

Phase 2 Lifecycle Costs

DRAFT

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

FWD/GCSD Lifecycle Analysis of O&M Cost for Alternative 1a

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars											O&M Costs, Present Worth											
			Labor	Piping and Valve Maintenance and Replacement (Treatment)	Piping and Valve Maintenance and Replacement (Collection)	Power	Chemical Addition	Routine Maintenance: Blower Filter/Belt/Oil Changes, Pond Cleaning	Pump Rebuild & Major Maintenance	Cloth Disk Filters	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Equipment Replacement	Total	Labor	Piping and Valve Maintenance and Replacement (Treatment)	Piping and Valve Maintenance and Replacement (Collection)	Power	Chemical Addition	Routine Maintenance: Blower Filter/Belt/Oil Changes, Pond Cleaning	Pump Rebuild & Major Maintenance	Cloth Disk Filters	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Equipment Replacement
0 2025	1.00	1.00	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	\$3,000	\$244,000	\$121,000	\$15,500	\$1,008,300	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
1 2026	1.03	1.03	\$412,000	\$203,940	\$27,604	\$251,320	\$124,630	\$15,965	\$3,090	-	-	-	\$1,038,549	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
2 2027	1.06	1.06	\$424,360	\$210,058	\$28,432	\$258,860	\$128,369	\$16,444	\$3,183	-	-	-	\$1,069,705	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
3 2028	1.09	1.09	\$437,091	\$216,360	\$29,285	\$266,625	\$132,220	\$16,937	\$3,278	-	-	-	\$1,101,797	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
4 2029	1.13	1.13	\$450,204	\$222,851	\$30,164	\$274,624	\$136,187	\$17,445	\$3,377	-	-	-	\$1,134,851	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
5 2030	1.16	1.16	\$463,710	\$229,536	\$31,069	\$282,863	\$140,272	\$17,969	\$3,478	-	-	-	\$1,168,896	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
6 2031	1.19	1.19	\$477,621	\$236,422	\$32,001	\$291,349	\$144,480	\$18,508	\$3,582	-	-	-	\$1,203,963	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
7 2032	1.23	1.23	\$491,950	\$243,515	\$32,961	\$300,089	\$148,815	\$19,063	\$3,690	-	-	-	\$1,240,082	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
8 2033	1.27	1.27	\$506,708	\$250,820	\$33,949	\$309,092	\$153,279	\$19,635	\$3,800	-	-	-	\$1,277,284	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
9 2034	1.30	1.30	\$521,909	\$258,345	\$34,968	\$318,365	\$157,878	\$20,224	\$3,914	-	-	-	\$1,315,603	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
10 2035	1.34	1.34	\$537,567	\$266,095	\$36,017	\$327,916	\$162,614	\$20,831	\$4,032	\$71,228	-	\$2,688	\$1,428,986	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	\$53,000	\$3,000	-	-	\$2,000	\$1,063,300
11 2036	1.38	1.38	\$553,694	\$274,078	\$37,097	\$337,753	\$167,492	\$21,456	\$4,153	-	-	-	\$1,395,723	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
12 2037	1.43	1.43	\$570,304	\$282,301	\$38,210	\$347,886	\$172,517	\$22,099	\$4,277	-	-	-	\$1,437,595	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
13 2038	1.47	1.47	\$587,413	\$290,770	\$39,357	\$358,322	\$177,693	\$22,762	\$4,406	-	-	-	\$1,480,723	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
14 2039	1.51	1.51	\$605,036	\$299,493	\$40,537	\$369,072	\$183,023	\$23,445	\$4,538	-	-	-	\$1,525,144	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
15 2040	1.56	1.56	\$623,187	\$308,478	\$41,754	\$380,144	\$188,514	\$24,148	\$4,674	\$130,869	\$129,311	-	\$1,831,079	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	\$84,000	\$83,000	-	\$1,175,300
16 2041	1.60	1.60	\$641,883	\$317,732	\$43,006	\$391,548	\$194,169	\$24,873	\$4,814	-	-	-	\$1,618,026	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
17 2042	1.65	1.65	\$661,139	\$327,264	\$44,296	\$403,295	\$199,995	\$25,619	\$4,959	-	-	-	\$1,666,566	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
18 2043	1.70	1.70	\$680,973	\$337,082	\$45,625	\$415,394	\$205,994	\$26,388	\$5,107	-	-	-	\$1,716,563	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
19 2044	1.75	1.75	\$701,402	\$347,194	\$46,994	\$427,855	\$212,174	\$27,179	\$5,261	-	-	-	\$1,768,060	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	-	\$3,000	-	-	-	\$1,008,300
20 2045	1.81	1.81	\$722,444	\$357,610	\$48,404	\$440,691	\$218,539	\$27,995	\$5,418	\$95,724	-	\$3,612	\$1,920,438	\$400,000	\$198,000	\$26,800	\$244,000	\$121,000	\$15,500	\$53,000	\$3,000	-	-	\$2,000	\$1,063,300
														\$8,400,000	\$4,160,000	\$560,000	\$5,120,000	\$2,540,000	\$330,000	\$110,000	\$60,000	\$80,000	\$80,000	\$4,000	\$21,440,000

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

RRCSD Lifecycle Analysis of O&M Cost for Alternative 1a

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars										O&M Costs, Present Worth											
			Labor	Piping and Valve Maintenance and Replacement (Treatment)	Piping and Valve Maintenance and Replacement (Collection)	Power	Chemical Addition	Pump Rebuild & Major Maintenance	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Equipment Replacement	Total	Labor	Piping and Valve Maintenance and Replacement (Treatment)	Piping and Valve Maintenance and Replacement (Collection)	Power	Chemical Addition	Pump Rebuild & Major Maintenance	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Equipment Replacement	Total		
0	2025	1.00	1.00	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
1	2026	1.03	1.03	\$0	\$0	\$0	\$35,020	\$12,360	-	-	-	-	\$47,380	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
2	2027	1.06	1.06	\$0	\$0	\$0	\$36,071	\$12,731	-	-	-	-	\$48,801	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
3	2028	1.09	1.09	\$0	\$0	\$0	\$37,153	\$13,113	-	-	-	-	\$50,265	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
4	2029	1.13	1.13	\$0	\$0	\$0	\$38,267	\$13,506	-	-	-	-	\$51,773	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
5	2030	1.16	1.16	\$0	\$0	\$0	\$39,415	\$13,911	-	-	-	-	\$53,327	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
6	2031	1.19	1.19	\$0	\$0	\$0	\$40,598	\$14,329	-	-	-	-	\$54,926	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
7	2032	1.23	1.23	\$0	\$0	\$0	\$41,816	\$14,758	-	-	-	-	\$56,574	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
8	2033	1.27	1.27	\$0	\$0	\$0	\$43,070	\$15,201	-	-	-	-	\$58,271	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
9	2034	1.30	1.30	\$0	\$0	\$0	\$44,362	\$15,657	-	-	-	-	\$60,020	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
10	2035	1.34	1.34	\$0	\$0	\$0	\$45,693	\$16,127	\$0	-	-	\$0	\$61,820	\$0	\$0	\$0	\$34,000	\$12,000	\$0	-	-	\$0	\$46,000	
11	2036	1.38	1.38	\$0	\$0	\$0	\$47,064	\$16,611	-	-	-	-	\$63,675	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
12	2037	1.43	1.43	\$0	\$0	\$0	\$48,476	\$17,109	-	-	-	-	\$65,585	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
13	2038	1.47	1.47	\$0	\$0	\$0	\$49,930	\$17,622	-	-	-	-	\$67,553	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
14	2039	1.51	1.51	\$0	\$0	\$0	\$51,428	\$18,151	-	-	-	-	\$69,579	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
15	2040	1.56	1.56	\$0	\$0	\$0	\$52,971	\$18,696	-	\$0	\$0	-	\$71,667	\$0	\$0	\$0	\$34,000	\$12,000	-	\$0	\$0	-	\$46,000	
16	2041	1.60	1.60	\$0	\$0	\$0	\$54,560	\$19,256	-	-	-	-	\$73,816	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
17	2042	1.65	1.65	\$0	\$0	\$0	\$56,197	\$19,834	-	-	-	-	\$76,031	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
18	2043	1.70	1.70	\$0	\$0	\$0	\$57,883	\$20,429	-	-	-	-	\$78,312	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
19	2044	1.75	1.75	\$0	\$0	\$0	\$59,619	\$21,042	-	-	-	-	\$80,661	\$0	\$0	\$0	\$34,000	\$12,000	-	-	-	-	\$46,000	
20	2045	1.81	1.81	\$0	\$0	\$0	\$61,408	\$21,673	\$0	-	-	\$0	\$83,081	\$0	\$0	\$0	\$34,000	\$12,000	\$0	-	-	\$0	\$46,000	
														\$0	\$0	\$0	\$710,000	\$250,000	\$0	\$0	\$0	\$0	\$0	\$960,000

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

FWDGCSO Lifecycle Analysis of O&M Cost for Alternative 1c

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2024 Dollars													O&M Costs, Present Worth													
			Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Solids Hauling	Pump Rebuild & Major Maintenance	Membrane Cassettes	UV Equipment Replacement	20-Year Major Equipment Replacement	15-Year Instrumentation Replacement	15-Year MBR System Replacements	20-Year MBR System Replacements	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Solids Hauling	Pump Rebuild & Major Maintenance	Membrane Cassettes	UV Equipment Replacement	20-Year Major Equipment Replacement	15-Year Instrumentation Replacement	15-Year MBR System Replacements	20-Year MBR System Replacements	Total	
0	2025	1.00	1.00	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
1	2026	1.03	1.03	-\$16,480	\$232,780	\$441,870	-\$13,390	\$193,640	-	\$71,070	\$37,080	-	-	-	-	\$946,570	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
2	2027	1.06	1.06	-\$16,974	\$239,763	\$455,126	-\$13,792	\$199,449	-	\$73,202	\$38,192	-	-	-	-	\$974,967	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
3	2028	1.09	1.09	-\$17,484	\$246,956	\$468,780	-\$14,205	\$205,433	-	\$75,398	\$39,338	-	-	-	-	\$1,004,216	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
4	2029	1.13	1.13	-\$18,008	\$254,365	\$482,843	-\$14,632	\$211,596	-	\$77,660	\$40,518	-	-	-	-	\$1,034,343	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
5	2030	1.16	1.16	-\$18,548	\$261,996	\$497,329	-\$15,071	\$217,944	-	\$79,990	\$41,734	-	-	-	-	\$1,065,373	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
6	2031	1.19	1.19	-\$19,105	\$269,856	\$512,248	-\$15,523	\$224,482	-	\$82,390	\$42,986	-	-	-	-	\$1,097,334	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
7	2032	1.23	1.23	-\$19,678	\$277,951	\$527,616	-\$15,988	\$231,216	-	\$84,861	\$44,275	-	-	-	-	\$1,130,254	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
8	2033	1.27	1.27	-\$20,268	\$286,290	\$543,444	-\$16,468	\$238,153	-	\$87,407	\$45,604	-	-	-	-	\$1,164,162	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
9	2034	1.30	1.30	-\$20,876	\$294,879	\$559,748	-\$16,962	\$245,297	-	\$90,029	\$46,972	-	-	-	-	\$1,199,087	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
10	2035	1.34	1.34	-\$21,503	\$303,725	\$576,540	-\$17,471	\$252,656	\$243,249	\$92,730	\$48,381	-	-	-	-	\$1,478,308	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	\$181,000	\$69,000	\$36,000	-	-	-	-	\$1,100,000
11	2036	1.38	1.38	-\$22,148	\$312,837	\$593,836	-\$17,995	\$260,236	-	\$95,512	\$49,832	-	-	-	-	\$1,272,111	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
12	2037	1.43	1.43	-\$22,812	\$322,222	\$611,651	-\$18,535	\$268,043	-	\$98,378	\$51,327	-	-	-	-	\$1,310,274	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
13	2038	1.47	1.47	-\$23,497	\$331,889	\$630,001	-\$19,091	\$276,084	-	\$101,329	\$52,867	-	-	-	-	\$1,349,582	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
14	2039	1.51	1.51	-\$24,201	\$341,845	\$648,901	-\$19,664	\$284,367	-	\$104,369	\$54,453	-	-	-	-	\$1,390,070	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
15	2040	1.56	1.56	-\$24,927	\$352,101	\$668,368	-\$20,254	\$292,898	-	\$107,500	\$56,087	-	\$403,514	\$598,259	-	\$2,433,545	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	\$259,000	\$384,000	-	\$1,562,000
16	2041	1.60	1.60	-\$25,675	\$362,664	\$688,419	-\$20,861	\$301,685	-	\$110,725	\$57,769	-	-	-	-	\$1,474,725	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
17	2042	1.65	1.65	-\$26,446	\$373,544	\$709,072	-\$21,487	\$310,735	-	\$114,046	\$59,503	-	-	-	-	\$1,518,967	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
18	2043	1.70	1.70	-\$27,239	\$384,750	\$730,344	-\$22,132	\$320,057	-	\$117,468	\$61,288	-	-	-	-	\$1,564,536	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
19	2044	1.75	1.75	-\$28,056	\$396,292	\$752,254	-\$22,796	\$329,659	-	\$120,992	\$63,126	-	-	-	-	\$1,611,472	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	-	\$69,000	\$36,000	-	-	-	-	\$919,000
20	2045	1.81	1.81	-\$28,898	\$408,181	\$774,822	-\$23,479	\$339,549	\$326,906	\$124,622	\$65,020	\$2,291,955	-	-	\$1,137,850	\$5,416,528	-\$16,000	\$226,000	\$429,000	-\$13,000	\$188,000	\$181,000	\$69,000	\$36,000	\$1,269,000	-	-	\$630,000	\$2,999,000
																	-\$340,000	\$4,750,000	\$9,010,000	-\$270,000	\$3,950,000	\$360,000	\$1,450,000	\$760,000	\$1,270,000	\$260,000	\$380,000	\$630,000	\$22,210,000

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

RRCSD Lifecycle Analysis of O&M Cost for Alternative 1c

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2024 Dollars							O&M Costs, Present Worth							
			Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	15-Year Instrumentation Replacement	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	15-Year Instrumentation Replacement	Total	
0	2025	1.00	1.00	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
1	2026	1.03	1.03	-\$3,052,920	-\$742,630	-\$224,540	-\$36,050	-	-	-\$4,056,140	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
2	2027	1.06	1.06	-\$3,144,508	-\$764,909	-\$231,276	-\$37,132	-	-	-\$4,177,824	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
3	2028	1.09	1.09	-\$3,238,843	-\$787,856	-\$238,214	-\$38,245	-	-	-\$4,303,159	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
4	2029	1.13	1.13	-\$3,336,008	-\$811,492	-\$245,361	-\$39,393	-	-	-\$4,432,254	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
5	2030	1.16	1.16	-\$3,436,088	-\$835,837	-\$252,722	-\$40,575	-	-	-\$4,565,221	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
6	2031	1.19	1.19	-\$3,539,171	-\$860,912	-\$260,303	-\$41,792	-	-	-\$4,702,178	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
7	2032	1.23	1.23	-\$3,645,346	-\$886,739	-\$268,113	-\$43,046	-	-	-\$4,843,243	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
8	2033	1.27	1.27	-\$3,754,707	-\$913,341	-\$276,156	-\$44,337	-	-	-\$4,988,541	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
9	2034	1.30	1.30	-\$3,867,348	-\$940,741	-\$284,441	-\$45,667	-	-	-\$5,138,197	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
10	2035	1.34	1.34	-\$3,983,368	-\$968,964	-\$292,974	-\$47,037	\$67,196	-	-\$5,225,147	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	\$50,000	-	-\$3,888,000
11	2036	1.38	1.38	-\$4,102,869	-\$998,033	-\$301,763	-\$48,448	-	-	-\$5,451,113	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
12	2037	1.43	1.43	-\$4,225,955	-\$1,027,974	-\$310,816	-\$49,902	-	-	-\$5,614,646	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
13	2038	1.47	1.47	-\$4,352,734	-\$1,058,813	-\$320,140	-\$51,399	-	-	-\$5,783,086	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
14	2039	1.51	1.51	-\$4,483,316	-\$1,090,577	-\$329,745	-\$52,941	-	-	-\$5,956,578	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
15	2040	1.56	1.56	-\$4,617,815	-\$1,123,295	-\$339,637	-\$54,529	-	\$10,906	-\$6,124,370	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	\$7,000	-\$3,931,000
16	2041	1.60	1.60	-\$4,756,350	-\$1,156,993	-\$349,826	-\$56,165	-	-	-\$6,319,334	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
17	2042	1.65	1.65	-\$4,899,040	-\$1,191,703	-\$360,321	-\$57,850	-	-	-\$6,508,914	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
18	2043	1.70	1.70	-\$5,046,012	-\$1,227,454	-\$371,130	-\$59,585	-	-	-\$6,704,181	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
19	2044	1.75	1.75	-\$5,197,392	-\$1,264,278	-\$382,264	-\$61,373	-	-	-\$6,905,307	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	-	-	-\$3,938,000
20	2045	1.81	1.81	-\$5,353,314	-\$1,302,206	-\$393,732	-\$63,214	\$90,306	-	-\$7,022,160	-\$2,964,000	-\$721,000	-\$218,000	-\$35,000	\$50,000	-	-\$3,888,000
											<b>-\$62,240,000</b>	<b>-\$15,140,000</b>	<b>-\$4,580,000</b>	<b>-\$740,000</b>	<b>\$100,000</b>	<b>\$7,000</b>	<b>-\$82,590,000</b>

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

FWDGCSD Lifecycle Analysis of O&M Cost for Alternative 2a

Year		Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars						O&M Costs, Present Worth					
				Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total
0	2025	1.00	1.00	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
1	2026	1.03	1.03	-\$615,940	-\$101,970	-\$176,130	-\$123,600	-	-\$1,017,640	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
2	2027	1.06	1.06	-\$634,418	-\$105,029	-\$181,414	-\$127,308	-	-\$1,048,169	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
3	2028	1.09	1.09	-\$653,451	-\$108,180	-\$186,856	-\$131,127	-	-\$1,079,614	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
4	2029	1.13	1.13	-\$673,054	-\$111,425	-\$192,462	-\$135,061	-	-\$1,112,003	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
5	2030	1.16	1.16	-\$693,246	-\$114,768	-\$198,236	-\$139,113	-	-\$1,145,363	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
6	2031	1.19	1.19	-\$714,043	-\$118,211	-\$204,183	-\$143,286	-	-\$1,179,724	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
7	2032	1.23	1.23	-\$735,465	-\$121,758	-\$210,308	-\$147,585	-	-\$1,215,115	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
8	2033	1.27	1.27	-\$757,529	-\$125,410	-\$216,618	-\$152,012	-	-\$1,251,569	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
9	2034	1.30	1.30	-\$780,254	-\$129,173	-\$223,116	-\$156,573	-	-\$1,289,116	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
10	2035	1.34	1.34	-\$803,662	-\$133,048	-\$229,810	-\$161,270	\$72,571	-\$1,255,218	-\$598,000	-\$99,000	-\$171,000	-\$120,000	\$54,000	-\$934,000
11	2036	1.38	1.38	-\$827,772	-\$137,039	-\$236,704	-\$166,108	-	-\$1,367,623	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
12	2037	1.43	1.43	-\$852,605	-\$141,150	-\$243,805	-\$171,091	-	-\$1,408,652	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
13	2038	1.47	1.47	-\$878,183	-\$145,385	-\$251,119	-\$176,224	-	-\$1,450,911	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
14	2039	1.51	1.51	-\$904,529	-\$149,746	-\$258,653	-\$181,511	-	-\$1,494,439	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
15	2040	1.56	1.56	-\$931,665	-\$154,239	-\$266,412	-\$186,956	-	-\$1,539,272	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
16	2041	1.60	1.60	-\$959,614	-\$158,866	-\$274,405	-\$192,565	-	-\$1,585,450	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
17	2042	1.65	1.65	-\$988,403	-\$163,632	-\$282,637	-\$198,342	-	-\$1,633,013	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
18	2043	1.70	1.70	-\$1,018,055	-\$168,541	-\$291,116	-\$204,292	-	-\$1,682,004	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
19	2044	1.75	1.75	-\$1,048,597	-\$173,597	-\$299,850	-\$210,421	-	-\$1,732,464	-\$598,000	-\$99,000	-\$171,000	-\$120,000	-	-\$988,000
20	2045	1.81	1.81	-\$1,080,055	-\$178,805	-\$308,845	-\$216,733	\$97,530	-\$1,686,908	-\$598,000	-\$99,000	-\$171,000	-\$120,000	\$54,000	-\$934,000
										<b>-\$12,560,000</b>	<b>-\$2,080,000</b>	<b>-\$3,590,000</b>	<b>-\$2,520,000</b>	<b>\$110,000</b>	<b>-\$20,640,000</b>

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

RRCSD Lifecycle Analysis of O&M Cost for Alternative 2a

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars							O&M Costs, Present Worth					
			Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total	
0	2025	1.00	1.00	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
1	2026	1.03	1.03	-\$3,052,920	-\$679,800	-\$326,510	-\$36,050	-	-\$4,095,280	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
2	2027	1.06	1.06	-\$3,144,508	-\$700,194	-\$336,305	-\$37,132	-	-\$4,218,138	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
3	2028	1.09	1.09	-\$3,238,843	-\$721,200	-\$346,394	-\$38,245	-	-\$4,344,683	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
4	2029	1.13	1.13	-\$3,336,008	-\$742,836	-\$356,786	-\$39,393	-	-\$4,475,023	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
5	2030	1.16	1.16	-\$3,436,088	-\$765,121	-\$367,490	-\$40,575	-	-\$4,609,274	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
6	2031	1.19	1.19	-\$3,539,171	-\$788,075	-\$378,515	-\$41,792	-	-\$4,747,552	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
7	2032	1.23	1.23	-\$3,645,346	-\$811,717	-\$389,870	-\$43,046	-	-\$4,889,978	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
8	2033	1.27	1.27	-\$3,754,707	-\$836,068	-\$401,566	-\$44,337	-	-\$5,036,678	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
9	2034	1.30	1.30	-\$3,867,348	-\$861,150	-\$413,613	-\$45,667	-	-\$5,187,778	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
10	2035	1.34	1.34	-\$3,983,368	-\$886,985	-\$426,021	-\$47,037	\$67,196	-\$5,276,216	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	\$50,000	-\$3,926,000
11	2036	1.38	1.38	-\$4,102,869	-\$913,594	-\$438,802	-\$48,448	-	-\$5,503,714	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
12	2037	1.43	1.43	-\$4,225,955	-\$941,002	-\$451,966	-\$49,902	-	-\$5,668,825	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
13	2038	1.47	1.47	-\$4,352,734	-\$969,232	-\$465,525	-\$51,399	-	-\$5,838,890	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
14	2039	1.51	1.51	-\$4,483,316	-\$998,309	-\$479,491	-\$52,941	-	-\$6,014,057	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
15	2040	1.56	1.56	-\$4,617,815	-\$1,028,258	-\$493,876	-\$54,529	-	-\$6,194,478	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
16	2041	1.60	1.60	-\$4,756,350	-\$1,059,106	-\$508,692	-\$56,165	-	-\$6,380,313	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
17	2042	1.65	1.65	-\$4,899,040	-\$1,090,879	-\$523,953	-\$57,850	-	-\$6,571,722	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
18	2043	1.70	1.70	-\$5,046,012	-\$1,123,606	-\$539,671	-\$59,585	-	-\$6,768,874	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
19	2044	1.75	1.75	-\$5,197,392	-\$1,157,314	-\$555,861	-\$61,373	-	-\$6,971,940	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	-	-\$3,976,000
20	2045	1.81	1.81	-\$5,353,314	-\$1,192,033	-\$572,537	-\$63,214	\$90,306	-\$7,090,793	-\$2,964,000	-\$660,000	-\$317,000	-\$35,000	\$50,000	-\$3,926,000
										<b>-\$62,240,000</b>	<b>-\$13,860,000</b>	<b>-\$6,660,000</b>	<b>-\$740,000</b>	<b>\$100,000</b>	<b>-\$83,400,000</b>

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

FWDGCSO Lifecycle Analysis of O&M Cost for Alternative 2b

Year		Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars						O&M Costs, Present Worth					
				Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total
0	2025	1.00	1.00	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
1	2026	1.03	1.03	-\$615,940	-\$113,300	-\$169,950	-\$123,600	-	-\$1,022,790	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
2	2027	1.06	1.06	-\$634,418	-\$116,699	-\$175,049	-\$127,308	-	-\$1,053,474	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
3	2028	1.09	1.09	-\$653,451	-\$120,200	-\$180,300	-\$131,127	-	-\$1,085,078	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
4	2029	1.13	1.13	-\$673,054	-\$123,806	-\$185,709	-\$135,061	-	-\$1,117,630	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
5	2030	1.16	1.16	-\$693,246	-\$127,520	-\$191,280	-\$139,113	-	-\$1,151,159	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
6	2031	1.19	1.19	-\$714,043	-\$131,346	-\$197,019	-\$143,286	-	-\$1,185,694	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
7	2032	1.23	1.23	-\$735,465	-\$135,286	-\$202,929	-\$147,585	-	-\$1,221,265	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
8	2033	1.27	1.27	-\$757,529	-\$139,345	-\$209,017	-\$152,012	-	-\$1,257,903	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
9	2034	1.30	1.30	-\$780,254	-\$143,525	-\$215,288	-\$156,573	-	-\$1,295,640	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
10	2035	1.34	1.34	-\$803,662	-\$147,831	-\$221,746	-\$161,270	\$114,233	-\$1,220,276	-\$598,000	-\$110,000	-\$165,000	-\$120,000	\$85,000	-\$908,000
11	2036	1.38	1.38	-\$827,772	-\$152,266	-\$228,399	-\$166,108	-	-\$1,374,544	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
12	2037	1.43	1.43	-\$852,605	-\$156,834	-\$235,251	-\$171,091	-	-\$1,415,781	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
13	2038	1.47	1.47	-\$878,183	-\$161,539	-\$242,308	-\$176,224	-	-\$1,458,254	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
14	2039	1.51	1.51	-\$904,529	-\$166,385	-\$249,577	-\$181,511	-	-\$1,502,002	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
15	2040	1.56	1.56	-\$931,665	-\$171,376	-\$257,065	-\$186,956	-	-\$1,547,062	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
16	2041	1.60	1.60	-\$959,614	-\$176,518	-\$264,777	-\$192,565	-	-\$1,593,473	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
17	2042	1.65	1.65	-\$988,403	-\$181,813	-\$272,720	-\$198,342	-	-\$1,641,278	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
18	2043	1.70	1.70	-\$1,018,055	-\$187,268	-\$280,901	-\$204,292	-	-\$1,690,516	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
19	2044	1.75	1.75	-\$1,048,597	-\$192,886	-\$289,328	-\$210,421	-	-\$1,741,232	-\$598,000	-\$110,000	-\$165,000	-\$120,000	-	-\$993,000
20	2045	1.81	1.81	-\$1,080,055	-\$198,672	-\$298,008	-\$216,733	\$153,519	-\$1,639,949	-\$598,000	-\$110,000	-\$165,000	-\$120,000	\$85,000	-\$908,000
										<b>-\$12,560,000</b>	<b>-\$2,310,000</b>	<b>-\$3,470,000</b>	<b>-\$2,520,000</b>	<b>\$170,000</b>	<b>-\$20,690,000</b>

Analysis Period (years) 20  
 Discount Rate (%) 3.00  
 Inflation Rate (%) 3.00

**RRCSD Lifecycle Analysis of O&M Cost for Alternative 2b**

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars						O&M Costs, Present Worth						
			Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Pump Rebuild & Major Maintenance	Total	
0	2025	1.00	1.00	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
1	2026	1.03	1.03	-\$3,052,920	-\$665,380	-\$153,470	-\$36,050	-	-\$3,907,820	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
2	2027	1.06	1.06	-\$3,144,508	-\$685,341	-\$158,074	-\$37,132	-	-\$4,025,055	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
3	2028	1.09	1.09	-\$3,238,843	-\$705,902	-\$162,816	-\$38,245	-	-\$4,145,806	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
4	2029	1.13	1.13	-\$3,336,008	-\$727,079	-\$167,701	-\$39,393	-	-\$4,270,180	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
5	2030	1.16	1.16	-\$3,436,088	-\$748,891	-\$172,732	-\$40,575	-	-\$4,398,286	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
6	2031	1.19	1.19	-\$3,539,171	-\$771,358	-\$177,914	-\$41,792	-	-\$4,530,234	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
7	2032	1.23	1.23	-\$3,645,346	-\$794,499	-\$183,251	-\$43,046	-	-\$4,666,141	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
8	2033	1.27	1.27	-\$3,754,707	-\$818,333	-\$188,749	-\$44,337	-	-\$4,806,126	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
9	2034	1.30	1.30	-\$3,867,348	-\$842,883	-\$194,411	-\$45,667	-	-\$4,950,309	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
10	2035	1.34	1.34	-\$3,983,368	-\$868,170	-\$200,244	-\$47,037	\$67,196	-\$5,031,623	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	\$50,000	-\$3,744,000
11	2036	1.38	1.38	-\$4,102,869	-\$894,215	-\$206,251	-\$48,448	-	-\$5,251,783	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
12	2037	1.43	1.43	-\$4,225,955	-\$921,042	-\$212,438	-\$49,902	-	-\$5,409,337	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
13	2038	1.47	1.47	-\$4,352,734	-\$948,673	-\$218,812	-\$51,399	-	-\$5,571,617	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
14	2039	1.51	1.51	-\$4,483,316	-\$977,133	-\$225,376	-\$52,941	-	-\$5,738,765	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
15	2040	1.56	1.56	-\$4,617,815	-\$1,006,447	-\$232,137	-\$54,529	-	-\$5,910,928	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
16	2041	1.60	1.60	-\$4,756,350	-\$1,036,640	-\$239,101	-\$56,165	-	-\$6,088,256	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
17	2042	1.65	1.65	-\$4,899,040	-\$1,067,740	-\$246,274	-\$57,850	-	-\$6,270,904	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
18	2043	1.70	1.70	-\$5,046,012	-\$1,099,772	-\$253,663	-\$59,585	-	-\$6,459,031	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
19	2044	1.75	1.75	-\$5,197,392	-\$1,132,765	-\$261,272	-\$61,373	-	-\$6,652,802	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	-	-\$3,794,000
20	2045	1.81	1.81	-\$5,353,314	-\$1,166,748	-\$269,111	-\$63,214	\$90,306	-\$6,762,080	-\$2,964,000	-\$646,000	-\$149,000	-\$35,000	\$50,000	-\$3,744,000
										<b>-\$62,240,000</b>	<b>-\$13,570,000</b>	<b>-\$3,130,000</b>	<b>-\$740,000</b>	<b>\$100,000</b>	<b>-\$79,580,000</b>

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

FWD/GCSD Lifecycle Analysis of O&M Cost for Alternative 3b

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars											O&M Costs, Present Worth											
			Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Blower Filter/Belt/Oil Changes	Pump Rebuild & Major Maintenance	Cloth Disk Filters	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Equipment Replacement	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Blower Filter/Belt/Oil Changes	Pump Rebuild & Major Maintenance	Cloth Disk Filters	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Cloth Disk Replacements	Total	
0	2025	1.00	1.00	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
1	2026	1.03	1.03	\$412,000	\$95,790	\$77,456	\$53,457	\$9,682	-	\$2,781	-	-	-	\$651,166	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
2	2027	1.06	1.06	\$424,360	\$98,664	\$79,780	\$55,061	\$9,972	-	\$2,864	-	-	-	\$670,701	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
3	2028	1.09	1.09	\$437,091	\$101,624	\$82,173	\$56,713	\$10,272	-	\$2,950	-	-	-	\$690,822	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
4	2029	1.13	1.13	\$450,204	\$104,672	\$84,638	\$58,414	\$10,580	-	\$3,039	-	-	-	\$711,547	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
5	2030	1.16	1.16	\$463,710	\$107,812	\$87,177	\$60,166	\$10,897	-	\$3,130	-	-	-	\$732,893	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
6	2031	1.19	1.19	\$477,621	\$111,047	\$89,793	\$61,971	\$11,224	-	\$3,224	-	-	-	\$754,880	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
7	2032	1.23	1.23	\$491,950	\$114,378	\$92,487	\$63,830	\$11,561	-	\$3,321	-	-	-	\$777,526	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
8	2033	1.27	1.27	\$506,708	\$117,810	\$95,261	\$65,745	\$11,908	-	\$3,420	-	-	-	\$800,852	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
9	2034	1.30	1.30	\$521,909	\$121,344	\$98,119	\$67,718	\$12,265	-	\$3,523	-	-	-	\$824,878	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
10	2035	1.34	1.34	\$537,567	\$124,984	\$101,063	\$69,749	\$12,633	\$47,037	\$3,629	-	-	\$2,822	\$899,483	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	\$35,000	\$2,700	-	-	\$2,100	\$669,300
11	2036	1.38	1.38	\$553,694	\$128,734	\$104,094	\$71,842	\$13,012	-	\$3,737	-	-	-	\$875,113	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
12	2037	1.43	1.43	\$570,304	\$132,596	\$107,217	\$73,997	\$13,402	-	\$3,850	-	-	-	\$901,366	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
13	2038	1.47	1.47	\$587,413	\$136,574	\$110,434	\$76,217	\$13,804	-	\$3,965	-	-	-	\$928,407	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
14	2039	1.51	1.51	\$605,036	\$140,671	\$113,747	\$78,503	\$14,218	-	\$4,084	-	-	-	\$956,259	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
15	2040	1.56	1.56	\$623,187	\$144,891	\$117,159	\$80,859	\$14,645	-	\$4,207	\$67,304	\$124,637	-	\$1,176,889	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	\$43,200	\$80,000	-	\$755,400
16	2041	1.60	1.60	\$641,883	\$149,238	\$120,674	\$83,284	\$15,084	-	\$4,333	-	-	-	\$1,014,495	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
17	2042	1.65	1.65	\$661,139	\$153,715	\$124,294	\$85,783	\$15,537	-	\$4,463	-	-	-	\$1,044,930	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
18	2043	1.70	1.70	\$680,973	\$158,326	\$128,023	\$88,356	\$16,003	-	\$4,597	-	-	-	\$1,076,278	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
19	2044	1.75	1.75	\$701,402	\$163,076	\$131,864	\$91,007	\$16,483	-	\$4,734	-	-	-	\$1,108,567	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	-	\$2,700	-	-	-	\$632,200
20	2045	1.81	1.81	\$722,444	\$167,968	\$135,820	\$93,737	\$16,977	\$63,214	\$4,877	-	-	\$3,793	\$1,208,830	\$400,000	\$93,000	\$75,200	\$51,900	\$9,400	\$35,000	\$2,700	-	-	\$2,100	\$669,300
															\$8,400,000	\$1,950,000	\$1,580,000	\$1,090,000	\$200,000	\$70,000	\$60,000	\$40,000	\$80,000	\$4,000	\$13,470,000

Analysis Period (years) 20  
Discount Rate (%) 3.00  
Inflation Rate (%) 3.00

**RRCSO Lifecycle Analysis of O&M Cost for Alternative 3b**

Year	Present Worth Factor	Inflation Factor	O&M Costs, 2025 Dollars											O&M Costs, Present Worth												
			Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Blower Filter/Belt/Oil Changes	Pump Rebuild & Major Maintenance	Cloth Disk Filters	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Equipment Replacement	Total	Labor	Piping and Valve Maintenance and Replacement	Power	Chemical Addition	Blower Filter/Belt/Oil Changes	Pump Rebuild & Major Maintenance	Cloth Disk Filters	15-Year Major Equipment Replacement	15-Year Instrumentation Replacement	10-Year Cloth Disk Filtration System Replacements	Total		
0	2025	1.00	1.00	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
1	2026	1.03	1.03	-\$3,052,748	-\$686,486	-\$326,304	-\$36,050	\$0	-	\$0	-	-	-	-\$4,101,587	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
2	2027	1.06	1.06	-\$3,144,330	-\$707,080	-\$336,093	-\$37,132	\$0	-	\$0	-	-	-	-\$4,224,635	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
3	2028	1.09	1.09	-\$3,238,660	-\$728,293	-\$346,176	-\$38,245	\$0	-	\$0	-	-	-	-\$4,351,374	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
4	2029	1.13	1.13	-\$3,335,820	-\$750,141	-\$356,561	-\$39,393	\$0	-	\$0	-	-	-	-\$4,481,915	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
5	2030	1.16	1.16	-\$3,435,894	-\$772,646	-\$367,258	-\$40,575	\$0	-	\$0	-	-	-	-\$4,616,373	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
6	2031	1.19	1.19	-\$3,538,971	-\$795,825	-\$378,276	-\$41,792	\$0	-	\$0	-	-	-	-\$4,754,864	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
7	2032	1.23	1.23	-\$3,645,140	-\$819,700	-\$389,624	-\$43,046	\$0	-	\$0	-	-	-	-\$4,897,510	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
8	2033	1.27	1.27	-\$3,754,495	-\$844,291	-\$401,313	-\$44,337	\$0	-	\$0	-	-	-	-\$5,044,435	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
9	2034	1.30	1.30	-\$3,867,129	-\$869,619	-\$413,352	-\$45,667	\$0	-	\$0	-	-	-	-\$5,195,768	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
10	2035	1.34	1.34	-\$3,983,143	-\$895,708	-\$425,753	-\$47,037	\$0	\$22,847	\$0	-	-	\$0	-\$5,328,795	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	\$17,000	\$0	-	-	\$0	-\$3,965,124	
11	2036	1.38	1.38	-\$4,102,638	-\$922,579	-\$438,525	-\$48,448	\$0	-	\$0	-	-	-	-\$5,512,190	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
12	2037	1.43	1.43	-\$4,225,717	-\$950,257	-\$451,681	-\$49,902	\$0	-	\$0	-	-	-	-\$5,677,556	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
13	2038	1.47	1.47	-\$4,352,488	-\$978,764	-\$465,231	-\$51,399	\$0	-	\$0	-	-	-	-\$5,847,883	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
14	2039	1.51	1.51	-\$4,483,063	-\$1,008,127	-\$479,188	-\$52,941	\$0	-	\$0	-	-	-	-\$6,023,319	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
15	2040	1.56	1.56	-\$4,617,555	-\$1,038,371	-\$493,564	-\$54,529	\$0	-	\$0	\$0	\$0	-	-\$6,204,019	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	\$0	\$0	-	-\$3,982,124	
16	2041	1.60	1.60	-\$4,756,081	-\$1,069,522	-\$508,371	-\$56,165	\$0	-	\$0	-	-	-	-\$6,390,139	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
17	2042	1.65	1.65	-\$4,898,764	-\$1,101,608	-\$523,622	-\$57,850	\$0	-	\$0	-	-	-	-\$6,581,844	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
18	2043	1.70	1.70	-\$5,045,727	-\$1,134,656	-\$539,331	-\$59,585	\$0	-	\$0	-	-	-	-\$6,779,299	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
19	2044	1.75	1.75	-\$5,197,099	-\$1,168,696	-\$555,511	-\$61,373	\$0	-	\$0	-	-	-	-\$6,982,678	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	-	\$0	-	-	-	-\$3,982,124	
20	2045	1.81	1.81	-\$5,353,012	-\$1,203,757	-\$572,176	-\$63,214	\$0	\$30,704	\$0	-	-	\$0	-\$7,161,454	-\$2,963,833	-\$666,491	-\$316,800	-\$35,000	\$0	\$17,000	\$0	-	-	\$0	-\$3,965,124	
															<b>-\$62,240,000</b>	<b>-\$14,000,000</b>	<b>-\$6,650,000</b>	<b>-\$740,000</b>	<b>\$0</b>	<b>\$30,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>-\$83,600,000</b>