		
Equipping	No.		Emergency generator	\$	-	Power	\$	-
Emergency generator	NO.		Disinfection system	\$	-	Misc. well maintenance	\$	-
Pumphouse/electrical bldg	NO.		Land	ę		Power	¢	-
Total installed HP for well(s)	HP.		New Injection Well(s)	Ŷ		Misc. well maintenance	ŝ	-
Land	Acres		Drilling	\$		Treatment	Ť	
New Injection Well(s)			Equipping	\$	-	Regenerable IX - Typ.		
Drilling/casing/cap	No.		Building/enclosure	\$		Unit 1		
Equipping	No.		Land	\$	-	General	\$	-
Building/enclosure	No.		Well/ASR Conversion(s)			Resin Replacement	\$	-
Land Woll/ASP Conversion(s)	Acres		Casing/cap Equipping	\$	-	Unit 2 General	¢	
Casing/can	No		Equipping Emergency generator	¢ ¢	-	Resin Replacement	¢	-
Equipping	No.		Disinfection system	ŝ	-	Regenerable IX - ISEP	ų	_
Emergency generator	No.		Pumphouse/electrical bldg	Š		Unit 1		
Disinfection system	No.		Land	\$	-	General	\$	-
Pumphouse/electrical bldg	No.		Well(s) Rehabilitation			Resin Replacement	\$	-
Total installed HP for well(s)	HP		Casing/cap	\$	-	Non-Regenerable IX		
Land Walla Bakabilitatia	Acres		Equipping	\$	-	Unit 1	~	
vveii(s) Rehabilitation	No		Emergency generator	\$	-	General Rosin Poplacement	\$	-
Casing/cap Equipping	NO.		Pumphouse/electrical bldg	\$	-	Resin Replacement	\$	-
Emergency generator	No.		Land	ŝ	-	Collection Pipeline	s	-
Disinfection system	No.		Treatment Facilities	Ť	-	Distribution Pipeline	ŝ	6.000
Pumphouse/electrical bldg	No.		Regenerable IX - Typ.			Brine Pipeline	Š	-
Total installed HP for well(s)	HP		Unit 1	\$	-	Pump Station(s)		
Land	Acres		Pre-engineered building	\$	-	Distribution system booster station		
Treatment Facilities			Unit 2	\$	-	Power	\$	494,000
Regenerable IX - Typical			Pre-engineered building	\$	-	General Plant basetar station	\$	60,000
Unit 1	anm		Lipit 1	¢		Plant booster station	¢	
Pre-engineered building	No.		Pre-engineered building	ŝ	-	General	ŝ	-
Resin volume	ft3		Non-regenerable IX	Ť		SARI/NRW	Ť	
Brine flow - average	gpm		Unit 1	\$	-	Brine - Capacity Charge		
Brine flow - max rate	gpm		Pre-engineered building	\$	-	Regenerable IX - Typ.		
NRWS connection	N or S		Land	\$	-	Unit 1		
Brine capacity units	No.	0	Conveyance Facilities			Unit 2	_	
Land	Acres		Collection	¢		Lipit 1		
Installed treated capacity	apm		Distribution	ŝ	5,166,000	Non-Regenerable IX		
Pre-engineered building	No.		Brine	ŝ	-	Unit 1		
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	3,000,000	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	\$	-	Unit 1		
NRWS connection	N or S	0	Land Diversion	\$	75,000	Unit 2	_	
Brine capacity units	INO.	0	HDD	¢		Lipit 1		
Regenerable IX - ISEP	Acies		Bridge supported	ŝ	-	Non-Regenerable IX		
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1		
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$	200,000	CIP Charge		
Pre-engineered building	No.		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Typ.		
Resin volume	ft3		Transmission pipeline turnout	\$	-	Unit 1	\$	-
Brine flow - average	gpm		Connection to storm channel	\$	-	Unit 2	\$	-
Brine now - max rate	gpm		MISC. Valves & FM for Interconnections	\$	25,000	Regenerable IX - ISEP	~	
Brine capacity units	No	0	NRWS Initial Capacity Charge	-		Non-Regenerable IX	Ş	-
Land	Acres	0	Regenerable IX - Typical			Unit 1	s	-
Non-regenerable IX			Unit 1	\$	-			
Unit 1			Unit 2	\$	-	Total Annual O&M	\$	560,000
Installed treated capacity	gpm		Regenerable IX - ISEP	_				
Pre-engineered building Rocin volume	N0.		Unit 1	\$	-	Annualized Capital	\$	1,036,000
Brine flow - average	gnm		Unit 1	\$	-	Total Annual Cost	\$	1.596 000
Brine flow - max rate	gpm		General	Ť			Ť	.,,
NRWS connection	N or S		General mechanical	\$	90,000	Total Unit Water Cost (\$/AF-yr)	\$	319
Brine capacity units	No.	0	General electrical	\$	300,000			
Land	Acres		General site work	\$	150,000			
Conveyance Facilities			General requirements (mob/demob)	\$	179,000			
Collection			Total Construction Costs	¢	9 185 000			
Diameter	in			, v	3,103,000			
Length	ft		Contingency	\$	1,837,000			
Distribution			Engineering/administration/CM	\$	1,102,000			
Diameter	in	42						
Length	ft	8,200	Total Capital Cost	\$	12,124,000			
Diameter	in		Midpoint of Construction Costs	s	13,248.000			
Length	ft			. *				
Pump Station(s)			]					
Distribution system booster station	HP	600	_					
Plant booster station	HP	0.45	-					
Land River Crossing(s)	Acres	0.15	4					
HDD	No							
Bridge supported	LF		1					
Freeway crossing (microtunnel)	LF							
Railroad crossing (auger boring)	No.	1						
Storm channel crossing (auger boring)	No.		-					
Connection to storm channel	NO.		1					
Misc. valves & FM for interconnections	No.	1	1					
			-					

J-WMWD Opt. B (Arlington Desalter	Pipeline Interconne	ection)
Facility capacity	gpm	3,100
	AFY	5,000

Engineering C	riteria				Co	sts		
Criteria	11-24	Malua	Capital Costs			Annual Cost Summary		
Source water Systems	Unit	value	Now Woll(c)			O&M Source Water Systems	_	
Drilling/casing/cap	No.		Drilling	\$	-	New Well(s)		
Equipping	No.		Equipping	\$	-	Power	\$	-
Emergency generator	No.		Emergency generator	\$	-	Misc. well maintenance	\$	-
Disinfection system	No.		Disinfection system	\$	-	ASR Well(s)	_	
Pumphouse/electrical bldg	No.		Pumphouse/electrical bldg	ş	-	Power Miss well maintenance	\$	-
Land	Acres		New ASR Well(s)	¢	-	Injection Well(s)	¢	-
New ASR Well(s)	710/00		Drilling	\$	-	Misc, well maintenance	\$	-
Drilling/casing/cap	No.		Equipping	\$	-	ASR Conversion(s)		
Equipping	No.		Emergency generator	\$	-	Power	\$	-
Emergency generator	No.		Disinfection system	\$	-	Misc. well maintenance	\$	-
Disinfection system	NO.		Pumphouse/electrical bidg	\$	-	Well(s) Rehabilitation	¢	
Total installed HP for well(s)	HP		New Injection Well(s)	φ	-	Misc. well maintenance	ŝ	-
Land	Acres		Drilling	\$	-	Treatment	Ť	
New Injection Well(s)			Equipping	\$	-	Regenerable IX - Typ.		
Drilling/casing/cap	No.		Building/enclosure	\$	-	Unit 1		
Equipping	No.		Land	\$	-	General	\$	-
Land	INO. Acres		Casing/can	¢		Lipit 2	\$	-
Well/ASR Conversion(s)	Acies		Equipping	ŝ	-	General	\$	-
Casing/cap	No.		Emergency generator	\$	-	Resin Replacement	\$	-
Equipping	No.		Disinfection system	\$	-	Regenerable IX - ISEP		
Emergency generator	No.		Pumphouse/electrical bldg	\$	-	Unit 1	_	
Disinfection system	No.		Land Woll(c) Robabilitation	\$	-	General Resin Replacement	\$	-
Total installed HP for well(s)	HP		Casing/cap	s	-	Non-Regenerable IX	¢	-
Land	Acres		Equipping	ŝ	-	Unit 1		
Well(s) Rehabilitation			Emergency generator	\$	-	General	\$	-
Casing/cap	No.		Disinfection system	\$	-	Resin Replacement	\$	-
Equipping	No.		Pumphouse/electrical bldg	\$	-	Coveyance	-	
Emergency generator	NO.		Land	\$	-	Collection Pipeline	\$	-
Pumphouse/electrical bldg	NO.		Regenerable IX - Typ			Brine Pipeline	ð S	∠9,000
Total installed HP for well(s)	HP.		Unit 1	\$	-	Pump Station(s)	Ŷ	
Land	Acres		Pre-engineered building	\$	-	Distribution system booster station		
Treatment Facilities			Unit 2	\$	-	Power	\$	-
Regenerable IX - Typical			Pre-engineered building	\$	-	General	\$	-
Unit 1			Regenerable IX - ISEP			Plant booster station		
Pre-engineered building	gpm No		Unit 1 Pre-engineered building	¢ ¢	-	General	¢ ¢	
Resin volume	ft3		Non-regenerable IX	Ŷ		SARI/NRW	Ŷ	
Brine flow - average	gpm		Unit 1	\$	-	Brine - Capacity Charge		
Brine flow - max rate	gpm		Pre-engineered building	\$	-	Regenerable IX - Typ.		
NRWS connection	N or S		Land	\$	-	Unit 1		
Brine capacity units	No.	0	Conveyance Facilities	_		Unit 2	_	
Land	Acres		Collection	¢		Lipit 1		
Installed treated capacity	gpm		Distribution	ŝ	17,235,000	Non-Regenerable IX		
Pre-engineered building	No.		Brine	\$	-	Unit 1		
Resin volume	ft3		Pump Station(s)			Brine - Volumetric Charge		
Brine flow - average	gpm		Distribution system booster station	\$	-	Regenerable IX - Typ.		
Brine flow - max rate	gpm		Plant booster station	\$	-	Unit 1	_	
Brine canacity units	N OF 5	0	Land River Crossing	¢	-	Unit 2 Regenerable IX - ISEP		
Land	Acres	0	HDD	s	-	Unit 1		
Regenerable IX - ISEP			Bridge supported	\$	594,000	Non-Regenerable IX		
Unit 1			Freeway crossing (microtunnel)	\$	-	Unit 1		
Installed treated capacity	gpm		Railroad crossing (auger boring)	\$	-	CIP Charge		
Pre-engineered building	NO.		Storm channel crossing (auger boring)	\$	-	Regenerable IX - Typ.	~	
Brine flow - average	apm		Connection to storm channel	ş		Unit 2	ş S	
Brine flow - max rate	gpm		Misc. valves & FM for interconnections	\$	25,000	Regenerable IX - ISEP	Ť	
NRWS connection	N or S		SARI/NRW			Unit 1	\$	-
Brine capacity units	No.	0	NRWS Initial Capacity Charge			Non-Regenerable IX		
Land	Acres		Regenerable IX - Typical			Unit 1	\$	-
Non-regenerable IX			Unit 1	¢ ¢	-	Total Appual O&M	e	29 000
Installed treated capacity	apm		Regenerable IX - ISEP	Ŷ				23,000
Pre-engineered building	No.		Unit 1	\$	-	Annualized Capital	\$	2,055,000
Resin volume	ft3		Non-Regenerable IX					
Brine flow - average	gpm		Unit 1	\$	-	Total Annual Cost	\$	2,084,000
NRWS connection	gpm NorS		General mechanical	\$		Total Unit Water Cost (\$/AF-vr)	\$	A17
Brine capacity units	No.	0	General electrical	ş	-	Total offic mater oust (#/Ar-yr)	φ	417
Land	Acres		General site work	\$	-			
Conveyance Facilities			General requirements (mob/demob)	\$	357,000			
Pipeline(s)								
Collection	in		Lotal Construction Costs	\$	18,211,000			
Length	ft		Contingency	s	3,642,000			
Distribution			Engineering/administration/CM	ŝ	2,185,000			
Diameter	in	30						
Length	ft	38,300	Total Capital Cost	\$	24,038,000			
Brine	in		Midpoint of Construction Costs		26 267 000			
Length	ft ft		Midpoint of Construction Costs	ş	20,207,000			
Pump Station(s)	n							
Distribution system booster station	HP		1					
Plant booster station	HP							
Land	Acres							
Kiver Crossing(s)	Ne							
Bridge supported	110.	660						
Freeway crossing (microtunnel)	LF	000						
Railroad crossing (auger boring)	No.							
Storm channel crossing (auger boring)	No.							
Transmission pipeline turnout	No.		1					
Connection to storm channel	No.	1						
IVIISC. VAIVES & FIVI IOF INTERCONNECTIONS	INO.		1					