

APPENDIX F

COST INFORMATION

Tucson Water utilized various cost estimating procedures to produce planning level cost estimates of each planning pathway. Detailed information regarding these cost estimates is provided in a series of tables in this appendix. Table F-1 is a summary of all of the cost information contained in this appendix. It presents the total present worth and resulting unit costs of each planning pathway.

Present worth cost estimates and water resource utilization charts were prepared for each planning pathway. This appendix includes 28 tables which present detailed costs for all of the Clearwater Program elements for each of the 28 pathways. Certain pathways include projects where effluent would eventually become a part of the Clearwater blend (i.e. pathways that include Effluent Reuse futures “E” and “F”); for these pathways, the volume of effluent generated is included in the Total Clearwater Production Average Flow in Target Year. However, these tables do not include the costs of utilizing effluent through the Clearwater Program. Therefore, the unit costs presented on these tables will not reflect the total costs of the pathway. To find the total estimated unit costs for all elements of each pathway, refer to Table F-1.

On the facing page of each detailed cost estimate, a water-resource utilization chart is presented. The charts present the projected potable water demand, the water supplies to meet demand, and the estimated mineral content of the Clearwater blend for each combined future through the year 2050. Reclaimed water usage is estimated at eight percent of total demand and is not shown on the charts. The primary “y” axis (left side of each chart) is the annual volume of each water source in acre-feet. The secondary “y” axis (right side of each chart) is the projected mineral content of the Clearwater blend as measured by TDS concentration in mg/L. The stacked bars on the graphs are the annual volumes of each water supply. These supplies are color coded and listed by abbreviation in the legend located to the right of each chart. A key to these abbreviations is provided in Table F-2. The green line on each graph represents the estimated mineral content of the Clearwater blend. In combined futures that include a TDS concentration target of 450 mg/L, this limit is depicted by a solid red line.

Table F-1: Water Plan: 2000-2050 - Present Worth Costs of the Planning Pathways

NOTE: Annualized Costs in \$1,000 except where noted.

Pathway	Combined Future	Water Flow 2030 (Target Year) Average Flow (MGD)*	Annualized Costs														Unit Costs		Total Present Worth				
			Hayden-Udall Capital	Hayden-Udall O&M	EhT of CAP Capital	EhT of CAP O&M	CAVSARP Capital	CAVSARP O&M	SAVSARP Capital	SAVSARP O&M	Other Capital	Other O&M	Effluent Capital	Effluent O&M	Total Capital	Total O&M	Total Annualized Costs	Unit Cost (\$/1,000 Gal)	Unit Cost (\$/AF)	Clearwater Cost Tool Present Worth	Effluent Present Worth Capital	Effluent Present Worth O&M	Grand Total Present Worth
1	I-A	116.2	\$ 492	\$ 2,913	\$ 14,193	\$ 4,398	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 390	\$ -	\$ -	\$ 16,118	\$ 13,607	\$ 29,725	\$ 0.70	\$ 228.35	\$427,304,963	\$0	\$0	\$427,304,963
	II-A	123.0	\$ 493	\$ 2,815	\$ -	\$ -	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 390	\$ -	\$ -	\$ 1,926	\$ 9,112	\$ 11,038	\$ 0.25	\$ 80.12	\$158,672,375	\$0	\$0	\$158,672,375
2	I-B	150.9	\$ 500	\$ 4,099	\$ 14,606	\$ 4,433	\$ -	\$ 3,642	\$ -	\$ -	\$ 1,434	\$ 392	\$ 13,229	\$ 9,841	\$ 29,769	\$ 22,406	\$ 52,175	\$ 0.95	\$ 308.74	\$418,388,366	\$190,172,406	\$141,467,348	\$750,028,120
	II-B	156.5	\$ 501	\$ 3,999	\$ -	\$ -	\$ -	\$ 3,642	\$ -	\$ -	\$ 1,434	\$ 379	\$ 13,229	\$ 9,841	\$ 15,164	\$ 17,861	\$ 33,025	\$ 0.58	\$ 188.39	\$143,096,359	\$190,172,406	\$141,467,348	\$474,736,112
3	I-C	116.2	\$ 492	\$ 2,913	\$ 14,193	\$ 4,398	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 390	\$ -	\$ -	\$ 16,118	\$ 13,607	\$ 29,725	\$ 0.70	\$ 228.35	\$427,304,963	\$0	\$0	\$427,304,963
	II-C	123.0	\$ 493	\$ 2,815	\$ -	\$ -	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 390	\$ -	\$ -	\$ 1,926	\$ 9,112	\$ 11,038	\$ 0.25	\$ 80.12	\$158,672,375	\$0	\$0	\$158,672,375
4	I-D	150.9	\$ 500	\$ 4,099	\$ 14,606	\$ 4,433	\$ -	\$ 3,642	\$ -	\$ -	\$ 1,434	\$ 392	\$ 13,229	\$ 9,841	\$ 29,769	\$ 22,406	\$ 52,175	\$ 0.95	\$ 308.74	\$418,388,366	\$190,172,406	\$141,467,348	\$750,028,120
	II-D	156.5	\$ 501	\$ 3,999	\$ -	\$ -	\$ -	\$ 3,642	\$ -	\$ -	\$ 1,434	\$ 379	\$ 13,229	\$ 9,841	\$ 15,164	\$ 17,861	\$ 33,025	\$ 0.58	\$ 188.39	\$143,096,359	\$190,172,406	\$141,467,348	\$474,736,112
5	III-A	130.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,906	\$ 2,641	\$ 5,379	\$ 1,458	\$ 471	\$ -	\$ -	\$ 4,100	\$ 11,757	\$ 15,856	\$ 0.33	\$ 108.91	\$227,939,018	\$0	\$0	\$227,939,018
	IV-A	115.1	\$ 61	\$ -	\$ 18,319	\$ 3,345	\$ -	\$ 5,539	\$ 2,641	\$ 5,832	\$ 1,457	\$ 467	\$ -	\$ -	\$ 22,478	\$ 15,184	\$ 37,662	\$ 0.90	\$ 292.06	\$541,393,206	\$0	\$0	\$541,393,206
6	III-B	156.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,906	\$ 2,641	\$ 5,379	\$ 1,458	\$ 474	\$ 8,196	\$ 5,976	\$ 12,296	\$ 17,736	\$ 30,032	\$ 0.53	\$ 171.69	\$227,988,044	\$117,816,443	\$85,905,633	\$431,710,119
	IV-B	149.9	\$ 61	\$ -	\$ 17,740	\$ 3,185	\$ -	\$ 5,537	\$ 2,641	\$ 5,830	\$ 1,457	\$ 483	\$ 8,196	\$ 5,976	\$ 30,096	\$ 21,011	\$ 51,106	\$ 0.93	\$ 304.39	\$530,942,414	\$117,816,443	\$85,905,633	\$734,664,490
7	III-C	130.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,906	\$ 2,641	\$ 5,379	\$ 1,458	\$ 471	\$ -	\$ -	\$ 4,100	\$ 11,757	\$ 15,856	\$ 0.33	\$ 108.91	\$227,939,018	\$0	\$0	\$227,939,018
	IV-C	115.1	\$ 61	\$ -	\$ 18,319	\$ 3,345	\$ -	\$ 5,539	\$ 2,641	\$ 5,832	\$ 1,457	\$ 467	\$ -	\$ -	\$ 22,478	\$ 15,184	\$ 37,662	\$ 0.90	\$ 292.06	\$541,393,206	\$0	\$0	\$541,393,206
8	III-D	156.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,906	\$ 2,641	\$ 5,379	\$ 1,458	\$ 474	\$ 8,196	\$ 5,976	\$ 12,296	\$ 17,736	\$ 30,032	\$ 0.53	\$ 171.69	\$227,988,044	\$117,816,443	\$85,905,633	\$431,710,119
	IV-D	149.9	\$ 61	\$ -	\$ 17,740	\$ 3,185	\$ -	\$ 5,537	\$ 2,641	\$ 5,830	\$ 1,457	\$ 483	\$ 8,196	\$ 5,976	\$ 30,096	\$ 21,011	\$ 51,106	\$ 0.93	\$ 304.39	\$530,942,414	\$117,816,443	\$85,905,633	\$734,664,490
9	III-E	154.6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,206	\$ 2,641	\$ 6,134	\$ 1,458	\$ 472	\$ 13,514	\$ 10,739	\$ 17,614	\$ 22,551	\$ 40,165	\$ 0.71	\$ 231.88	\$228,737,311	\$194,267,938	\$154,380,416	\$577,385,665
	IV-E	153.1	\$ 61	\$ -	\$ 17,537	\$ 3,305	\$ -	\$ 5,047	\$ 2,641	\$ 6,585	\$ 1,458	\$ 471	\$ 13,514	\$ 10,739	\$ 35,212	\$ 26,147	\$ 61,359	\$ 1.10	\$ 357.90	\$533,399,637	\$194,267,938	\$154,380,416	\$882,047,990
10	III-F	154.6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,206	\$ 2,641	\$ 6,134	\$ 1,458	\$ 472	\$ 13,514	\$ 10,739	\$ 17,614	\$ 22,551	\$ 40,165	\$ 0.71	\$ 231.88	\$228,737,311	\$194,267,938	\$154,380,416	\$577,385,665
	IV-F	153.1	\$ 61	\$ -	\$ 17,537	\$ 3,305	\$ -	\$ 5,047	\$ 2,641	\$ 6,585	\$ 1,458	\$ 471	\$ 13,514	\$ 10,739	\$ 35,212	\$ 26,147	\$ 61,359	\$ 1.10	\$ 357.90	\$533,399,637	\$194,267,938	\$154,380,416	\$882,047,990
11	I-E	154.6	\$ 498	\$ 3,702	\$ 15,146	\$ 4,422	\$ -	\$ 5,054	\$ -	\$ -	\$ 1,436	\$ 377	\$ 13,229	\$ 9,841	\$ 30,309	\$ 23,396	\$ 53,706	\$ 0.95	\$ 310.05	\$440,388,505	\$190,172,406	\$141,467,348	\$772,028,259
	II-E	154.6	\$ 499	\$ 3,605	\$ -	\$ -	\$ -	\$ 4,831	\$ -	\$ -	\$ 1,434	\$ 374	\$ 13,229	\$ 9,841	\$ 15,162	\$ 18,651	\$ 33,813	\$ 0.60	\$ 195.21	\$154,429,985	\$190,172,406	\$141,467,348	\$486,069,738
12	I-F	154.6	\$ 498	\$ 3,702	\$ 15,146	\$ 4,422	\$ -	\$ 5,054	\$ -	\$ -	\$ 1,436	\$ 377	\$ 13,229	\$ 9,841	\$ 30,309	\$ 23,396	\$ 53,706	\$ 0.95	\$ 310.05	\$440,388,505	\$190,172,406	\$141,467,348	\$772,028,259
	II-F	154.6	\$ 499	\$ 3,605	\$ -	\$ -	\$ -	\$ 4,831	\$ -	\$ -	\$ 1,434	\$ 374	\$ 13,229	\$ 9,841	\$ 15,162	\$ 18,651	\$ 33,813	\$ 0.60	\$ 195.21	\$154,429,985	\$190,172,406	\$141,467,348	\$486,069,738
13	I-G	154.6	\$ 492	\$ 2,910	\$ 12,639	\$ 3,573	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 402	\$ 13,152	\$ 10,782	\$ 27,717	\$ 23,573	\$ 51,290	\$ 0.91	\$ 296.13	\$393,237,265	\$189,068,807	\$154,992,158	\$737,298,229
	II-G	154.6	\$ 493	\$ 2,815	\$ -	\$ -	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 396	\$ 13,152	\$ 10,782	\$ 15,079	\$ 19,899	\$ 34,978	\$ 0.62	\$ 202.00	\$158,760,511	\$189,068,807	\$154,992,158	\$502,821,476
14	I-H	154.6	\$ 492	\$ 2,910	\$ 12,639	\$ 3,573	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 402	\$ 13,152	\$ 10,782	\$ 27,717	\$ 23,573	\$ 51,290	\$ 0.91	\$ 296.13	\$393,237,265	\$189,068,807	\$154,992,158	\$737,298,229
	II-H	154.6	\$ 493	\$ 2,815	\$ -	\$ -	\$ -	\$ 5,906	\$ -	\$ -	\$ 1,434	\$ 396	\$ 13,152	\$ 10,782	\$ 15,079	\$ 19,899	\$ 34,978	\$ 0.62	\$ 202.00	\$158,760,511	\$189,068,807	\$154,992,158	\$502,821,476

*Highlighted boxes contain flows that are in addition to those flows that appear on each of the Clearwater Cost Model output sheets. Added flows were derived from the use of effluent credits to pump additional ground water or from direct use of enhanced treated effluent

EhT: Enhanced Treatment; CAP: Central Arizona Project water

Abbreviation	Explanation	Abbreviation	Explanation
EFF credits	Recovered effluent long-term storage credits	TARP	Tucson Airport Remediation Project
EFF Recovery	Annual recovery of recharged effluent	PIMA MINE RD	Recovery of Colorado River water stored at the Pima Mine Road Recharge Project
SAVSARP Storage	Recovered Colorado River water long-term storage credits	CAP Bypass	Direct-treated Colorado River water from the Hayden-Udall Treatment Plant
RO Filt EFF	Highly treated effluent	CAP Permeate	Direct- and enhanced-treated Colorado River water from the Hayden-Udall Treatment Plant
Phase 1	The first phase of wells shut-down in the Central Well Field	THREE POINTS	Three Points Well Field
Phase 2	Second phase of above	AVS	South portion of the Avra Valley Well Field
Phase 3	Third phase of above	SAVSARP	Southern Avra Valley Storage and Recovery Project
Central	Remaining wells in the Central Well Field	AVN	North portion of the Avra Valley Well Field
E&G	Wells located in the E&G water service areas	CAVSARP	Central Avra Valley Storage and Recovery Project
SANTA CRUZ	Santa Cruz Well Field	ISOLATED	Wells located in the isolated water systems
SOUTHSIDE	Southside Well Field		

Table F-2: Water-Supply Abbreviations Shown on Supply Graphs for Pathways.

CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 1
Combined Future I-A**

ALTERNATIVE NAME	Future I-A
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 231.7
Average Annual O&M Cost	\$ 15.6
Present Worth of O&M Costs	\$ 195.6
Total Present Worth	\$ 427.3
Annualized Capital Cost	\$ 16.1
Uniform Annualized O&M Cost	\$ 13.6
Total Equivalent Annual Cost	\$ 29.7
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.70
\$/acre-foot	\$ 228

Project Cost Breakdown

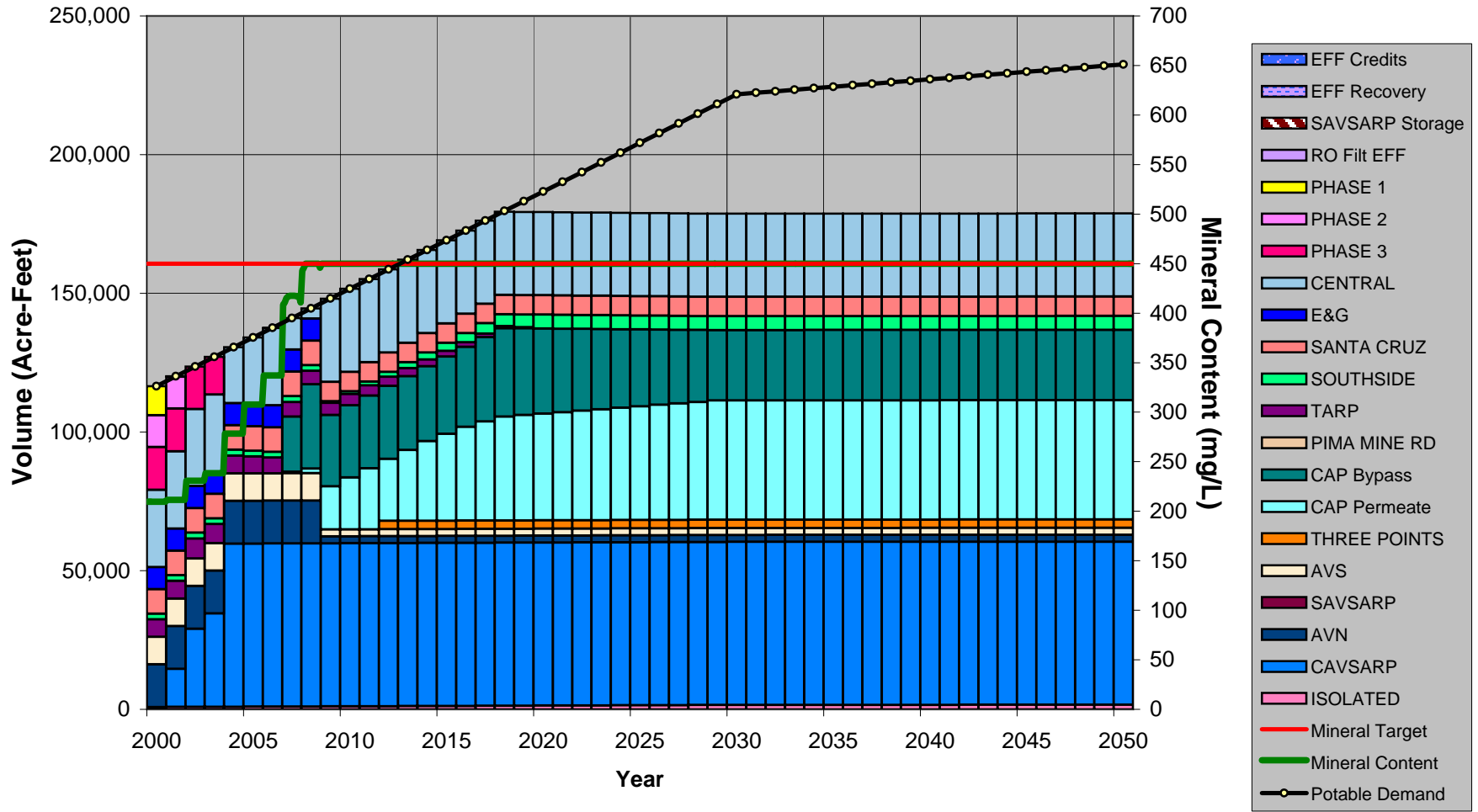
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	102.1	67.8	\$ 2,162	\$ 499	\$ 5,887	\$ 8,048	\$ 150	\$ 409	\$ 560	\$ 0	\$ 7
Chlorination*	102.1	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	102.1	67.8		\$ 2,860	\$ 33,261	\$ 33,261		\$ 2,314	\$ 2,314	\$ 0	\$ 30
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	60.5	45.2	\$ 54,263	\$ 4,319	\$ 47,462	\$ 101,725	\$ 3,775	\$ 3,302	\$ 7,076	\$ 0	\$ 140
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	9.1	6.8	\$ 149,766	\$ 1,434	\$ 15,754	\$ 165,520	\$ 10,418	\$ 1,096	\$ 11,514	\$ 5	\$ 1,517
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	93.9	61.0	\$ 424	\$ 234	\$ 2,728	\$ 3,151	\$ 29	\$ 190	\$ 219	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	93.9	61.0	\$ 211,095	\$ 9,344	\$ 105,090	\$ 316,185	\$ 14,685	\$ 7,311	\$ 21,995	\$ 0.99	\$ 322
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	158.2	116.2									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 231,702	\$ 15,551	\$ 195,603	\$ 427,305	\$ 16,118	\$ 13,607	\$ 29,725	\$ 0.70	\$ 228

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 1, Combined Future I-A. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 1
Combined Future II-A**

ALTERNATIVE NAME	Future II-A
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool	650 (mg/L)
Overall Output Values (\$Millions except where noted)	
Present Worth Capital Cost	\$ 27.7
Average Annual O&M Cost	\$ 9.7
Present Worth of O&M Costs	\$ 131.0
Total Present Worth	\$ 158.7
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 9.1
Total Equivalent Annual Cost	\$ 11.0
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.25
\$/acre-foot	\$ 80

Input Values

Power Cost for HUWTP	\$0.08 (\$/kWh)
Labor Rate	\$26 (\$/hr)
Annual Discount Rate	0.050 (per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188
Target Year	2030 (Year)
Planning Horizon	26 (Years)
Spencer Interconnect	TRUE
SAVSARP Deep Wells	15
Three-Points Wellfield	2012

Project Cost Breakdown

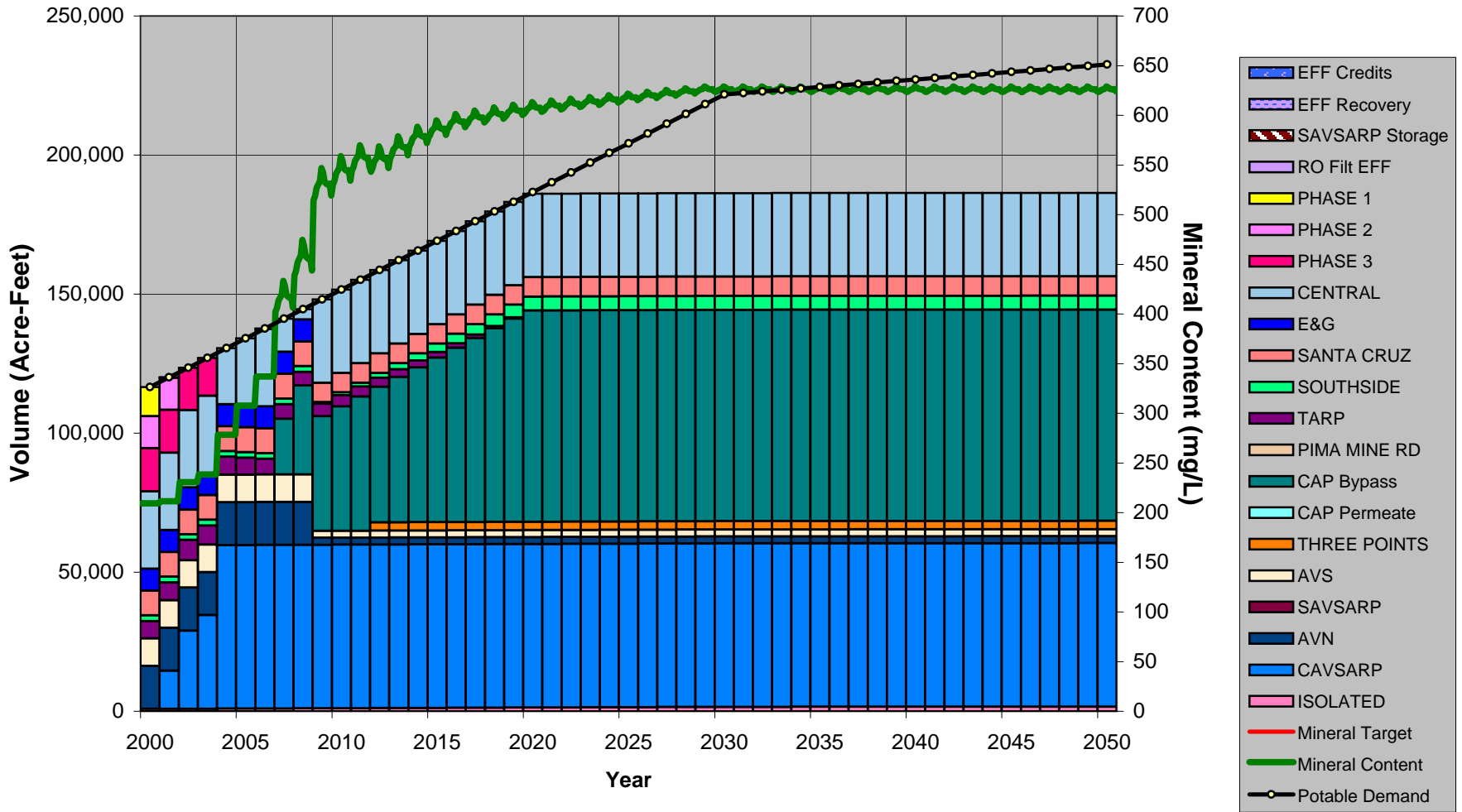
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	101.4	67.8	\$ 2,162	\$ 485	\$ 5,687	\$ 7,848	\$ 150	\$ 396	\$ 546	\$ 0	\$ 7
Chlorination*	101.4	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	101.4	67.8		\$ 2,769	\$ 31,936	\$ 31,936		\$ 2,222	\$ 2,222	\$ 0	\$ 29
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	101.4	67.8	\$ 442	\$ 247	\$ 2,845	\$ 3,288	\$ 31	\$ 198	\$ 229	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	101.4	67.8	\$ 7,084	\$ 3,502	\$ 40,468	\$ 47,553	\$ 493	\$ 2,815	\$ 3,308	\$ 0.13	\$ 44
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	165.7	123.0									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,692	\$ 9,708	\$ 130,981	\$ 158,672	\$ 1,926	\$ 9,112	\$ 11,038	\$ 0.25	\$ 80

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 1, Combined Future II-A. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 2
Combined Future I-B**

ALTERNATIVE NAME	Future I-B
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 237.8
Average Annual O&M Cost	\$ 14.5
Present Worth of O&M Costs	\$ 180.6
Total Present Worth	\$ 418.4
Annualized Capital Cost	\$ 16.5
Uniform Annualized O&M Cost	\$ 12.6
Total Equivalent Annual Cost	\$ 29.1
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.67
\$/acre-foot	\$ 217

Project Cost Breakdown

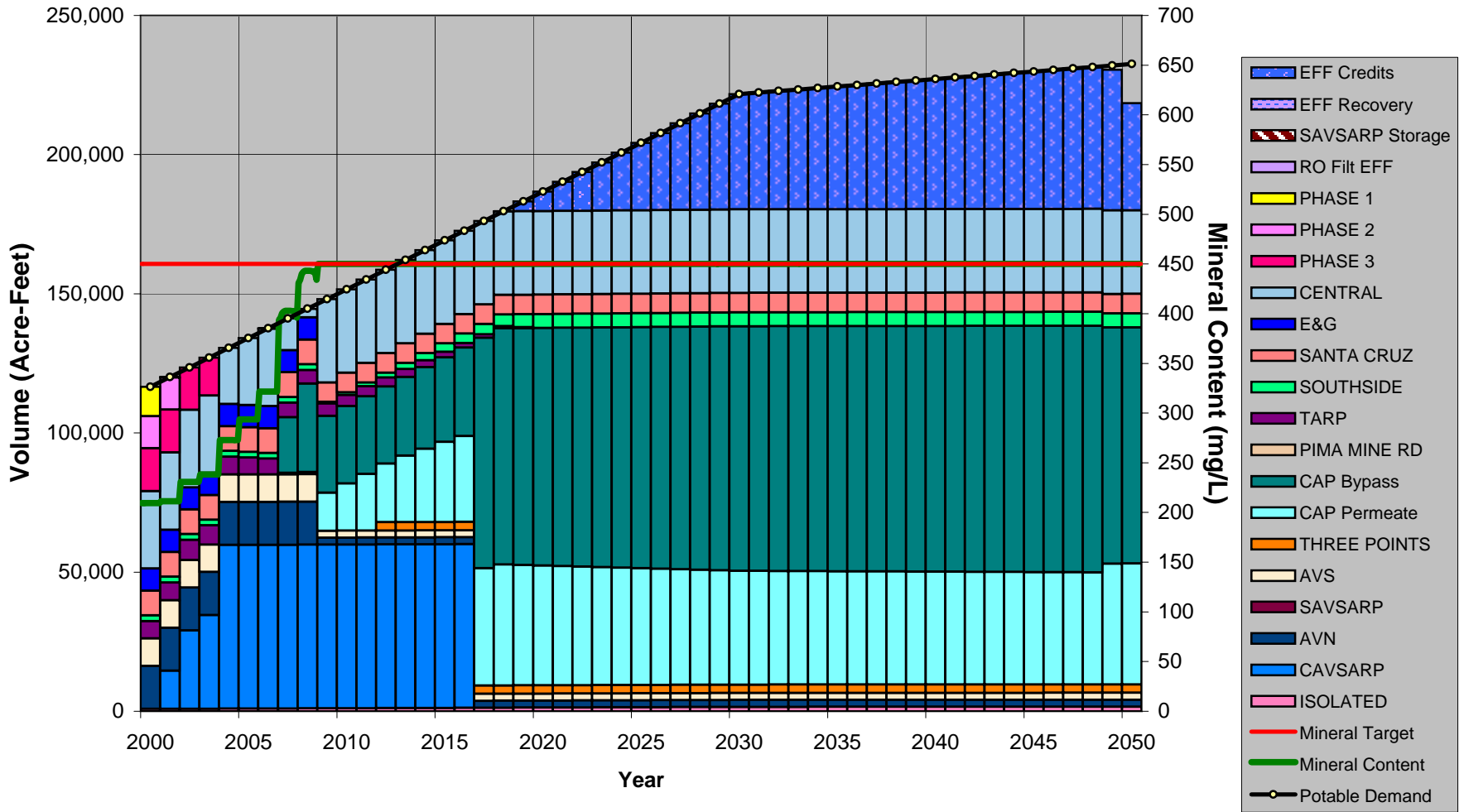
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)			
										\$/1,000 gal	\$/acre-ft		
Hayden-Udall WTP:													
General Rehabilitation			\$ 4,480			\$ 4,480			\$ 312		\$ 312		
Primary Disinfection Options													
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	164.7	121.4	\$ 2,162	\$ 702	\$ 7,805	\$ 9,967	\$ 150	\$ 543	\$ 693	\$ 0	\$ 5		
Chlorination*	164.7	121.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	164.7	121.4		\$ 4,328	\$ 47,116	\$ 47,116		\$ 3,278	\$ 3,278	\$ 0	\$ 24		
TDS Removal of CAP Water													
NF/RO (with Existing Direct Filtration)	62.3	42.9	\$ 55,725	\$ 4,381	\$ 47,842	\$ 103,567	\$ 3,876	\$ 3,328	\$ 7,205	\$ 0	\$ 150		
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	9.3	6.4	\$ 154,238	\$ 1,454	\$ 15,880	\$ 170,118	\$ 10,729	\$ 1,105	\$ 11,834	\$ 5	\$ 1,641		
TDS Removal of Recovered Water													
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection													
Chlorine	155.8	114.9	\$ 545	\$ 369	\$ 4,002	\$ 4,547	\$ 38	\$ 278	\$ 316	\$ 0	\$ 2		
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	155.8	114.9	\$ 217,150	\$ 11,235	\$ 122,646	\$ 339,796	\$ 15,106	\$ 8,532	\$ 23,638	\$ 0.56	\$ 184		
CAVSARP	61.2	0.0		\$ 2,742	\$ 52,350	\$ 52,350		\$ 3,642	\$ 3,642	\$ -	\$ -		
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	0.0	\$ 143	\$ 44	\$ 813	\$ 956	\$ 10	\$ 57	\$ 66	\$ -	\$ -		
Three Points Wellfield	5.7	4.9	\$ 5,249	\$ 285	\$ 2,919	\$ 8,169	\$ 365	\$ 203	\$ 568	\$ 0.32	\$ 103		
Secondary Disinfection- Three Points Wellfield	5.7	4.9	\$ 92	\$ 7	\$ 68	\$ 160	\$ 6	\$ 5	\$ 11	\$ 0.01	\$ 2		
Total Clearwater Production (MGD)	222.7	119.9											
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180				
TOTAL COSTS**			\$ 237,764	\$ 14,505	\$ 180,625	\$ 418,388	\$ 16,540	\$ 12,565	\$ 29,105	\$ 0.67	\$ 217		

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 2, Combined Future I-B. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 2
Combined Future II-B**

ALTERNATIVE NAME	Future II-B
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.8
Average Annual O&M Cost	\$ 8.6
Present Worth of O&M Costs	\$ 115.3
Total Present Worth	\$ 143.1
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 8.0
Total Equivalent Annual Cost	\$ 10.0
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.22
\$/acre-foot	\$ 71

Project Cost Breakdown

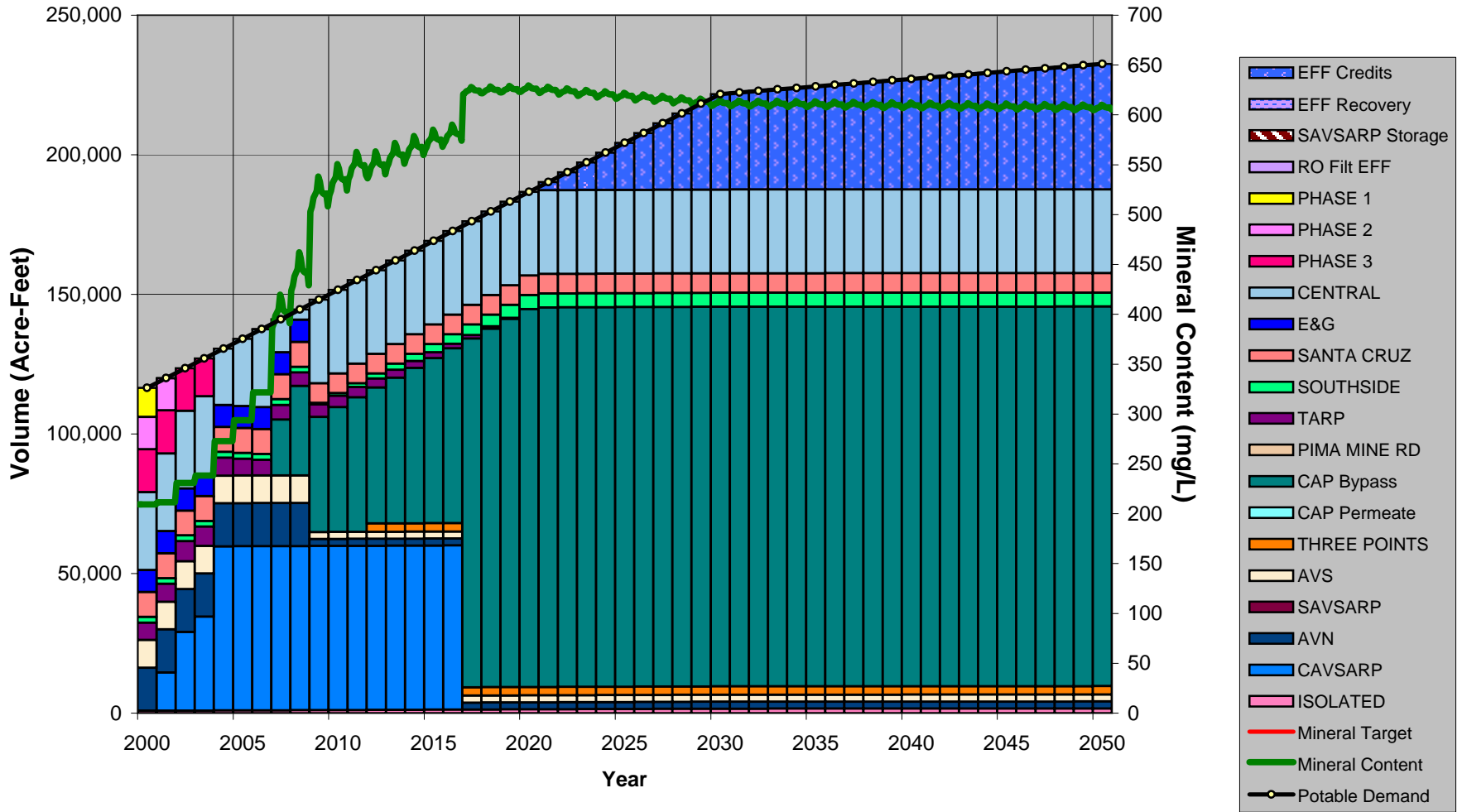
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	164.1	121.4	\$ 2,162	\$ 688	\$ 7,600	\$ 9,762	\$ 150	\$ 529	\$ 679	\$ 0	\$ 5
Chlorination*	164.1	121.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	164.1	121.4		\$ 4,235	\$ 45,771	\$ 45,771		\$ 3,184	\$ 3,184	\$ 0	\$ 23
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	164.1	121.4	\$ 556	\$ 382	\$ 4,119	\$ 4,675	\$ 39	\$ 287	\$ 325	\$ 0	\$ 2
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	164.1	121.4	\$ 7,198	\$ 5,306	\$ 57,490	\$ 64,688	\$ 501	\$ 3,999	\$ 4,500	\$ 0.10	\$ 33
CAVSARP	61.2	0.0		\$ 2,742	\$ 52,350	\$ 52,350		\$ 3,642	\$ 3,642	\$ -	\$ -
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	0.0	\$ 143	\$ 44	\$ 813	\$ 956	\$ 10	\$ 57	\$ 66	\$ -	\$ -
Three Points Wellfield	5.1	4.5	\$ 5,249	\$ 264	\$ 2,740	\$ 7,989	\$ 365	\$ 191	\$ 556	\$ 0.34	\$ 110
Secondary Disinfection- Three Points Wellfield	5.1	4.5	\$ 90	\$ 6	\$ 65	\$ 156	\$ 6	\$ 5	\$ 11	\$ 0.01	\$ 2
Total Clearwater Production (MGD)	230.4	125.9									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,810	\$ 8,555	\$ 115,286	\$ 143,096	\$ 1,935	\$ 8,020	\$ 9,954	\$ 0.22	\$ 71

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 2, Combined Future II-B. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 3
Combined Future I-C**

ALTERNATIVE NAME	Future I-C
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 231.7
Average Annual O&M Cost	\$ 15.6
Present Worth of O&M Costs	\$ 195.6
Total Present Worth	\$ 427.3
Annualized Capital Cost	\$ 16.1
Uniform Annualized O&M Cost	\$ 13.6
Total Equivalent Annual Cost	\$ 29.7
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.70
\$/acre-foot	\$ 228

Project Cost Breakdown

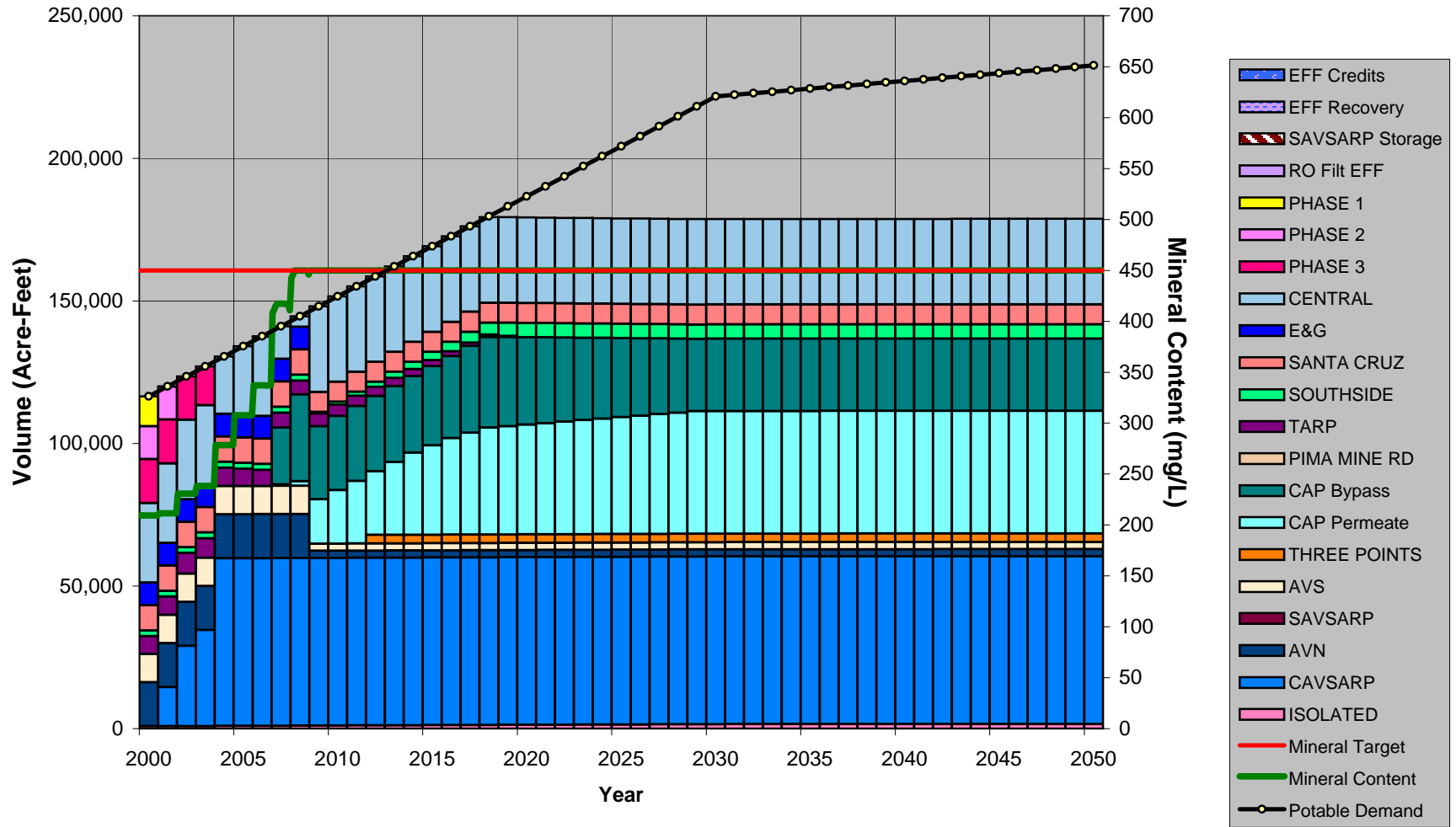
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	102.1	67.8	\$ 2,162	\$ 499	\$ 5,887	\$ 8,048	\$ 150	\$ 409	\$ 560	\$ 0	\$ 7
Chlorination*	102.1	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	102.1	67.8		\$ 2,860	\$ 33,261	\$ 33,261		\$ 2,314	\$ 2,314	\$ 0	\$ 30
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	60.5	45.2	\$ 54,263	\$ 4,319	\$ 47,462	\$ 101,725	\$ 3,775	\$ 3,302	\$ 7,076	\$ 0	\$ 140
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	9.1	6.8	\$ 149,766	\$ 1,434	\$ 15,754	\$ 165,520	\$ 10,418	\$ 1,096	\$ 11,514	\$ 5	\$ 1,517
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	93.9	61.0	\$ 424	\$ 234	\$ 2,728	\$ 3,151	\$ 29	\$ 190	\$ 219	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	93.9	61.0	\$ 211,095	\$ 9,344	\$ 105,090	\$ 316,185	\$ 14,685	\$ 7,311	\$ 21,995	\$ 0.99	\$ 322
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	158.2	116.2									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 231,702	\$ 15,551	\$ 195,603	\$ 427,305	\$ 16,118	\$ 13,607	\$ 29,725	\$ 0.70	\$ 228

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 3, Combined Future I-C. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 3
Combined Future II-C**

ALTERNATIVE NAME	Future II-C
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.7
Average Annual O&M Cost	\$ 9.7
Present Worth of O&M Costs	\$ 131.0
Total Present Worth	\$ 158.7
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 9.1
Total Equivalent Annual Cost	\$ 11.0
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.25
\$/acre-foot	\$ 80

Project Cost Breakdown

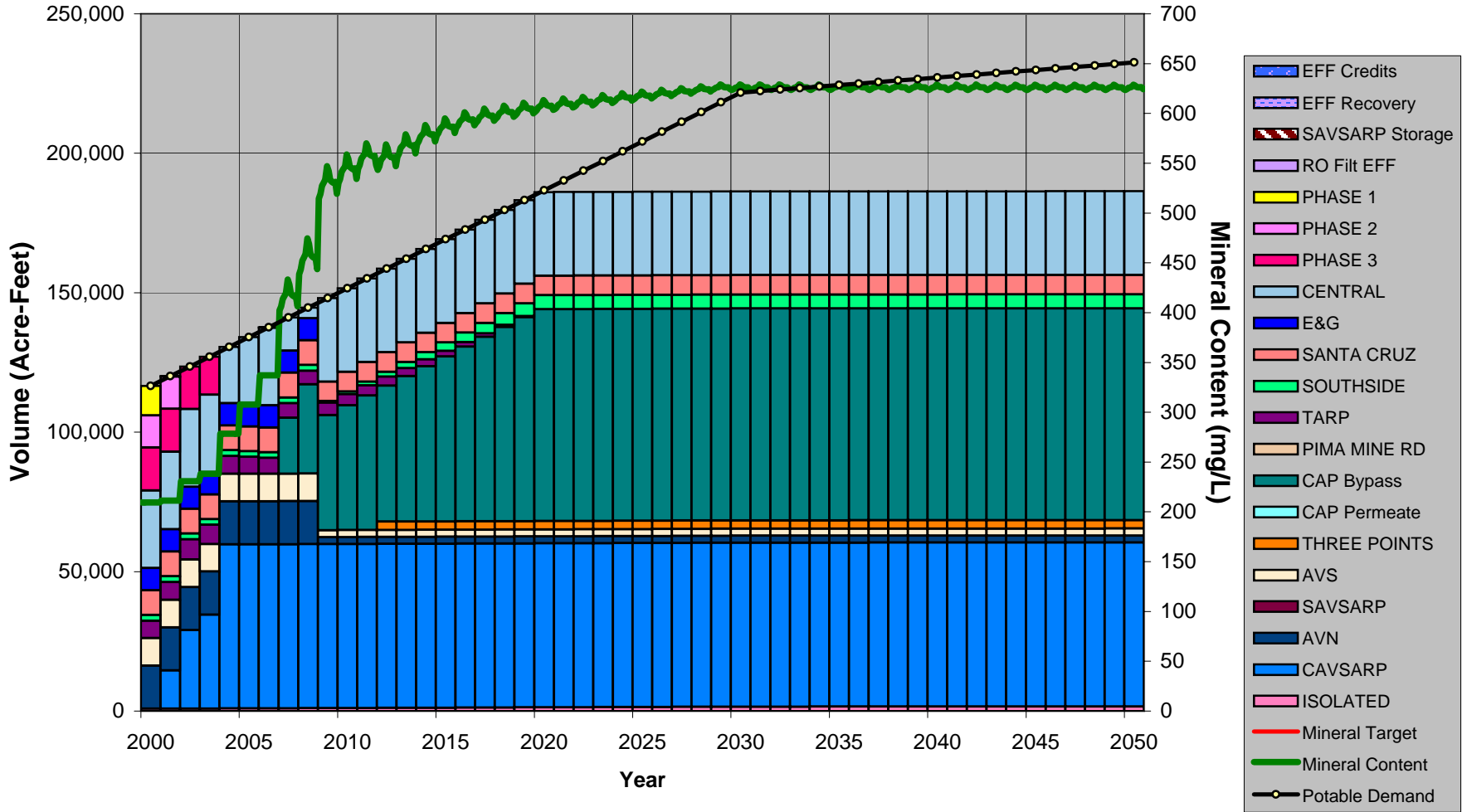
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	101.4	67.8	\$ 2,162	\$ 485	\$ 5,687	\$ 7,848	\$ 150	\$ 396	\$ 546	\$ 0	\$ 7
Chlorination*	101.4	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	101.4	67.8		\$ 2,769	\$ 31,936	\$ 31,936		\$ 2,222	\$ 2,222	\$ 0	\$ 29
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	101.4	67.8	\$ 442	\$ 247	\$ 2,845	\$ 3,288	\$ 31	\$ 198	\$ 229	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	101.4	67.8	\$ 7,084	\$ 3,502	\$ 40,468	\$ 47,553	\$ 493	\$ 2,815	\$ 3,308	\$ 0.13	\$ 44
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	165.7	123.0									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,692	\$ 9,708	\$ 130,981	\$ 158,672	\$ 1,926	\$ 9,112	\$ 11,038	\$ 0.25	\$ 80

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 3, Combined Future II-C. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 4
Combined Future I-D**

ALTERNATIVE NAME	Future I-D
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 237.8
Average Annual O&M Cost	\$ 14.5
Present Worth of O&M Costs	\$ 180.6
Total Present Worth	\$ 418.4
Annualized Capital Cost	\$ 16.5
Uniform Annualized O&M Cost	\$ 12.6
Total Equivalent Annual Cost	\$ 29.1
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.67
\$/acre-foot	\$ 217

Project Cost Breakdown

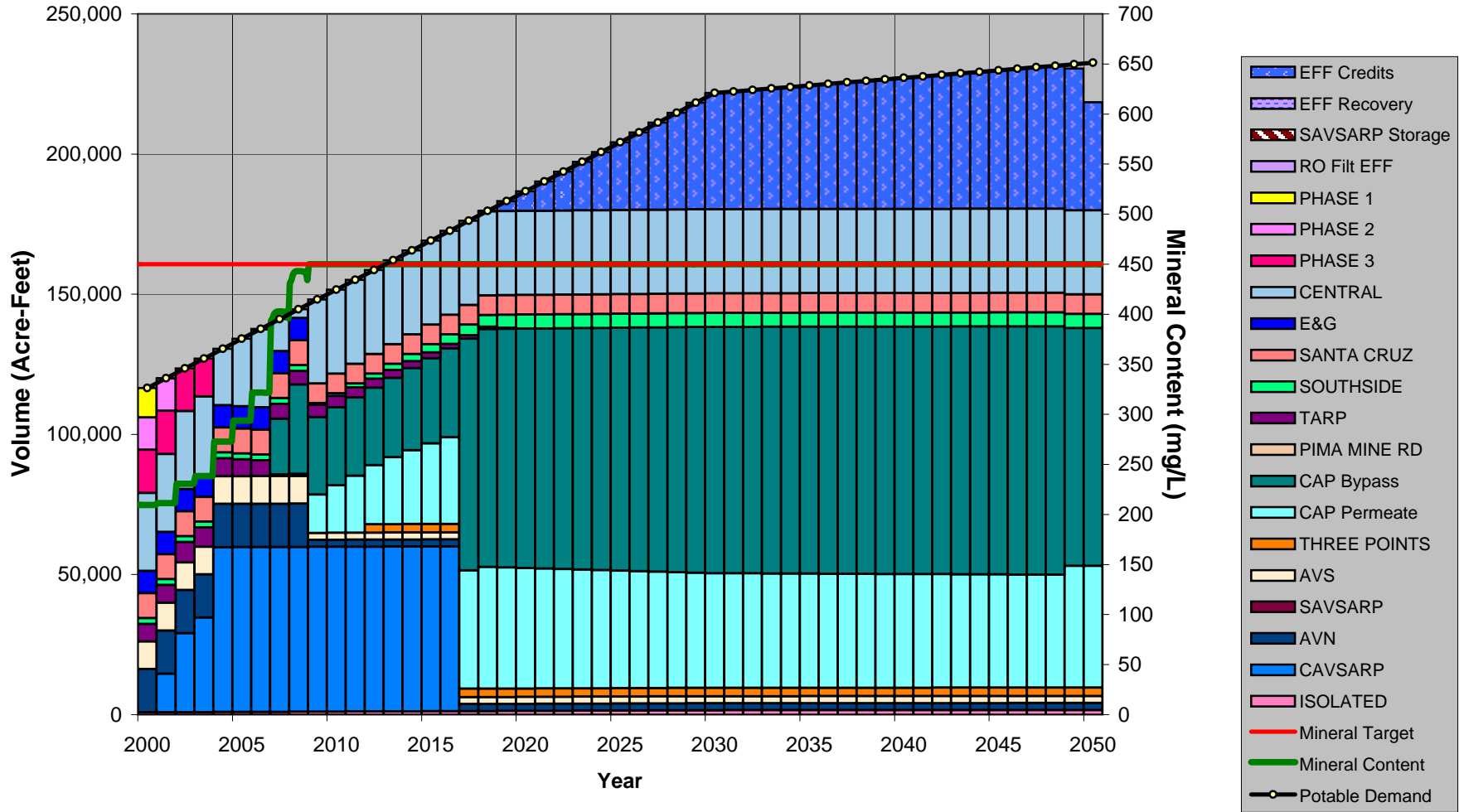
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)			
										\$/1,000 gal	\$/acre-ft		
Hayden-Udall WTP:													
General Rehabilitation			\$ 4,480			\$ 4,480			\$ 312		\$ 312		
Primary Disinfection Options													
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	164.7	121.4	\$ 2,162	\$ 702	\$ 7,805	\$ 9,967	\$ 150	\$ 543	\$ 693	\$ 0	\$ 5		
Chlorination*	164.7	121.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	164.7	121.4		\$ 4,328	\$ 47,116	\$ 47,116		\$ 3,278	\$ 3,278	\$ 0	\$ 24		
TDS Removal of CAP Water													
NF/RO (with Existing Direct Filtration)	62.3	42.9	\$ 55,725	\$ 4,381	\$ 47,842	\$ 103,567	\$ 3,876	\$ 3,328	\$ 7,205	\$ 0	\$ 150		
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	9.3	6.4	\$ 154,238	\$ 1,454	\$ 15,880	\$ 170,118	\$ 10,729	\$ 1,105	\$ 11,834	\$ 5	\$ 1,641		
TDS Removal of Recovered Water													
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection													
Chlorine	155.8	114.9	\$ 545	\$ 369	\$ 4,002	\$ 4,547	\$ 38	\$ 278	\$ 316	\$ 0	\$ 2		
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	155.8	114.9	\$ 217,150	\$ 11,235	\$ 122,646	\$ 339,796	\$ 15,106	\$ 8,532	\$ 23,638	\$ 0.56	\$ 184		
CAVSARP	61.2	0.0		\$ 2,742	\$ 52,350	\$ 52,350		\$ 3,642	\$ 3,642	\$ -	\$ -		
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	0.0	\$ 143	\$ 44	\$ 813	\$ 956	\$ 10	\$ 57	\$ 66	\$ -	\$ -		
Three Points Wellfield	5.7	4.9	\$ 5,249	\$ 285	\$ 2,919	\$ 8,169	\$ 365	\$ 203	\$ 568	\$ 0.32	\$ 103		
Secondary Disinfection- Three Points Wellfield	5.7	4.9	\$ 92	\$ 7	\$ 68	\$ 160	\$ 6	\$ 5	\$ 11	\$ 0.01	\$ 2		
Total Clearwater Production (MGD)	222.7	119.9											
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180				
TOTAL COSTS**			\$ 237,764	\$ 14,505	\$ 180,625	\$ 418,388	\$ 16,540	\$ 12,565	\$ 29,105	\$ 0.67	\$ 217		

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 4, Combined Future I-D. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 4
Combined Future II-D**

ALTERNATIVE NAME	Future II-D
RUN NAME	Run 1
DATE	9/13/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.8
Average Annual O&M Cost	\$ 8.6
Present Worth of O&M Costs	\$ 115.3
Total Present Worth	\$ 143.1
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 8.0
Total Equivalent Annual Cost	\$ 10.0
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.22
\$/acre-foot	\$ 71

Project Cost Breakdown

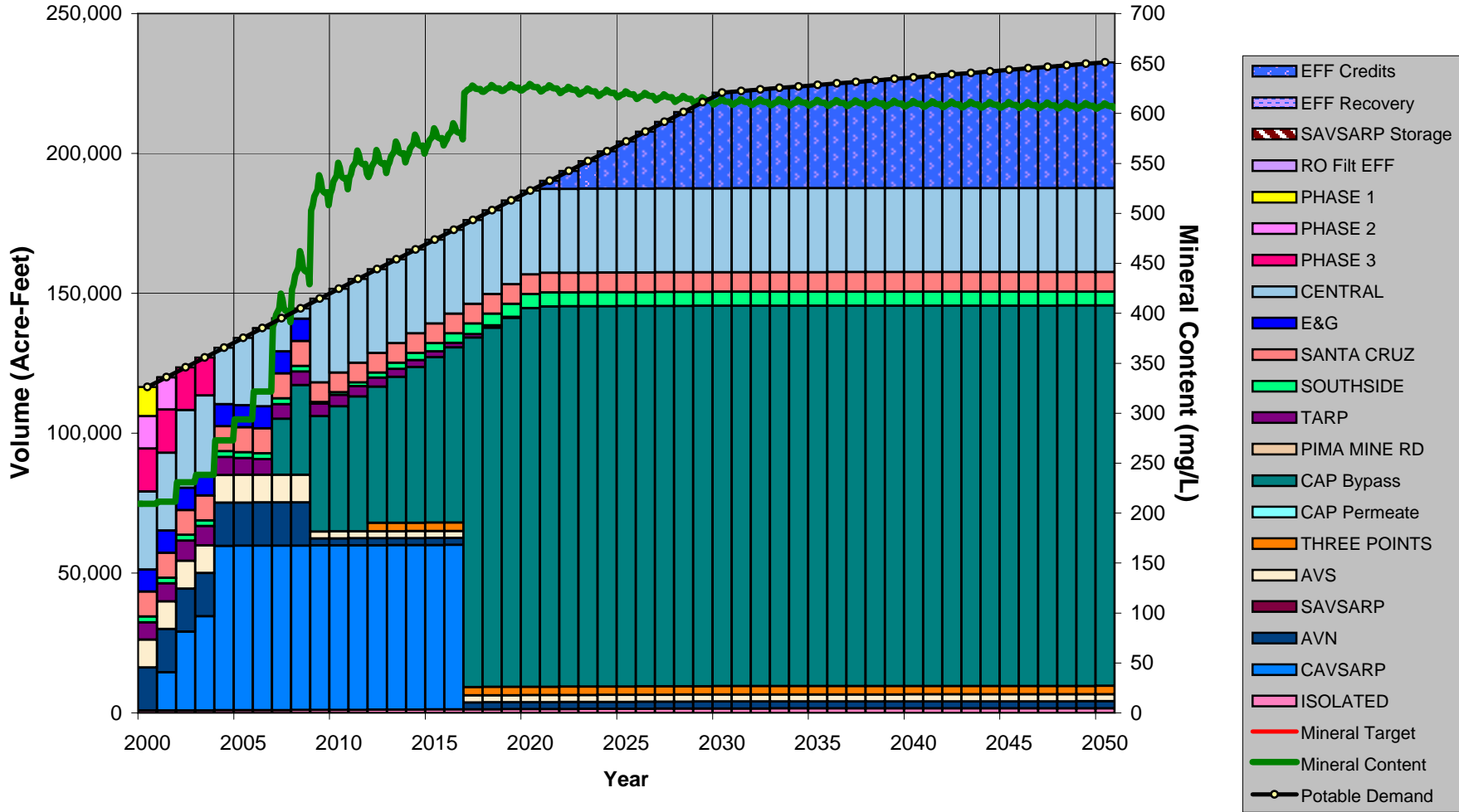
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	164.1	121.4	\$ 2,162	\$ 688	\$ 7,600	\$ 9,762	\$ 150	\$ 529	\$ 679	\$ 0	\$ 5
Chlorination*	164.1	121.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	164.1	121.4		\$ 4,235	\$ 45,771	\$ 45,771		\$ 3,184	\$ 3,184	\$ 0	\$ 23
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	164.1	121.4	\$ 556	\$ 382	\$ 4,119	\$ 4,675	\$ 39	\$ 287	\$ 325	\$ 0	\$ 2
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	164.1	121.4	\$ 7,198	\$ 5,306	\$ 57,490	\$ 64,688	\$ 501	\$ 3,999	\$ 4,500	\$ 0.10	\$ 33
CAVSARP	61.2	0.0		\$ 2,742	\$ 52,350	\$ 52,350		\$ 3,642	\$ 3,642	\$ -	\$ -
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	0.0	\$ 143	\$ 44	\$ 813	\$ 956	\$ 10	\$ 57	\$ 66	\$ -	\$ -
Three Points Wellfield	5.1	4.5	\$ 5,249	\$ 264	\$ 2,740	\$ 7,989	\$ 365	\$ 191	\$ 556	\$ 0.34	\$ 110
Secondary Disinfection- Three Points Wellfield	5.1	4.5	\$ 90	\$ 6	\$ 65	\$ 156	\$ 6	\$ 5	\$ 11	\$ 0.01	\$ 2
Total Clearwater Production (MGD)	230.4	125.9									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,810	\$ 8,555	\$ 115,286	\$ 143,096	\$ 1,935	\$ 8,020	\$ 9,954	\$ 0.22	\$ 71

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 4, Combined Future II-D. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 5
Combined Future III-A**

ALTERNATIVE NAME	Future III-A
RUN NAME	Run 1
DATE	9/10/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 58.9
Average Annual O&M Cost	\$ 13.1
Present Worth of O&M Costs	\$ 169.0
Total Present Worth	\$ 227.9
Annualized Capital Cost	\$ 4.1
Uniform Annualized O&M Cost	\$ 11.8
Total Equivalent Annual Cost	\$ 15.9
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.33
\$/acre-foot	\$ 109

Project Cost Breakdown

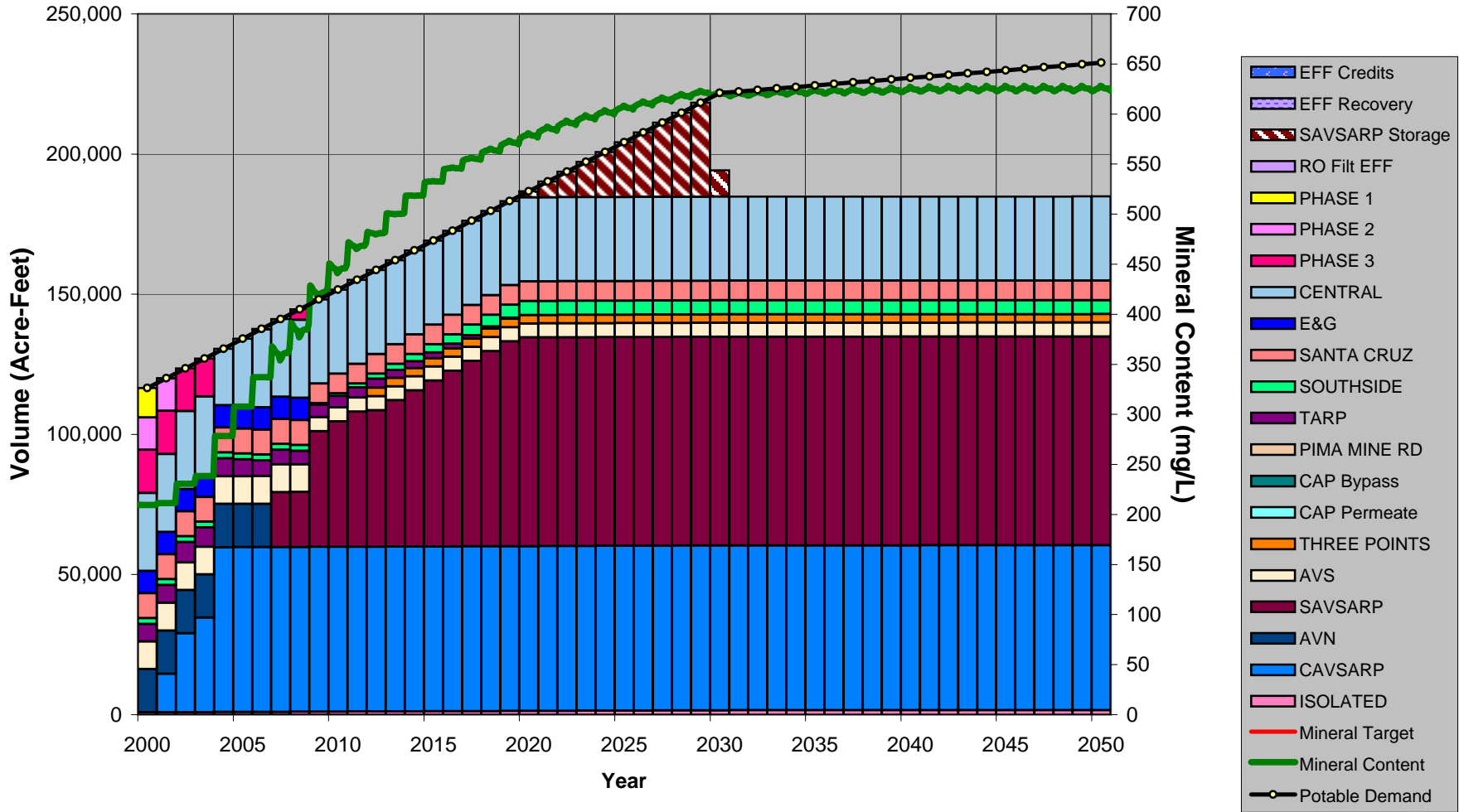
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ -			\$ -			\$ -		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	139.9	74.8	\$ 37,972	\$ 6,978	\$ 77,330	\$ 115,302	\$ 2,641	\$ 5,379	\$ 8,021	\$ 0.29	\$ 96
Secondary Disinfection- Recovered Water	201.1	127.3	\$ 495	\$ 185	\$ 2,484	\$ 2,979	\$ 34	\$ 173	\$ 207	\$ 0.00	\$ 1
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	204.2	130.0									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 58,931	\$ 13,051	\$ 169,008	\$ 227,939	\$ 4,100	\$ 11,757	\$ 15,856	\$ 0.33	\$ 109

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 5, Combined Future III-A. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 5
Combined Future IV-A**

ALTERNATIVE NAME	Pathway IV-A
RUN NAME	Run 1
DATE	9/10/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 323.1
Average Annual O&M Cost	\$ 17.6
Present Worth of O&M Costs	\$ 218.3
Total Present Worth	\$ 541.4
Annualized Capital Cost	\$ 22.5
Uniform Annualized O&M Cost	\$ 15.2
Total Equivalent Annual Cost	\$ 37.7
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.90
\$/acre-foot	\$ 292

Project Cost Breakdown

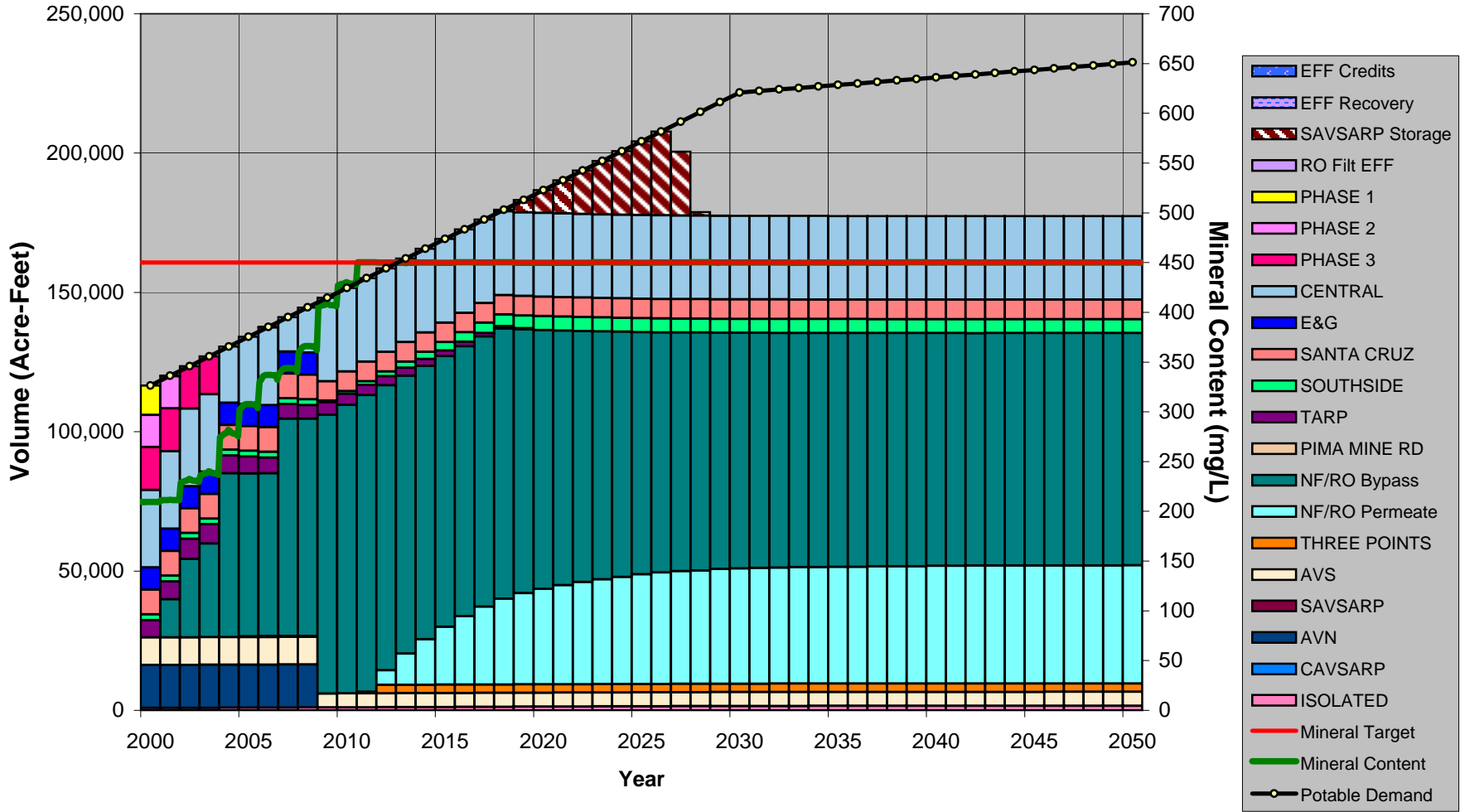
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 879			\$ 879	\$ 61		\$ 61		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	71.1	43.4	\$ 69,262	\$ 3,373	\$ 36,107	\$ 105,369	\$ 4,818	\$ 2,512	\$ 7,330	\$ 0	\$ 151
Evaporation Ponds	10.7	6.5	\$ 194,072	\$ 1,119	\$ 11,982	\$ 206,054	\$ 13,501	\$ 834	\$ 14,334	\$ 6	\$ 1,964
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ 264,213	\$ 4,492	\$ 48,088	\$ 312,302	\$ 18,380	\$ 3,345	\$ 21,725	\$ -	\$ -
CAVSARP	72.8	52.5		\$ 5,423	\$ 79,631	\$ 79,631		\$ 5,539	\$ 5,539	\$ 0.29	\$ 94
SAVSARP	128.3	66.5	\$ 37,972	\$ 7,301	\$ 83,830	\$ 121,802	\$ 2,641	\$ 5,832	\$ 8,473	\$ 0.35	\$ 114
Secondary Disinfection- Recovered Water	188.5	112.4	\$ 475	\$ 179	\$ 2,432	\$ 2,907	\$ 33	\$ 169	\$ 202	\$ 0.00	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	191.7	115.1									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 323,125	\$ 17,587	\$ 218,268	\$ 541,393	\$ 22,478	\$ 15,184	\$ 37,662	\$ 0.90	\$ 292

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 5, Combined Future IV-A. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 6
Combined Future III-B**

ALTERNATIVE NAME	Future III-B
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 58.9
Average Annual O&M Cost	\$ 13.1
Present Worth of O&M Costs	\$ 169.1
Total Present Worth	\$ 228.0
Annualized Capital Cost	\$ 4.1
Uniform Annualized O&M Cost	\$ 11.8
Total Equivalent Annual Cost	\$ 15.9
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.33
\$/acre-foot	\$ 108

Project Cost Breakdown

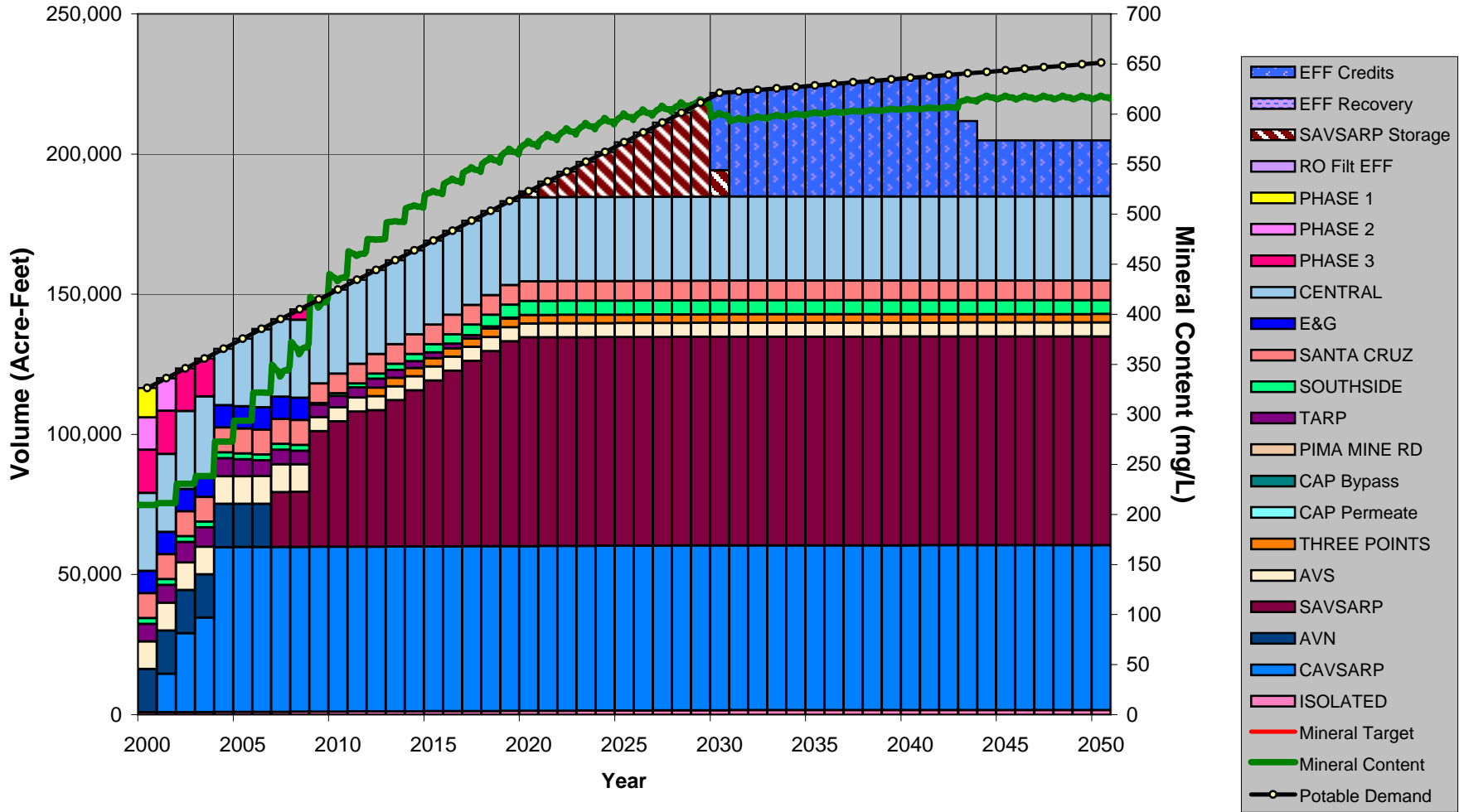
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ -			\$ -			\$ -		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	139.9	74.8	\$ 37,972	\$ 6,978	\$ 77,330	\$ 115,302	\$ 2,641	\$ 5,379	\$ 8,021	\$ 0.29	\$ 96
Secondary Disinfection- Recovered Water	201.1	127.3	\$ 495	\$ 185	\$ 2,484	\$ 2,979	\$ 34	\$ 173	\$ 207	\$ 0.00	\$ 1
Three Points Wellfield	5.1	4.2	\$ 5,249	\$ -	\$ 2,444	\$ 7,693	\$ 365	\$ 170	\$ 535	\$ 0.35	\$ 115
Secondary Disinfection- Three Points Wellfield	5.1	4.2	\$ 90	\$ -	\$ 60	\$ 151	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 2
Total Clearwater Production (MGD)	206.2	131.5									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 58,936	\$ 13,051	\$ 169,052	\$ 227,988	\$ 4,100	\$ 11,760	\$ 15,860	\$ 0.33	\$ 108

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 6, Combined Future III-B. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 6
Combined Future IV-B**

ALTERNATIVE NAME	Future IV-B
RUN NAME	Run 1
DATE	9/13/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool	450	(mg/L)
Overall Output Values (\$Millions except where noted)		
Present Worth Capital Cost	\$	314.8
Average Annual O&M Cost	\$	17.4
Present Worth of O&M Costs	\$	216.1
Total Present Worth	\$	530.9
Annualized Capital Cost	\$	21.9
Uniform Annualized O&M Cost	\$	15.0
Total Equivalent Annual Cost	\$	36.9
Equivalent Unit Cost (based on Target Year flows):		
\$/1,000 gallons	\$	0.86
\$/acre-foot	\$	279

Project Cost Breakdown

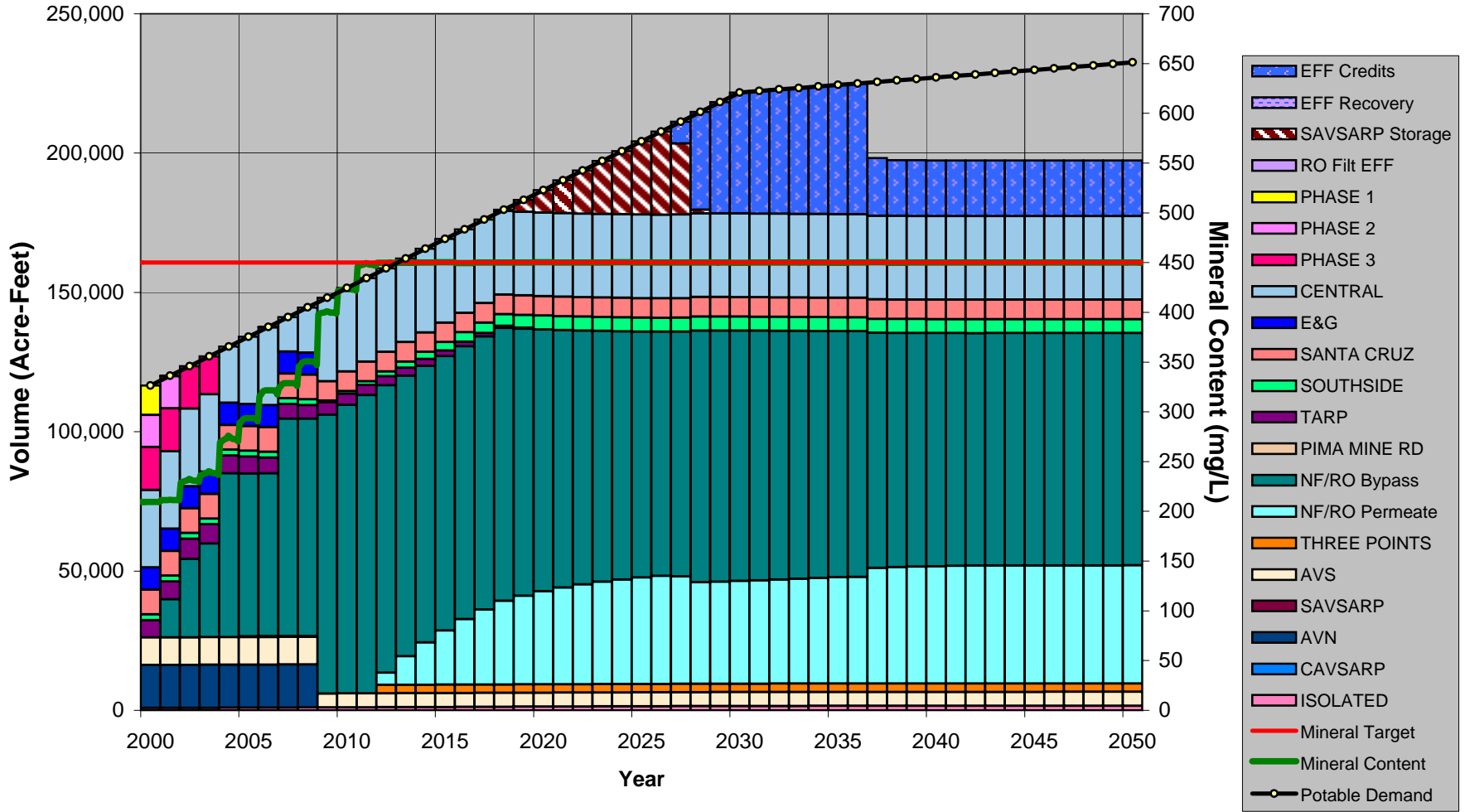
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 879			\$ 879	\$ 61		\$ 61		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	68.8	38.7	\$ 67,254	\$ 3,206	\$ 34,374	\$ 101,627	\$ 4,678	\$ 2,391	\$ 7,070	\$ 1	\$ 163
Evaporation Ponds	10.3	5.8	\$ 187,763	\$ 1,064	\$ 11,407	\$ 199,170	\$ 13,062	\$ 794	\$ 13,855	\$ 7	\$ 2,131
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ 255,896	\$ 4,270	\$ 45,781	\$ 301,676	\$ 17,801	\$ 3,185	\$ 20,986	\$ -	\$ -
CAVSARP	72.8	52.5		\$ 5,421	\$ 79,598	\$ 79,598		\$ 5,537	\$ 5,537	\$ 0.29	\$ 94
SAVSARP	127.9	66.5	\$ 37,972	\$ 7,303	\$ 83,813	\$ 121,785	\$ 2,641	\$ 5,830	\$ 8,472	\$ 0.35	\$ 114
Secondary Disinfection- Recovered Water	188.5	113.2	\$ 475	\$ 179	\$ 2,434	\$ 2,909	\$ 33	\$ 169	\$ 202	\$ 0.00	\$ 2
Three Points Wellfield	5.9	5.0	\$ 5,249	\$ -	\$ 2,612	\$ 7,861	\$ 365	\$ 182	\$ 547	\$ 0.30	\$ 97
Secondary Disinfection- Three Points Wellfield	5.9	5.0	\$ 92	\$ -	\$ 63	\$ 155	\$ 6	\$ 4	\$ 11	\$ 0.01	\$ 2
Total Clearwater Production (MGD)	194.4	118.2									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 314,814	\$ 17,366	\$ 216,128	\$ 530,942	\$ 21,900	\$ 15,035	\$ 36,935	\$ 0.86	\$ 279

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 6, Combined Future IV-B. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 7
Combined Future III-C**

ALTERNATIVE NAME	Future III-C
RUN NAME	Run 1
DATE	9/10/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool	650	(mg/L)
Overall Output Values (\$Millions except where noted)		
Present Worth Capital Cost	\$	58.9
Average Annual O&M Cost	\$	13.1
Present Worth of O&M Costs	\$	169.0
Total Present Worth	\$	227.9
Annualized Capital Cost	\$	4.1
Uniform Annualized O&M Cost	\$	11.8
Total Equivalent Annual Cost	\$	15.9
Equivalent Unit Cost (based on Target Year flows):		
\$/1,000 gallons	\$	0.33
\$/acre-foot	\$	109

Project Cost Breakdown

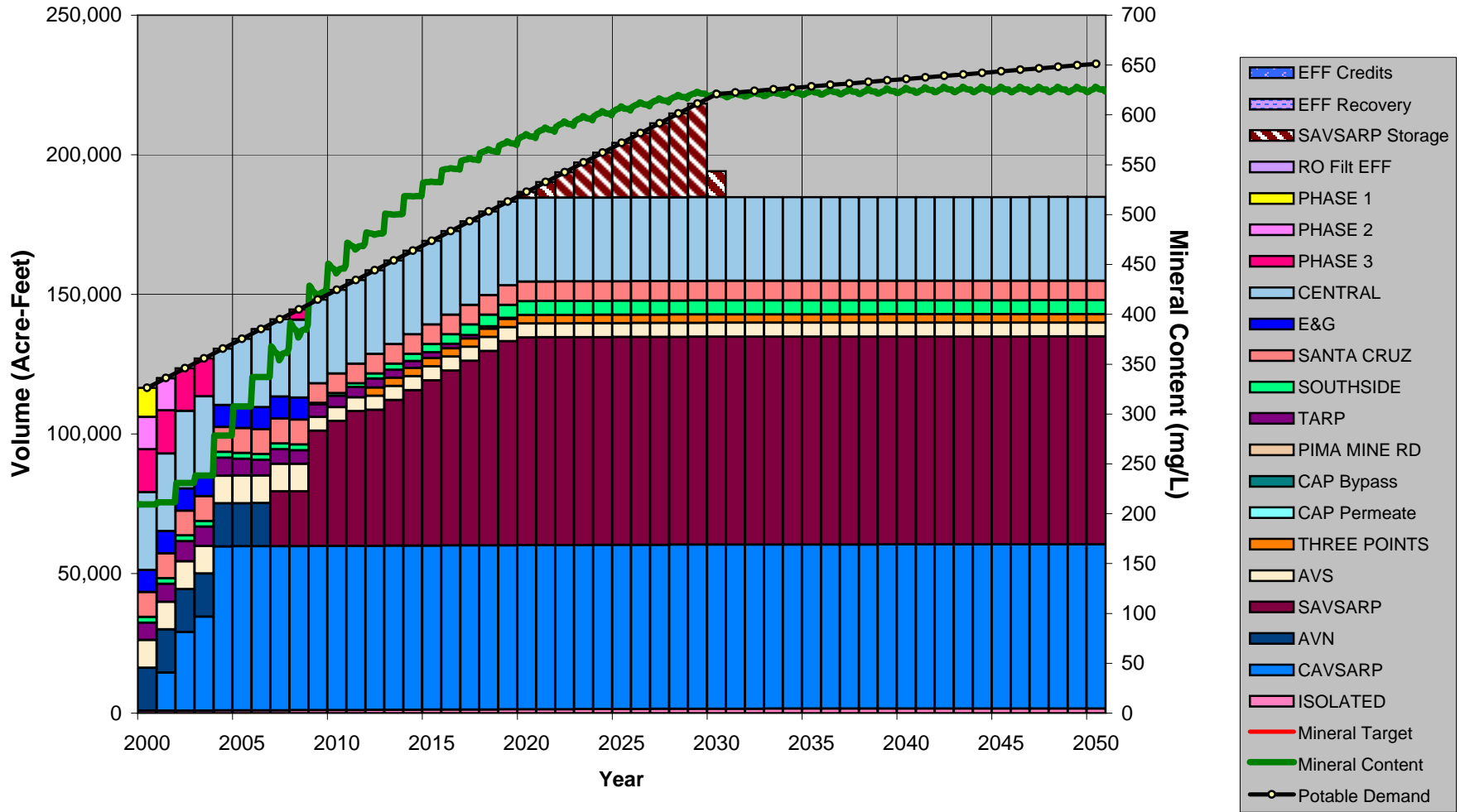
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ -			\$ -			\$ -		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	139.9	74.8	\$ 37,972	\$ 6,978	\$ 77,330	\$ 115,302	\$ 2,641	\$ 5,379	\$ 8,021	\$ 0.29	\$ 96
Secondary Disinfection- Recovered Water	201.1	127.3	\$ 495	\$ 185	\$ 2,484	\$ 2,979	\$ 34	\$ 173	\$ 207	\$ 0.00	\$ 1
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	204.2	130.0									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 58,931	\$ 13,051	\$ 169,008	\$ 227,939	\$ 4,100	\$ 11,757	\$ 15,856	\$ 0.33	\$ 109

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 7, Combined Future III-C. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 7
Combined Future IV-C**

ALTERNATIVE NAME	Future IV-C
RUN NAME	Run 1
DATE	9/10/2004

Final TDS Target from Resource Planning Tool	450 (mg/L)
Overall Output Values (\$Millions except where noted)	
Present Worth Capital Cost	\$ 323.1
Average Annual O&M Cost	\$ 17.6
Present Worth of O&M Costs	\$ 218.3
Total Present Worth	\$ 541.4
Annualized Capital Cost	\$ 22.5
Uniform Annualized O&M Cost	\$ 15.2
Total Equivalent Annual Cost	\$ 37.7
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.90
\$/acre-foot	\$ 292

Input Values		
Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Project Cost Breakdown

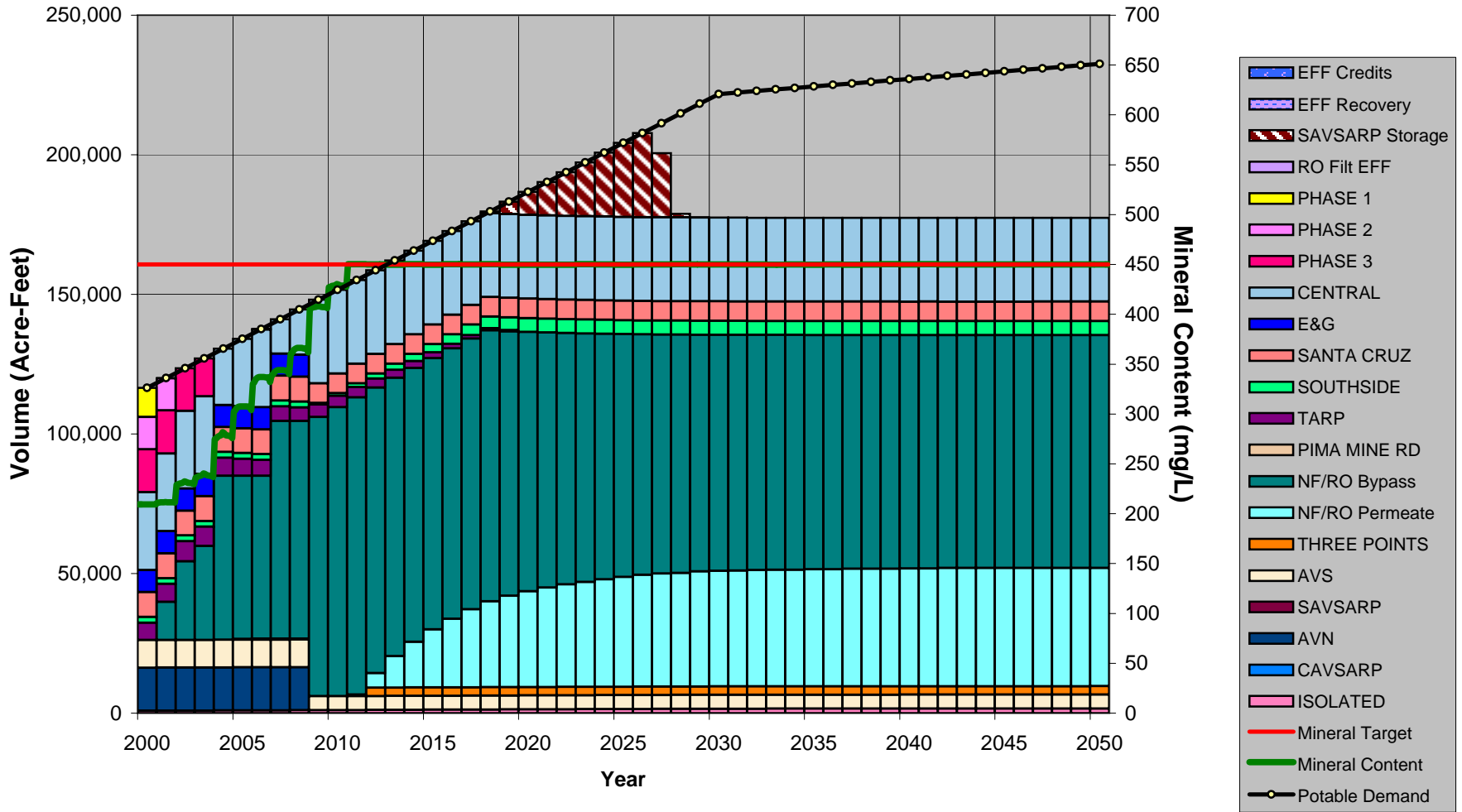
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 879			\$ 879	\$ 61		\$ 61		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	71.1	43.4	\$ 69,262	\$ 3,373	\$ 36,107	\$ 105,369	\$ 4,818	\$ 2,512	\$ 7,330	\$ 0	\$ 151
Evaporation Ponds	10.7	6.5	\$ 194,072	\$ 1,119	\$ 11,982	\$ 206,054	\$ 13,501	\$ 834	\$ 14,334	\$ 6	\$ 1,964
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ 264,213	\$ 4,492	\$ 48,088	\$ 312,302	\$ 18,380	\$ 3,345	\$ 21,725	\$ -	\$ -
CAVSARP	72.8	52.5		\$ 5,423	\$ 79,631	\$ 79,631		\$ 5,539	\$ 5,539	\$ 0.29	\$ 94
SAVSARP	128.3	66.5	\$ 37,972	\$ 7,301	\$ 83,830	\$ 121,802	\$ 2,641	\$ 5,832	\$ 8,473	\$ 0.35	\$ 114
Secondary Disinfection- Recovered Water	188.5	112.4	\$ 475	\$ 179	\$ 2,432	\$ 2,907	\$ 33	\$ 169	\$ 202	\$ 0.00	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	191.7	115.1									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 323,125	\$ 17,587	\$ 218,268	\$ 541,393	\$ 22,478	\$ 15,184	\$ 37,662	\$ 0.90	\$ 292

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 7, Combined Future IV-C. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 8
Combined Future III-D**

ALTERNATIVE NAME	Future III-D
RUN NAME	Run 1
DATE	9/10/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 58.9
Average Annual O&M Cost	\$ 13.1
Present Worth of O&M Costs	\$ 169.1
Total Present Worth	\$ 228.0
Annualized Capital Cost	\$ 4.1
Uniform Annualized O&M Cost	\$ 11.8
Total Equivalent Annual Cost	\$ 15.9
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.33
\$/acre-foot	\$ 108

Project Cost Breakdown

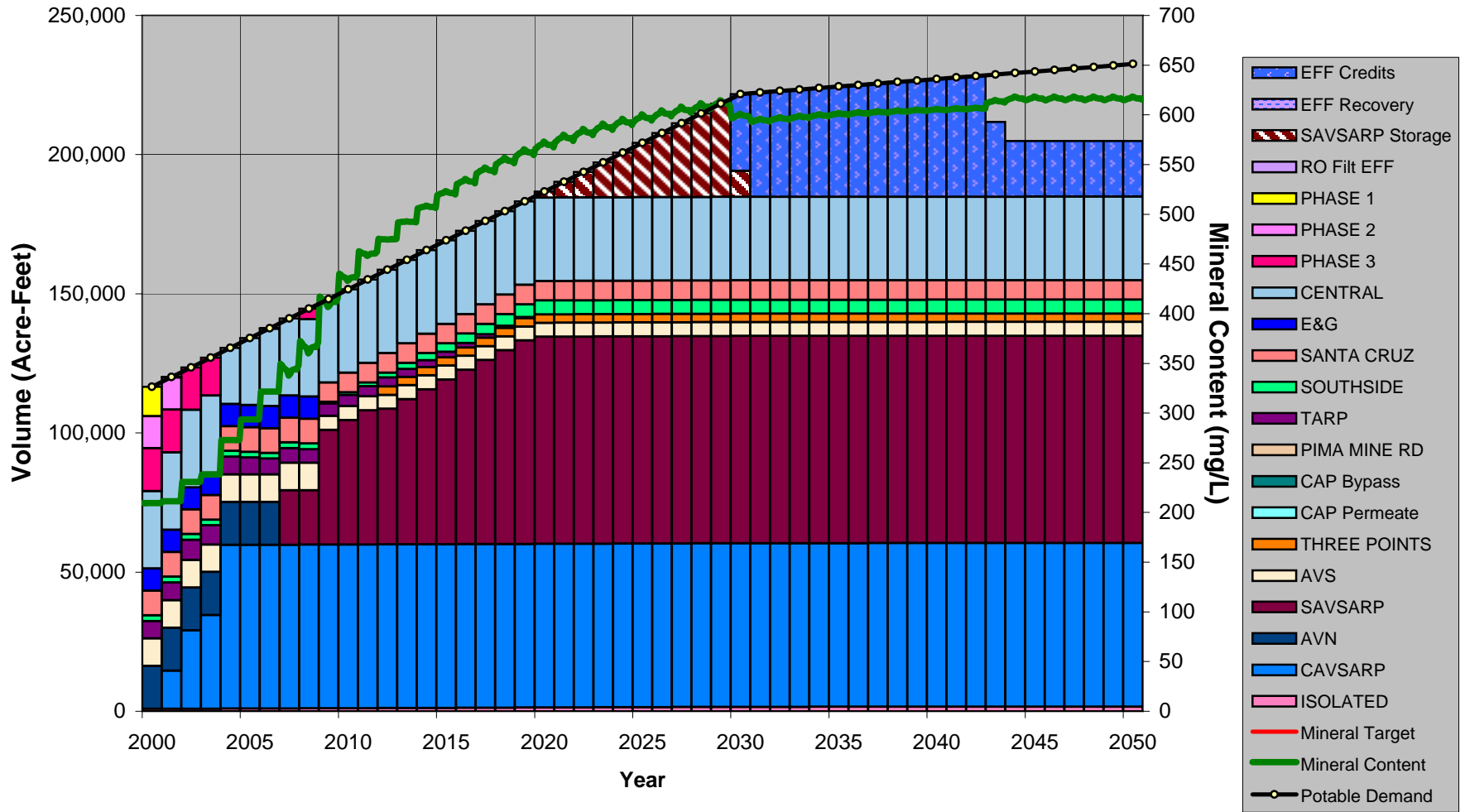
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ -			\$ -			\$ -		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	139.9	74.8	\$ 37,972	\$ 6,978	\$ 77,330	\$ 115,302	\$ 2,641	\$ 5,379	\$ 8,021	\$ 0.29	\$ 96
Secondary Disinfection- Recovered Water	201.1	127.3	\$ 495	\$ 185	\$ 2,484	\$ 2,979	\$ 34	\$ 173	\$ 207	\$ 0.00	\$ 1
Three Points Wellfield	5.1	4.2	\$ 5,249	\$ -	\$ 2,444	\$ 7,693	\$ 365	\$ 170	\$ 535	\$ 0.35	\$ 115
Secondary Disinfection- Three Points Wellfield	5.1	4.2	\$ 90	\$ -	\$ 60	\$ 151	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 2
Total Clearwater Production (MGD)	206.2	131.5									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 58,936	\$ 13,051	\$ 169,052	\$ 227,988	\$ 4,100	\$ 11,760	\$ 15,860	\$ 0.33	\$ 108

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 8, Combined Future III-D. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 8
Combined Future IV-D**

ALTERNATIVE NAME	Future IV-D
RUN NAME	Run 1
DATE	9/10/2004

Final TDS Target from Resource Planning Tool	450 (mg/L)
Overall Output Values (\$Millions except where noted)	
Present Worth Capital Cost	\$ 314.8
Average Annual O&M Cost	\$ 17.4
Present Worth of O&M Costs	\$ 216.1
Total Present Worth	\$ 530.9
Annualized Capital Cost	\$ 21.9
Uniform Annualized O&M Cost	\$ 15.0
Total Equivalent Annual Cost	\$ 36.9
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.86
\$/acre-foot	\$ 279

Input Values

Power Cost for HUWTP	\$0.08 (\$/kWh)
Labor Rate	\$26 (\$/hr)
Annual Discount Rate	0.050 (per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188
Target Year	2030 (Year)
Planning Horizon	26 (Years)
Spencer Interconnect	TRUE
SAVSARP Deep Wells	15
Three-Points Wellfield	2012

Project Cost Breakdown

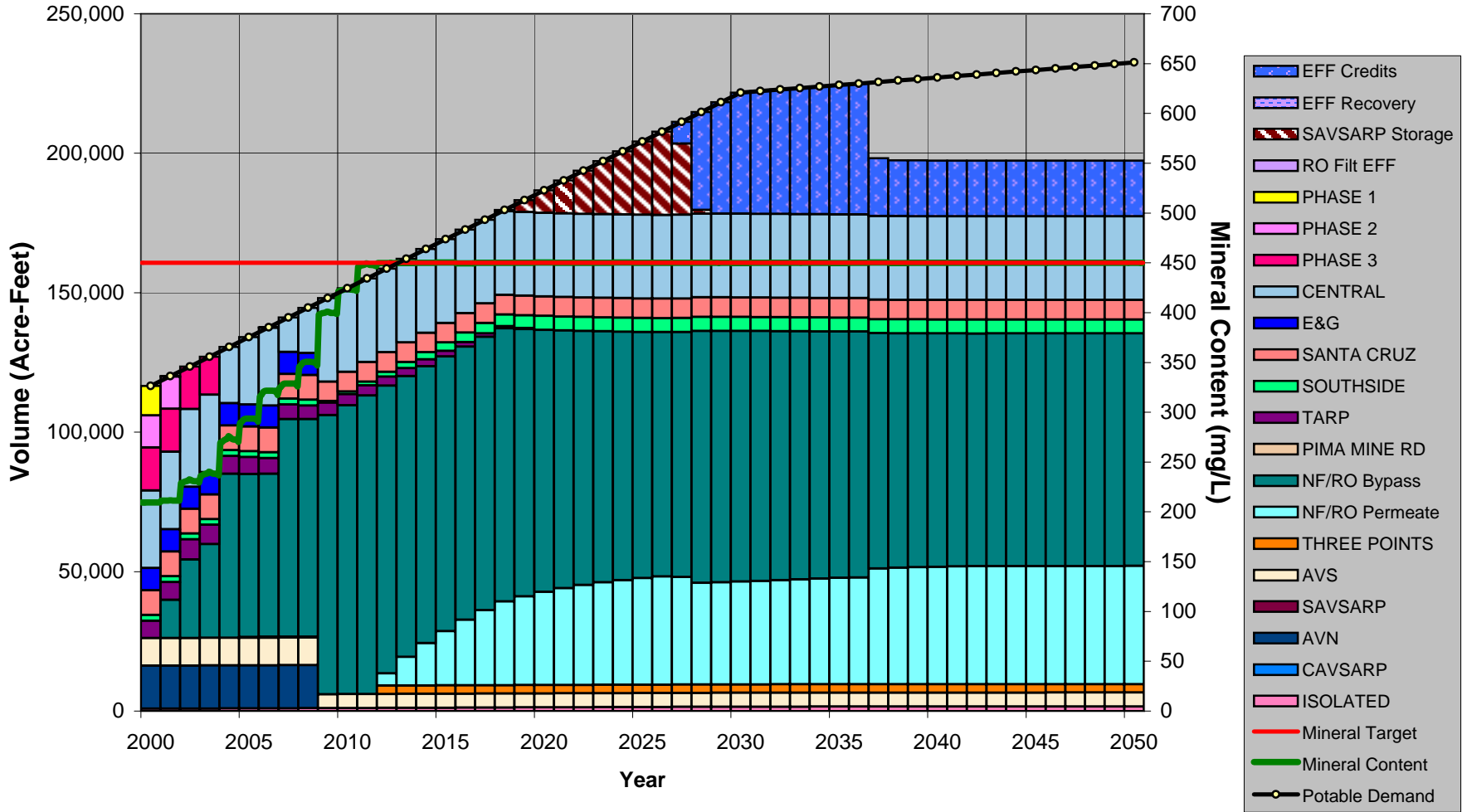
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 879			\$ 879	\$ 61		\$ 61		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	68.8	38.7	\$ 67,254	\$ 3,206	\$ 34,374	\$ 101,627	\$ 4,678	\$ 2,391	\$ 7,070	\$ 1	\$ 163
Evaporation Ponds	10.3	5.8	\$ 187,763	\$ 1,064	\$ 11,407	\$ 199,170	\$ 13,062	\$ 794	\$ 13,855	\$ 7	\$ 2,131
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ 255,896	\$ 4,270	\$ 45,781	\$ 301,676	\$ 17,801	\$ 3,185	\$ 20,986	\$ -	\$ -
CAVSARP	72.8	52.5		\$ 5,421	\$ 79,598	\$ 79,598		\$ 5,537	\$ 5,537	\$ 0.29	\$ 94
SAVSARP	127.9	66.5	\$ 37,972	\$ 7,303	\$ 83,813	\$ 121,785	\$ 2,641	\$ 5,830	\$ 8,472	\$ 0.35	\$ 114
Secondary Disinfection- Recovered Water	188.5	113.2	\$ 475	\$ 179	\$ 2,434	\$ 2,909	\$ 33	\$ 169	\$ 202	\$ 0.00	\$ 2
Three Points Wellfield	5.9	5.0	\$ 5,249	\$ -	\$ 2,612	\$ 7,861	\$ 365	\$ 182	\$ 547	\$ 0.30	\$ 97
Secondary Disinfection- Three Points Wellfield	5.9	5.0	\$ 92	\$ -	\$ 63	\$ 155	\$ 6	\$ 4	\$ 11	\$ 0.01	\$ 2
Total Clearwater Production (MGD)	194.4	118.2									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 314,814	\$ 17,366	\$ 216,128	\$ 530,942	\$ 21,900	\$ 15,035	\$ 36,935	\$ 0.86	\$ 279

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 8, Combined Future IV-D. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 9
Combined Future III-E**

ALTERNATIVE NAME	Future III-E
RUN NAME	Run 1
DATE	9/10/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 58.9
Average Annual O&M Cost	\$ 13.3
Present Worth of O&M Costs	\$ 169.8
Total Present Worth	\$ 228.7
Annualized Capital Cost	\$ 4.1
Uniform Annualized O&M Cost	\$ 11.8
Total Equivalent Annual Cost	\$ 15.9
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.28
\$/acre-foot	\$ 92

Project Cost Breakdown

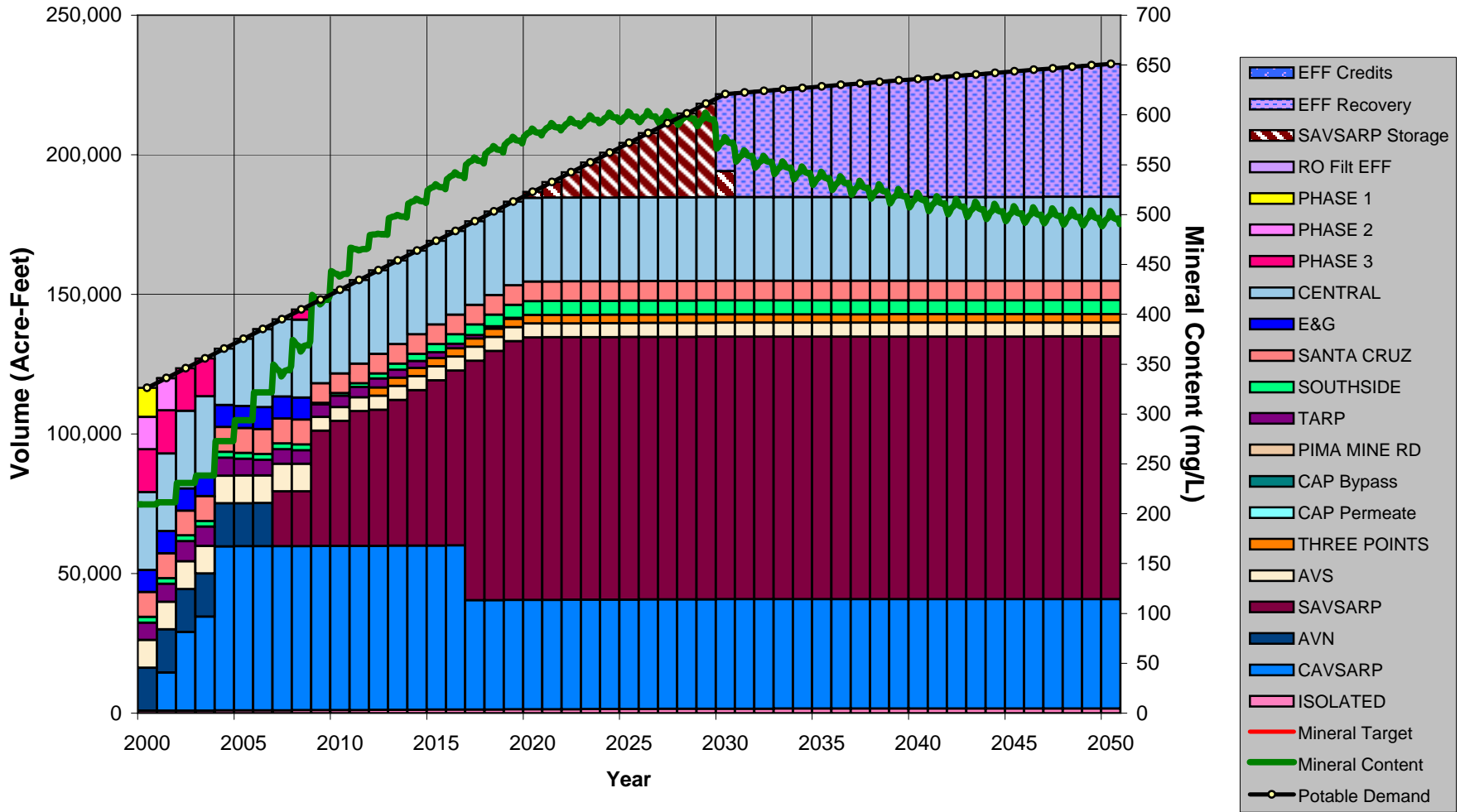
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ -			\$ -			\$ -		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CAVSARP	75.5	59.7		\$ 4,810	\$ 74,835	\$ 74,835		\$ 5,206	\$ 5,206	\$ 0.24	\$ 78
SAVSARP	160.3	92.3	\$ 37,972	\$ 8,126	\$ 88,182	\$ 126,154	\$ 2,641	\$ 6,134	\$ 8,776	\$ 0.26	\$ 85
Secondary Disinfection- Recovered Water	205.3	152.0	\$ 501	\$ 187	\$ 2,495	\$ 2,997	\$ 35	\$ 174	\$ 208	\$ 0.00	\$ 1
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	208.4	154.6									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 58,937	\$ 13,316	\$ 169,800	\$ 228,737	\$ 4,100	\$ 11,812	\$ 15,912	\$ 0.28	\$ 92

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 9, Combined Future III-E. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 9
Combined Future IV-E**

ALTERNATIVE NAME	Future IV-E
RUN NAME	Run 1
DATE	9/10/2004

Final TDS Target from Resource Planning Tool	450 (mg/L)
Overall Output Values (\$Millions except where noted)	
Present Worth Capital Cost	\$ 311.9
Average Annual O&M Cost	\$ 18.1
Present Worth of O&M Costs	\$ 221.5
Total Present Worth	\$ 533.4
Annualized Capital Cost	\$ 21.7
Uniform Annualized O&M Cost	\$ 15.4
Total Equivalent Annual Cost	\$ 37.1
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.66
\$/acre-foot	\$ 216

Input Values

Power Cost for HUWTP	\$0.08 (\$/kWh)
Labor Rate	\$26 (\$/hr)
Annual Discount Rate	0.050 (per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188
Target Year	2030 (Year)
Planning Horizon	26 (Years)
Spencer Interconnect	TRUE
SAVSARP Deep Wells	15
Three-Points Wellfield	2012

Project Cost Breakdown

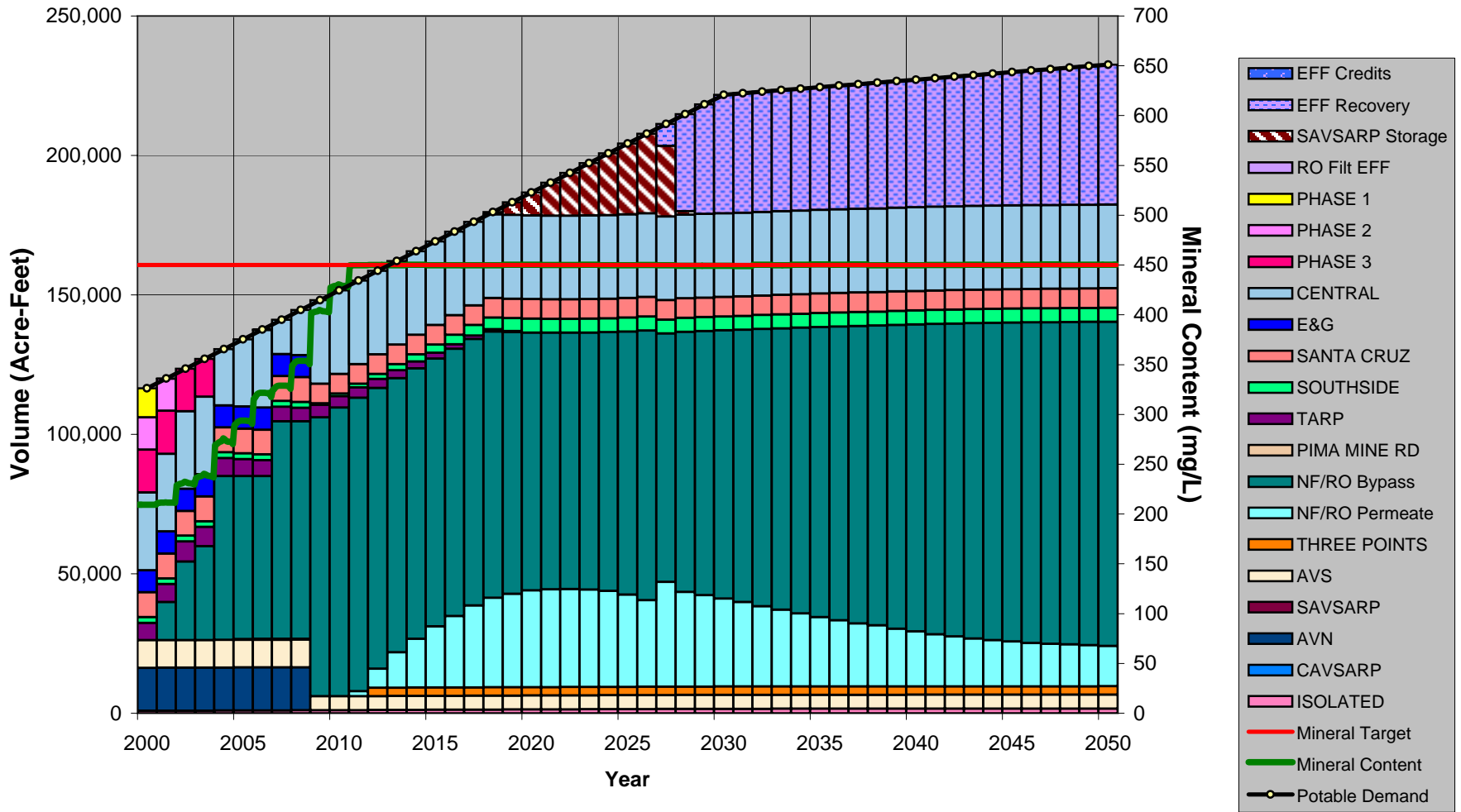
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 879			\$ 879	\$ 61		\$ 61		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	67.9	43.6	\$ 66,544	\$ 3,292	\$ 35,674	\$ 102,219	\$ 4,629	\$ 2,482	\$ 7,111	\$ 0	\$ 145
Evaporation Ponds	10.2	6.5	\$ 185,547	\$ 1,093	\$ 11,839	\$ 197,386	\$ 12,907	\$ 824	\$ 13,731	\$ 6	\$ 1,873
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ 252,970	\$ 4,385	\$ 47,513	\$ 300,483	\$ 17,598	\$ 3,305	\$ 20,903	\$ -	\$ -
CAVSARP	100.9	73.0		\$ 4,888	\$ 72,550	\$ 72,550		\$ 5,047	\$ 5,047	\$ 0.19	\$ 62
SAVSARP	149.5	84.0	\$ 37,972	\$ 8,445	\$ 94,654	\$ 132,626	\$ 2,641	\$ 6,585	\$ 9,226	\$ 0.30	\$ 98
Secondary Disinfection- Recovered Water	205.3	150.4	\$ 501	\$ 186	\$ 2,489	\$ 2,990	\$ 35	\$ 173	\$ 208	\$ 0.00	\$ 1
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	208.4	153.1									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 311,908	\$ 18,097	\$ 221,492	\$ 533,400	\$ 21,698	\$ 15,408	\$ 37,106	\$ 0.66	\$ 216

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 9, Combined Future IV-E. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 10
Combined Future III-F**

ALTERNATIVE NAME	Future III-F
RUN NAME	Run 1
DATE	9/10/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 58.9
Average Annual O&M Cost	\$ 13.3
Present Worth of O&M Costs	\$ 169.8
Total Present Worth	\$ 228.7
Annualized Capital Cost	\$ 4.1
Uniform Annualized O&M Cost	\$ 11.8
Total Equivalent Annual Cost	\$ 15.9
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.28
\$/acre-foot	\$ 92

Project Cost Breakdown

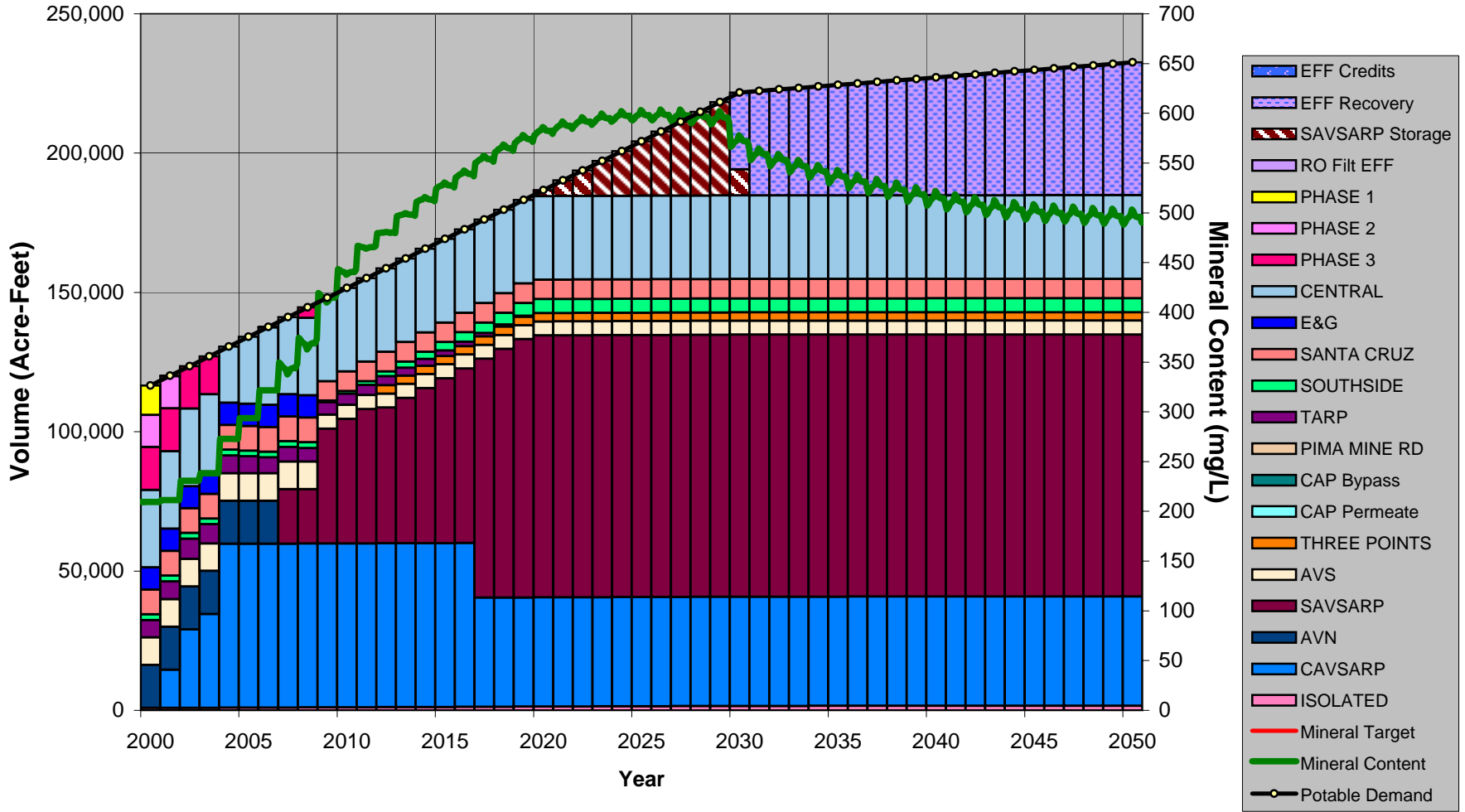
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ -			\$ -			\$ -		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CAVSARP	75.5	59.7		\$ 4,810	\$ 74,835	\$ 74,835		\$ 5,206	\$ 5,206	\$ 0.24	\$ 78
SAVSARP	160.3	92.3	\$ 37,972	\$ 8,126	\$ 88,182	\$ 126,154	\$ 2,641	\$ 6,134	\$ 8,776	\$ 0.26	\$ 85
Secondary Disinfection- Recovered Water	205.3	152.0	\$ 501	\$ 187	\$ 2,495	\$ 2,997	\$ 35	\$ 174	\$ 208	\$ 0.00	\$ 1
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	208.4	154.6									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 58,937	\$ 13,316	\$ 169,800	\$ 228,737	\$ 4,100	\$ 11,812	\$ 15,912	\$ 0.28	\$ 92

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 10, Combined Future III-F. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 10
Combined Future IV-F**

ALTERNATIVE NAME	Future IV-F
RUN NAME	Run 1
DATE	9/10/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 311.9
Average Annual O&M Cost	\$ 18.1
Present Worth of O&M Costs	\$ 221.5
Total Present Worth	\$ 533.4
Annualized Capital Cost	\$ 21.7
Uniform Annualized O&M Cost	\$ 15.4
Total Equivalent Annual Cost	\$ 37.1
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.66
\$/acre-foot	\$ 216

Project Cost Breakdown

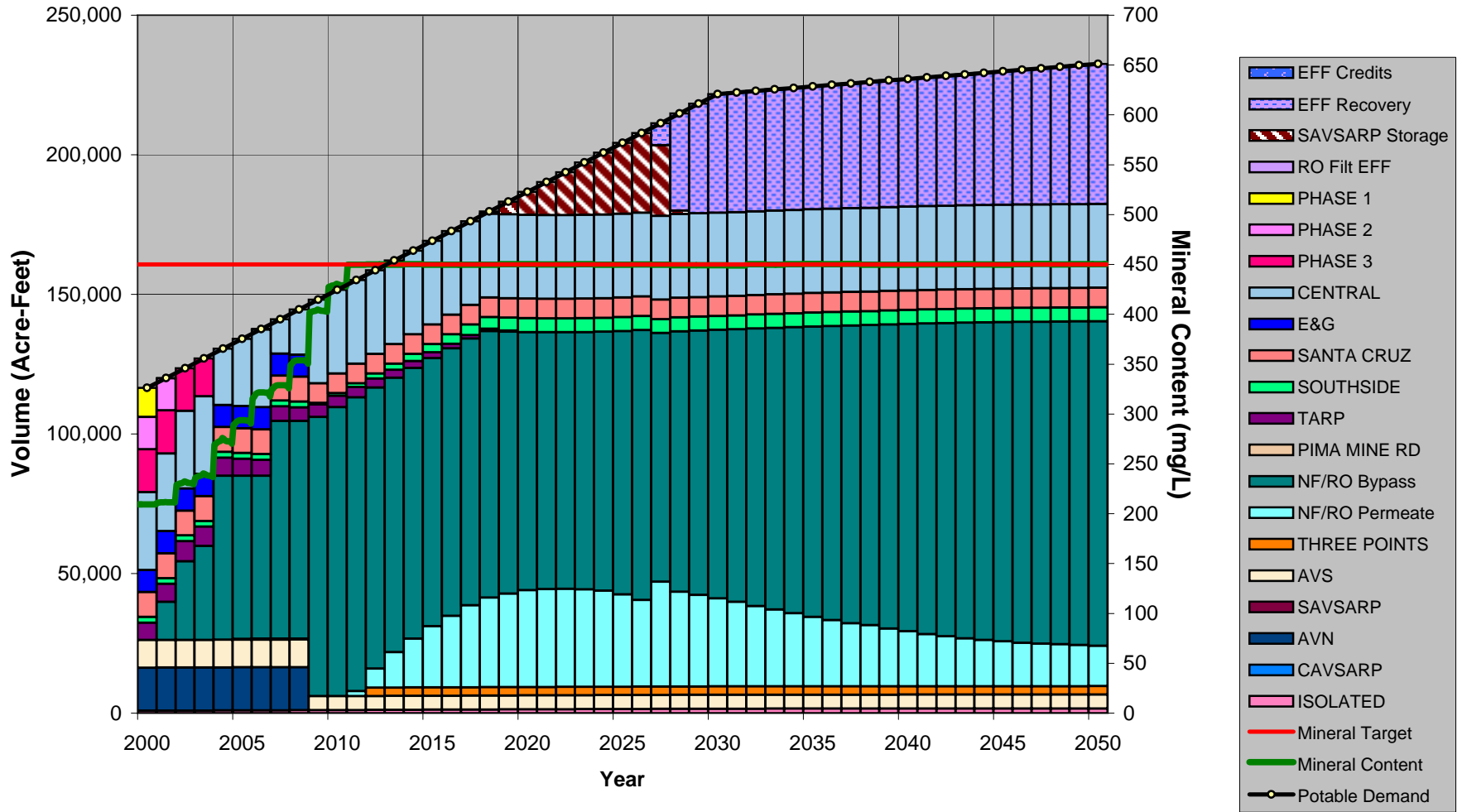
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 879			\$ 879	\$ 61		\$ 61		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorination*	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	0.0	0.0		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	67.9	43.6	\$ 66,544	\$ 3,292	\$ 35,674	\$ 102,219	\$ 4,629	\$ 2,482	\$ 7,111	\$ 0	\$ 145
Evaporation Ponds	10.2	6.5	\$ 185,547	\$ 1,093	\$ 11,839	\$ 197,386	\$ 12,907	\$ 824	\$ 13,731	\$ 6	\$ 1,873
Secondary Disinfection											
Chlorine	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	0.0	0.0	\$ 252,970	\$ 4,385	\$ 47,513	\$ 300,483	\$ 17,598	\$ 3,305	\$ 20,903	\$ -	\$ -
CAVSARP	100.9	73.0		\$ 4,888	\$ 72,550	\$ 72,550		\$ 5,047	\$ 5,047	\$ 0.19	\$ 62
SAVSARP	149.5	84.0	\$ 37,972	\$ 8,445	\$ 94,654	\$ 132,626	\$ 2,641	\$ 6,585	\$ 9,226	\$ 0.30	\$ 98
Secondary Disinfection- Recovered Water	205.3	150.4	\$ 501	\$ 186	\$ 2,489	\$ 2,990	\$ 35	\$ 173	\$ 208	\$ 0.00	\$ 1
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ -	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ -	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	208.4	153.1									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 311,908	\$ 18,097	\$ 221,492	\$ 533,400	\$ 21,698	\$ 15,408	\$ 37,106	\$ 0.66	\$ 216

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 10, Combined Future IV-F. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

Pathway 11
Combined Future I-E

ALTERNATIVE NAME	Future I-E
RUN NAME	Run 1
DATE	9/13/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 245.5
Average Annual O&M Cost	\$ 15.8
Present Worth of O&M Costs	\$ 194.9
Total Present Worth	\$ 440.4
Annualized Capital Cost	\$ 17.1
Uniform Annualized O&M Cost	\$ 13.6
Total Equivalent Annual Cost	\$ 30.6
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.54
\$/acre-foot	\$ 177

Project Cost Breakdown

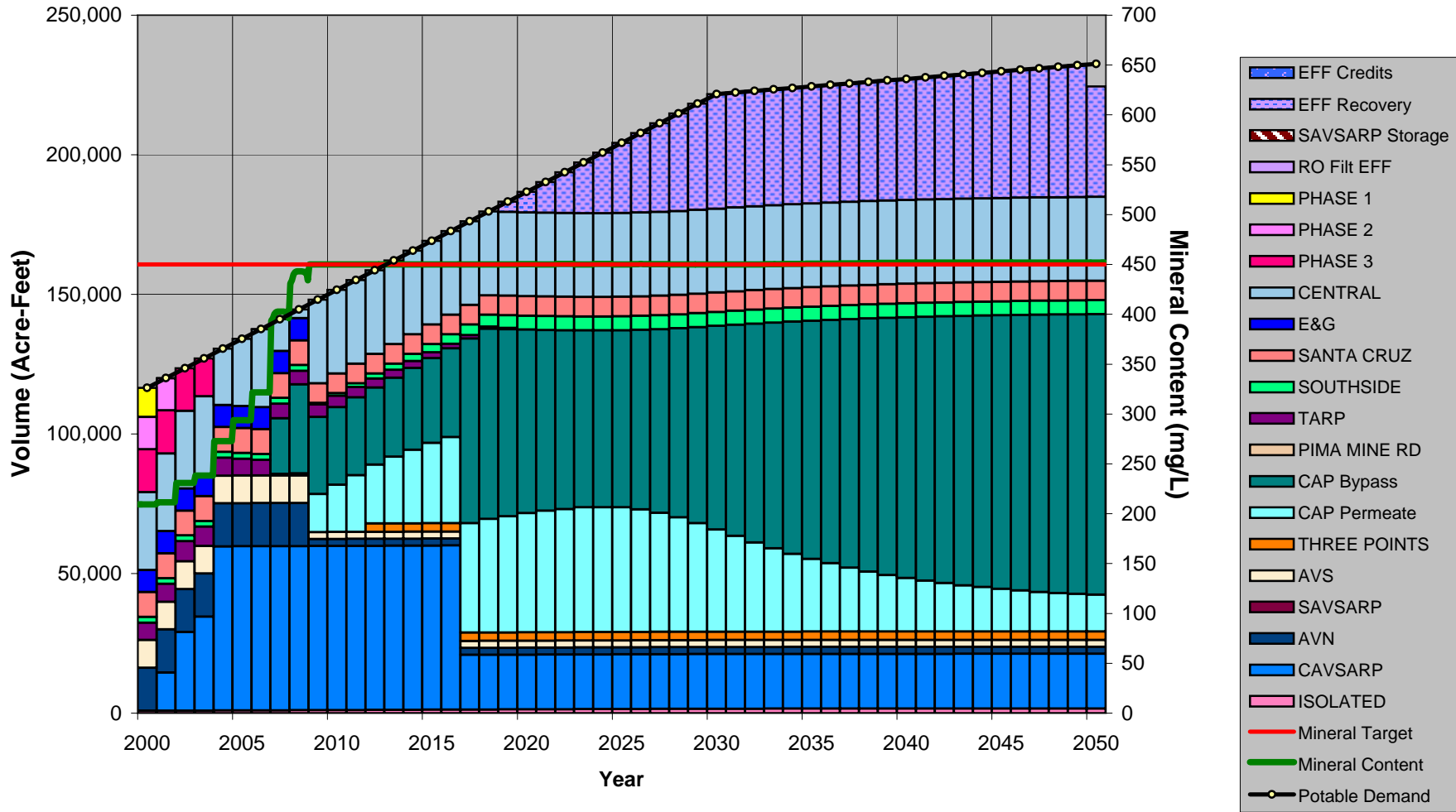
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)			
										\$/1,000 gal	\$/acre-ft		
Hayden-Udall WTP:													
General Rehabilitation			\$ 4,480			\$ 4,480			\$ 312		\$ 312		
Primary Disinfection Options													
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	143.5	103.5	\$ 2,162	\$ 633	\$ 7,154	\$ 9,316	\$ 150	\$ 498	\$ 648	\$ 0	\$ 6	\$ 6	\$ 6
Chlorination*	143.5	103.5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	143.5	103.5		\$ 3,838	\$ 42,487	\$ 42,487		\$ 2,956	\$ 2,956	\$ 0	\$ 25	\$ 0	\$ 25
TDS Removal of CAP Water													
NF/RO (with Existing Direct Filtration)	64.6	38.4	\$ 57,629	\$ 4,376	\$ 47,730	\$ 105,360	\$ 4,009	\$ 3,320	\$ 7,329	\$ 1	\$ 170	\$ 1	\$ 170
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	9.7	5.8	\$ 160,104	\$ 1,452	\$ 15,843	\$ 175,947	\$ 11,138	\$ 1,102	\$ 12,240	\$ 6	\$ 1,896	\$ 6	\$ 1,896
TDS Removal of Recovered Water													
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection													
Chlorine	134.7	97.8	\$ 512	\$ 324	\$ 3,576	\$ 4,087	\$ 36	\$ 249	\$ 284	\$ 0	\$ 3	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	134.7	97.8	\$ 224,887	\$ 10,623	\$ 116,789	\$ 341,676	\$ 15,644	\$ 8,124	\$ 23,768	\$ 0.67	\$ 217	\$ 0.67	\$ 217
CAVSARP	71.0	54.2		\$ 4,716	\$ 72,650	\$ 72,650		\$ 5,054	\$ 5,054	\$ 0.26	\$ 83		\$ 83
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	71.0	54.2	\$ 177	\$ 76	\$ 1,134	\$ 1,310	\$ 12	\$ 79	\$ 91	\$ 0.00	\$ 2		\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177		\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3		\$ 3
Total Clearwater Production (MGD)	208.7	154.6											
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180				
TOTAL COSTS**			\$ 245,528	\$ 15,835	\$ 194,860	\$ 440,389	\$ 17,080	\$ 13,555	\$ 30,635	\$ 0.54	\$ 177		

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 11, Combined Future I-E. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 11
Combined Future II-E**

ALTERNATIVE NAME	Future II-E
RUN NAME	Run 1
DATE	9/13/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.8
Average Annual O&M Cost	\$ 9.6
Present Worth of O&M Costs	\$ 126.6
Total Present Worth	\$ 154.4
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 8.8
Total Equivalent Annual Cost	\$ 10.7
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.19
\$/acre-foot	\$ 62

Project Cost Breakdown

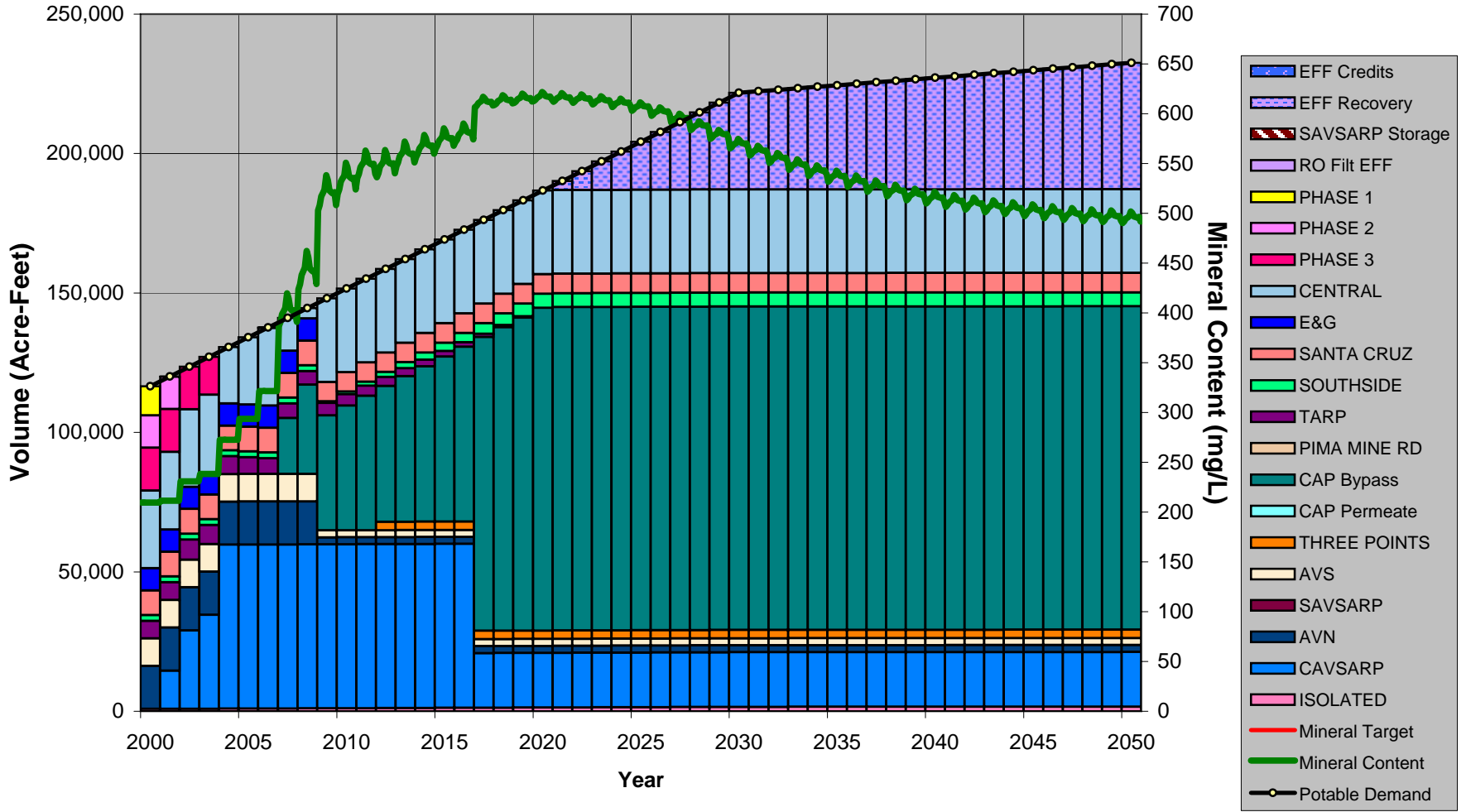
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)			
										\$/1,000 gal	\$/acre-ft		
Hayden-Udall WTP:													
General Rehabilitation			\$ 4,480			\$ 4,480			\$ 312		\$ 312		
Primary Disinfection Options													
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	143.1	103.5	\$ 2,162	\$ 620	\$ 6,955	\$ 9,116	\$ 150	\$ 484	\$ 634	\$ 0	\$ 5	\$ 0	\$ 5
Chlorination*	143.1	103.5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	143.1	103.5		\$ 3,748	\$ 41,176	\$ 41,176		\$ 2,864	\$ 2,864	\$ 0	\$ 25	\$ 0	\$ 25
TDS Removal of CAP Water													
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water													
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection													
Chlorine	143.1	103.5	\$ 526	\$ 337	\$ 3,696	\$ 4,222	\$ 37	\$ 257	\$ 294	\$ 0	\$ 3	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	143.1	103.5	\$ 7,168	\$ 4,705	\$ 51,826	\$ 58,995	\$ 499	\$ 3,605	\$ 4,104	\$ 0.11	\$ 35	\$ 0.11	\$ 35
CAVSARP	62.9	48.4		\$ 4,408	\$ 69,450	\$ 69,450		\$ 4,831	\$ 4,831	\$ 0.27	\$ 89		\$ 89
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	62.9	48.4	\$ 149	\$ 72	\$ 1,085	\$ 1,234	\$ 10	\$ 75	\$ 86	\$ 0.00	\$ 2		\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177		\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3		\$ 3
Total Clearwater Production (MGD)	209.2	154.6											
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180				
TOTAL COSTS**			\$ 27,781	\$ 9,603	\$ 126,649	\$ 154,430	\$ 1,933	\$ 8,810	\$ 10,743	\$ 0.19	\$ 62		\$ 62

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 11, Combined Future II-E. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 12
Combined Future I-F**

ALTERNATIVE NAME	Future I-F
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 245.5
Average Annual O&M Cost	\$ 15.8
Present Worth of O&M Costs	\$ 194.9
Total Present Worth	\$ 440.4
Annualized Capital Cost	\$ 17.1
Uniform Annualized O&M Cost	\$ 13.6
Total Equivalent Annual Cost	\$ 30.6
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.54
\$/acre-foot	\$ 177

Project Cost Breakdown

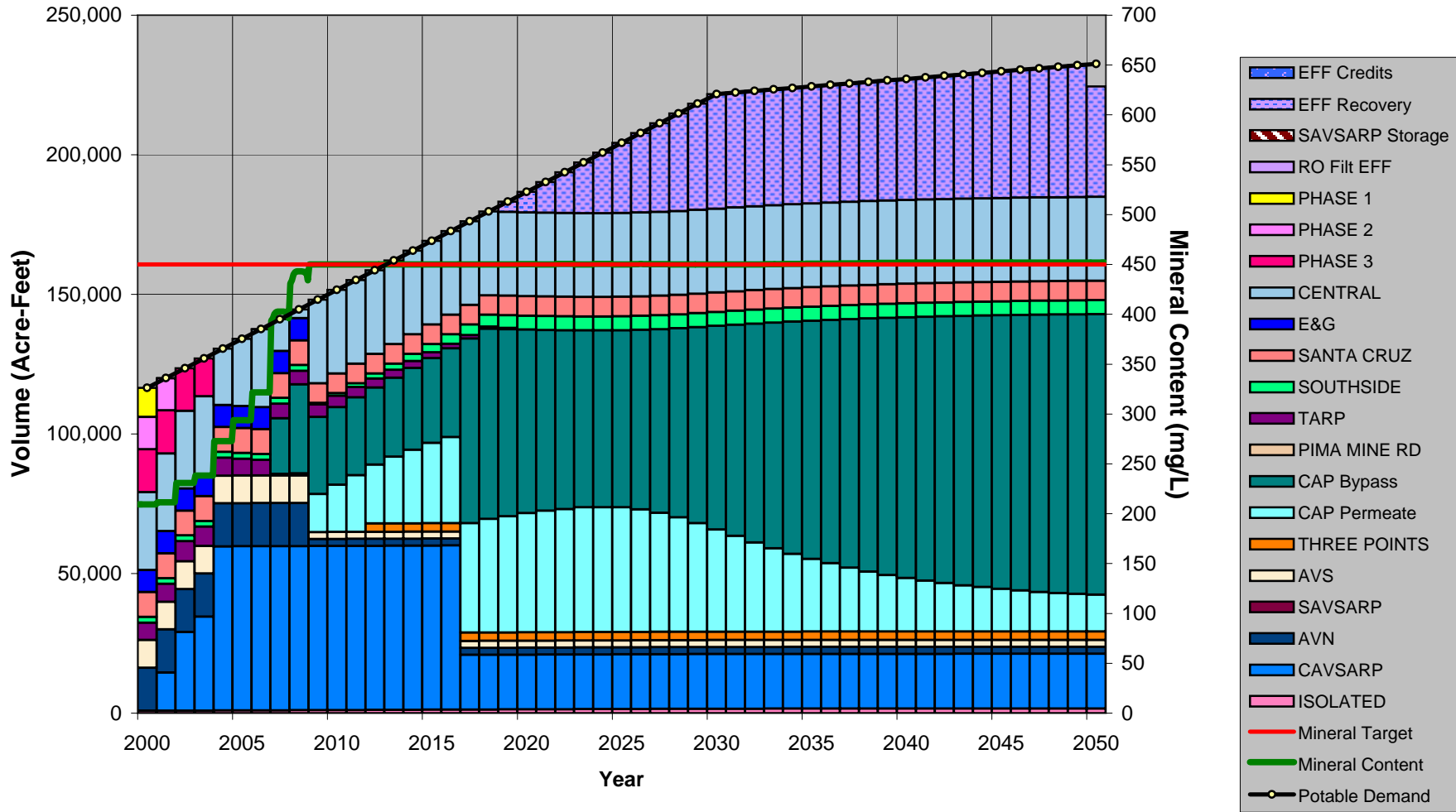
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	143.5	103.5	\$ 2,162	\$ 633	\$ 7,154	\$ 9,316	\$ 150	\$ 498	\$ 648	\$ 0	\$ 6
Chlorination*	143.5	103.5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	143.5	103.5		\$ 3,838	\$ 42,487	\$ 42,487		\$ 2,956	\$ 2,956	\$ 0	\$ 25
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	64.6	38.4	\$ 57,629	\$ 4,376	\$ 47,730	\$ 105,360	\$ 4,009	\$ 3,320	\$ 7,329	\$ 1	\$ 170
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	9.7	5.8	\$ 160,104	\$ 1,452	\$ 15,843	\$ 175,947	\$ 11,138	\$ 1,102	\$ 12,240	\$ 6	\$ 1,896
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	134.7	97.8	\$ 512	\$ 324	\$ 3,576	\$ 4,087	\$ 36	\$ 249	\$ 284	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	134.7	97.8	\$ 224,887	\$ 10,623	\$ 116,789	\$ 341,676	\$ 15,644	\$ 8,124	\$ 23,768	\$ 0.67	\$ 217
CAVSARP	71.0	54.2		\$ 4,716	\$ 72,650	\$ 72,650		\$ 5,054	\$ 5,054	\$ 0.26	\$ 83
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	71.0	54.2	\$ 177	\$ 76	\$ 1,134	\$ 1,310	\$ 12	\$ 79	\$ 91	\$ 0.00	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	208.7	154.6									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 245,528	\$ 15,835	\$ 194,860	\$ 440,389	\$ 17,080	\$ 13,555	\$ 30,635	\$ 0.54	\$ 177

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 12, Combined Future I-F. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 12
Combined Future II-F**

ALTERNATIVE NAME	Future II-F
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.8
Average Annual O&M Cost	\$ 9.6
Present Worth of O&M Costs	\$ 126.6
Total Present Worth	\$ 154.4
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 8.8
Total Equivalent Annual Cost	\$ 10.7
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.19
\$/acre-foot	\$ 62

Project Cost Breakdown

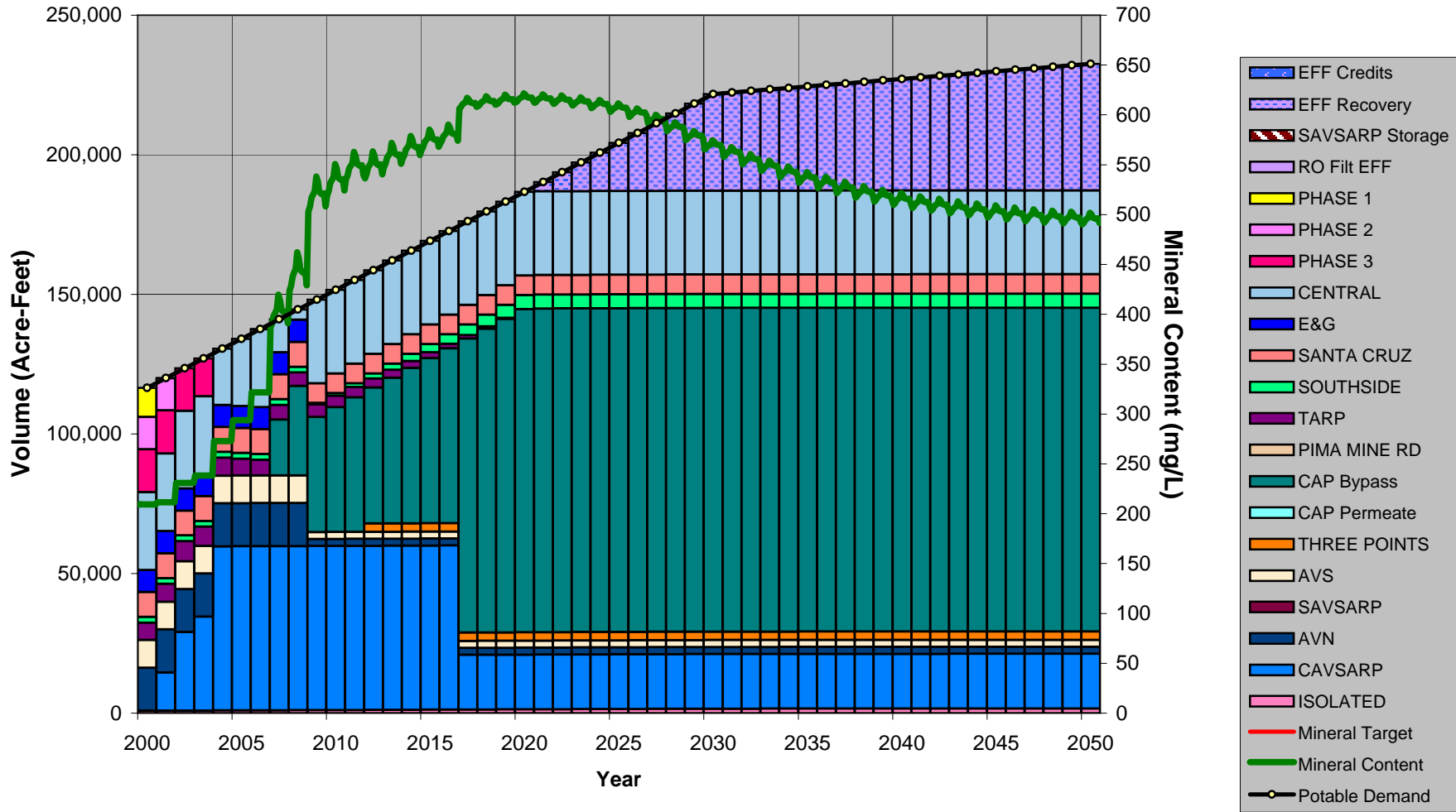
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	143.1	103.5	\$ 2,162	\$ 620	\$ 6,955	\$ 9,116	\$ 150	\$ 484	\$ 634	\$ 0	\$ 5
Chlorination*	143.1	103.5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	143.1	103.5		\$ 3,748	\$ 41,176	\$ 41,176		\$ 2,864	\$ 2,864	\$ 0	\$ 25
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	143.1	103.5	\$ 526	\$ 337	\$ 3,696	\$ 4,222	\$ 37	\$ 257	\$ 294	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	143.1	103.5	\$ 7,168	\$ 4,705	\$ 51,826	\$ 58,995	\$ 499	\$ 3,605	\$ 4,104	\$ 0.11	\$ 35
CAVSARP	62.9	48.4		\$ 4,408	\$ 69,450	\$ 69,450		\$ 4,831	\$ 4,831	\$ 0.27	\$ 89
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	62.9	48.4	\$ 149	\$ 72	\$ 1,085	\$ 1,234	\$ 10	\$ 75	\$ 86	\$ 0.00	\$ 2
Three Points Wellfield	3.1	2.7	\$ 5,249	\$ 221	\$ 2,400	\$ 7,649	\$ 365	\$ 167	\$ 532	\$ 0.54	\$ 177
Secondary Disinfection- Three Points Wellfield	3.1	2.7	\$ 86	\$ 5	\$ 60	\$ 145	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	209.2	154.6									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,781	\$ 9,603	\$ 126,649	\$ 154,430	\$ 1,933	\$ 8,810	\$ 10,743	\$ 0.19	\$ 62

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 12, Combined Future II-F. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

Pathway 13
Combined Future I-G

ALTERNATIVE NAME	Future I-G
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 209.4
Average Annual O&M Cost	\$ 14.2
Present Worth of O&M Costs	\$ 183.9
Total Present Worth	\$ 393.2
Annualized Capital Cost	\$ 14.6
Uniform Annualized O&M Cost	\$ 12.8
Total Equivalent Annual Cost	\$ 27.4
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.62
\$/acre-foot	\$ 202

Project Cost Breakdown

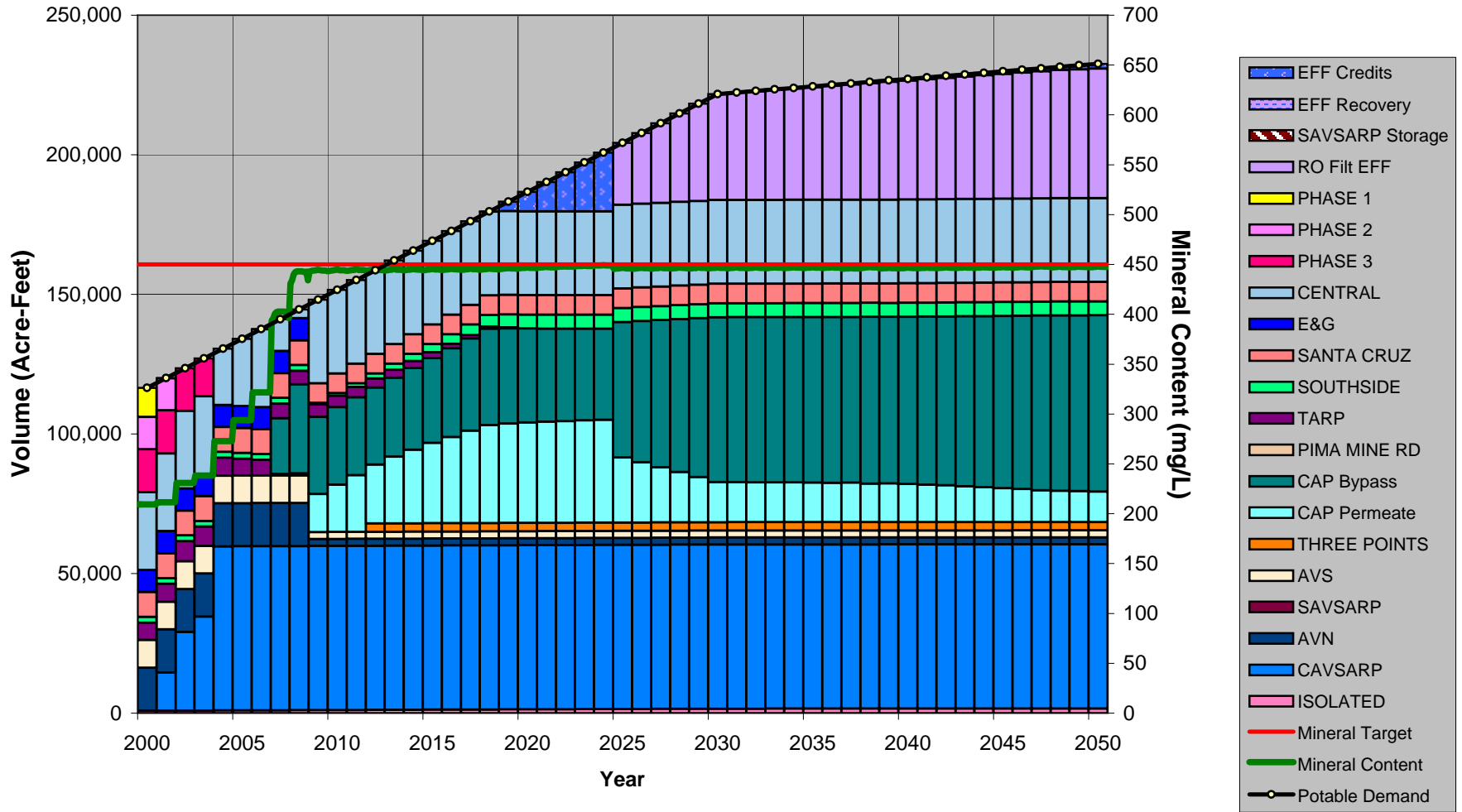
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	102.0	67.8	\$ 2,162	\$ 498	\$ 5,876	\$ 8,038	\$ 150	\$ 409	\$ 559	\$ 0	\$ 7
Chlorination*	102.0	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	102.0	67.8		\$ 2,854	\$ 33,184	\$ 33,184		\$ 2,308	\$ 2,308	\$ 0	\$ 30
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	53.7	15.1	\$ 48,696	\$ 3,300	\$ 38,562	\$ 87,257	\$ 3,387	\$ 2,683	\$ 6,070	\$ 1	\$ 359
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	8.1	2.3	\$ 132,990	\$ 1,095	\$ 12,798	\$ 145,788	\$ 9,251	\$ 890	\$ 10,142	\$ 12	\$ 3,995
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	95.5	65.6	\$ 428	\$ 238	\$ 2,765	\$ 3,193	\$ 30	\$ 192	\$ 222	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	95.5	65.6	\$ 188,756	\$ 7,986	\$ 93,185	\$ 281,941	\$ 13,131	\$ 6,482	\$ 19,613	\$ 0.82	\$ 267
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	4.5	2.7	\$ 5,249	\$ 239	\$ 2,570	\$ 7,820	\$ 365	\$ 179	\$ 544	\$ 0.56	\$ 181
Secondary Disinfection- Three Points Wellfield	4.5	2.7	\$ 89	\$ 6	\$ 62	\$ 151	\$ 6	\$ 4	\$ 11	\$ 0.01	\$ 4
Total Clearwater Production (MGD)	161.2	120.7									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 209,366	\$ 14,210	\$ 183,871	\$ 393,237	\$ 14,564	\$ 12,791	\$ 27,355	\$ 0.62	\$ 202

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 13, Combined Future I-G. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 13
Combined Future II-G**

ALTERNATIVE NAME	Future II-G
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.7
Average Annual O&M Cost	\$ 9.7
Present Worth of O&M Costs	\$ 131.1
Total Present Worth	\$ 158.8
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 9.1
Total Equivalent Annual Cost	\$ 11.0
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.25
\$/acre-foot	\$ 80

Project Cost Breakdown

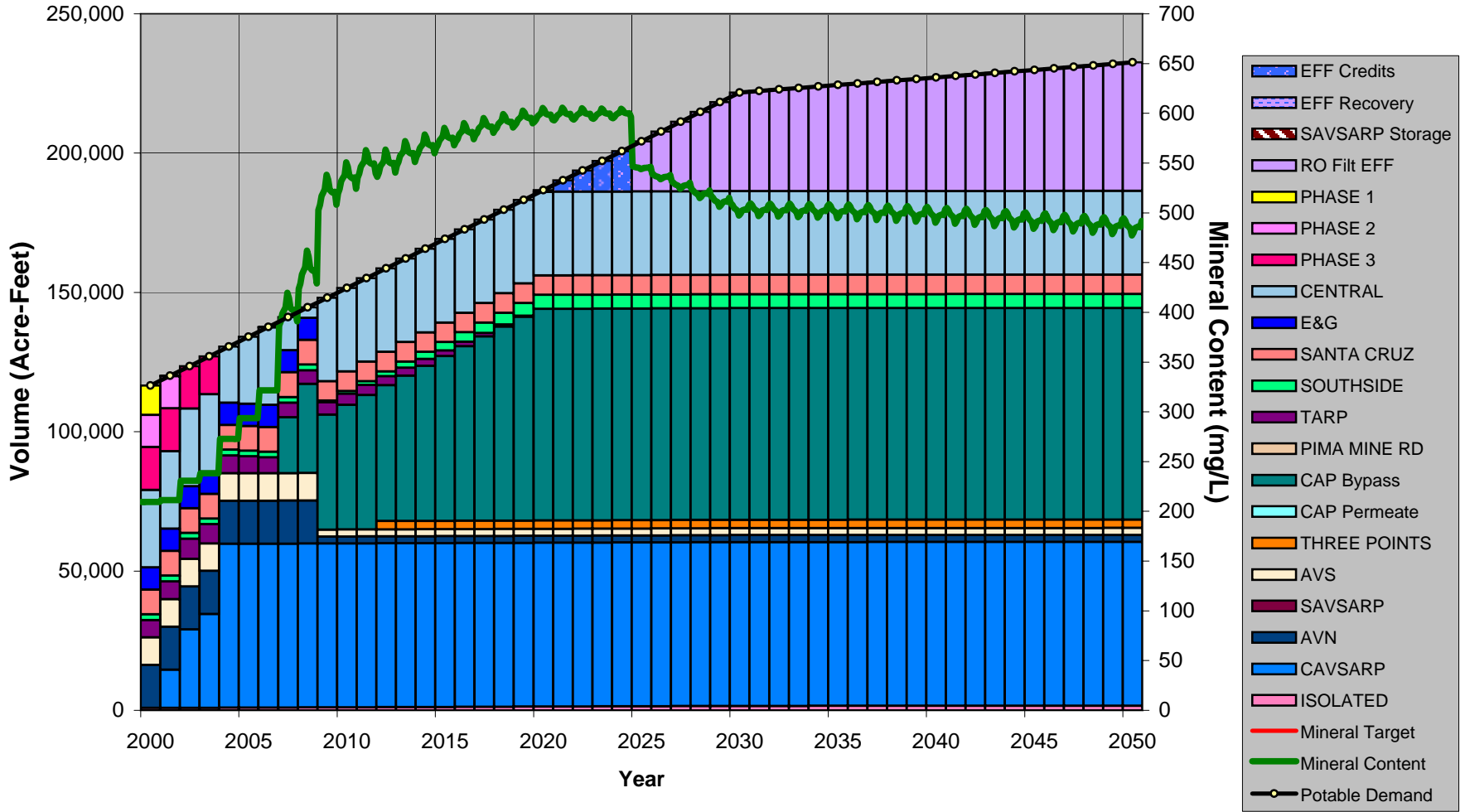
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	101.4	67.8	\$ 2,162	\$ 485	\$ 5,687	\$ 7,848	\$ 150	\$ 396	\$ 546	\$ 0	\$ 7
Chlorination*	101.4	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	101.4	67.8		\$ 2,769	\$ 31,936	\$ 31,936		\$ 2,222	\$ 2,222	\$ 0	\$ 29
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	101.4	67.8	\$ 442	\$ 247	\$ 2,845	\$ 3,288	\$ 31	\$ 198	\$ 229	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	101.4	67.8	\$ 7,084	\$ 3,502	\$ 40,468	\$ 47,553	\$ 493	\$ 2,815	\$ 3,308	\$ 0.13	\$ 44
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	4.1	2.7	\$ 5,249	\$ 230	\$ 2,484	\$ 7,734	\$ 365	\$ 173	\$ 538	\$ 0.55	\$ 179
Secondary Disinfection- Three Points Wellfield	4.1	2.7	\$ 88	\$ 6	\$ 61	\$ 149	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	166.7	123.0									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,694	\$ 9,717	\$ 131,066	\$ 158,761	\$ 1,927	\$ 9,118	\$ 11,044	\$ 0.25	\$ 80

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 13, Combined Future II-G. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

Pathway 14
Combined Future I-H

ALTERNATIVE NAME	Future I-H
RUN NAME	Run 1
DATE	9/13/2004

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Final TDS Target from Resource Planning Tool (mg/L)

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 209.4
Average Annual O&M Cost	\$ 14.2
Present Worth of O&M Costs	\$ 183.9
Total Present Worth	\$ 393.2
Annualized Capital Cost	\$ 14.6
Uniform Annualized O&M Cost	\$ 12.8
Total Equivalent Annual Cost	\$ 27.4
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.62
\$/acre-foot	\$ 202

Project Cost Breakdown

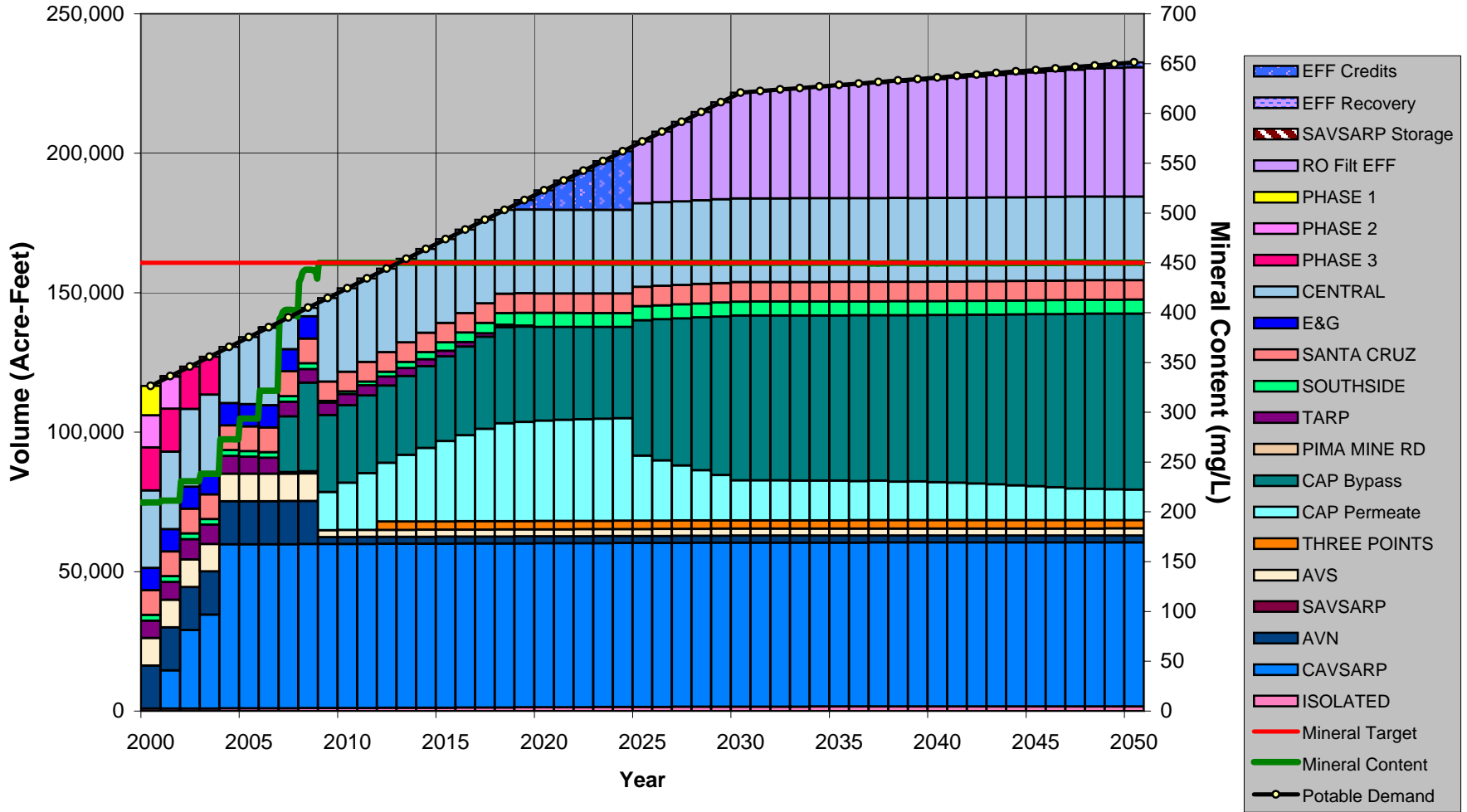
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)			
										\$/1,000 gal	\$/acre-ft		
Hayden-Udall WTP:													
General Rehabilitation			\$ 4,480			\$ 4,480			\$ 312		\$ 312		
Primary Disinfection Options													
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	102.0	67.8	\$ 2,162	\$ 498	\$ 5,876	\$ 8,038	\$ 150	\$ 409	\$ 559	\$ 0	\$ 7		
Chlorination*	102.0	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	102.0	67.8		\$ 2,854	\$ 33,184	\$ 33,184		\$ 2,308	\$ 2,308	\$ 0	\$ 30		
TDS Removal of CAP Water													
NF/RO (with Existing Direct Filtration)	53.7	15.1	\$ 48,696	\$ 3,300	\$ 38,562	\$ 87,257	\$ 3,387	\$ 2,683	\$ 6,070	\$ 1	\$ 359		
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	8.1	2.3	\$ 132,990	\$ 1,095	\$ 12,798	\$ 145,788	\$ 9,251	\$ 890	\$ 10,142	\$ 12	\$ 3,995		
TDS Removal of Recovered Water													
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection													
Chlorine	95.5	65.6	\$ 428	\$ 238	\$ 2,765	\$ 3,193	\$ 30	\$ 192	\$ 222	\$ 0	\$ 3		
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	95.5	65.6	\$ 188,756	\$ 7,986	\$ 93,185	\$ 281,941	\$ 13,131	\$ 6,482	\$ 19,613	\$ 0.82	\$ 267		
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100		
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2		
Three Points Wellfield	4.5	2.7	\$ 5,249	\$ 239	\$ 2,570	\$ 7,820	\$ 365	\$ 179	\$ 544	\$ 0.56	\$ 181		
Secondary Disinfection- Three Points Wellfield	4.5	2.7	\$ 89	\$ 6	\$ 62	\$ 151	\$ 6	\$ 4	\$ 11	\$ 0.01	\$ 4		
Total Clearwater Production (MGD)	161.2	120.7											
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180				
TOTAL COSTS**			\$ 209,366	\$ 14,210	\$ 183,871	\$ 393,237	\$ 14,564	\$ 12,791	\$ 27,355	\$ 0.62	\$ 202		

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 14, Combined Future I-H. (Reclaim Usage accounts for 8% of Total Demand.)



CLEARWATER COST MODEL OUTPUT

Add Run to Database

Show Input Form

**Pathway 14
Combined Future II-H**

ALTERNATIVE NAME	Future II-H
RUN NAME	Run 1
DATE	9/13/2004

Final TDS Target from Resource Planning Tool (mg/L)

Input Values

Power Cost for HUWTP	\$0.08	(\$/kWh)
Labor Rate	\$26	(\$/hr)
Annual Discount Rate	0.050	(per year as decimal)
ENR 20 Cities Average Cost Construction Index	7188	
Target Year	2030	(Year)
Planning Horizon	26	(Years)
Spencer Interconnect	TRUE	
SAVSARP Deep Wells	15	
Three-Points Wellfield	2012	

Overall Output Values (\$Millions except where noted)

Present Worth Capital Cost	\$ 27.7
Average Annual O&M Cost	\$ 9.7
Present Worth of O&M Costs	\$ 131.1
Total Present Worth	\$ 158.8
Annualized Capital Cost	\$ 1.9
Uniform Annualized O&M Cost	\$ 9.1
Total Equivalent Annual Cost	\$ 11.0
Equivalent Unit Cost (based on Target Year flows):	
\$/1,000 gallons	\$ 0.25
\$/acre-foot	\$ 80

Project Cost Breakdown

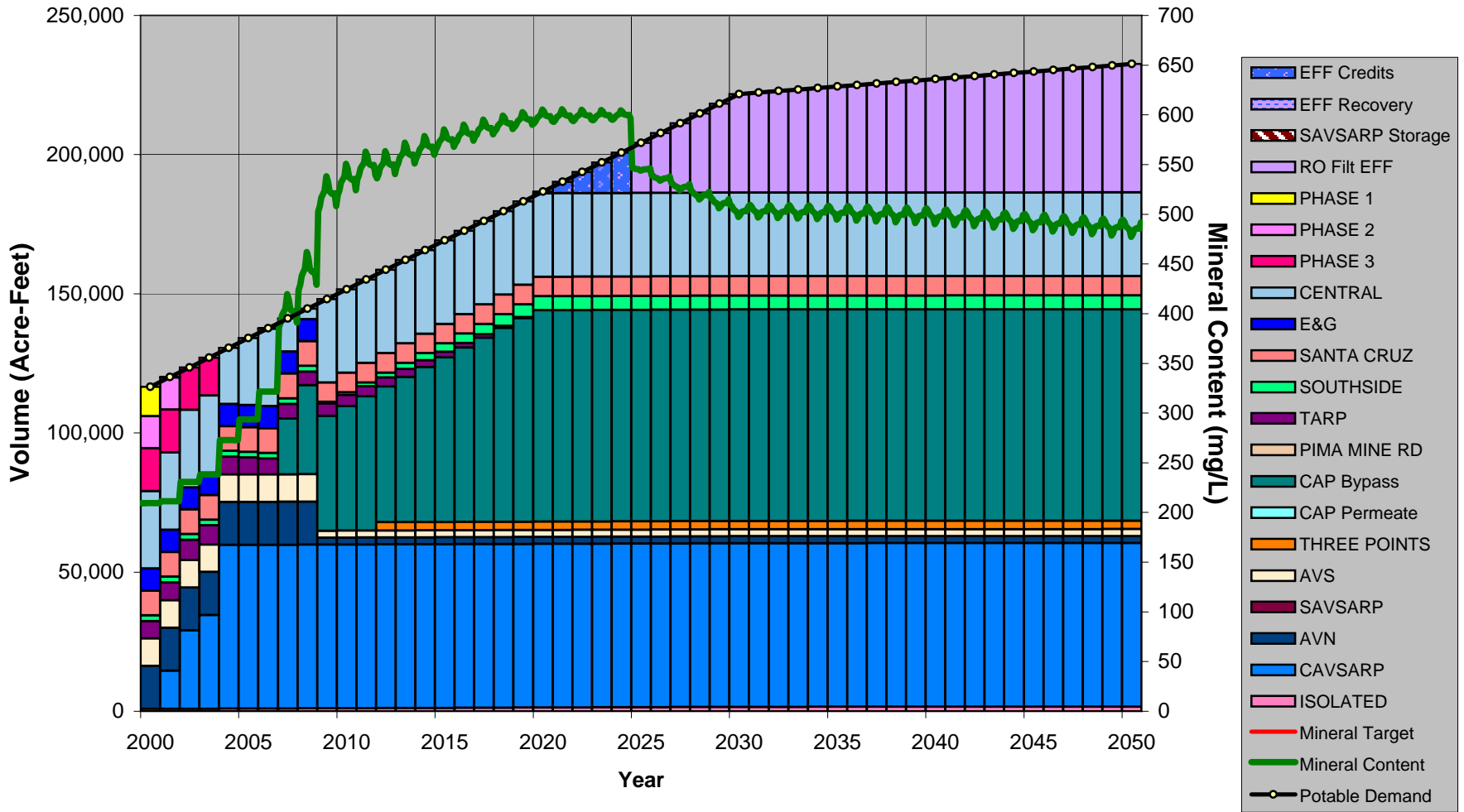
Project (\$1,000s except where noted)	Design Flow (MGD) [based on max. flow over planning period]	Average Flow in Target Year (MGD)	Present Worth Capital Cost (\$k)	Average Annual O&M Cost (\$k/yr)	Present Worth O&M Costs (\$k)	Total Present Worth (\$k)	Annualized Capital Cost (\$k/yr)	Uniform Annualized O&M Cost (\$k/yr)	Total Equivalent Annual Cost (\$k/yr)	Equivalent Unit Production Cost (based on Target Year flows)	
										\$/1,000 gal	\$/acre-ft
Hayden-Udall WTP:											
General Rehabilitation			\$ 4,480			\$ 4,480	\$ 312		\$ 312		
Primary Disinfection Options											
UV Disinfection	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Giardia & Cryptosporidium)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ozonation (Taste & Odor)	101.4	67.8	\$ 2,162	\$ 485	\$ 5,687	\$ 7,848	\$ 150	\$ 396	\$ 546	\$ 0	\$ 7
Chlorination*	101.4	67.8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Direct Filtration	101.4	67.8		\$ 2,769	\$ 31,936	\$ 31,936		\$ 2,222	\$ 2,222	\$ 0	\$ 29
TDS Removal of CAP Water											
NF/RO (with Existing Direct Filtration)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NF/RO (with MF/UF Pre-treatment)	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TDS Removal of Recovered Water											
NF/RO for Recovered Water	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaporation Ponds	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection											
Chlorine	101.4	67.8	\$ 442	\$ 247	\$ 2,845	\$ 3,288	\$ 31	\$ 198	\$ 229	\$ 0	\$ 3
Chloramines	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total (Hayden-Udall WTP)	101.4	67.8	\$ 7,084	\$ 3,502	\$ 40,468	\$ 47,553	\$ 493	\$ 2,815	\$ 3,308	\$ 0.13	\$ 44
CAVSARP	61.2	52.5		\$ 5,696	\$ 84,906	\$ 84,906		\$ 5,906	\$ 5,906	\$ 0.31	\$ 100
SAVSARP	0.0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Disinfection- Recovered Water	61.2	52.5	\$ 143	\$ 92	\$ 1,319	\$ 1,462	\$ 10	\$ 92	\$ 102	\$ 0.01	\$ 2
Three Points Wellfield	4.1	2.7	\$ 5,249	\$ 230	\$ 2,484	\$ 7,734	\$ 365	\$ 173	\$ 538	\$ 0.55	\$ 179
Secondary Disinfection- Three Points Wellfield	4.1	2.7	\$ 88	\$ 6	\$ 61	\$ 149	\$ 6	\$ 4	\$ 10	\$ 0.01	\$ 3
Total Clearwater Production (MGD)	166.7	123.0									
Spencer Interconnect			\$ 15,130	\$ 192	\$ 1,827	\$ 16,957	\$ 1,052	\$ 127	\$ 1,180		
TOTAL COSTS**			\$ 27,694	\$ 9,717	\$ 131,066	\$ 158,761	\$ 1,927	\$ 9,118	\$ 11,044	\$ 0.25	\$ 80

* All primary disinfection chlorine costs are included in the secondary disinfection costs when chlorine is the primary disinfectant.

** Equivalent unit production costs in the Total Costs row include Spencer Interconnect costs.

Projected Potable Supply, Potable Demand, and Mineral Content of the Clearwater Blend

Pathway 14, Combined Future II-H. (Reclaim Usage accounts for 8% of Total Demand.)



The costs of using effluent to augment potable supply are presented in this section. Table F-3 presents an overview of the costs of each effluent project that might be included along each planning pathway.

Effluent Costs	Total Present Worth Capital	Total Present Worth O&M	Annualized Capital	Annualized O&M
Avra Valley Pipeline (54 in Dia)	\$34,232,773	\$6,389,672	\$2,381,380	\$444,493
Tucson Basin Pipeline (42 in Dia.)	\$33,129,174	\$19,914,482	\$2,304,609	\$1,385,337
CAVSARP Recovery Expansion (42 in. Dia.)	\$4,095,532	\$12,913,068	\$284,903	\$898,289
Sweetwater EhT Plant (41 MGD)	\$147,188,800	\$126,973,312	\$10,239,089	\$8,832,812
Sweetwater EhT Plant (18 MGD)	\$75,936,436	\$57,886,787	\$5,282,467	\$4,026,855
Ina-Roger Interconnect (42 in Dia.)	\$8,750,833	\$8,104,364	\$608,746	\$563,775

Table F-3: Effluent Utilization Costs

Detailed costs for each treatment technology employed at the Sweetwater Enhanced Treatment Plant are presented on the following two pages. The treatment train presented in this report is only for cost estimating purposes and is shown on Figure F-1.

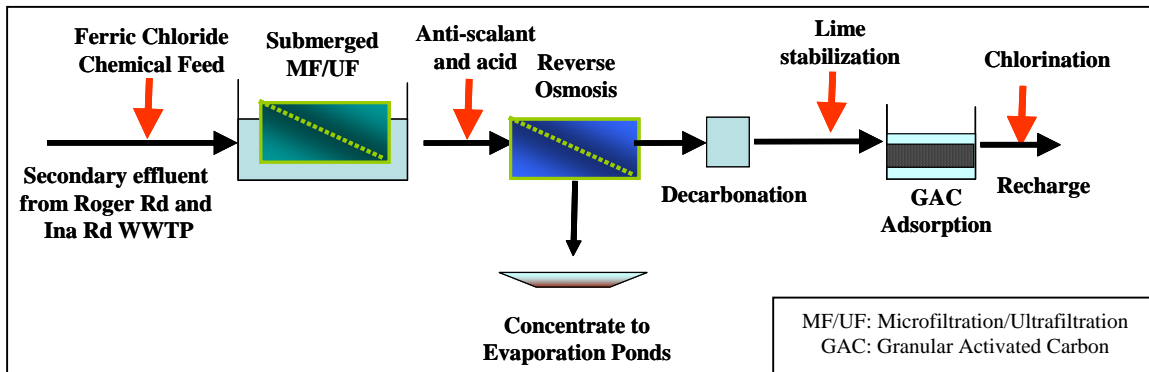


Figure F-1: Preliminary Effluent Treatment Train for Cost Estimates

It is highly likely that the eventual treatment processes will differ from that presented here based on the emergence of new and better technologies and the desired treatment goals. Costs are presented for two different treatment plant sizes (small and large) with average daily treatment capacities of 18 MGD and 41 MGD, respectively.

Effluent Enhanced Treatment Small Plant (18 MGD)

<u>Treatment Technology</u>		Labor	\$	26.00	Power	\$	0.08
		Qdes.		22	Qavg		18
Ferric Chloride Feed							
Total Capital Cost	(\$)		\$285,320				
Annual O&M	Labor (hours)			71		\$1,846	
	Power (kWh)			12746		\$1,020	
	Other (\$)					\$235,277	
						Sum	\$238,143
Submerged Membrane							
Total Capital Cost	(\$)		\$32,694,970				
Annual O&M	Labor (hours)			4576		\$118,976	
	Power (kWh)			2734570		\$218,766	
	Other (\$)					\$583,542	
						Sum	\$921,283
Reverse Osmosis							
Total Capital Cost	(\$)		\$29,887,691				
Annual O&M	Labor (hours)			4576		\$118,976	
	Power (kWh)			15601746		\$1,248,140	
	Other (\$)					\$1,297,365	
						Sum	\$2,664,480
Decarbonation							
Total Capital Cost	(\$)		\$800,280				
Annual O&M	Labor (hours)			180		\$4,670	
	Power (kWh)			101426		\$8,114	
	Other (\$)					\$2,982	
						Sum	\$15,767
Lime Addition							
Total Capital Cost	(\$)		\$809,533				
Annual O&M	Labor (hours)			551		\$14,337	
	Power (kWh)			4211		\$337	
	Other (\$)					\$22,821	
						Sum	\$37,495
GAC Adsorption							
Total Capital Cost	(\$)		\$17,127,560				
Annual O&M	Labor (hours)			3024		\$78,629	
	Power (kWh)			41138		\$3,291	
	Other (\$)					\$992,577	
						Sum	\$1,074,497
Chlorine Feed							
Total Capital Cost	(\$)		\$445,220				
Annual O&M	Labor (hours)			117		\$3,039	
	Power (kWh)			7891		\$631	
	Other (\$)					\$125,255	
						Sum	\$128,925
Evaporation Ponds							
Total Capital Cost	(\$)		\$61,138,902				
Annual O&M	Labor (hours)			2377		\$61,793	
	Power (kWh)			0		\$0	
	Other (\$)					\$705,570	Years
						\$767,363	13
						Sum	
Total Capital			\$143,189,476				
						Total Annual O&M	
						\$5,847,953	
						Total O&M	\$76,023,383

Effluent Enhanced Treatment Large Plant (41 MGD)

<u>Treatment Technology</u>		Labor	\$	26.00	Power	\$	0.08
Ferric Chloride Feed		Qdes.		46	Qavg		41
Total Capital Cost	(\$)		\$563,192				
Annual O&M	Labor (hours)				75		\$1,940
	Power (kWh)				17592		\$1,407
	Other (\$)						\$541,677
					Sum		\$545,025
Submerged Membrane							
Total Capital Cost	(\$)		\$65,450,482				
Annual O&M	Labor (hours)				4576		\$118,976
	Power (kWh)				6157497		\$492,600
	Other (\$)						\$1,294,987
					Sum		\$1,906,563
Reverse Osmosis							
Total Capital Cost	(\$)		\$59,518,307				
Annual O&M	Labor (hours)				4576		\$118,976
	Power (kWh)				35826210		\$2,866,097
	Other (\$)						\$2,818,545
					Sum		\$5,803,618
Decarbonation							
Total Capital Cost	(\$)		\$1,203,048				
Annual O&M	Labor (hours)				250		\$6,488
	Power (kWh)				232905		\$18,632
	Other (\$)						\$5,334
					Sum		\$30,454
Lime Addition							
Total Capital Cost	(\$)		\$958,198				
Annual O&M	Labor (hours)				1136		\$29,548
	Power (kWh)				5140		\$411
	Other (\$)						\$51,806
					Sum		\$81,765
GAC Adsorption							
Total Capital Cost	(\$)		\$21,354,896				
Annual O&M	Labor (hours)				4845		\$125,978
	Power (kWh)				91757		\$7,341
	Other (\$)						\$2,272,357
					Sum		\$2,405,675
Chlorine Feed							
Total Capital Cost	(\$)		\$662,428				
Annual O&M	Labor (hours)				155		\$4,024
	Power (kWh)				12160		\$973
	Other (\$)						\$287,158
					Sum		\$292,155
Evaporation Ponds							
Total Capital Cost	(\$)		\$127,835,886				
Annual O&M	Labor (hours)				5458		\$141,895
	Power (kWh)				0		\$0
	Other (\$)						\$1,620,197
					Sum		\$1,762,092
							Years 13
Total Capital			\$277,546,437		Total Annual O&M		\$12,827,348
						Total O&M	\$166,755,521