COLORADO CITY METROPOLITAN DISTRICT
PUBLIC NOTICE
BOARD OF DIRECTORS STUDY SESSION

A study session for the Board of Directors of the Colorado City Metropolitan District will be held Tuesday August 9 , 2022, beginning at 6:00 p.m.

1. **Valley First presentation**
2. **Bids for ARPA project**
3. **Duell Well**
4. **DAF information Report**
5. **Chemical for lake**
6. **Discussion of workshop for asset Management**
7. **Community Newsletter**
8. **Budget Committee**
9. Post Office SRDA trip to PO on Saturday's
10. CCAAC Review

BOARD OF DIRECTORS REGULAR MEETING

A regular meeting of the Board of Directors of the Colorado City Metropolitan District will be held Tuesday August 9, 2022, beginning at 6:15 p.m.

1. CALL TO ORDER.
2. PLEDGE OF ALLEGIANCE.
3. MOMENT OF SILENT REFLECTION.
4. QUORUM CHECK
5. APPROVAL OF AGENDA
6. APPROVAL OF MINUTES.

Regular Meeting July 26, 2022
CCACC Minutes July 28, 2022

7. BILLS PAYABLE.
8. FINANCIAL REPORT.
9. OPERATIONAL REPORT.
   a. CCMD Directors
   b. Beckwith Dam report
   c. Committee Reports

10. READING BY CHAIRPERSON OF THE STATEMENT OF CONDUCT AND DEMEANOR.
11. CITIZENS INPUT.
12. ATTORNEYS REPORT:
13. AGENDA ITEMS:

Chemical for	Discussion/Action
Accepting of Bids for ARPA	Discussion/Action

14. OLD BUSINESS. Covenants Lawyer/Applewood Park/Tissel problem on old golf / Duell well/ Utility Director/Gravel Status /Lot Line Vacation for 70 & 71 unit 20

15. NEW BUSINESS:

16. CCACC:
    A. New Construction
        1.
        2.
    B. Actions
        a. 3 First Letters
        b 6 Second letters
        c. 4 Third letters
        d. 0 Unauthorized Structure

17. CORRESPONDENCE:
18. EXECUTIVE SESSION:

19. ADJOURNMENT.

The meeting will be held at the Administration Building located at 4497 Bent Brothers Blvd., Colorado City, CO. 81019. Alternate location if so needed will be at the Recreation Center located at 5000 Cuerno Verde, Colorado City, CO. 81019.

Colorado City Metropolitan District
4497 Bent brothers Blvd
PO Box 20229
Colorado City, Colorado 81019

Posted August 5, 2022

James Eccher is inviting you to a scheduled Zoom meeting.

Topic: Colorado City Metropolitan District Study/Meeting August 9,2022
Time: Aug 9, 2022 06:00 PM Mountain Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/82560775868?pwd=Tmo1WlJFbWY4MVZHMjZ3QXBDTUlXdz09

Meeting ID: 825 6077 5868
Passcode: 443176
One tap mobile
+12532158782,,82560775868#,,,,*443176# US (Tacoma)
+13462487799,,82560775868#,,,,*443176# US (Houston)
Dial by your location
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 669 444 9171 US
+1 669 900 9128 US (San Jose)
+1 646 558 8656 US (New York)
+1 646 931 3860 US
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 386 347 5053 US
+1 564 217 2000 US
Meeting ID: 825 6077 5868
Passcode: 443176Find your local number: https://us02web.zoom.us/u/keAP8dmfCQ

GMS, INC.
CONSULTING ENGINEERS
611 NORTH WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903-1074

TELEPHONE (719) 475-2935
TELEFAX (719) 475-2938

EDWARD D. MEYER, P.E.
ROGER J. SAMS, P.E.
JASON D. MEYER, P.E.
DAVID R. FRISCH, P.L.S.

THOMAS A. McCLERNAN, P.E.
MARK A. MORTON, P.E.
KEN L. WHITE, P.L.S.

August 4, 2022

VIA EMAIL TRANSMISSION ONLY (10 TOTAL PAGES)

TO:	KR Swerdfeger Construction, Inc.st all bidders)	Scott.Baysinger@krswerd.com
	Pate Construction Co., Inc.	brianb@pateconstruction.net
	RMS Utilities, Inc.	bmalouff2002@yahoo.com
	Swedish Industrial Painting	andrew@swedishindustrialcoatings.com
	Viking Painting LLC	bids@viptanks.com
		aj@viptanks.com
	Yocam Construction, LLC	dyocam@yocamconstruction.com

RE: Colorado City Metropolitan District
Water System Improvements - 2022

Gentlemen:

Enclosed for your records is a copy of the detailed bid tabulation prepared for the referenced project. Award of this project is anticipated to be made at the next regularly scheduled board meeting.

Thank you for submitting a bid on this project.

Sincerely,

Lauri M. Edgar,
Executive Assistant

/lme
Enclosure

ec: Mr. Jim P. Eccher, General Manager, Colorado City Metropolitan District (w/enclosure)

J:\Colorado City Metro District\Water\2022 WSImpr\Construct\Bid Tab ltr.doc

Project: Water System Improvements - 2022
Owner: Colorado City Metropolitan District

Bid Opening Time: Thursday, August 4, 2022 a: 1:30 p.m.
Place: GMS, Inc., Consulting Engineers
611 N. Weber St, Ste 300
Colorado Springs, CO 80903

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
SCHEDULE 1: RED CLOUD ROAD, BOSSE COURT, AND DOUGLAS WAY WATER MAIN REPLACEMENT - BASE BID																	
1.	Mobilization	1	LS	$21,473.00	$21,473.00	$13,500.00	$13,500.00	$36,310.00	$36,310.00				$0.00		$0.00	$25,000.00	$25,000.00
2.	Cut permits and complete traffic control plans	1	LS	$30,000.00	$30,000.00	$45,000.00	$45,000.00	$21,500.00	$21,500.00				$0.00		$0.00	$20,000.00	$20,000.00
3.	Temporary water jumper system utilizing fire hydrants or other acceptable methods	1	LS	$19,000.00	$19,000.00	$137,500.00	$137,500.00	$36,450.00	$36,450.00				$0.00		$0.00	$135,000.00	$135,000.00
4.	PVC water lines in same location as existing water main																
a.	12-inch diameter C900 DR18 PVC	675	LF	$150.00	$101,250.00	$145.00	$97,875.00	$178.60	$120,555.00				$0.00		$0.00	$110.00	$74,250.00
b.	8-inch diameter C900	3,018	LF	$185.00	$558,330.00	$114.50	$345,561.00	$276.75	$835,231.50				$0.00		$0.00	$95.00	$286,710.00
c.	6-inch diameter C900 DR18 PVC	590	LF	$100.00	$59,000.00	$99.04	$58,433.60	$95.00	$56,050.00				$0.00		$0.00	$80.00	$47,200.00
5.	Gate valves and Pueblo style riser box																
a.	12-inch diameter	4	EA	$4,000.00	$16,000.00	$5,800.00	$23,200.00	$5,173.00	$20,692.00				$0.00		$0.00	$3,500.00	$14,000.00
b.	8-inch diameter	12	EA	$2,000.00	$24,000.00	$3,400.00	$40,800.00	$3,396.00	$40,752.00				$0.00		$0.00	$2,400.00	$28,800.00
c.	6-inch diameter (Quantity includes 6" valves on new fire hydrant installations.)	15	EA	$1,800.00	$27,000.00	$2,400.00	$36,000.00	$2,803.00	$42,045.00				$0.00		$0.00	$2,200.00	$33,000.00
6.	Class "B" bedding	4,285	LF	$15.00	$64,275.00	$22.00	$94,270.00	$13.00	$55,705.00				$0.00		$0.00	$5.00	$21,425.00
7.	6-inch fire hydrant assembly on new water main																
a.	12-inch diameter PVC Water Main	1	EA	$6,000.00	$6,000.00	$5,500.00	$5,500.00	$7,429.00	$7,429.00				$0.00		$0.00	$6,400.00	$6,400.00
b.	8-inch diameter PVC Water Main	6	EA	$6,000.00	$36,000.00	$5,200.00	$31,200.00	$7,143.00	$42,858.00				$0.00		$0.00	$6,200.00	$37,200.00
c.	6-inch diameter PVC Water Main	2	EA	$6,000.00	$12,000.00	$4,880.00	$9,760.00	$6,788.00	$13,576.00				$0.00		$0.00	$6,100.00	$12,200.00
8.	Remove and salvage existing fire hydrant and deliver salvageable items to Owner	7	EA	$1,500.00	$10,500.00	$850.00	$5,950.00	$656.00	$4,592.00				$0.00		$0.00	$1,200.00	$8,400.00
9.	3/4-inch service tap on new PVC water main																
a.	8-inch diameter PVC Water Main	9	EA	$1,900.00	$17,100.00	$950.00	$8,550.00	$2,712.00	$24,408.00				$0.00		$0.00	$1,200.00	$10,800.00
b.	6-inch diameter PVC Water Main	1	EA	$1,850.00	$1,850.00	$930.00	$930.00	$3,185.00	$3,185.00				$0.00		$0.00	$1,100.00	$1,100.00
10.	1-inch service tap on new PVC water main																
a.	12-inch diameter PVC Water Main	2	EA	$1,980.00	$3,960.00	$1,050.00	$2,100.00	$3,282.00	$6,564.00				$0.00		$0.00	$1,400.00	$2,800.00
b.	8-inch diameter PVC Water Main	8	EA	$1,950.00	$15,600.00	$1,030.00	$8,240.00	$3,235.00	$25,880.00				$0.00		$0.00	$1,300.00	$10,400.00
c.	6-inch diameter PVC Water Main	6	EA	$1,920.00	$11,520.00	$1,025.00	$6,150.00	$3,215.00	$19,290.00				$0.00		$0.00	$1,200.00	$7,200.00

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
11.	PEX service line between the new corporation stop and connection to existing service line									NO BID							
a.	1-inch diameter	250	LF	$50.00	$12,500.00	$65.00	$16,250.00	$20.20	$5,050.00				$0.00		$0.00	$35.00	$8,750.00
b.	3/4-inch diameter	150	LF	$50.00	$7,500.00	$64.00	$9,600.00	$20.20	$3,030.00				$0.00		$0.00	$32.00	$4,800.00
12.	8-inch PVC pipe, fittings, joint restraints and tracer wire for new water main lowering	1	LS	$20,000.00	$20,000.00	$5,400.00	$5,400.00	$13,202.00	$13,202.00				$0.00		$0.00	$5,000.00	$5,000.00
13.	Close corporation stop where the service line is connected to the existing 6-inch water main at the intersection of Red Cloud Road and Buckskin Avenue	1	LS	$2,000.00	$2,000.00	$450.00	$450.00	$3,894.00	$3,894.00				$0.00		$0.00	$500.00	$500.00
14.	Cap existing service line on the west side of Red Cloud Road at Station 5+84	1	LS	$2,000.00	$2,000.00	$850.00	$850.00	$7,787.00	$7,787.00				$0.00		$0.00	$500.00	$500.00
15.	Connections between new and existing water mains and plugging existing mains in locations shown on the Drawings																
a.	8"x8" Cross Connection	1	EA	$5,500.00	$5,500.00	$5,200.00	$5,200.00	$10,219.00	$10,219.00				$0.00		$0.00	$5,200.00	$5,200.00
b.	8" In-Line Connection	1	EA	$8,000.00	$8,000.00	$2,250.00	$2,250.00	$10,219.00	$10,219.00				$0.00		$0.00	$4,800.00	$4,800.00
c.	6" In-Line Connection	4	EA	$4,000.00	$16,000.00	$2,150.00	$8,600.00	$6,864.00	$27,456.00				$0.00		$0.00	$4,700.00	$18,800.00
d.	12"x12" Tee Connection	1	EA	$2,700.00	$2,700.00	$7,200.00	$7,200.00	$10,420.00	$10,420.00				$0.00		$0.00	$6,500.00	$6,500.00
e.	8"x8" Tee Connection	1	EA	$2,500.00	$2,500.00	$3,200.00	$3,200.00	$10,219.00	$10,219.00				$0.00		$0.00	$6,000.00	$6,000.00
16.	Flowable fill around new water main as shown in Section A on Sheet 12 of	86	LF	$195.00	$16,770.00	$110.00	$9,460.00	$37.00	$3,182.00				$0.00		$0.00	$60.00	$5,160.00
17.	Flowable fill concrete above new water main up to spring line of existing storm sewer main	4	EA	$2,500.00	$10,000.00	$110.00	$440.00	$300.00	$1,200.00				$0.00		$0.00	$600.00	$2,400.00
18.	Remove and replace existing asphalt surface	1,615	SY	$54.00	$87,210.00	$75.00	$121,125.00	$71.80	$115,957.00				$0.00		$0.00	$90.00	$145,350.00
19.	6-inch thick concrete replacement	50	SF	$50.00	$2,500.00	$36.00	$1,800.00	$32.00	$1,600.00				$0.00		$0.00	$25.00	$1,250.00
20.	6-inch wide concrete curb replacement	50	LF	$50.00	$2,500.00	$36.00	$1,800.00	$100.00	$5,000.00				$0.00		$0.00	$65.00	$3,250.00
21.	1-inch thick total compacted thickness hot mix asphalt overlay of entire street width, CDOT grading SX	10,230	SY	$18.00	$184,140.00	$19.50	$199,485.00	$17.10	$174,933.00				$0.00		$0.00	$8.00	$81,840.00
22.	Non-irrigated grass seeding on all disturbed areas	1	AC	$3,400.00	$3,400.00	$15,500.00	$15,500.00	$1,801.00	$1,801.00				$0.00		$0.00	$2,500.00	$2,500.00
23.	Demobilization	1	LS	$14,315.00	$14,315.00	$9,000.00	$9,000.00	$16,000.00	$16,000.00				$0.00		$0.00	$15,000.00	$15,000.00
	Total Schedule 1 - Base Bid:				**$1,434,393.00**		**$1,388,129.60**		**$1,834,241.50**		**$0.00**		**$0.00**		**$0.00**		**$1,099,485.00**

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
SCHEDULE 1 - ALTERNATE NO. 1:																	
1.	Mobilization	1	LS	$17,004.00	$17,004.00	$13,500.00	$13,500.00	$36,038.00	$36,038.00				$0.00		$0.00	$14,000.00	$14,000.00
2.	Cut permits and complete traffic control plans	1	LS	$25,000.00	$25,000.00	$45,000.00	$45,000.00	$26,345.00	$26,345.00				$0.00		$0.00	$20,000.00	$20,000.00
3.	PVC water lines in different location																
a.	12-inch diameter C900 DR18 PVC	670	LF	$150.00	$100,500.00	$145.00	$97,150.00	$150.30	$100,701.00				$0.00		$0.00	$95.00	$63,650.00
b.	8-inch diameter C900 DR18 PVC	3,035	LF	$145.00	$440,075.00	$114.50	$347,507.50	$112.00	$339,920.00				$0.00		$0.00	$80.00	$242,800.00
c.	6-inch diameter C900 DR18 PVC (Quantity includes Bosse Court, Douglas Way and lateral footage associated with new fire hydrant installations.)	590	LF	$95.00	$56,050.00	$99.04	$58,433.60	$95.00	$56,050.00				$0.00		$0.00	$60.00	$35,400.00
4.	Furnish and install gate valves and Pueblo style riser box.																
a.	12-inch diameter	4	EA	$4,000.00	$16,000.00	$5,800.00	$23,200.00	$5,154.00	$20,616.00				$0.00		$0.00	$3,500.00	$14,000.00
b.	8-inch diameter	12	EA	$2,000.00	$24,000.00	$3,400.00	$40,800.00	$3,378.00	$40,536.00				$0.00		$0.00	$2,400.00	$28,800.00
c.	6-inch diameter (Quantity includes 6" valves on new fire hydrant installations.)	15	EA	$1,800.00	$27,000.00	$2,400.00	$36,000.00	$2,786.00	$41,790.00				$0.00		$0.00	$2,200.00	$33,000.00
5.	Furnish and install Class "B" bedding extending from 6 inches below to 12 inches above the pipe for water line installations as directed by the Engineer and all incidental materials of construction, complete in place.	4,295	LF	$15.00	$64,425.00	$22.00	$94,490.00	$13.00	$55,835.00				$0.00		$0.00	$5.00	$21,475.00
6.	Furnish and install 6-inch fire hydrant assembly on new water main																
a.	12-inch diameter PVC Water Main	1	EA	$6,000.00	$6,000.00	$5,500.00	$5,500.00	$7,383.00	$7,383.00				$0.00		$0.00	$6,400.00	$6,400.00
b.	8-inch diameter PVC Water Main	6	EA	$6,000.00	$36,000.00	$5,200.00	$31,200.00	$7,097.00	$42,582.00				$0.00		$0.00	$6,200.00	$37,200.00
c.	6-inch diameter PVC Water Main	2	EA	$6,000.00	$12,000.00	$4,880.00	$9,760.00	$6,743.00	$13,486.00				$0.00		$0.00	$6,100.00	$12,200.00
7.	Remove and salvage existing fire hydrant and deliver salvageable items to Owner	7	EA	$1,500.00	$10,500.00	$850.00	$5,950.00	$650.00	$4,550.00				$0.00		$0.00	$1,200.00	$8,400.00
8.	3/4-inch service tap on new PVC water main																
a.	8-inch diameter PVC Water	9	EA	$1,900.00	$17,100.00	$950.00	$8,550.00	$2,686.00	$24,174.00				$0.00		$0.00	$1,200.00	$10,800.00
b.	6-inch diameter PVC Water	1	EA	$1,850.00	$1,850.00	$930.00	$930.00	$2,686.00	$2,686.00				$0.00		$0.00	$1,100.00	$1,100.00
9.	1-inch service tap on new PVC water main									NO BID							
a.	12-inch diameter PVC Water Main	2	EA	$1,980.00	$3,960.00	$1,050.00	$2,100.00	$3,250.00	$6,500.00				$0.00		$0.00	$1,400.00	$2,800.00
b.	8-inch diameter PVC Water	8	EA	$1,950.00	$15,600.00	$1,030.00	$8,240.00	$3,202.00	$25,616.00				$0.00		$0.00	$1,300.00	$10,400.00

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
c.	6-inch diameter PVC Water	6	EA	$1,920.00	$11,520.00	$1,025.00	$6,150.00	$3,202.00	$19,212.00				$0.00		$0.00	$1,200.00	$7,200.00
10.	PEX service line between the new corporation stop and connection to existing service line																
a.	1-inch diameter	300	LF	$50.00	$15,000.00	$65.00	$19,500.00	$20.20	$6,060.00				$0.00		$0.00	$35.00	$10,500.00
b.	3/4-inch diameter	200	LF	$50.00	$10,000.00	$64.00	$12,800.00	$20.20	$4,040.00				$0.00		$0.00	$32.00	$6,400.00
11.	8-inch PVC pipe, fittings, joint restraints and tracer wire for new water main lowering	1	LS	$20,000.00	$20,000.00	$5,400.00	$5,400.00	$13,100.00	$13,100.00				$0.00		$0.00	$5,000.00	$5,000.00
12.	Close corporation stop where the service line is connected to the existing 6-inch water main at the intersection of Red Cloud Road and Buckskin Avenue	1	LS	$2,000.00	$2,000.00	$450.00	$450.00	$3,894.00	$3,894.00				$0.00		$0.00	$500.00	$500.00
13.	Cap existing service line on the west side of Red Cloud Road at Station 5+84	1	LS	$2,000.00	$2,000.00	$850.00	$850.00	$7,787.00	$7,787.00				$0.00		$0.00	$500.00	$500.00
14.	Connections between new and existing water mains and plugging existing mains																
a.	8"x8" Tee Connection	3	EA	$2,500.00	$7,500.00	$5,200.00	$15,600.00	$10,113.00	$30,339.00				$0.00		$0.00	$5,200.00	$15,600.00
b.	8" In-Line Connection	1	EA	$8,000.00	$8,000.00	$2,250.00	$2,250.00	$10,113.00	$10,113.00				$0.00		$0.00	$4,800.00	$4,800.00
c.	6" In-Line Connection 1 EA	4	EA	$4,000.00	$16,000.00	$2,150.00	$8,600.00	$6,795.00	$27,180.00				$0.00		$0.00	$4,700.00	$18,800.00
d.	12"x12" Tee Connection	1	EA	$2,700.00	$2,700.00	$7,200.00	$7,200.00	$10,315.00	$10,315.00				$0.00		$0.00	$6,500.00	$6,500.00
15.	Flowable fill around new water main	86	LF	$195.00	$16,770.00	$110.00	$9,460.00	$37.00	$3,182.00				$0.00		$0.00	$60.00	$5,160.00
16.	Flowable fill concrete above new water main up to spring line of existing storm sewer main	4	EA	$2,500.00	$10,000.00	$110.00	$440.00	$300.00	$1,200.00				$0.00		$0.00	$60.00	$240.00
17.	Remove and replace existing asphalt surface	2,500	SY	$54.00	$135,000.00	$75.00	$187,500.00	$71.60	$179,000.00				$0.00		$0.00	$90.00	$225,000.00
18.	1-inch thick total compacted thickness hot mix asphalt overlay of entire street width, CDOT grading SX	10,230	SY	$16.00	$163,680.00	$19.50	$199,485.00	$17.00	$173,910.00				$0.00		$0.00	$8.00	$81,840.00
19.	Non-irrigated grass seeding on all disturbed areas	1	AC	$3,400.00	$3,400.00	$15,500.00	$15,500.00	$1,794.00	$1,794.00				$0.00		$0.00	$2,500.00	$2,500.00
20.	Demobilization	1	LS	$12,601.00	$12,601.00	$9,000.00	$9,000.00	$14,500.00	$14,500.00				$0.00		$0.00	$10,000.00	$10,000.00
	Total Schedule 1 - Alternate No. 1:				**$1,309,235.00**		**$1,328,496.10**		**$1,350,434.00**		**$0.00**		**$0.00**		**$0.00**		**$962,965.00**

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
SCHEDULE 2: TALLEY DRIVE WATER MAIN REPLACEMENT IN SAME LOCATION AS EXISTING AND TANK IMPROVEMENTS - BASE BID																	
1.	Mobilization	1	LS	$15,586.00	$15,586.00	$13,500.00	$13,500.00	$20,700.00	$20,700.00	$10,539.16	$10,539.16		$0.00		$0.00	$10,000.00	$10,000.00
2.	Cut permits and complete traffic control plans	1	LS	$23,447.00	$23,447.00	$32,000.00	$32,000.00	$15,450.00	$15,450.00	$6,250.00	$6,250.00		$0.00		$0.00	$3,000.00	$3,000.00
3.	PVC water lines in same location as existing water main																
a.	12-inch diameter C900 DR18 PVC	3,795	LF	$200.00	$759,000.00	$145.00	$550,275.00	$113.50	$430,732.50	$116.00	$440,220.00		$0.00		$0.00	$110.00	$417,450.00
b.	6-inch diameter C900 DR18 PVC (Quantity is associated with new fire hydrant laterals.)	55	LF	$135.00	$7,425.00	$99.04	$5,447.20	$57.00	$3,135.00	$78.00	$4,290.00		$0.00		$0.00	$80.00	$4,400.00
4.	Gate valves and Pueblo style riser box																
a.	12-inch diameter	11	EA	$4,000.00	$44,000.00	$5,800.00	$63,800.00	$10,088.00	$110,968.00	$4,250.00	$46,750.00		$0.00		$0.00	$3,500.00	$38,500.00
b.	6-inch diameter (Quantity includes 6" valves on new fire hydrant installations.)	14	EA	$1,800.00	$25,200.00	$3,400.00	$47,600.00	$2,786.00	$39,004.00	$2,000.00	$28,000.00		$0.00		$0.00	$2,200.00	$30,800.00
5.	Class "B" bedding	3,850	LF	$15.00	$57,750.00	$22.00	$84,700.00	$13.00	$50,050.00	$22.50	$86,625.00		$0.00		$0.00	$5.00	$19,250.00
6.	6-inch fire hydrant assembly on new 12-inch water main	6	EA	$6,000.00	$36,000.00	$5,500.00	$33,000.00	$7,429.00	$44,574.00	$5,500.00	$33,000.00		$0.00		$0.00	$6,400.00	$38,400.00
7.	Remove and salvage existing fire hydrant and deliver salvageable items to Owner	1	EA	$1,500.00	$1,500.00	$850.00	$850.00	$650.00	$650.00	$500.00	$500.00		$0.00		$0.00	$1,200.00	$1,200.00
8.	Connections between new and existing water mains and plugging existing mains in locations shown on the Drawings																
a.	12"x6" Cross Connection	1	EA	$2,700.00	$2,700.00	$4,600.00	$4,600.00	$10,420.00	$10,420.00	$3,500.00	$3,500.00		$0.00		$0.00	$6,500.00	$6,500.00
b.	6" In-Line Connections	6	EA	$4,000.00	$24,000.00	$2,150.00	$12,900.00	$6,863.00	$41,178.00	$1,100.00	$6,600.00		$0.00		$0.00	$4,800.00	$28,800.00
c.	12"x12" Tee Connection	1	EA	$2,700.00	$2,700.00	$7,200.00	$7,200.00	$10,419.00	$10,419.00	$3,000.00	$3,000.00		$0.00		$0.00	$6,500.00	$6,500.00
9.	8-foot x 4-foot ID pressure reducing valve vault at Station 3+50	1	LS	$37,500.00	$37,500.00	$43,000.00	$43,000.00	$28,755.00	$28,755.00	$29,500.00	$29,500.00		$0.00		$0.00	$45,000.00	$45,000.00
10.	Remove and replace existing concrete apron around Water Storage Tank 3 between the tank and containment ring	616	SF	$30.00	$18,480.00	$15.00	$9,240.00	$10.00	$6,160.00	$11.00	$6,776.00		$0.00		$0.00	$45.00	$27,720.00
11.	7 square yards of 9-inch to 12-inch riprap at the end of the drain/overflow pipe of Tank No. 2	1	LS	$2,500.00	$2,500.00	$3,600.00	$3,600.00	$6,800.00	$6,800.00	$2,800.00	$2,800.00		$0.00		$0.00	$500.00	$500.00
12.	Non-irrigated grass seeding on all disturbed areas	1.2	AC	$3,400.00	$4,080.00	$27,717.00	$33,260.40	$1,794.00	$2,152.80	$4,000.00	$4,800.00		$0.00		$0.00	$2,500.00	$3,000.00
13.	Demobilization	1	LS	$10,340.00	$10,340.00	$850.00	$850.00	$15,000.00	$15,000.00	$8,125.00	$8,125.00		$0.00		$0.00	$7,000.00	$7,000.00
	Total Schedule 2 - Base Bid:				**$1,072,208.00**		**$945,822.60**		**$836,148.30**		**$721,275.16**		**$0.00**		**$0.00**		**$688,020.00**
SCHEDULE 2 - ALTERNATE NO. 1:																	
1.	Mobilization	1	LS	$12,800.00	$12,800.00	$13,500.00	$13,500.00	$20,604.00	$20,604.00	$9,097.00	$9,097.00		$0.00		$0.00	$9,000.00	$9,000.00

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
2.	Cut permits and complete traffic control plans as required by Pueblo County	1	LS	$15,000.00	$15,000.00	$32,000.00	$32,000.00	$15,450.00	$15,450.00	$6,250.00	$6,250.00		$0.00		$0.00	$3,000.00	$3,000.00
3.	PVC water line 3 feet offset from existing water main																
a.	12-inch diameter C900 DR18 PVC	3,791	LF	$135.00	$511,785.00	$145.00	$549,695.00	$112.00	$424,592.00	$91.00	$344,981.00		$0.00		$0.00	$95.00	$360,145.00
b.	6-inch diameter C900 DR18 PVC (Quantity is associated with new fire hydrant laterals.)	73	LF	$125.00	$9,125.00	$99.04	$7,229.92	$66.00	$4,818.00	$53.00	$3,869.00		$0.00		$0.00	$60.00	$4,380.00
4.	Gate valves and Pueblo style riser box																
a.	12-inch diameter	11	EA	$4,000.00	$44,000.00	$5,800.00	$63,800.00	$7,400.00	$81,400.00	$4,250.00	$46,750.00		$0.00		$0.00	$3,500.00	$38,500.00
b.	6-inch diameter (Quantity includes 6" valves on new fire hydrant installations.)	14	EA	$1,800.00	$25,200.00	$3,400.00	$47,600.00	$5,000.00	$70,000.00	$2,000.00	$28,000.00		$0.00		$0.00	$2,200.00	$30,800.00
5.	Class "B" bedding extending from 6 inches below to 12 inches above the pipe for water line installations	3,865	LF	$15.00	$57,975.00	$22.00	$85,030.00	$13.00	$50,245.00	$22.50	$86,962.50		$0.00		$0.00	$5.00	$19,325.00
6.	6-inch fire hydrant assembly on new 12-inch water main	6	EA	$6,000.00	$36,000.00	$5,500.00	$33,000.00	$7,383.00	$44,298.00	$5,500.00	$33,000.00		$0.00		$0.00	$6,400.00	$38,400.00
7.	Remove and salvage existing fire hydrant and deliver salvageable items to Owner	1	EA	$1,500.00	$1,500.00	$850.00	$850.00	$650.00	$650.00	$500.00	$500.00		$0.00		$0.00	$1,200.00	$1,200.00
8.	Connections between new and existing water mains and plugging existing mains																
a.	12"x6" Cross Connection	1	EA	$2,700.00	$2,700.00	$4,600.00	$4,600.00	$10,314.00	$10,314.00	$3,500.00	$3,500.00		$0.00		$0.00	$6,500.00	$6,500.00
b.	6" In-Line Connections	6	EA	$4,000.00	$24,000.00	$2,150.00	$12,900.00	$6,795.00	$40,770.00	$1,100.00	$6,600.00		$0.00		$0.00	$4,800.00	$28,800.00
c.	12"x12" Tee Connection	1	EA	$2,700.00	$2,700.00	$7,200.00	$7,200.00	$10,315.00	$10,315.00	$3,000.00	$3,000.00		$0.00		$0.00	$6,500.00	$6,500.00
9.	8-foot x 4-foot ID pressure reducing valve vault at Station 3+50	1	LS	$37,500.00	$37,500.00	$43,500.00	$43,500.00	$28,755.00	$28,755.00	$29,500.00	$29,500.00		$0.00		$0.00	$45,000.00	$45,000.00
10.	Remove and replace concrete apron around Water Storage Tank 3 between the tank and containment ring	616	SF	$30.00	$18,480.00	$15.00	$9,240.00	$10.00	$6,160.00	$11.00	$6,776.00		$0.00		$0.00	$45.00	$27,720.00
11.	Approximately 7 square yards of 9-inch to 12-inch riprap at the end of the drain/overflow pipe of Tank No. 2	1	LS	$2,500.00	$2,500.00	$3,600.00	$3,600.00	$6,800.00	$6,800.00	$2,800.00	$2,800.00		$0.00		$0.00	$500.00	$500.00
12.	Non-irrigated grass seeding on all disturbed areas	1.2	AC	$3,400.00	$4,080.00	$15,500.00	$18,600.00	$1,794.00	$2,152.80	$4,000.00	$4,800.00		$0.00		$0.00	$2,500.00	$3,000.00
13.	Demobilization	1	LS	$7,500.00	$7,500.00	$9,000.00	$9,000.00	$15,000.00	$15,000.00	$8,125.00	$8,125.00		$0.00		$0.00	$7,000.00	$7,000.00
	Total Schedule 2 - Alternate No. 1:				**$812,845.00**		**$941,344.92**		**$832,323.80**		**$624,510.50**		**$0.00**		**$0.00**		**$629,770.00**

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
SCHEDULE 2 - ALTERNATE NO. 2:																	
1.	Eliminate 6 each of Base Bid Item 8.b. Furnish and install 12"x6" tee with mechanical joint plug in 6-inch valve	6	EA	$2,500.00	$15,000.00	$2,850.00	$17,100.00	$6,224.00	$37,344.00	$2,000.00	$12,000.00		$0.00		$0.00	$4,500.00	$27,000.00
	Total Schedule 2 - Alternate No. 2:				**$15,000.00**		**$17,100.00**		**$37,344.00**		**$12,000.00**		**$0.00**		**$0.00**		**$27,000.00**
SCHEDULE 2 - ALTERNATE NO. 3:																	
1.	Restore the access road up to Tank No. 3	1	LS	NO BID		$6,500.00	$6,500.00	$42,000.00	$42,000.00	$6,500.00	$6,500.00		$0.00		$0.00	$10,000.00	$10,000.00
	Total Schedule 2 - Alternate No. 3:				**$0.00**		**$6,500.00**		**$42,000.00**		**$6,500.00**		**$0.00**		**$0.00**		**$10,000.00**
SCHEDULE 3: TANK NOS. 1, 2 AND 3 IMPROVEMENTS - BASE BID																	
1.	**TANK NO. 1** Existing nominal 250,000-gallon water storage tank improvements (40' diameter with 27' shell height.)																
a.	Remove and dispose of existing exterior ladder and install new 16-inch wide fixed ladder with handrails	1	LS									$9,400.00	$9,400.00	$42,500.00	$42,500.00	$25,000.00	$25,000.00
b.	Remove and dispose of existing roof vent and install new 14-inch frost proof roof	1	LS									$8,600.00	$8,600.00	$4,900.00	$4,900.00	$5,500.00	$5,500.00
c.	Air break in existing overflow pipe	1	LS									$5,600.00	$5,600.00	$10,000.00	$10,000.00	$6,000.00	$6,000.00
d.	Conduct surface preparation to a SSPC-SP10/NACE 2 Near White Blast Cleaning, priming and painting of complete tank interior	1	LS									$161,650.00	$161,650.00	$107,100.00	$107,100.00	$88,480.00	$88,480.00
e.	Conduct surface preparation to a SSPC-SP6/NACE 3 Commercial Blast Cleaning, priming and painting of complete exterior	1	LS									$102,250.00	$102,250.00	$56,200.00	$56,200.00	$64,125.00	$64,125.00
2.	**TANK NO. 2** - Existing nominal 250,000-gallon water storage tank improvements (40' diameter with 27' shell height.)																
a.	Remove and dispose of existing exterior ladder and install new 16-inch wide fixed ladder with handrails	1	LS									$9,400.00	$9,400.00	$42,500.00	$42,500.00	$25,000.00	$25,000.00
b.	Remove and dispose of existing roof vent and install new 14-inch frost proof roof	1	LS									$8,600.00	$8,600.00	$4,900.00	$4,900.00	$5,500.00	$5,500.00
c.	Air break in existing overflow pipe	1	LS									$5,600.00	$5,600.00	$10,000.00	$10,000.00	$6,000.00	$6,000.00

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
d.	Conduct surface preparation to a SSPC-SP10/NACE 2 Near White Blast Cleaning, priming and painting of complete tank interior	1	LS	NO BID				NO BID		NO BID		$161,650.00	$161,650.00	$107,100.00	$107,100.00	$88,480.00	$88,480.00
e.	Conduct surface preparation to a SSPC-SP6/NACE 3 Commercial Blast Cleaning, priming and painting of complete exterior	1	LS									$102,250.00	$102,250.00	$56,200.00	$56,200.00	$64,125.00	$64,125.00
3.	**TANK NO. 3** - Existing nominal 3,000,000-gallon water storage tank improvements (96' diameter with 57' shell height.)																
a.	Remove and dispose of existing safety climb rail system and install new safety climb rail system attached to ladder and 6-foot-tall ladder guard	1	LS									$4,400.00	$4,400.00	$6,000.00	$6,000.00	$5,000.00	$5,000.00
b.	Remove and dispose of existing roof vent and install new 24-inch frost proof roof vent in accordance with AWWA D-100 requirements	1	LS									$12,600.00	$12,600.00	$7,500.00	$7,500.00	$5,500.00	$5,500.00
c.	24-inch x 24-inch gasket on roof hatch	1	LS									$1,000.00	$1,000.00	$400.00	$400.00	$1,000.00	$1,000.00
d.	Remove and dispose of existing interior ladder	1	LS									$1,200.00	$1,200.00	$2,300.00	$2,300.00	$1,500.00	$1,500.00
e.	Hand rail on top of tank in accordance with OSHA and AWWA D-100 requirements	1	LS									$14,850.00	$14,850.00	$30,000.00	$30,000.00	$15,000.00	$15,000.00
f.	Conduct surface preparation to a SSPC-SP10/NACE 2 Near White Blast Cleaning, priming and painting of complete tank interior	1	LS									$330,775.00	$330,775.00	$495,000.00	$495,000.00	$470,475.00	$470,475.00
g.	Conduct surface preparation to a SSPC-SP6/NACE 3 Commercial Blast Cleaning, priming and painting of complete exterior	1	LS									$240,550.00	$240,550.00	$250,000.00	$250,000.00	$337,750.00	$337,750.00
	Total Schedule 3 - Base Bid:				**$0.00**		**$0.00**		**$0.00**		**$0.00**		**$1,180,375.00**		**$1,232,600.00**		**$1,214,435.00**

Item	Description	Quantity	Unit	Pate Construction Co., Inc.		RMS Utilities, Inc.		KR Swerdfeger Construction, Inc.		Yocam Construction LLC		Swedish Industrial Coatings		Viking Industrial Painting		Engineer's Estimate	
				Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
SCHEDULE 3 - ALTERNATE NO. 1:																	
1.	Eliminate Item 3.g. above, in its entirety. Replace with conduct surface preparation to a SSPC-SP6/NACE 3 Commercial Blast Cleaning, priming and painting of complete exterior	1	LS	NO BID				NO BID		NO BID		$307,360.00	$307,360.00	$301,000.00	$301,000.00	$360,000.00	$360,000.00
	Total Schedule 3 - Alternate No. 1:				**$0.00**		**$0.00**		**$0.00**		**$0.00**		**$307,360.00**		**$301,000.00**		**$360,000.00**

Duell Well

With the Duell well we took a radon test to see how much radon is in the present state to add it to the lake . The lab had measured it out to be (226+228) 88 parts per liter (PPL) . The present time the lake is measured out at 3.8 PPL if we were to add this well into the lake it would increase the PPL causing us to be out of compliance because max by state regulation for 226 and 228 is 5ppl. There is a way to clean the 226 and 228 redon out of the water but it will require the use of a unit that would remove it though with a filtration process and then the radioactive material would have to be disposed of as required. The figure to waste would be 375 lbs per day or 11,000 lbs per year that would have to be disposed of in a certified waste area. There would have to be training to certify some one to handle or cost to have it done by contractor. The cost to remove the radon would be anywhere from $500,000 to $1million plus maintenance and cost of disposal of waste.

The present well online are rated at :

	228	226	combined	
18 hole well	28	9.2	37.2	280 gpm
Rec well	6.2	0.2	6.4	180 gpm
Summit	3.7	0.7	4.4	225 gpm
Rodeo	3.0	1.4	4.4	250 gpm
			50.4 total	

The Duell well is 1 and ½ times the rate of all four wells.

e-Hardcopy 2.0
Automated Report

Technical Report for

Colorado City Metro District

PWSID CO0151200 Colorado City Metro District

SGS Job Number: DA41055X

Sampling Date: 01/18/22

Report to:

Colorado City Metro District
4497 Bent Brothers Blvd
Colorado City, CO 81019
colocityww@ghvalley.net

ATTN: Gary Golladay

Total number of pages in report: 14

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Jason Savoie
General Manager

Client Service contact: Larisa DiMarco 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049) LA (LA150028), TX (T104704511), WY (8TMS-L), HI (CO00049), NJ (CO011)

Sections: 1 2 3

Table of Contents

-1-

Section 1: Sample Summary 3
Section 2: Subcontract Lab Data 4
Section 3: Misc. Forms 12
3.1: Chain of Custody 13

Sample Summary

Colorado City Metro District

PWSID CO0151200 Colorado City Metro District

Job No: DA41055X

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA41055-1X	01/18/22	14:30	AGGG	01/20/22	DW	Drinking Water	DUELL WELL
DA41055-2X	01/18/22	14:30	AGGG	01/20/22	DW	Drinking Water	DUELL WELL

ANALYTICAL SUMMARY REPORT

2

February 23, 2022

SGS Accutest
4036 Youngfield St
Wheat Ridge, CO 80033-3862

Work Order: C22010742 Quote ID: C5800

Project Name: PWSID CO0151200 Colorado City Metro District

Energy Laboratories, Inc. Casper WY received the following 2 samples for SGS Accutest on 1/24/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22010742-001	Duell Well 1X	01/18/22 14:30	01/24/22	Drinking Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
C22010742-002	Duell Well 2X	01/18/22 14:30	01/24/22	Drinking Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: CO0151200
Lab ID: C22010742-001
Client Sample ID: Duell Well 1X

Report Date: 02/23/22
Collection Date: 01/18/22 14:30
DateReceived: 01/24/22
Matrix: Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	39.2	pCi/L	*		5	E903.0	02/15/22 11:52 / kdk
Radium 226 precision (±)	6.4	pCi/L				E903.0	02/15/22 11:52 / kdk
Radium 226 MDC	0.3	pCi/L				E903.0	02/15/22 11:52 / kdk
Radium 228	12.2	pCi/L	*		5	RA-05	02/07/22 14:59 / trs
Radium 228 precision (±)	2.5	pCi/L				RA-05	02/07/22 14:59 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	02/07/22 14:59 / trs
Radium 226 + Radium 228	51.4	pCi/L	*		5	A7500-RA	02/15/22 13:33 / dmf
Radium 226 + Radium 228 precision (±)	6.8	pCi/L				A7500-RA	02/15/22 13:33 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	02/15/22 13:33 / dmf

102.80

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
* - The result exceeds the Maximum Contaminant Level (MCL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

2

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SGS Accutest
Project: CO0151200
Lab ID: C22010742-002
Client Sample ID: Duell Well 2X

Report Date: 02/23/22
Collection Date: 01/18/22 14:30
DateReceived: 01/24/22
Matrix: Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226	35.0	pCi/L	*		5	E903.0	02/15/22 11:52 / kdk
Radium 226 precision (±)	5.7	pCi/L				E903.0	02/15/22 11:52 / kdk
Radium 226 MDC	0.3	pCi/L				E903.0	02/15/22 11:52 / kdk
Radium 228	13.6	pCi/L	*		5	RA-05	02/07/22 14:59 / trs
Radium 228 precision (±)	2.8	pCi/L				RA-05	02/07/22 14:59 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	02/07/22 14:59 / trs
Radium 226 + Radium 228	48.6	pCi/L	*		5	A7500-RA	02/15/22 13:33 / dmf
Radium 226 + Radium 228 precision (±)	6.4	pCi/L				A7500-RA	02/15/22 13:33 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	02/15/22 13:33 / dmf

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
* - The result exceeds the Maximum Contaminant Level (MCL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22010742 **Report Date:** 02/15/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226DW-0803
Lab ID: LCS-RA226DW-0803	3	Laboratory Control Sample				Run: G5000W_220128B				02/15/22 11:52
Radium 226		21	pCi/L		104	90	110			
Radium 226 precision (±)		3.5	pCi/L							
Radium 226 MDC		0.28	pCi/L							
Lab ID: MB-RA226DW-0803	3	Method Blank				Run: G5000W_220128B				02/15/22 11:52
Radium 226		0.2	pCi/L							U
Radium 226 precision (±)		0.3	pCi/L							
Radium 226 MDC		0.3	pCi/L							
Lab ID: C22010810-001SDUP	3	Sample Duplicate				Run: G5000W_220128B				02/15/22 11:53
Radium 226		0.10	pCi/L					84	20	UR
Radium 226 precision (±)		0.30	pCi/L							
Radium 226 MDC		0.33	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2, the RER result is 0.7.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: SGS Accutest **Work Order:** C22010742 **Report Date:** 02/15/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228DW-0783
Lab ID: LCS-228-RA228DW-07	3	Laboratory Control Sample				Run: G542M_220128A				02/07/22 14:59
Radium 228		6.8	pCi/L		105	80	120			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		0.91	pCi/L							
Lab ID: MB-228-RA228DW-07	3	Method Blank				Run: G542M_220128A				02/07/22 14:59
Radium 228		0.4	pCi/L							U
Radium 228 precision (±)		0.9	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C22010806-001SDUP	3	Sample Duplicate				Run: G542M_220128A				02/07/22 14:59
Radium 228		0.036	pCi/L					220	20	UR
Radium 228 precision (±)		0.78	pCi/L							
Radium 228 MDC		0.81	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2, the RER result is 1.1.

Qualifiers:

RL - Analyte Reporting Limit
R - Relative Percent Difference (RPD) exceeds advisory limit
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

Dissolved Air Flotation (DAF) Pilot System Report

Engineering Evaluation Study

PROJECT NO. 21-111.10

Date: August 3rd, 2022

PREPARED FOR:

Colorado City Metropolitan District (CCMD)

ADDRESS:

4497 Bent Brothers Boulevard, Colorado City, CO 81019

TELEPHONE:

(719) 676-3396

PREPARED BY:

NOCO Engineering Company (NEC)

ADDRESS:

11323 Coal Mine Street Firestone, CO, 80504

TELEPHONE:

(720) 324-3625

Table of Contents

1. Executive Summary 1
2. Introduction 2
3. Objectives 3
4. DAF Pilot System Configuration 3
   A. Flocculation/Coagulation and Mixing Chamber Configuration 4
   B. Air Saturators and Skimmer Configuration 5
   C. Proposed Mixed Media Filtration Configuration 5
   D. Output Parameters 5
5. DAF Pilot System Start-up Procedures 6
   A. Chemical System Start-Up Procedures 6
   B. DAF Data Collection 6
6. Operating Procedures/Methodology 7
   A. DAF Pilot System Instrumentation 7
   B. Raw Water 7
   C. Chemical Addition 7
   D. Coagulation and Flocculation 8
   E. Air Saturator Configuration 8
   F. Skimmers, Collection Chamber and Wash Spray 9
   G. Clarified Water 9
   H. Shut Down Procedures 10
   I. Emergency Procedures 10
   J. Maintenance Schedule/Procedures 10
7. AWC Pilot DAF Treatment Results 11
   A. Coagulation/ Chemical Addition (Test Parameters) 11
   B. DAF Results (TOC Removal) 11
   C. DAF Results (Turbidity Reduction) 12
   D. Monitoring pH data 13
8. AWC DAF Pilot System Graphical Results (Run #1 – Run #6) 13
9. DAF System Effectiveness 15
10. Appendix 16

List of Images

Image 1: AWC Pilot DAF Skid System – Control Panel and Clarification Column....4
Image 2: CCMD Laboratory Analyzers – Turbidity (NTU), and Total Organic Carbon (TOC)....6
Image 3: AWC DAF Pilot System Chemical Dosing Pumps and Calibration Columns....7
Image 4: Saturated Air Mixing Zone – Formation of Floc and Floc Floating Upward....8
Image 5: Two Variable Speed Flocculator Mixing Chambers, Surface Skimmer, and Spray Bar/Sludge Removal....9
Image 6: AWC DAF Pilot Turbidimeters.... 9
Image 7: Large Organic Particulate Matter – Settling at the Base of the DAF Clarifier Chamber....15

List of Tables

Table 1: General Maintenance Function and Maintenance Check-Up Schedule....10
Table 2: Coagulants Utilized During DAF Pilot Run #1 and Run #2....11
Table 3: Test Parameters, Chemical Additions for Run #1 and Run #2....11
Table 4: Raw Water vs. DAF Effluent (Range of TOC Removal, DAF Effectiveness)....12
Table 5: Raw Water vs. DAF Effluent (Range of Turbidity Reduction, DAF Effectiveness)....12

List of Graphs

Graph 1: DAF Pilot System Results – Run #1....14
Graph 2: DAF Pilot System Results – Run #2....14

1. Executive Summary

NEC was hired to coordinate and operate a pilot Dissolved Air Flotation (DAF) system at Colorado City Metropolitan District (CCMD). Our objectives for the DAF pilot study were established to meet the existing and future needs of CCMD and they are as follows:

1. Improve overall finished water quality.
2. Decrease disinfection by products (DBPs) in the distribution system.
3. Increase reliability and performance of the existing membrane system.
4. Decrease the need for onsite monitoring of the existing water treatment system.

To achieve our objectives, we evaluated several different pretreatment systems. After completing the evaluation process, we found that a DAF system would help meet our objectives. As part of design process, the DAF system must be proven to work with CCMD's existing water source. Two (2) different coagulant chemical combinations, that are compatible with the existing membrane system, were evaluated throughout the DAF pilot study. Our goal was to evaluate more chemicals regimes, however the membrane system is only compatible with a few select chemicals, limiting our choices. From the results of the pilot testing, we determined the maximum flux rate through the DAF system was 8 gpm/sf. Operating at higher flux levels led to higher turbidities and poorer water quality. We found that the two (2) coagulant chemicals were able to reduce the Total Organic Compounds (TOCs) in the finished water.

We were able to achieve a turbidity reduction of 96% (Raw Water vs. DAF Effluent Water), however our TOC reduction was only 24% (Raw Water vs. DAF Effluent Water). When analyzing water samples for TOC, standard test procedures should be followed (EPA Measurement of TOC in Water, Method 415.3) such as; running sample water through a filter media or through a filter paper prior to analysis. If the sample is not filtered, the TOC results will be higher, as there will still be coagulants bound to organic matter within the sample. The filter process will remove coagulants bound to the TOC within the finished water. We saw at our other pilot study at Carter Lake Filter Plant (CLFP) using the DAF pilot plant was a turbidity reduction of ~78% with TOC reductions in the range of 55% to 62%. Based on previous pilot test results the TOCs reduction, if properly measured, CCMD TOC reduction should be in the range of 50% to 70%.

Overall, we found that DAF system performed well, and have concluded that the DAF system should be designed at a flux rate of 6 gpm/sf, utilizing CCMD's existing water source. We saw large algae debris coming into the DAF system which settled within the clarifier column. With the existing configuration of the raw water distribution system, we recommend installing a microstrainer upstream of the DAF system which will remove debris (greater than 1.0 mm in size) from the raw water. After the DAF system, we recommend installing a mixed media filter assembly prior to the use of existing membrane modules. Utilizing a mixed media filter prior to the membrane system will allow for a broader range of chemicals to be selected for use within the DAF pretreatment system. We have found that other chemicals (polymers, which are not compatible with membrane modules) can drastically improve water quality and help increase TOC reduction, and can be utilized if a mixed media sand/anthracite filter is installed.
Currently, the membrane modules are tasked with treating water (Raw Water) with a turbidity of ~6.0

NTU. Utilizing the DAF pretreatment system and proposed mixed media filter assembly, clarified water will have turbidities in the range of 0.01 to 0.05 NTU. The use of mixed media filters will reduce loading on membrane modules, decrease the time between clean-in-place and backwash procedures, and increase the life-cycle of the membranes. CCMD will observe a higher reduction of iron and magnesium, as well as a decrease in color issues within finished water. Lastly, the mixed media filter out performs the membrane module system in regards to TOC removal. Overall, with the installation of a microstrainer prior the DAF system, with two-stage flocculation and a flux rate of 6 gpm/sf though the DAF, and with two (2) mixed media filters installed downstream of the DAF system (prior to the membrane module system), we are able to achieve all our objectives.

2. Introduction

CCMD is evaluating a DAF pretreatment system for a proposed plant expansion project. The operation and testing of the DAF pilot system utilizes the same raw water (Lake Beckwith Reservoir) as CCMD's Beckwith Water Treatment Plant (WTP). CCMDs raw water source is the Lake Beckwith Reservoir, which receives flows from Greenhorn Creek; however, Greenhorn Creek is historically dry and rarely contains water. Raw water stored in Beckwith Reservoir is treated at the Beckwith WTP, which currently has a 1.25 MGD capacity, with the ability to expand to 2.5 MGD capacity (with additional membrane modules).

Historically, Lake Beckwith has had fairly consistent water quality, for most of the parameters, through the seasons, with the biggest variations in water quality pertaining to differing levels of Total Organic Carbon (TOC) and Turbidity (NTU). TOC and turbidity variations are historically observed on windy/dusty days or when there is a large amount of surface runoff (flooding) into Greenhorn Creek, and/or Beckwith Reservoir. There are currently no observed, nor anticipated changes in the raw water stream (influent stream). NEC does not foresee any impacts to corrosivity, nor changes in pH, ORP, or alkalinity with the implementation of a DAF pretreatment system. However, in order to filter large particulate matter from the raw water stream, NEC recommends the installation of a micro strainer (or nano strainer) upstream of the DAF pretreatment system.

Historically, CCMD's contact time for the coagulation process is roughly eighteen seconds (18 sec.), from the time the coagulants are added to the water, to the time the water reaches the membrane modules. Currently, the coagulants clog-up the membrane modules, which cannot be thoroughly cleaned by backwashing or through the clean-in-place process and sometimes will have to be manually cleaned. This is a typical issue with membrane facilities with little to no contact time and leads to a reduction in plant efficacy along with a variety of other issues.

Historically, finished water has a high chlorine demand, due to the inefficient coagulation process. This high chlorine demand is one of the causes of high levels of DBPs in the distribution system. When natural organic matter (TOC) is not removed during the pretreatment or treatment processes, and chlorine is added, the chemical interactions may produce DBPs. NEC and CCMD have found that the addition of chlorine dioxide has drastically helped decrease DBPs in the distribution system, reducing DPB levels below Maximum Contaminant Limits (MCLs) but does not eliminate all of the DBPs from the distribution system.

The overall goal of the pretreatment process is to improve finished water quality through the reduction of TOCs, reduce the propensity for DBP formation, and improve filtration performance by the reduction of turbidity in the raw water stream entering the existing membrane modules.

In May of 2022, NOCO Engineering Company (NEC) mobilized and operated AWC's Dissolved Air Flotation (DAF) Pilot System at CCMD's water treatment building, for a pretreatment efficacy study. The DAF system utilized a surface loading rate of 8 gpm/sf and at 12 gpm/ft with two stage flocculation. The contact time within the two-stage flocculation was 20 minutes and 15 minutes, respectively. The varying surface loading rates will be utilized to determine the clarified water quality characteristics and will help determine the surface loading rate amount for design purposes.

Background

Other pretreatment alternatives such as Plate Settlers and Tube Settlers were examined. DAF was selected after analyzing the needs of CCMD, and after comparing the advantages/disadvantages of a DAF system with the other alternatives outlined. When compared to Plate/Tube Settlers, DAF pretreatment systems have a relatively smaller footprint, a lower up-front capital cost, similar annual chemical costs, and produce the highest quality of water. DAF pretreatment, when compared to other alternatives, provides the largest reduction in turbidity, largest removal of TOC, aids in the oxidation of iron and manganese, and has the potential to decrease taste and odor issues should they arise. Operational advantages of a DAF system include: relative ease of installation/start-up, increased mixing/detention time for coagulation/flocculation, reduced frequency of backwash cycles and clean-in-place membrane filters. Reducing the frequency of proposed mixed media filter and membrane backwash/cleaning, combined with high-quality effluent (DAF), increases the overall life-cycle of the filter assembly and overall plant production.

3. Objectives

Objectives for the DAF pilot were established to meet the needs of CCMD and their customers. The objectives are as follows:

1. Improve overall finished water quality.
2. Increase run times on the existing membrane modules by decreasing the turbidity in the feed water. Increase run times and clean-in-place intervals by reducing turbidity.
3. Increase removal of total organic carbon (TOC), which in turn lowers disinfection byproduct levels (DBP) in the distribution systems.

To achieve our objectives, we evaluated two (2) different chemical combinations and various DAF surface loading rates. The results of the study are shown later in the repot.

4. DAF Pilot System Configuration

The dimensions of the AWC DAF pilot system were 9'3"(length) x 5'6"(width) x 10'8"(height). Two different surface loading rates were evaluated in the DAF pilot, 8 gpm/sf and 12 gpm/sf. The flocculation contact time for the two surface loading rates was 20 minutes and 15 minutes, respectively.

The configuration of the DAF pilot skid system consisted of: a raw water storage container (to break the line pressure prior to the DAF Pilot), an inlet pipe with isolation valve, a magnetic flow meter, a feed pump, chemical injection ports, three (3) chemical dosing pumps, two (2) consecutive flocculation cells with hydrofoil style mixers, a level controlled recycle/air saturation system, discharge pH and turbidity meters, effluent tank with 2-inch (2") discharge outlet, observation windows in the diffuser and clarifier, DAF sampling ports, manual drain ports for each section, an automatic chain and float skimmer, and a control panel to set test parameters and record pilot run data (control panel did not work however, as data logger assembly did not record nor collect data).

Image 1: AWC Pilot DAF Skid System – Control Panel and Clarification Column

A. Flocculation/Coagulation and Mixing Chamber Configuration

Coagulation and flocculation are chemical and physical treatment processes, respectfully, utilized to remove/reduce turbidity and TOC in the raw water through the DAF treatment process. Coagulation is the first-stage of pretreatment which utilizes chemical addition (Coagulants and Coagulant Aids, See Table 3, Page 12) to encourage floating particulate matter to combine and bind to form clusters known as "floc". Coagulants are made up of positively charged molecules, which help to provide effective neutralization of water and increases the potential for floc formation.

Flocculation is the physical mixing process that assists the coagulation process. Raw water and coagulants are mixed in a two-stage flocculation basin (mixer), accelerating the rate of particle collision and leading to increased floc formation through coalescence/agglomeration of suspended particles. The DAF pilot system consisted of a two-stage mixing chamber, where the rotational velocities of flocculators are adjusted dependent on the water quality and chemicals being used. Typically, the first stage flocculation is at a higher rotational speed then the second stage flocculation.

B. Air Saturators and Skimmer Configuration

After coagulation and flocculation are achieved, water enters the air saturation chamber where saturated air and water consisting of microscopic air bubbles (approximately fifty microns [~50 µm] in diameter) are introduced. Floc becomes entrained by the upward moving flow of micro air bubbles, rendering the floc buoyant as it floats to the top of the DAF pilot system. The water flows from the top of the aeration chamber over the baffle wall to the clarification chamber. The clarification chamber contains an inclined baffle wall (experimental) which can reduce the potential for dense layers of non-aerated water to pass down into the air inlet zone. The buoyant floc rises and is forced up to the surface of the clarification chamber where the skimmer removes the buoyant floc and transfers the floc through the sludge collection chamber/trough to the discharge stream. Within the waste discharge stream, sprayers are configured to clean skimmer brushes/blades.

C. Proposed Mixed Media Filtration Configuration

Clarified water is collected at the base of the DAF system, where clarified effluent water samples were collected through a built-in sampling port. Ideally, clarified water would have been conveyed to a mixed media filtration assembly. However, due to the timing of the pilot study, a mixed media filtration assembly was not installed nor utilized. It is NEC's recommendation that at least two (2) independent mixed media filter assemblies be installed at the back-end of the DAF pretreatment system. Two (2) independent filter assemblies shall be constructed such that during filter backwashing procedures (backwash process duration = 5 minutes – 10 minutes) at least one filter assembly shall remain operational such that production is continuous through backwashing.

1. Proposed Mixed Media Filter Assembly:
   - Shall consist of a media screen, effluent outlet port, backwash inlet port, and a waste port.
   - Shall be equipped with one (1) of the following: an adjustable speed supply pump, rotameter, backwash pump, backwash water holding tank with outlet flow control globe valve, an effluent outlet solenoid valve, backwash inlet solenoid valve, and a rotameter.
2. Mixed Media Configuration:
   - Minimum twelve-inches (12") of filter sand (effective size 0.45 mm - 0.55 mm)
   - Minimum thirty-six-inches (36") of anthracite (effective size 0.95 mm – 1.05 mm)

D. Output Parameters

Both pilot plants had instrumentation that measured a variety of parameters. The following parameters were collected for the study:

1. DAF Pilot
   a. Raw water turbidity
   b. Effluent water turbidity
   c. Raw water flow rate which was used to set the surface loading rate on the DAF pilot
2. Manual Parameters
   a. Raw water TOC
   b. Finished water TOC

5. DAF Pilot System Start-up Procedures

Prior to starting up the pilot plant, the operator checked for leaks, cracks, visual damage, and ensured that all valves and devices/instrumentation were in working order. All isolation valves were in the open position and drain valves were in the closed position. All isolation valves and recycle pumps were operated automatically, while other equipment (pumps, mixers, skimmers, etc.) were manually operated, one at time, prior to treatment. Components of the DAF pilot system, including the clarification chamber, tanks, and all other components where debris may have accumulated, were rinsed prior to filling with clean water and were cleaned prior to testing a new chemical regime.

Clean water is utilized to start up the DAF pilot plant; using raw water for start-up can cause damage to recycle pumps, saturator, valves etc. Once the operator was satisfied that the pre-start up checks had been completed, the operators then began the treatment process.

A. Chemical System Start-Up Procedures

Prior to operating the DAF pilot system, chemical pumps (Blue-White Flex Flow A-100N) were primed and ready for service (operator shall refer to manufacturer's O&M for operating instructions). The operator ensured that chemical levels are well above the foot valve/pump suction and inspected all plumbing/piping for any leaks or cracks. Chemical dosing was verified at a minimum of twice per chemical regime.

B. DAF Data Collection

DAF system data was continuously monitored and collected for both raw water (influent) and clarified/filtered water (effluent) samples. Routine samples were collected and analyzed within CCMD's water quality sampling laboratory, utilizing turbidimeters and TOC analyzers.

Turbidimeters/Analyzers: A Hach TU5400 StableCal RapidCal Laboratory Laster Turbidimeter was utilized to test and monitor turbidity in raw water and clarified DAF treatment effluent water. A formazin solution was used to calibrate the laboratory turbidimeter.

Total Organic Carbon (TOC) Analyzer: A Hach DR3900 Laboratory TOC Analyzer was utilized to test and monitor TOC in raw water and clarified DAF treatment effluent water.

Image 2: CCMD Laboratory Analyzers – Hach TU5400 Turbidimeter (NTU), Hach DR3900 Total Organic Carbon (TOC) Analyzer

6. Operating Procedures/Methodology

A. DAF Pilot System Instrumentation

The instruments on the AWC pilot skid include: raw water flowmeter (FIT 011), clarified water turbidity meter (AIT 131) and pH probe (AE 130). The flowmeter (FIT 011) reading was used to pace the chemical pumps P-800, PMP – 830 and PMP – 850. The saturator includes a level transmitter (LT – 160) which is used to control the recycle pumps flow (through VFD). A pressure transmitter (PT-165) with a high-level alarm on the saturator increases the pressure inside the saturator to a set value (80 to 90 psi to be set during commissioning). A majority of the operation of the pilot equipment is automatic with some parameters requiring manual inputs.

The DAF pilot system contains a built-in control panel, providing semi-automatic operations, including an emergency stop (E-Stop) button for the DAF process. The power requirement for the panel and related equipment is: 125/250 VAC 50A [14-50R].

B. Raw Water

The AWC DAF skid influent piping was staged to draw water from downstream of the chlorine dioxide injection on the raw water piping prior to the membrane modules. Raw water was fed through a two-inch (2") hose directly into the DAF system pilot skid trailer. A centrifugal pump with flow controlling valve (globe valve) pumped the raw water to the DAF pilot to achieve a steady state flow rate.

C. Chemical Addition

The influent flow was manually adjusted using globe valve (GV – 010). The feed pump (P-010) provides the required pressure to pump water into the flocculation mixing chambers and overcome head losses. Magnetic flowmeter (FIT – 011) measures the influent flowrate. The chemical dosing peristaltic pumps (PMP-830, PMP-800, and PMP-850) were calibrated and set manually (chemical feed flow rate) using the peristaltic pump speed setting dial, a set of calibration columns (graduated cylinders), and a stopwatch.

Image 3: AWC DAF Pilot System Chemical Dosing Pumps (PMP-830, PMP-800, PMP-850) and Calibration Columns

D. Coagulation and Flocculation

The coagulants were introduced in the influent raw water line prior to the in-line static mixer (ILM – 011) and flocculation chamber (TK-111). During Stage-1 of mixing (MX-111), the flocculator provides mixing energy (~100 rpm) to increase the rate at which the chemical reaction (coagulation) occurs. The increased mixing speed prevents the flocculant from getting too large and settling at the bottom of the clarification chamber. Next, water flows into Stage-2 of mixing (MX-112), where there is a lower rotational velocity (~60 rpm). The reduced mixing intensity promotes greater floc interaction/collisions combining to form larger floc. Throughout preliminary testing of the DAF assembly, operators determined that a twenty-minute (20 min.) flocculation detention time was required to ensure raw water and coagulants/flocculants were fully mixed, homogenized. The total volume of the combined (two-stage) flocculator mixing chamber is 106 gallons.

E. Air Saturator Configuration

Approximately 8% - 10% of the design flow is recycled to generate saturated water, with water from the clarified water collection chamber (DAF effluent) feeding the recycle pump(s) (P-150/151). As the water enters the saturator, compressed air is introduced (C-161), and the air space pressure is maintained (~70 psi) by a pressure control valve plumbed at the air inlet port of the air saturator. The pressure control valve is a manual valve may be adjusted by the operator. The air compressor is controlled through the control panel and turns on/off using a pressure switch. The compressor is protected from over pressure by a pressure safety valve.

Clarified water and recycle flow enters the top of the saturator and as it flows down, it is exposed to a stream of compressed air and mixing to create a saturated-water solution. The pressure gauge (PT-165) monitors the saturator pressure, and will trigger an alarm and shut off the recycle pump and DAF influent pump if the saturator pressure exceeds 90 psi.

Air-saturated water exits from the bottom of the saturator through an on/off valve (LV-160) to an injection manifold with 1/8" orifice nozzles within the air saturation zone. The nozzles cause a sudden release of pressure and dissolved air is released from the solution in the form of microscopic bubbles. Careful design and orientation of the saturator's nozzles eliminates the potential for turbulent recycle flows damaging the incoming floc.

Image 4: Saturated Air Mixing Zone (Clarification Chamber) – Formation of Floc, Baffles, and Approximate Floc Sizes

F. Skimmers, Collection Chamber and Wash Spray

The floating floc, which is formed at the surface of the DAF assembly, is periodically removed by a mechanical (variable speed) surface skimmer (SK-121). When operational, the skimmer gathers and pushes the float floc into the sludge collection chamber/trough, where it drains to waste. The duration and frequency can be adjusted on the control panel. A spray bar with a solenoid valve (XV-130) is installed within the DAF float trough to assist in the removal of float build-up in the sludge removal trough. The spray bar solenoid valve has a manual switch which can control the duration and frequency of spray when required. Clean water for the spray wash is supplied via the saturator assembly. Upon plant shutdown or stand-by, the skimmer shall continue to operate for one (1) complete revolution to ensure all float is removed from the surface.

Image 5: Two (2) Variable Speed Flocculator Mixing Chambers, Surface Skimmer, and Spray Bar/Sludge Removal Trough

G. Clarified Water

Clarified water, below the floating floc, passes above baffling and enters the clarified water chamber. The clarified water chamber is equipped with an overflow line, to direct any overflow water into the drain. In-line turbidimeters and pH analyzers (AIT – 131 and AE – 130) constantly monitor clarified water turbidity and pH, respectively. Clarified water samples are collected at the base of the DAF system from the sampling tap (ST – 1310), for additional CCMD laboratory testing.

Image 6: AWC DAF Pilot Turbidimeters (2 Total)

H. Shut Down Procedures

To shut down the treatment plant, select "OFF" mode on the control panel. After shutting down the DAF system, the skimmer will run for one (1) full revolution, skimming all remaining floating floc, so it doesn't settle and transfer through the DAF effluent stream to the proposed membrane module filter assembly. Similarly, the flocculators will remain on after the DAF shut-down, to ensure that no floc settles at the bottom of the tank.

If the tank needs to be drained, the operator can manually shut-down the flocculators by using the manual switches located on the control panel. For long term shutdown (greater than 3 days) the tank shall be drained and the chemical lines should be flushed and cleaned out. For short term shutdowns (less than 3 days) the tank does not need to be drained, and chemical lines may not need to be flushed.

I. Emergency Procedures

If under any circumstance, the AWC DAF pilot system equipment malfunctions or poses an imminent safety threat, press the large red "E-STOP" button located on the DAF control Panel. Pressing the E-Stop button on the control panel cuts power to all the motors and instruments on the DAF skid. It should be noted that when pressing the "E-STOP" button, the treatment process may be lost and the tank may have to be drained out and restarted to begin producing high quality effluent.

J. Maintenance Schedule/Procedures

Table 1 contains a list of equipment and a general maintenance function and maintenance schedule for the plat (for reference only). Prior to scheduling maintenance work, CCMD staff shall refer to the manufacturer's manual for details on all components. It is highly recommended to reference and follow the step-by-step maintenance and calibration procedures provided by the manufacturer for all instruments. This will also ensure that the warranty is not voided.

Table 1: General Maintenance Function and Maintenance Check-Up Schedule

#	Item	Maintenance Function	Schedule
		PIPES, VALVES AND PIPE FITTINGS	
1	Valves	Check, tighten, exercise and follow maintenance procedures in the manufacturer O and M manual.	Monthly
		METERS AND GAUGES	
2	Electric Actuators	Inspect, clean and follow maintenance procedures in manufacturer O and M manual.	As needed
3	Pressure Gauge Transmitters	Check, clean and re-calibrate and follow maintenance procedures in manufacturer O and M manual.	Biannually
4	Flowmeters	Calibrate, clean and follow maintenance procedures in manufacturer O and M manual.	As needed
		WATER TREATMENT PLANT EQUIPMENT	
5	Filter Nozzles	Inspect for large bubbles or visual inspection when tank is drained. Replace if required.	Biannually
6	Filter Media	Inspect to see troughs are level, check for mounding, cracks, craters, irregular or uneven flow across the basin, more aggressive action in some spots and less in others	Biweekly
7	Goulds NPE Pumps	Refer to pump manufacturers manual for maintenance and preventative maintenance procedures.	Monthly
8	Compressor	Inspect Lubrication, inspect for air leaks, inspect/replace filter elements. Refer to manufacturer maintenance procedures.	As Required
		CONTROLS	
9	Electrical Panel	Push to test – light/button	Weekly

7. AWC Pilot DAF Treatment Results

A. Coagulation/ Chemical Addition (Test Parameters)

Various chemical dosages and system parameters were tested so a clear understanding of the DAF pilot system performance capabilities could be developed and a future CCMD treatment design criteria established. The primary coagulants tested throughout the study were CC-2020 and CC-2500. CC-2020 is identical in composition to CC-2500, with the only difference being the concentration. CC-2500 has a concentration of 12.5%, whereas CC-2020 has a concentration of 10.5% (chemical manufacture: USALCO). A list of chemicals utilized throughout the DAF pilot system test can be found in Table 2, and MSDS data sheets can be found within the Attachments.

Table 2: Coagulants Utilized During DAF Pilot Run #1 and Run #2

Coagulant Name	Chemical Composition Description
CC-2020	Coagulant containing no polymers (Mixed Media Filters and Membrane Filters)
CC-2500	Coagulant containing no polymers (Mixed Media Filters and Membrane Filters)

Prior to beginning DAF pilot system testing, a set of coagulation/flocculation chemicals were analyzed (jar tested) for treatment effectiveness, as well as for integration/utilization at both CCMD's proposed mixed media filter assembly and CCMD's existing membrane modules. A list of the following chemicals, and concentrations utilized within each test (Run #1 and Run #2) are contained in Table 3, below. Material Safety Data Sheets (MSDS) are provided within the attachments at the end of this report for each of the chemicals respectively.

Table 3: Test Parameters, Chemical Additions for Run #1 and Run #2

DAF Pilot Chemical Additive Concentrations				
Run #	**CC 2020 (mg/L)**	**CC 2500 (mg/L)**	**Set Flow Rate (gpm)**	**Surface Loading Rate (gpm/ ft²)**
1	-	40	27	8
2	15	15	27	8

The optimum coagulant dosage (Run #2) with respect to overall system performance on Lake Beckwith Reservoir raw water was determined to be: 15.0 mg/L of CC-2020 (coagulant), and 15.0 mg/L of CC-2500 (coagulant).

B. DAF Results (TOC Removal)

Total Organic Carbon (TOC) is the amount of organic compounds contained in a water sample, which can be dissolved in water (liquid form) or exist in water as undissolved, suspended material. Organic matter may be plant or animal based, synthetic substances, and/or mineral carbon-containing compounds. TOC results can be used as quality control measures and as a means to monitor the efficiency/effectiveness of the DAF pilot pretreatment system. A laboratory analysis of raw water TOC and clarified water TOC was performed at CCMD's laboratory, with TOC results compared before and after pretreatment (DAF). A Hach DR3900 Laboratory TOC Analyzer was utilized to test and monitor TOC in raw water and clarified DAF treatment effluent water throughout DAF pilot sample tests. After completing DAF pretreatment sample tests (Run #1 and Run #2) and analyzing data, NEC collected and presented TOC results in Table 4.

Table 4: Raw Water vs. DAF Effluent (Range of TOC Removal, DAF Effectiveness)

Run #1	Raw Water TOC	Finished Water TOC	Percent Reduction (%)
	3.2	5.3	N/A*
Run #2	**Raw Water TOC**	**Finished Water TOC**	**Percent Reduction (%)**
	3.2	2.4	25%*

**Prior to TOC laboratory analysis, DAF effluent water was not filtered, and contained debris that had settled at the base of the DAF. TOC data collected during Run #1 proved to be inaccurate and therefore results shall be considered invalid (Raw Water TOC cannot be greater than Finished Water TOC unless there was an error in sampling or testing procedures. As for Run #2 TOC removal results should be closer to 50% especially when there was a recorded 85%-95% reduction in turbidity. We found the samples were not filtered prior to sampling which leads to higher levels in the samples. At CLFP, we saw 68% reduction in turbidity with 50-62% reduction in TOCs and CCMD has 85-95% reduction in turbidity with only a 25% reduction in TOCs. We found similar results to be true at CLFP when the water was not filtered correctly.)*

C. DAF Results (Turbidity Reduction)

Turbidity is a measure of how particulate matter in water scatters light, a parameter utilized to determine the "clarity" of water. Results of turbidity analysis can be utilized to indicate the presence of bacteria, pathogens, and particles which may shelter harmful organisms from disinfection processes. Turbidity results can be utilized as a quality control measure, and as a means to monitor the effectiveness of the DAF pilot pretreatment system.

A laboratory analysis of raw water turbidity and clarified water (post DAF) turbidity was performed at CCMD's laboratory and turbidity results compared before and after pretreatment (DAF). A StableCal RapidCal Laboratory Laser Turbidimeter was utilized to test and monitor turbidity in both raw water and clarified DAF treatment effluent water, throughout the duration of DAF pilot testing. After completing multiple DAF pretreatment sample tests (Run #1 and Run #2) and analyzing data, NEC collected and presented turbidity results before and after pretreatment, in Table 5.

Table 5: Raw Water vs. DAF Effluent (Range of Turbidity Reduction, DAF Effectiveness)

Run #1	Raw Water Turbidity (NTU)	DAF Effluent (Clarified Water) Turbidity (NTU)	Percent Reduction (%)
Average	7.22	0.302	96%
Run #2	**Raw Water Turbidity (NTU)**	**DAF Effluent (Clarified Water) Turbidity (NTU)**	**Percent Reduction (%)**
Average	6.50	0.679*	95%

**We saw a large debris coming into the DAF unit which lead to higher results. Ignoring the high sample results the average would be approximately 0.3 NTU.*

The results of the DAF pilot system (Run #1 and Run #2) describe the effectives of DAF pretreatment, with levels of turbidity (NTU) reduction averaging 96% (Raw Water vs. DAF Effluent Water).

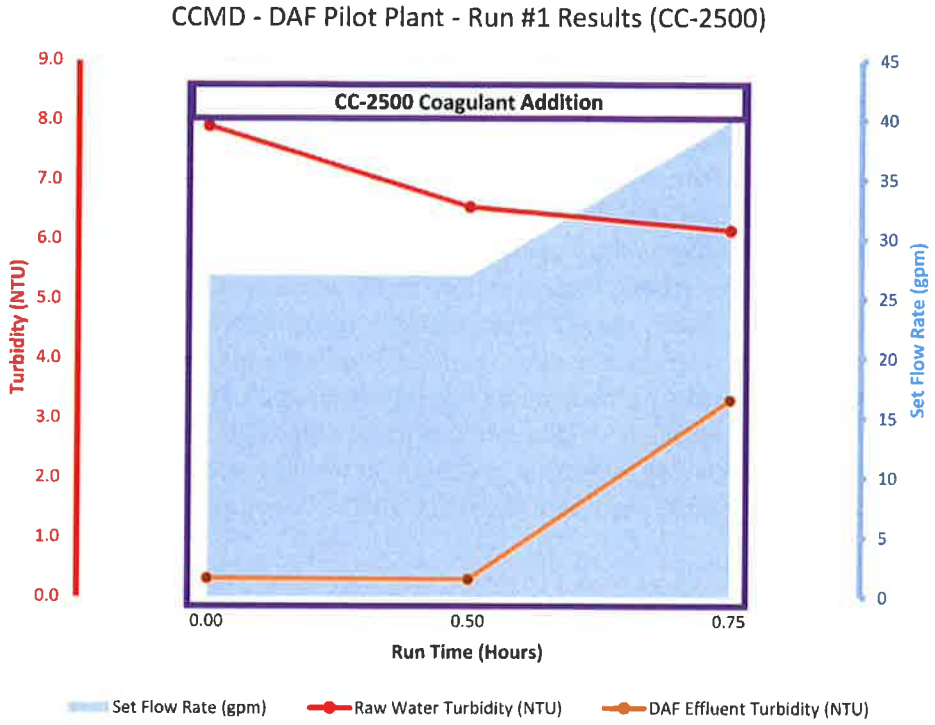
D. Monitoring pH data

pH (potential of hydrogen) is a water quality measurement, pertaining to the level of acid/base in a water sample (pH range of 0-7 = acidic, pH range of 7–14 = basic). pH is a measurement of the relative amount of free hydrogen and hydroxyl ions in the water sample. Samples that contain more free hydrogen ions will be acidic, whereas samples containing more free hydroxyl ions will be basic.

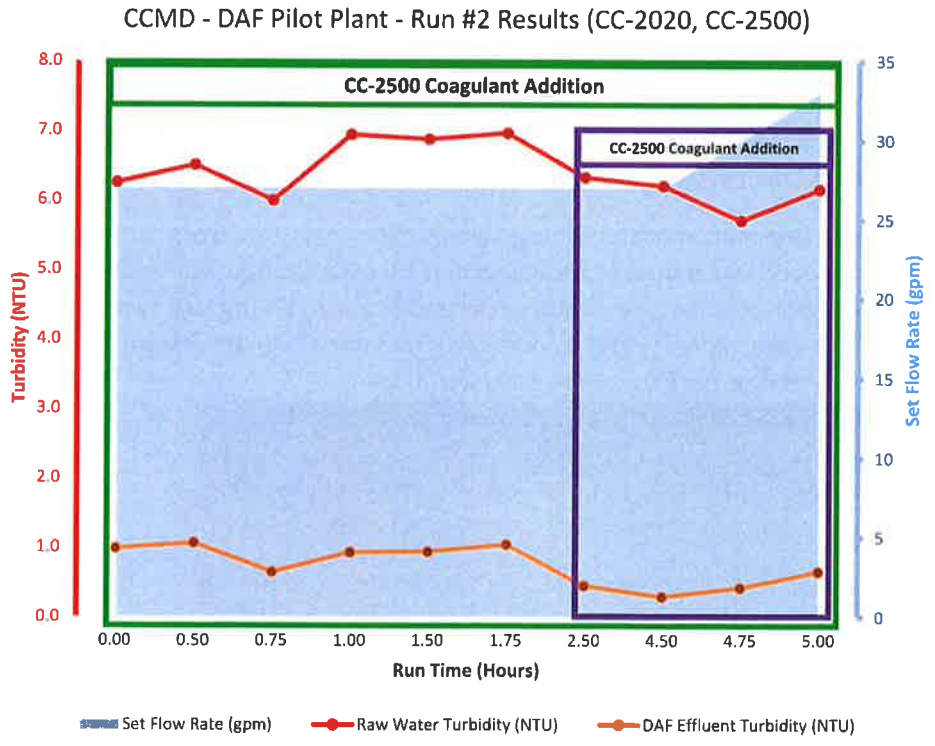
Excessively high and low pH readings can inform operators of potentially detrimental water sources. Water with high pH can results in a bitter taste, water pipes and fittings becoming encrusted with deposits, and reduces the effectiveness of chlorine disinfection, resulting in the need for additional chlorine when pH is high. Water with low pH can result in corrosion of pipes/fittings and can lead to metals or other substances dissolving into the water source (increasing the solubility) which may impact the effectiveness of pretreatment and filtration, leading to water quality issues downstream. No pH data was collected for either Run #1 or Run #2, however, in the future CCMD should monitor pH data and have a plan in place if pH changes drastically.

8. AWC DAF Pilot System Graphical Results (Run #1 – Run #6)

In order to determine the applicability and effectiveness of the DAF system to treat CCMD raw water, a series of tests (DAF pilot runs) were performed. Variations in test parameters include: DAF Flow Rate (capacity, gpm) through DAF, DAF Surface Loading Rate (gpm/ ft^2), and Chemical Addition (coagulants - coagulant aids). Graphical data for each of the two (2) test scenarios are presented below (Graph 1 and Graph 2).



Graph 1: DAF Pilot System Results – Run #1



Graph 2: DAF Pilot System Results – Run #2

9. DAF System Effectiveness

The objectives of the pilot study were to determine the ideal DAF pretreatment configuration in regards to: DAF flocculation mixing velocities/detention time, chemical addition (coagulants/coagulant aids), flow rate/surface loading rate, air saturator configuration, and skimmer speed. A secondary objective was to determine and verify ideal operating conditions of the DAF pretreatment system at CCMD, while meeting the primary objectives. Throughout the pilot study, two (2) unique test configurations (Run #1 and Run #2) were completed. The DAF system is effective at a maximum surface loading rate of 8 gpm/sf (27 gpm), with each of the two (2) chemical regimes. At the end of each run, the DAF flow rate was increased to 40 gpm (surface loading rate of 12 gpm/sf). When the DAF flow rate was increased, above 27 gpm, a spike in turbidity (NTU) was observed and recorded. Each of the two (2) runs utilized the same chemical coagulant additive, CC-2500. Run #1 only utilized CC- 2500, whereas Run # 2 utilized both CC-2500 and CC-2020. The DAF pilot run times varied from a low of approximately one hour (1 hr.) for Run #1, to a high of five hours (5 hrs.) for Run #2. The chemical regime recommended for startup operations at the Beckwith Pretreatment DAF Plant was: 15 mg/L of CC-2020, and 15 mg/L of CC-2500. CC-2500 is better at TOC reduction then CC-2020 by itself.

Raw water turbidities were sampled throughout Run #1 and Run #2, and were found to be in the range of 5.7 NTU – 7.9 NTU. This is a large range and in unexpected especially with the short time frame when testing occurred. Weather and temperature conditions were similar throughout the testing period. It was noticed by the operators that large debris (>1mm in size) would inconsistently come in the DAF system and break down in the aeration phase of the DAF unit. When the debris came in, they noticed a higher level in finished water turbidity (>1.0 NTU). When there was no large debris coming in, the effluent turbidity levels dropped to approximately 0.3 NTU. Our recommendation is to install a microstrainer to remove the debris (>1mm) in size from enter the proposed DAF unit. The DAF pilot (utilizing CC-2020 and CC-2500) was able to achieve an average clarified water/effluent turbidity of approximately 0.3 NTU when the large chunks of debris were not noticed in the water. The DAF effluent water turbidities varied throughout the duration of pilot testing, such that the DAF pilot system was able to achieve an 85% - 95% reduction in turbidity.

Raw water samples and DAF effluent water samples were collected and analyzed for TOC (mg/L) at CCMD's in-house laboratory. DAF effluent samples obtained for TOC analysis were collected at the base of the DAF clarification chamber, per sampling ports (See Image 1). The DAF system was not able to remove all particulate matter (algae/plant debris) from the raw water stream, such that we observed large solids settling at the base of the DAF (See Image 7).

Image 7: Large Organic Particulate Matter – Settling at the Base of the DAF Clarifier Chamber

The coagulants utilized (CC-2020 and CC-2500) achieved an average DAF effluent TOC of approximately 2.4 mg/L. DAF effluent TOC data was found to be higher than normal, as a result of improper laboratory testing procedures. When analyzing water samples for TOC, standard test procedures should be followed (EPA Measurement of TOC in Water, Method 415.3) such as; running sample water through a filter media or through a filter paper prior to analysis. If the sample is not filtered, the TOC results will be higher, as there will still be coagulants bound to organic matter within the sample. The filter process will remove coagulants bound to the TOC within the finished water. What we saw at our other pilot study at Carter Lake Filter Plant (CLFP) using the DAF pilot plant was a turbidity reduction of ~78% with TOC reductions in the range of 55% to 62%. Based on previous pilot test results the TOCs reduction, if properly measured, should be in the range of 50% to 70%.

We recommend the installation of a micro strainer (nano strainer) upstream of the DAF pretreatment system to remove large, suspended solids, plankton/algae, plant/animal debris, and any other contaminants in the raw water stream prior to water entering the DAF pretreatment system. NEC also recommends the installation of a mixed media (sand/anthracite) filter assembly on the down steam side of the DAF, in order to filter clarified DAF effluent water prior to filtration at the membrane modules.

The installation of the proposed mixed media filter assembly will not only increase TOC removal and improve overall water quality, but will also allow CCMD to utilize a wider range of chemicals within the DAF pre-treatment process. Currently, the chemicals selected (CC-2020, and CC-2500) are compatible with membrane module filtration (containing no polymers) only. With the construction of the proposed mixed media filters, CCMD will be able to select a wider range of coagulant chemicals that will lead to an increase in DAF performance (TOC reduction, and turbidity removal). Primary filtration will be accomplished through the use of the proposed mixed media filter assembly, reducing loading on the existing membrane modules, extending the life-cycle of the membrane modules, and reducing the frequency of backwashing and clean-in- place (CIP) procedures.

In conclusion, our recommendation is that the DAF pretreatment system should be designed for a capacity of 3.0 MGD (surface loading rate of 6 gpm/sf) during normal operating conditions. When Distribution System Water Demands are high, the DAF System is capable of, and should be approved to operate at a higher loading rate (8 gpm/sf). The proposed mixed media filters should be designed for a surface loading rate of 5 gpm/sf with a max flow rate of 6.5 gpm/sf (noting that 6.5 gpm/sf is only for short periods of operations). The DAF basin assembly and mixed media filter assembly should be configured such that pretreatment will always continue though at-least one mixed media filtration basin, to the extent that production will not be stopped during backwash operations.

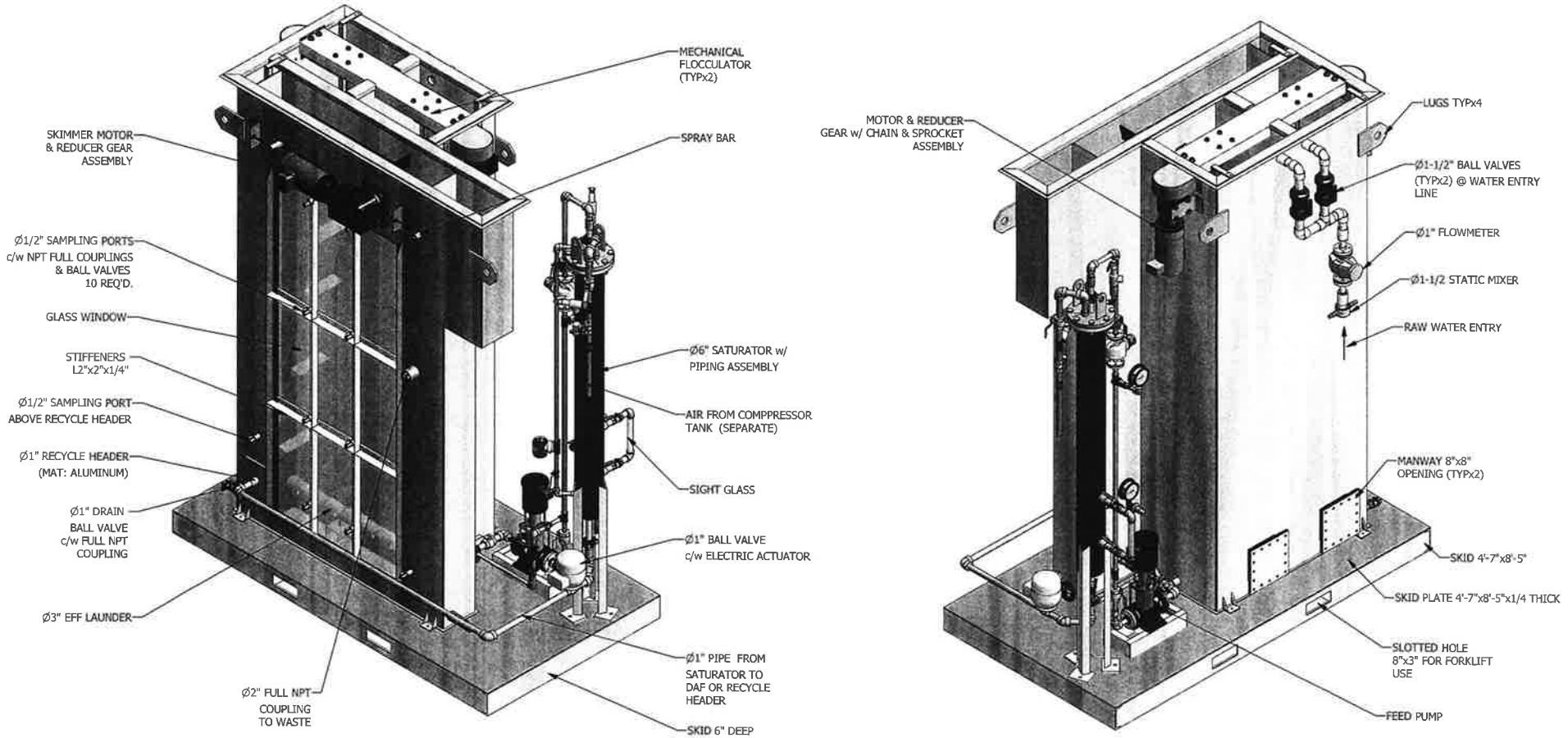
10. Appendix

1. AWC DAF Pilot System Schematics (Drawings)
2. MSDS Sheets (Coagulants/Chemicals)
3. DAF Pilot Results (Graph #1 and Graph #2)

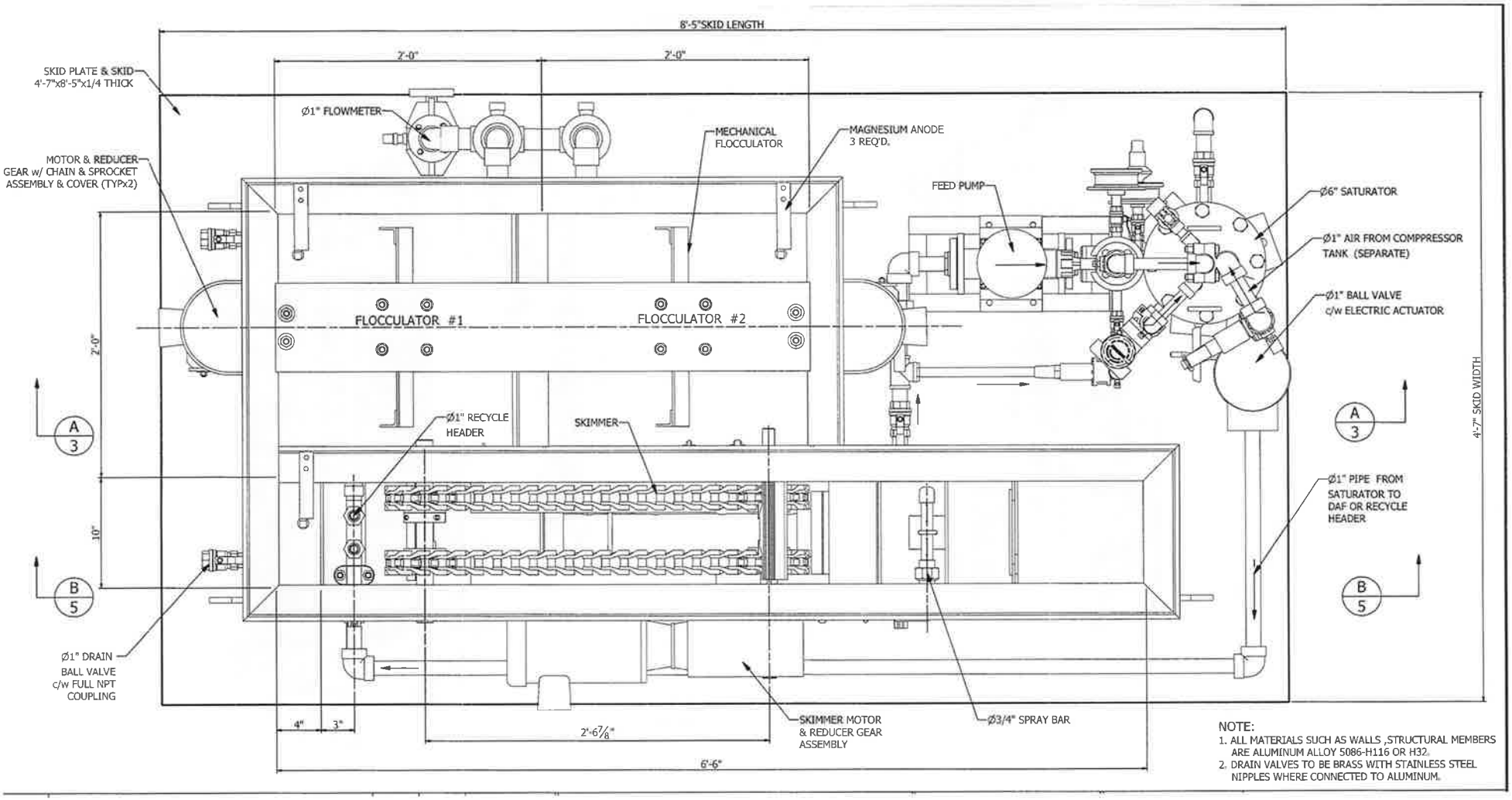
APPENDIX #1:

DAF Pilot System Schematics (Drawings)

NOCO
ENGINEERING
COMPANY

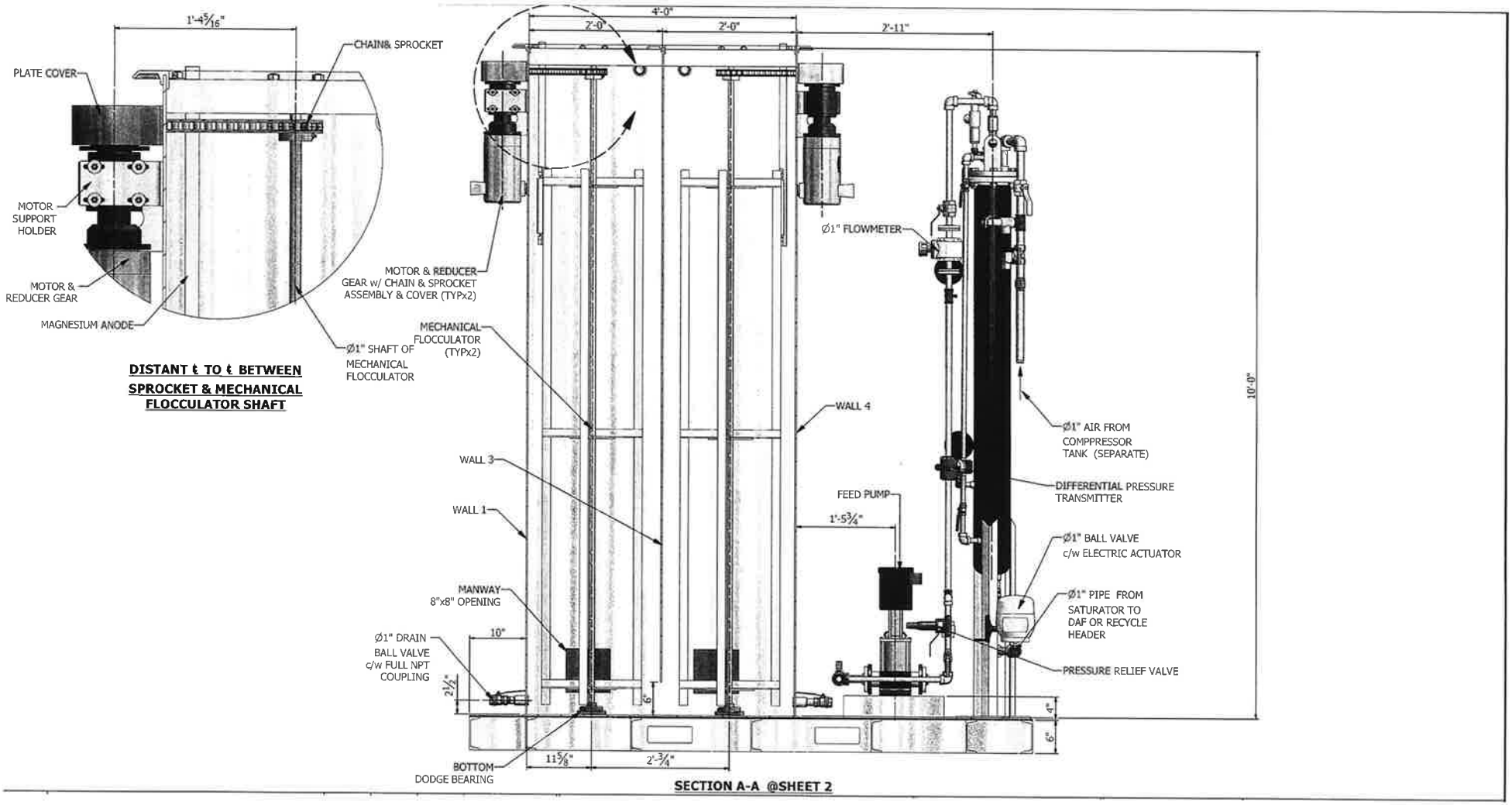


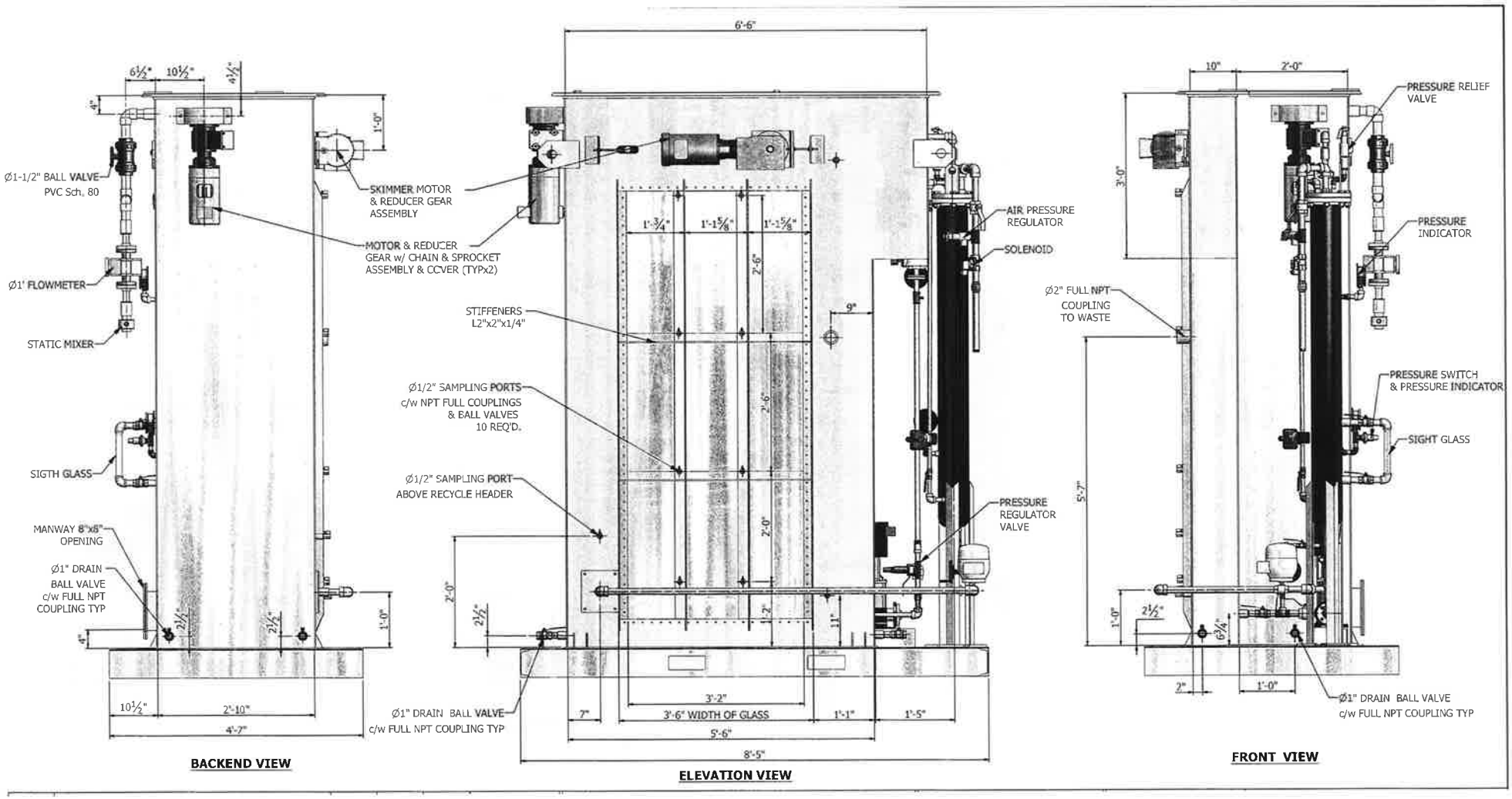
ISOMETRIC VIEW
INCLUDING SATURATOR PIPING CONNECTION

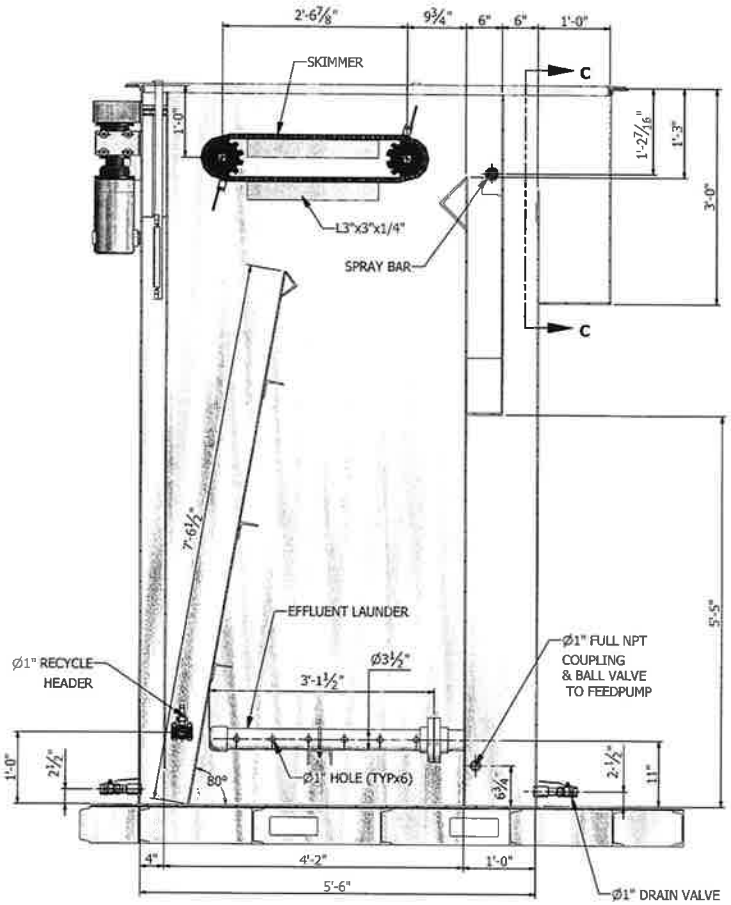


NOTE:

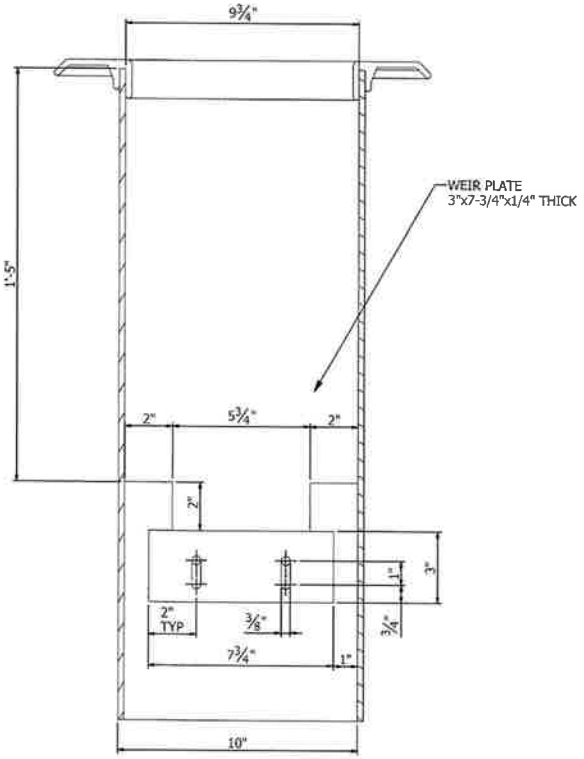
1. ALL MATERIALS SUCH AS WALLS ,STRUCTURAL MEMBERS ARE ALUMINUM ALLOY 5086-H116 OR H32.
2. DRAIN VALVES TO BE BRASS WITH STAINLESS STEEL NIPPLES WHERE CONNECTED TO ALUMINUM.


1'-4 5/16"
CHAIN& SPROCKET
PLATE COVER
MOTOR SUPPORT HOLDER
MOTOR & REDUCER GEAR
MAGNESIUM ANODE
Ø1" SHAFT OF MECHANICAL FLOCCULATOR
DISTANT ℄ TO ℄ BETWEEN SPROCKET & MECHANICAL FLOCCULATOR SHAFT
4'-0"
2'-0"
2'-0"
2'-11"
Ø1" FLOWMETER
MOTOR & REDUCER GEAR w/ CHAIN & SPROCKET ASSEMBLY & COVER (TYPx2)
MECHANICAL FLOCCULATOR (TYPx2)
WALL 4
WALL 3
WALL 1
Ø1" AIR FROM COMPPRESSOR TANK (SEPARATE)
DIFFERENTIAL PRESSURE TRANSMITTER
FEED PUMP
1'-5 3/4"
Ø1" BALL VALVE c/w ELECTRIC ACTUATOR
MANWAY 8"x8" OPENING
Ø1" PIPE FROM SATURATOR TO DAF OR RECYCLE HEADER
10"
Ø1" DRAIN BALL VALVE c/w FULL NPT COUPLING
2 1/2"
6"
PRESSURE RELIEF VALVE
10'-0"
4"
6"
11 5/8"
2'-3/4"
BOTTOM DODGE BEARING
SECTION A-A @SHEET 2

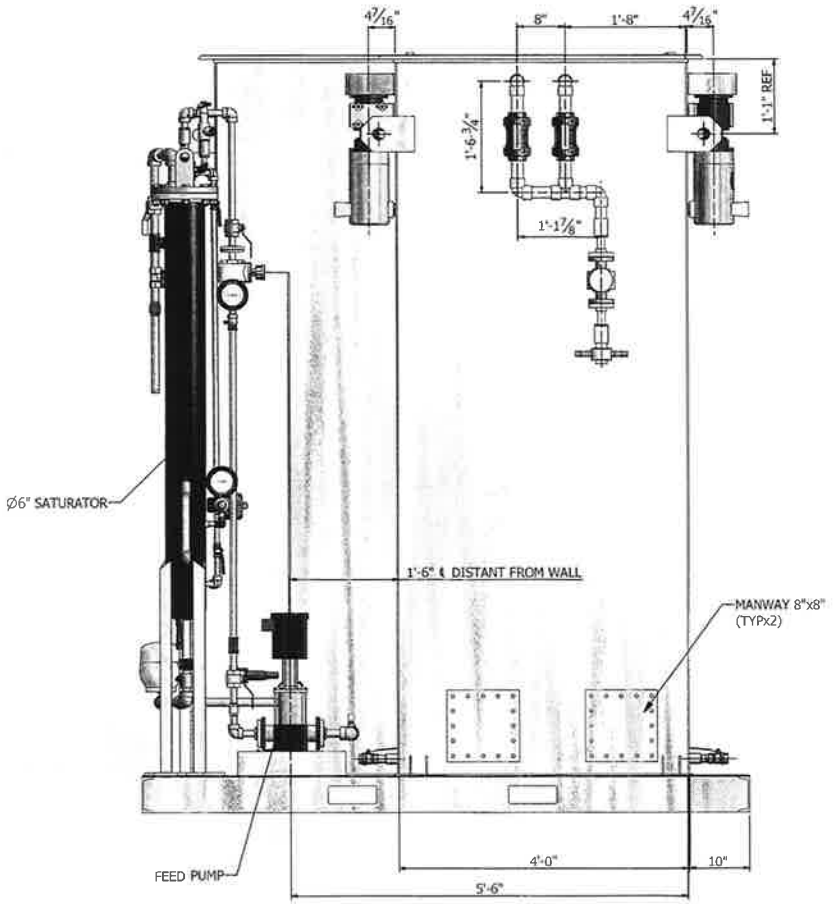

6½"
10½"
4½"
4"
1'-0"
Ø1-1/2" BALL VALVE
PVC Sch. 80
Ø1' FLOWMETER
STATIC MIXER
SIGTH GLASS
MANWAY 8"x8"
OPENING
Ø1" DRAIN
BALL VALVE
c/w FULL NPT
COUPLING TYP
2½"
2½"
1'-0"
4"
10½"
2'-10"
4'-7"
SKIMMER MOTOR
& REDUCER GEAR
ASSEMBLY
MOTOR & REDUCER
GEAR w/ CHAIN & SPROCKET
ASSEMBLY & CCVER (TYPx2)
BACKEND VIEW
6'-6"
1'-¾"
1'-1⅝"
1'-1⅝"
2'-6"
AIR PRESSURE
REGULATOR
SOLENOID
9"
STIFFENERS
L2"x2"x1/4"
Ø1/2" SAMPLING PORTS
c/w NPT FULL COUPLINGS
& BALL VALVES
10 REQ'D.
2'-6"
Ø1/2" SAMPLING PORT
ABOVE RECYCLE HEADER
2'-0"
PRESSURE
REGULATOR
VALVE
2'-0"
2½"
2"
11"
Ø1" DRAIN BALL VALVE
c/w FULL NPT COUPLING TYP
3'-2"
7"
3'-6" WIDTH OF GLASS
1'-1"
1'-5"
5'-6"
8'-5"
ELEVATION VIEW
10"
2'-0"
PRESSURE RELIEF
VALVE
3'-0"
PRESSURE
INDICATOR
Ø2" FULL NPT
COUPLING
TO WASTE
PRESSURE SWITCH
& PRESSURE INDICATOR
SIGHT GLASS
5'-7"
1'-0"
2½"
6¾"
2"
1'-0"
Ø1" DRAIN BALL VALVE
c/w FULL NPT COUPLING TYP
FRONT VIEW



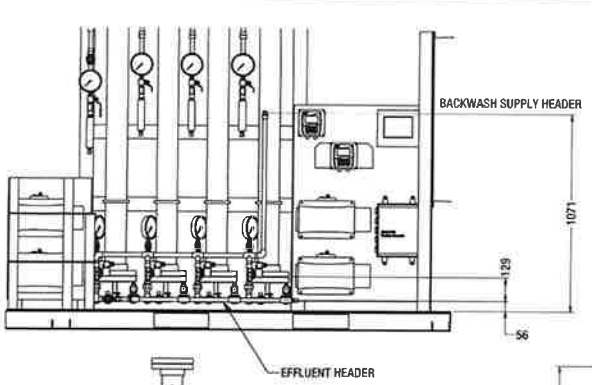
SECTION B-B @ SHEET 1
SATURATOR NOT SHOWN

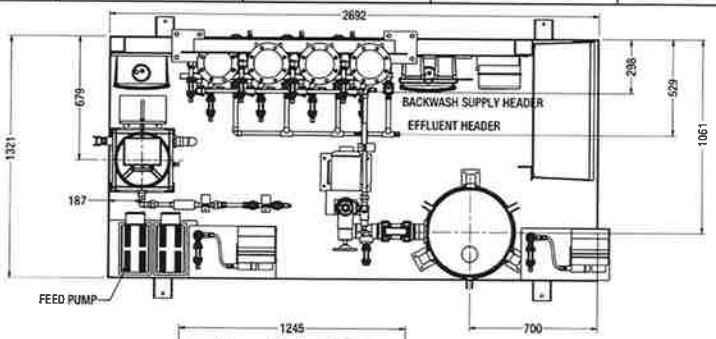


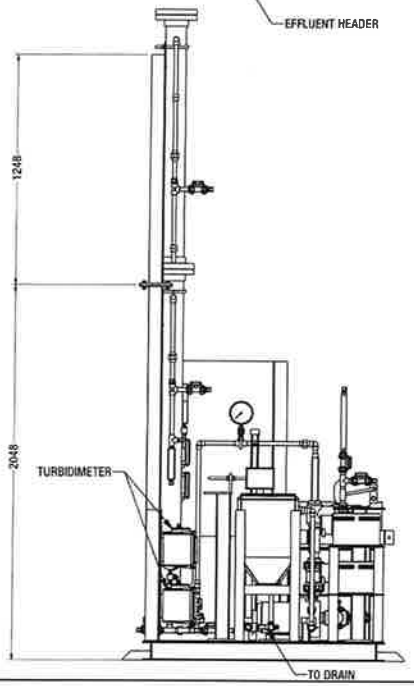
SECTION C-C

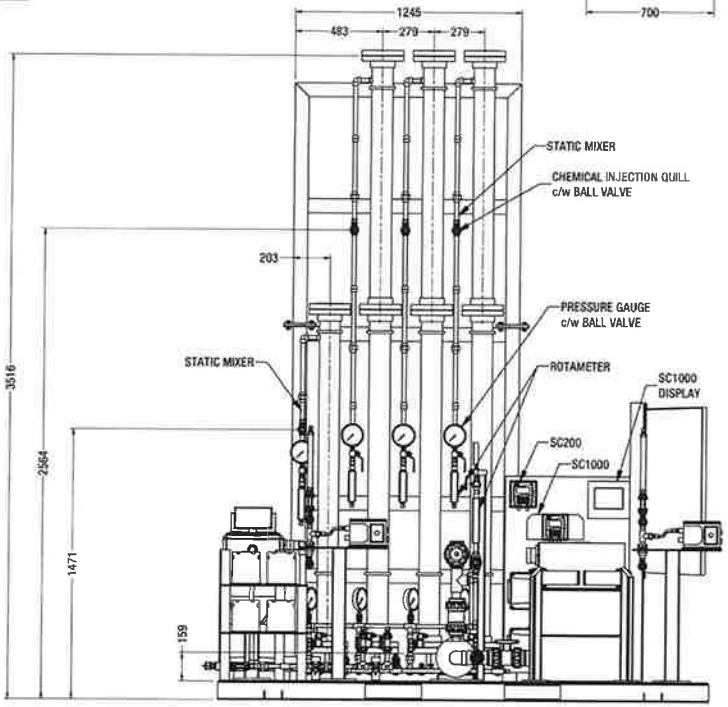

4 3/16"
8"
1'-8"
4 3/16"
1'-1" REF
1'-6 3/4"
1'-1 7/8"
Ø6" SATURATOR
1'-6" ℄ DISTANT FROM WALL
MANWAY 8"x8"
(TYPx2)
FEED PUMP
4'-0"
10"
5'-6"

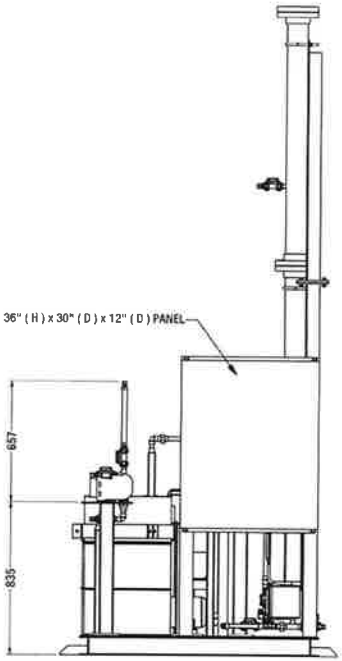
BACK VIEW











NOTES:

REV	DESCRIPTION	DATE	BY	CHK	APP
0	ISSUE FOR CONSTRUCTION	AUG14/20			

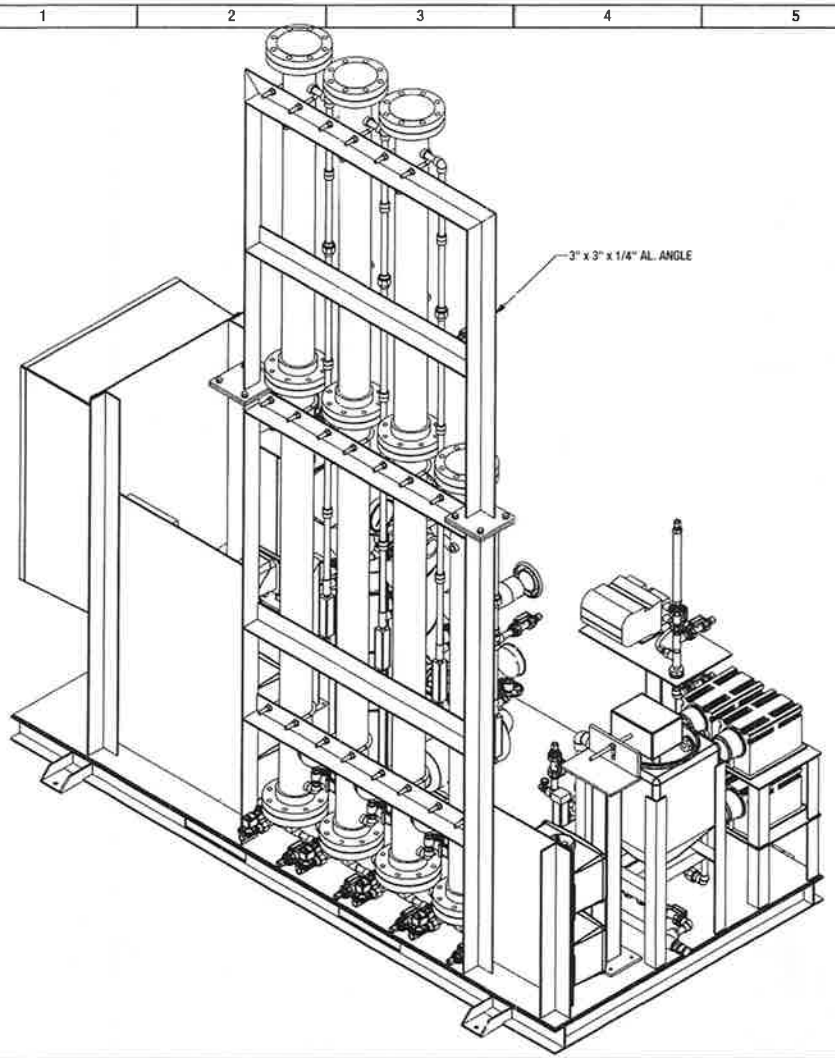
REVISIONS

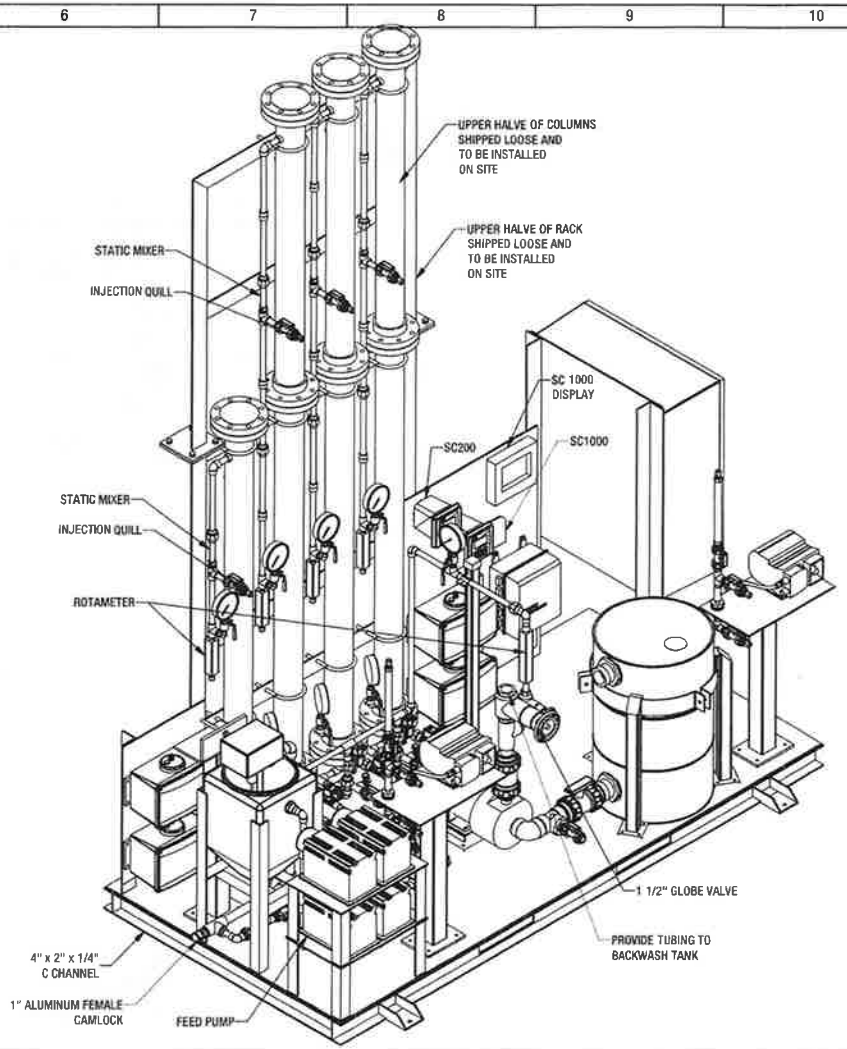
9087A 198 Street Langley, BC Canada V1M 3B1
Phone: 604-530-4217
www.awsolutions.ca

FILTER COLUMNS SKID LAYOUT

SCALE	PROJECTION	INTERFACE	SHEET SIZE	SHEET
NTS		mm	17 x 11	1 OF 6

DRAWING NO: 38535-ME-LAY-001 REV: 0





NOTES:

REV	DESCRIPTION	DATE	BY	CHK	APP
0	ISSUE FOR CONSTRUCTION	AUG14/20		SB	MK

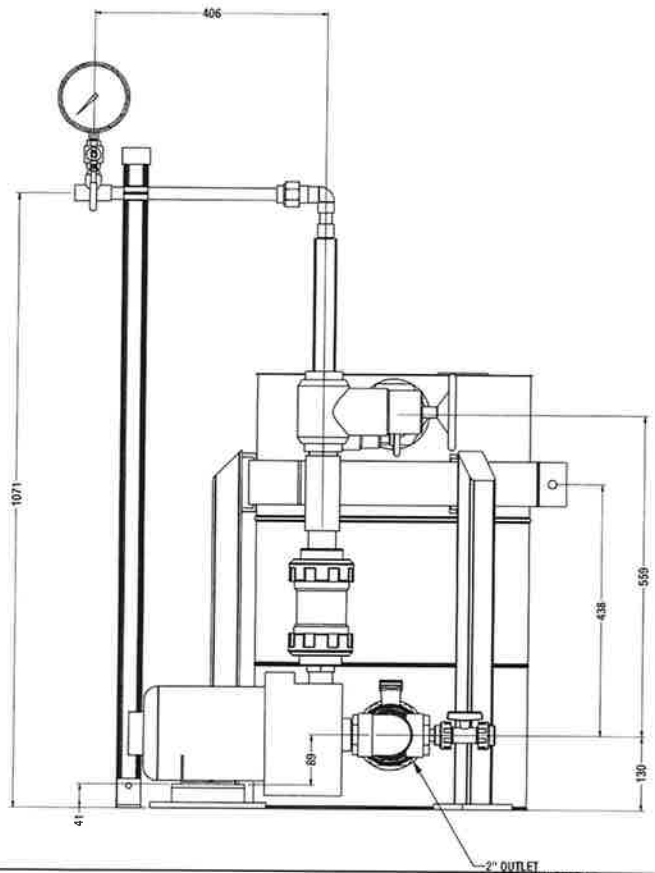
REVISIONS

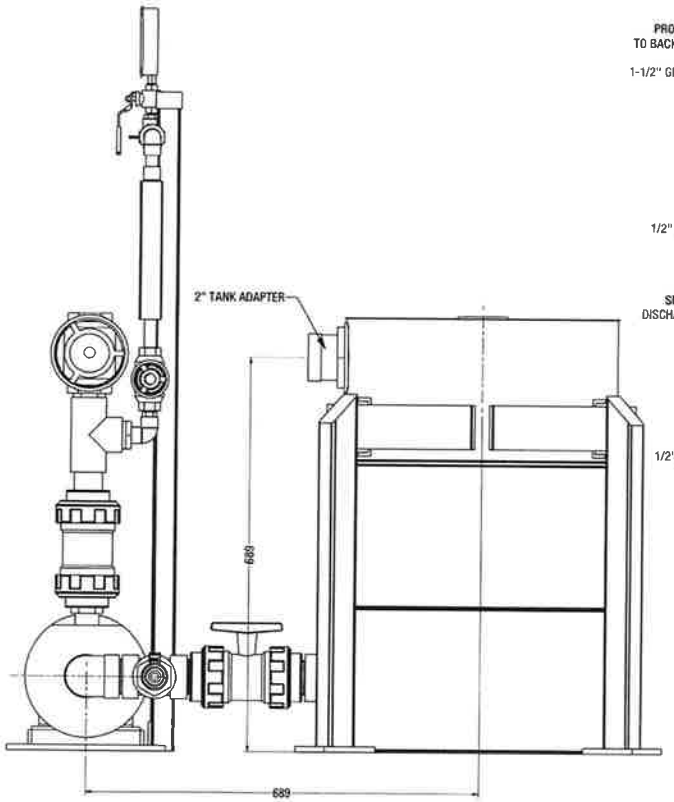
9087A 198 Street Langley, BC Canada V1M 3B1
Phone: 604-856-4217
www.awcoustems.com

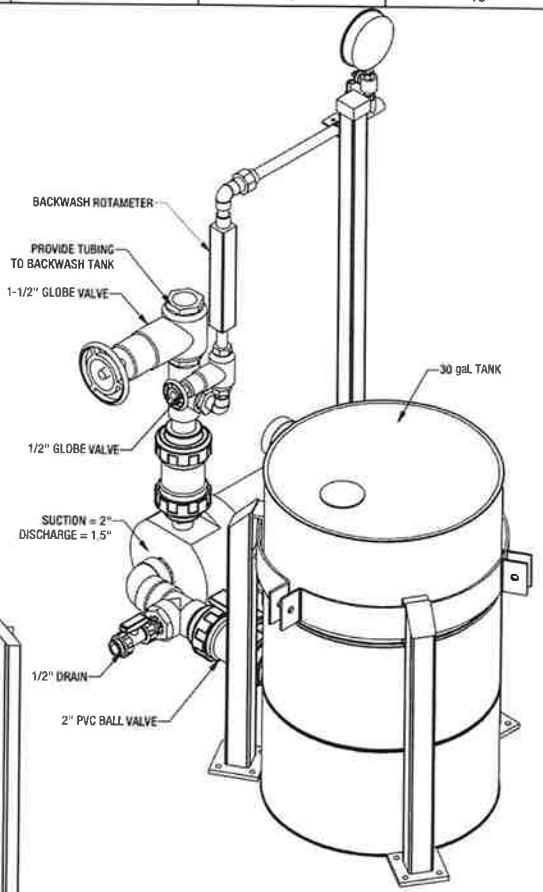
FILTER COLUMNS SKID LAYOUT

SCALE	PROJECTION	METRIC UNITS	SHEET SIZE	SHEET
NTS		mm	17 x 11	3 OF 6

DRAWING NO. 36535-ME-LAY-001 REV 0







BACKWASH PUMP AND TANK ASSEMBLY

NOTES:

REV	DESCRIPTION	DATE	BY	CHK	APP
0	ISSUE FOR CONSTRUCTION	AUG14/20	AW	SS	XXX

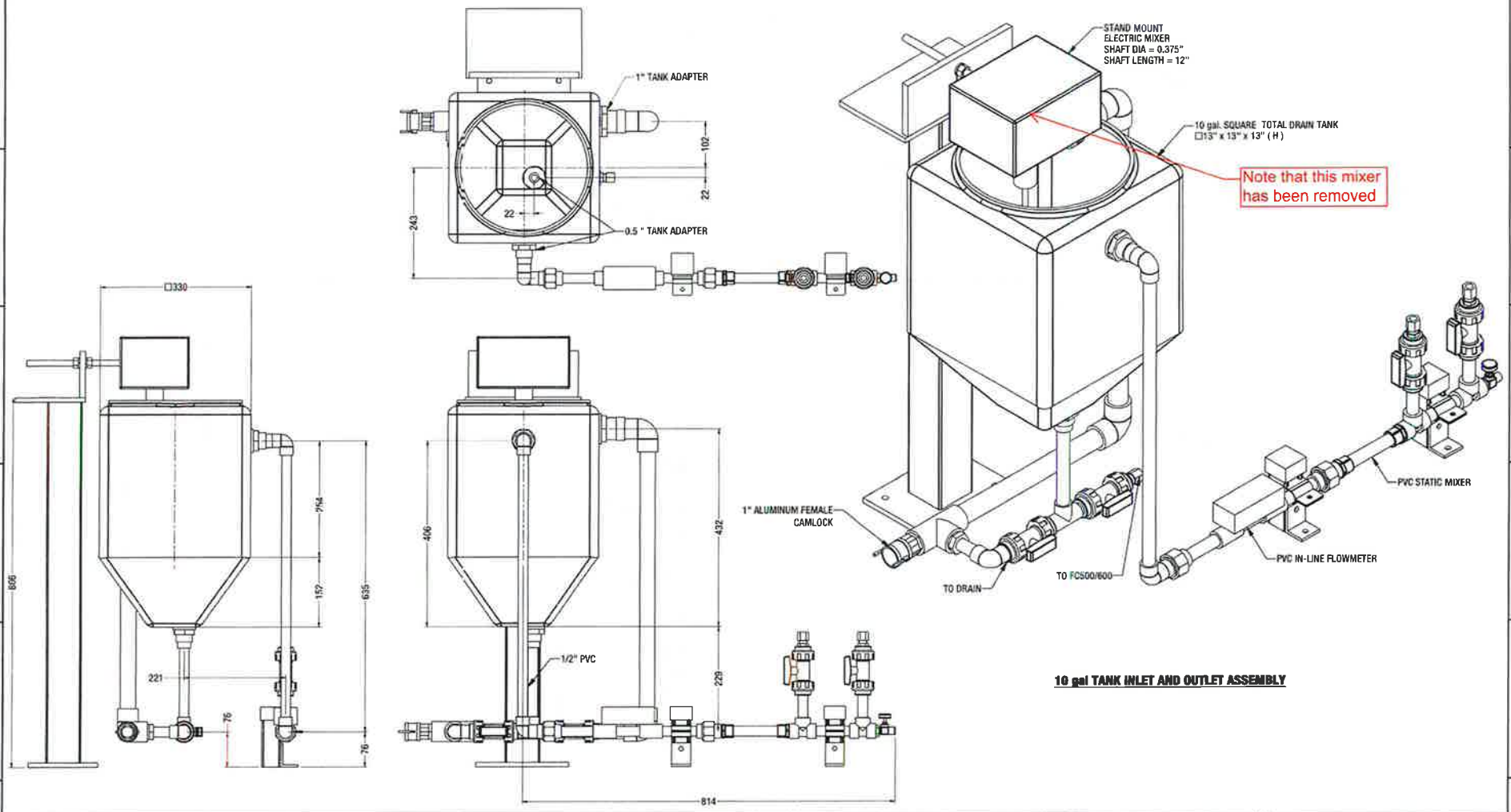
REVISIONS

AW
9087A 198 Street Langley, BC Canada V1M 3B1
Phone: 604-530-4217
www.awsolutions.ca

FILTER COLUMNS SKID LAYOUT

SCALE	PROJECTION	DETAILS UNITS	SHEET SIZE	SHEET
NTS		mm	17 x 11	4 OF 6

DRAWING NO. 36535-ME-LAY-001 REV 0



10 gal TANK INLET AND OUTLET ASSEMBLY

NOTES:

REV	DESCRIPTION	DATE	BY	CHK	APP
0	ISSUE FOR CONSTRUCTION	AUG14/20		SB	MK

REVISIONS

9067A 198 Street Langley, BC Canada V1M 3B1
Phone: 604-930-4217
www.awsolutions.com

FILTER COLUMNS SKID LAYOUT

SCALE	PROJECTION	DIMENSIONS	SHEET SIZE	SHEET
NTS		mm	17 x 11	5 OF 6

DRAWING NO: 36535-ME-LAY-001 REV: 0

P-300

METERING PUMP
MANUFACTURER: PERISTALTIC, POSITIVE DISPLACEMENT- MACMASTER-CARR
P/N : 43295K32
POWER: 120V/1Ph/60Hz
CURRENT : 0.96A

P-400

METERING PUMP
MANUFACTURER: PERISTALTIC, POSITIVE DISPLACEMENT- MACMASTER-CARR
P/N : 43295K32
POWER: 120V/1Ph/60Hz
CURRENT : 0.96A

MEDIA SPECIFICATION

1500 mm ANTHRACITE (S.G : 1.4, E.S. : 0.9mm , U.C. : 1.3) AND
500 mm (S.G : 2.6, E.S. : 0.35mm, U.C. : 1.4)
FOR FC-300, 400 AND 600

P-500

METERING PUMP
MANUFACTURER: PERISTALTIC, POSITIVE DISPLACEMENT- MACMASTER-CARR
P/N : 43295K32
POWER: 120V/1Ph/60Hz
CURRENT : 0.96A

P-600

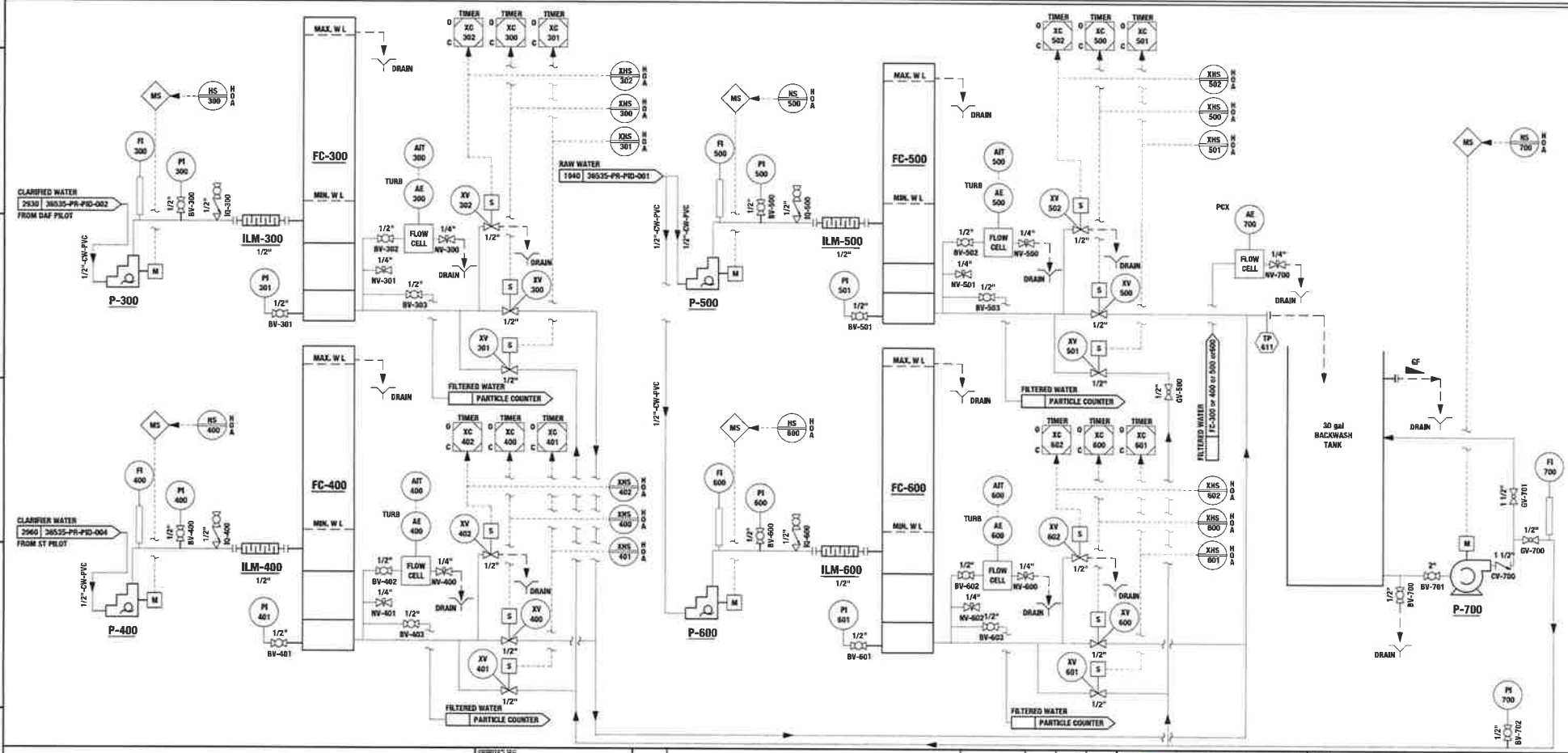
METERING PUMP
MANUFACTURER: PERISTALTIC, POSITIVE DISPLACEMENT- MACMASTER-CARR
P/N : 43295K32
POWER: 120V/1Ph/60Hz
CURRENT : 0.96A

MEDIA SPECIFICATIONS

500 mm ANTHRACITE (S.G. : 1.4, E.S. : 1.2mm , U.C. : 1.5) AND
500 mm (S.G. 2.6, E.S. : 0.5mm, U.C. : 1.4)
FOR FC -500 ONLY

P-700

METERING PUMP
MANUFACTURER: GOULDS
P/N : 1STIC1E4
HP: 1/2 HP
POWER : 115-230V/1Ph/50Hz



NOTES:

REV	DESCRIPTION	DATE	DFT	CHK	APP
0	ISSUED FOR INFORMATION	AUG6/20	LL	SB	PC

REVISIONS

AW
9087A 198 Street Langley, BC Canada V1M 3B1
Phone : 604-530-4217

CLIENT:
PROJECT:
TITLE: PIPING & INSTRUMENTATION DIAGRAM

SCALE	PROJECTION	DEFAULT UNITS	SHEET SIZE	SHEET
NTS		N/A	17 x 11	1 OF 1

DRAWING NO. 36535-PR-PID-005 REV 0

APPENDIX #2:

MSDS Sheets (Coagulants/Chemicals)

NOCO
ENGINEERING
COMPANY

DelPAC 2500

SDS No. 102
1/31/2019

Safety Data Sheet

1. IDENTIFICATION

Product Identifier
Product Name Aluminum Chloride Hydroxide Sulfate Solution

Other means of identification
SDS # 102

UN/ID No UN1760

Manufacturer

USALCO, LLC
2601 Cannery Ave
Baltimore, MD 21226

Recommended use of the chemical and restrictions on use
Recommended Use Water treatment chemical.

Emergency Telephone Number
Company Phone Number 410-918-2230
Emergency Telephone (24 hr) 800-282-5322

2. HAZARDS IDENTIFICATION

Appearance **Clear**, Colorless to amber Liquid **Physical State** Liquid **Odor** Negligible

Classification

Irritating to eyes	Category 2
Corrosive to metals	Category 1

Signal Word
Warning

Hazard Statements
Causes skin and eye irritation
May be corrosive to metals

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves, and eye protection. Keep only in original container.

Precautionary Statements - Response
If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Precautionary Statements - Storage
Store in corrosive resistant plastic or FRP container or a container with corrosive resistant inner liner.

Precautionary Statements - Disposal
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): May be D002 under §261.22(a)(2) due to the rate of corrosion of metal.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Polyaluminum chloride, solution

Chemical Name	CAS No	Weight-%
Water	7732-18-5	55-85
Aluminum Chloride Hydroxide Sulfate	39290-78-3	15-45

4. FIRST-AID MEASURES

First Aid Measures

General Advice After first aid, get appropriate in-plant, paramedic, or community medical support.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get immediate medical advice/attention.

Skin Contact Wash off immediately with plenty of water. Take off contaminated clothing.

Inhalation (mist or spray) Remove from exposure; seek medical treatment if any symptoms occur.

Ingestion If conscious give large amounts of water. Seek medical attention immediately.

Most important symptoms and effects

Symptoms Causes serious eye damage. May cause skin irritation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media None identified.

Specific Hazards Arising from the Chemical Negligible fire hazard. Decomposition products may be toxic.

Hazardous Decomposition Products Hydrogen chloride. Sulfur dioxide.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Do not release runoff from fire control methods to sewers or waterways.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protection recommended in Section 8. Keep unnecessary people away, isolate hazard area and restrict entry.

Environmental Precautions Do not release into sewers or waterways. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up	Small Spills: If directed to an industrial sewer, wash down with large volumes of water. Spills can be neutralized and absorbed with soda ash or lime, but neutralization will release carbon dioxide, which can generate a breathing hazard. For large spills, dike far ahead of spill for later disposal. Contain large spills and pump into a suitable tank for disposal. Neutralize with soda ash or lime if necessary. Adequate ventilation is required due to release of Carbon Dioxide.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling	Ensure that all containers are labeled in accordance with OSHA regulations. Treat as a dilute acid. Avoid contact with metal, as product will slowly corrode iron, brass, copper, aluminum and mild steel. Avoid contact with skin and eyes. Use personal protection recommended in Section 8. Wash thoroughly after handling. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep storage temperature below 30°C/86°F. Store away from incompatible materials. Keep only in original container.
Packaging Materials	Store in rubber-lined, plastic or FRP vessels.
Incompatible Materials	Metals such as aluminum, tin, and zinc. Strong alkalis.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines	No exposure limits noted for ingredient(s)

Appropriate engineering controls

Engineering Controls	Eyewash stations. Showers.

Individual protection measures, such as personal protective equipment

Eye/Face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133. Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with, contact lenses.
Skin and Body Protection	Wear appropriate clothing to prevent repeated or prolonged skin contact.
Respiratory Protection	Seek professional advice prior to respirator selection and use. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. WARNING!: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
General Hygiene Considerations	Contaminated Equipment: Separate contaminated work clothes from street clothes. Remove this material from your shoes and clean personal protective equipment. Do not eat, drink, smoke, or apply cosmetics while handling this product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Wash contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid, clear, colorless to amber color
Odor	Negligible
Odor threshold	Not determined
pH	>2 to 3.5
Relative density; (specific gravity)	1.2 ± 0.1 (1=Water) @ 4°C
Melting point/freezing point	< -17.8°C / <0°F
Initial boiling point and boiling range	> 110°C / >230°F
Decomposition temperature	±120°C / 250°F
Viscosity	5-50 centipoise @ 25 °C (77 °F)
Auto-ignition temperature	Not flammable
Evaporation rate;	Similar to water
Flammability (solid, gas)	Not flammable
Flash point	Will not burn
Upper/lower flammability or explosive limits	Will not burn
Partition coefficient: n-octanol/water	Not relevant
Solubility	Soluble in water
Vapor density	Similar to water
Vapor pressure	Similar to water

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions.

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
Reacts with Zinc and Aluminum to form Hydrogen gas. Contact with strong alkalis (e.g. Ammonia and its solutions, Sodium hydroxide (caustic), Potassium hydroxide, chlorites) may generate heat, splattering or boiling and toxic vapors.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid
Contact with incompatible materials.

Incompatible Materials
Metals such as aluminum, tin, and zinc. Strong alkalis.

Hazardous Decomposition Products
Hydrogen chloride. Sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact Causes serious eye irritation.

Skin Contact Avoid contact with skin.

Inhalation Avoid breathing vapors or mists.

Ingestion Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum Chloride Hydroxide Sulfate 39290-78-3	> 5000 mg/kg (Rat)	-	-

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity
Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Aluminum Chloride Hydroxide Sulfate 39290-78-3		1460 - 1500: 48 h Leuciscus idus melanotus mg/L LC50 static		

Persistence/Degradability
Not determined

Bioaccumulation
Not determined

Mobility

Chemical Name	Partition Coefficient
Aluminum Chloride Hydroxide Sulfate 39290-78-3	3

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): May be D002 under §261.22(a)(2) due to the rate of corrosion of metal.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

UN/ID No	UN1760
Proper Shipping Name	Corrosive liquid, n.o.s. (Aluminum chloride hydroxide sulfate)
Hazard Class	8
Packing Group	III

IATA

UN/ID No	UN1760
Proper Shipping Name	Corrosive liquid, n.o.s. (Aluminum chloride hydroxide sulfate)
Hazard Class	8
Packing Group	III

IMDG

UN/ID No	UN1760
Proper Shipping Name	Corrosive liquid, n.o.s. (Aluminum chloride hydroxide sulfate)
Hazard Class	8
Packing Group	III
Marine Pollutant	This material may meet the definition of a marine pollutant

15. REGULATORY INFORMATION

International Inventories
Not determined

US Federal Regulations

Component Analysis
None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

SARA 313
Not listed

CWA (Clean Water Act)
Not listed

US State Regulations

U.S. State Right-to-Know Regulations
Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	1	0	0	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	1	0	0	Not determined

Issue Date	2/1/2012
Revision Date:	3/3/2015 New format; 1/31/2019 Review
Revision Note	

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

CC 2000

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Chemical Name	Aluminum Chlorohydrate Solution
CAS No.	12042-91-0
Trade Name	CC 2000
Product Code	None

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Water Treatment Chemical
Uses Advised Against	None
Company Identification	USALCO Modesto Plant, LLC 2601 Cannery Ave Baltimore, MD 21226
Telephone	(410)-354-0100
Fax	(410)-354-1021
E-Mail (competent person)	info@usalco.com

Emergency telephone number

Emergency Phone No.	CHEMTREC 24 hr. (800) 424-9300; Not classified as dangerous for transport.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200)	Not classified as dangerous for supply/use.

Label elements

Hazard Symbol	None
Signal word(s)	None
Hazard Statement(s)	None
Precautionary Statement(s)	Avoid contact with skin and eyes. Wear protective gloves/eye protection. IF INHALED: Get medical advice/attention if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Other hazards None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	% wt.*	CAS No.	Hazard classification
Aluminum Chlorohydrate	50	12042-91-0	Not classified as dangerous for supply/use.
Water	50	7732-18-5	Not classified as dangerous for supply/use.

Additional Information - Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below: **None**

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation	Get medical advice/attention if you feel unwell.
Skin Contact	Wash affected skin with soap and water. If irritation (redness, rash, blistering) develops, get medical attention.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.
Ingestion	Call a POISON CENTER or doctor/physician if you feel unwell.
Most important symptoms and effects, both acute and delayed	None
Indication of any immediate medical attention and special treatment needed	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media	Non-combustible. As appropriate for surrounding fire.
-Unsuitable Extinguishing Media	None anticipated.
Special hazards arising from the substance or mixture	Combustion or thermal decomposition will evolve toxic and irritant vapours.
Advice for fire-fighters	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Keep containers cool by spraying with water if exposed to fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin and eyes. Wear protective gloves/eye protection.
Environmental precautions	Prevent liquid entering sewers, basements and work pits. Avoid release to the environment.

Methods and material for containment and cleaning up	Cover spills with inert absorbent material. Transfer to a container for disposal or recovery.
Reference to other sections	None
Additional Information	None

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling — Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

-Storage temperature	Keep in a cool, well ventilated place. Store at temperatures not exceeding 50°C / 122 °F. Protect from sunlight.
-Incompatible materials	This product should be stored away from sources of strong heat, oxidizing chemicals,and reducing agents.

Specific end use(s) — Water Treatment Chemical

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA) PEL (OSHA)	(8hr TWA) TLV (ACGIH)	(STEL) PEL (OSHA)	(STEL) TLV (ACGIH)	Note:
Aluminum Chlorohydrate, as Al	12042-91-0	15 mg/m3 (T) 5 mg/m3 (R)	1 mg/m3 (R)	-----	-----	-----

- (T) Total Particulate; (R) Respirable Particulate

Recommended monitoring method — NIOSH 7013 (Aluminum and compounds, as Al)

Exposure controls

Appropriate engineering controls — Not normally required.

Personal protection equipment

Eye/face protection

Wear protective eyewear (goggles, face shield, or safety glasses).

Skin protection (Hand protection/ Other)

Wear suitable gloves if prolonged skin contact is likely. Check with protective equipment manufacturer's data.

Respiratory protection

Normally no personal respiratory protection is necessary. In case of insufficient ventilation, wear suitable respiratory equipment. Check with protective equipment manufacturer's data.

Thermal hazards — Not normally required. Use gloves with insulation for thermal protection, when needed.

Environmental Exposure Controls — Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid
Color.	Almost colourless to pale yellow
Odor	None
Odor Threshold (ppm)	Not available
pH (Value)	4 - 5
Melting Point (°C) / Freezing Point (°C)	- 5.5 (22 °F)
Boiling point/boiling range (°C):	100 °C (212 °F)
Flash Point (°C)	Non-combustible
Evaporation Rate	Similar to water
Flammability (solid, gas)	Not applicable
Explosive Limit Ranges	Non-combustible
Vapor pressure (Pascal)	Similar to water
Vapor Density (Air=1)	Similar to water
Density (g/ml)	1.34
Solubility (Water)	Miscible
Solubility (Other)	Not available
Partition Coefficient (n-Octanol/water)	Not available
Auto Ignition Point (°C)	Non-combustible
Decomposition Temperature (°C)	Not available
Kinematic Viscosity (cSt)	Similar to water
Explosive properties	Not explosive
Oxidizing properties	Not oxidising
Other Information	Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable.
Possibility of hazardous reactions	None anticipated.
Conditions to avoid	Incompatible materials.
Incompatible materials	Substances that react with water or aluminum.
Hazardous decomposition product(s)	None anticipated.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Aluminum Chlorohydrate (CAS No. 12042-91-0):

Acute toxicity	Oral LD50 = 9187 mg/kg (Rat) Dermal LD0 = >2000 mg/kg (Rat)
Irritation / Corrosivity	Unlikely to cause eye irritation. Unlikely to cause skin irritation.
Sensitisation	It is not a skin sensitiser.
Repeated dose toxicity	Not to be expected.
Carcinogenicity	It is unlikely to present a carcinogenic hazard to man.

NTP	IARC	ACGIH	OSHA	NIOSH
No.	No.	No.	No.	No.

Mutagenicity	Negative
Toxicity for reproduction	Negative

Reproductive toxicity	Not to be expected
Other information	None known.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Short term	LC50 (96 hr): 609 mg/l (Fathead minnow) LC50 (48 hour): 397 mg/L (Daphnia magna)
Long Term	Not available.
Persistence and degradability	Not readily biodegradable.
Bioaccumulative potential	The product has no potential for bioaccumulation.
Mobility in soil	Not available.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods — Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice.

SECTION 14: TRANSPORT INFORMATION

	U.S. DOT	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN number	**Not classified as dangerous for transport.**		
Proper Shipping Name			
Transport hazard class(es)			
Packing group			
Environmental hazards			
Special precautions for user			

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed or polymer exempt.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
None	-----	-----	-----

SARA 311/312 - Hazard Categories: None

☐ Fire ☐ Sudden Release ☐ Reactivity ☐ Immediate (acute) ☐ Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.
None	-----	-----

SARA 302 - Extremely Hazardous Substances (40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	TPQ (pounds)
None	----	----	----

California Proposition 65 List:

Chemical Name	CAS No.	Type of Toxicity
None	-----	-----

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

Date of preparation: 03/22/21

Hazard Statement(s) and Risk Phrases Listed in: SECTION 2:/ SECTION 3:

Hazard Statement(s)
- None.

Training advice: None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

CC 2215

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Chemical Name	Mixture
CAS No.	Mixture
Trade Name	CC 2215
Product Code	None

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Water Treatment Chemical
Uses Advised Against	None
Company Identification	USALCO Modesto Plant, LLC 2601 Cannery Ave Baltimore, MD 21226
Telephone	(410)-354-0100
Fax	(410)-354-1021
E-Mail (competent person)	info@usalco.com

Emergency telephone number

Emergency Phone No.	CHEMTREC 24 hr. (800) 424-9300; Not classified as dangerous for transport.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200)	Not classified as dangerous for supply/use.

Label elements

Hazard Symbol	None
Signal word(s)	None
Hazard Statement(s)	None
Precautionary Statement(s)	Avoid contact with skin and eyes. Wear protective gloves/eye protection. IF INHALED: Get medical advice/attention if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Other hazards None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	% wt.*	CAS No.	Hazard classification
Aluminum Chlorohydrate	40 - 45	12042-91-0	Not classified as dangerous for supply/use.
Proprietary Compound	15	Trade Secret	Aquatic Acute 3; H402 Aquatic Chronic 3; H412
Water	40 - 45	7732-18-5	Not classified as dangerous for supply/use.

Additional Information - Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below: **None**

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation	Get medical advice/attention if you feel unwell.
Skin Contact	Wash affected skin with soap and water. If irritation (redness, rash, blistering) develops, get medical attention.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.
Ingestion	Call a POISON CENTER or doctor/physician if you feel unwell.
Most important symptoms and effects, both acute and delayed	None
Indication of any immediate medical attention and special treatment needed	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media	Non-combustible. As appropriate for surrounding fire.
-Unsuitable Extinguishing Media	None anticipated.
Special hazards arising from the substance or mixture	Combustion or thermal decomposition will evolve toxic and irritant vapours.
Advice for fire-fighters	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Keep containers cool by spraying with water if exposed to fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin and eyes. Wear protective gloves/eye protection.
Environmental precautions	Prevent liquid entering sewers, basements and work pits. Avoid release to the environment.

Methods and material for containment and cleaning up	Cover spills with inert absorbent material. Transfer to a container for disposal or recovery.
Reference to other sections	None
Additional Information	None

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling — Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

-Storage temperature	Keep in a cool, well ventilated place. Store at temperatures not exceeding 50°C / 122 °F. Protect from sunlight.
-Incompatible materials	This product should be stored away from sources of strong heat, oxidizing chemicals,and reducing agents.

Specific end use(s) — Water Treatment Chemical

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA) PEL (OSHA)	(8hr TWA) TLV (ACGIH)	(STEL) PEL (OSHA)	(STEL) TLV (ACGIH)	Note:
Aluminum Chlorohydrate, as Al	12042-91-0	15 mg/m3 (T) 5 mg/m3 (R)	1 mg/m3 (R)	-----	-----	-----

- (T) Total Particulate; (R) Respirable Particulate

Recommended monitoring method — NIOSH 7013 (Aluminum and compounds, as Al)

Exposure controls

Appropriate engineering controls — Not normally required.

Personal protection equipment

Eye/face protection

Wear protective eyewear (goggles, face shield, or safety glasses).

Skin protection (Hand protection/ Other)

Wear suitable gloves if prolonged skin contact is likely. Check with protective equipment manufacturer's data.

Respiratory protection

Normally no personal respiratory protection is necessary. In case of insufficient ventilation, wear suitable respiratory equipment. Check with protective equipment manufacturer's data.

Thermal hazards — Not normally required. Use gloves with insulation for thermal protection, when needed.

Environmental Exposure Controls — Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid
Color.	Almost colourless to pale yellow
Odor	None
Odor Threshold (ppm)	Not available
pH (Value)	4.0 - 4.5
Melting Point (°C) / Freezing Point (°C)	- 6.6 (20 °F)
Boiling point/boiling range (°C):	100 °C (212 °F)
Flash Point (°C)	Non-combustible
Evaporation Rate	Similar to water
Flammability (solid, gas)	Not applicable
Explosive Limit Ranges	Non-combustible
Vapor pressure (Pascal)	Similar to water
Vapor Density (Air=1)	Similar to water
Density (g/ml)	1.25 - 1.34
Solubility (Water)	Miscible
Solubility (Other)	Not available
Partition Coefficient (n-Octanol/water)	Not available
Auto Ignition Point (°C)	Non-combustible
Decomposition Temperature (°C)	Not available
Kinematic Viscosity (cSt)	Similar to water
Explosive properties	Not explosive
Oxidizing properties	Not oxidising
Other information	Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable.
Possibility of hazardous reactions	None anticipated.
Conditions to avoid	Incompatible materials.
Incompatible materials	Substances that react with water or aluminum.
Hazardous decomposition product(s)	None anticipated.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Aluminum Chlorohydrate (CAS No. 12042-91-0):

Acute toxicity	Oral LD50 = 9187 mg/kg (Rat) Dermal LD0 = >2000 mg/kg (Rat)
Irritation / Corrosivity	Unlikely to cause eye irritation. Unlikely to cause skin irritation.
Sensitisation	It is not a skin sensitiser.
Repeated dose toxicity	Not to be expected.
Carcinogenicity	It is unlikely to present a carcinogenic hazard to man.

NTP	IARC	ACGIH	OSHA	NIOSH
No.	No.	No.	No.	No.

Mutagenicity	Negative
Toxicity for reproduction	Negative

Reproductive toxicity	Not to be expected
Other information	None known.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Proprietary Compound (CAS No. Trade Secret):

Short term	LC50 (96 hr): 10 - 100 mg/l (*Danio rerio*) EC50 (48 hour): 38 mg/L (*Daphnia magna*)
Long Term	Not available.
Persistence and degradability	Not readily biodegradable.
Bioaccumulative potential	The product has no potential for bioaccumulation.
Mobility in soil	Not available.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods — Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice.

SECTION 14: TRANSPORT INFORMATION

	U.S. DOT	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN number	**Not classified as dangerous for transport.**		
Proper Shipping Name			
Transport hazard class(es)			
Packing group			
Environmental hazards			
Special precautions for user			

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed or polymer exempt.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
None	-----	-----	-----

SARA 311/312 - Hazard Categories: None

☐ Fire ☐ Sudden Release ☐ Reactivity ☐ Immediate (acute) ☐ Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.

None	-----	-----

SARA 302 - Extremely Hazardous Substances (40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	TPQ (pounds)
None	----	----	----

California Proposition 65 List:

Chemical Name	CAS No.	Type of Toxicity
None	-----	-----

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

Date of preparation: May 19, 2015

Hazard Statement(s) and Risk Phrases Listed in: SECTION 2:/ SECTION 3:

Hazard Statement(s)

- H402: Harmful to aquatic life.
- H412: Harmful to aquatic life with long lasting effects.

Training advice: None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

Aluminum sulfate, solid

MSDS No. 010
4/30/2013

Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product/Chemical Name:	Aluminum Sulfate, Dry
Chemical Formula:	$Al_2(SO_4)_3 \bullet (14\text{-}18)(H_2O)$
CAS Number:	10043-01-3
General Use:	Water Treatment Chemical
Emergency Contact:	**800-282-5322**

Manufacturer:
USALCO, LLC
2601 Cannery Avenue,
Baltimore, MD 21226
Phone 410-354-0100 (7:00am 5:00pm)
FAX 410-354-1021

HMIS	
H	1
F	0
R	0
PPE†	

†Sec. 11

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
Aluminum sulfate (hydrated)	10043-01-3	100

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Aluminum sulfate	2 mg/m^3 *as aluminum*	none estab.	2 mg/m^3 *as aluminum*	none estab.	2 mg/m^3 *as aluminum*	none estab.	none estab.

Section 3 - Emergency Overview

Description: White granule or powder. Water soluable. Not volatile. Not flammable.
Hazards: Harmful by ingestion. Irritating to eyes, respiratory system and skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Section 4 - First Aid Procedures

Eye Contact:	Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids. Seek medical attention.
Skin Contact:	Remove contaminated clothing and wash contaminated skin with water.
Ingestion:	Do not induce vomiting, drink milk or water and immediately seek medical attention. Ingestion may irritate gastrointestinal tract.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Section 5 - Physical and Chemical Properties

Physical State:	solid	**Water Solubility:**	Complete
Appearance:	White granule or powder	**Density:**	varies, <98 lb/cu ft
Odor:	negligible odor	**Boiling Point:**	117° C/242° F
Vapor Pressure:	None	**Freezing/Melting Point:**	105° C/221° F
Vapor Density (Air=1):	Not applicable	**% Volatile:**	0.0
pH of 1% solution:	3.3 ± 0.5		

Section 6 - Fire-Fighting Measures

Flash Point:	Not applicable
Burning Rate:	Not applicable
Autoignition Temperature:	Not applicable
LEL:	Not applicable
UEL:	Not applicable
Flammability Classification:	Non-flammable
Unusual Fire or Explosion Hazards:	If exposed to temperatures greater than 1400°F, Aluminum sulfate will decompose generating toxic and corrosive gas.
Hazardous Combustion Products:	See Section 7.
Fire-Fighting Instructions:	Do not release runoff from fire control methods to sewers or waterways.

Section 7 - Stability and Reactivity

Stability:	Stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization:	Hazardous polymerization does not occur.
Chemical Incompatibilities:	Contact with alkalies and water-reactive materials causes exothermic reactions.
Conditions to Avoid:	None
Hazardous Decomposition Products:	Thermal oxidative decomposition of Aluminum sulfate occurs at temperatures greater than 1400°F and can produce sulfur oxides.

Section 8 - Health Hazard Information

Primary Entry Routes:	Ingestion, inhalation, eye or skin contact
Target Organs:	None
Acute Effects:	No unusual
Eye:	May cause a burning feeling.
Skin:	May cause a skin rash or burning feeling.
Ingestion:	May cause irritation of stomach and intestines. May cause nausea, vomiting or purging.
Inhalation:	Breathing aluminum sulfate can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath.
Carcinogenicity:	IARC, NTP, and OSHA do not list Aluminum Sulfate as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure:	Aluminum sulfate can irritate the lungs. Repeated exposure may cause bronchitis to develop with cough, phlegm, an/or shortness of breath.
Chronic Effects:	IARC, NTP, and OSHA list no evidence showing that any of the ingredients cause cancer or affect reproduction.

Section 9 - Spill, Leak, and Disposal Procedures

Spill /Leak Procedures:	Spill procedures are dictated by site wastewater flow controls and will vary from site to site. General procedures are provided in this document, but authorization for any wastewater discharge must be obtained prior to the discharge.
Large and Small Spills:	Sweep and shovel up dry chemical and place in a covered container. Wash down residue with large amounts of water and neutralize with soda ash or lime if necessary. Aluminum sulfate solutions can have a pH less than two. The neutralization of aluminum sulfate can generate carbon dioxide. Adequate ventilation must be provided. Do not discharge wastewaters to the environment or a wastewater treatment plant without authorization from the appropriate officials.
Containment:	Aluminum sulfate may absorb moisture and powders or crystals can solidify into a single mass. Protect aluminum sulfate from moisture.

Cleanup:	Wash impacted areas with water to remove residues.
Regulatory Requirements:	Follow applicable OSHA regulations (29 CFR 1910.120).
Disposal:	Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
Container Cleaning and Disposal:	Make sure bags are completely empty and dispose of as industrial/commercial waste.

Section 10 - Regulatory Information

EPA Regulations:	
RCRA Hazardous Waste Classification:	-Not listed in 40 CFR Subpart D – Lists of Hazardous Wastes -Aqueous solutions may exhibit the characteristic of Corrosivity, EPA Hazardous Waste Number D002, 40CFR §261.22
CERCLA Hazardous Substance (40 CFR 302.4):	Listed CWA, Sec. 311 (b)(4)
CERCLA Reportable Quantity (RQ):	5,000 lbs (2,270 kg) as $Al_2(SO_4)_3$ 8,870 lbs (4,023 kg) as $Al_2(SO_4)_3 \bullet 14(H_2O)$
SARA 311/312 Codes:	Immediate (acute) health hazard
SARA Toxic Chemical (40 CFR 372.65):	Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355):	Not listed
OSHA Regulations:	
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A):	Not listed
OSHA Specifically Regulated Substance (29CFR 1910.):	Not listed
State Regulations:	USALCO LLC has not investigated state specific requirements.

Section 11 - Exposure Controls / Personal Protection

Engineering Controls:	The best protection is to enclose operations and/or provide local exhaust ventilation at the site of the chemical release. Dust emission control may be required depending on the dust generation rate. Isolation operations can also reduce exposure.
Ventilation:	Can be used to control dust exposure but may require emission controls.
Administrative Controls:	Good work practices can help to reduce exposures. Train employees to minimize dust while handling this material.
Respiratory Protection:	Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.
Protective Clothing/Equipment:	Wear protective gloves, boots, long pants and long sleeve shirts to prevent prolonged or repeated skin contact. Wear protective chemical safety glasses, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.
Safety Stations:	Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment:	Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments:	Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 12 - Special Precautions and Comments

Handling Precautions:	Minimize and/or control dust while handling.
Storage Requirements:	Store in a cool, dry place. Wet aluminum sulfate will corrode steel.

Section 13 - DOT Transportation Data (49 CFR 172.101)

Shipping Name:	Shipping name depends on the packaging. If a package exceeds the RQ, the shipment must meet the requirements of 49 CFR Parts 100—185, including the following shipping name. Otherwise, not Hazmat regulated. UN3077, Environmentally Hazardous Substance, solid, n.o.s. (Aluminum sulfate), 9, III, RQ		
		Packaging Authorizations	
		a) Exceptions:	173.155
CERCLA RQ:	5,000 lbs (2,270 kg)	**b) Non-bulk Packaging:**	173.213
Hazard Class:	9	**c) Bulk Packaging:**	173.240
DOT No.:	UN3077	**Quantity Limitations**	
Packing Group:	III	**a) Passenger, Aircraft, or Railcar:**	no limit
Special Provisions (172.102):	8,146,B54,IB8,IP3,N20,T1,TP33	**b) Cargo Aircraft Only:**	no limit
		Vessel Stowage Requirements	
2004 Emergency Response Guidebook:	Guide 171	**a) Vessel Stowage:**	A
		b) Other:	

Prepared By: Craig T. Owen
Effective Date: 2/1/2012
Revision Notes: 4/30/2013

Ciba Specialty Chemicals Corporation

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant

MSDS date: 02-Feb-2006

NFPA Rating:	**Health:** 1	**Flammability:** 1	**Instability:** 0	
HMIS Rating:	**Health:** 1	**Flammability:** 1	**Physical Hazard:** 0	**Personal Protection:** B

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **MAGNAFLOC LT22S**

Product Number: **8357920**

Chemical Family: Copolymer of a quaternary acrylate salt and acrylamide.

Intended Use: Flocculant

Manufacturer/Supplier:

Ciba Specialty Chemicals Corporation
2301 Wilroy Road
Suffolk, VA 23434
8:30am - 5pm Phone Number: 1-757-538-3700
MSDS Request Line (voicemail): 1-800-431-2360
Customer Service/Product Information 1-800-322-3885

Emergency 24-Hour Health/Environmental Phone: 1-800-873-1138

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Signal Word: CAUTION!
Physical Form: Granular Powder
Color: White
Odor: None
Health: Contact causes eye irritation.
Physical Hazards: Slip hazard when wet, Refer to MSDS Section 7 for Dust Explosion information. .

OSHA Hazardous Substance: This material is classified as hazardous under OSHA regulations.

Primary Route(s) of Entry: Eyes, Inhalation, Ingestion, Skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS

Components	CAS Number	Weight %
Ethanaminium, N,N,N-trimethyl-2-[(1-oxo-2-propenyl)oxy]-, chloride, polymer with 2-propenamide	69418-26-4	85-90
Hexanedioic acid	124-04-9	3-6

4. FIRST AID MEASURES

Eyes: Immediately flush the eye(s) with lukewarm, gently flowing water for 15 minutes or until the chemical is removed. Get immediate medical attention if irritation persists.

Skin: Wash off immediately with soap and plenty of water. Get medical attention if irritation occurs. If clothing is contaminated, remove and launder before reuse.

Inhalation: Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult, give oxygen and get immediate medical attention.

Ingestion: Do not induce vomiting. If vomiting occurs naturally, have casualty lean forward to reduce the risk of aspiration. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

Fire Fighting Measures: The product becomes slippery when wet. Restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

Suitable Extinguishing Media: Carbon dioxide, dry chemical or foam.

Unsuitable Extinguishing Media: The product becomes slippery when wet.

Fire Fighting Equipment: Wear self-contained breathing apparatus and protective suit.

Unusual hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

Hazardous Combustion Products: Burning may produce oxides of carbon or nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Cleanup Instructions: Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Wear suitable protective equipment. Should not be released into the environment.

7. HANDLING AND STORAGE

Handling: As with all industrial chemicals, use good industrial practices when handling. Avoid eye, skin, and clothing contact. Do not inhale. Do not taste or swallow. Use only with adequate ventilation.

Storage: Keep containers tightly closed in a cool, well-ventilated place.

Explosion Hazards: Avoid creating dusty conditions. Risk of explosion if an air-dust mixture forms.

For Industrial Use Only

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:

Components	OSHA PEL	OSHA STEL	ACGIH TWA	ACGIH STEL	Ciba/ Manufacturer IEL:
Hexanedioic acid 124-04-9			5 mg/m^3		

Table Footnote: Blank cells in above table indicate no data available.

Personal Protective Equipment

Eye/Face Protection: Wear safety glasses or goggles to protect against dust particles.

Skin Protection: Wear chemical resistant gloves and protective clothing.

Respiratory Protection: Use NIOSH approved respirator as needed to mitigate exposure.

Engineering Controls: Work in well ventilated areas. Do not breathe dust. Local exhaust/ventilation recommended.

Other Protective Equipment: Eye wash station and safety shower should be available in immediate work area. Select additional protective equipment based upon potential for exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Granular Powder
Color:	White
Odor:	None.
Freezing/Melting Point:	Not determined
Solubility in water:	Soluble, solubility limited by viscosity
Vapor Density:	Not applicable
Vapor Pressure:	Not applicable
Density:	Not determined
Specific Gravity:	0.8 - 1
pH:	~ 3.3 (1 % solution)
Percent Volatile:	None expected above trace levels.
VOC:	Not applicable
Partition Coefficient (Octanol/Water):	Not determined
Decomposition Temperature:	Not determined
Flammability Limits in Air:	
Flash point:	Not applicable
Test Method (for Flash Point):	Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable.

Conditions to Avoid: Avoid static discharges and sources of ignition. Avoid high temperatures. Avoid wet and humid conditions.

Incompatibility: Strong oxidizing agents. (may degrade polymer)

Hazardous Decomposition Products:	No decomposition expected under normal storage conditions.
Possibility of Hazardous Reactions:	Product has a high minimum ignition energy; however, dust may be ignited under some conditions.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity:	Not determined.
Acute Dermal Toxicity:	Not determined
Acute Inhalation Toxicity:	Not determined.
Eye Irritation:	Not determined.
Skin Irritation:	Not determined.
Skin Sensitization:	Not determined
Carcinogenicity (IARC; NTP; OSHA; ACGIH):	None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.
Carcinogenicity Studies:	Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.
Mutagenicity:	No data for product. No effects anticipated.
Reproductive Toxicity:	No data for product. No effects anticipated.
Teratogenicity:	Not determined. No effects anticipated.
Neurotoxicity:	Not determined
Subacute Toxicity:	Not determined
Subchronic Toxicity:	Not determined
Chronic toxicity:	Not determined
Absorption / Distribution / Excretion / Metabolism:	Not determined
Additional Information:	Not determined

12. ECOLOGICAL INFORMATION

Toxicity to Fish:	LC50 18 mg/l 96 hour (Rainbow trout) (under static conditions in the presence of humic acid) LC50: 3000 mg/L 96-hour, (Menidia beryllina)
Toxicity to Invertebrates:	LC50 2800 mg/L 48 hour (Daphnia magna) (under static conditions in the presence of humic acid) LC50 200 mg/L 96 hour (Mysid shrimp)

Toxicity to Algae:	Not determined
Toxicity to Sewage Bacteria:	Not determined
Activated Sludge Respiration Inhibition Test:	Not determined
Biochemical Oxygen Demand (BOD):	Not determined
Chemical Oxygen Demand (COD):	Not determined
Total Oxygen Demand (TOD):	Not determined
Biodegradability:	Based on the results of 28-Day Biodegradability assay, this product is not readily biodegradable (< 20% after 28 days).
Bioaccumulation:	Not determined
Additional Environmental Data:	This product contains cationic polymer(s) that may be toxic to aquatic organisms when tested in pure (distilled) water. Toxicity is greatly reduced by particles in natural water.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with local, state, provincial and federal regulations.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT):

Not regulated for this mode of transport.

International Maritime Dangerous Goods (IMDG):

Not regulated for this mode of transport.

International Air Transportation Authority (IATA):

Not regulated for this mode of transport.

15. REGULATORY INFORMATION

Federal Regulations

OSHA Hazardous Substance: This material is classified as hazardous under OSHA regulations

Clean Air Act - Hazardous Air Pollutants (HAP): This product contains the following Hazardous Air Pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

Components	CAA Section 112 Statutory Hazardous Air Pollutants
2-propenamide 79-06-1 (0-0.05 %)	Listed.

Clean Air Act - Volatile Organic Compounds (VOC): This product contains the following SOCMI Intermediate or Final Volatile Organic Compounds (VOC), as defined by the U.S. Clean Air Act Section 111 (40 CFR 60.489).

Components	CAA Section 111 Volatile Organic Compounds
Hexanedioic acid 124-04-9	Listed.
2-propenamide 79-06-1	Listed.

Clean Air Act - Ozone Depleting Substances (ODS): This product neither contains, nor was manufactured with, a Class I or Class II ozone depleting substance (ODS), as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A+B).

Clean Water Act - Priority Pollutants (PP): This product does not contain any priority pollutants listed under the U.S. Clean Water Act Section 307 (2)(1) Priority Pollutant List (40 CFR 401.15).

Resource Conservation and Recovery Act (RCRA): Not a hazardous waste under RCRA (40 CFR 261.21).

SARA Section 302 Extremely Hazardous Substances (EHS): This product contains the following component(s) regulated under Section 302 (40 CFR 355) as Extremely Hazardous Substances.

Components	Section 302 Extremely Hazardous Substances (EHS)
2-propenamide 79-06-1 (0-0.05 %)	Listed.

SARA Section 304 CERCLA Hazardous Substances: This product contains the following component(s) regulated under Section 304 (40 CFR 302) as hazardous chemicals for emergency release notification ("CERCLA" List).

Components	Section 304 CERCLA Hazardous Substances	CERCLA Reportable Quantity
Hexanedioic acid 124-04-9 (3-6 %)	Listed.	5000 LBS
2-propenamide 79-06-1 (0-0.05 %)	Listed.	5000 LBS

SARA Section 311/312 Hazard Communication Standard (HCS): This product is regulated under Section 311/312 HCS (40 CFR 370). Its hazard(s): Acute (immediate) health hazard.

SARA Section 313 Toxic Chemical List (TCL): This product does not contain any components reportable under Sec 313 (40 CFR 372).

TSCA Section 8(b) Inventory Status: All component(s) comprising this product are either exempt or listed on the TSCA inventory.

TSCA Section 5(e) Consent Orders: This product is not subject to a Section 5(e) Consent Order.

TSCA Significant New Use Rule (SNUR): This product is not subject to a Significant New Use Rule (SNUR).

TSCA Section 5(f): This product is not subject to a Section 5(f)/6(a) rule.

TSCA Section 12(b) Export Notification: This product does not contain any component(s) that are subject to a Section 12(b) Export Notification

State Regulations

California Proposition 65: This product contains the following component(s) currently on the California list of Known Carcinogens and Reproductive Toxins.

Components	California Proposition 65
2-propenamide *79-06-1*	Carcinogenic.

Pennsylvania Right-To-Know: This product contains the following component(s) which are subject to Pennsylvania Right-to-Know disclosure requirement.

Components	CAS Number	Pennsylvania Right-to-Know
Hexanedioic acid	124-04-9	Listed. Environmental hazard.
2-propenamide	79-06-1	Listed. Environmental hazard.
Water	7732-18-5	Not Listed.
Ethanaminium, N,N,N-trimethyl-2-[(1-oxo-2-propenyl)oxy]-, chloride, polymer with 2-propenamide	69418-26-4	Not Listed.

International Regulations

Chemical Weapons Convention (CWC): This product does not contain any component(s) listed under the Chemical Weapons Convention Schedule of Chemicals.

Domestic Substance List (DSL) Status: All components either exempt or listed on the DSL.

16. OTHER INFORMATION

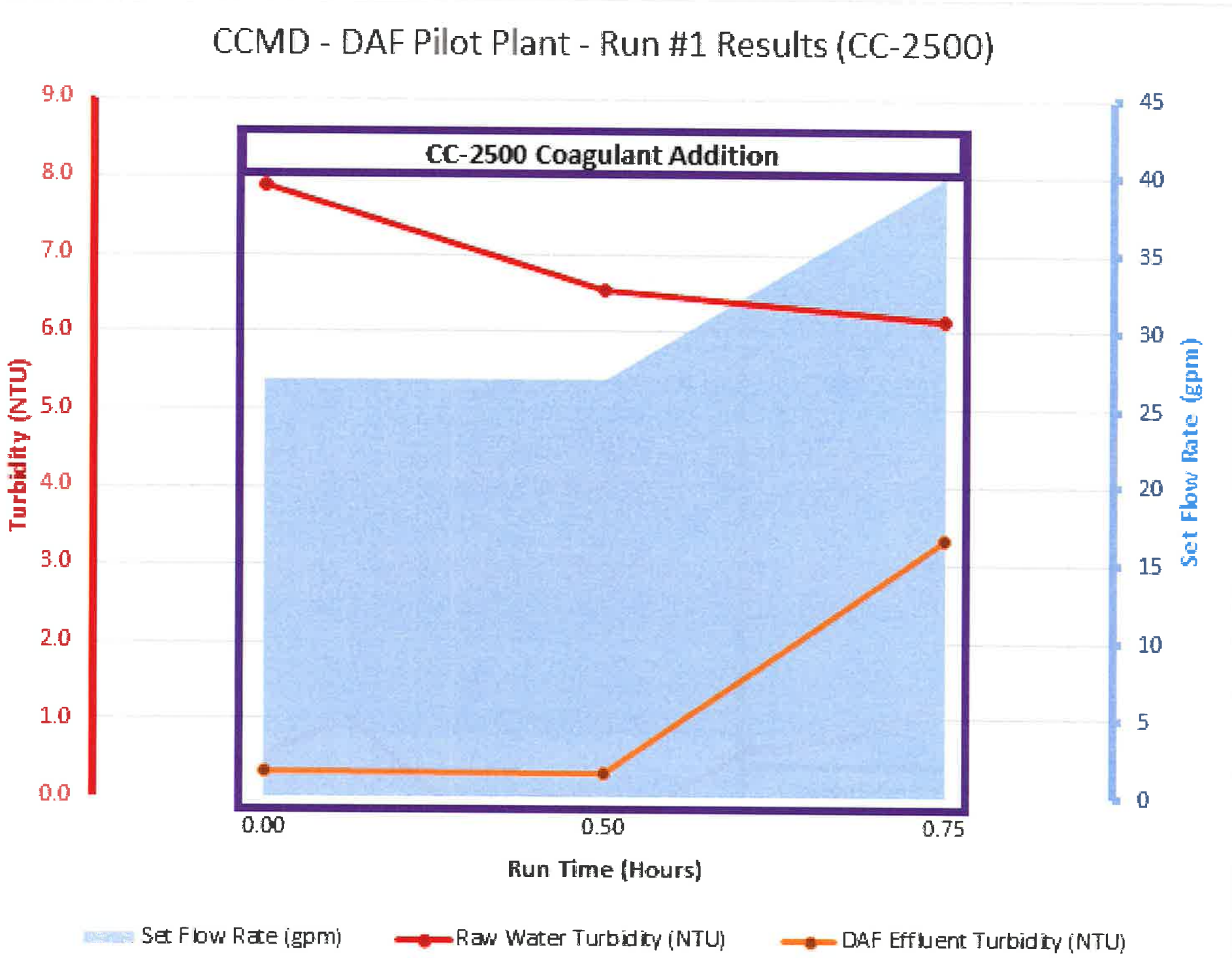
Reason for revision: Section(s) revised: 3,8

Disclaimer: The information contained herein is based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to such data or information. The user is responsible for determining whether the product is suitable for its intended conditions of use.

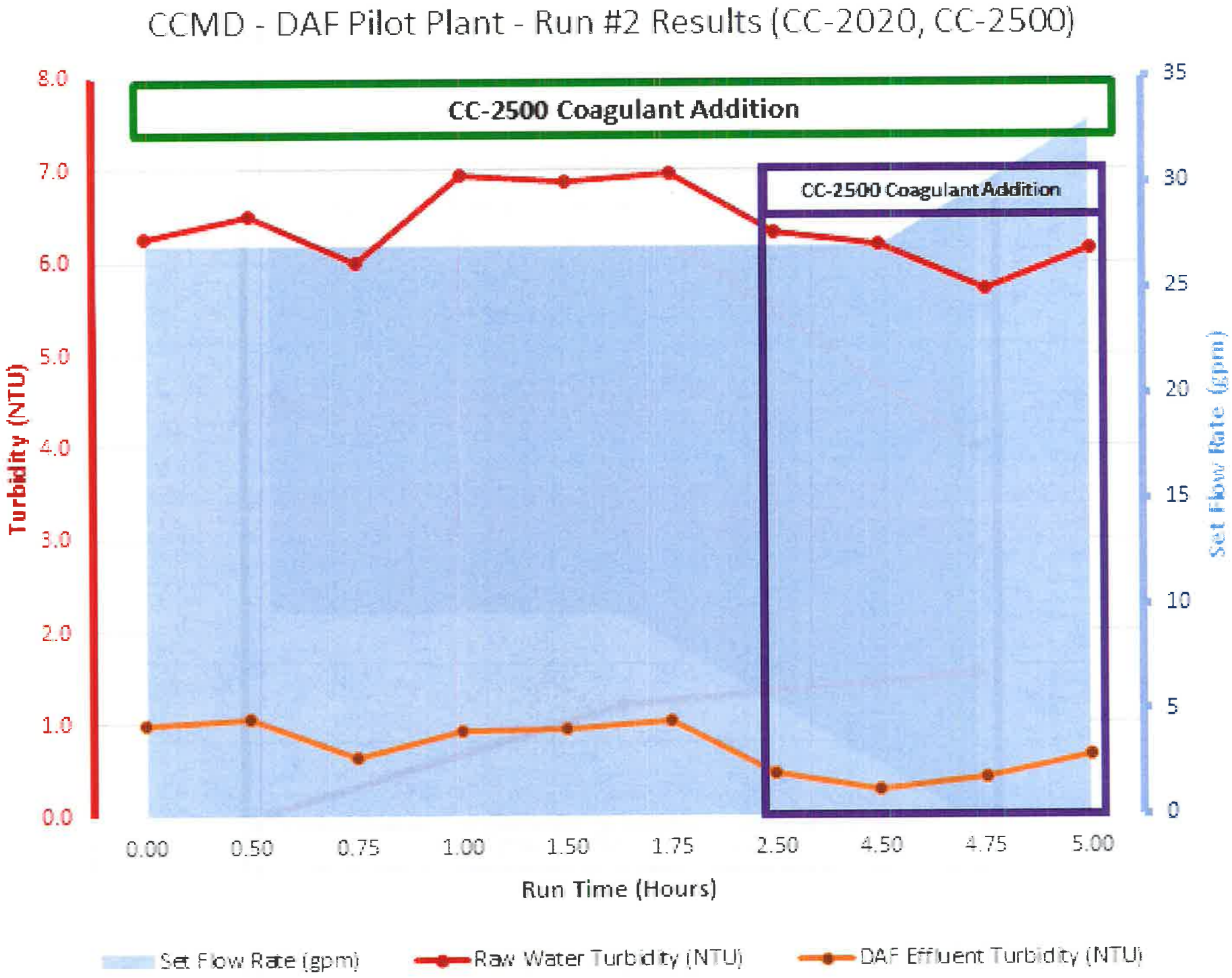
APPENDIX #3:

DAF Pilot Results (Graph #1 and Graph #2)

NOCO
ENGINEERING
COMPANY



Graph 1: DAF Pilot System Results – Run #1



Graph 2: DAF Pilot System Results – Run #2

COLORADO CITY METROPOLITAN DISTRICT
PUBLIC NOTICE
BOARD OF DIRECTORS PUBLIC HEARING

A **Public Hearing** of the Board of Directors of the Colorado City Metropolitan District will be held Tuesday July 26, 2022, beginning **at 6:00 p.m.**

1. CALL TO ORDER.
   Chairman Elliot closes the Regular Meeting to open the Public Hearing at 6:45 p.m.
2. QUORUM CHECK.
   Chairperson Neil Elliot
   Secretary Greg Collins
   Treasurer Harry Hochstetler via Zoom
   Director Terry Kraus
   Director Sarah Hunter

Regarding a proposed amendment to the Rules and Regulations of the District. The proposed amendment would establish a procedure and resolution for the District to Amend 16.2.3 Unlicensed Vehicles Authorizing Use of Off Highway Vehicles on Colorado City Roads.

Copies of the resolution were made available to the public. Chairman Elliot asked the community members present if they wanted it read word for word. Community members asked for a summary of the Resolution. Manager Eccher and Director Kraus presented the short overview of the Resolution to the public as requested. Chairman Elliot opened the floor up for community input. There was no open comments from the Community.

6. ADJOURNMENT.
   Chairman Elliot closes the Public Hearing at 6:50 p.m. and reopens the Regular Meeting.

COLORADO CITY METROPOLITAN DISTRICT

_____
Neil Elliot, Chairperson

ATTEST:

_____
Greg Collins, Secretary
Approved this 9th day of August 2022

COLORADO CITY METROPOLITAN DISTRICT
PUBLIC NOTICE
BOARD OF DIRECTORS STUDY SESSION

A study session for the Board of Directors of the Colorado City Metropolitan District will be held Tuesday July 26, 2022, beginning at 6:00 p.m. Chairman Elliot calls the meeting to session.

1. Resolution 08-2022 Amending of Rules and Regs 16.2.3
   Public hearing will proceed later in the meeting.
2. Resolution 09-2022 Accepting and confirming roads
   That will be maintained by CCMD. Additional roads that need to be added to the list.
   Mr. Collins wanted to make sure that this is housekeeping. Chairman Elliot wants to know if the roads were expedited. Manager Eccher noted that they were expedited, and they need to be updated to show that these are roads that are taken care of by CCMD, not Pueblo County.
3. Colter presentation
   Short 10-minute presentation with a power point for effective utility management.
4. Post Office discussion
   New contract owner came in Terry Ivory sharing his concerns as well as the concerns that he has for the Community, and he believes that we are owed our own Post office. Not ran a post Office before and he is looking for support from the community to support the effort in Providing the community with its own post office. There are a lot of behind-the-scenes actions That the postmaster general has not complied with, and he may be out of the building by next week. Total lack of funding from Denver. Postmaster general needs to be sent all complaints from the community. Interrupted service again as of this Saturday. Need to get ahold of representatives and share these concerns immediately.
5. CCAAC Review
   8 first letters 5 second letters and 6 third letters recommended for approval. Along with approval of a garage and a fence. Chairman Elliot would also like to add a cease and deist letter to the occupants on Alondra.

COLORADO CITY METROPOLITAN DISTRICT

_____

Neil Elliot, Chairperson

ATTEST:

_____

Greg Collins, Secretary
Approved this 9th day of August 2022

These minutes are not verbatim to the meeting and should not be considered a complete record of all discussions during the meeting. For complete proceedings and statements, please refer to the video or audio recording of the meeting.

BOARD OF DIRECTORS REGULAR MEETING

A regular meeting of the Board of Directors of the Colorado City Metropolitan District will be held Tuesday July 26, 2022, beginning at 6:15 p.m.

1. CALL TO ORDER. Chairman Elliot calls the Regular Meeting to order at 6:40 p.m.
2. PLEDGE OF ALLEGIANCE.
3. MOMENT OF SILENT REFLECTION.
4. QUORUM CHECK

Chairperson Neil Elliot
Secretary Greg Collins
Treasurer Harry Hochstetler via Zoom
Director Terry Kraus
Director Sarah Hunter

Also in Attendance:
Jim Eccher, District Manager
Yvonne Barron, Finance Director
Greg Bailey/Gary Golladay Water & Sewer
Ayden Gillund, Public Works

6. APPROVAL OF AGENDA

Mr. Kraus motions to motions to approve the Agenda. Mr. Collins seconds the motion. Chairman Elliot calls the vote. All Board Members are in favor. The Agenda is approved.

6. APPROVAL OF MINUTES.

Regular Meeting July 12, 2022
CCACC Minutes July 21, 2022

Mr. Collins motions to approve the minutes. Chairman would like to amend the motion, the amendment was withdrawn before completed. Ms. Hunter seconds the motion. Chairman Elliot calls the vote. All Board Members approve. The Minutes are approved.

7. BILLS PAYABLE.

Mr. Collins poses the question about the charges for Caselle and has multiple concerns. Finance Director explained the charges. Mr. Collins is still concerned with the charges and why they are so high at this time if they are processor issues or if it on the Caselle side. Chairman Elliot has a concern with the Natural Gas bill from the Golf Course and why is it so high currently. Manager Eccher will investigate and report back to the Board. All Board members are in favor. Chairman Elliot states to pay the bills.

8. FINANCIAL REPORT.

Getting back to current status. Property sales are down this year due to not selling property. There is nothing else that stands out

9. OPERATIONAL REPORT.
   a. CCMD Directors
   b. Beckwith Dam report
   c. Committee Reports

10. READING BY CHAIRPERSON OF THE STATEMENT OF CONDUCT AND DEMEANOR.
11. CITIZENS INPUT.

Dennis Kahrs comes to the Board with 2 items this evening. His first is if there is any update on speaking with the attorney about being able to be made aware of the complainant if there is a complaint brought against a resident. Chairman Elliot states that CCMD and CCACC becomes the complainant. Also, questions about the burn pile and if there are any follow-up times. The Board shared there are none at this time and that Pueblo County will be here to next Monday to complete the wood chipping and it can also be picked up by anyone that can use it.

Daryl Mahaney presented to the Board with his concerns about the musk thistle that is growing out of control on the old 9-hole area of the golf course. He would like to point out that it is an obnoxious weed and that the previous

Board had promised that the area would be mowed down 2 times per year and that he would like to see this Happen soon. He did provide a handout to the Board and did suggest of possibly burning the musk thistle currently.
Dave Houghton Presented to the Board hand outs regarding 6 or 7 items regarding over-population. He is concerned presently with the growth in the community. He also posed the question about the remote read meters and wanted to know more about the savings that it was supposed to bring, and he would like this information sent out to the community as well. He also shared his position for the Board to consider some restraint on growth at this time until we get some improvements completed.
Matt Smith is a Rye resident that is present this evening on behalf of his Colorado City friends that are unable to be present at the meeting this evening with concerns of the encampment that has started on Alondra. He did want to point out the Schultz Corp is a nonprofit group that is looking to provide homeless services.

12. ATTORNEYS REPORT: N/A
13. AGENDA ITEMS:

Resolution 08-2022 Discussion/Action

Mr. Collins motions to accept Resolution 08-2022 currently. Ms. Hunter seconds the motion To accept Resolution 08-2022. There was no discussion at this time from the Board. Chairman Elliot calls the vote. Mr. Hochstetler yes. Ms. Hunter yes. Mr. Collins yes. Mr. Kraus yes. Chairman Elliot yes. Resolution 08-2022 adopted.

Resolution 09-2022 Accepting and confirming roads Discussion/Action

Mr. Kraus motions to accept Resolution 09-2022 Accepting and confirming roads. Mr. Collins seconds the motion to accept Resolution 09-2022. No discussion amongst the Board Members. Chairman Elliot calls the vote. Ms. Hunter yes. Chairman Elliot yes. Mr. Collins yes. Mr. Kraus yes. Mr. Hochstetler yes. Resolution 09-2022 has been adopted.

14. OLD BUSINESS. Covenants Lawyer/Applewood Park
Duell well/ Utility Director/Gravel Status /Lot Line Vacation for 70&71 unit 20

15. NEW BUSINESS:

Mr. Collins motions to set a Public Hearing to raise tap fees as previously stated to $20,000.00. Mr. Hochstetler seconds the motion. Chairman Elliot calls the vote to set a Public Hearing in 30 days to raise tap fees. Mr. Kraus yes. Mr. Collins yes. Ms. Hunter yes. Mr. Hochstetler yes. Chairman Elliot yes. Motion passes.

Mr. Collins motions to ask Mr. Kraus to draft a letter addressed to two Senator and a Congressman from the Board in support of assistance with the Colorado City Post Office. Mr. Hochstetler seconds the motion. Chairman Elliot calls the vote. Mr. Kraus yes. Mr. Hochstetler yes. Ms. Hunter yes. Mr. Collins yes. Chairman Elliot yes. Motion passes.

16. CCACC:

A. New Construction
   1. 4531 Manitou Drive Garage
   2. 4155 Ouray Fence

Mr. Collins motions to approve the garage at 4531 Manitou Dr and the fence at 4155 Ouray. Mr. Kraus seconds the motion. The vote is called. Ms. Hunter yes. Chairman Elliot yes. Mr. Collins yes. Mr. Kraus Mr. Hochstetler yes. Approved.

B. Actions
   a. 8 First Letters
   b 5 Second letters
   c. 6 Third letters
   d. 0 Unauthorized Structure

e. 1 Cease and Desist Alondra

Mr. Kraus motions to approve all letter and Cease and Desist to be sent. Mr. Hunter seconds the Motion. The vote is called. Mr. Hochstetler yes. Ms. Hunter yes. Mr. Collins yes. Chairman Elliot yes. All letters are approved.

17. CORRESPONDENCE: N/A
18. EXECUTIVE SESSION: N/A

19. ADJOURNMENT.

Mr. Collins motions for adjournment. Ms. Hunter seconds the motion. Chairman Elliot adjourns the meeting At 8:00 p.m.

COLORADO CITY METROPOLITAN DISTRICT

_____

Neil Elliot, Chairperson

ATTEST:

_____

Greg Collins, Secretary
Approved this 9th day of August 2022

These minutes are not verbatim to the meeting and should not be considered a complete record of all discussions during the meeting. For complete proceedings and statements, please refer to the video or audio recording of the meeting.

Report Criteria:
Report type: GL detail
Check Type = {<>} "Adjustment"

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
35630							
08/22	08/05/2022	35630	**A Squared Instruments and Con**	Labor, Parts, July Svcs/WTP	02-0100-7122	5,635.75	5,635.75
08/22	08/05/2022	35630	**A Squared Instruments and Con**	Labor, Parts, July Svcs/WWTP	03-0100-7122	5,635.74	5,635.74
Total 35630:							11,271.49
35631							
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/Roads	01-6000-7151	429.77	429.77
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/P&R	01-0208-7151	496.23	496.23
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/WTP	02-0100-7151	595.47	595.47
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/WWTP	03-0100-7151	396.96	396.96
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/Adm	01-0100-7151	66.44	66.44
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/GC	04-0100-7151	989.56	989.56
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/GCM	04-0201-7151	1,824.30	1,824.30
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/Roads	01-6000-7151	208.54	208.54
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/P&R	01-0208-7151	246.19	246.19
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/WTP	02-0100-7151	295.43	295.43
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/WWTP	03-0100-7151	196.95	196.95
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/Adm	01-0100-7151	37.64	37.64
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/Roads	01-6000-7151	245.44	245.44
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/P&R	01-0208-7151	306.79	306.79
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/WTP	02-0100-7151	368.15	368.15
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/WWTP	03-0100-7151	245.44	245.44
08/22	08/05/2022	35631	**Acorn Petroleum, Inc**	Fuel/Adm	01-0100-7151	61.34	61.34
Total 35631:							7,010.64
35632							
08/22	08/05/2022	35632	**ALAN GARST**	Telephone Reimbursement/WTP	02-0100-7193	22.50	22.50
08/22	08/05/2022	35632	**ALAN GARST**	Telephone Reimbursement/WWTP	03-0100-7193	7.50	7.50
Total 35632:							30.00
35633							
08/22	08/05/2022	35633	**Arkansas Valley Co-op Assn**	Propane/P&R	01-0208-7191	360.24	360.24
Total 35633:							360.24
35634							
08/22	08/05/2022	35634	**Ayden Gillund**	Telephone Reimburse/WTP	02-0100-7193	9.00	9.00
08/22	08/05/2022	35634	**Ayden Gillund**	Telephone Reimburse/WWTP	03-0100-7193	15.00	15.00
08/22	08/05/2022	35634	**Ayden Gillund**	Telephone Reimburse/Adm	01-0100-7193	3.00	3.00
08/22	08/05/2022	35634	**Ayden Gillund**	Telephone Reimburse/Road	01-6000-7193	3.00	3.00
Total 35634:							30.00
35635							
08/22	08/05/2022	35635	**Beverly Fodor**	Telephone Reimbursement/Adm	01-0100-7193	10.50	10.50
08/22	08/05/2022	35635	**Beverly Fodor**	Telephone Reimbursement/WTP	02-0100-7193	7.50	7.50
08/22	08/05/2022	35635	**Beverly Fodor**	Telephone Reimbursement/WWTP	03-0100-7193	4.50	4.50
08/22	08/05/2022	35635	**Beverly Fodor**	Telephone Reimbursement/GC	04-0100-7193	1.50	1.50
08/22	08/05/2022	35635	**Beverly Fodor**	Telephone Reimbursement/GCM	04-0201-7193	1.50	1.50
08/22	08/05/2022	35635	**Beverly Fodor**	Telephone Reimbursement/P&R	01-0208-7193	4.50	4.50

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
Total 35635:							30.00
35636							
08/22	08/05/2022	35636	**Christoffer Robinson**	Telephone Reimbursement/WTP	02-0100-7193	13.50	13.50
08/22	08/05/2022	35636	**Christoffer Robinson**	Telephone Reimbursement/WWTP	03-0100-7193	13.80	13.80
08/22	08/05/2022	35636	**Christoffer Robinson**	Telephone Reimburse/Roads	01-6000-7193	2.70	2.70
Total 35636:							30.00
35637							
08/22	08/05/2022	35637	**Christy Gookin**	Cleaning-July/Adm	01-0100-7122	150.00	150.00
Total 35637:							150.00
35638							
08/22	08/05/2022	35638	**Cintas Corporation #562**	Janitorial Svs/GCM	04-0201-7122	56.01	56.01
08/22	08/05/2022	35638	**Cintas Corporation #562**	Janitorial Svs/GCM	04-0201-7122	56.01	56.01
Total 35638:							112.02
35639							
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	5000 Cureno Verde/P&R	01-0207-7192	48.80	48.80
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	4500 Cuerno Verde/GCM	04-0201-7192	60.32	60.32
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	4497 Bent Brothers/ADM	01-0100-7192	32.68	32.68
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	6042 9000 Hwy 165/P&R	01-0208-7192	58.10	58.10
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	9000 Hwy 165/P&R	01-0208-7192	34.41	34.41
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	9000 Hwy 165 Showers/P&R	01-0208-7192	100.16	100.16
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	5000 E Colorado Blvd/WTP	02-0100-7192	85.80	85.80
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	5000 E Colorado Blvd/WWTP	03-0100-7192	85.80	85.80
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	55 N Parkway/GC	04-0100-7192	579.72	579.72
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	Hole 14/GC	04-0100-7192	80.07	80.07
08/22	08/05/2022	35639	**Colorado City Metropolitan Dist**	5218 Monte Vista/P&R	01-0203-7192	80.70	80.70
Total 35639:							1,246.56
35640							
08/22	08/05/2022	35640	**Colorado Dept. of Public Health**	State Licensing-Surface Water Sup/WTP	02-0100-7125	465.00	465.00
08/22	08/05/2022	35640	**Colorado Dept. of Public Health**	State Licensing-WWTP/WWTP	03-0100-7122	2,733.00	2,733.00
08/22	08/05/2022	35640	**Colorado Dept. of Public Health**	State Licensing for Biosolids/WWTP	03-0100-7122	580.00	580.00
08/22	08/05/2022	35640	**Colorado Dept. of Public Health**	State Licensing-Pretreatment/WTP	02-0100-7125	92.00	92.00
Total 35640:							3,870.00
35641							
08/22	08/05/2022	35641	**Colorado Golf & Turf**	Arm, Windshild/GC	04-0100-7150	267.53	267.53
08/22	08/05/2022	35641	**Colorado Golf & Turf**	A-arm,Key/GC	04-0100-7150	128.51	128.51
Total 35641:							396.04
35642							
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./Adm	01-0100-7144	1,972.00	1,972.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./Roads	01-6000-7144	119.00	119.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./P&R	01-0208-7144	2,412.00	2,412.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./P&R	01-0203-7144	717.00	717.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./P&R	01-0207-7144	735.00	735.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./WTP	02-0100-7144	7,871.00	7,871.00

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./WWTP	03-0100-7144	9,026.00	9,026.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./GC	04-0100-7144	2,965.00	2,965.00
08/22	08/05/2022	35642	**Colorado Special Districts Prop**	Property & Liability Ins./GCM	04-0201-7144	209.00	209.00
Total 35642:							26,026.00
35643							
08/22	08/05/2022	35643	**Core & Main LP**	Concr Pad,6MJ 90 C153 IMP/WTP	02-0100-7150	400.44	400.44
Total 35643:							400.44
35644							
08/22	08/05/2022	35644	**Cristy Adams**	Telephone Reimbursement/Adm	01-0100-7193	6.00	6.00
08/22	08/05/2022	35644	**Cristy Adams**	Telephone Reimburse/WTP	02-0100-7193	15.00	15.00
08/22	08/05/2022	35644	**Cristy Adams**	Telephone Reimburse/WWTP	03-0100-7193	9.00	9.00
Total 35644:							30.00
35645							
08/22	08/05/2022	35645	**Daniel Bloodworth**	Telephone Reimburse/WTP	02-0100-7193	15.00	15.00
08/22	08/05/2022	35645	**Daniel Bloodworth**	Telephone Reimburse/WWTP	03-0100-7193	15.00	15.00
Total 35645:							30.00
35646							
08/22	08/05/2022	35646	**Direct Discharge Consulting, LL**	July ORC, Svc/WWTP	03-0100-7122	840.00	840.00
Total 35646:							840.00
35647							
08/22	08/05/2022	35647	**Donald Anzlovar (2)**	Telephone Reimbursement	04-0201-7193	30.00	30.00
Total 35647:							30.00
35648							
08/22	08/05/2022	35648	**DPC Industries, Inc.**	Chlorine Cyl Rental/WTP	02-0100-7150	140.00	140.00
Total 35648:							140.00
35649							
08/22	08/05/2022	35649	**Evoqua Water Technologies**	1 Tote AKTA/WTP	01-0100-7150	7,343.70	7,343.70
Total 35649:							7,343.70
35650							
08/22	08/05/2022	35650	**FEDEX**	Transport Samples/WWTP	03-0100-7150	53.32	53.32
08/22	08/05/2022	35650	**FEDEX**	Transport Samples/WTP	02-0100-7150	48.67	48.67
Total 35650:							101.99
35651							
08/22	08/05/2022	35651	**Fidelity National Title**	Refund for AOS - Patricia Martin	19-0000-1991	101.00	101.00
Total 35651:							101.00
35652							
08/22	08/05/2022	35652	**Fleet Supply**	Battery, oil&air filters/WTP	02-0100-7150	136.49	136.49

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
08/22	08/05/2022	35652	**Fleet Supply**	Battery, oil&air filters/WWTP	03-0100-7150	136.49	136.49
08/22	08/05/2022	35652	**Fleet Supply**	Parts for 1995 F150/P&R	01-0208-7150	140.61	140.61
Total 35652:							413.59
35653							
08/22	08/05/2022	35653	**Glass Force South**	Club house Doors/GC	04-0100-7122	2,299.00	2,299.00
08/22	08/05/2022	35653	**Glass Force South**	Door-Cold Springs Chem Room/WTP	02-0100-7122	1,369.00	1,369.00
Total 35653:							3,668.00
35654							
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Sleeve Comp,Dye Liq/WTP	02-0100-7150	16.56	16.56
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	SmartFlo Hose/WTP	02-0100-7150	47.99	47.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Cleanr Brake/P&R	01-0208-7150	13.98	13.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Safty Gls, Keys/WTP	02-0100-7150	22.78	22.78
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Misc Hardware/P&R	01-0208-7150	13.14	13.14
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Keys/WTP	02-0100-7150	2.79	2.79
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Bolt, Goggles/WWTP	03-0100-7150	29.15	29.15
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Shims/P&R	01-0208-7150	11.98	11.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Recovery Strap/WTP	02-0100-7150	39.98	39.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Vinyl Tubing,Antifreeze/P&R	01-0208-7150	36.85	36.85
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Clnr, Auto Bulb Thred Gel/P&R	01-0208-7150	34.75	34.75
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Motor Oil/P&R	01-0208-7150	11.18	11.18
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Silicon/WWTP	03-0100-7150	7.59	7.59
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	BRM/Dslpn/P&R	01-0208-7150	16.99	16.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Distilld Watr/WWTP	03-0100-7150	23.94	23.94
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Led Plug/Play/P&R	01-0208-7150	33.98	33.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Bypass Lopper/WWTP	03-0100-7150	22.99	22.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Elbow,Coupler PVC/WTP	02-0100-7150	27.45	27.45
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	DSP Gloves,Coupl Insrt/GCM	04-0201-7150	29.76	29.76
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Cement PVC,HSE Clmp/GCM	04-0201-7150	25.17	25.17
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	V Belt/P&R	01-0208-7150	7.99	7.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Athl Fld STPPNT/P&R	01-0208-7150	43.96	43.96
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Insct Repel Spray/P&R	01-0208-7150	34.95	34.95
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Return	01-0208-7150	34.95-	34.95-
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Insct RePell Spray/P&R	01-0208-7150	39.90	39.90
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Digital Glass Food Scl/P&R	01-0208-7150	29.99	29.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Spade Drain,Shvl Rnd/WTP	02-0100-7150	59.98	59.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Spade Drain,Shvl Rnd/WWTP	03-0100-7150	59.98	59.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Dmnd Bld Trbo, Disp Mask/WTP	02-0100-7150	19.98	19.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Grnd Plug 15A Blk/P&R	02-0100-7150	11.98	11.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	LED A19 60W 10PK/WTP	02-0100-7150	14.99	14.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Flag Cotton 4x5/ADM	01-0100-7150	44.99	44.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Super Wheel Chock Rp/WTP	02-0100-7150	19.99	19.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Super Wheel Chock Rp/WWTP	03-0100-7150	19.99	19.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Valve Float Cooler/WTP	02-0100-7150	8.59	8.59
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Battry Lith,Mark Paint/GCM	04-0201-7150	39.56	39.56
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	PadlockCMBO,SprgSnap/P&R	01-0208-7150	29.74	29.74
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Ext Cord/P&R	01-0208-7150	74.99	74.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Cowhide Glvs 3/P&R	01-0208-7150	47.97	47.97
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Elbow Insrt Poly/GCM	04-0201-7150	5.97	5.97
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Distilld Watr/WTP	02-0100-7150	19.95	19.95
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Propane,Wasp&HornSpry/WTP	02-0100-7150	46.19	46.19
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Bug&Wasp Spry/WTP	02-0100-7150	39.54	39.54
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	TidyCat Scp/WTP	02-0100-7150	16.99	16.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Bolt U/WWTP	03-0100-7150	3.98	3.98

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Bolt U/WWTP	03-0100-7150	7.96	7.96
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Misc Hardware/WWTP	03-0100-7150	11.23	11.23
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	All Season Hose/WTP	02-0100-7150	15.99	15.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Adpt Poly,Bushing,Coupler/WTP	02-0100-7150	47.75	47.75
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Windswash,Tarp,Tie/WTP	02-0100-7150	17.76	17.76
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Chanin Coil/WTP	02-0100-7150	7.98	7.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Ace Line Level/WTP	02-0100-7150	4.99	4.99
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	2-Cycle Full Syn Oil/Rds	01-6000-7150	20.42	20.42
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Reflective Tape/WTP	02-0100-7150	9.98	9.98
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Clamp Hose/WTP	02-0100-7150	41.44	41.44
08/22	08/05/2022	35654	**Greenhorn Valley Ace Hardware**	Tee PVC,Couple Sch/WTP	02-0100-7150	20.57	20.57
Total 35654:							1,382.26
35655							
08/22	08/05/2022	35655	**Gregory Collins**	July Board Mtgs/Adm	01-0100-7122	50.00	50.00
Total 35655:							50.00
35656							
08/22	08/05/2022	35656	**Harry Hochstetler**	July Board Mtgs/Adm	01-0100-7122	100.00	100.00
Total 35656:							100.00
35657							
08/22	08/05/2022	35657	**James Eccher**	Telephone Reimbursement/Adm	01-0100-7193	15.00	15.00
08/22	08/05/2022	35657	**James Eccher**	Telephone Reimbursement/WTP	02-0100-7193	10.50	10.50
08/22	08/05/2022	35657	**James Eccher**	Telephone Reimbursement/WWTP	03-0100-7193	4.50	4.50
Total 35657:							30.00
35658							
08/22	08/05/2022	35658	**Jason Anglin**	Customer refund overpayment 1776.01	19-0000-1991	51.08	51.08
Total 35658:							51.08
35659							
08/22	08/05/2022	35659	**Jeremy Wilcox**	Condensation Pump/WWTP	03-0100-7150	183.00	183.00
Total 35659:							183.00
35660							
08/22	08/05/2022	35660	**JM Repair Fabrication and Mac**	Potholer Repair/WWTP	03-0100-7122	475.00	475.00
Total 35660:							475.00
35661							
08/22	08/05/2022	35661	**Jody Minkler**	Telephone Reimbursement/WTP	02-0100-7193	15.00	15.00
08/22	08/05/2022	35661	**Jody Minkler**	Telephone Reimbursement/WWTP	03-0100-7193	15.00	15.00
Total 35661:							30.00
35662							
08/22	08/05/2022	35662	**Josh Briggs**	Telephone Reimburse/P&R	01-0208-7193	30.00	30.00
Total 35662:							30.00

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
35663							
08/22	08/05/2022	35663	**L.L. Johnson Distributing Co**	Brass Fix,Adpt,SlipFix/GCM	04-0201-7150	176.10	176.10
Total 35663:							176.10
35664							
08/22	08/05/2022	35664	**Loan Payment Processing Cent**	Grader Lease Pmt-Sept 2022/Roads	01-6000-7730	9,884.45	9,884.45
Total 35664:							9,884.45
35665							
08/22	08/05/2022	35665	**Neil Elliot**	July Board Mtgs/Adm	01-0100-7122	100.00	100.00
Total 35665:							100.00
35666							
08/22	08/05/2022	35666	**Phillip Spicer**	Reimburse GC Deposit Overpaid/GC	01-4000-4510	91.98	91.98
Total 35666:							91.98
35667							
08/22	08/05/2022	35667	**Procom LLC**	Pre-Employment Testing/WTP	02-0100-7122	27.50	27.50
08/22	08/05/2022	35667	**Procom LLC**	Pre-Employment Testing/WWTP	03-0100-7122	27.50	27.50
Total 35667:							55.00
35668							
08/22	08/05/2022	35668	**Pueblo Dept. of Public Health &**	Testing/WTP	02-0100-7122	85.00	85.00
08/22	08/05/2022	35668	**Pueblo Dept. of Public Health &**	Testing/WWTP	03-0100-7122	93.00	93.00
Total 35668:							178.00
35669							
08/22	08/05/2022	35669	**RJH Consultants, Inc**	Dam Proj-Feasibility Prog Rep 4?WTP	02-0100-7720	7,802.60	7,802.60
Total 35669:							7,802.60
35670							
08/22	08/05/2022	35670	**Robison Construction**	Repair Roof WTP/WTP	02-0100-7122	1,450.00	1,450.00
08/22	08/05/2022	35670	**Robison Construction**	Repair Roof Club House/GC	04-0100-7122	1,250.00	1,250.00
08/22	08/05/2022	35670	**Robison Construction**	Repair Roof WWTP/WWTP	03-0100-7122	1,950.00	1,950.00
Total 35670:							4,650.00
35671							
08/22	08/05/2022	35671	**RTC C/O HIGHLNE SERVICES**	Telephone/Adm	01-0100-7193	557.54	557.54
08/22	08/05/2022	35671	**RTC C/O HIGHLNE SERVICES**	Telephone/P&R	01-0208-7193	161.05	161.05
08/22	08/05/2022	35671	**RTC C/O HIGHLNE SERVICES**	Telephone/WWTP	03-0100-7193	226.51	226.51
08/22	08/05/2022	35671	**RTC C/O HIGHLNE SERVICES**	Telephone/WTP	02-0100-7193	360.29	360.29
08/22	08/05/2022	35671	**RTC C/O HIGHLNE SERVICES**	Telephone/GC	04-0100-7193	180.44	180.44
08/22	08/05/2022	35671	**RTC C/O HIGHLNE SERVICES**	Telephone/GCM	04-0201-7193	100.33	100.33
Total 35671:							1,586.16
35672							
08/22	08/05/2022	35672	**Russell Maddox**	Telephone Reimburse/WTP	02-0100-7193	15.00	15.00
08/22	08/05/2022	35672	**Russell Maddox**	Telephone Reimburse/WWTP	03-0100-7193	15.00	15.00

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
Total 35672:							30.00
35673							
08/22	08/05/2022	35673	**Safety-Kleen Systems Inc**	Parts Washer Solvent/GCM	04-0201-7122	366.43	366.43
Total 35673:							366.43
35674							
08/22	08/05/2022	35674	**Sam's Club Direct**	Pool Concession/Pool	01-0207-7112	184.90	184.90
08/22	08/05/2022	35674	**Sam's Club Direct**	Pool Concession/Pool	01-0207-7112	491.31	491.31
08/22	08/05/2022	35674	**Sam's Club Direct**	Pool Concession/Pool	01-0207-7112	384.55	384.55
08/22	08/05/2022	35674	**Sam's Club Direct**	Tax Refund/ADM	01-0100-7150	40.20-	40.20-
Total 35674:							1,020.56
35675							
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	03-0100-7190	21.08	21.08
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	02-0100-7190	10.79	10.79
08/22	08/05/2022	35675	**San Isabel Electric Association**	N. Parkway Pump/GCM	04-0201-7190	93.63	93.63
08/22	08/05/2022	35675	**San Isabel Electric Association**	55 N Parkway/GC	04-0100-7190	1,127.72	1,127.72
08/22	08/05/2022	35675	**San Isabel Electric Association**	5000 East Col Blvd/W&S Shop	03-0100-7190	56.38	56.38
08/22	08/05/2022	35675	**San Isabel Electric Association**	5000 East Col Blvd/W&S Shop	02-0100-7190	56.37	56.37
08/22	08/05/2022	35675	**San Isabel Electric Association**	54 Lights/Roads	01-6000-7190	875.21	875.21
08/22	08/05/2022	35675	**San Isabel Electric Association**	4500 Cuerno Verde/GCM	04-0201-7190	49.16	49.16
08/22	08/05/2022	35675	**San Isabel Electric Association**	4500 Cuerno Verde/GCM	04-0201-7190	111.65	111.65
08/22	08/05/2022	35675	**San Isabel Electric Association**	5000 Cuerno Verde/Pool	01-0207-7190	1,076.33	1,076.33
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/Pool	01-0207-7190	16.18	16.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	Tank #1/WTP	02-0100-7190	1,913.08	1,913.08
08/22	08/05/2022	35675	**San Isabel Electric Association**	5000 Cuerno Verde Blvd/Rec Ctr	01-0203-7190	236.92	236.92
08/22	08/05/2022	35675	**San Isabel Electric Association**	Marina Sec LT/ADM	01-0100-7190	10.29	10.29
08/22	08/05/2022	35675	**San Isabel Electric Association**	Lake Beckwith Restroom/P&R	01-0208-7190	33.15	33.15
08/22	08/05/2022	35675	**San Isabel Electric Association**	5445 Cuerno Verde/GCM	04-0201-7190	10.79	10.79
08/22	08/05/2022	35675	**San Isabel Electric Association**	Rec Dist Well/WTP	02-0100-7190	35.86	35.86
08/22	08/05/2022	35675	**San Isabel Electric Association**	5600 Cuerno Verde/WTP	02-0100-7190	5,952.81	5,952.81
08/22	08/05/2022	35675	**San Isabel Electric Association**	Greenhorn Mdws Park/P&R	01-0208-7190	40.58	40.58
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	02-0100-7190	10.79	10.79
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	03-0100-7190	10.79	10.79
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.18	16.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.68	16.68
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	02-0100-7190	25.12	25.12
08/22	08/05/2022	35675	**San Isabel Electric Association**	4497 Bent Bros/ADM	01-0100-7190	190.45	190.45
08/22	08/05/2022	35675	**San Isabel Electric Association**	4497 Bent Bros/ADM	01-0100-7190	320.43	320.43
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	03-0100-7190	10.29	10.29
08/22	08/05/2022	35675	**San Isabel Electric Association**	GreenhornCampground/P&R	01-0208-7190	766.45	766.45
08/22	08/05/2022	35675	**San Isabel Electric Association**	Tank #2/WTP	02-0100-7190	61.06	61.06
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.68	16.68
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.68	16.68
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.18	16.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.18	16.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.18	16.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.18	16.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	Ball Field/P&R	01-0208-7190	47.18	47.18
08/22	08/05/2022	35675	**San Isabel Electric Association**	Greenhorn Mdws Park/P&R	01-0208-7190	36.15	36.15
08/22	08/05/2022	35675	**San Isabel Electric Association**	Gazebo/P&R	01-0208-7190	26.47	26.47
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.68	16.68
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Secuirty LT/P&R	01-0208-7190	16.18	16.18

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
08/22	08/05/2022	35675	**San Isabel Electric Association**	W&S Security LT/WTP, WWTP	03-0100-7190	10.79	10.79
08/22	08/05/2022	35675	**San Isabel Electric Association**	Greenhorn Mdws Park/P&R	01-0208-7190	170.85	170.85
08/22	08/05/2022	35675	**San Isabel Electric Association**	P&R Security LT/P&R	01-0208-7190	16.68	16.68
08/22	08/05/2022	35675	**San Isabel Electric Association**	Cold Springs Pump/WTP	02-0100-7190	346.24	346.24
08/22	08/05/2022	35675	**San Isabel Electric Association**	Cold Springs Pump Sec LT/WTP	02-0100-7190	10.29	10.29
08/22	08/05/2022	35675	**San Isabel Electric Association**	Tank #3/WTP	02-0100-7190	47.59	47.59
08/22	08/05/2022	35675	**San Isabel Electric Association**	Booster Station/WTP	02-0100-7190	202.95	202.95
08/22	08/05/2022	35675	**San Isabel Electric Association**	Park Sign/P&R	01-0208-7190	68.67	68.67
08/22	08/05/2022	35675	**San Isabel Electric Association**	15th Hole/GC	04-0100-7190	38.87	38.87
08/22	08/05/2022	35675	**San Isabel Electric Association**	Gate Tank #4/WTP	02-0100-7190	32.14	32.14
08/22	08/05/2022	35675	**San Isabel Electric Association**	Rodeo Grounds Well/WTP	02-0100-7190	223.10	223.10
08/22	08/05/2022	35675	**San Isabel Electric Association**	18th Well/WTP	02-0100-7190	177.36	177.36
08/22	08/05/2022	35675	**San Isabel Electric Association**	Kanaeche Well/STP	02-0100-7190	105.87	105.87
08/22	08/05/2022	35675	**San Isabel Electric Association**	Dixit Well/WTP	02-0100-7190	79.28	79.28
08/22	08/05/2022	35675	**San Isabel Electric Association**	Summit Well/WTP	02-0100-7190	81.05	81.05
08/22	08/05/2022	35675	**San Isabel Electric Association**	Greenhorn Park Gazebo/P&R	01-0208-7190	117.66	117.66
08/22	08/05/2022	35675	**San Isabel Electric Association**	3160 Applewood/WWTP	03-0100-7190	2,956.35	2,956.35
08/22	08/05/2022	35675	**San Isabel Electric Association**	Concession Stand/P&R	01-0208-7190	75.76	75.76
Total 35675:							18,158.46
35676							
08/22	08/05/2022	35676	**Sarah Hunter**	July Board Mtgs/Adm	01-0100-7122	100.00	100.00
Total 35676:							100.00
35677							
08/22	08/05/2022	35677	**SAVECO NORTH AMERICA INC.**	Bag Longopac 90M Long/WWTP	03-0100-7150	414.60	414.60
Total 35677:							414.60
35678							
08/22	08/05/2022	35678	**SGS North America Inc.**	Testing-Total Organic Carbon/WTP	02-0100-7122	300.00	300.00
08/22	08/05/2022	35678	**SGS North America Inc.**	Testing-Biochemical/WWTP	03-0100-7122	118.00	118.00
08/22	08/05/2022	35678	**SGS North America Inc.**	Testing-Total Organic Carbon/WTP	02-0100-7122	300.00	300.00
08/22	08/05/2022	35678	**SGS North America Inc.**	Testing-StateForms DW/WTP	02-0100-7122	398.61	398.61
08/22	08/05/2022	35678	**SGS North America Inc.**	Testing-PWSID/WWTP	03-0100-7122	218.00	218.00
08/22	08/05/2022	35678	**SGS North America Inc.**	Testing-Nitrogen, Annomia/WTP	02-0100-7122	147.84	147.84
Total 35678:							1,482.45
35679							
08/22	08/05/2022	35679	**Terry Kraus**	July Board Mtgs/Adm	01-0100-7122	100.00	100.00
Total 35679:							100.00
35680							
08/22	08/05/2022	35680	**True Value Trailers**	Repl Wheel & Bolt/WTP	02-0100-7150	91.00	91.00
Total 35680:							91.00
35681							
08/22	08/05/2022	35681	**USA Blue Book**	Wheeler,Sh Cut,Rex CTS Flare/WTP	02-0100-7150	78.70	78.70
08/22	08/05/2022	35681	**USA Blue Book**	Wheeler,Sh Cut,Rex CTS Flare/WWTP	03-0100-7150	78.70	78.70
08/22	08/05/2022	35681	**USA Blue Book**	Hach DPD,TNT+TOC/WTP	02-0100-7150	1,467.20	1,467.20
08/22	08/05/2022	35681	**USA Blue Book**	Hach DPD,TNT+TOC/WWTP	03-0100-7150	1,467.19	1,467.19

GL Period	Check Issue Date	Check Number	Payee	Description	Invoice GL Account	Invoice Amount	Check Amount
Total 35681:							3,091.79
35682							
08/22	08/05/2022	35682	**Utility Notification Center of Col**	Utility Locates/WTP	02-0100-7150	83.85	83.85
08/22	08/05/2022	35682	**Utility Notification Center of Col**	Utility Locates/WWTP	03-0100-7150	83.85	83.85
Total 35682:							167.70
35683							
08/22	08/05/2022	35683	**William Gilliam**	Customer refund overpayment 1381.01	19-0000-1991	70.86	70.86
Total 35683:							70.86
35684							
08/22	08/05/2022	35684	**Yvonne Barron (2)**	Telephone Reimbursement/ADM	01-0100-7193	15.00	15.00
08/22	08/05/2022	35684	**Yvonne Barron (2)**	Telephone Reimbursement/WTP	02-0100-7193	10.50	10.50
08/22	08/05/2022	35684	**Yvonne Barron (2)**	Telephone Reimbursement/WWTP	03-0100-7193	4.50	4.50
Total 35684:							30.00
Grand Totals:							115,641.19

Summary by General Ledger Account Number

GL Account	Debit	Credit	Proof
01-0000-2110	75.15	33,535.22-	33,460.07-
01-0100-7122	600.00	.00	600.00
01-0100-7144	1,972.00	.00	1,972.00
01-0100-7150	7,388.69	40.20-	7,348.49
01-0100-7151	165.42	.00	165.42
01-0100-7190	521.17	.00	521.17
01-0100-7192	32.68	.00	32.68
01-0100-7193	607.04	.00	607.04
01-0203-7144	717.00	.00	717.00
01-0203-7190	236.92	.00	236.92
01-0203-7192	80.70	.00	80.70
01-0207-7112	1,060.76	.00	1,060.76
01-0207-7144	735.00	.00	735.00
01-0207-7190	1,092.51	.00	1,092.51
01-0207-7192	48.80	.00	48.80
01-0208-7144	2,412.00	.00	2,412.00
01-0208-7150	622.95	34.95-	588.00
01-0208-7151	1,049.21	.00	1,049.21
01-0208-7190	1,563.40	.00	1,563.40
01-0208-7191	360.24	.00	360.24
01-0208-7192	192.67	.00	192.67
01-0208-7193	195.55	.00	195.55
01-4000-4510	91.98	.00	91.98
01-6000-7144	119.00	.00	119.00
01-6000-7150	20.42	.00	20.42
01-6000-7151	883.75	.00	883.75
01-6000-7190	875.21	.00	875.21
01-6000-7193	5.70	.00	5.70

GL Account	Debit	Credit	Proof
01-6000-7730	9,884.45	.00	9,884.45
02-0000-2110	.00	40,183.23-	40,183.23-
02-0100-7122	9,713.70	.00	9,713.70
02-0100-7125	557.00	.00	557.00
02-0100-7144	7,871.00	.00	7,871.00
02-0100-7150	3,028.54	.00	3,028.54
02-0100-7151	1,259.05	.00	1,259.05
02-0100-7190	9,371.75	.00	9,371.75
02-0100-7192	85.80	.00	85.80
02-0100-7193	493.79	.00	493.79
02-0100-7720	7,802.60	.00	7,802.60
03-0000-2110	.00	28,621.34-	28,621.34-
03-0100-7122	12,670.24	.00	12,670.24
03-0100-7144	9,026.00	.00	9,026.00
03-0100-7150	2,603.96	.00	2,603.96
03-0100-7151	839.35	.00	839.35
03-0100-7190	3,065.68	.00	3,065.68
03-0100-7192	85.80	.00	85.80
03-0100-7193	330.31	.00	330.31
04-0000-2110	.00	13,153.61-	13,153.61-
04-0100-7122	3,549.00	.00	3,549.00
04-0100-7144	2,965.00	.00	2,965.00
04-0100-7150	396.04	.00	396.04
04-0100-7151	989.56	.00	989.56
04-0100-7190	1,166.59	.00	1,166.59
04-0100-7192	659.79	.00	659.79
04-0100-7193	181.94	.00	181.94
04-0201-7122	478.45	.00	478.45
04-0201-7144	209.00	.00	209.00
04-0201-7150	276.56	.00	276.56
04-0201-7151	1,824.30	.00	1,824.30
04-0201-7190	265.23	.00	265.23
04-0201-7192	60.32	.00	60.32
04-0201-7193	131.83	.00	131.83
19-0000-1991	222.94	.00	222.94
19-0000-2110	.00	222.94-	222.94-
Grand Totals:	115,791.49	115,791.49-	.00

Dated: _____

Mayor: _____

City Council: _____

_____

_____

_____

_____

_____

City Recorder: _____

Report Criteria:
Report type: GL detail
Check.Type = {<>} "Adjustment"

2022 Month of July membership	$42.00
2021 July Revenue	$ 70,766
2022 July Revenue	$ 57,277

We had a good month from my forecast I had twelve days where we had 90 degree weather hurt us on some play a few afternoon storms we went a few days without some league play. County fair was going on at end of the month as well. Overall I was very happy with how this month went . We have all carts up and running nothing is broken down. In process of reviewing what we need to upgrade the course such as trash cans hoses etc.

HOLLYDOT
at Colorado City

2022 July-August

- Course

- (4.25") Precipitation July 1 – August 5
- Greens sprayed for Black Cut Worms 7/26 (also control Black, May/June, Japanese Beattle larve)
-Greens sprayed with fungicide 7/27 (Anthracnose and Dollar Spot present on property)
-Course being mowed heavily due high amounts of precip and favorable temps.
-Tees, approaches, collars, selected fairways sprayed with Primo (plant growth regulator) to reduce clippings and mowing frequency.

- Course Irrigation

- Course irrigated appropriately to maintain current conditions (aka, not too wet-not too dry)
- Front Nine Irrigation system issues
* (2) broken/ leaky valves, 2", Seepers (bottom valve replacement), bottom valve testing, Satellite maintenance (electro/hydrolic converters), Broken PVC "T's", Non rotating heads, ½" supply line repairs (2), antenna installed on Satellite #6 due to poor communication with computer/base station, pump house maintenance, Currently zero wildcats.
- Back Nine Irrigation issues
* Seepers on 10 and 18, Blown up head by firework at #14 Tee on July 4.

August 2022 Parks and Rec Operational Report

Campground Revenue

July 2022: $9,102.50

2022- End of July: $59,160.72

2021- End of July: $56,323.02

Mowing is consuming a lot of our time with the moisture that we have received this year.

The pool continues to be busy. We have had some issues with a few things. The booster pump quit working but we were able to get it fixed by replacing the starter on the electric motor. We are beginning to get quotes for the upgrades and repairs to the pool. I hope to have all of those figures sometime this month.

We continue to struggle to keep our old truck running. It seems as soon as we fix one issue another arises.

The seasonal crew will start school this week so our mowing operations will slow down but we will do what we can to keep up

Finance Department: June Operation Report

- Quarterly Reports completed
- Financials: Water Billing issue with the swimming pool using approximately 3.6 million gallons ($35,000) over a 3-month period. Research and troubleshooting pending on water meter.
- Meetings with Auditors to prep for audit
- Updated HR posters at all locations due to legal update
- Online work order training pending
- Grant meeting with Jim and Alison from Pueblo County regarding ARPA process best practices.
- 2023 Budget Prep – Establish Budget Committee, Plan to Engage Department Heads
- Executech bill for $612.50 from last month was reduced to $393.75.
- Classes for all employees approximately 89% completed to meet deadline on September 1.

Finance Department: June Operation Report

- Quarterly Reports completed
- Financials: Water Billing issue with the swimming pool using approximately 3.6 million gallons ($35,000) over a 3-month period. Research and troubleshooting pending on water meter.
- Meetings with Auditors to prep for audit
- Updated HR posters at all locations due to legal update
- Online work order training pending
- Grant meeting with Jim and Alison from Pueblo County regarding ARPA process best practices.
- 2023 Budget Prep – Establish Budget Committee, Plan to Engage Department Heads
- Executech bill for $612.50 from last month was reduced to $393.75.
- Classes for all employees approximately 89% completed to meet deadline on September 1.

colocitymanager@ghvalley.net

From: Michael Graber <mgraber@rjh-consultants.com>
Sent: Thursday, August 4, 2022 9:52 AM
To: colocitymanager@ghvalley.net
Subject: RE: Backhoe needed to excavate soil test pits on the west side of the lake

Jim-

I just checked with my geotechnical engineer and let's shoot for next Wednesday, August 10, 10:00 AM.

Thanks.

Michael L. Graber, P.E.
Senior Project Manager
RJH Consultants, Inc.
9800 Mt. Pyramid Ct., Suite 330
Englewood, CO, 80112
303-225-4611 ext. 356 Office
719-250-7533 Cell
Check out our new website! www.rjh-consultants.com

From: colocitymanager@ghvalley.net <colocitymanager@ghvalley.net>
Sent: Thursday, August 04, 2022 9:29 AM
To: Michael Graber <mgraber@rjh-consultants.com>
Subject: RE: Backhoe needed to excavate soil test pits on the west side of the lake

Mike

Wednesday the 10 will work best for us and will have equipment and operator what time you need him there. Will this work for you?

Thanks,

JAMES P. ECCHER
District Manager
Colorado City Metropolitan District
4497 Bent Brothers Blvd PO Box 20229
Colorado City Co 81019
Office (719) 676-3396
Cell (719) 569-5816

From: Michael Graber <mgraber@rjh-consultants.com>
Sent: Monday, August 1, 2022 11:14 AM
To: James Eccher (colocitymanager@ghvalley.net) <colocitymanager@ghvalley.net>
Subject: Backhoe needed to excavate soil test pits on the west side of the lake

Jim-

I have a geotechnical engineer currently working on projects in New Mexico that will be returning to Denver either next Tuesday or Wednesday, Aug. 9 or 10. On his way back to Denver, I would like him to stop and pick up some test pit soil samples from the west side of Lake Beckwith. This location is a potential borrow source for widening and enlarging the dam.

We will need a rubber tired backhoe and operator to excavate up to four different locations and once we have collected the samples, the excavation can be backfilled. A map is attached showing the proposed test pit locations which can be used to obtain utility locates.

I estimate 2-3 hours will be required to excavate the test pits, collect the soil samples for laboratory testing and backfill the excavations. Please advise if CCMD can supply both a backhoe and operator on either Aug. 9 or 10 for excavating the test pits.

Thanks and call me if we need to discuss.

Michael L. Graber. P.E.
Senior Project Manager
RJH Consultants, Inc.
9800 Mt. Pyramid Ct., Suite 330
Englewood, CO, 80112
303-225-4611 ext. 356 Office
719-250-7533 Cell
Check out our new website! www.rjh-consultants.com

colocitymanager@ghvalley.net

From: Ruiz, Allison - RD, State Office <allison.ruiz@usda.gov>
Sent: Wednesday, August 3, 2022 5:06 PM
To: colocitymanager@ghvalley.net
Subject: RE: Automatic reply: [External Email]Map of Boundries for Colorado City

James,

It looks like census tract 28.04 in Pueblo County best encompasses the Colorado City Metro District service territory. According to the 2006-2010 American Community Survey data, the median household income (MHI) for that census tract is $46,964. As a result, the District would qualify for up to 75% grant and our poverty interest rate. As I mentioned on our call, that in order to receive the poverty interest rate you not only have to meet the MHI requirement, but the proposed project must alleviate a health and sanitary issue.

Currently, our poverty interest rate this quarter is 2%.

Let me know if you would like to schedule a follow-up call to discuss the application process and whether or not you would like to move forward in submitting an application. Our fiscal year ends September 30th, so now is a great time to get started on an application as we are set to receive a new years allocation come October 1st.

ALLISON RUIZ
Community Programs Loan Specialist | Denver State Office
Rural Development
United States Department of Agriculture
Denver Federal Center Bldg 56, Room 2300
PO Box 25426
Denver, CO 80225-0426
Phone: (720)-544-2920 | Fax: (866)-587-7607
www.rd.usda.gov/co | Follow @RD_Colorado on Twitter
allison.ruiz@co.usda.gov
"Together, America Prospers"

Stay Connected with USDA:

USDA is an equal opportunity provider, employer, and lender.

From: colocitymanager@ghvalley.net <colocitymanager@ghvalley.net>
Sent: Tuesday, August 2, 2022 1:03 PM
To: Ruiz, Allison - RD, State Office <allison.ruiz@usda.gov>
Subject: RE: Automatic reply: [External Email]Map of Boundries for Colorado City

Allison that is the problem we are all spread out the only area without growth is on the east side of I-25 AND SOUTH OF Greenhorn Road.

JAMES P. ECCHER

District Manager
Colorado City Metropolitan District
4497 Bent Brothers Blvd PO Box 20229
Colorado City Co 81019
Office (719) 676-3396
Cell (719) 569-5816

From: Ruiz, Allison - RD, State Office <allison.ruiz@usda.gov>
Sent: Tuesday, August 2, 2022 12:28 PM
To: colocitymanager@ghvalley.net
Subject: RE: Automatic reply: [External Email]Map of Boundries for Colorado City

Hi James,

Sorry for the delay in getting back to you. I have requested assistance from one of my colleagues, as I am having trouble pulling the appropriate census tract information for the District.

Can you tell me how much different the CCMD's District boundary map is compared to Colorado City itself?

ALLISON RUIZ
Community Programs Loan Specialist | Denver State Office
Rural Development
United States Department of Agriculture
Denver Federal Center Bldg 56, Room 2300
PO Box 25426
Denver, CO 80225-0426
Phone: (720)-544-2920 | Fax: (866)-587-7607
www.rd.usda.gov/co | Follow @RD_Colorado on Twitter
allison.ruiz@co.usda.gov
"Together, America Prospers"

Stay Connected with USDA:

USDA is an equal opportunity provider, employer, and lender.

From: colocitymanager@ghvalley.net <colocitymanager@ghvalley.net>
Sent: Monday, August 1, 2022 8:52 AM
To: Ruiz, Allison - RD, State Office <allison.ruiz@usda.gov>
Subject: RE: Automatic reply: [External Email]Map of Boundries for Colorado City

Good morning Allison,

Just following up with you as to where we stand with our medium income and grant possibilities moving forward for dam re-hab project.

Thanks,

JAMES P. ECCHER
District Manager
Colorado City Metropolitan District

4497 Bent Brothers Blvd PO Box 20229
Colorado City Co 81019
Office (719) 676-3396
Cell (719) 569-5816

From: Ruiz, Allison - RD, State Office <allison.ruiz@usda.gov>
Sent: Tuesday, July 19, 2022 3:38 PM
To: colocitymanager@ghvalley.net
Subject: Automatic reply: [External Email]Map of Boundries for Colorado City

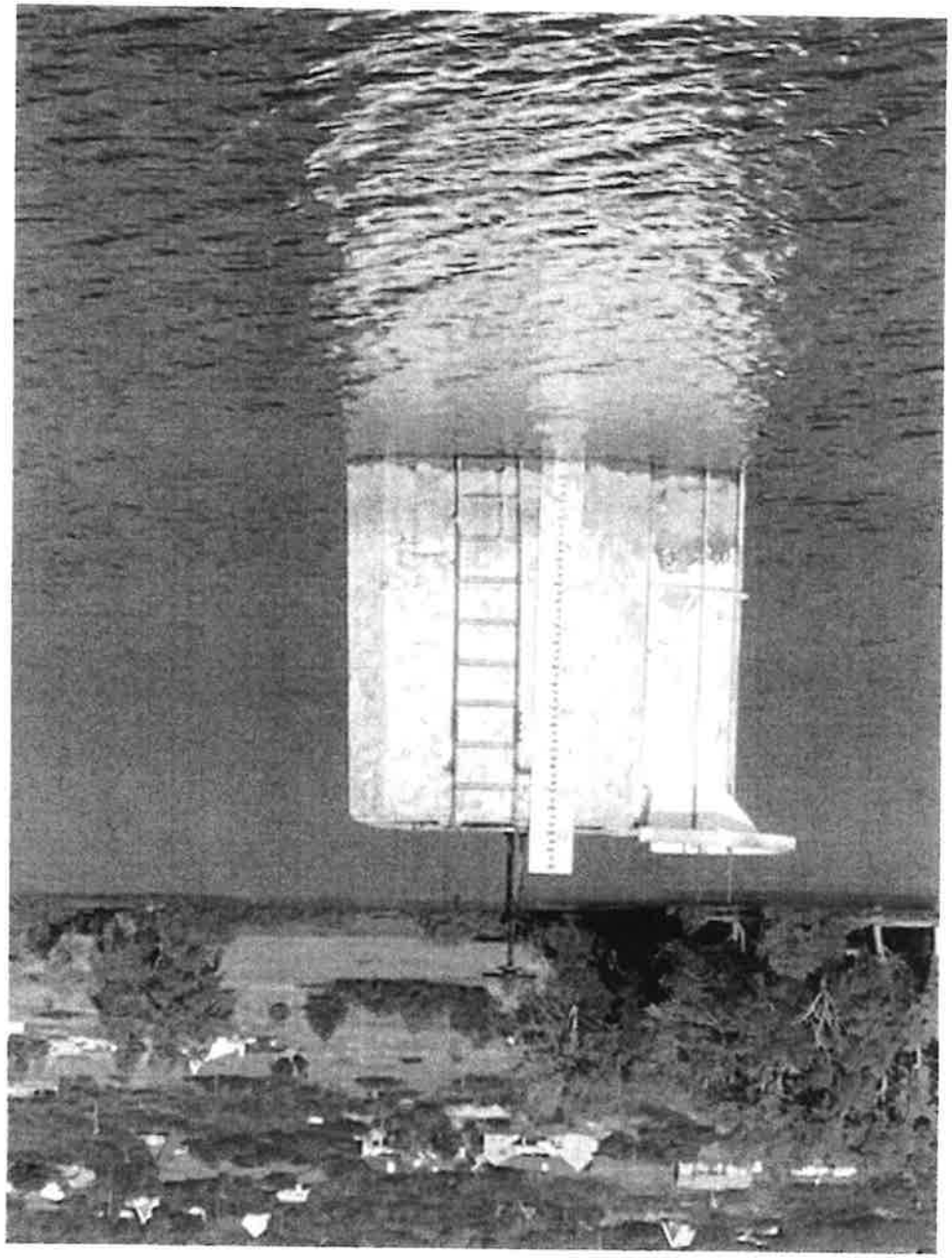
Thank you for your message. I will be out of the office until Friday, July 22nd. If you need immediate assistance please contact Chris Laughton @ paul.laughton@usda.gov

I appreciate your patience. I will respond to all emails Monday.

Allison

WEEKLY DAM INSPECTION

		DATE
		7-27-22
LAKE	14.5	
4"	1 MIN = .25 GAL	
6"	1 MIN = .75 GAL	
SEEP	DAMP	
WEIR	0.18	
PIT	DRY	
	GREG JODY	



WEEKLY DAM INSPECTION

		DATE
		8-4-22
LAKE	14.2	
4"	1 MIN = 300 ML	
6"	1 MIN = .75 GAL	
SEEP	DAMP	
WEIR	0.16	
PIT	DRY	
	Greg	