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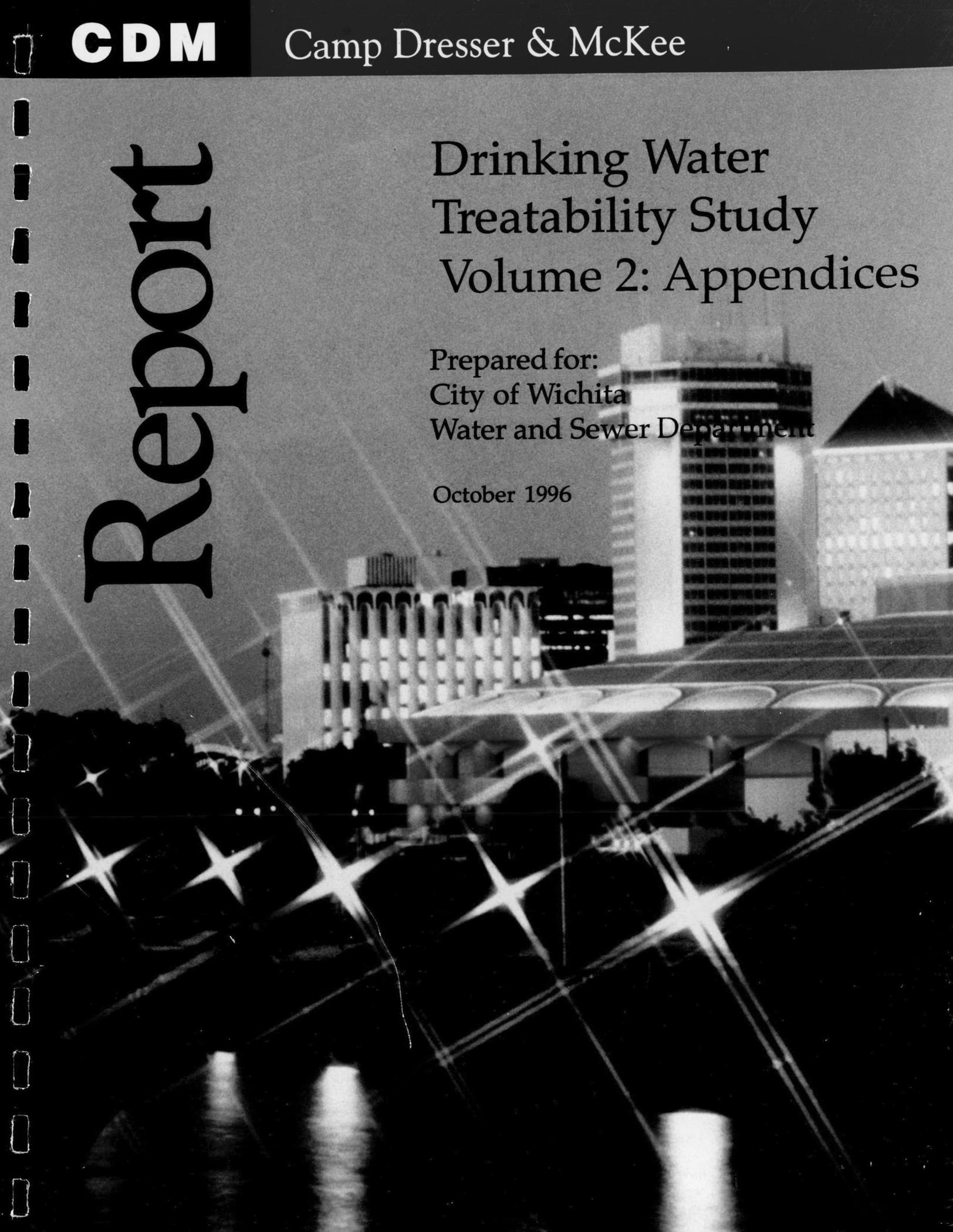
Camp Dresser & McKee

Report

Drinking Water Treatability Study Volume 2: Appendices

Prepared for:
City of Wichita
Water and Sewer Department

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Appendix A

Jar Test Data

Run No. J100
 Date 11/29/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	7.8	29.0	222	180

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	70	-	5	8.9	55.0	164	134	vsm
2	80	-	5	9.2	12.9	260	210	vsm
3	90	-	5	9.1	13.7	262	206	sm
4	70	10	5	9.1	15.1	238	212	sm
5	80	10	5	9.4	21.9	140	100	sm
6	90	10	5	9.4	23.6	138	100	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J101
 Date 11/29/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	7.8	28.1	226	180

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	70	-	10	-	9.2	13.6	192	134	sm
2	80	-	10	-	9.1	27.3	158	118	sm
3	90	-	10	-	9.3	20.6	150	102	sm
4	70	10	-	0.5	9.2	39.8	156	122	sm
5	80	10	-	0.5	9.4	27.1	154	122	sm
6	90	10	-	0.5	9.6	19.7	158	96	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J102
 Date 11/29/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	19.0	7.9	27.0	238	180

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	100	10	9.1	76.0	142	92	sm/med
2	120	10	9.5	50.0	126	74	sm/med
3	140	10	10.1	42.0	124	66	sm/med
4	100	20	9.3	38.0	154	94	med
5	120	20	9.6	26.0	138	80	med
6	140	20	10.0	16.0	130	76	med

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	60
	7	30
	7	15
Settling	30	0

Notes:

Run No. J103
Date 11/29/94
Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	7.9	25.0	238	180

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	160	5	10.5	15.0	180	128	vsm
2	160	15	10.5	20.0	138	82	sm/med
3	160	30	10.5	6.2	152	92	med
4	180	5	10.9	14.0	184	134	vsm
5	180	15	10.8	11.0	154	98	sm/med
6	180	30	10.8	9.4	150	88	med

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J104
 Date 11/29/94
 Source Cheney/Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20 / 15	8.4 / 7.9	20 / 27	180 / 238	166 / 180

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	70	-	10	9.2	47.0	190	134	sm
2	120	30	10	10.4	5.1	82	94	sm
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Cheney sample - Jar #1
 Little Arkansas sample - Jar #2

Run No. J105
 Date 11/30/94
 Source Cheney/Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water Cheney/GW	20 / 20	8.2 / 7.7	20 / 7.4	182 / 230	164 / 214

Jar No.	Cheney/GW Blend	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Settled Floc Size @ 9 min.
1	100 / 0	90	10	10.0	2.0	92	74	<10	sm
2	75 / 25	90	10	9.6	2.1	98	82	<10	sm
3	50 / 50	90	10	9.4	2.1	106	86	<10	sm
4	25 / 75	90	10	9	1.4	116	92	<10	sm
5	0 / 100	90	10	8.7	1.2	124	102	<10	sm
6	100 / 0	90	10	9.9	2	96	74	<10	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J106
 Date 11/30/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13.0	7.9	18.0	252	202

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	90	-	10	9.1	68.0	152	-	sm
2	90	10	10	9.3	60.0	140	-	sm
3	90	20	10	9.4	62	132	-	sm
4	90	30	10	9.4	53	128	-	sm
5	90	40	10	9.4	60	122	-	sm
6	90	50	10	9.5	56	114	-	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J107
 Date 11/30/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	9.0	7.9	17.0	252	198

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	120	-	10	9.8	54.0	124	70	sm
2	120	10	10	9.9	42.0	122	76	sm
3	120	20	10	9.9	40.4	118	80	sm
4	120	30	10	10	39.7	110	86	sm
5	120	40	10	10	36.6	110	88	sm
6	120	50	10	10	40.4	104	94	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J108
 Date 11/30/94
 Source Little Ark./Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13 / 21	7.9 / 7.6	13.8 / 7.2	252 / 230	198 / 214
Little Ark./GW					

Jar No.	Little Ark./GV Blend	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Settled Floc Size @ 9 min.
1	100 / 0	120	30	10	9.8	42.0	110	82	<10	sm
2	75 / 25	120	30	10	9.7	26.1	106	84	<10	sm
3	50 / 50	120	30	10	9.7	12	98	86	<10	sm
4	25 / 75	120	30	10	9.5	4.1	90	86	<10	sm
5	0 / 100	120	30	10	9.5	2.3	76	82	<10	sm
6	100 / 0	120	30	10	9.9	38.2	110	84	<10	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J109
 Date 11/30/94
 Source Little Ark./Cheney/Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	-	-	-
Little Ark./Cheney/GW					

Jar No.	Little Ark./ Cheney/GW Blend	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Settled Floc Size @ 9 min.
1	50 / 25 / 25	120	30	10	10.0	13.5	94	80	<10	sm
2	25 / 50 / 25	120	30	10	10.3	5.5	86	90	<10	sm
3	75 / 25 / 0	120	30	10	10.2	22	102	92	<10	sm/med
4	25 / 75 / 0	120	30	10	10.5	4.7	88	92	<10	sm/med
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J110
Date 12/1/94
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	21.0	8.2	20.4	186	164

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	90	1	9.9	44.2	88	-	sm
2	90	5	10.1	21.5	92	-	sm/med
3	90	10	10.1	16.6	94	-	sm/med
4	90	20	10.1	10.9	98	-	sm/med
5	90	30	10.1	7.7	100	-	sm/med
6	90	40	9.9	6.6	104	-	sm/med

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J111
Date 12/1/94
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	21.0	8.2	20.4	186	164

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	90	10	9.3	4.1	100	88	sm
2	100	10	9.7	4.3	94	78	sm
3	110	10	9.8	3.9	94	74	sm
4	120	10	10.1	3.9	88	74	sm
5	130	10	10.3	4.4	84	70	sm
6	140	10	10.3	3.9	84	72	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J112
 Date 12/1/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	8.0	7.9	18.3	266	206

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	90	30	10	9.0	41.1	162	130	vsm/sm
2	100	30	10	9.1	35.1	152	116	vsm/sm
3	110	30	10	9.3	35.0	144	110	vsm/sm
4	120	30	10	9.4	26.4	142	104	vsm/sm
5	130	30	10	9.6	26.5	130	96	vsm/sm
6	140	30	10	9.7	22.6	124	94	vsm/sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J113
 Date 12/1/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	7.9	18.9	266	206

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	120	20	10	9.3	35.0	140	98	sm
2	120	30	10	9.4	32.0	134	102	sm
3	120	40	10	9.5	33.0	126	102	sm
4	120	50	10	9.5	27.0	122	108	sm
5	120	60	10	9.6	26.0	118	112	sm
6	120	70	10	9.6	26.0	114	114	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J114
 Date 12/1/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	9.0	7.9	23.1	266	208

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	120	40	10	9.3	67.0	132	110	sm
2	130	40	10	9.6	62.2	128	102	sm
3	140	40	10	9.8	45.2	126	102	sm
4	150	40	10	9.9	43.6	122	100	sm
5	160	40	10	10.1	41.6	116	94	sm
6	170	40	10	10.4	27.0	116	100	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J115
Date 12/13/94
Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	21.5	8.1	7.0	300	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	170	50	0.1	9.8	2.7	160	156	sm
2	180	50	0.1	9.9	2.4	154	156	sm
3	190	50	0.1	10.1	2.2	152	152	sm
4	200	50	0.1	10.2	2.2	152	150	sm
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes: Sample heated in water bath

Run No. J116
 Date 12/13/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.5 / 20	8.1	6.2	300	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	0.1	9.7	21.0	206	168	sm
2	160	40	0.1	9.7	5.3	208	166	sm
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes: Jar #2 heated in water bath

Run No. J117
 Date 12/14/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	21.0	8.0	6.3	300	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	220	50	0.1	-	-	158	-	sm
2	230	50	0.1	-	-	158	-	sm
3	240	50	0.1	-	-	156	-	sm
4	200	60	0.1	-	-	158	-	sm
5	200	70	0.1	-	-	152	-	sm
6	200	80	0.1	-	-	152	-	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J118
 Date 12/14/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	8.0	-	302	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	80	0.1	-	-	172	-	sm
2	160	100	0.1	-	-	164	-	sm
3	120	60	0.1	-	16	206	-	vsm
4	120	70	0.1	-	15	194	-	vsm
5	120	80	0.1	-	17	192	-	vsm
6	120	90	0.1	-	14	188	-	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	70
	7	50
	7	20
Settling	30	0

Notes:

Run No. J119
Date 12/14/94
Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	19.0	8.0	-	304	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	250	40	0.1	-	-	158	-	sm
2	260	40	0.1	-	-	162	-	sm
3	270	40	0.1	-	-	164	-	sm
4	280	40	0.1	-	-	170	-	sm
5	290	40	0.1	-	-	174	-	sm
6	300	40	0.1	-	-	-	-	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Sample heated in water bath

Run No. J120
 Date 12/15/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	22.0	8.0	-	300	246

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	200	60	0.1	-	-	154	160	sm
2	220	60	0.1	-	-	-	-	sm
3	240	60	0.1	-	-	-	-	sm
4	260	60	0.1	-	-	-	-	sm
5	280	60	0.1	-	-	-	-	sm
6	300	60	0.1	-	-	140	148	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J121
 Date 12/16/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	8.1	-	294	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	200	80	0.1	-	-	136	160	sm
2	220	80	0.1	-	-	136	162	sm
3	240	80	0.1	-	-	142	168	sm
4	260	80	0.1	-	-	144	172	sm
5	280	80	0.1	-	-	148	174	sm
6	300	80	0.1	-	-	158	180	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Sample heated in water bath

Run No. J122
 Date 12/16/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	16.0	8.1	-	294	236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	100	0.1	-	-	128	168	sm
2	180	100	0.1	-	-	134	176	sm
3	200	100	0.1	-	-	142	182	sm
4	160	120	0.1	-	-	124	180	sm
5	180	120	0.1	-	-	134	190	sm
6	200	120	0.1	-	-	140	196	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Sample heated in water bath

Run No. J123
 Date 12/16/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	-	284	240

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	140	60	0.1	-	-	122	126	vsm
2	140	80	0.1	-	-	116	132	vsm
3	160	60	0.1	-	-	116	124	vsm
4	160	80	0.1	-	-	112	136	vsm
5	180	60	0.1	-	-	128	130	vsm
6	180	80	0.1	-	-	116	138	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Sample heated in water bath

Run No. J124
 Date 12/17/94
 Source Cheney/Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water Cheney/Little Ark.	21.5 / 21	8.2 / 7.9	16.9 / 9.5	182 / 288	166 / 236

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	80	-	10	-	-	9.1	8.3	110	94	sm
2	80	-	10	-	-	9.1	5.4	116	96	sm
3	160	80	10	0.1	-	9.8	18.7	110	132	sm
4	160	80	10	1	-	9.8	20.4	112	132	sm
5	160	80	10	-	40	9.4	4.5	120	132	sm
6	-	-	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Cheney sample - Jar #1-2
 Little Ark. sample - Jar #3-5
 Little Ark. sample heated in water bath

Run No. J125
 Date 3/8/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.0	8.4	6.5	296	218

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	160	40	40	9.8	1.1	172	142	vsm
2	170	40	40	10.0	0.9	180	150	sm
3	180	40	40	10.2	1.0	192	158	sm
4	190	40	40	10.3	0.9	202	170	sm
5	200	40	40	10.5	0.8	200	164	sm
6	210	40	40	10.6	0.8	200	166	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J126
 Date 3/9/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.0	8.4	7.3	294	240

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	100	30	8.9	22.6	200	130	sm
2	110	30	9.0	20.6	188	120	sm
3	120	30	9.1	13.9	178	114	sm
4	130	30	9.2	12.3	174	112	sm
5	140	30	9.4	11.1	168	100	sm
6	150	30	9.5	8.8	164	96	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J127
 Date 3/9/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.0	8.4	8.0	290	234

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	150	30	30	9.8	6.1	150	128	sm
2	150	40	30	9.9	7.0	160	134	sm
3	150	50	30	9.9	7.5	154	140	sm
4	150	60	30	9.9	7.5	152	146	sm
5	150	70	30	9.9	8.9	150	152	sm
6	150	80	30	10.0	8.9	144	154	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J128
 Date 3/10/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.5	8.4	8.9	280	228

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	160	30	9.8	5.6	184	114	sm
2	180	30	10.3	6.0	184	124	sm
3	200	30	10.6	6.5	194	130	sm
4	220	30	10.7	6.0	184	122	sm
5	240	30	10.9	8.2	190	128	sm
6	260	30	10.9	9.6	174	104	sm-md

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J129
 Date 3/10/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.5	8.4	9.9	280	226

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	160	20	30	9.9	3.3	158	118	sm
2	180	40	30	10.0	4.2	148	128	sm
3	200	60	30	10.0	4.0	144	140	sm
4	220	80	30	10.0	6.7	138	158	sm
5	240	100	30	10.1	9.0	136	170	sm
6	260	120	30	10.1	11.7	118	172	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J130
 Date 3/10/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	8.0	8.3	11.0	278	230

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	170	60	30	10.3	3.9	154	142	sm
2	170	80	30	10.3	2.7	148	156	sm
3	170	100	30	10.4	3.0	148	172	sm
4	180	60	30	10.3	2.8	154	142	sm
5	180	80	30	10.5	2.5	154	160	sm
6	180	100	30	10.5	4.1	148	166	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J131
Date 3/13/95
Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13.0	8.3	19.3	288	232

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	160	120	30	-	5.1	122	168	sm
2	160	130	30	-	6.0	120	178	sm
3	160	140	30	-	6.0	114	190	sm
4	170	120	30	-	8.2	114	168	sm
5	170	130	30	-	7.6	112	174	sm
6	170	140	30	-	8.0	112	184	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J132
 Date 5/7/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	15.0	8.1	64.0	196	162

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	140	10	60	9.5	2.8	120	76	-
2	140	20	60	9.6	-	112	76	-
3	140	30	60	9.6	-	106	80	-
4	140	40	60	9.7	-	104	84	-
5	140	50	60	9.7	3.4	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J133
 Date 11/2/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	8.4	63.0	146	146

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min. vsm
1	230	40	10.7	6.4	80	70	vsm
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes: Simulation of enhanced softening

Run No. J200
 Date 12/2/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	8.0	8.0	23.5	274	210

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	1	9.8	58.4	112	88	vsm
2	160	40	5	9.9	47.0	114	90	sm
3	160	40	10	9.9	26.1	122	98	sm
4	160	40	20	10.0	10.1	148	114	sm
5	160	40	30	10.0	8.4	160	126	sm
6	160	40	40	9.9	5.3	168	128	sm/med

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.8	4.8	4.8	4.8	4.8	4.8
Settled TOC (mg/L)	4.1	4.1	4.0	4.0	4.0	3.8
% Reduction	14	14	16	17	16	19

Notes:

Run No. J201
 Date 12/2/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	9.0	8.0	23.5	274	210

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	1	9.8	40.4	112	88	sm
2	160	40	5	9.9	17.6	114	90	sm
3	160	40	10	9.9	10.0	122	98	sm
4	160	40	20	10.0	8.9	148	114	sm/med
5	160	40	30	10.0	6.5	160	126	sm/med
6	160	40	40	9.9	2.8	168	128	med

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.8	4.8	4.8	4.8	4.8	4.8
Settled TOC (mg/L)	4.2	4.1	3.8	4.1	4.1	3.7
% Reduction	13	14	19	14	15	22

Notes:

Run No. J202
 Date 12/5/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	8.5	7.8	30.6	282	218

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferrous Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	1	9.4	33.6	120	98	vsm
2	160	40	5	9.4	27.6	122	98	sm
3	160	40	10	9.4	17.1	126	102	sm
4	160	40	20	9.4	8.2	144	112	sm
5	160	40	30	9.3	5.8	146	116	sm
6	160	40	40	9.3	3.1	146	112	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.1	4.1	4.1	4.1	4.1	4.1
Settled TOC (mg/L)	3.5	3.4	3.4	3.8	3.4	3.5
% Reduction	14	16	17	8	18	16

Notes:

Run No. J203
 Date 12/5/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	7.8	27.0	282	218

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferrous Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	1	9.7	17.6	114	92	vsm
2	160	40	5	9.8	16.9	118	98	vsm
3	160	40	10	9.8	16.7	118	98	vsm
4	160	40	20	9.7	12.5	124	98	vsm
5	160	40	30	9.8	6.5	126	102	vsm
6	160	40	40	9.8	5.3	130	102	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.2	4.2	4.2	4.2	4.2	4.2
Settled TOC (mg/L)	3.4	3.5	3.7	3.6	3.6	3.3
% Reduction	20	17	13	15	16	21

Notes:

Run No. J204
 Date 12/5/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	16.0	7.8	27.0	282	218

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	1	9.6	16.3	114	92	vsm
2	160	40	5	9.7	11.5	114	94	vsm
3	160	40	10	9.6	9.3	116	92	vsm
4	160	40	20	9.6	5.3	128	98	sm
5	160	40	30	9.5	3.1	138	100	sm
6	160	40	40	9.5	2.3	146	110	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	3.8	3.8	3.8	3.8	3.8	3.8
Settled TOC (mg/L)	3.4	3.6	3.5	3.4	3.4	3.2
% Reduction	9	5	8	11	11	14

Notes:

Run No. J205
 Date 12/6/94
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	22.0	7.8	29.6	282	218

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	0.1	9.6	6.1	116	92	sm
2	160	40	0.3	9.7	8.6	122	98	sm
3	160	40	1	9.7	12.8	120	98	sm
4	160	40	3	9.7	13.4	118	96	sm
5	160	40	5	9.8	10.4	120	102	sm
6	160	40	7	9.8	7.9	120	100	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	3.9	3.9	3.9	3.9	3.9	3.9
Settled TOC (mg/L)	3.4	3.4	3.2	3.1	2.9	3.0
% Reduction	12	13	18	20	24	23

Notes:

Run No. J206
 Date 12/6/94
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.0	8.1	20.3	184	168

Jar No.	Lime (mg/L)	Ferrous Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	80	1	9.2	99.1	106	106	vsm
2	80	5	9.3	41.5	112	100	vsm
3	80	10	9.4	37.2	118	100	vsm
4	80	20	9.4	28.3	122	98	vsm
5	80	30	9.4	24.4	120	100	sm
6	80	40	9.4	21.5	124	100	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

Flocculation (3 Stage)	7	75
	7	60
	7	30

Settling	30	0
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	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.8	4.8	4.8	4.8	4.8	4.8
Settled TOC (mg/L)	4.5	4.5	4.5	4.4	4.3	4.3
% Reduction	8	6	8	9	11	11

Notes:

Run No. J207
 Date 12/6/94
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	8.1	20.3	184	168

Jar No.	Lime (mg/L)	Ferrous Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	80	1	9.2	70.2	100	106	vsm
2	80	5	9.2	25.4	112	100	vsm
3	80	10	9.2	21.1	116	102	sm
4	80	20	9.2	15.9	122	100	sm
5	80	30	9.2	11.0	128	104	sm
6	80	40	9.2	8.1	130	106	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.3	4.3	4.3	4.3	4.3	4.3
Settled TOC (mg/L)	5.1	4.4	4.4	4.5	4.2	4.1
% Reduction	-18	0	-2	-4	3	5

Notes:

Run No. J208
 Date 12/10/94
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	8.2	19.2	184	168

Jar No.	Lime (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	80	1	9.1	43.0	100	92	vsm
2	80	5	9.1	15.4	106	94	sm
3	80	10	9.1	9.1	116	98	sm
4	80	20	9.1	5.7	116	98	sm
5	80	30	9.1	3.4	118	98	sm
6	80	40	9.0	2.6	128	104	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.8	4.8	4.8	4.8	4.8	4.8
Settled TOC (mg/L)	4.6	4.6	4.5	4.5	4.3	4.2
% Reduction	6	5	7	8	12	14

Notes:

Run No. J209
 Date 12/10/94
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	8.1	19.0	184	168

Jar No.	Lime (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	80	0.1	9.1	39.2	102	92	sm
2	80	0.3	9.2	25.3	106	94	sm
3	80	1	9.3	22.1	106	94	sm/med
4	80	3	9.3	20.0	110	94	sm/med
5	80	5	9.3	15.5	108	94	sm
6	80	7	9.3	8.7	110	96	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.6	4.6	4.6	4.6	4.6	4.6
Settled TOC (mg/L)	4.3	4.5	4.4	4.1	4.1	4.0
% Reduction	6	3	5	11	12	15

Notes:

Run No. J210
 Date 12/10/94
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	8.2	18.9	184	168

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	80	1	9.1	56.6	100	90	vsm
2	80	5	9.2	17.8	108	94	vsm
3	80	10	9.3	11.1	108	92	sm
4	80	20	9.3	7.6	116	94	sm
5	80	30	9.3	5.4	122	98	sm
6	80	40	9.2	4.1	128	98	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5	Jar #6
Raw TOC (mg/L)	4.6	4.6	4.6	4.6	4.6	4.6
Settled TOC (mg/L)	4.4	4.4	4.4	4.3	4.3	4.2
% Reduction	4	4	4	5	7	9

Notes:

Run No. J211
 Date 12/10/94
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	8.2	20.1	184	168

Jar No.	Lime (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	80	1	9.1	68.6	98	92	vsm
2	80	5	9.1	42.3	108	96	vsm
3	80	10	9.1	29.6	108	96	vsm
4	80	20	9.0	17.5	120	106	vsm
5	80	30	8.9	11.0	134	112	vsm
6	80	40	8.9	4.4	142	114	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Test No. J212
Date 2/2/95
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.5	8.0	8.9	188	174

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	80	10	9.1	41.1	128	108	sm
2	80	20	9.1	27.8	140	124	sm
3	80	30	9.2	16.0	156	130	sm
4	115	10	9.7	29.4	110	92	sm
5	115	20	9.8	19.7	120	94	sm
6	115	30	9.8	12.1	120	94	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J213
 Date 2/2/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.5	8.1	8.9	190	174

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	125	30	10.0	11.2	124	94	sm
2	125	40	10.2	6.5	124	96	sm
3	125	50	10.0	4.9	126	96	sm
4	140	30	10.2	11.5	108	90	sm
5	140	40	10.3	8.2	116	88	sm
6	140	50	10.3	5.1	120	90	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J214
 Date 2/2/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.0	8.1	8.9	190	174

Jar No.	Lime (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	140	0.1	10.3	53.5	100	112	vsm
2	140	0.3	10.4	54.9	104	108	vsm
3	140	1	10.5	41.1	98	104	vsm
4	140	3	10.4	31.9	100	94	vsm
5	140	5	10.9	29.6	106	100	vsm
6	140	7	10.4	27.7	98	92	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J215
 Date 2/3/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	16.0	8.3	8.4	190	172

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	125	30	10.1	3.9	100	84	sm
2	125	40	10.1	2.6	104	80	sm
3	125	50	9.9	1.9	110	80	sm
4	140	30	10.5	4.6	98	76	sm
5	140	40	10.3	2.9	100	74	sm
6	140	50	10.9	1.0	90	60	sm-md

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J216
 Date 2/3/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	19.0	8.3	8.4	190	172

Jar No.	Lime (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	140	0.1	10.5	26.3	90	80	vsm
2	140	0.3	11.1	16.3	120	108	vsm
3	140	1	10.5	14.6	92	76	vsm
4	140	3	10.6	20.3	92	76	vsm
5	140	5	10.5	27.2	92	76	vsm
6	140	7	10.4	32.2	84	76	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J217
 Date 2/6/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.5	8.6	12.1	182	166

Jar No.	Lime (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 9 min.
1	125	5	10.3	32.4	86	72	vsm
2	125	10	10.4	17.7	94	74	vsm
3	125	20	10.3	10.2	94	70	sm
4	125	30	10.2	5.4	100	74	sm
5	125	40	10.2	3.8	104	72	sm
6	125	50	10.1	3.1	112	76	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes:

Run No. J218
 Date 2/6/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	8.0	8.4	11.2	182	166

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 21 min.
1	125	5	10.3	11.9	90	78	sm
2	125	10	10.4	5.5	94	78	sm
3	125	20	10.3	2.8	96	74	sm
4	125	30	10.2	2.1	96	74	sm
5	125	40	10.2	1.5	96	70	sm
6	125	50	10.1	1.4	98	68	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.33	300
Flocculation (3 Stage)	14	75
	14	60
	14	30
Settling	30	0

Notes:

Run No. J219
Date 2/9/95
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.5	8.3	10.9	186	168

Jar No.	Lime (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 16.5 min.
1	120	0.1	10.0	36.9	94	90	sm
2	120	0.3	10.0	25.0	90	80	sm
3	120	1	10.2	19.7	72	74	sm
4	120	3	10.1	21.8	88	74	vsm
5	120	5	10.2	21.3	86	76	vsm
6	120	7	10.1	21.0	90	76	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J220
 Date 2/13/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	6.0	8.2	11.9	182	172

Jar No.	Lime (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	110	5	9.7	81.5	94	116	vsm
2	110	10	9.7	57.1	100	96	vsm
3	110	20	9.5	32.6	106	94	vsm
4	110	30	9.4	22.2	98	92	vsm
5	110	40	9.4	19.1	140	100	vsm
6	110	50	9.3	15.7	138	106	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Project: 1234
 Date: 01/15/2023
 Station: 001

Flow Rate (m³/s)	Temp (°C)	pH	Turbidity (NTU)	Total Solids (mg/L)	Total Dissolved Solids (mg/L)
1.5	18.5	7.8	120	150	120

Station No.	Time (min)	Temp (°C)	pH	Turbidity (NTU)	Total Solids (mg/L)	Total Dissolved Solids (mg/L)
1	150	18.5	7.8	120	150	120
2	150	18.5	7.8	120	150	120
3	150	18.5	7.8	120	150	120
4	150	18.5	7.8	120	150	120
5	150	18.5	7.8	120	150	120
6	150	18.5	7.8	120	150	120

Station No.	Time (min)	Temp (°C)
1	0.15	18.5
2	11	18.5
3	11	18.5
4	11	18.5
5	30	18.5

Notes:

Run No. J222
 Date 2/15/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.0	8.1	11.9	186	170

Jar No.	Lime (mg/L)	Ferrous Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 16.5 min.
1	120	10	10.2	23.3	90	78	sm
2	120	20	10.1	14.3	92	78	sm
3	120	30	10.1	9.8	92	74	sm
4	120	40	10.0	6.3	96	70	sm
5	120	50	10.0	4.5	94	68	sm
6	120	60	9.8	3.0	98	68	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Section: Chem
 Date: 5/10/52
 Pt. No.: 1251

Row No.	Time (min)	Temp (°C)	Pressure (mm Hg)	Flow Rate (ml/min)	Total
10	8.1	10.0	10.0	10.0	10.0

Row No.	Time (min)	Temp (°C)	Pressure (mm Hg)	Flow Rate (ml/min)	Adjusted Flow Rate (ml/min)
1	11.0	10.0	10.0	10.0	8.8
2	11.0	10.1	10.1	10.1	7.8
3	11.0	10.2	10.2	10.2	7.8
4	11.0	9.9	10.0	10.0	8.8
5	11.0	10.0	10.0	10.0	8.0
6	11.0	9.9	10.0	10.0	8.0

Section	Time (min)	Speed (rpm)
Regid Mixing	0.17	300
Reaction (C Stage)	11	75
	11	60
	11	50
Setting	30	0

Notes:

Run No. J224
 Date 2/20/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.5	8.3	10.1	182	170

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 16.5 min.
1	120	35	9.9	2.2	102	76	-
2	120	53	9.8	1.9	102	74	-
3	130	53	9.9	1.4	102	78	-
4	140	53	10.4	1.1	94	66	-
5	150	53	10.4	1.0	96	66	-
6	160	53	10.5	0.8	94	66	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

Flocculation (3 Stage)	11	75
	11	60
	11	30

Settling	30	0
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	Jar #1	Jar #3
Raw TOC (mg/L)	5.0	5.0
Settled TOC (mg/L)	4.4	4.2
% Reduction	12	16

Notes:

Run No. J225
 Date 2/21/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.0	8.3	10.3	182	172

Jar No.	Lime (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 16.5 min.
1	110	7	9.9	14.9	92	86	vsm
2	110	11	9.9	29.5	96	86	vsm
3	115	11	9.9	27.1	96	82	vsm
4	120	11	10.1	25.3	92	78	vsm
5	125	11	10.2	29.5	90	80	vsm
6	130	11	10.4	31.9	88	74	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

	Jar #1	Jar #2
Raw TOC (mg/L)	5.7	5.7
Settled TOC (mg/L)	4.2	4.1
% Reduction	27	28

Notes:

Run No. J226
 Date 2/21/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.0	8.3	10.4	182	172

Jar No.	Lime (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 16.5 min.
1	160	60	10.0	5.1	118	70	vsm
2	160	90	9.5	2.5	124	74	vsm
3	165	90	9.7	3.8	120	68	vsm
4	170	90	10.0	4.5	114	64	vsm
5	175	90	9.9	5.2	-	64	vsm
6	180	90	10.1	6.1	102	52	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

	Jar #1	Jar #2
Raw TOC (mg/L)	5.3	5.3
Settled TOC (mg/L)	4.4	4.5
% Reduction	17	16

Notes:

Run No. 1557
 Date 5/2/82
 Source Cheney

Row	Temp. (deg. F)	pH	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Row Water	8.0	8.2	10.5	188	170

1-1/2'	Line (mg/L)	Formic Oxalate (mg/L)	pH	Total Hardness (mg/L)	Total Alkalinity (mg/L)	Flow @ 10.8 m³/min
1	150	22	8.9	100	78	cm
2	150	38	8.8	108	80	cm
3	152	38	8.8	103	75	cm
4	130	38	10.0	58	74	cm
5	132	38	10.1	100	74	cm
6	150	38	10.1	100	74	cm

Process	Time (min)	Speed (rpm)
Flotation (3 stages)	11 11 11	75 60 30
Settling	30	0
Filter Backwashing	0.15	250

2-Reduction	10-11	10-12
Settled TOC (mg/L)	4.2	4.8
Raw TOC (mg/L)	2.2	2.8

Notes:

Run No. J228
 Date 2/21/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.5	8.3	10.1	186	170

Jar No.	Lime (mg/L)	Ferrous Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	125	50	9.9	4.3	102	78	vsm
2	125	75	9.8	2.6	106	74	vsm
3	130	75	9.8	2.1	110	72	vsm
4	135	75	9.8	1.8	106	72	vsm
5	140	75	10.0	1.5	100	68	vsm
6	145	75	10.2	1.1	98	66	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

Flocculation (3 Stage)	11	75
	11	60
	11	30

Settling	30	0
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	Jar #1	Jar #2
Raw TOC (mg/L)	5.9	5.9
Settled TOC (mg/L)	4.4	4.2
% Reduction	25	29

Notes:

Run No. J229
 Date 2/23/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	6.5	8.3	12.6	184	170

Jar No.	Lime (mg/L)	Ferrous Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 16.5 min.
1	110	60	9.9	6.1	102	78	-
2	110	90	9.6	2.7	106	78	-
3	120	90	9.8	2.9	108	74	-
4	130	90	10.0	2.4	98	70	-
5	140	90	10.3	1.8	92	64	-
6	145	90	10.5	1.5	92	62	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

	Jar #1	Jar #2
Raw TOC (mg/L)	5.5	5.5
Settled TOC (mg/L)	4.6	4.6
% Reduction	17	17

Notes:

Run No. J230
 Date 3/8/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	6.0	8.4	9.3	290	214

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	160	40	10	9.8	2.4	168	130	-
2	160	40	20	9.9	2.4	166	132	-
3	160	40	30	9.9	2.2	170	138	-
4	160	40	40	9.8	2.1	174	138	-
5	160	40	50	9.8	1.7	178	140	-
6	160	40	60	9.8	1.4	180	142	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J231
 Date 3/9/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.5	8.3	9.5	292	234

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferrous Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	150	30	10	9.9	4.1	144	120	-
2	150	30	20	9.9	3.8	148	124	-
3	150	30	30	9.8	3.0	154	128	-
4	150	30	40	9.8	1.8	154	128	-
5	150	30	50	9.8	2.2	160	136	-
6	150	30	60	9.8	1.8	162	144	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J232
 Date 3/15/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13.0	8.0	390.0	126	96

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferrous Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	30	-	25	-	371	-	-	none
2	30	-	50	-	193	-	-	none
3	30	-	75	-	113	-	-	none
4	30	-	100	-	75.0	146	106	none
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J233
 Date 3/16/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	15.0	7.5	308	134	104

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	60	-	25	8.4	102	198	164	none
2	60	-	50	8.5	26.1	192	154	none
3	60	-	75	8.6	7.7	190	146	vsm
4	60	-	100	8.4	3.8	186	134	vsm
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J234
 Date 3/16/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	14.5	7.6	276	134	106

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	-	25	7.1	274	134	102	none
2	-	-	50	7.2	275	136	100	none
3	-	-	75	7.1	270	134	96	none
4	-	-	100	7.0	239	136	82	none
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J235
 Date 3/16/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	14.0	7.8	277	136	108

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	120	10	100	9.9	3.3	122	82	none
2	120	20	100	10.0	2.6	118	82	none
3	120	30	100	10.0	2.4	110	84	vsm
4	120	40	100	10.0	2.2	104	86	vsm
5	120	50	100	10.1	2.6	96	90	vsm
6	120	60	100	10.1	2.5	92	96	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J236
 Date 3/21/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	16.0	7.9	78.0	258	192

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	-	30	-	-	-	-	vsm
2	-	-	50	-	-	-	-	sm
3	-	-	70	-	-	-	-	sm
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J237
 Date 3/21/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	17.0	7.9	78.0	258	192

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	180	20	50	9.9	4.4	134	80	sm
2	180	40	50	10.1	4.2	116	82	sm
3	180	60	50	10	4.3	110	88	sm
4	180	40	75	9.9	2.8	114	80	sm
5	180	60	75	9.9	2.5	102	76	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

Flocculation (3 Stage)	11	75
	11	60
	11	30

Settling	30	0
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	Jar #2	Jar #4
Raw TOC (mg/L)	7.4	7.4
Settled TOC (mg/L)	6.9	6.6
% Reduction	6	11

Notes:

Run No. J238
 Date 3/21/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	8.0	157	262	192

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferrous Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	180	30	50	10	6.1	126	88	-
2	180	40	50	10.1	5	122	92	-
3	180	50	50	10.1	4.8	116	96	-
4	180	40	75	10.1	4.3	122	88	-
5	180	50	75	10.1	4.3	116	94	-
6	180	60	75	10.1	4.4	114	98	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

	Jar #3	Jar #5
Raw TOC (mg/L)	7.9	7.9
Settled TOC (mg/L)	6.6	6.5
% Reduction	17	18

Notes:

Run No. J239
 Date 3/21/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	8.0	179	264	196

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	180	40	40	10	3.9	112	78	sm
2	180	50	40	9.9	3.6	106	80	sm
3	180	40	60	10	2.9	112	74	sm
4	180	50	60	9.9	2.3	104	82	sm
5	180	60	60	9.9	2.8	98	90	sm
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

	Jar #1	Jar #3
Raw TOC (mg/L)	7.3	7.3
Settled TOC (mg/L)	6.3	6.2
% Reduction	15	16

Notes:

Run No. J240
 Date 4/19/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13.0	8.2	51.0	186	170

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	90	-	0.1	9.5	20.7	100	86	-
2	90	-	0.3	9.6	13.8	106	92	-
3	90	-	1	9.6	14.6	106	96	-
4	90	-	3	9.6	14.6	108	-	-
5	90	-	5	9.6	13.8	106	-	-
6	90	-	7	9.6	12.6	108	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J241
 Date 5/5/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	14.0	8.1	135	196	164

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	-	40	-	31	-	-	vsm
2	-	-	50	-	31	-	-	sm
3	-	-	60	-	27	-	-	sm
4	-	-	70	-	25	-	-	sm
5	-	-	80	-	17	-	-	sm
6	-	-	90	-	13	-	-	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J242
Date 5/9/95
Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	15.5	7.4	602	60	52

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	-	100	-	2.8	-	-	-
2	-	-	120	-	-	-	-	-
3	-	-	140	-	-	-	-	-
4	-	-	160	-	-	-	-	-
5	-	-	180	-	5.4	-	-	-
6	-	-	200	-	1.9	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J243
 Date 5/18/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	8.0	370	150	110

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	-	1	-	5.8	-	-	sm
2	-	-	3	-	2.8	-	-	md
3	-	-	5	-	2.9	-	-	md
4	-	-	10	-	-	-	-	sm-md
5	-	-	15	-	-	-	-	sm
6	-	-	20	-	-	-	-	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J244
 Date 5/18/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	8.0	376	170	118

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	60	10	3	-	2.3	-	-	-
2	60	20	3	-	2.6	-	-	-
3	60	30	3	-	2.6	-	-	-
4	60	40	3	-	2.8	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J245
 Date 5/19/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	17.5	7.7	527	98	76

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	60	40	3	-	20.4	-	-	vsm
2	60	60	3	-	20.9	-	-	vsm
3	60	80	3	-	18.9	-	-	vsm
4	60	40	6	-	16.8	-	-	vsm
5	-	60	6	-	17.9	-	-	vsm
6	-	80	6	-	4.7	-	-	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J246
 Date 5/22/95
 Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	300	-	-

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	-	1	-	109	-	-	sm-md
2	-	-	3	-	5.1	-	-	sm-md
3	-	-	5	-	1.4	-	-	sm-md
4	-	-	7	-	1.5	-	-	sm-md
5	-	-	10	-	2.3	-	-	sm-md
6	-	-	15	-	41	-	-	sm-md

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Run No. J247
Date 5/22/95
Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	7.7	286	100	90

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	-	40	3	-	10.2	-	-	sm-md
2	-	60	3	-	12.3	-	-	sm-md
3	-	80	3	-	7.4	-	-	sm-md
4	-	40	6	-	3.5	-	-	sm-md
5	-	60	6	-	3.7	-	-	sm-md
6	-	80	6	-	3.4	-	-	sm-md

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	11	75
	11	60
	11	30
Settling	30	0

Notes:

Test No. J248
Date 7/11/95
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	24.0	8.2	60.0	146	140

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	60	40	9.0	1.6	130	112	vsm
2	80	40	9.1	1.4	100	90	vsm
3	100	40	9.4	0.9	92	86	vsm
4	60	60	-	-	-	-	vsm
5	80	60	-	-	-	-	vsm
6	100	60	-	-	-	-	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Test No. J249
Date 7/12/95
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	24.0	8.2	51.0	140	138

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	70	-	1	9.2	23.3	104	100	vsm
2	70	20	0.3	9.2	3.1	112	104	vsm
3	70	20	1	9.3	4.0	118	106	vsm
4	70	30	0.3	9.2	1.8	118	106	vsm
5	70	30	1	9.3	2.4	118	104	vsm
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Test No. J250
Date 7/14/95
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	24.0	8.1	104	142	140

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	80	30	0.3	9.2	6.1	116	100	vsm
2	80	40	0.3	9.3	4.9	118	100	vsm
3	80	50	0.3	9.2	4.1	122	104	vsm
4	80	60	0.3	9.3	2.7	124	106	vsm
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Test No. J251
Date 7/24/95
Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	24.0	8.0	71.0	146	140

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	100	30	-	9.3	3.1	-	-	vsm
2	100	40	-	9.3	2.1	-	-	vsm
3	100	50	-	9.2	2.5	-	-	vsm
4	100	30	0.1	9.4	1.8	-	-	vsm
5	100	40	0.1	9.4	1.3	-	-	vsm
6	100	50	0.1	9.3	1.5	-	-	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Test No. J252
Date 8/7/95
Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	26.5	7.2	720	72	54

Jar No.	Polymer (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	1	-	646	-	-	none
2	3	-	630	-	-	none
3	5	-	588	-	-	none
4	10	-	471	-	-	none
5	15	-	413	-	-	none
6	20	-	408	-	-	none

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Test No. J253
Date 8/9/95
Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	251	-	-

Jar No.	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	80	-	244	-	-	-
2	100	-	126	-	-	-
3	120	-	110	-	-	-
4	140	-	58.0	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	60
Flocculation (3 Stage)	-	-
Settling	20	0

Notes: Simulation of Presedimentation Tank
 Samples collected from midpoint of jars

Test No. J254
Date 8/9/95
Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	28.0	7.7	161	-	-

Jar No.	Ferric Sulfate (mg/L)	Settled pH (units)	15 min Settled Turbidity (ntu)	30 min Settled Turbidity (ntu)	45 min Settled Turbidity (ntu)	60 min Settled Turbidity (ntu)
1	-	-	162	159	157	155
2	10	-	171	161	159	159
3	20	-	169	164	162	159
4	30	-	167	166	162	165
5	40	-	226	171	171	168
6	50	-	230	222	172	167

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	200
Flocculation (3 Stage)	-	-
	-	-
	-	-
Settling	60	0

Notes: Simulation of Presedimentation Tank
 Samples collected from midpoint of jars

Test No. J255
Date 8/9/95
Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	28.0	7.7	141	114	98

Jar No.	Polymer (mg/L)	Settled pH (units)	15 min Settled Turbidity (ntu)	30 min Settled Turbidity (ntu)	45 min Settled Turbidity (ntu)	60 min Settled Turbidity (ntu)
1	1	-	153	152	152	152
2	3	-	144	144	144	145
3	5	-	144	145	143	143
4	10	-	143	140	141	140
5	15	-	143	142	139	140
6	20	-	144	139	140	138

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	-	-
Settling	60	0

Notes: Simulation of Presedimentation Tank
 Samples collected from top of jars

Test No. J256
Date 8/10/95
Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	27.0	7.6	95.0	138	116

Jar No.	Ferric Sulfate (mg/L)	Settled pH (units)	15 min Settled Turbidity (ntu)	30 min Settled Turbidity (ntu)	45 min Settled Turbidity (ntu)	60 min Settled Turbidity (ntu)
1	40	-	109	108	107	107
2	50	-	114	111	108	107
3	60	-	114	113	111	111
4	70	-	117	114	114	114
5	80	-	118	118	116	115
6	90	-	118	118	118	116

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	-	-
Settling	60	0

Notes: Simulation of Presedimentation Tank
 Samples collected from top of jars

Test No. J257
 Date 8/13/95
 Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	28.5	8.0	48.0	212	178

Jar No.	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	30	-	4.6	-	-	sm
2	40	-	3.8	-	-	sm
3	50	-	3.2	-	-	sm
4	60	-	2.8	-	-	sm
5	70	-	3.0	-	-	sm
6	80	-	2.4	-	-	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Run No. J258
 Date 8/17/95
 Source Little Ark. / Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water (L.A. / GW)	27 / 19	7.4 / 7.6	970 / 0.7	74 / 296	70 / 250

Jar No.	L.A. / GW Blend	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	10 / 90	140	10	9	1.6	116	72	sm
2	20 / 80	140	10	9.2	2	108	72	sm
3	30 / 70	130	30	9	4.8	106	68	sm
4	40 / 60	130	40	9	10	98	70	sm
5	50 / 50	150	80	9.1	25	104	72	sm
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes: Groundwater collected from Well #30 (unchlorinated)

Run No. J259
 Date 8/24/95
 Source Little Ark. / Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water (L.A. / GW)	27 / 27	7.4 / 7.8	251 / 1.9	190 / 306	152 / 240

Jar No.	L.A. / GW Blend	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	100 / 0	175	150	9.1	8.2	134	98	sm
2	25 / 75	150	30	9	3.2	122	90	sm
3	50 / 50	165	70	9.1	4.1	116	84	sm
4	75 / 25	165	100	9	2.2	128	80	sm
5	0 / 100	150	10	9.1	3.1	124	108	sm
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Settled TOC (mg/L)	5.5	2.1	2.7	3.7	1.0

Notes: Groundwater collected from Well #31 (unchlorinated)

Run No. J260
 Date 10/21/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	16.0	8.5	64.0	142	136

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	-	30	-	4.3	-	-	sm
2	-	40	-	3.2	-	-	sm
3	-	50	-	3.1	-	-	sm
4	-	60	-	2.2	-	-	sm
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Run No. J261
 Date 10/24/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	14.0	8.6	76.0	146	142

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	75	40	-	9.4	5.2	-	-	vsm
2	75	30	10	9.5	3.9	-	-	sm
3	75	20	20	9.6	1.4	-	-	sm
4	75	10	30	9.6	1.2	-	-	sm
5	75	-	40	9.6	1.7	-	-	sm
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Run No. J262
 Date 10/31/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13.0	8.5	59.0	144	144

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	75	40	-	9.4	2.9	134	130	sm
2	75	30	10	9.5	3.1	156	148	sm
3	75	20	20	9.6	1.1	170	160	sm
4	75	10	30	9.6	1	180	168	sm
5	75	-	40	9.6	2.1	194	174	sm
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Raw TOC (mg/L)	4.8	4.8	4.8	4.8	4.8
Settled TOC (mg/L)	4.3	4.3	4.6	5.1	4.8
% Reduction	9	9	2	-7	0

Notes:

Run No. J263
 Date 11/2/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	8.4	68.0	146	142

Jar No.	Lime (mg/L)	Ferric Chloride (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	100	10	9.6	12.4	120	116	vsm
2	100	20	9.6	4.7	126	118	sm
3	100	30	9.6	3.3	126	116	sm
4	100	40	9.5	2.2	126	116	sm
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes:

Run No. J264
 Date 11/2/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	12.0	8.4	65.0	146	148

Jar No.	Lime (mg/L)	CF-150 (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	110	0.5	-	-	-	-	none
2	110	1	-	-	-	-	none
3	110	3	-	18	-	-	none
4	110	5	-	10.2	-	-	vsm
5	110	7	-	7	-	-	vsm
6	110	10	9.6	5.9	102	96	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Jar #6	
Raw TOC (mg/L)	4.4
Settled TOC (mg/L)	3.9
% Reduction	11

Notes: 1. CF-150 is aluminum chlorohydrate produced by Sweetwater Technologies.

Run No. J265
 Date 11/6/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	11.0	8.3	63.0	148	146

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	-	20	-	-	-	-	-
2	-	20	-	-	-	-	-
3	50	20	-	-	-	-	-
4	50	20	-	-	-	-	-
5	100	20	9.3	3.2	116	102	-
6	50	20	9.4	7	126	116	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

Flocculation (3 Stage)	5	75
	5	60
	5	30

Settling	30	0
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	Jar #5	Jar #6
Raw TOC (mg/L)	4.2	4.2
Settled TOC (mg/L)	4.1	4.2
% Reduction	2	0

- Notes:
1. Simulation of two-stage treatment - 1st Stage coagulation and 2nd Stage softening as well as two-stage softening.
 2. After settling, decant from Jars 1-2 was used for second stage treatment in Jar 5.
 3. After settling, decant from Jars 3-4 was used for second stage treatment in Jar 6.

Run No. J266
 Date 11/7/95
 Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	8.4	14.1	308	260

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Alum (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	230	30	15	-	9.5	2	116	92	-
2	230	30	10	5	9.5	3.5	118	94	-
3	230	30	5	10	9.5	9.6	120	96	-
4	230	30	-	15	9.3	24	120	98	-
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

	Jar #1	Jar #2	Jar #3	Jar #4
Raw TOC (mg/L)	3.5	3.5	3.5	3.5
Settled TOC (mg/L)	2.9	3.0	3.0	3.0
% Reduction	17	13	14	14

Notes:

Run No. J267
 Date 11/7/95
 Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	15.0	8.4	15.0	308	258

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	-	-	8	-	-	-	-	-
2	-	-	8	-	-	-	-	-
3	120	15	8	-	-	-	-	-
4	120	15	8	-	-	-	-	-
5	230	30	7	9.2	1.1	110	70	-
6	110	15	7	9.2	1.7	114	86	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

Flocculation (3 Stage)	5	75
	5	60
	5	30

Settling	30	0
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	Jar #5	Jar #6
Raw TOC (mg/L)	3.5	3.5
Settled TOC (mg/L)	2.6	2.8
% Reduction	27	19

- Notes:**
1. Simulation of two-stage treatment - 1st Stage coagulation and 2nd Stage softening as well as two-stage softening.
 2. After settling, decant from Jars 1-2 was used for second stage treatment in Jar 5.
 3. After settling, decant from Jars 3-4 was used for second stage treatment in Jar 6.

Test No. J300

Date 12/7/94

Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	14.0	8.3	23.2	182	168

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	80	10	9.3	12.4	114	94	sm
2	80	10	9.3	12.4	114	94	sm
3	80	10	9.3	12.4	114	94	sm
4	80	10	9.3	12.4	114	94	sm
5	80	10	9.3	12.4	114	94	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	7	75
	7	60
	7	30

Settling	30	0
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Notes: 1. Settled samples combined for analysis

Chlorine Residual Analysis

Initial Cl Dose (mg/L)	Residual @				
	10 min	20 min	30 min	60 min	24 hr
1	0.16	0.14	0.10	0.10	0.09
2	0.50	0.40	0.40	0.43	0.04
3	0.81	0.70	0.66	0.40	0.05
4	2.30	2.20	2.20	1.80	0.24
5	2.70	2.70	2.70	2.40	0.56

Test No. J301

Date 12/8/94

Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	20.0	8.1	21.0	184	166

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	80	10	9.2	10.4	118	94	sm
2	80	10	9.2	10.4	118	94	sm
3	80	10	9.2	10.4	118	94	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	7	75
	7	60
	7	30

Settling	30	0
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Notes: 1. Settled samples combined for analysis

Chloramine Residual Analysis

Initial Dose Cl - Ammonia (mg/L)	Residual @					
	10 min	20 min	30 min	60 min	6 hr	24 hr
1 - 0.25	0.85	0.82	0.83	0.84	0.76	0.69
2 - 0.50	1.67	1.65	1.66	1.65	1.57	1.46
3 - 0.75	2.60	2.50	2.40	2.40	2.40	2.20

Test No. J302

Date 12/8/94

Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	6.0	8.0	14.1	280	226

Jar No.	Soda			Settled			Settled			Floc Size @ 9 min.
	Lime (mg/L)	Ash (mg/L)	Alum (mg/L)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Alkalinity (mg/L)	Floc Size		
1	160	40	40	9.5	8.2	178	144	sm		
2	160	40	40	9.5	8.2	178	144	sm		
3	160	40	40	9.5	8.2	178	144	sm		
4	160	40	40	9.5	8.2	178	144	sm		
5	160	40	40	9.5	8.2	178	144	sm		

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	7	75
	7	60
	7	30

Settling	30	0
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Notes: 1. Settled samples combined for analysis

Chlorine Residual Analysis

Initial Cl Dose (mg/L)	Residual @				
	10 min	20 min	30 min	60 min	24 hr
1	0.20	0.08	0.08	0.05	0.23
2	0.73	0.61	0.59	0.43	0.38
3	1.45	1.36	1.24	0.99	0.26
4	2.30	2.03	1.91	1.58	0.49
5	3.00	2.70	2.60	2.20	1.14

Test No. J303

Date 12/10/94

Source Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	5.0	8.0	5.6	280	222

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 9 min.
1	160	40	40	9.4	4.4	168	138	vsm
2	160	40	40	9.4	4.4	168	138	vsm
3	160	40	40	9.4	4.4	168	138	vsm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	7	75
	7	60
	7	30

Settling	30	0
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Notes: 1. Settled samples combined for analysis

Test No. J303

Date 12/10/94 Source Little Ark.

Chloramine Residual Analysis

Initial Dose Cl - Ammonia (mg/L)	Residual @					
	10 min	20 min	30 min	60 min	6 hr	24 hr
1 - 0.25	0.84	0.82	0.85	0.83	0.76	0.68
2 - 0.50	1.66	1.66	1.64	1.59	1.55	1.44
3 - 0.75	2.60	2.50	2.50	2.50	2.30	2.30

Test No. J304

Date 12/17/94

Source Cheney / Little Ark.

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Alkalinity (mg/L)
Raw Water (Cheney/LA)	15/20	8.2/7.9	16.9/9.5	182/288	166/236

Jar No.	Lime (mg/L)	Ferric Sulfate		Settled		Settled		Floc Size @ 9 min.
		(mg/L)	(units)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Alkalinity (mg/L)	
1	80	20	9.0	9.0	5.8	116	96	sm
2	80	20	9.0	9.0	5.8	116	96	sm
3	80	20	9.0	9.0	5.8	116	96	sm
4	160	-	9.4	9.4	2.4	116	128	sm
5	160	-	9.4	9.4	2.4	116	128	sm
6	160	-	9.4	9.4	2.4	116	128	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

- Notes:
1. Cheney samples Jars 1-3; Little Ark. samples Jars 4-6
 2. Little Ark. samples heated to room temperature in water bath
 3. Settled samples combined and filtered for analysis

Test No. J304

Date 12/17/94

Source Cheney / Little Ark.

	CHENEY		LITTLE ARK.	
	Chlorine- Chloramine	ClO2- Chloramine	Chlorine- Chloramine	ClO2- Chloramine
Chlorine Dose (mg/L)	4.00	-	4.00	-
Chlorine Dioxide Dose (mg/L)	-	2.00	-	2.00
Chlorine Resid. @ 40 min (mg/L)	1.90	-	2.10	-
ClO2 Resid. @ 40 min (mg/L)	-	0.20	-	0.10
Added Ammonia (mg/L)	0.48	-	0.53	-
Added Chlorine (mg/L)	-	4.00	-	4.00
				1.80

Bromodichloromethane	13	34	N.D.	13	60	N.D.
Bromoform	N.D.	N.D.	N.D.	1.4	16	N.D.
Chloroform	22	60	3.6	26	65	2.6
Dibromochloromethane	4.3	14	N.D.	6.5	43	N.D.
TOTAL THM @ 24 hr (ug/L)	99.3	108	3.6	46.9	184	2.6

Monochloroacetic acid	N.D.	3.5	4.1	N.D.	1.7	2.1
Monobromoacetic acid	N.D.	1.3	1.6	N.D.	1.4	N.D.
Dichloroacetic acid	22	41	14	26	29	15
Trichloroacetic acid	7.3	9	1.6	4.5	5.4	2.2
Dibromoacetic acid	2.7	3.1	N.D.	N.D.	14	N.D.
HAA5 @ 24 hr (ug/L)	32	57.9	21.3	30.5	51.5	19.3

	Cheney	Little Ark.
Raw TOC (mg/L)	4.7	5.1
Settled TOC (mg/L)	4.4	3.7
% Reduction	6	27

Test No. J305

Date 2/28/95

Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	7.5	8.3	26.7	184	172

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Ferrous Chloride (mg/L)	Chlorine Dioxide (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	110	35	-	2	9.3	1.9	106	82	sm
2	115	-	50	2	9.2	1.6	104	80	sm
3	110	35	-	4	9.3	2.0	108	82	sm
4	115	-	50	4	9.2	1.9	106	80	sm

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	11	75
	11	60
	11	30

Settling	30	0
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- Notes:**
1. ClO2 added to jars and stirred @ 25 rpm for 60 minutes
 2. Chlorite and Chlorate samples taken from Jar #4 @ 60 minutes
 3. Chemicals added and jar test performed
 4. After settling, samples were filtered with Chlorate and Chlorite samples taken from Jars #3 and #4
 5. Filtered samples were dosed with 1.8 mg/L Cl and 0.45 mg/L ammonia
 6. THM samples collected at @ 24 hours

Test No. J305

Date 2/28/95

Source Cheney

	Jar #1	Jar #3
ClO2 Resid. @ 60 min (mg/L)	0.15	1.78

	Jar #4
Chlorate (mg/L) finished	0.62
Chlorite (mg/L) finished	2.60

	Jar #3	Jar #4
Chlorate (mg/L) @ 24 hr	0.59	0.45
Chlorite (mg/L) @ 24 hr	1.90	2.00

	Jar #1	Jar #2	Jar #3	Jar #4
Bromodichloromethane	0.9	N.D.	0.6	N.D.
Bromoform	N.D.	N.D.	N.D.	N.D.
Chloroform	4.2	1.3	2.2	2
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.
TOTAL THM @ 24 hr (ug/L)	5.1	1.3	2.8	2.0

Test No. J306

Date 4/21/95

Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13.0	8.3	45.0	186	170

Jar No.	Lime (mg/L)	Ferric Sulfate (mg/L)	Ferrous Chloride (mg/L)	Chlorine Dioxide (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	100	35	-	2.5	-	-	-	-	-
2	115	-	50	2.5	-	-	-	-	-
3	-	-	-	2.5	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	11	75
	11	60
	11	30

	Time (min.)	Speed (rpm)
Settling	30	0

- Notes:**
1. ClO2 added to jars and stirred @ 25 rpm for 60 minutes
 2. Chlorite and Chlorate samples taken from Jar #3 @ 60 minutes
 3. Chemicals added and jar test performed
 4. After settling, samples were filtered with Chlorate and Chlorite samples taken from Jars #1 and #2
 5. Filtered sample from Jar #2 was dosed with 1.8 mg/L Cl and 0.45 mg/L ammonia
 6. THM and HAA samples collected at @ 24 hours

Test No. J306

Date 4/21/95

Source Cheney

Jar #3	
ClO ₂ Resid. @ 60 min (mg/L)	0.8

Jar #3	
Chlorate (mg/L) @ 60 min	0.23
Chlorite (mg/L) @ 60 min	1.60

	Jar #1	Jar #2
Chlorate (mg/L) finished	0.24	0.18
Chlorite (mg/L) finished	1.60	1.30

	Jar #2
Bromodichloromethane	N.D.
Bromoform	N.D.
Chloroform	1.4
Dibromochloromethane	N.D.
TOTAL THM @ 24 hr (ug/L)	1.4

	Jar #2
Monochloroacetic acid	2.5
Monobromoacetic acid	1.6
Dichloroacetic acid	9.8
Trichloroacetic acid	3.2
Dibromoacetic acid	2.7
HAA5 @ 24 hr (ug/L)	19.8

	Jar #1	Jar #2
Raw TOC (mg/L)	4.6	4.6
Settled TOC (mg/L)	4.2	4.1
% Reduction	9	11

Test No. J307

Date 5/23/95

Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	18.0	7.8	630	80	62

Jar No.	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Ferrous Chloride (mg/L)	Polymer (mg/L)	Chlorine Dioxide (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 16.5 min.
1	40	20	100	-	8	2.5	-	-	-	-	-
2	40	20	-	140	8	2.5	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300

	Time (min.)	Speed (rpm)
Flocculation (3 Stage)	11	75
	11	60
	11	30

Settling	30	0
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- Notes:
1. ClO2 added to jars and stirred @ 25 rpm for 60 minutes
 2. Due to high turbidity, ClO2 residual could not be measured after 60 minutes
 3. Chlorite and Chlorate samples taken from Jars #1 and #2 @ 60 minutes
 4. Chemicals added and jar test performed
 5. After settling, samples were filtered with Chlorate and Chlorite samples taken from Jars #1 and #2
 6. Filtered sample from Jar #2 was dosed with 1.8 mg/L Cl and 0.45 mg/L ammonia
 7. THM and HAA samples collected at @ 24 hours

Test No. J307

Date 5/23/95

Source Little Ark

Jar #3	
CIO2 Resid. @ 60 min (mg/L)	-

	Jar #1	Jar #2
Chlorate (mg/L) @ 60 min	0.28	0.26
Chlorite (mg/L) @ 60 min	1.40	1.30

	Jar #1	Jar #2
Chlorate (mg/L) finished	0.15	0.12
Chlorite (mg/L) finished	1.30	N.D.

	Jar #2
Bromodichloromethane	1.4
Bromoform	N.D.
Chloroform	6.5
Dibromochloromethane	N.D.
TOTAL THM @ 24 hr (ug/L)	7.9

	Jar #2
Monochloroacetic acid	3.6
Monobromoacetic acid	N.D.
Dichloroacetic acid	25
Trichloroacetic acid	2.8
Dibromoacetic acid	N.D.
TOTAL HAA @ 24 hr (ug/L)	31.4

	Jar #1	Jar #2
Raw TOC (mg/L)	9.6	9.6
Settled TOC (mg/L)	4.2	4.1
% Reduction	56	57

Run No. J400
 Date 11/27/95
 Source Cheney / Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	15 / 19	8.2 / 7.5	65 / 0.4	168 / 252	142 / 258

(CHENEY / GW)

Jar No.	Chen / GW Blend	Lime (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	100 / 0	110	40	9.2	5.9	104	80	-
2	75 / 25	130	25	9.3	3.2	100	84	-
3	50 / 50	150	15	9.3	2.1	98	92	-
4	25 / 75	185	10	9.3	4	94	92	-
5	0 / 100	240	5	9.4	5.7	88	84	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	7	75
	7	60
	7	30
Settling	30	0

Notes: Groundwater collected from Well #29 (unchlorinated)

Run No. J400
Date 11/27/95
Source Cheney / Groundwater

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Cl Resid. @ 40 min (mg/L)	2.6	2.7	3.0	3.1	3.4
Ammonia Dose (mg/L)	0.7	0.7	0.7	0.8	0.9

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Bromodichloromethane	13.7	14.5	11.8	8.5	2.3
Bromoform	N.D.	N.D.	N.D.	N.D.	N.D.
Chloroform	33.0	30.8	18.7	13.1	8.4
Dibromochloromethane	2.4	3.4	4.4	4.5	N.D.
TOTAL THM @ 24 hr (ug/L)	49.1	48.7	34.9	26.1	10.7

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Monochloroacetic acid	5.1	6.9	5.7	4.7	3.2
Monobromoacetic acid	N.D.	N.D.	N.D.	N.D.	N.D.
Dichloroacetic acid	17.2	14.5	9.5	5.3	2.4
Trichloroacetic acid	4.9	5.2	3.8	2.3	N.D.
Dibromoacetic acid	N.D.	N.D.	N.D.	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	27.2	26.6	19	12.3	5.6

TOC (mg/L)	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Raw	4.5	3.8	2.8	1.8	0.8
Settled	4.0	3.4	2.6	1.7	0.7
% Reduction	10	12	10	6	13

Run No. J401
 Date 12/2/95
 Source Little Ark. / Groundwater

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	13 / 23	8.4 / 7.7	10.9 / 2.7	316 / 250	262 / 262
(L.A. / GW)					

Jar No.	L.A. / GW Blend	Lime (mg/L)	Soda Ash (mg/L)	Ferric Sulfate (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Floc Size @ 7.5 min.
1	100 / 0	230	30	15	9.6	6	112	80	-
2	75 / 25	230	25	15	9.4	5.8	106	78	-
3	50 / 50	225	20	15	9.4	6.3	108	84	-
4	25 / 75	225	15	10	9.3	4.9	104	80	-
5	0 / 100	220	-	10	9.4	6.1	102	94	-
6	-	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	0.17	300
Flocculation (3 Stage)	5	75
	5	60
	5	30
Settling	30	0

Notes: Groundwater collected from Well #29 (unchlorinated)

Run No. J401
 Date 12/2/95
 Source Little Ark. / Groundwater

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Cl Resid. @ 40 min (mg/L)	1.8	2.1	2.1	2.1	2.2
Ammonia Dose (mg/L)	0.5	0.5	0.5	0.5	0.6

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Bromodichloromethane	13.2	10.4	8.9	5.5	1.5
Bromoform	2.2	1.8	2.1	N.D.	N.D.
Chloroform	23.7	17	12.6	8	2
Dibromochloromethane	9	7.6	7.2	4	1.2
TOTAL THM @ 24 hr (ug/L)	48.1	36.8	30.8	17.5	4.7

	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Monochloroacetic acid	2.5	1.5	2.3	1.4	1.3
Monobromoacetic acid	N.D.	N.D.	N.D.	N.D.	N.D.
Dichloroacetic acid	11.2	9	6.3	4.2	1.6
Trichloroacetic acid	3	2.3	2.1	1.1	N.D.
Dibromoacetic acid	2.9	2.4	2	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	19.6	15.2	12.7	6.7	2.9

TOC (mg/L) - CDM	Jar #1	Jar #2	Jar #3	Jar #4	Jar #5
Raw	4.1	3.8	2.9	2.7	2.1
Settled	3.8	2.3	1.8	1.5	1.0
% Reduction	7	39	38	44	52

Run No. J500
 Date 11/20/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	-	-	-

Jar No.	Geosmin (ng/L)	MIB (ng/L)	PAC (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)	Settled Floc Size @ 7.5 min.
1	125	125	-	-	-	-	-	-
2	125	125	10	-	-	-	-	-
3	125	125	20	-	-	-	-	-
4	125	125	30	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	360	130
Flocculation (3 Stage)	0	0
	0	0
	0	0
Settling	0	0

	Jar #2	Jar #3	Jar #4
GEOSMIN-Filtered (ng/L)	88	88	88
GEOSMIN-Raw (ng/L)	6.6	N.D.	N.D.
% Reduction	93	100	100

	Jar #2	Jar #3	Jar #4
MIB-Raw (ng/L)	66	66	66
MIB-Filtered (ng/L)	24	10	N.D.
% Reduction	64	85	100

	Jar #2	Jar #3	Jar #4
Raw TOC (mg/L)	4.6	4.6	4.6
Filtered TOC (mg/L)	3.6	3.4	3.2
% Reduction	21	26	30

Notes:

Run No. J501
 Date 11/20/95
 Source Cheney

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	-	-	-

Jar No.	Geosmin (ng/L)	MIB (ng/L)	PAC (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)
1	125	125	-	-	-	-	-
2	125	125	10	-	-	-	-
3	125	125	20	-	-	-	-
4	125	125	30	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	360	130
Flocculation (3 Stage)	0 0 0	0 0 0
Settling	0	0

	Jar #2	Jar #3	Jar #4
GEOSMIN-Raw (ng/L)	120	120	120
GEOSMIN-Filtered (ng/L)	4	N.D.	N.D.
% Reduction	97	100	100

	Jar #2	Jar #3	Jar #4
MIB-Raw (ng/L)	42	42	42
MIB-Filtered (ng/L)	13	13	7.5
% Reduction	69	69	82

	Jar #2	Jar #3	Jar #4
Raw TOC (mg/L)	4.6	4.6	4.6
Filtered TOC (mg/L)	4.1	3.8	3.4
% Reduction	11	18	27

Notes:

Run No. J502
 Date 11/30/95
 Source Little Ark

	Temp. (deg. C)	pH (units)	Turbidity (ntu)	Total Hardness (mg/L)	Total Alkalinity (mg/L)
Raw Water	-	-	-	-	-

Jar No.	Geosmin (ng/L)	MIB (ng/L)	PAC (mg/L)	Settled pH (units)	Settled Turbidity (ntu)	Settled Hardness (mg/L)	Settled Alkalinity (mg/L)
1	125	125	-	-	-	-	-
2	125	125	10	-	-	-	-
3	125	125	20	-	-	-	-
4	125	125	30	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

	Time (min.)	Speed (rpm)
Rapid Mixing	60	130
Flocculation (3 Stage)	0 0 0	0 0 0
Settling	0	0

	Jar #2	Jar #3	Jar #4
GEOSMIN-Raw (ng/L)	100	100	100
GEOSMIN-Filtered (ng/L)	27	5	N.D.
% Reduction	73	95	100

	Jar #2	Jar #3	Jar #4
MIB-Raw (ng/L)	92	92	92
MIB-Filtered (ng/L)	63	23	12
% Reduction	32	75	87

	Jar #2	Jar #3	Jar #4
Raw TOC (mg/L)	3.5	3.5	3.5
Filtered TOC (mg/L)	3.1	2.7	2.4
% Reduction	13	22	31

Notes:

Appendix B

Pilot Test Data

Run No. 1001
 Date 2/7/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	25	120	120	120	120	120	120	120	120	120	120
Ferric Sulfate (mg/L)	25	15	24	23	15	15	15	15	24	24	24

RAW											
Pilot Plant Flowrate (gpm)	25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	4	5.0	5.5	5.4	5.5				5.0		
pH (units)	4	8.3	8.4	8.4	8.4				8.4		
Grab Turbidity (ntu)	4	12.1	21.5	18.2	21.5				19.5		
On-Line Turbidity (ntu)	25	12.2	21.8	15.6	20.4	21.8	20.7	20.4	19.7	18.1	17.4
T. Hardness as CaCO3 (mg/L)	4	182	186	184	182				184		
T. Alkalinity as CaCO3 (mg/L)	4	170	172	171	170				172		

SETTLED											
pH (units)	11	8.4	10.2	9.7	9.8	9.7	9.9	10.0	10.1	10.1	10.2
Grab Turbidity (ntu)	4	9.5	26.6	17.5	26.6				18.0		
On-Line Turbidity (ntu)	25	3.7	16.5	10.4	16.5	15.5	16.2	16.2	16.5	11.9	10.0
T. Hardness as CaCO3 (mg/L)	6	110	120	114	120		114		110		116
T. Alkalinity as CaCO3 (mg/L)	6	92	100	95	100		94		92		96

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	49.8	87.3		51.8	49.8	51.4	55.0	57.5	59.6	61.4
Avg. Headloss (in/hr)				1.5							
pH (units)	11	7.3	9.5	8.2	9.2	7.4	7.4	7.6	9.5	7.3	9.3
Grab Turbidity (ntu)	0	0.00	0.00	0.0							
On-Line Turbidity (ntu)	24	0.53	1.46	0.6		1.46	0.89	0.82	0.72	0.64	0.55
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	41.3	74.5		41.3	42.9	45.1	47.8	49.6	52.8	54.8
Avg. Headloss (in/hr)				1.3							
pH (units)	11	7.3	9.5	8.2	9.2	7.4	7.4	7.6	9.5	7.3	9.3
Grab Turbidity (ntu)	0	0.00	0.00	0.0							
On-Line Turbidity (ntu)	24	0.56	1.23	0.7		1.23	0.92	0.84	0.70	0.61	0.57
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

Run No. 1001
 Date 2/7/95
 Source Cheney

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16 17 18 19
 CHEMICAL FEED

Lime (mg/L)	120	120	120	120	120	120	120	120	120	120	120	120	120
Ferric Sulfate (mg/L)	24	24	24	24	24	24	24	24	24	24	24	24	24

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	5.5												
pH (units)	8.4												
Grab Turbidity (ntu)	19.6												
On-Line Turbidity (ntu)	18.5	18.5	17.0	15.0	14.5	14.0	14.0	13.0	13.0	13.5	13.0	13.0	13.0
T. Hardness as CaCO3 (mg/L)	182												
T. Alkalinity as CaCO3 (mg/L)	170												

SETTLED

pH (units)	10.1												
Grab Turbidity (ntu)	16.0												
On-Line Turbidity (ntu)	9.4	9.5	9.5	9.5	9.5	9.5	9.5	9.0	9.0	9.5	9.5	10.0	10.0
T. Hardness as CaCO3 (mg/L)	112												
T. Alkalinity as CaCO3 (mg/L)	92												

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	65.0	66.0	66.5	68.0	70.0	73.0	79.0	81.0	82.0	86.0	84.0	84.0	81.0
Avg. Headloss (in/hr)													
pH (units)	8.4												
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.54	0.56	0.55	0.56	0.58	0.58	0.57	0.55	0.55	0.58	0.58	0.60	0.60
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	56.9	60.0	61.5	64.5	67.5	69.0	71.3	71.3	71.0	69.8	69.0	69.0	71.3
Avg. Headloss (in/hr)													
pH (units)	8.4												
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.58	0.58	0.56	0.58	0.59	0.59	0.57	0.56	0.56	0.60	0.61	0.62	0.63
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 1001
 Date 2/7/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 23.5

CHEMICAL FEED

Lime (mg/L)	120	120	120	120	120
Ferric Sulfate (mg/L)	24	24	24	24	24

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)		5.5			
pH (units)		8.3			
Grab Turbidity (ntu)		12.1			
On-Line Turbidity (ntu)	12.5	12.4	12.2	12.4	12.7
T. Hardness as CaCO3 (mg/L)		186			
T. Alkalinity as CaCO3 (mg/L)		172			

SETTLED

pH (units)		10.1	8.4	8.6	
Grab Turbidity (ntu)		9.5			
On-Line Turbidity (ntu)	9.5	9.3	3.7	5.4	4.8
T. Hardness as CaCO3 (mg/L)		114			
T. Alkalinity as CaCO3 (mg/L)		94			

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	79.0	79.3	80.6	84.8	87.3
Avg. Headloss (in/hr)					
pH (units)		8.6	7.9	8.0	
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	0.59	0.55	0.53	0.63	0.63
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	71.3	71.6	72.5	74.5	74.5
Avg. Headloss (in/hr)					
pH (units)		8.6	7.9	8.0	
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	0.62	0.61	0.60	0.70	0.71
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 1002
 Date 2/9/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	8	120	125	123	120	120	120	120	125	125	125
Ferric Sulfate (mg/L)	8	35	35	35	35	35	35	35	35	35	35
Filter Aid Polymer (mg/L)	8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	3	5.5	5.5	5.5	5.5				5.5		
pH (units)	3	8.3	8.4	8.3	8.4				8.3		
Grab Turbidity (ntu)	3	11.0	11.1	11.0	11.1				11.0		
On-Line Turbidity (ntu)	8	10.9	11.4	11.1	11.1	11.2	11.4	11.3	10.9	11.0	10.9
T. Hardness as CaCO3 (mg/L)	3	184	186	185	184				186		
T. Alkalinity as CaCO3 (mg/L)	3	168	170	169	168				168		

SETTLED											
pH (units)	8	9.6	10.1	9.9	9.6	9.7	9.7	9.9	10.0	10.1	10.1
Grab Turbidity (ntu)	3	4.6	8.3	6.1	8.3				4.6		
On-Line Turbidity (ntu)	8	4.3	7.5	5.6	7.5	6.9	5.9	5.5	4.8	4.9	5.0
T. Hardness as CaCO3 (mg/L)	6	118	128	122	128		122	124	120		118
T. Alkalinity as CaCO3 (mg/L)	6	94	104	98	104		94	98	96		94

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	8	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8	19.0	49.1		19.0	31.9	35.2	38.7	41.6	44.6	46.9
Avg. Headloss (ln/hr)				3.8							
pH (units)	8	8.1	8.9	8.5	8.5	8.9	8.2	8.1	8.6	8.5	8.5
Grab Turbidity (ntu)	1	0.44	0.44	0.44							
On-Line Turbidity (ntu)	7	0.34	0.43	0.39		0.43	0.43	0.43	0.38	0.36	0.34
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	8	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8	28.6	42.8		28.6	36.6	37.0	38.1	39.6	40.3	41.7
Avg. Headloss (ln/hr)				1.8							
pH (units)	8	8.1	8.9	8.5	8.5	8.9	8.2	8.1	8.6	8.5	8.5
Grab Turbidity (ntu)	1	0.52	0.52	0.52							
On-Line Turbidity (ntu)	7	0.41	0.69	0.51		0.69	0.56	0.55	0.49	0.43	0.41
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	5.5	
SETTLED	4.4	19
FILTER C	2.8	49
FILTER D	4.1	25

Run No. 1002
Date 2/9/95
Source Cheney

Elapsed Time (hr) 7

CHEMICAL FEED

Lime (mg/L)	125
Ferric Sulfate (mg/L)	35
Filter Aid Polymer (mg/L)	0.1

RAW

Pilot Plant Flowrate (gpm)	2.0
Temp. (deg. C)	5.5
pH (units)	8.3
Grab Turbidity (ntu)	11.0
On-Line Turbidity (ntu)	11.0
T. Hardness as CaCO3 (mg/L)	186
T. Alkalinity as CaCO3 (mg/L)	170

SETTLED

pH (units)	10.0
Grab Turbidity (ntu)	5.3
On-Line Turbidity (ntu)	4.3
T. Hardness as CaCO3 (mg/L)	122
T. Alkalinity as CaCO3 (mg/L)	100

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0
Headloss (inches)	49.1
Avg. Headloss (in/hr)	
pH (units)	8.3
Grab Turbidity (ntu)	0.44
On-Line Turbidity (ntu)	0.39
Particles <5 um (counts/mL)	
Particles 5-15 um (counts/mL)	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0
Headloss (inches)	42.8
Avg. Headloss (in/hr)	
pH (units)	8.3
Grab Turbidity (ntu)	0.52
On-Line Turbidity (ntu)	0.46
Particles <5 um (counts/mL)	
Particles 5-15 um (counts/mL)	

Run No. 1003
 Date 2/10/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4
					CHEMICAL FEED				
Lime (mg/L)	5	120	120	120	120	120	120	120	120
Polymer (mg/L)	5	1.0	3.0	1.8	1.0	1.0	1.0	3.0	3.0
Filter Aid Polymer (mg/L)	5	0.1	0.5	0.3	0.1	0.1	0.3	0.5	0.3

RAW									
Pilot Plant Flowrate (gpm)	5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	2	5.5	5.5	5.5	5.5				5.5
pH (units)	2	8.3	8.3	8.3	8.3				8.3
Grab Turbidity (ntu)	2	12.9	13.5	13.2	12.9				13.5
On-Line Turbidity (ntu)	5	12.9	15.0	13.8	12.9	13.7	15.0	14.2	13.4
T. Hardness as CaCO3 (mg/L)	1	186	186	186	186				
T. Alkalinity as CaCO3 (mg/L)	1	170	170	170	170				

SETTLED									
pH (units)	5	10.1	10.5	10.4	10.1	10.4	10.4	10.5	10.4
Grab Turbidity (ntu)	2	18.4	25.9	22.2	18.4				25.9
On-Line Turbidity (ntu)	5	18.6	31.9	23.6	31.9	21.9	18.6	21.9	23.7
T. Hardness as CaCO3 (mg/L)	2	98	100	99	100		98		
T. Alkalinity as CaCO3 (mg/L)	2	88	88	88	88		88		

FILTER C - GAC/Sand Media									
Filtration Rate (gpm/sf)	5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	5	24.2	38.2		24.2	33.9	35.9	37.9	38.2
Avg. Headloss (in/hr)				2.8					
pH (units)	5	8.1	9.5	8.5	8.2	9.5	8.2	8.7	8.1
Grab Turbidity (ntu)	1	1.30	1.30	1.30					1.30
On-Line Turbidity (ntu)	4	1.10	2.10	1.65		2.10	1.40	2.00	1.10
Particles <5 um (counts/mL)	0	0.0	0.0	0.0					
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0					

FILTER D - Anth/Sand Media									
Filtration Rate (gpm/sf)	5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	5	26.2	52.4		26.2	46.7	48.7	50.2	52.4
Avg. Headloss (in/hr)				5.2					
pH (units)	5	8.1	9.5	8.5	8.2	9.5	8.2	8.7	8.1
Grab Turbidity (ntu)	1	1.60	1.60	1.60					1.60
On-Line Turbidity (ntu)	4	1.30	3.00	2.05		3.00	1.70	2.20	1.30
Particles <5 um (counts/mL)	0	0.0	0.0	0.0					
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0					

Run No. 1004
 Date 2/13/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	7	110	110	110	110	110	110	110	110	110	110
Polymer (mg/L)	7	1.0	5.0	3.3	1.0	1.0	3.0	3.0	5.0	5.0	5.0
Filter Aid Polymer (mg/L)	7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	3	4.5	5.5	5.0	4.5				5.0		5.5
pH (units)	3	8.1	8.2	8.2	8.1				8.2		8.2
Grab Turbidity (ntu)	3	11.8	11.9	11.8	11.9				11.8		11.8
On-Line Turbidity (ntu)	7	11.6	12.0	11.8	12.0	11.6	11.8	11.8	11.8	11.8	11.7
T. Hardness as CaCO3 (mg/L)	3	182	188	185	188				182		184
T. Alkalinity as CaCO3 (mg/L)	3	166	172	170	166				172		172

SETTLED											
pH (units)	7	9.8	9.9	9.9	9.8	9.9	9.9	9.9	9.9	9.8	9.8
Grab Turbidity (ntu)	3	20.2	30.0	26.4	20.2				30.0		28.9
On-Line Turbidity (ntu)	7	14.2	27.0	23.1	14.2	27.0	23.1	21.1	26.2	23.5	26.7
T. Hardness as CaCO3 (mg/L)	4	102	108	104	102		102		104		108
T. Alkalinity as CaCO3 (mg/L)	4	92	100	96	94		92		96		100

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	7	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6	7.4	21.2			7.4	12.2	14.7	16.8	19.1	21.2
Avg. Headloss (in/hr)				2.3							
pH (units)	6	7.2	9.6	8.2		7.5	9.6	7.2	8.4	8.3	8.4
Grab Turbidity (ntu)	2	1.50	1.60	1.55					1.60		1.50
On-Line Turbidity (ntu)	6	1.30	2.10	1.57		2.10	1.80	1.40	1.40	1.40	1.30
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	7	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6	6.7	19.2			6.7	10.9	13.5	15.3	17.6	19.2
Avg. Headloss (in/hr)				2.1							
pH (units)	6	7.2	9.6	8.2		7.5	9.6	7.2	8.4	8.3	8.4
Grab Turbidity (ntu)	2	1.50	1.80	1.65					1.80		1.50
On-Line Turbidity (ntu)	6	1.40	2.40	1.83		2.40	2.20	1.60	1.70	1.70	1.40
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	5.0	
SETTLED	4.4	12
FILTER C	2.9	41
FILTER D	4.1	18

Run No. 1005
 Date 2/14/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	10	120	160	133	120	120	120	120	120	120	145
Alum (mg/L)	10	38	60	54	50	50	50	38	50	60	60
Filter Aid Polymer (mg/L)	10	0.1	0.3	0.2	0.1	0.1	0.1	0.3	0.3	0.3	0.3

RAW											
Pilot Plant Flowrate (gpm)	10	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	3	4.0	4.5	4.3	4.5				4.0		
pH (units)	3	8.1	8.1	8.1	8.1				8.1		
Grab Turbidity (ntu)	3	11.1	11.7	11.5	11.7				11.6		
On-Line Turbidity (ntu)	10	11.2	11.9	11.6	11.9	11.8	11.7	11.7	11.6	11.8	11.5
T. Hardness as CaCO3 (mg/L)	3	186	188	187	186				186		
T. Alkalinity as CaCO3 (mg/L)	3	170	172	171	170				172		

SETTLED											
pH (units)	10	9.2	9.7	9.4	9.3	9.4	9.2	9.5	9.4	9.2	9.4
Grab Turbidity (ntu)	3	15.4	20.3	17.6	20.3				17.2		
On-Line Turbidity (ntu)	10	8.7	22.6	13.6	22.6	13.5	11.8	19.7	12.7	8.7	11.8
T. Hardness as CaCO3 (mg/L)	7	116	140	127	140			130	126		126
T. Alkalinity as CaCO3 (mg/L)	7	90	110	97	110		98		94		96

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	10	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	10	0.0	77.8		0.0	14.7	20.8	28.0	36.6	45.0	53.5
Avg. Headloss (in/hr)				7.8							
pH (units)	10	7.9	9.0	8.5	8.1	8.6	7.9	8.4	8.5	8.4	8.5
Grab Turbidity (ntu)	2	1.50	2.00	1.75					2.00		
On-Line Turbidity (ntu)	9	1.20	2.10	1.67		2.10	1.20	1.60	2.00	2.00	1.70
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	10	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	10	0.0	60.1		0.0	12.2	17.7	23.4	30.2	37.2	43.1
Avg. Headloss (in/hr)				6.0							
pH (units)	10	7.9	9.0	8.5	8.1	8.6	7.9	8.4	8.5	8.4	8.5
Grab Turbidity (ntu)	2	1.80	2.00	1.90					2.00		
On-Line Turbidity (ntu)	9	1.40	2.60	1.89		2.60	1.40	1.80	2.10	2.10	1.80
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	5.1	
SETTLED	4.3	16
FILTER C	3.3	35
FILTER D	4.2	17

Run No. 1005
 Date 2/14/95
 Source Cheney

Elapsed Time (hr) 7 8 9

CHEMICAL FEED

Lime (mg/L)	145	160	160
Alum (mg/L)	60	60	60
Filter Aid Polymer (mg/L)	0.3	0.3	0.3

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0	2.0
Temp. (deg. C)		4.5	
pH (units)		8.1	
Grab Turbidity (ntu)		11.1	
On-Line Turbidity (ntu)	11.4	11.3	11.2
T. Hardness as CaCO3 (mg/L)		188	
T. Alkalinity as CaCO3 (mg/L)		172	

SETTLED

pH (units)	9.4	9.6	9.7
Grab Turbidity (ntu)		15.4	
On-Line Turbidity (ntu)	9.8	11.4	14.3
T. Hardness as CaCO3 (mg/L)	136	118	116
T. Alkalinity as CaCO3 (mg/L)	98	90	90

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	63.0	68.6	77.8
Avg. Headloss (in/hr)			
pH (units)	8.6	9.0	8.7
Grab Turbidity (ntu)		1.50	
On-Line Turbidity (ntu)	1.60	1.40	1.40
Particles <5 um (counts/mL)			
Particles 5-15 um (counts/mL)			

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	50.2	53.8	60.1
Avg. Headloss (in/hr)			
pH (units)	8.6	9.0	8.7
Grab Turbidity (ntu)		1.80	
On-Line Turbidity (ntu)	1.90	1.70	1.60
Particles <5 um (counts/mL)			
Particles 5-15 um (counts/mL)			

Run No. 1006
 Date 2/15/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	9	120	120	120	120	120	120	120	120	120	120
Ferric Chloride (mg/L)	9	25	25	25	25	25	25	25	25	25	25
Filter Aid Polymer (mg/L)	9	0.1	0.5	0.4	0.1	0.1	0.3	0.5	0.5	0.5	0.5

RAW											
Pilot Plant Flowrate (gpm)	9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	3	4.0	4.5	4.2	4.0				4.0		
pH (units)	3	7.9	8.1	8.0	7.9				8.1		
Grab Turbidity (ntu)	3	13.0	20.8	16.9	20.8				16.9		
On-Line Turbidity (ntu)	9	12.9	22.5	16.7	22.2	22.5	20.0	15.5	17.0	13.6	12.9
T. Hardness as CaCO3 (mg/L)	3	186	186	186	186				186		
T. Alkalinity as CaCO3 (mg/L)	3	166	170	169	166				170		

SETTLED											
pH (units)	9	9.7	9.9	9.8	9.7	9.7	9.8	9.7	9.9	9.9	9.8
Grab Turbidity (ntu)	3	6.1	7.7	7.1	6.1				7.7		
On-Line Turbidity (ntu)	9	3.5	6.7	4.9	5.4	3.9	3.5	4.2	6.7	4.2	4.5
T. Hardness as CaCO3 (mg/L)	5	112	118	115	118		112		118		114
T. Alkalinity as CaCO3 (mg/L)	5	90	100	95	98		90		100		92

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	2.8	26.7		2.8	10.9	13.5	16.1	17.9	20.3	22.7
Avg. Headloss (in/hr)				2.7							
pH (units)	9	7.9	9.5	8.5	8.4	9.4	8.3	8.2	8.6	9.5	7.9
Grab Turbidity (ntu)	2	0.61	0.76	0.69					0.76		
On-Line Turbidity (ntu)	8	0.56	0.68	0.61		0.66	0.56	0.57	0.63	0.68	0.57
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	0.3	21.6		0.3	7.8	10.2	12.8	14.5	16.4	17.8
Avg. Headloss (in/hr)				2.4							
pH (units)	9	7.9	9.5	8.5	8.4	9.4	8.3	8.2	8.6	9.5	7.9
Grab Turbidity (ntu)	2	0.67	0.76	0.72					0.76		
On-Line Turbidity (ntu)	8	0.58	0.76	0.66		0.72	0.58	0.58	0.65	0.76	0.61
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	5.2	
SETTLED	4.3	17
FILTER C	2.9	44
FILTER D	3.9	25

Run No. 1006
 Date 2/15/95
 Source Cheney

Elapsed Time (hr) 7 8

CHEMICAL FEED

Lime (mg/L)	120	120
Ferric Chloride (mg/L)	25	25
Filter Aid Polymer (mg/L)	0.5	0.5

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0
Temp. (deg. C)		4.5
pH (units)		8.1
Grab Turbidity (ntu)		13.0
On-Line Turbidity (ntu)	13.8	13.1
T. Hardness as CaCO3 (mg/L)		186
T. Alkalinity as CaCO3 (mg/L)		170

SETTLED

pH (units)	9.8	9.7
Grab Turbidity (ntu)		7.4
On-Line Turbidity (ntu)	5.5	6.1
T. Hardness as CaCO3 (mg/L)		114
T. Alkalinity as CaCO3 (mg/L)		96

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0
Headloss (inches)	24.9	26.7
Avg. Headloss (in/hr)		
pH (units)	8.1	8.3
Grab Turbidity (ntu)		0.61
On-Line Turbidity (ntu)	0.61	0.62
Particles <5 um (counts/mL)		
Particles 5-15 um (counts/mL)		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0
Headloss (inches)	19.9	21.6
Avg. Headloss (in/hr)		
pH (units)	8.1	8.3
Grab Turbidity (ntu)		0.67
On-Line Turbidity (ntu)	0.66	0.68
Particles <5 um (counts/mL)		
Particles 5-15 um (counts/mL)		

Run No. 1007
 Date 2/16/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	9	110	125	122	110	110	125	125	125	125	125
Ferrous Chloride (mg/L)	9	50	50	50	50	50	50	50	50	50	50
Filter Aid Polymer (mg/L)	9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

RAW											
Pilot Plant Flowrate (gpm)	9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	3	4.0	4.5	4.2	4.0				4.5		
pH (units)	3	8.1	8.4	8.2	8.1				8.2		
Grab Turbidity (ntu)	3	11.0	11.2	11.1	11.2				11.1		
On-Line Turbidity (ntu)	9	11.0	11.1	11.0	11.1	11.1	11.0	11.0	11.0	11.0	11.1
T. Hardness as CaCO3 (mg/L)	3	184	186	185	184				184		
T. Alkalinity as CaCO3 (mg/L)	3	170	172	171	170				172		

SETTLED											
pH (units)	9	9.3	9.8	9.5	9.4	9.3	9.3	9.4	9.5	9.6	9.8
Grab Turbidity (ntu)	3	3.6	4.1	3.9	3.6				4.0		
On-Line Turbidity (ntu)	9	3.0	3.9	3.4	3.3	3.6	3.7	3.9	3.6	3.0	3.3
T. Hardness as CaCO3 (mg/L)	5	114	126	119	126		122		116		114
T. Alkalinity as CaCO3 (mg/L)	5	88	102	94	102		100		88		88

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	1.0	29.0		1.0	9.5	12.7	15.8	18.4	21.4	24.0
Avg. Headloss (in/hr)				3.1							
pH (units)	9	7.7	8.8	8.2	8.2	7.7	8.4	8.6	8.5	7.9	8.8
Grab Turbidity (ntu)	2	0.44	0.59	0.52					0.59		
On-Line Turbidity (ntu)	8	0.36	0.54	0.46		0.54	0.53	0.54	0.51	0.41	0.43
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	1.0	24.8		1.0	8.6	11.7	14.0	16.4	18.6	20.7
Avg. Headloss (in/hr)				2.6							
pH (units)	9	7.7	8.8	8.2	8.2	7.7	8.4	8.6	8.5	7.9	8.8
Grab Turbidity (ntu)	2	0.44	0.74	0.59					0.74		
On-Line Turbidity (ntu)	8	0.40	0.62	0.52		0.62	0.59	0.61	0.57	0.45	0.48
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	5.2	
SETTLED	4.3	18
FILTER C	3.0	42
FILTER D	3.9	25

Run No. 1007
 Date 2/16/95
 Source Cheney

Elapsed Time (hr) 7 8

CHEMICAL FEED

Lime (mg/L)	125	125
Ferrous Chloride (mg/L)	50	50
Filter Aid Polymer (mg/L)	0.5	0.5

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0
Temp. (deg. C)		4.0
pH (units)		8.4
Grab Turbidity (ntu)		11.0
On-Line Turbidity (ntu)	11.0	11.0
T. Hardness as CaCO3 (mg/L)		186
T. Alkalinity as CaCO3 (mg/L)		172

SETTLED

pH (units)	9.8	9.8
Grab Turbidity (ntu)		4.1
On-Line Turbidity (ntu)	3.1	3.0
T. Hardness as CaCO3 (mg/L)		116
T. Alkalinity as CaCO3 (mg/L)		90

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0
Headloss (inches)	27.1	29.0
Avg. Headloss (in/hr)		
pH (units)	7.7	7.9
Grab Turbidity (ntu)		0.44
On-Line Turbidity (ntu)	0.37	0.36
Particles <5 um (counts/mL)		
Particles 5-15 um (counts/mL)		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0
Headloss (inches)	23.0	24.8
Avg. Headloss (in/hr)		
pH (units)	7.7	7.9
Grab Turbidity (ntu)		0.44
On-Line Turbidity (ntu)	0.40	0.40
Particles <5 um (counts/mL)		
Particles 5-15 um (counts/mL)		

Run No. 1008
 Date 2/17/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	9	105	110	108	105	105	105	110	110	110	110
Ferrous Sulfate (mg/L)	9	60	60	60	60	60	60	60	60	60	60
Filter Aid Polymer(mg/L)	9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

RAW											
Pilot Plant Flowrate (gpm)	9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	3	4.0	4.5	4.3	4.0				4.5		
pH (units)	3	8.0	8.2	8.1	8.0				8.2		
Grab Turbidity (ntu)	3	11.4	11.5	11.5	11.4				11.5		
On-Line Turbidity (ntu)	9	11.7	11.8	11.7	11.8	11.8	11.8	11.7	11.7	11.7	11.7
T. Hardness as CaCO3 (mg/L)	3	182	186	184	182				186		
T. Alkalinity as CaCO3 (mg/L)	3	168	170	169	170				168		

SETTLED											
pH (units)	9	9.3	9.7	9.5	9.3	9.4	9.4	9.4	9.5	9.6	9.5
Grab Turbidity (ntu)	3	2.1	5.0	3.9	4.6				5.0		
On-Line Turbidity (ntu)	9	3.6	4.1	3.9	4.1	4.1	4.1	3.6	4.1	3.7	3.6
T. Hardness as CaCO3 (mg/L)	5	114	126	121	126		124		120		120
T. Alkalinity as CaCO3 (mg/L)	5	92	102	100	102		102		100		102

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	0.5	36.4		0.5	10.2	14.1	17.3	21.3	24.8	28.5
Avg. Headloss (in/hr)				4.0							
pH (units)	9	7.7	8.6	8.2	7.7	8.5	8.6	8.1	8.3	8.3	8.2
Grab Turbidity (ntu)	2	0.5	0.6	0.5					0.54		
On-Line Turbidity (ntu)	8	0.5	0.6	0.5		0.52	0.57	0.51	0.50	0.48	0.47
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	0.3	29.8		0.3	8.9	12.0	14.6	18.0	20.7	23.8
Avg. Headloss (in/hr)				3.3							
pH (units)	9	7.7	8.6	8.2	7.7	8.5	8.6	8.1	8.3	8.3	8.2
Grab Turbidity (ntu)	2	0.6	0.7	0.6					0.60		
On-Line Turbidity (ntu)	8	0.5	0.7	0.6		0.62	0.65	0.56	0.54	0.52	0.50
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	5.4	
SETTLED	4.5	17
FILTER C	3.2	40
FILTER D	4.0	25

Run No. 1008
 Date 2/17/95
 Source Cheney

Elapsed Time (hr) 7 8

CHEMICAL FEED

Lime (mg/L)	110	110
Ferrous Sulfate (mg/L)	60	60
Filter Aid Polymer(mg/L)	0.5	0.5

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0
Temp. (deg. C)		4.5
pH (units)		8.2
Grab Turbidity (ntu)		11.5
On-Line Turbidity (ntu)	11.7	11.7
T. Hardness as CaCO3 (mg/L)		184
T. Alkalinity as CaCO3 (mg/L)		170

SETTLED

pH (units)	9.5	9.7
Grab Turbidity (ntu)		2.1
On-Line Turbidity (ntu)	3.9	3.9
T. Hardness as CaCO3 (mg/L)		114
T. Alkalinity as CaCO3 (mg/L)		92

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0
Headloss (inches)	32.3	36.4
Avg. Headloss (in/hr)		
pH (units)	8.4	8.1
Grab Turbidity (ntu)		0.55
On-Line Turbidity (ntu)	0.46	0.48
Particles <5 um (counts/mL)		
Particles 5-15 um (counts/mL)		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0
Headloss (inches)	26.9	29.8
Avg. Headloss (in/hr)		
pH (units)	8.4	8.1
Grab Turbidity (ntu)		0.68
On-Line Turbidity (ntu)	0.50	0.53
Particles <5 um (counts/mL)		
Particles 5-15 um (counts/mL)		

Run No. 1009
 Date 3/14/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
CHEMICAL FEED											
Lime (mg/L)	20	150	170	154	170	170	170	170	150	150	150
Soda Ash (mg/L)	20	100	120	104	120	120	120	120	100	100	100
Ferric Sulfate (mg/L)	20	25	85	70	25	40	40	50	50	50	50
Ferric Sulf. Filter Aid (mg/L)	20	0.0	4.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RAW											
Pilot Plant Flowrate (gpm)	20	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	1	13.0	13.0	13.0	13.0						
pH (units)	1	8.0	8.0	8.0	8.0						
Grab Turbidity (ntu)	8	187	485	267	187	231	264	292			
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	7	110	190	150	190		154	146			
T. Alkalinity as CaCO3 (mg/L)	7	78	136	109	136		106	98			

SETTLED											
pH (units)	8	10.1	11.0	10.4	10.2	10.3	10.4	10.5			
Grab Turbidity (ntu)	2	24.8	34.3	29.6							
On-Line Turbidity (ntu)	20	6.8	32.7	17.4	8.5	13.2	11.7	11.4	10.2	13.3	11.7
T. Hardness as CaCO3 (mg/L)	8	104	160	123	134	122	114	110			
T. Alkalinity as CaCO3 (mg/L)	8	72	154	96	102	92	86	84			

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	20	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	20	0.0	103.7		0.0	3.2	6.7	9.2	13.7	18.2	22.7
Avg. Headloss (in/hr)				5.2							
pH (units)	8	6.8	10.5	8.3	7.2	9.4	6.8	8.8			
Grab Turbidity (ntu)	1	4.10	4.10	4.10							
On-Line Turbidity (ntu)	9	0.60	17.90	4.94		3.40	4.40	3.60			
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	20	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	20	0.0	60.6		0.0	4.0	6.4	7.7	9.0	11.3	14.3
Avg. Headloss (in/hr)				3.0							
pH (units)	8	6.8	10.5	8.3	7.2	9.4	6.8	8.8			
Grab Turbidity (ntu)	1	4.60	4.60	4.60							
On-Line Turbidity (ntu)	8	1.80	19.00	5.74		3.10	4.50	3.30			
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	8.6	
SETTLED	6.7	22
FILTER A	6.1	29
FILTER B	3.2	63

Run No. 1009
 Date 3/14/95
 Source Little Ark

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16 17 18 19

CHEMICAL FEED

Lime (mg/L)	150	150	150	150	150	150	150	150	150	150	150	150	150
Soda Ash (mg/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Ferric Sulfate (mg/L)	65	85	85	85	85	85	85	85	85	85	85	85	85
Ferric Sulf. Filter Aid (mg/L)	0.0	0.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)	260	230	188										485
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	140	150	160										110
T. Alkalinity as CaCO3 (mg/L)	104	114	124										78

SETTLED

pH (units)	10.5	10.3	10.1										11.0
Grab Turbidity (ntu)		24.8											34.3
On-Line Turbidity (ntu)	32.7	25.9	9.6	6.8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	32.3
T. Hardness as CaCO3 (mg/L)	128	112	104										160
T. Alkalinity as CaCO3 (mg/L)	94	82	72										154

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	23.7	30.1	33.4	33.1	34.5	43.6	57.0	61.5	69.0	75.0	82.5	91.5	103.7
Avg. Headloss (in/hr)													
pH (units)	7.8	8.4	7.6										10.5
Grab Turbidity (ntu)		4.10											
On-Line Turbidity (ntu)	4.30	5.00	4.30	0.99	0.60								17.90
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	16.0	20.1	22.0	22.5	24.0	30.0	34.5	38.2	41.3	45.5	48.8	53.3	60.6
Avg. Headloss (in/hr)													
pH (units)	7.8	8.4	7.6										10.5
Grab Turbidity (ntu)		4.60											
On-Line Turbidity (ntu)	5.10	4.80	4.30	1.80									19.00
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 1010
 Date 3/15/95
 Source Little Ark.

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	7	0	40	23	0	0	0	40	40	40	40
Ferrous Sulfate (mg/L)	7	100	145	113	145	145	100	100	100	100	100

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
RAW											
Pilot Plant Flowrate (gpm)	7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	4	13.0	13.0	13.0	13.0	13.0	13.0				13.0
pH (units)	5	7.8	8.0	7.9	7.9	8.0	8.0	7.8			7.9
Grab Turbidity (ntu)	5	250	455	367	455	440	390	300			250
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	4	118	150	132	118	122		136			150
T. Alkalinity as CaCO3 (mg/L)	4	88	104	98	88	96		104			104

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
SETTLED											
pH (units)	5	7.9	9.1	8.3	7.9	7.9	7.9	9.1			8.6
Grab Turbidity (ntu)	2	112.0	257.0	184.5				257.0			112.0
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	2	156	160	158				156			160
T. Alkalinity as CaCO3 (mg/L)	2	120	122	121				120			122

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	0	0.0	0.0								
Avg. Headloss (in/hr)				0.0							
pH (units)	0	0.0	0.0	0.0							
Grab Turbidity (ntu)	0	0.0	0.0	0.0							
On-Line Turbidity (ntu)	0	0.0	0.0	0.0							
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	0	0.0	0.0								
Avg. Headloss (in/hr)				0.0							
pH (units)	0	0.0	0.0	0.0							
Grab Turbidity (ntu)	0	0.0	0.0	0.0							
On-Line Turbidity (ntu)	0	0.0	0.0	0.0							
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	17.1	
SETTLED	13.1	23
FILTER A	-	-
FILTER B	-	-

Run No. 1011
 Date 3/16/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average	Count						
					0	1	2	3	4	5	6
CHEMICAL FEED											
Lime (mg/L)	11	0	120	44	0	0	0	0	0	0	0
Soda Ash (mg/L)	11	0	30	11	0	0	0	0	0	0	0
Ferric Chloride (mg/L)	11	100	100	100	100	100	100	100	100	100	100
Ferric Chl. Filter Aid (mg/L)	11	0.0	4.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RAW											
Pilot Plant Flowrate (gpm)	11	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	7	13.5	15.6	14.5	14.0	14.0	13.5	14.0			
pH (units)	7	7.6	7.9	7.8	7.6	7.7	7.8	7.8			
Grab Turbidity (ntu)	8	243	288	268	288	270	283	280			
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	7	136	140	137	136	138	136	136			
T. Alkalinity as CaCO3 (mg/L)	7	106	112	109	106	110	112	108			

SETTLED											
pH (units)	7	7.0	9.7	8.2	7.5	7.2	7.0	7.0			
Grab Turbidity (ntu)	5	12.2	254	142		193	254	226			
On-Line Turbidity (ntu)	5	7.3	56.2	21.8	56.2	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	7	122	165	139	165	140	140	140			
T. Alkalinity as CaCO3 (mg/L)	7	80	128	91	128	92	84	84			

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	11	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	3	0.0	7.2								
Avg. Headloss (in/hr)				2.4							
pH (units)	3	7.3	9.0	8.4							
Grab Turbidity (ntu)	0	0.00	0.00	0.00							
On-Line Turbidity (ntu)	2	2.40	4.10	3.25							
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	11	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	3	0.0	6.5								
Avg. Headloss (in/hr)				2.2							
pH (units)	3	7.3	9.0	8.4							
Grab Turbidity (ntu)	0	0.00	0.00	0.00							
On-Line Turbidity (ntu)	2	2.60	3.80	3.20							
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	17.7	
SETTLED	7.9	56
FILTER A	8.7	51
FILTER B	5.8	67

Run No. 1011
 Date 3/16/95
 Source Little Ark

Elapsed Time (hr) 7 8 9 10

CHEMICAL FEED

Line (mg/L)	120	120	120	120
Soda Ash (mg/L)	30	30	30	30
Ferric Chloride (mg/L)	100	100	100	100
Ferric Chl. Filter Aid (mg/L)	4.0	4.0	4.0	4.0

RAW

Pilot Plant Flowrate (gpm)	2.0	2.0	2.0	2.0
Temp. (deg. C)	15.0	15.6		15.5
pH (units)	7.8	7.8		7.9
Grab Turbidity (ntu)	265	255	260	243
On-Line Turbidity (ntu)	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	138	138		140
T. Alkalinity as CaCO3 (mg/L)	108	110		106

SETTLED

pH (units)	9.3	9.6		9.7
Grab Turbidity (ntu)	26.1	12.2		
On-Line Turbidity (ntu)	25.8	11.7	8.1	7.3
T. Hardness as CaCO3 (mg/L)	140	128		122
T. Alkalinity as CaCO3 (mg/L)	84	82		80

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0
Headloss (inches)		0.0	4.0	7.2
Avg. Headloss (in/hr)				
pH (units)		7.3	8.8	9.0
Grab Turbidity (ntu)				
On-Line Turbidity (ntu)			4.10	2.40
Particles <5 um (counts/mL)				
Particles 5-15 um (counts/mL)				

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0
Headloss (inches)		0.0	3.7	6.5
Avg. Headloss (in/hr)				
pH (units)		7.3	8.8	9.0
Grab Turbidity (ntu)				
On-Line Turbidity (ntu)			3.80	2.60
Particles <5 um (counts/mL)				
Particles 5-15 um (counts/mL)				

Run No. 1012
 Date 4/17/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	25	83	83	83	83	83	83	83	83	83	83
Ferric Sulfate (mg/L)	25	40	40	40	40	40	40	40	40	40	40

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	5	12.5	14.0	12.9	14.0						
pH (units)	7	7.8	8.3	8.1	7.8						
Grab Turbidity (ntu)	4	40.0	58.0	48.5	58.0						
On-Line Turbidity (ntu)	24	37.0	61.0	46.8	61.0		54.0	53.0	52.0	51.0	50.0
T. Hardness as CaCO3 (mg/L)	4	178	186	183	186						
T. Alkalinity as CaCO3 (mg/L)	4	166	172	169	172						

SETTLED											
pH (units)	7	9.2	9.4	9.3							
Grab Turbidity (ntu)	3	4.8	6.8	5.5	4.8						
On-Line Turbidity (ntu)	24	4.5	8.0	5.1	4.8		5.3	4.8	4.5	4.5	4.5
T. Hardness as CaCO3 (mg/L)	4	114	128	123	122						
T. Alkalinity as CaCO3 (mg/L)	4	92	102	99	100						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	24	0.0	21.6		0.0		1.5	1.9	2.3	2.6	4.1
Avg. Headloss (in/hr)				0.9							
pH (units)	10	7.9	9.0	8.2	8.1						
Grab Turbidity (ntu)	2	0.12	0.16	0.14							
On-Line Turbidity (ntu)	23	0.09	0.23	0.11			0.23	0.13	0.12	0.11	0.11
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	24	0.0	18.9		0.0		2.7	3.3	4.0	5.3	6.0
Avg. Headloss (in/hr)				0.8							
pH (units)	10	7.9	9.0	8.2	8.1						
Grab Turbidity (ntu)	2	0.13	0.23	0.18							
On-Line Turbidity (ntu)	23	0.06	0.23	0.10			0.23	0.12	0.10	0.09	0.08
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	4.7	
SETTLED	4.4	6
FILTER C	3.2	32
FILTER D	4.5	3

Run No. 1012
 Date 4/17/95
 Source Cheney

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16 17 18 19

CHEMICAL FEED

Lime (mg/L)	83	83	83	83	83	83	83	83	83	83	83	83	83
Ferric Sulfate (mg/L)	40	40	40	40	40	40	40	40	40	40	40	40	40

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										12.5		12.5	12.5
pH (units)										8.2	8.2	8.1	8.2
Grab Turbidity (ntu)										40.0		43.0	
On-Line Turbidity (ntu)	46.0	45.0	47.0	47.0	45.0	40.0	39.0	38.0	37.0	38.0	42.0	43.0	44.0
T. Hardness as CaCO3 (mg/L)										178			182
T. Alkalinity as CaCO3 (mg/L)										166			168

SETTLED

pH (units)												9.3		9.2	9.2
Grab Turbidity (ntu)														4.9	
On-Line Turbidity (ntu)	4.5	4.6	4.8	4.8	4.9	5.0	5.0	4.7	5.0	8.0	6.3	5.4	5.2		
T. Hardness as CaCO3 (mg/L)										114					128
T. Alkalinity as CaCO3 (mg/L)										92					102

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	4.5	6.0	6.4	7.4	7.9	9.0	9.4	11.1	12.0	13.1	14.0	15.1	16.2
Avg. Headloss (in/hr)													
pH (units)									7.9	9.0	8.0	8.1	8.1
Grab Turbidity (ntu)												0.16	
On-Line Turbidity (ntu)	0.11	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.12	0.09	0.09
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.0	7.4	8.0	8.3	8.7	10.1	10.4	10.9	12.1	12.7	13.1	13.9	14.6
Avg. Headloss (in/hr)													
pH (units)									7.9	9.0	8.0	8.1	8.1
Grab Turbidity (ntu)												0.23	
On-Line Turbidity (ntu)	0.08	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.07	0.09	0.13	0.10	0.10
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 1012
 Date 4/17/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	83	83	83	83	83
Ferric Sulfate (mg/L)	40	40	40	40	40

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)				13.0	
pH (units)			8.2	8.3	
Grab Turbidity (ntu)				53.0	
On-Line Turbidity (ntu)	44.0	46.0	49.0	51.0	61.0
T. Hardness as CaCO3 (mg/L)				184	
T. Alkalinity as CaCO3 (mg/L)				170	

SETTLED

pH (units)	9.2		9.4	9.4	9.3
Grab Turbidity (ntu)				6.8	
On-Line Turbidity (ntu)	4.9	4.9	5.3	5.4	5.4
T. Hardness as CaCO3 (mg/L)				126	
T. Alkalinity as CaCO3 (mg/L)				100	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	17.1	18.0	19.3	20.3	21.6
Avg. Headloss (in/hr)					
pH (units)	8.2		8.2	8.4	8.2
Grab Turbidity (ntu)				0.12	
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.10	0.10
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.5	16.4	17.1	18.4	18.9
Avg. Headloss (in/hr)					
pH (units)	8.2		8.2	8.4	8.2
Grab Turbidity (ntu)				0.13	
On-Line Turbidity (ntu)	0.10	0.10	0.10	0.11	0.11
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 1013
 Date 4/19/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	100	100	100	100	100	100	100	100	100	100
Ferric Sulfate (mg/L)	25	45	45	45	45	45	45	45	45	45	45

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	13.0	13.5	13.1	13.0						
pH (units)	4	8.2	8.3	8.3	8.2						
Grab Turbidity (ntu)	3	38.0	39.0	38.7							
On-Line Turbidity (ntu)	25	38.0	57.0	44.6	54.0	56.0	57.0	56.0	50.0	45.0	43.0
T. Hardness as CaCO3 (mg/L)	4	184	186	186	184						
T. Alkalinity as CaCO3 (mg/L)	4	170	172	172	170						

SETTLED											
pH (units)	10	9.2	9.5	9.5	9.2						
Grab Turbidity (ntu)	3	4.9	5.3	5.1							
On-Line Turbidity (ntu)	25	4.0	9.0	5.0	9.0	5.4	5.5	5.2	5.2	5.2	5.3
T. Hardness as CaCO3 (mg/L)	6	116	124	120	122						
T. Alkalinity as CaCO3 (mg/L)	6	88	100	94	100						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	25	0.0	18.7		0.0	0.7	1.1	1.5	2.5	3.1	3.7
Avg. Headloss (in/hr)				0.7							
pH (units)	9	7.9	9.1	8.4							
Grab Turbidity (ntu)	3	0.10	0.15	0.13							
On-Line Turbidity (ntu)	24	0.09	0.18	0.11		0.18	0.15	0.13	0.13	0.12	0.12
Particles <5 um (counts/mL)	2	73	104	89							
Particles 5-15 um (counts/mL)	2	16	20	18							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	17.2		0.0	0.5	1.3	2.0	2.6	3.3	4.0
Avg. Headloss (in/hr)				0.7							
pH (units)	9	7.9	9.1	8.4							
Grab Turbidity (ntu)	3	0.11	0.15	0.13							
On-Line Turbidity (ntu)	24	0.10	0.20	0.11		0.20	0.16	0.14	0.13	0.13	0.12
Particles <5 um (counts/mL)	2	36	86	61							
Particles 5-15 um (counts/mL)	2	12	15	14							

	TOC (mg/L)	% Red. From Raw
RAW	4.7	
SETTLED	4.8	-1
FILTER C	4.3	9
FILTER D	4.7	0

Run No. 1013
 Date 4/19/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45	45	45	45	45

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)												13.0	
pH (units)												8.3	
Grab Turbidity (ntu)												39.0	
On-Line Turbidity (ntu)	49.0	50.0	49.0	46.0	45.0	43.0	41.0	39.0	38.0	40.0	40.0	39.0	39.0
T. Hardness as CaCO3 (mg/L)												186	
T. Alkalinity as CaCO3 (mg/L)												172	

SETTLED															
pH (units)												9.4	9.4	9.5	9.5
Grab Turbidity (ntu)												5.3			
On-Line Turbidity (ntu)	5.2	5.0	4.8	4.6	4.4	4.0	4.1	4.0	4.3	4.9	4.9	4.5	5.5		
T. Hardness as CaCO3 (mg/L)												124	120		
T. Alkalinity as CaCO3 (mg/L)												94	98		

FILTER C - GAC/Sand Media															
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Headloss (inches)	4.1	4.9	5.7	6.5	7.3	8.0	8.8	9.7	10.3	10.9	11.9	13.0	14.0		
Avg. Headloss (in/hr)															
pH (units)												8.5	8.6	9.1	7.9
Grab Turbidity (ntu)												0.13			
On-Line Turbidity (ntu)	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)												104			
Particles 5-15 um (counts/mL)												20			

FILTER D - Anth/Sand Media															
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Headloss (inches)	4.6	5.5	6.2	6.9	7.5	8.3	9.0	9.6	10.3	11.0	11.6	12.8	13.1		
Avg. Headloss (in/hr)															
pH (units)												8.5	8.6	9.1	7.9
Grab Turbidity (ntu)												0.15			
On-Line Turbidity (ntu)	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Particles <5 um (counts/mL)												86			
Particles 5-15 um (counts/mL)												15			

Run No. 1013
 Date 4/19/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	100	100	100	100	100
Ferric Sulfate (mg/L)	45	45	45	45	45

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	13.0				13.5
pH (units)	8.3				8.3
Grab Turbidity (ntu)	38.0				39.0
On-Line Turbidity (ntu)	39.0	40.0	39.0	39.0	40.0
T. Hardness as CaCO3 (mg/L)	186				186
T. Alkalinity as CaCO3 (mg/L)	172				172

SETTLED

pH (units)	9.5	9.5	9.5	9.5	9.5
Grab Turbidity (ntu)	5.2				4.9
On-Line Turbidity (ntu)	4.4	5.1	5.2	5.0	5.0
T. Hardness as CaCO3 (mg/L)	118		116		120
T. Alkalinity as CaCO3 (mg/L)	92		88		94

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	14.8	15.9	16.7	18.0	18.7
Avg. Headloss (in/hr)					
pH (units)	8.5	8.7	7.9	8.2	8.3
Grab Turbidity (ntu)	0.10				0.15
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)	73				
Particles 5-15 um (counts/mL)	16				

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	14.3	15.1	15.7	16.6	17.2
Avg. Headloss (in/hr)					
pH (units)	8.5	8.7	7.9	8.2	8.3
Grab Turbidity (ntu)	0.11				0.14
On-Line Turbidity (ntu)	0.10	0.10	0.10	0.10	0.10
Particles <5 um (counts/mL)	36				
Particles 5-15 um (counts/mL)	12				

Run No. 1014
 Date 4/20/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	16	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	16	60	60	60	60	60	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	16	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	0	0.0	0.0	0.0							
pH (units)	1	8.3	8.3	8.3	8.3						
Grab Turbidity (ntu)	0	0.0	0.0	0.0							
On-Line Turbidity (ntu)	16	40.0	52.0	42.9	40.0	41.0	42.0	40.0	42.0	43.0	52.0
T. Hardness as CaCO3 (mg/L)	0	0.0	0.0	0.0							
T. Alkalinity as CaCO3 (mg/L)	0	0.0	0.0	0.0							

SETTLED

pH (units)	1	9.3	9.3	9.3	9.3						
Grab Turbidity (ntu)	0	0.0	0.0	0.0							
On-Line Turbidity (ntu)	16	3.5	20.0	5.5	12.6	4.0	3.7	3.8	3.9	3.8	3.6
T. Hardness as CaCO3 (mg/L)	1	120	120	120	120						
T. Alkalinity as CaCO3 (mg/L)	1	94	94	94	94						

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	16	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	16	0.0	12.8		0.0	0.7	1.6	2.4	3.3	4.0	4.7
Avg. Headloss (in/hr)				0.8							
pH (units)	1	8.4	8.4	8.4	8.4						
Grab Turbidity (ntu)	0	0.00	0.00	0.00							
On-Line Turbidity (ntu)	15	0.10	1.00	0.17		0.15	0.12	0.11	0.11	0.11	0.11
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	16	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	16	0.0	13.0		0.0	1.0	1.8	2.7	3.3	3.9	4.8
Avg. Headloss (in/hr)				0.8							
pH (units)	1	8.4	8.4	8.4	8.4						
Grab Turbidity (ntu)	0	0.00	0.00	0.00							
On-Line Turbidity (ntu)	15	0.09	1.00	0.16		0.16	0.11	0.11	0.10	0.10	0.09
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

Run No. 1014
 Date 4/20/95
 Source Cheney

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15

CHEMICAL FEED

Lime (mg/L)	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)									
pH (units)									
Grab Turbidity (ntu)									
On-Line Turbidity (ntu)	47.0	44.0	44.0	44.0	42.0	42.0	42.0	40.0	41.0
T. Hardness as CaCO3 (mg/L)									
T. Alkalinity as CaCO3 (mg/L)									

SETTLED

pH (units)									
Grab Turbidity (ntu)									
On-Line Turbidity (ntu)	3.7	3.7	3.9	3.7	3.8	3.5	4.0	7.0	20.0
T. Hardness as CaCO3 (mg/L)									
T. Alkalinity as CaCO3 (mg/L)									

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	5.5	6.5	7.3	8.0	8.9	9.9	10.6	11.6	12.8
Avg. Headloss (in/hr)									
pH (units)									
Grab Turbidity (ntu)									
On-Line Turbidity (ntu)	0.11	0.10	0.10	0.10	0.10	0.10	0.12	0.13	1.00
Particles <5 um (counts/mL)									
Particles 5-15 um (counts/mL)									

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	5.8	6.7	7.4	8.5	9.5	10.5	11.6	12.4	13.0
Avg. Headloss (in/hr)									
pH (units)									
Grab Turbidity (ntu)									
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.09	0.09	0.09	0.12	0.14	1.00
Particles <5 um (counts/mL)									
Particles 5-15 um (counts/mL)									

Run No. 1015
 Date 4/21/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	25	60	60	60	60	60	60	60	60	60	60

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	12.5	13.0	12.8	13.0						
pH (units)	3	8.4	8.5	8.4	8.4						
Grab Turbidity (ntu)	3	40.0	45.0	42.0	45.0						
On-Line Turbidity (ntu)	25	35.0	50.0	41.7	46.0	45.0	44.0	43.0	44.0	45.0	45.0
T. Hardness as CaCO3 (mg/L)	3	186	188	187	186						
T. Alkalinity as CaCO3 (mg/L)	3	168	170	169	168						

SETTLED											
pH (units)	11	9.6	9.7	9.7	9.6	9.6	9.6	9.6			
Grab Turbidity (ntu)	3	3.1	3.9	3.6	3.8						
On-Line Turbidity (ntu)	25	2.7	6.5	3.4	3.7	3.2	3.6	3.2	3.2	3.1	2.8
T. Hardness as CaCO3 (mg/L)	5	116	126	120	120		122				
T. Alkalinity as CaCO3 (mg/L)	5	86	92	89	90		90				

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	19.9		0.0	2.1	2.7	3.2	3.8	4.3	4.9
Avg. Headloss (in/hr)				0.8							
pH (units)	11	7.7	8.7	8.4	8.7	7.7	8.4	8.4			
Grab Turbidity (ntu)	2	0.10	0.11	0.11							
On-Line Turbidity (ntu)	24	0.08	0.16	0.09		0.16	0.10	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)	1	41	41	41							
Particles 5-15 um (counts/mL)	1	11	11	11							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	17.1		0.0	2.3	3.0	3.6	4.2	4.9	5.7
Avg. Headloss (in/hr)				0.7							
pH (units)	11	7.7	8.7	8.4	8.7	7.7	8.4	8.4			
Grab Turbidity (ntu)	2	0.10	0.11	0.11							
On-Line Turbidity (ntu)	24	0.08	0.18	0.09		0.18	0.11	0.10	0.09	0.09	0.09
Particles <5 um (counts/mL)	1	36	36	36							
Particles 5-15 um (counts/mL)	1	11	11	11							

	TOC (mg/L)	% Red. From Raw
RAW	5.0	
SETTLED	4.0	20
FILTER C	3.2	36
FILTER D	4.1	18

Run No. 1015
 Date 4/21/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	115	115	115	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	60

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)													12.5
pH (units)													8.5
Grab Turbidity (ntu)													40.0
On-Line Turbidity (ntu)	46.0	50.0	49.0	45.0	38.0	36.0	36.0	36.0	35.0	35.0	37.0	41.0	40.0
T. Hardness as CaCO3 (mg/L)													188
T. Alkalinity as CaCO3 (mg/L)													170

SETTLED														
pH (units)													9.6	9.7
Grab Turbidity (ntu)													3.1	
On-Line Turbidity (ntu)	2.8	2.8	2.7	2.8	2.9	3.1	3.1	3.2	3.2	3.3	3.4	3.3	3.8	
T. Hardness as CaCO3 (mg/L)													126	
T. Alkalinity as CaCO3 (mg/L)													92	

FILTER C - GAC/Sand Media														
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	5.4	6.0	6.7	7.4	8.2	9.0	9.6	10.4	11.5	12.0	13.0	13.8	14.9	
Avg. Headloss (in/hr)														
pH (units)													8.4	8.4
Grab Turbidity (ntu)													0.10	
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.09
Particles <5 um (counts/mL)														41
Particles 5-15 um (counts/mL)														11

FILTER D - Anth/Sand Media														
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	6.2	6.8	7.5	8.0	8.6	9.4	10.0	10.6	11.3	12.0	12.4	12.6	13.3	
Avg. Headloss (in/hr)														
pH (units)													8.4	8.4
Grab Turbidity (ntu)													0.11	
On-Line Turbidity (ntu)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)														36
Particles 5-15 um (counts/mL)														11

Run No. 1015
 Date 4/21/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			13.0		
pH (units)			8.4		
Grab Turbidity (ntu)			41.0		
On-Line Turbidity (ntu)	40.0	41.0	41.0	42.0	43.0
T. Hardness as CaCO3 (mg/L)			188		
T. Alkalinity as CaCO3 (mg/L)			170		

SETTLED

pH (units)	9.7	9.7	9.7	9.7	9.7
Grab Turbidity (ntu)			3.9		
On-Line Turbidity (ntu)	3.7	3.8	3.7	4.3	6.5
T. Hardness as CaCO3 (mg/L)	116		116		
T. Alkalinity as CaCO3 (mg/L)	86		86		

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	16.0	16.7	18.2	18.9	19.9
Avg. Headloss (in/hr)					
pH (units)	8.5	8.3	8.5	8.5	8.4
Grab Turbidity (ntu)			0.11		
On-Line Turbidity (ntu)	0.09	0.08	0.08	0.09	0.09
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	14.2	14.7	15.5	16.5	17.1
Avg. Headloss (in/hr)					
pH (units)	8.5	8.3	8.5	8.5	8.4
Grab Turbidity (ntu)			0.10		
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 1016
 Date 4/24/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	25	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	25	60	60	60	60	60	60	60	60	60	60

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	5	12.0	13.0	12.8	12.0		13.0	13.0			
pH (units)	4	8.4	8.5	8.5	8.5			8.4			
Grab Turbidity (ntu)	4	35.0	40.0	37.5	35.0			37.0			
On-Line Turbidity (ntu)	25	32.0	40.0	37.0	35.0	37.0	38.0	40.0	38.0	39.0	38.0
T. Hardness as CaCO3 (mg/L)	3	184	188	186	188			184			
T. Alkalinity as CaCO3 (mg/L)	3	170	170	170	170			170			

SETTLED											
pH (units)	11	9.4	9.7	9.6	9.5	9.6	9.6	9.5	9.6	9.6	
Grab Turbidity (ntu)	2	4.9	6.7	5.8				6.7			
On-Line Turbidity (ntu)	25	3.0	6.1	4.0	6.1	4.1	3.8	4.0	4.9	4.3	3.4
T. Hardness as CaCO3 (mg/L)	6	116	134	122	134		124		120		
T. Alkalinity as CaCO3 (mg/L)	6	88	116	96	116		94		92		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	19.3		0.0	3.0	3.6	4.0	4.4	4.7	5.3
Avg. Headloss (in/hr)				0.8							
pH (units)	11	8.4	9.2	8.6	9.2	8.4	8.5	8.5	8.5	8.6	
Grab Turbidity (ntu)	2	0.11	0.13	0.12					0.13		
On-Line Turbidity (ntu)	24	0.08	0.13	0.09		0.13	0.10	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)	2	31	55	43				55			
Particles 5-15 um (counts/mL)	2	10	18	14				18			

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	19.3		0.0	3.0	4.0	4.7	5.3	5.8	6.4
Avg. Headloss (in/hr)				0.8							
pH (units)	11	8.4	9.2	8.6	9.2	8.4	8.5	8.5	8.5	8.6	
Grab Turbidity (ntu)	2	0.11	0.16	0.14					0.16		
On-Line Turbidity (ntu)	24	0.09	0.15	0.10		0.15	0.11	0.10	0.10	0.10	0.10
Particles <5 um (counts/mL)	2	34	51	43				51			
Particles 5-15 um (counts/mL)	2	13	16	15				16			

	TOC (mg/L)	% Red. From Raw
RAW	4.6	
SETTLED	4.1	11
FILTER C	3.2	29
FILTER D	3.9	14

Run No. 1016
 Date 4/24/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	115	115	115	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	60

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	36.0	36.0	36.0	37.0	38.0	37.0	38.0	34.0	32.0	34.0	37.0	37.0	39.0
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

SETTLED													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	3.0	3.2	3.5	3.7	4.2	4.2	4.2	4.0	4.0	4.1	4.1	4.2	4.2
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6.0	6.6	7.4	8.0	8.8	9.6	10.6	11.4	12.0	12.8	13.5	14.3	15.0
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.1	7.7	8.3	8.9	9.5	10.3	11.0	11.7	12.5	13.3	14.0	14.8	15.5
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 1016
 Date 4/24/95
 Source Cheney

Elapsed Time (hr)	20	21	22	23	24
CHEMICAL FEED					
Lime (mg/L)	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60

RAW					
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	13.0				13.0
pH (units)	8.5				8.5
Grab Turbidity (ntu)	40.0				38.0
On-Line Turbidity (ntu)	40.0	36.0	38.0	38.0	38.0
T. Hardness as CaCO3 (mg/L)	186				
T. Alkalinity as CaCO3 (mg/L)	170				

SETTLED					
pH (units)	9.7	9.6	9.5	9.5	9.4
Grab Turbidity (ntu)	4.9				
On-Line Turbidity (ntu)	4.6	4.0	3.9	3.6	3.5
T. Hardness as CaCO3 (mg/L)	118		116		120
T. Alkalinity as CaCO3 (mg/L)	92		88		92

FILTER C - GAC/Sand Media					
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.6	16.4	17.3	18.4	19.3
Avg. Headloss (in/hr)					
pH (units)	9.1	8.5	8.5	8.5	8.5
Grab Turbidity (ntu)	0.11				
On-Line Turbidity (ntu)	0.08	0.08	0.08	0.08	0.08
Particles <5 um (counts/mL)		31			
Particles 5-15 um (counts/mL)		10			

FILTER D - Anth/Sand Media					
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	16.2	17.3	17.8	18.6	19.3
Avg. Headloss (in/hr)					
pH (units)	9.1	8.5	8.5	8.5	8.5
Grab Turbidity (ntu)	0.11				
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)		34			
Particles 5-15 um (counts/mL)		13			

Run No. 1017
 Date 4/25/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	25	80	80	80	80	80	80	80	80	80	80

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	13.0	13.0	13.0				13.0			
pH (units)	3	8.2	8.4	8.3				8.4			
Grab Turbidity (ntu)	3	34.0	49.0	44.0				34.0			
On-Line Turbidity (ntu)	25	32.0	49.0	40.2	36.0	33.0	33.0	34.0	33.0	32.0	34.0
T. Hardness as CaCO3 (mg/L)	3	186	188	187				186			
T. Alkalinity as CaCO3 (mg/L)	3	170	172	171				172			

SETTLED											
pH (units)	10	9.2	9.9	9.6		9.2	9.4	9.4	9.4		
Grab Turbidity (ntu)	3	1.8	3.6	2.5				3.6			
On-Line Turbidity (ntu)	25	2.1	8.7	2.9	8.7	3.3	3.3	3.2	3.2	3.1	3.2
T. Hardness as CaCO3 (mg/L)	6	104	138	117				124			
T. Alkalinity as CaCO3 (mg/L)	6	64	100	79				88			

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	16.4		0.0	1.5	2.1	2.5	3.0	3.4	4.0
Avg. Headloss (in/hr)				0.7							
pH (units)	11	8.0	8.8	8.3	8.0	8.3	8.4	8.4	8.4		
Grab Turbidity (ntu)	3	0.09	0.11	0.10				0.11			
On-Line Turbidity (ntu)	24	0.05	0.11	0.07		0.11	0.09	0.09	0.08	0.08	0.07
Particles <5 um (counts/mL)	2	20	27	24							
Particles 5-15 um (counts/mL)	2	5	8	7							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	16.1		0.0	1.6	2.5	2.9	3.4	3.9	4.6
Avg. Headloss (in/hr)				0.6							
pH (units)	11	8.0	8.8	8.3	8.0	8.3	8.4	8.4	8.4		
Grab Turbidity (ntu)	3	0.09	0.12	0.10				0.12			
On-Line Turbidity (ntu)	24	0.06	0.12	0.08		0.12	0.10	0.09	0.09	0.08	0.08
Particles <5 um (counts/mL)	2	20	22	21							
Particles 5-15 um (counts/mL)	2	12	16	14							

	TOC (mg/L)	% Red. From Raw
RAW	4.7	
SETTLED	3.8	18
FILTER C	3.1	34
FILTER D	3.9	17

Run No. 1017
 Date 4/25/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	140	140	140	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	80	80	80	80	80	80	80	80	80	80	80	80	80

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)													13.0
pH (units)													8.2
Grab Turbidity (ntu)													49.0
On-Line Turbidity (ntu)	35.0	35.0	35.0	39.0	39.0	40.0	38.0	39.0	42.0	45.0	47.0	49.0	49.0
T. Hardness as CaCO3 (mg/L)													188
T. Alkalinity as CaCO3 (mg/L)													170

SETTLED													
pH (units)													9.9
Grab Turbidity (ntu)													2.2
On-Line Turbidity (ntu)	2.8	2.6	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.1	2.3
T. Hardness as CaCO3 (mg/L)													104
T. Alkalinity as CaCO3 (mg/L)													64

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	4.7	5.3	5.9	6.6	7.3	7.9	8.5	9.0	9.7	10.5	11.4	12.0	12.6
Avg. Headloss (in/hr)													8.8
pH (units)													0.09
Grab Turbidity (ntu)													0.06
On-Line Turbidity (ntu)	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.06
Particles <5 um (counts/mL)													27
Particles 5-15 um (counts/mL)													8

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	5.0	5.5	6.1	6.8	7.3	7.9	8.5	9.2	9.9	10.6	11.3	11.9	12.5
Avg. Headloss (in/hr)													8.8
pH (units)													0.09
Grab Turbidity (ntu)													0.07
On-Line Turbidity (ntu)	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)													20
Particles 5-15 um (counts/mL)													16

Run No. 1017
 Date 4/25/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	140	140	140	140	140
Ferric Sulfate (mg/L)	80	80	80	80	80

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)				13.0	
pH (units)				8.4	
Grab Turbidity (ntu)				49.0	
On-Line Turbidity (ntu)	49.0	48.0	47.0	47.0	48.0
T. Hardness as CaCO3 (mg/L)				188	
T. Alkalinity as CaCO3 (mg/L)				172	

SETTLED

pH (units)	9.8	9.7	9.6	9.6	9.5
Grab Turbidity (ntu)				1.8	
On-Line Turbidity (ntu)	2.5	2.4	2.3	2.4	2.5
T. Hardness as CaCO3 (mg/L)		110	112	114	
T. Alkalinity as CaCO3 (mg/L)		72	76	76	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	13.4	14.1	14.9	15.6	16.4
Avg. Headloss (in/hr)					
pH (units)	8.4	8.3	8.2	8.2	8.2
Grab Turbidity (ntu)				0.10	
On-Line Turbidity (ntu)	0.06	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)				20	
Particles 5-15 um (counts/mL)				5	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	13.2	13.8	14.4	15.3	16.1
Avg. Headloss (in/hr)					
pH (units)	8.4	8.3	8.2	8.2	8.2
Grab Turbidity (ntu)				0.10	
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.08	0.08
Particles <5 um (counts/mL)				22	
Particles 5-15 um (counts/mL)				12	

Run No. 1018
 Date 4/27/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	135	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	25	100	100	100	100	100	100	100	100	100	100

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	12.5	12.5	12.5							
pH (units)	3	8.4	8.5	8.4							
Grab Turbidity (ntu)	3	40.0	42.0	40.7							
On-Line Turbidity (ntu)	25	37.0	63.0	46.1	62.0	63.0	58.0	56.0	54.0	51.0	49.0
T. Hardness as CaCO3 (mg/L)	3	184	188	187							
T. Alkalinity as CaCO3 (mg/L)	3	172	172	172							

SETTLED											
pH (units)	10	9.5	10.1	9.7							
Grab Turbidity (ntu)	3	1.9	2.1	2.0							
On-Line Turbidity (ntu)	25	1.8	6.4	2.3	6.4	2.2	2.1	2.2	2.1	2.1	2.1
T. Hardness as CaCO3 (mg/L)	5	108	124	118							
T. Alkalinity as CaCO3 (mg/L)	5	66	86	78							

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	16.0		0.0	0.5	1.1	1.8	2.5	3.0	3.6
Avg. Headloss (in/hr)				0.6							
pH (units)	10	8.0	9.1	8.3							
Grab Turbidity (ntu)	3	0.08	0.10	0.09							
On-Line Turbidity (ntu)	24	0.06	0.09	0.07		0.09	0.08	0.08	0.08	0.07	0.07
Particles <5 um (counts/mL)	2	28	42	35							
Particles 5-15 um (counts/mL)	2	10	14	12							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	14.0		0.0	0.3	0.9	1.5	2.0	2.4	3.0
Avg. Headloss (in/hr)				0.6							
pH (units)	10	8.0	9.1	8.3							
Grab Turbidity (ntu)	3	0.08	0.08	0.08							
On-Line Turbidity (ntu)	24	0.06	0.10	0.07		0.10	0.08	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)	2	31	32	32							
Particles 5-15 um (counts/mL)	2	12	14	13							

	TOC (mg/L)	% Red. From Raw
RAW	4.6	
SETTLED	3.9	13
FILTER C	3.2	31
FILTER D	3.8	17

Run No. 1018
 Date 4/27/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	135	135	135	135	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	100	100	100	100	100	100	100	100	100	100	100	100	100

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										12.5			12.5
pH (units)										8.5			8.4
Grab Turbidity (ntu)										40.0			42.0
On-Line Turbidity (ntu)	48.0	48.0	45.0	43.0	37.0	39.0	39.0	40.0	40.0	40.0	40.0	39.0	41.0
T. Hardness as CaCO3 (mg/L)										184			188
T. Alkalinity as CaCO3 (mg/L)										172			172

SETTLED														
pH (units)										10.1	9.8	9.5	9.7	9.7
Grab Turbidity (ntu)										1.9				1.9
On-Line Turbidity (ntu)	2.1	2.1	2.1	2.2	2.1	2.1	2.0	1.8	1.9	2.0	2.2	3.1	2.4	
T. Hardness as CaCO3 (mg/L)										108	124		118	
T. Alkalinity as CaCO3 (mg/L)										66	86		78	

FILTER C - GAC/Sand Media														
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	4.1	4.9	5.4	6.0	6.8	7.3	8.0	8.8	9.4	9.9	10.9	11.5	12.5	
Avg. Headloss (in/hr)														
pH (units)										8.5	8.8	8.0	8.1	8.2
Grab Turbidity (ntu)										0.08				0.10
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07
Particles <5 um (counts/mL)														42
Particles 5-15 um (counts/mL)														10

FILTER D - Anth/Sand Media														
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	3.5	4.2	4.9	5.6	6.1	6.9	7.4	8.5	9.1	9.5	9.8	10.4	11.4	
Avg. Headloss (in/hr)														
pH (units)										8.5	8.8	8.0	8.1	8.2
Grab Turbidity (ntu)										0.08				0.08
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)														31
Particles 5-15 um (counts/mL)														12

Run No. 1018
 Date 4/27/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	135	135	135	135	135
Ferric Sulfate (mg/L)	100	100	100	100	100

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)				12.5	
pH (units)				8.4	
Grab Turbidity (ntu)				40.0	
On-Line Turbidity (ntu)	44.0	50.0	42.0	40.0	44.0
T. Hardness as CaCO3 (mg/L)				188	
T. Alkalinity as CaCO3 (mg/L)				172	

SETTLED

pH (units)	9.6	9.6	9.6	9.7	9.6
Grab Turbidity (ntu)				2.1	
On-Line Turbidity (ntu)	2.3	2.3	2.0	1.9	1.8
T. Hardness as CaCO3 (mg/L)		120		118	
T. Alkalinity as CaCO3 (mg/L)		80		78	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	12.9	13.6	14.3	15.1	16.0
Avg. Headloss (in/hr)					
pH (units)	8.1	8.1	8.1	9.1	8.4
Grab Turbidity (ntu)				0.08	
On-Line Turbidity (ntu)	0.06	0.06	0.07	0.06	0.06
Particles <5 um (counts/mL)				28	
Particles 5-15 um (counts/mL)				14	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.8	12.4	12.8	13.6	14.0
Avg. Headloss (in/hr)					
pH (units)	8.1	8.1	8.1	9.1	8.4
Grab Turbidity (ntu)				0.08	
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)				32	
Particles 5-15 um (counts/mL)				14	

Run No. 1019
 Date 5/7/95
 Source Little Ark.

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	17	140	140	140	140	140	140	140	140	140	140
Soda Ash (mg/L)	17	25	25	25	25	25	25	25	25	25	25
Ferric Sulfate (mg/L)	17	60	60	60	60	60	60	60	60	60	60

RAW											
Plant Flowrate (gpm)	17	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Temp. (deg. C)	2	15.0	15.0	15.0	15.0				15.0		
pH (units)	2	8.1	8.1	8.1	8.1				8.1		
Grab Turbidity (ntu)	2	63.0	66.0	64.5	66.0				63.0		
On-Line Turbidity (ntu)	17	51.0	71.0	63.7	66.0	64.0	62.0	67.0	65.0	58.0	71.0
T. Hardness as CaCO3 (mg/L)	2	206	210	208	206				210		
T. Alkalinity as CaCO3 (mg/L)	2	164	174	169	164				174		

SETTLED											
pH (units)	4	9.7	9.8	9.7	9.7	9.7	9.8		9.7		
Grab Turbidity (ntu)	2	2.6	2.8	2.7	2.6				2.8		
On-Line Turbidity (ntu)	17	1.5	3.9	3.3	2.5	3.7	3.9	3.2	3.3	3.4	3.7
T. Hardness as CaCO3 (mg/L)	4	112	132	119	132	112	114		118		
T. Alkalinity as CaCO3 (mg/L)	4	78	82	80	80	78	80		82		

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	17	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	17	0.0	13.7		0.0	1.2	2.1	2.9	3.8	4.7	5.6
Avg. Headloss (in/hr)				0.8							
pH (units)	4	8.1	8.7	8.4	8.1	8.6	8.7		8.1		
Grab Turbidity (ntu)	2	0.56	0.61	0.59		0.61			0.56		
On-Line Turbidity (ntu)	16	0.18	0.64	0.58		0.55	0.62	0.64	0.55	0.52	0.57
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	17	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	17	0.0	15.0		0.0	1.1	2.1	3.0	4.1	5.1	6.2
Avg. Headloss (in/hr)				0.9							
pH (units)	4	8.1	8.7	8.4	8.1	8.6	8.7		8.1		
Grab Turbidity (ntu)	2	0.53	0.58	0.56		0.58			0.53		
On-Line Turbidity (ntu)	16	0.20	0.60	0.54		0.53	0.60	0.55	0.53	0.51	0.54
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

Run No. 1019
 Date 5/7/95
 Source Little Ark.

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16

CHEMICAL FEED

Lime (mg/L)	140	140	140	140	140	140	140	140	140	140
Soda Ash (mg/L)	25	25	25	25	25	25	25	25	25	25
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60

RAW

Plant Flowrate (gpm)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Temp. (deg. C)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	65.0	58.0	56.0	52.0	52.0	53.0	52.0	53.0	53.0	51.0
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

SETTLED

pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	3.6	3.4	3.2	3.3	1.6	1.5	1.7	1.7	1.7	2.6
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6.8	7.6	8.6	9.2	10.0	10.9	11.6	12.4	13.0	13.7
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.54	0.49	0.46	0.35	0.26	0.21	0.18	0.19	0.18	0.18
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.1	8.1	9.0	10.2	11.1	12.0	12.7	13.6	14.2	15.0
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.53	0.49	0.45	0.29	0.25	0.22	0.20	0.20	0.23	0.22
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 1020
 Date 5/10/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	15	40	40	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	15	35	35	35	35	35	35	35	35	35	35
Ferric Sulfate (mg/L)	15	235	235	235	235	235	235	235	235	235	235

RAW											
Pilot Plant Flowrate (gpm)	15	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	2	16.0	16.0	16.0	16.0				16.0		
pH (units)	2	7.2	7.3	7.3	7.3				7.2		
Grab Turbidity (ntu)	2	538	600	569	538				600		
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	2	60	62	61	62				60		
T. Alkalinity as CaCO3 (mg/L)	2	52	52	52	52				52		

SETTLED											
pH (units)	2	6.0	8.6	7.3	6.0				8.6		
Grab Turbidity (ntu)	2	4.1	5.4	4.8	5.4				4.1		
On-Line Turbidity (ntu)	14	2.9	11.0	5.2	4.9	4.5	4.1	3.3	4.3	11.0	8.5
T. Hardness as CaCO3 (mg/L)	2	72	118	95	72				118		
T. Alkalinity as CaCO3 (mg/L)	2	18	60	39	18				60		

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	15	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15	0.0	18.0		0.0	3.2	4.6	5.4	6.7	7.5	9.3
Avg. Headloss (in/hr)				1.2							
pH (units)	0	0.0	0.0	0.0							
Grab Turbidity (ntu)	0	0.00	0.00	0.00							
On-Line Turbidity (ntu)	13	0.38	1.00	0.62		0.75	0.48	0.46	0.43	0.64	1.00
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	15	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15	0.0	18.6		0.0	1.8	3.6	5.7	7.2	8.6	9.9
Avg. Headloss (in/hr)				1.2							
pH (units)	0	0.0	0.0	0.0							
Grab Turbidity (ntu)	0	0.00	0.00	0.00							
On-Line Turbidity (ntu)	12	0.33	0.80	0.53		0.63	0.44	0.38	0.40	0.80	>1
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

Run No. 1020
 Date 5/10/95
 Source Little Ark

Elapsed Time (hr) 7 8 9 10 11 12 13 14

CHEMICAL FEED

Lime (mg/L)	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	35	35	35	35	35	35	35	35
Ferric Sulfate (mg/L)	235	235	235	235	235	235	235	235

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)								
pH (units)								
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)								
T. Alkalinity as CaCO3 (mg/L)								

SETTLED

pH (units)								
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	6.5	6.6	5.0	3.8	2.9	3.0	3.7	>20
T. Hardness as CaCO3 (mg/L)								
T. Alkalinity as CaCO3 (mg/L)								

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.3	12.6	14.3	15.5	16.4	17.0	17.6	18.0
Avg. Headloss (in/hr)								
pH (units)								
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	0.83	0.73	0.66	0.55	0.38	0.58	0.59	>1
Particles <5 um (counts/mL)								
Particles 5-15 um (counts/mL)								

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.0	12.5	13.8	14.9	16.0	16.8	17.8	18.6
Avg. Headloss (in/hr)								
pH (units)								
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	0.78	0.73	0.63	0.53	0.36	0.33	0.33	>1
Particles <5 um (counts/mL)								
Particles 5-15 um (counts/mL)								

Run No. 1021
 Date 5/11/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Lime (mg/L)	6	45	45	45	45	45	45	45	45	45
Soda Ash (mg/L)	6	45	45	45	45	45	45	45	45	45
Ferric Sulfate (mg/L)	6	220	220	220	220	220	220	220	220	220

RAW										
Pilot Plant Flowrate (gpm)	6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	1	15.5	15.5	15.5	15.5					
pH (units)	1	7.6	7.6	7.6	7.6					
Grab Turbidity (ntu)	3	505	514	509	514		505	507		
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	1	70	70	70	70					
T. Alkalinity as CaCO3 (mg/L)	1	54	54	54	54					

SETTLED										
pH (units)	4	7.0	7.7	7.3	7.0	7.1	7.5	7.7		
Grab Turbidity (ntu)	1	3.8	3.8	3.8	3.8					
On-Line Turbidity (ntu)	4	3.1	6.8	4.5	3.1	3.2	4.7	6.8	>20	>20
T. Hardness as CaCO3 (mg/L)	2	120	120	120	120		120			
T. Alkalinity as CaCO3 (mg/L)	2	58	74	66	58		74			

FILTER A - Anth/Sand Media										
Filtration Rate (gpm/sf)	6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	6	0.0	6.0		0.0	1.2	2.0	3.5	4.7	6.0
Avg. Headloss (in/hr)				1.0						
pH (units)	4	7.0	7.7	7.3	7.0	7.1	7.5	7.7		
Grab Turbidity (ntu)	0	0.00	0.00	0.00						
On-Line Turbidity (ntu)	4	0.23	0.49	0.38		0.49	0.23	0.34	0.45	>1
Particles <5 um (counts/mL)	0	0.0	0.0	0.0						
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0						

FILTER B - GAC/Sand										
Filtration Rate (gpm/sf)	6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6	0.0	6.2		0.0	1.2	2.3	3.9	4.9	6.2
Avg. Headloss (in/hr)				1.0						
pH (units)	4	7.0	7.7	7.3	7.0	7.1	7.5	7.7		
Grab Turbidity (ntu)	0	0.00	0.00	0.00						
On-Line Turbidity (ntu)	4	0.24	0.54	0.38		0.41	0.24	0.33	0.54	>1
Particles <5 um (counts/mL)	0	0.0	0.0	0.0						
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0						

Run No. 1022
 Date 5/12/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	25	45	45	45	45	45	45	45	45	45	45
Soda Ash (mg/L)	25	65	65	65	65	65	65	65	65	65	65
Ferric Sulfate (mg/L)	25	205	295	255	295	295	295	295	280	280	280

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					RAW						
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	5	16.0	17.0	16.4	16.0				16.0		
pH (units)	5	7.7	7.8	7.8	7.7				7.8		
Grab Turbidity (ntu)	5	258	331	288	331				308		
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	5	86	104	95	86				88		
T. Alkalinity as CaCO3 (mg/L)	5	78	88	83	78				80		

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					SETTLED						
pH (units)	10	6.9	8.2	7.5	6.9	7.1		7.5	7.4		7.0
Grab Turbidity (ntu)	5	0.7	4.3	2.4	2.3				3.0		
On-Line Turbidity (ntu)	25	0.8	5.7	2.4	2.3	2.1	2.1	2.7	3.0	1.7	1.0
T. Hardness as CaCO3 (mg/L)	9	128	156	138	128			132	132		154
T. Alkalinity as CaCO3 (mg/L)	9	66	106	93	66			94	92		86

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					FILTER A - Anth/Sand Media						
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	14.2		0.0	1.4	2.5	3.2	3.7	4.2	4.7
Avg. Headloss (in/hr)				0.6							
pH (units)	10	6.9	8.2	7.5	6.9	7.1		7.5	7.4		7.0
Grab Turbidity (ntu)	4	0.10	0.22	0.17					0.22		
On-Line Turbidity (ntu)	24	0.08	0.20	0.13		0.20	0.17	0.16	0.15	0.16	0.09
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					FILTER B - GAC/Sand Media						
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	18.2		0.0	1.5	2.4	3.5	4.3	4.9	5.5
Avg. Headloss (in/hr)				0.7							
pH (units)	10	6.9	8.2	7.5	6.9	7.1		7.5	7.4		7.0
Grab Turbidity (ntu)	4	0.10	0.19	0.16					0.19		
On-Line Turbidity (ntu)	24	0.08	0.23	0.14		0.18	0.18	0.14	0.14	0.12	0.08
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	12.1	
SETTLED	7.8	35
FILTER A	9.2	24
FILTER B	7.3	39

Run No. 1022
 Date 5/12/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	45	45	45	45	45	45	45	45	45	45	45	45	45
Soda Ash (mg/L)	65	65	65	65	65	65	65	65	65	65	65	65	65
Ferric Sulfate (mg/L)	280	280	280	280	280	280	250	250	250	250	250	205	205

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)						16.0						17.0	
pH (units)						7.8						7.7	
Grab Turbidity (ntu)						277						264	
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)						96						102	
T. Alkalinity as CaCO3 (mg/L)						86						84	

SETTLED													
pH (units)						7.2						7.9	8.1
Grab Turbidity (ntu)						0.7						1.8	
On-Line Turbidity (ntu)	2.0	0.9	0.8	1.0	1.3	1.1	5.7	3.0	1.7	1.3	1.3	4.0	2.4
T. Hardness as CaCO3 (mg/L)						156						136	130
T. Alkalinity as CaCO3 (mg/L)						86						104	104

FILTER A - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	5.0	5.2	5.5	5.9	6.2	6.5	6.9	7.4	8.0	8.4	9.0	9.6	10.5
Avg. Headloss (in/hr)													
pH (units)						7.2						7.9	8.1
Grab Turbidity (ntu)						0.10						0.16	
On-Line Turbidity (ntu)	0.09	0.08	0.08	0.08	0.08	0.09	0.14	0.13	0.14	0.14	0.14	0.14	0.16
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER B - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	5.9	6.3	6.6	7.0	7.4	7.8	8.4	9.0	9.5	10.0	10.6	11.5	12.6
Avg. Headloss (in/hr)													
pH (units)						7.2						7.9	8.1
Grab Turbidity (ntu)						0.10						0.15	
On-Line Turbidity (ntu)	0.08	0.08	0.08	0.08	0.08	0.08	0.15	0.14	0.15	0.15	0.13	0.15	0.15
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 1022
 Date 5/12/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	45	45	45	45	45
Soda Ash (mg/L)	65	65	65	65	65
Ferric Sulfate (mg/L)	205	205	205	205	205

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)		17.0			
pH (units)		7.8			
Grab Turbidity (ntu)		258			
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)		104			
T. Alkalinity as CaCO3 (mg/L)		88			

SETTLED

pH (units)		7.8		8.2	
Grab Turbidity (ntu)		4.3			
On-Line Turbidity (ntu)	5.1	3.8	3.9	3.1	3.4
T. Hardness as CaCO3 (mg/L)		132		138	
T. Alkalinity as CaCO3 (mg/L)		100		106	

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.4	12.0	12.8	13.7	14.2
Avg. Headloss (in/hr)					
pH (units)		7.8		8.2	
Grab Turbidity (ntu)		0.18			
On-Line Turbidity (ntu)	0.15	0.18	0.16	0.15	0.16
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	13.8	15.0	16.1	17.3	18.2
Avg. Headloss (in/hr)					
pH (units)		7.8		8.2	
Grab Turbidity (ntu)		0.18			
On-Line Turbidity (ntu)	0.17	0.18	0.18	0.21	0.23
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 1023
 Date 5/14/95
 Source Little Ark.

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	20	40	35	40	40	40	40	40	40	40
Soda Ash (mg/L)	25	15	35	20	15	15	15	15	15	15	15
Ferric Sulfate (mg/L)	25	170	170	170	170	170	170	170	170	170	170

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	18.0	18.5	18.1	18.0				18.5		
pH (units)	4	8.0	8.1	8.1	8.0				8.1		
Grab Turbidity (ntu)	4	144	173	159	173				170		
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	4	124	144	133	124				124		
T. Alkalinity as CaCO3 (mg/L)	4	100	116	108	100				102		

SETTLED											
pH (units)	8	7.6	8.6	8.0	8.6	7.9	7.9		8.1		
Grab Turbidity (ntu)	4	2.4	4.6	3.7	4.4				4.6		
On-Line Turbidity (ntu)	25	1.2	5.4	2.9	3.8	5.4	4.9	4.2	4.4	3.7	2.3
T. Hardness as CaCO3 (mg/L)	6	146	170	161	146		162		162		
T. Alkalinity as CaCO3 (mg/L)	6	100	120	110	116		100		104		

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	19.2		0.0	1.8	2.8	3.4	4.2	4.9	5.5
Avg. Headloss (in/hr)				0.8							
pH (units)	8	7.6	8.6	8.0	8.6	7.9	7.9		8.1		
Grab Turbidity (ntu)	3	0.11	0.25	0.18					0.19		
On-Line Turbidity (ntu)	24	0.11	0.42	0.18		0.42	0.23	0.17	0.16	0.16	0.15
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	23.4		0.0	1.3	2.8	3.6	4.5	5.3	6.0
Avg. Headloss (in/hr)				0.9							
pH (units)	8	7.6	8.6	8.0	8.6	7.9	7.9		8.1		
Grab Turbidity (ntu)	3	0.15	0.43	0.26					0.19		
On-Line Turbidity (ntu)	24	0.12	0.53	0.21		0.38	0.21	0.17	0.15	0.14	0.13
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	7.5	
SETTLED	5.4	28
FILTER A	4.8	36
FILTER B	3.7	50

Run No. 1023
 Date 5/14/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	40	40	40	40	40	40	40	40	40	40	40	40	20
Soda Ash (mg/L)	15	15	15	15	15	15	15	15	15	15	15	15	35
Ferric Sulfate (mg/L)	170	170	170	170	170	170	170	170	170	170	170	170	170

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)													18.0
pH (units)													8.0
Grab Turbidity (ntu)													144
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)													138
T. Alkalinity as CaCO3 (mg/L)													112

SETTLED													
pH (units)													7.6
Grab Turbidity (ntu)													2.4
On-Line Turbidity (ntu)	2.2	2.7	2.7	2.6	2.5	2.2	2.0	1.8	1.5	1.2	1.2	2.2	2.2
T. Hardness as CaCO3 (mg/L)													170
T. Alkalinity as CaCO3 (mg/L)													106

FILTER A - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6.2	6.8	7.5	8.3	9.0	9.5	10.2	11.0	11.6	12.5	13.0	13.4	14.3
Avg. Headloss (In/hr)													
pH (units)													7.6
Grab Turbidity (ntu)													0.11
On-Line Turbidity (ntu)	0.13	0.13	0.19	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.12
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER B - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6.8	7.7	8.5	9.5	10.3	11.2	12.0	12.6	13.6	14.4	15.5	16.5	17.7
Avg. Headloss (In/hr)													
pH (units)													7.6
Grab Turbidity (ntu)													0.15
On-Line Turbidity (ntu)	0.12	0.12	0.18	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.18
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 1023
 Date 5/14/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	20	20	20	20	20
Soda Ash (mg/L)	35	35	35	35	35
Ferric Sulfate (mg/L)	170	170	170	170	170

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			18.0		
pH (units)			8.1		
Grab Turbidity (ntu)			148		
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)			144		
T. Alkalinity as CaCO3 (mg/L)			116		

SETTLED

pH (units)		7.9	7.8		8.0
Grab Turbidity (ntu)			3.4		
On-Line Turbidity (ntu)	3.7	3.4	3.4	3.3	2.7
T. Hardness as CaCO3 (mg/L)			160		164
T. Alkalinity as CaCO3 (mg/L)			116		120

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.3	16.5	17.2	18.3	19.2
Avg. Headloss (in/hr)					
pH (units)		7.9	7.8		8.0
Grab Turbidity (ntu)			0.25		
On-Line Turbidity (ntu)	0.17	0.20	0.26	0.32	0.36
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	18.8	20.1	20.9	22.0	23.4
Avg. Headloss (in/hr)					
pH (units)		7.9	7.8		8.0
Grab Turbidity (ntu)			0.43		
On-Line Turbidity (ntu)	0.27	0.38	0.46	0.50	0.53
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 1024
 Date 5/15/95
 Source Little Ark.

	Count	Minimum	Maximum	Average							
					0	1	2	3	4	5	6
CHEMICAL FEED											
Lime (mg/L)	25	40	40	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	25	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	25	140	160	154	160	160	160	160	160	160	160

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	19.0	19.0	19.0	19.0						
pH (units)	3	8.2	8.3	8.2	8.2						
Grab Turbidity (ntu)	3	123	149	136	149						
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	3	150	168	160	150						
T. Alkalinity as CaCO3 (mg/L)	3	114	132	122	114						

SETTLED											
pH (units)	7	7.2	8.9	7.8	7.7	7.4					
Grab Turbidity (ntu)	3	1.2	4.5	2.8	4.5						
On-Line Turbidity (ntu)	25	0.7	3.9	2.2	3.9	3.7	3.4	2.7	3.5	1.7	1.5
T. Hardness as CaCO3 (mg/L)	5	160	190	174	160	182					
T. Alkalinity as CaCO3 (mg/L)	5	108	132	122	120	108					

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	12.4		0.0	0.9	1.7	2.1	2.5	3.0	3.5
Avg. Headloss (in/hr)				0.5							
pH (units)	5	7.2	8.9	7.9							
Grab Turbidity (ntu)	2	0.13	0.16	0.15							
On-Line Turbidity (ntu)	24	0.12	0.18	0.13		0.18	0.14	0.14	0.13	0.13	0.13
Particles <5 um (counts/mL)	2	428	521	475							
Particles 5-15 um (counts/mL)	2	289	356	323							

FILTER B - GAC/Sand											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	16.0	7.5	0.0	0.8	1.9	2.4	3.0	3.6	4.0
Avg. Headloss (in/hr)				0.6							
pH (units)	5	7.2	8.9	7.9							
Grab Turbidity (ntu)	2	0.13	0.18	0.16							
On-Line Turbidity (ntu)	24	0.11	0.19	0.13		0.17	0.13	0.13	0.13	0.13	0.13
Particles <5 um (counts/mL)	2	437	840	639							
Particles 5-15 um (counts/mL)	2	291	427	359							

	TOC (mg/L)	% Red. From Raw
RAW	6.8	
SETTLED	5.6	18
FILTER A	5.5	20
FILTER B	4.6	33

Run No. 1024
 Date 5/15/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	40	40	40	40	40	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	30	30	30	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	160	160	160	160	160	160	160	160	160	160	160	140	140

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)													19.0
pH (units)													8.2
Grab Turbidity (ntu)													123
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)													162
T. Alkalinity as CaCO3 (mg/L)													120

SETTLED														
pH (units)													8.3	7.6
Grab Turbidity (ntu)													1.2	
On-Line Turbidity (ntu)	1.2	1.3	2.3	3.1	1.8	1.4	1.2	1.1	0.8	0.8	0.7	1.0	3.1	
T. Hardness as CaCO3 (mg/L)													190	
T. Alkalinity as CaCO3 (mg/L)													132	

FILTER A - Anth/Sand Media														
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	4.0	4.4	4.7	5.1	5.5	6.0	6.4	6.7	7.1	7.6	8.0	8.4	9.0	
Avg. Headloss (in/hr)														
pH (units)													8.3	7.6
Grab Turbidity (ntu)													0.13	
On-Line Turbidity (ntu)	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Particles <5 um (counts/mL)													428	
Particles 5-15 um (counts/mL)													289	

FILTER B - GAC/Sand														
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	4.5	5.0	5.6	6.2	6.7	7.3	7.8	8.3	8.8	9.3	9.8	10.2	11.5	
Avg. Headloss (in/hr)														
pH (units)													8.3	7.6
Grab Turbidity (ntu)													0.13	
On-Line Turbidity (ntu)	0.13	0.12	0.13	0.12	0.12	0.12	0.11	0.12	0.12	0.12	0.12	0.11	0.11	
Particles <5 um (counts/mL)													437	
Particles 5-15 um (counts/mL)													291	

Run No. 1024
 Date 5/15/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	40	40	40	40	40
Soda Ash (mg/L)	30	30	30	30	30
Ferric Sulfate (mg/L)	140	140	140	140	140

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)				19.0	
pH (units)				8.3	
Grab Turbidity (ntu)				137	
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)				168	
T. Alkalinity as CaCO3 (mg/L)				132	

SETTLED

pH (units)	7.2	7.4		8.9	
Grab Turbidity (ntu)				2.8	
On-Line Turbidity (ntu)	3.3	2.5	2.6	2.8	2.9
T. Hardness as CaCO3 (mg/L)	160			180	
T. Alkalinity as CaCO3 (mg/L)	116			132	

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	9.5	10.1	10.8	11.6	12.4
Avg. Headloss (in/hr)					
pH (units)	7.2	7.4		8.9	
Grab Turbidity (ntu)				0.16	
On-Line Turbidity (ntu)	0.13	0.13	0.13	0.14	0.14
Particles <5 um (counts/mL)				521	
Particles 5-15 um (counts/mL)				356	

FILTER B - GAC/Sand

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	12.1	13.2	14.0	15.0	16.0
Avg. Headloss (in/hr)					
pH (units)	7.2	7.4		8.9	
Grab Turbidity (ntu)				0.18	
On-Line Turbidity (ntu)	0.13	0.14	0.16	0.17	0.19
Particles <5 um (counts/mL)				840	
Particles 5-15 um (counts/mL)				427	

Run No. 1025
 Date 5/16/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average							
					0	1	2	3	4	5	6
CHEMICAL FEED											
Lime (mg/L)	25	100	100	100	100	100	100	100	100	100	100
Soda Ash (mg/L)	25	20	20	20	20	20	20	20	20	20	20
Ferric Sulfate (mg/L)	25	140	140	140	140	140	140	140	140	140	140

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	19.0	19.0	19.0	19.0						
pH (units)	3	8.1	8.3	8.2	8.3						
Grab Turbidity (ntu)	6	96.0	130	114	120						
On-Line Turbidity (ntu)	17	91.0	100.0	96.3	>100	98.0	98.0	98.0	98.0	96.0	100.0
T. Hardness as CaCO3 (mg/L)	3	164	180	172	172						
T. Alkalinity as CaCO3 (mg/L)	3	130	138	133	132						

SETTLED											
pH (units)	9	7.4	9.4	9.0	7.4						
Grab Turbidity (ntu)	3	1.2	3.8	2.4	3.8						
On-Line Turbidity (ntu)	25	1.1	4.2	2.1	4.2	2.9	2.0	2.3	2.4	1.9	1.8
T. Hardness as CaCO3 (mg/L)	5	116	172	137	172						
T. Alkalinity as CaCO3 (mg/L)	5	72	102	82	102						

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	8.7		0.0	0.3	0.8	1.2	1.6	2.0	2.3
Avg. Headloss (ln/hr)				0.3							
pH (units)	9	7.4	8.1	8.0	7.4						
Grab Turbidity (ntu)	2	0.16	0.16	0.16							
On-Line Turbidity (ntu)	24	0.13	0.17	0.15		0.17	0.17	0.15	0.15	0.15	0.15
Particles <5 um (counts/mL)	2	411	498	455							
Particles 5-15 um (counts/mL)	2	241	289	265							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	9.9		0.0	0.3	0.7	1.0	1.4	1.9	2.3
Avg. Headloss (ln/hr)				0.4							
pH (units)	9	7.4	8.1	8.0	7.4						
Grab Turbidity (ntu)	2	0.14	0.16	0.15							
On-Line Turbidity (ntu)	24	0.12	0.16	0.13		0.16	0.12	0.13	0.14	0.14	0.14
Particles <5 um (counts/mL)	2	410	466	438							
Particles 5-15 um (counts/mL)	2	245	250	248							

	TOC (mg/L)	% Red. From Raw
RAW	6.2	
SETTLED	5.1	19
FILTER A	4.9	21
FILTER B	3.5	45

Run No. 1025
 Date 5/16/95
 Source Little Ark

Elapsed TIME (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Soda Ash (mg/L)	20	20	20	20	20	20	20	20	20	20	20	20	20
Ferric Sulfate (mg/L)	140	140	140	140	140	140	140	140	140	140	140	140	140

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										19.0			
pH (units)										8.1			
Grab Turbidity (ntu)										130	121	112	
On-Line Turbidity (ntu)	100.0	96.0	94.0	93.0	98.0	100.0	>100	>100	>100	>100	>100	>100	97.0
T. Hardness as CaCO3 (mg/L)										180			
T. Alkalinity as CaCO3 (mg/L)										138			

SETTLED														
pH (units)											9.0	9.0	9.2	9.2
Grab Turbidity (ntu)											1.2			
On-Line Turbidity (ntu)	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.1	1.5	2.1	2.7	
T. Hardness as CaCO3 (mg/L)										140		138		
T. Alkalinity as CaCO3 (mg/L)										84		78		

FILTER A - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	2.8	3.3	3.7	4.0	4.2	4.4	4.9	5.3	5.8	6.1	6.4	6.8	7.1
Avg. Headloss (in/hr)													
pH (units)										8.0	8.0	8.0	8.0
Grab Turbidity (ntu)										0.16			
On-Line Turbidity (ntu)	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.14
Particles <5 um (counts/mL)													411
Particles 5-15 um (counts/mL)													241

FILTER B - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	2.7	3.0	3.4	3.9	4.3	4.7	5.2	5.6	6.0	6.4	6.7	7.2	7.8
Avg. Headloss (in/hr)													
pH (units)										8.0	8.0	8.0	8.0
Grab Turbidity (ntu)										0.14			
On-Line Turbidity (ntu)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.13	0.13
Particles <5 um (counts/mL)													410
Particles 5-15 um (counts/mL)													245

Run No. 1025
 Date 5/16/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	100	100	100	100	100
Soda Ash (mg/L)	20	20	20	20	20
Ferric Sulfate (mg/L)	140	140	140	140	140

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)		19.0			
pH (units)		8.1			
Grab Turbidity (ntu)		96.0			106
On-Line Turbidity (ntu)	94.0	91.0	92.0	94.0	>100
T. Hardness as CaCO3 (mg/L)		164			
T. Alkalinity as CaCO3 (mg/L)		130			

SETTLED

pH (units)		9.4	9.4	9.3	9.3
Grab Turbidity (ntu)		2.1			
On-Line Turbidity (ntu)	2.3	2.1	2.7	2.8	2.6
T. Hardness as CaCO3 (mg/L)		118		116	
T. Alkalinity as CaCO3 (mg/L)		72		72	

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.4	7.7	8.1	8.3	8.7
Avg. Headloss (in/hr)					
pH (units)		8.1	8.1	8.0	8.1
Grab Turbidity (ntu)		0.16			
On-Line Turbidity (ntu)	0.14	0.15	0.15	0.16	0.16
Particles <5 um (counts/mL)				498	
Particles 5-15 um (counts/mL)				289	

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	8.1	8.4	9.0	9.5	9.9
Avg. Headloss (in/hr)					
pH (units)		8.1	8.1	8.0	8.1
Grab Turbidity (ntu)		0.16			
On-Line Turbidity (ntu)	0.14	0.14	0.14	0.15	0.15
Particles <5 um (counts/mL)				466	
Particles 5-15 um (counts/mL)				250	

Run No. 1026
 Date 5/18/95
 Source Little Ark.

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	135	150	139	150	150	150	150	150	150	150
Soda Ash (mg/L)	25	30	50	44	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	25	175	260	247	250	250	250	250	250	250	250

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	17.5	18.0	17.9	18.0						18.0
pH (units)	4	7.7	8.0	7.9	7.9						8.0
Grab Turbidity (ntu)	5	338	610	432	347		338				376
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	4	102	170	135	148						170
T. Alkalinity as CaCO3 (mg/L)	4	80	118	101	110						118

SETTLED											
pH (units)	7	6.4	9.9	9.1	6.4		9.1	9.3			9.5
Grab Turbidity (ntu)	4	1.4	1.9	1.7	1.4						1.9
On-Line Turbidity (ntu)	25	0.8	3.0	1.6	1.4	2.4	1.2	0.8	0.8	1.2	1.4
T. Hardness as CaCO3 (mg/L)	6	84	148	117	148		140				128
T. Alkalinity as CaCO3 (mg/L)	6	40	68	52	40		60				46

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	9.8		0.0	0.4	1.0	1.3	1.7	2.0	2.4
Avg. Headloss (in/hr)				0.4							
pH (units)	7	6.4	9.2	8.2	6.4		8.7	8.8			8.6
Grab Turbidity (ntu)	3	0.15	0.37	0.26							0.15
On-Line Turbidity (ntu)	24	0.12	0.49	0.24		0.13	0.12	0.12	0.13	0.14	0.13
Particles <5 um (counts/mL)	2	370	557	464							
Particles 5-15 um (counts/mL)	2	257	281	269							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	12.2		0.0	0.5	0.9	1.3	1.7	2.0	2.3
Avg. Headloss (in/hr)				0.5							
pH (units)	7	6.4	9.2	8.2	6.4		8.7	8.8			8.6
Grab Turbidity (ntu)	3	0.14	0.33	0.23							0.14
On-Line Turbidity (ntu)	24	0.11	0.41	0.20		0.11	0.11	0.11	0.13	0.13	0.12
Particles <5 um (counts/mL)	2	360	513	437							
Particles 5-15 um (counts/mL)	2	241	258	250							

	TOC (mg/L)	% Red. From Raw
RAW	8.6	
SETTLED	6.1	29
FILTER A	5.9	32
FILTER B	4.9	43

Run No. 1026
 Date 5/18/95
 Source Little Ark

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16 17 18 19

CHEMICAL FEED

Lime (mg/L)	135	135	135	135	135	135	135	135	135	135	135	135	135
Soda Ash (mg/L)	50	50	50	50	50	50	50	50	50	50	50	50	50
Ferric Sulfate (mg/L)	250	175	175	175	260	260	260	260	260	260	260	260	260

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)					18.0								
pH (units)					7.8								
Grab Turbidity (ntu)					610								
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)					120								
T. Alkalinity as CaCO3 (mg/L)					94								

SETTLED

pH (units)					9.9								
Grab Turbidity (ntu)					1.8								
On-Line Turbidity (ntu)	2.1	2.9	3.0	2.1	1.7	1.3	2.7	1.7	1.4	1.3	1.0	1.0	0.8
T. Hardness as CaCO3 (mg/L)					84								
T. Alkalinity as CaCO3 (mg/L)					54								

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	2.7	3.0	3.4	3.8	4.3	4.7	5.0	5.3	5.7	6.1	6.5	6.8	7.2
Avg. Headloss (in/hr)													
pH (units)					9.2								
Grab Turbidity (ntu)					0.26								
On-Line Turbidity (ntu)	0.16	0.18	0.21	0.22	0.22	0.22	0.19	0.33	0.26	0.25	0.26	0.27	0.30
Particles <5 um (counts/mL)					370								
Particles 5-15 um (counts/mL)					257								

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	2.8	3.4	3.9	4.4	4.7	5.1	5.5	5.9	6.2	6.6	6.9	7.4	7.7
Avg. Headloss (in/hr)													
pH (units)					9.2								
Grab Turbidity (ntu)					0.23								
On-Line Turbidity (ntu)	0.16	0.17	0.18	0.20	0.21	0.17	0.15	0.25	0.21	0.21	0.21	0.23	0.25
Particles <5 um (counts/mL)					360								
Particles 5-15 um (counts/mL)					241								

Run No. 1026
 Date 5/18/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	135	135	135	135	135
Soda Ash (mg/L)	50	50	50	50	50
Ferric Sulfate (mg/L)	260	260	260	260	260

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			17.5		
pH (units)			7.7		
Grab Turbidity (ntu)			490		
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)			102		
T. Alkalinity as CaCO3 (mg/L)			80		

SETTLED

pH (units)			9.7		9.6
Grab Turbidity (ntu)			1.7		
On-Line Turbidity (ntu)	1.0	1.2	1.1	1.9	2.0
T. Hardness as CaCO3 (mg/L)			100		102
T. Alkalinity as CaCO3 (mg/L)			42		68

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.5	7.8	8.2	9.3	9.8
Avg. Headloss (in/hr)					
pH (units)			7.7		7.9
Grab Turbidity (ntu)			0.37		
On-Line Turbidity (ntu)	0.32	0.34	0.35	0.49	0.32
Particles <5 um (counts/mL)			557		
Particles 5-15 um (counts/mL)			281		

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	8.1	8.6	9.6	11.5	12.2
Avg. Headloss (in/hr)					
pH (units)			7.7		7.9
Grab Turbidity (ntu)			0.33		
On-Line Turbidity (ntu)	0.26	0.28	0.30	0.41	0.31
Particles <5 um (counts/mL)			513		
Particles 5-15 um (counts/mL)			258		

Run No. 1027
 Date 7/17/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average							
					0	1	2	3	4	5	6
CHEMICAL FEED											
Lime (mg/L)	19	100	100	100	100	100	100	100	100	100	100
Polymer (mg/L)	19	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ferric Sulfate (mg/L)	19	65	65	65	65	65	65	65	65	65	65

RAW											
Pilot Plant (gpm)	19	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	23.5	24.0	23.8	24.0						
pH (units)	3	7.7	8.0	7.9	8.0						
Grab Turbidity (ntu)	3	77.0	83.0	80.0	77.0						
On-Line Turbidity (ntu)	19	62.0	92.0	75.0	73.0	73.0	70.0	62.0	63.0	80.0	92.0
T. Hardness as CaCO3 (mg/L)	3	140	146	143	144						
T. Alkalinity as CaCO3 (mg/L)	3	140	142	141	142						

SETTLED											
pH (units)	4	8.9	9.1	9.0	9.0	8.9					
Grab Turbidity (ntu)	3	3.3	5.3	4.1	5.3						
On-Line Turbidity (ntu)	19	3.2	10.3	4.8	5.5	5.1	7.8	10.3	7.4	4.2	3.5
T. Hardness as CaCO3 (mg/L)	3	108	122	115	122						
T. Alkalinity as CaCO3 (mg/L)	3	86	98	90	98						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	19	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	19	0.0	19.6		0.0	1.4	2.4	3.3	4.4	5.3	6.1
Avg. Headloss (in/hr)				1.0							
pH (units)	4	7.7	8.8	8.2	7.7	8.8					
Grab Turbidity (ntu)	1	1.30	1.30	1.30							
On-Line Turbidity (ntu)	18	0.17	0.84	0.50		0.17	0.19	0.23	0.27	0.29	0.27
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	19	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	19	0.0	17.2		0.0	1.2	2.0	2.9	3.8	4.8	5.6
Avg. Headloss (in/hr)				0.9							
pH (units)	4	7.7	8.8	8.2	7.7	8.8					
Grab Turbidity (ntu)	1	0.91	0.91	0.91							
On-Line Turbidity (ntu)	18	0.17	0.71	0.39		0.17	0.17	0.17	0.19	0.19	0.19
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	TOC (mg/L)	% Red. From Raw
RAW	4.6	
SETTLED	3.9	15
FILTER C	3.4	25
FILTER D	3.8	16

Run No. 1027
 Date 7/17/95
 Source Cheney

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16 17 18

CHEMICAL FEED

Lime (mg/L)	100	100	100	100	100	100	100	100	100	100	100	100
Polymer (mg/L)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ferric Sulfate (mg/L)	65	65	65	65	65	65	65	65	65	65	65	65

RAW

Pilot Plant (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)		24.0										23.5
pH (units)		7.7										7.9
Grab Turbidity (ntu)		83.0										80.0
On-Line Turbidity (ntu)	90.0	81.0	77.0	73.0	69.0	70.0	72.0	76.0	75.0	74.0	78.0	77.0
T. Hardness as CaCO3 (mg/L)		146										140
T. Alkalinity as CaCO3 (mg/L)		140										140

SETTLED

pH (units)		9.1										9.1
Grab Turbidity (ntu)		3.7										3.3
On-Line Turbidity (ntu)	3.7	3.9	3.5	3.7	4.6	5.5	4.5	3.9	3.9	3.3	3.3	3.2
T. Hardness as CaCO3 (mg/L)		108										116
T. Alkalinity as CaCO3 (mg/L)		86										86

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	7.3	9.0	10.1	11.0	12.0	13.2	14.1	15.2	16.1	17.0	18.2	19.6
Avg. Headloss (in/hr)												
pH (units)		7.8										8.6
Grab Turbidity (ntu)												1.30
On-Line Turbidity (ntu)	0.29	0.32	0.37	0.44	0.52	0.72	0.80	0.77	0.79	0.82	0.84	0.84
Particles <5 um (counts/mL)												
Particles 5-15 um (counts/mL)												

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.5	7.5	8.4	9.4	10.5	11.5	12.6	13.5	14.5	15.6	16.5	17.2
Avg. Headloss (in/hr)												
pH (units)		7.8										8.6
Grab Turbidity (ntu)												0.91
On-Line Turbidity (ntu)	0.21	0.24	0.25	0.32	0.34	0.54	0.63	0.63	0.65	0.67	0.70	0.71
Particles <5 um (counts/mL)												
Particles 5-15 um (counts/mL)												

Run No. 1028
 Date 7/19/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Pre-Ozone (mg/L)	22	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	25	100	100	100	100	100	100	100	100	100	100
Polymer (mg/L)	25	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	25	55	65	61	60	60	60	60	60	60	60

RAW											
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	24.5	25.0	24.7	24.5						
pH (units)	3	8.0	8.1	8.0	8.0						
Grab Turbidity (ntu)	2	67.0	74.0	70.5							
On-Line Turbidity (ntu)	25	56.0	81.0	66.4	70.0	70.0	69.0	69.0	71.0	69.0	68.0
T. Hardness as CaCO3 (mg/L)	3	144	150	147	150						
T. Alkalinity as CaCO3 (mg/L)	3	138	144	141	144						

SETTLED											
pH (units)	7	8.9	9.0	9.0	9.0						
Grab Turbidity (ntu)	2	3.9	8.1	6.0							
On-Line Turbidity (ntu)	25	2.5	9.0	4.8	3.9	7.4	4.0	3.7	3.7	3.8	3.7
T. Hardness as CaCO3 (mg/L)	4	114	132	123	132						
T. Alkalinity as CaCO3 (mg/L)		94	108	102	108						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	22.3		0.0	1.1	2.2	3.2	4.4	5.7	6.7
Avg. Headloss (in/hr)				0.9							
pH (units)	7	8.3	8.5	8.4	8.4						
Grab Turbidity (ntu)	2	0.12	0.40	0.26							
On-Line Turbidity (ntu)	24	0.10	0.48	0.21		0.12	0.10	0.11	0.11	0.11	0.11
Particles <5 um (counts/mL)	2	208	2398	1303							
Particles 5-15 um (counts/mL)	2	42	334	188							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	17	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	18.0		0.0	0.7	1.5	2.3	3.2	4.2	5.1
Avg. Headloss (in/hr)				0.7							
pH (units)	7	8.3	8.5	8.4	8.4						
Grab Turbidity (ntu)	2	0.10	0.42	0.26							
On-Line Turbidity (ntu)	24	0.08	0.49	0.18		0.12	0.09	0.09	0.08	0.08	0.08
Particles <5 um (counts/mL)	2	182	2123	1153							
Particles 5-15 um (counts/mL)	2	43	341	192							

	TOC (mg/L)	% Red. From Raw
RAW	4.5	
SETTLED	3.8	16
FILTER C	3.0	32
FILTER D	3.4	24

Run No. 1028
 Date 7/19/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Pre-Ozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	55	55	55	55	65	65

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)										25.0			
pH (units)										8.1			
Grab Turbidity (ntu)										67.0			
On-Line Turbidity (ntu)	70.0	67.0	66.0	64.0	61.0	59.0	59.0	56.0	64.0	64.0	64.0	64.0	81.0
T. Hardness as CaCO3 (mg/L)										144			
T. Alkalinity as CaCO3 (mg/L)										138			

SETTLED													
pH (units)										9.0	8.9		8.9
Grab Turbidity (ntu)										8.1			
On-Line Turbidity (ntu)	7.0	3.2	3.0	3.5	5.5	3.2	4.5	4.0	7.0	6.2	8.5	9.0	2.5
T. Hardness as CaCO3 (mg/L)										114			
T. Alkalinity as CaCO3 (mg/L)										94			

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	7.6	8.9	9.9	10.8	12.0	13.1	14.2	15.7	17.3	20.7	22.3	0.3	0.8
Avg. Headloss (in/hr)													
pH (units)										8.4	8.4		8.4
Grab Turbidity (ntu)										0.40			
On-Line Turbidity (ntu)	0.13	0.16	0.16	0.18	0.23	0.26	0.32	0.35	0.35	0.39	0.48	0.47	0.19
Particles <5 um (counts/mL)										2398			
Particles 5-15 um (counts/mL)										334			

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Headloss (inches)	6.2	7.0	8.1	9.2	10.0	11.1	12.0	13.3	14.6	16.9	18.0	0.3	0.8
Avg. Headloss (in/hr)													
pH (units)										8.4	8.4		8.4
Grab Turbidity (ntu)										0.42			
On-Line Turbidity (ntu)	0.09	0.11	0.11	0.12	0.15	0.19	0.25	0.31	0.33	0.37	0.49	0.49	0.19
Particles <5 um (counts/mL)										2123			
Particles 5-15 um (counts/mL)										341			

Run No. 1028
 Date 7/19/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Pre-Ozone (mg/L)	2.0	2.0			
Lime (mg/L)	100	100	100	100	100
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	65	65	65	65	65

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)		24.5			
pH (units)		8.0			
Grab Turbidity (ntu)		74.0			
On-Line Turbidity (ntu)	77.0	71.0	66.0	62.0	59.0
T. Hardness as CaCO3 (mg/L)		148			
T. Alkalinity as CaCO3 (mg/L)		140			

SETTLED

pH (units)		9.0		9.0	9.0
Grab Turbidity (ntu)		3.9			
On-Line Turbidity (ntu)	3.5	3.8	5.5	5.3	3.9
T. Hardness as CaCO3 (mg/L)		124		120	
T. Alkalinity as CaCO3 (mg/L)		104		102	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	2.1	3.5	4.4	5.6	6.6
Avg. Headloss (in/hr)					
pH (units)		8.3		8.5	8.4
Grab Turbidity (ntu)		0.12			
On-Line Turbidity (ntu)	0.11	0.10	0.14	0.17	0.16
Particles <5 um (counts/mL)				208	
Particles 5-15 um (counts/mL)				42	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)					6.0
Headloss (inches)	2.1	3.0	3.5	4.7	5.3
Avg. Headloss (in/hr)					
pH (units)		8.3		8.5	8.4
Grab Turbidity (ntu)		0.10			
On-Line Turbidity (ntu)	0.09	0.09	0.12	0.16	0.17
Particles <5 um (counts/mL)				182	
Particles 5-15 um (counts/mL)				43	

Run No. 2000
 Date 7/18/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	17	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	17	110	110	110	110	110	110	110	110	110	110
Polymer (mg/L)	17	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ferric Sulfate (mg/L)	17	65	65	65	65	65	65	65	65	65	65

RAW											
Pilot Plant Flowrate (gpm)	17	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	2	24.0	24.0	24.0	24.0						
pH (units)	3	7.9	7.9	7.9	7.9						
Grab Turbidity (ntu)	2	72.0	78.0	75.0	78.0						
On-Line Turbidity (ntu)	17	60.0	75.0	66.5	75.0	74.0	67.0	66.0	62.0	61.0	61.0
T. Hardness as CaCO3 (mg/L)	2	142	146	144	142						
T. Alkalinity as CaCO3 (mg/L)	2	140	140	140	140						

SETTLED											
pH (units)	5	8.9	9.0	8.9	9.0	9.0					
Grab Turbidity (ntu)	2	3.0	4.3	3.7	4.3						
On-Line Turbidity (ntu)	17	2.5	6.9	4.4	4.8	6.9	5.5	4.2	5.5	5.6	5.6
T. Hardness as CaCO3 (mg/L)	3	110	118	115	110						
T. Alkalinity as CaCO3 (mg/L)	3	96	98	97	96						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	17	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	15	0.0	14.5		0.0	0.9	2.0	2.9	3.9	4.8	6.0
Avg. Headloss (in/hr)				1.0							
pH (units)	3	8.2	8.3	8.3	8.3	8.3					
Grab Turbidity (ntu)	1	0.43	0.43	0.43							
On-Line Turbidity (ntu)	14	0.15	0.46	0.28		0.16	0.15	0.15	0.15	0.15	0.16
Particles <5 um (counts/mL)	1	4810	4810	4810							
Particles 5-15 um (counts/mL)	1	995	995	995							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	17	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	17	0.0	14.0		0.0	1.4	2.2	3.0	3.7	4.6	5.7
Avg. Headloss (in/hr)				0.8							
pH (units)	5	8.2	8.3	8.3	8.3	8.3					
Grab Turbidity (ntu)	1	0.36	0.36	0.36							
On-Line Turbidity (ntu)	16	0.14	0.51	0.23		0.17	0.15	0.15	0.14	0.14	0.14
Particles <5 um (counts/mL)	1	3787	3787	3787							
Particles 5-15 um (counts/mL)	1	747	747	747							

	TOC (mg/L)	% Red. From Raw
RAW	4.7	
SETTLED	3.9	16
FILTER C	3.6	23
FILTER D	3.9	17

LAB ANALYSIS	Raw	Filter C
Geosmin (ng/L)	N.D.	N.D.
MIB (ng/L)	N.D.	N.D.

Note: Geosmin and MIB composite samples collected over run length; however, ratio of geosmin/MIB spiking flowrate to pilot plant flowrate was too low and no geosmin/MIB was detected in composite samples.

Run No. 2000
 Date 7/18/95
 Source Cheney

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16

CHEMICAL FEED

Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	110	110	110	110	110	110	110	110	110	110
Polymer (mg/L)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ferric Sulfate (mg/L)	65	65	65	65	65	65	65	65	65	65

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)								24.0		
pH (units)								7.9		7.9
Grab Turbidity (ntu)								72.0		
On-Line Turbidity (ntu)	60.0	64.0	65.0	66.0	66.0	67.0	67.0	67.0	72.0	71.0
T. Hardness as CaCO3 (mg/L)								146		
T. Alkalinity as CaCO3 (mg/L)								140		

SETTLED

pH (units)								8.9	8.9	8.9
Grab Turbidity (ntu)								3.0		
On-Line Turbidity (ntu)	4.5	4.3	4.3	3.1	3.1	2.7	2.6	2.5	5.1	4.7
T. Hardness as CaCO3 (mg/L)								118		118
T. Alkalinity as CaCO3 (mg/L)								98		96

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	7.1	8.0	8.9	9.8	10.8	11.9	13.1	14.5		
Avg. Headloss (in/hr)										
pH (units)								8.2		
Grab Turbidity (ntu)								0.43		
On-Line Turbidity (ntu)	0.21	0.25	0.32	0.37	0.43	0.45	0.46	0.46		
Particles <5 um (counts/mL)								4810		
Particles 5-15 um (counts/mL)								995		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.6	7.5	8.2	9.0	10.0	10.8	11.7	12.4	13.2	14.0
Avg. Headloss (in/hr)										
pH (units)								8.2	8.2	8.3
Grab Turbidity (ntu)								0.36		
On-Line Turbidity (ntu)	0.14	0.15	0.17	0.21	0.25	0.29	0.32	0.35	0.44	0.51
Particles <5 um (counts/mL)								3787		
Particles 5-15 um (counts/mL)								747		

Run No. 2001
 Date 7/24/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	25	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	25	105	105	105	105	105	105	105	105	105	105
Polymer (mg/L)	25	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	25	60	60	60	60	60	60	60	60	60	60

RAW											
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	24.5	25.0	24.8	25.0						
pH (units)	3	8.0	8.0	8.0	8.0						
Grab Turbidity (ntu)	3	72.0	74.0	73.0	73.0						
On-Line Turbidity (ntu)	25	67.0	74.0	69.1	70.0	69.0	70.0	69.0	68.0	68.0	68.0
T. Hardness as CaCO3 (mg/L)	3	144	146	145	144						
T. Alkalinity as CaCO3 (mg/L)	3	140	142	141	142						

SETTLED											
pH (units)	8	8.8	9.0	8.9	9.0	9.0					
Grab Turbidity (ntu)	3	3.2	3.6	3.4	3.4						
On-Line Turbidity (ntu)	25	2.0	4.2	3.0	4.2	3.2	2.9	3.3	3.1	3.2	3.2
T. Hardness as CaCO3 (mg/L)	4	106	126	119	124						
T. Alkalinity as CaCO3 (mg/L)	4	90	106	99	100						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	23.4		0.0	2.2	3.0	4.1	5.2	6.0	7.3
Avg. Headloss (In/hr)				0.9							
pH (units)	8	8.1	8.4	8.2	8.1	8.4					
Grab Turbidity (ntu)	2	0.28	0.37	0.33							
On-Line Turbidity (ntu)	24	0.14	0.54	0.26		0.16	0.16	0.16	0.16	0.15	0.14
Particles <5 um (counts/mL)	1	3999	3999	3999							
Particles 5-15 um (counts/mL)	1	914	914	914							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	17.3		0.0	2.0	2.9	3.9	5.0	6.2	7.0
Avg. Headloss (In/hr)				0.7							
pH (units)	8	8.1	8.4	8.2	8.1	8.4					
Grab Turbidity (ntu)	2	0.28	0.45	0.37							
On-Line Turbidity (ntu)	24	0.14	0.48	0.23		0.15	0.15	0.15	0.14	0.14	0.15
Particles <5 um (counts/mL)	1	2995	2995	2995							
Particles 5-15 um (counts/mL)	1	617	617	617							

	TOC (mg/L)	% Red. From Raw
RAW	4.4	
SETTLED	3.9	11
FILTER C	3.4	22
FILTER D	3.8	12

LAB ANALYSIS	Raw	Filter C
Geosmin (ng/L)	N.D.	N.D.
MIB (ng/L)	N.D.	N.D.

Note: Geosmin and MIB composite samples collected over run length; however, ratio of geosmin/MIB spiking flowrate to pilot plant flowrate was too low and no geosmin/MIB was detected in composite samples.

Run No. 2001
 Date 7/24/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	105	105	105	105	105	105	105	105	105	105	105	105	105
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	60

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)												24.5	
pH (units)												8.0	
Grab Turbidity (ntu)												72.0	
On-Line Turbidity (ntu)	68.0	67.0	68.0	69.0	70.0	68.0	70.0	70.0	69.0	68.0	70.0	68.0	74.0
T. Hardness as CaCO3 (mg/L)												146	
T. Alkalinity as CaCO3 (mg/L)												142	

SETTLED													
pH (units)												9.0	8.9
Grab Turbidity (ntu)												3.2	
On-Line Turbidity (ntu)	3.2	3.1	3.1	3.1	3.1	3.0	2.9	2.5	2.4	2.3	2.1	2.0	2.0
T. Hardness as CaCO3 (mg/L)												106	
T. Alkalinity as CaCO3 (mg/L)												90	

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8.2	9.4	10.5	11.4	12.8	13.9	14.7	15.7	16.9	18.9	21.2	22.0	23.4
Avg. Headloss (in/hr)													
pH (units)												8.2	8.1
Grab Turbidity (ntu)												0.37	
On-Line Turbidity (ntu)	0.14	0.14	0.16	0.20	0.25	0.32	0.36	0.37	0.38	0.41	0.43	0.45	0.54
Particles <5 um (counts/mL)											3999		
Particles 5-15 um (counts/mL)											914		

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8.0	9.3	10.3	11.0	12.1	12.9	13.7	14.7	15.9	16.6	17.0	17.3	0.0
Avg. Headloss (in/hr)													
pH (units)												8.2	8.1
Grab Turbidity (ntu)												0.45	
On-Line Turbidity (ntu)	0.15	0.15	0.15	0.16	0.18	0.23	0.26	0.30	0.31	0.35	0.37	0.39	0.48
Particles <5 um (counts/mL)											2995		
Particles 5-15 um (counts/mL)											617		

Run No. 2001
 Date 7/24/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Geosmin & MIB (ng/L)	100	100	100	100	100
Lime (mg/L)	105	105	105	105	105
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)		25.0			
pH (units)		8.0			
Grab Turbidity (ntu)		74.0			
On-Line Turbidity (ntu)	73.0	71.0	68.0	67.0	67.0
T. Hardness as CaCO3 (mg/L)		146			
T. Alkalinity as CaCO3 (mg/L)		140			

SETTLED

pH (units)		8.8	8.8	8.8	8.8
Grab Turbidity (ntu)		3.6			
On-Line Turbidity (ntu)	2.6	3.3	4.0	4.2	4.0
T. Hardness as CaCO3 (mg/L)		126		118	
T. Alkalinity as CaCO3 (mg/L)		106		100	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	0.9	2.6	3.8	4.7	5.7
Avg. Headloss (in/hr)					
pH (units)		8.1	8.1	8.1	8.1
Grab Turbidity (ntu)		0.28			
On-Line Turbidity (ntu)	0.25	0.32	0.17	0.16	0.16
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	1.3	2.5	3.3	4.0	4.6
Avg. Headloss (in/hr)					
pH (units)		8.1	8.1	8.1	8.1
Grab Turbidity (ntu)		0.28			
On-Line Turbidity (ntu)	0.26	0.35	0.18	0.16	0.16
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 2002
 Date 7/26/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	23	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	23	110	110	110	110	110	110	110	110	110	110
Polymer (mg/L)	23	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	23	60	70	68	60	60	65	65	65	70	70
PAC (mg/L)	23	10	10	10	10	10	10	10	10	10	10

RAW											
Pilot Plant Flowrate (gpm)	23	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	25.0	25.5	25.2	25.0				25.5		
pH (units)	3	8.0	8.1	8.0	8.0				8.1		
Grab Turbidity (ntu)	3	70.0	83.0	76.3	76.0				70.0		
On-Line Turbidity (ntu)	23	63.0	88.0	72.1	73.0	70.0	70.0	70.0	67.0	63.0	64.0
T. Hardness as CaCO3 (mg/L)	3	142	146	144	144				142		
T. Alkalinity as CaCO3 (mg/L)	3	140	144	142	140				142		

SETTLED											
pH (units)	8	8.6	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	
Grab Turbidity (ntu)	3	2.5	7.1	4.7	4.5				7.1		
On-Line Turbidity (ntu)	23	2.1	7.8	4.3	4.8	6.1	7.4	7.2	7.8	5.8	5.4
T. Hardness as CaCO3 (mg/L)	4	116	130	124	126		116		122		
T. Alkalinity as CaCO3 (mg/L)	4	100	112	106	112		102		100		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	23	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	23	0.0	27.2		0.0	2.1	3.5	4.4	5.6	6.7	7.9
Avg. Headloss (in/hr)				1.2							
pH (units)	8	7.9	8.7	8.2	8.6	8.7	8.1	8.1	8.1	8.1	
Grab Turbidity (ntu)	2	0.16	0.51	0.34					0.16		
On-Line Turbidity (ntu)	22	0.15	0.93	0.47		0.18	0.17	0.16	0.15	0.17	0.23
Particles <5 um (counts/mL)	2	626	3031	1829						626	
Particles 5-15 um (counts/mL)	2	115	473	294						115	

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	23	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	23	0.0	21.2		0.0	2.1	3.1	3.9	4.8	5.4	6.4
Avg. Headloss (in/hr)				0.9							
pH (units)	8	7.9	8.7	8.2	8.6	8.7	8.1	8.1	8.1	8.1	
Grab Turbidity (ntu)	2	0.15	0.42	0.29					0.15		
On-Line Turbidity (ntu)	22	0.16	0.78	0.40		0.19	0.18	0.17	0.16	0.16	0.19
Particles <5 um (counts/mL)	2	555	2838	1697						555	
Particles 5-15 um (counts/mL)	2	90	414	252						90	

	TOC (mg/L)	% Red. From Raw
RAW	4.4	
SETTLED	3.7	15
FILTER C	3.1	29
FILTER D	3.6	17

LAB ANALYSIS	Raw	Filter D
Geosmin (ng/L)	N.D.	N.A.
MIB (ng/L)	N.D.	N.A.

Note: Geosmin and MIB composite samples collected over run length; however, ratio of geosmin/MIB spiking flowrate to pilot plant flowrate was too low and no geosmin/MIB was detected in composite samples.
 Filter D sample broken in transport to laboratory.

Run No. 2002
 Date 7/26/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	110	110	110	110	110	110	110	110	110	110	110	110	110
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	70	70	70	70	70	70	70	70	70	70	70	70	70
PAC (mg/L)	10	10	10	10	10	10	10	10	10	10	10	10	10

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	69.0	87.0	88.0	81.0	76.0	71.0	73.0	73.0	69.0	66.0	66.0	68.0	69.0
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

SETTLED													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	3.6	3.6	3.9	3.9	4.2	6.4	4.9	3.8	3.2	2.6	2.4	2.4	2.3
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9.0	10.2	11.4	12.4	13.7	14.7	16.0	17.2	18.5	20.0	21.1	23.0	23.9
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.30	0.35	0.41	0.49	0.56	0.85	0.93	0.83	0.73	0.63	0.56	0.53	0.50
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	7.2	8.2	9.0	10.3	11.1	12.1	12.7	13.7	14.5	15.7	16.6	17.5	18.3
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.20	0.21	0.26	0.33	0.42	0.68	0.78	0.73	0.70	0.59	0.53	0.50	0.47
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 2002
 Date 7/26/95
 Source Cheney

Elapsed Time (hr) 20 21 22

CHEMICAL FEED

Geosmin & MIB (ng/L)	100	100	100
Lime (mg/L)	110	110	110
Polymer (mg/L)	0.2	0.2	0.2
Ferric Sulfate (mg/L)	70	70	70
PAC (mg/L)	10	10	10

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0
Temp. (deg. C)		25.0	
pH (units)		8.0	
Grab Turbidity (ntu)		83.0	
On-Line Turbidity (ntu)	68.0	79.0	78.0
T. Hardness as CaCO3 (mg/L)		146	
T. Alkalinity as CaCO3 (mg/L)		144	

SETTLED

pH (units)		8.6	8.8
Grab Turbidity (ntu)		2.5	
On-Line Turbidity (ntu)	2.2	2.1	3.4
T. Hardness as CaCO3 (mg/L)		130	
T. Alkalinity as CaCO3 (mg/L)		110	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	24.9	26.0	27.2
Avg. Headloss (in/hr)			
pH (units)		7.9	8.0
Grab Turbidity (ntu)		0.51	
On-Line Turbidity (ntu)	0.49	0.44	0.60
Particles <5 um (counts/mL)			3031
Particles 5-15 um (counts/mL)			473

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	19.3	20.4	21.2
Avg. Headloss (in/hr)			
pH (units)		7.9	8.0
Grab Turbidity (ntu)		0.42	
On-Line Turbidity (ntu)	0.46	0.42	0.56
Particles <5 um (counts/mL)			2838
Particles 5-15 um (counts/mL)			414

Run No. 2003
 Date 7/27/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	23	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	23	105	120	117	105	105	105	105	120	120	120
Polymer (mg/L)	23	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	23	60	70	69	65	60	65	65	65	70	70
PAC (mg/L)	23	20	20	20	20	20	20	20	20	20	20

RAW											
Pilot Plant Flowrate (gpm)	23	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	24.5	25.5	25.0	24.5				25.0		
pH (units)	3	8.0	8.1	8.0	8.0				8.0		
Grab Turbidity (ntu)	2	74.0	74.0	74.0	74.0				74.0		
On-Line Turbidity (ntu)	23	52.0	80.0	63.4	70.0	70.0	70.0	73.0	71.0	68.0	67.0
T. Hardness as CaCO3 (mg/L)	3	146	148	147	146				148		
T. Alkalinity as CaCO3 (mg/L)	3	142	144	143	144				142		

SETTLED											
pH (units)	6	8.7	8.9	8.8	8.8	8.7	8.8	8.8	8.8	8.8	
Grab Turbidity (ntu)	3	3.7	4.8	4.4	3.7				4.8		
On-Line Turbidity (ntu)	23	1.4	8.0	4.2	3.6	5.4	8.0	4.4	4.8	6.0	5.0
T. Hardness as CaCO3 (mg/L)	4	122	134	129	134		130		128		
T. Alkalinity as CaCO3 (mg/L)	4	106	118	110	118		110		106		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	23	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	23	0.0	22.7		0.0	1.1	2.6	3.9	4.9	6.0	7.1
Avg. Headloss (in/hr)				1.0							
pH (units)	6	8.1	8.3	8.2	8.3		8.2	8.2	8.1	8.2	
Grab Turbidity (ntu)	2	0.16	0.57	0.37					0.16		
On-Line Turbidity (ntu)	22	0.15	0.71	0.44		0.15	0.16	0.15	0.15	0.15	0.17
Particles <5 um (counts/mL)	1	808	808	808				808			
Particles 5-15 um (counts/mL)	1	228	228	228				228			

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	23	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	23	0.0	19.2		0.0	1.6	2.8	3.7	4.6	5.2	5.9
Avg. Headloss (in/hr)				0.8							
pH (units)	6	8.1	8.3	8.2	8.3		8.2	8.2	8.1	8.2	
Grab Turbidity (ntu)	2	0.16	0.42	0.29					0.16		
On-Line Turbidity (ntu)	22	0.15	0.63	0.37		0.17	0.16	0.15	0.15	0.15	0.15
Particles <5 um (counts/mL)	1	248	248	248				248			
Particles 5-15 um (counts/mL)	1	56	56	56				56			

	TOC (mg/L)	% Red. From Raw
RAW	4.5	
SETTLED	3.3	27
FILTER C	3.0	33
FILTER D	3.3	27

LAB ANALYSIS	Raw	Filter D
Geosmin (ng/L)	N.D.	N.D.
MIB (ng/L)	N.D.	N.D.

Note: Geosmin and MIB composite samples collected over run length; however, ratio of geosmin/MIB spiking flowrate to pilot plant flowrate was too low and no geosmin/MIB was detected in composite samples.

Run No. 2003
 Date 7/27/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	120	120	120	120	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	70	70	70	70	70	70	70	70	70	70	70	70	70
PAC (mg/L)	20	20	20	20	20	20	20	20	20	20	20	20	20

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	69.0	65.0	62.0	61.0	58.0	57.0	54.0	52.0	52.0	53.0	54.0	55.0	56.0
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

SETTLED													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	4.4	4.5	5.0	5.5	5.0	5.0	4.5	3.7	3.6	3.2	2.6	2.6	2.0
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8.0	8.8	9.8	11.0	11.7	12.8	13.9	14.6	15.8	16.9	17.6	18.6	19.8
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.23	0.37	0.48	0.63	0.67	0.68	0.71	0.71	0.68	0.67	0.61	0.56	0.51
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.9	7.5	8.6	9.4	10.0	11.0	12.1	12.9	13.6	14.6	15.3	16.5	17.1
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.16	0.18	0.24	0.33	0.47	0.55	0.60	0.63	0.61	0.60	0.58	0.54	0.49
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 2003
 Date 7/27/95
 Source Cheney

Elapsed Time (hr) 20 21 22

CHEMICAL FEED

Geosmin & MIB (ng/L)	100	100	100
Lime (mg/L)	120	120	120
Polymer (mg/L)	0.2	0.2	0.2
Ferric Sulfate (mg/L)	70	70	70
PAC (mg/L)	20	20	20

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0
Temp. (deg. C)			25.5
pH (units)			8.1
Grab Turbidity (ntu)			
On-Line Turbidity (ntu)	70.0	80.0	72.0
T. Hardness as CaCO3 (mg/L)			148
T. Alkalinity as CaCO3 (mg/L)			144

SETTLED

pH (units)			8.9
Grab Turbidity (ntu)			4.8
On-Line Turbidity (ntu)	1.6	1.4	3.8
T. Hardness as CaCO3 (mg/L)			122
T. Alkalinity as CaCO3 (mg/L)			106

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	20.5	21.6	22.7
Avg. Headloss (in/hr)			
pH (units)			8.2
Grab Turbidity (ntu)			0.57
On-Line Turbidity (ntu)	0.43	0.36	0.48
Particles <5 um (counts/mL)			
Particles 5-15 um (counts/mL)			

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	17.9	18.6	19.2
Avg. Headloss (in/hr)			
pH (units)			8.2
Grab Turbidity (ntu)			0.42
On-Line Turbidity (ntu)	0.40	0.36	0.41
Particles <5 um (counts/mL)			
Particles 5-15 um (counts/mL)			

Run No. 2004
 Date 7/28/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
CHEMICAL FEED											
Geosmin & MIB (ng/L)	24	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	24	120	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	24	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	24	60	60	60	60	60	60	60	60	60	60
PAC (mg/L)	24	30	30	30	30	30	30	30	30	30	30

RAW											
Pilot Plant Flowrate (gpm)	24	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	25.0	26.0	25.5	26.0						
pH (units)	3	8.1	8.2	8.1	8.2						
Grab Turbidity (ntu)	3	69.0	75.0	72.3	69.0						
On-Line Turbidity (ntu)	24	65.0	77.0	70.9	65.0	74.0	74.0	73.0	69.0	69.0	69.0
T. Hardness as CaCO3 (mg/L)	3	146	146	146	146						
T. Alkalinity as CaCO3 (mg/L)	3	140	144	142	144						

SETTLED											
pH (units)	6	8.8	9.0	8.9	9.0						
Grab Turbidity (ntu)	3	2.0	3.4	2.8	3.4						
On-Line Turbidity (ntu)	24	1.1	3.7	2.6	3.4	2.5	3.4	3.5	3.5	3.6	3.5
T. Hardness as CaCO3 (mg/L)	4	112	120	116	112						
T. Alkalinity as CaCO3 (mg/L)	4	92	102	97	92						

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	24	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	24	0.0	22.2		0.0	0.6	1.3	2.1	3.0	3.8	4.9
Avg. Headloss (in/hr)				0.9							
pH (units)	6	8.1	8.5	8.3	8.5						
Grab Turbidity (ntu)	2	0.17	0.54	0.36							
On-Line Turbidity (ntu)	23	0.14	0.57	0.22		0.18	0.15	0.14	0.14	0.14	0.14
Particles <5 um (counts/mL)	1	2612	2612	2612							
Particles 5-15 um (counts/mL)	1	616	616	616							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	24	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	24	0.0	19.0		0.0	0.5	1.1	1.5	2.1	2.8	3.4
Avg. Headloss (in/hr)				0.8							
pH (units)	6	8.1	8.5	8.3	8.5						
Grab Turbidity (ntu)	2	0.16	0.59	0.38							
On-Line Turbidity (ntu)	23	0.15	0.51	0.20		0.18	0.16	0.15	0.15	0.15	0.15
Particles <5 um (counts/mL)	1	432	432	432							
Particles 5-15 um (counts/mL)	1	69	69	69							

	TOC (mg/L)	% Red. From Raw
RAW	4.4	
SETTLED	2.8	36
FILTER C	2.7	38
FILTER D	2.9	35

LAB ANALYSIS	Raw	Filter D
Geosmin (ng/L)	N.D.	N.D.
MIB (ng/L)	N.D.	N.D.

Note: Geosmin and MIB composite samples collected over run length; however, ratio of geosmin/MIB spiking flowrate to pilot plant flowrate was too low and no geosmin/MIB was detected in composite samples.

Run No. 2004
 Date 7/28/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	120	120	120	120	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	60
PAC (mg/L)	30	30	30	30	30	30	30	30	30	30	30	30	30

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)											25.0		
pH (units)											8.1		
Grab Turbidity (ntu)											75.0		
On-Line Turbidity (ntu)	67.0	66.0	77.0	71.0	77.0	76.0	71.0	69.0	70.0	70.0	73.0	73.0	73.0
T. Hardness as CaCO3 (mg/L)											146		
T. Alkalinity as CaCO3 (mg/L)											140		

SETTLED														
pH (units)											8.8	8.9	8.9	9.0
Grab Turbidity (ntu)											2.0			
On-Line Turbidity (ntu)	2.5	3.2	2.5	1.8	1.5	1.1	1.3	1.5	1.5	1.7	1.6	3.7	3.3	
T. Hardness as CaCO3 (mg/L)											112	120		
T. Alkalinity as CaCO3 (mg/L)											92	102		

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	5.6	6.6	7.9	8.7	9.8	10.6	11.5	12.4	13.5	14.6	15.0	16.4	18.0
Avg. Headloss (in/hr)													
pH (units)										8.1	8.2	8.4	8.4
Grab Turbidity (ntu)										0.17			
On-Line Turbidity (ntu)	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.21	0.31
Particles <5 um (counts/mL)												2612	
Particles 5-15 um (counts/mL)												616	

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	4.1	4.9	5.6	6.3	7.0	7.6	8.8	9.8	10.7	12.3	13.0	14.2	15.0
Avg. Headloss (in/hr)													
pH (units)										8.1	8.2	8.4	8.4
Grab Turbidity (ntu)										0.16			
On-Line Turbidity (ntu)	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16	0.20
Particles <5 um (counts/mL)												432	
Particles 5-15 um (counts/mL)												69	

Run No. 2004
 Date 7/28/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23
 CHEMICAL FEED

Geosmin & MIB (ng/L)	100	100	100	100
Lime (mg/L)	120	120	120	120
Polymer (mg/L)	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	60	60	60	60
PAC (mg/L)	30	30	30	30

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0
Temp. (deg. C)				25.5
pH (units)				8.1
Grab Turbidity (ntu)				73.0
On-Line Turbidity (ntu)	70.0	69.0	68.0	69.0
T. Hardness as CaCO3 (mg/L)				146
T. Alkalinity as CaCO3 (mg/L)				142

SETTLED

pH (units)				9.0
Grab Turbidity (ntu)				3.0
On-Line Turbidity (ntu)	3.7	3.1	3.2	2.8
T. Hardness as CaCO3 (mg/L)				118
T. Alkalinity as CaCO3 (mg/L)				102

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0
Headloss (Inches)	18.9	19.8	20.9	22.2
Avg. Headloss (in/hr)				
pH (units)				8.4
Grab Turbidity (ntu)				0.54
On-Line Turbidity (ntu)	0.39	0.50	0.53	0.57
Particles <5 um (counts/mL)				
Particles 5-15 um (counts/mL)				

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0
Headloss (Inches)	16.1	17.0	17.8	19.0
Avg. Headloss (in/hr)				
pH (units)				8.4
Grab Turbidity (ntu)				0.59
On-Line Turbidity (ntu)	0.28	0.40	0.46	0.51
Particles <5 um (counts/mL)				
Particles 5-15 um (counts/mL)				

Run No. 2005
 Date 8/14/95
 Source Little Ark

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	25	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	25	85	160	140	140	140	160	160	160	160	160
Soda Ash (mg/L)	25	0	35	27	35	35	35	35	35	35	35
Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	25	35	55	54	35	55	55	55	55	55	55

RAW											
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	4	27.0	27.0	27.0	27.0				27.0		
pH (units)	4	7.7	8.0	7.9	8.0				8.0		
Grab Turbidity (ntu)	3	40.0	72.0	53.0	47.0				40.0		
On-Line Turbidity (ntu)	23	30.0	86.0	49.7	49.0	48.0	44.0	44.0	39.0	37.0	34.0
T. Hardness as CaCO3 (mg/L)	4	120	242	185	238				242		
T. Alkalinity as CaCO3 (mg/L)	4	100	192	148	190				192		

SETTLED											
pH (units)	7	9.0	9.9	9.1	9.0	9.0	9.0		9.0		
Grab Turbidity (ntu)	1	5.2	5.2	5.2	5.2						
On-Line Turbidity (ntu)	25	2.7	5.9	4.1	5.4	5.1	5.5	5.5	5.9	5.4	4.5
T. Hardness as CaCO3 (mg/L)	6	80	122	112	122		122		122		
T. Alkalinity as CaCO3 (mg/L)	6	64	96	82	96		90		92		

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	6.0	4.2	6.0	6.0	6.0	4.0	4.0	4.0	4.0
Headloss (inches)	22	0.0	10.9		0.0	0.8	1.9	2.2	2.5	2.9	3.2
Avg. Headloss (in/hr)				0.5							
pH (units)	7	7.9	8.9	8.6	8.9	8.7	8.7		8.6		
Grab Turbidity (ntu)	1	0.64	0.64	0.64							
On-Line Turbidity (ntu)	14	0.48	1.10	0.76	0.74	0.75	0.92	>1	1.10	>1	>1
Particles <5 um (counts/mL)	0	0	0	0							
Particles 5-15 um (counts/mL)	0	0	0	0							

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	6.0	4.2	6.0	6.0	6.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	15.0		0.0	1.1	2.1	2.3	2.6	3.0	3.3
Avg. Headloss (in/hr)				0.6							
pH (units)	7	7.9	8.9	8.6	8.9	8.7	8.7		8.6		
Grab Turbidity (ntu)	1	0.64	0.64	0.64							
On-Line Turbidity (ntu)	18	0.50	1.00	0.71	0.75	0.75	0.93	>1	1.00	>1	>1
Particles <5 um (counts/mL)	0	0	0	0							
Particles 5-15 um (counts/mL)	0	0	0	0							

	TOC (mg/L)	% Red. From Raw
RAW	3.5	
SETTLED	2.5	29
FILTER A	2.8	21
FILTER B	2.0	44

LAB ANALYSIS	Raw	Filter D
Geosmin (ng/L)	N.A.	N.A.
MIB (ng/L)	N.A.	N.A.

Note: Geosmin and MIB composite samples collected over run length; however, ratio of geosmin/MIB spiking flowrate to pilot plant flowrate was too low and no geosmin/MIB was detected in composite samples.

Run No. 2005
 Date 8/14/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100	100	100	100
Lime (mg/L)	160	160	160	160	160	160	160	160	160	160	160	160	85
Soda Ash (mg/L)	35	35	35	35	35	35	35	35	35	35	35	35	0
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	55	55	55	55	55	55	55	55	55	55	55	55	55

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)													27.0
pH (units)													7.9
Grab Turbidity (ntu)													72.0
On-Line Turbidity (ntu)	33.0	30.0	33.0	42.0	45.0	48.0	51.0	49.0	56.0	58.0	62.0	56.0	69.0
T. Hardness as CaCO3 (mg/L)													140
T. Alkalinity as CaCO3 (mg/L)													110

SETTLED													
pH (units)													9.9
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	3.5	3.5	3.7	3.7	3.8	3.8	3.7	3.7	3.7	3.8	3.8	3.8	4.5
T. Hardness as CaCO3 (mg/L)													80
T. Alkalinity as CaCO3 (mg/L)													64

FILTER A - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	3.5	4.0	4.5	4.9	5.5	5.9	6.3	6.8	7.2	7.6	8.0	8.6	9.1
Avg. Headloss (in/hr)													
pH (units)													8.4
Grab Turbidity (ntu)													0.64
On-Line Turbidity (ntu)	>1	>1	>1	>1	0.95	0.80	0.77	0.75	0.77	0.78	0.73		0.64
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER B - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	3.9	4.5	5.0	5.3	6.0	6.6	7.0	7.5	8.1	8.7	9.2	9.9	11.0
Avg. Headloss (in/hr)													
pH (units)													8.4
Grab Turbidity (ntu)													0.64
On-Line Turbidity (ntu)	>1	>1	>1	>1	0.89	0.77	0.75	0.77	0.79	0.74	0.71	0.59	0.70
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 2005
 Date 8/14/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24
 CHEMICAL FEED

Geosmin & MIB (ng/L)	100	100	100	100	100
Lime (mg/L)	85	85	85	85	85
Soda Ash (mg/L)	0	0	0	0	0
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	55	55	55	55	55

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)			27.0		
pH (units)			7.7		
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	68.0	62.0	86.0	>100	>100
T. Hardness as CaCO3 (mg/L)			120		
T. Alkalinity as CaCO3 (mg/L)			100		

SETTLED

pH (units)		9.0	9.1		
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	2.7	2.8	2.8	2.8	3.9
T. Hardness as CaCO3 (mg/L)		114	112		
T. Alkalinity as CaCO3 (mg/L)		76	74		

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)		10.0	10.9		
Avg. Headloss (in/hr)					
pH (units)		7.9	8.8		
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)		0.52	0.48		
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.4	11.9	13.3	14.2	15.0
Avg. Headloss (in/hr)					
pH (units)		7.9	8.8		
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	0.50	0.59	0.50	0.52	0.52
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 2006
 Date 10/23/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Geosmin & MIB (ng/L)	25	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	25	115	135	128	115	125	125	125	125	135	135
Ferric Sulfate (mg/L)	25	50	90	79	50	60	60	60	70	70	80

RAW											
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	4	14.0	14.5	14.4	14.5				14.5		
pH (units)	4	8.5	8.6	8.5	8.5				8.5		
Grab Turbidity (ntu)	6	76.0	134.0	108.5	98.0	125.0			132.0	134.0	
On-Line Turbidity (ntu)	19	68.0	96.0	78.6	88.0	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	4	144	146	145	144				144		
T. Alkalinity as CaCO3 (mg/L)	4	142	148	145	142				148		

SETTLED											
pH (units)	9	9.2	9.7	9.4	9.2	9.2			9.3	9.2	
Grab Turbidity (ntu)	4	5.1	6.8	5.8	5.1				6.8		
On-Line Turbidity (ntu)	25	4.2	6.8	5.2	5.3	5.8	5.4	5.2	6.8	6.3	6.0
T. Hardness as CaCO3 (mg/L)	5	104	134	116	134				120		
T. Alkalinity as CaCO3 (mg/L)	5	82	120	96	120				108		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	19.4		0.0	1.7	3.0	4.4	5.9	7.1	8.1
Avg. Headloss (in/hr)				0.8							
pH (units)	9	7.8	8.8	8.2	7.8	8.8			7.9	8.1	
Grab Turbidity (ntu)	3	0.20	0.24	0.21					0.24		
On-Line Turbidity (ntu)	24	0.12	0.95	0.43	0.25	0.17	0.15	0.15	0.17	0.28	0.41
Particles <5 um (counts/mL)	0	0	0	0							
Particles 5-15 um (counts/mL)	0	0	0	0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	18.9		0.0	1.6	2.8	3.7	5.2	6.2	7.3
Avg. Headloss (in/hr)				0.8							
pH (units)	9	7.8	8.8	8.2	7.8	8.8			7.9	8.1	
Grab Turbidity (ntu)	3	0.18	0.20	0.19					0.19		
On-Line Turbidity (ntu)	22	0.14	0.89	0.38	0.31	0.16	0.15	0.15	0.15	0.20	0.26
Particles <5 um (counts/mL)	0	0	0	0							
Particles 5-15 um (counts/mL)	0	0	0	0							

	TOC (mg/L)	% Red. From Raw
RAW	4.7	
SETTLED	3.5	24
FILTER C	3.2	31
FILTER D	3.7	22

LAB ANALYSIS	Raw	Filter C	% Red. from Raw
Geosmin (ng/L)	61	12	80
MIB (ng/L)	83	27	67

Note: Geosmin and MIB composite samples collected over run length

Run No. 2006
 Date 10/23/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	125	125	125	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	135	135	135	135	135	135	125	125	125	125	125	125	125
Ferric Sulfate (mg/L)	80	80	80	80	80	80	80	80	80	90	90	90	90

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)													14.0
pH (units)													8.6
Grab Turbidity (ntu)													86.0
On-Line Turbidity (ntu)	96.0	91.0	88.0	87.0	86.0	77.0	76.0	74.0	79.0	78.0	76.0	76.0	74.0
T. Hardness as CaCO3 (mg/L)													146
T. Alkalinity as CaCO3 (mg/L)													144

SETTLED														
pH (units)													9.7	9.5
Grab Turbidity (ntu)													5.1	
On-Line Turbidity (ntu)	5.2	5.3	4.9	5.0	4.2	5.3	5.2	4.5	4.3	4.5	4.7		5.1	4.5
T. Hardness as CaCO3 (mg/L)													104	
T. Alkalinity as CaCO3 (mg/L)													82	

FILTER C - GAC/Sand Media														
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Headloss (Inches)	9.0	10.2	11.3	12.4	13.9	14.9	16.0	17.2	18.1	19.4	0.0	2.1	3.4	
Avg. Headloss (in/hr)														
pH (units)													8.3	8.3
Grab Turbidity (ntu)													0.20	
On-Line Turbidity (ntu)	0.47	0.53	0.57	0.58	0.69	0.75	0.95	0.91	0.95	>1	0.90	0.15	0.13	
Particles <5 um (counts/mL)														
Particles 5-15 um (counts/mL)														

FILTER D - Anth/Sand Media														
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Headloss (inches)	8.3	9.5	10.4	11.8	12.9	14.0	15.5	16.6	17.9	18.9	0.0	3.0	4.5	
Avg. Headloss (in/hr)														
pH (units)													8.3	8.3
Grab Turbidity (ntu)													0.20	
On-Line Turbidity (ntu)	0.32	0.38	0.45	0.50	0.57	0.62	0.81	0.82	0.85	0.89	>1	0.16	0.14	
Particles <5 um (counts/mL)														
Particles 5-15 um (counts/mL)														

Run No. 2006
 Date 10/23/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Geosmin & MIB (ng/L)	125	125	125	125	125
Lime (mg/L)	125	125	125	125	125
Ferric Sulfate (mg/L)	90	90	90	90	90

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)			14.5		
pH (units)			8.5		
Grab Turbidity (ntu)			76.0		
On-Line Turbidity (ntu)	72.0	70.0	69.0	69.0	68.0
T. Hardness as CaCO3 (mg/L)			144		
T. Alkalinity as CaCO3 (mg/L)			144		

SETTLED

pH (units)			9.5	9.4	9.4
Grab Turbidity (ntu)			6.2		
On-Line Turbidity (ntu)	4.2	6.0	6.3	5.6	5.2
T. Hardness as CaCO3 (mg/L)			112		110
T. Alkalinity as CaCO3 (mg/L)			88		82

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	4.5	5.8	7.5	8.5	9.8
Avg. Headloss (in/hr)					
pH (units)			8.2	8.2	8.2
Grab Turbidity (ntu)			0.20		
On-Line Turbidity (ntu)	0.12	0.13	0.19	0.28	0.33
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	5.5	6.6	7.7	8.6	9.4
Avg. Headloss (in/hr)					
pH (units)			8.2	8.2	8.2
Grab Turbidity (ntu)			0.18		
On-Line Turbidity (ntu)			0.15	0.19	0.22
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 2007
 Date 10/24/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	25	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	25	105	125	120	125	125	125	125	125	125	125
Ferric Sulfate (mg/L)	25	60	80	62	80	80	80	60	60	60	60

RAW											
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	14.0	14.5	14.2	14.5						
pH (units)	3	8.5	8.5	8.5	8.5						
Grab Turbidity (ntu)	3	74.0	76.0	75.0	76.0						
On-Line Turbidity (ntu)	25	66.0	71.0	68.3	68.0	69.0	70.0	70.0	71.0	71.0	70.0
T. Hardness as CaCO3 (mg/L)	3	142	148	144	148						
T. Alkalinity as CaCO3 (mg/L)	3	144	144	144	144						

SETTLED											
pH (units)	9	9.4	9.6	9.5	9.4		9.4	9.4			
Grab Turbidity (ntu)	3	2.7	5.2	3.9	5.2						
On-Line Turbidity (ntu)	25	2.9	5.4	4.1	5.4	5.0	4.2	4.9	3.8	5.3	5.3
T. Hardness as CaCO3 (mg/L)	6	90	114	106	112		112				
T. Alkalinity as CaCO3 (mg/L)	6	78	98	87	86		84				

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	21.1		0.0	2.0	3.4	4.7	6.0	7.4	8.8
Avg. Headloss (in/hr)				0.8							
pH (units)	9	8.2	8.7	8.4	8.2		8.3	8.2			
Grab Turbidity (ntu)	1	0.16	0.16	0.16							
On-Line Turbidity (ntu)	24	0.13	0.65	0.35	0.60	0.14	0.13	0.13	0.13	0.16	0.24
Particles <5 um (counts/mL)	5	246	284	258			246	250			
Particles 5-15 um (counts/mL)	5	42	69	54			58	49			

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	20.8		0.0	2.1	3.4	4.5	5.7	7.0	8.1
Avg. Headloss (in/hr)				0.8							
pH (units)	9	8.2	8.7	8.4	8.2		8.3	8.2			
Grab Turbidity (ntu)	1	0.19	0.19	0.19							
On-Line Turbidity (ntu)	25	0.13	0.81	0.32	0.81	0.14	0.14	0.13	0.13	0.15	0.19
Particles <5 um (counts/mL)	5	209	372	257			211	209			
Particles 5-15 um (counts/mL)	5	35	85	48			44	36			

	TOC (mg/L)	% Red. From Raw
RAW	4.9	
SETTLED	3.8	22
FILTER C	3.4	29
FILTER D	3.8	23

LAB ANALYSIS	Raw	Filter C	% Red. from Raw
Geosmin (ng/L)	93	17	82
MIB (ng/L)	98	33	66

Note: Geosmin and MIB composite samples collected over run length

Run No. 2007
 Date 10/24/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	125	125	125	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	125	125	125	125	125	125	125	125	125	125	125	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	60

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)												14.0	
pH (units)												8.5	
Grab Turbidity (ntu)												75.0	
On-Line Turbidity (ntu)	70.0	68.0	68.0	67.0	67.0	67.0	67.0	68.0	68.0	68.0	67.0	66.0	68.0
T. Hardness as CaCO3 (mg/L)												142	
T. Alkalinity as CaCO3 (mg/L)												144	

SETTLED													
pH (units)												9.6	9.6
Grab Turbidity (ntu)												2.7	
On-Line Turbidity (ntu)	5.1	5.1	4.8	4.4	4.1	3.5	3.3	3.1	2.9	2.9	3.0	3.0	3.8
T. Hardness as CaCO3 (mg/L)												90	
T. Alkalinity as CaCO3 (mg/L)												78	

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	10.3	11.7	12.9	14.2	15.3	16.5	17.4	18.6	19.9	21.1	0.0	2.6	3.4
Avg. Headloss (in/hr)												8.4	8.4
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.37	0.47	0.59	0.64	0.64	0.65	0.64	0.61	0.60	0.59	0.33	0.15	0.14
Particles <5 um (counts/mL)													284
Particles 5-15 um (counts/mL)													69

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9.3	10.6	11.8	12.8	14.0	15.4	16.7	18.1	19.4	20.8	0.0	2.6	3.6
Avg. Headloss (in/hr)												8.4	8.4
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.27	0.37	0.48	0.56	0.57	0.57	0.57	0.55	0.55	0.54	0.29	0.15	0.14
Particles <5 um (counts/mL)													254
Particles 5-15 um (counts/mL)													39

Run No. 2007
 Date 10/24/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Geosmin & MIB (ng/L)	125	125	125	125	125
Lime (mg/L)	105	105	105	105	105
Ferric Sulfate (mg/L)	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)			14.0		
pH (units)			8.5		
Grab Turbidity (ntu)			74.0		
On-Line Turbidity (ntu)	69.0	70.0	68.0	67.0	66.0
T. Hardness as CaCO3 (mg/L)			142		
T. Alkalinity as CaCO3 (mg/L)			144		

SETTLED

pH (units)	9.6	9.6	9.5		9.4
Grab Turbidity (ntu)			3.7		
On-Line Turbidity (ntu)	3.8	3.6	3.9	4.8	4.4
T. Hardness as CaCO3 (mg/L)	104		106		114
T. Alkalinity as CaCO3 (mg/L)	86		92		98

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	4.5	5.8	7.0	8.2	9.6
Avg. Headloss (in/hr)					
pH (units)	8.4	8.4	8.5		8.7
Grab Turbidity (ntu)			0.16		
On-Line Turbidity (ntu)	0.14	0.13	0.13		0.15
Particles <5 um (counts/mL)	246		262		
Particles 5-15 um (counts/mL)	42		51		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	4.6	5.5	6.6	7.9	8.9
Avg. Headloss (in/hr)					
pH (units)	8.4	8.4	8.5		8.7
Grab Turbidity (ntu)			0.19		
On-Line Turbidity (ntu)	0.14	0.14	0.14	0.14	0.14
Particles <5 um (counts/mL)	372		239		
Particles 5-15 um (counts/mL)	85		35		

Run No. 2008
 Date 10/26/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Geosmin & MIB (ng/L)	23	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	23	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	23	45	60	57	60	60	60	60	60	60	60
PAC (mg/L)	23	10	10	10	10	10	10	10	10	10	10

RAW											
Pilot Plant Flowrate (gpm)	23	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	14.0	14.0	14.0	14.0				14.0		
pH (units)	3	8.5	8.5	8.5	8.5				8.5		
Grab Turbidity (ntu)	3	55.0	63.0	58.3	63.0				57.0		
On-Line Turbidity (ntu)	23	50.0	59.0	53.6	59.0	58.0	57.0	55.0	54.0	55.0	55.0
T. Hardness as CaCO3 (mg/L)	3	144	144	144	144				144		
T. Alkalinity as CaCO3 (mg/L)	3	144	146	145	146				144		

SETTLED											
pH (units)	9	9.5	9.7	9.6	9.7	9.6	9.5	9.6	9.6	9.6	
Grab Turbidity (ntu)	3	2.0	4.2	3.2	4.2				3.4		
On-Line Turbidity (ntu)	23	1.0	4.9	2.5	4.9	3.8	3.8	3.5	3.4	3.2	3.1
T. Hardness as CaCO3 (mg/L)	5	104	112	108	108		112		104		
T. Alkalinity as CaCO3 (mg/L)	5	86	92	89	88		92		86		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	23	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	0.0	23.8		0.0	2.2	3.3	4.2	5.4	6.5	
Avg. Headloss (in/hr)				2.6							
pH (units)	9	7.9	8.6	8.3	7.9	8.4	8.3	8.3	8.3	8.4	
Grab Turbidity (ntu)	2	0.14	0.31	0.23					0.14		
On-Line Turbidity (ntu)	9	0.12	0.58	0.23	0.22	0.13	0.12	0.12	0.12	0.13	
Particles <5 um (counts/mL)	7	209	1870	700		209	226	277	241		
Particles 5-15 um (counts/mL)	7	26	600	191		26	28	66	34		

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	23	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9	0.0	19.9		0.0	2.2	3.3	4.1	4.7	5.5	
Avg. Headloss (in/hr)				2.2							
pH (units)	9	7.9	8.6	8.3	7.9	8.4	8.3	8.3	8.3	8.4	
Grab Turbidity (ntu)	2	0.15	0.28	0.22					0.15		
On-Line Turbidity (ntu)	9	0.11	0.53	0.21	0.21	0.12	0.11	0.11	0.12	0.12	
Particles <5 um (counts/mL)	7	201	1754	626		227	201	251	217		
Particles 5-15 um (counts/mL)	7	22	571	169		49	22	50	26		

	TOC (mg/L)	% Red. From Raw
RAW	4.8	
SETTLED	3.5	27
FILTER C	3.1	37
FILTER D	3.4	30

LAB ANALYSIS	Raw	Filter D	% Red. from Raw
Geosmin (ng/L)	94	43	54
MIB (ng/L)	75	53	29

Note: Geosmin and MIB composite samples collected over run length

Run No. 2008
 Date 10/26/95
 Source Cheney

Elapsed Time (hr) 7 8 9 10 11 12 13 14 15 16 17 18 19

CHEMICAL FEED

Geosmin & MIB (ng/L)	125	125	125	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	115	115	115	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	45
PAC (mg/L)	10	10	10	10	10	10	10	10	10	10	10	10	10

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	55.0	55.0	54.0	54.0	53.0	53.0	53.0	50.0	50.0	50.0	51.0	51.0	52.0
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

SETTLED

pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	2.7	2.5	2.4	2.3	1.9	1.7	1.4	1.4	1.2	1.1	1.0	1.0	1.1
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)													
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)													
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)													
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)													
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 2008
 Date 10/26/95
 Source Cheney

Elapsed Time (hr) 20 21 22

CHEMICAL FEED

Geosmin & MIB (ng/L)	125	125	125
Lime (mg/L)	115	115	115
Ferric Sulfate (mg/L)	45	45	45
PAC (mg/L)	10	10	10

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0
Temp. (deg. C)	14.0		
pH (units)	8.5		
Grab Turbidity (ntu)	55.0		
On-Line Turbidity (ntu)	52.0	53.0	54.0
T. Hardness as CaCO3 (mg/L)	144		
T. Alkalinity as CaCO3 (mg/L)	144		

SETTLED

pH (units)	9.6	9.6	9.6
Grab Turbidity (ntu)	2.0		
On-Line Turbidity (ntu)	1.2	4.2	4.4
T. Hardness as CaCO3 (mg/L)	110		108
T. Alkalinity as CaCO3 (mg/L)	92		88

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	20.9	22.2	23.8
Avg. Headloss (in/hr)			
pH (units)	8.5	8.6	8.4
Grab Turbidity (ntu)	0.31		
On-Line Turbidity (ntu)	0.28	0.40	0.58
Particles <5 um (counts/mL)	787	1292	1870
Particles 5-15 um (counts/mL)	198	386	600

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0
Headloss (inches)	17.2	18.6	19.9
Avg. Headloss (in/hr)			
pH (units)	8.5	8.6	8.4
Grab Turbidity (ntu)	0.28		
On-Line Turbidity (ntu)	0.24	0.35	0.53
Particles <5 um (counts/mL)	634	1098	1754
Particles 5-15 um (counts/mL)	155	309	571

Run No. 2009
 Date 10/27/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6	
					CHEMICAL FEED							
Geosmin & MIB (ng/L)	25	125	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	25	115	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	25	45	60	57	60	60	60	60	60	60	60	60
PAC (mg/L)	25	20	20	20	20	20	20	20	20	20	20	20

RAW												
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	13.5	14.0	13.8	14.0				14.0			
pH (units)	3	8.5	8.5	8.5	8.5				8.5			
Grab Turbidity (ntu)	3	58.0	71.0	66.0	58.0				69.0			
On-Line Turbidity (ntu)	25	52.0	92.0	67.2	54.0	54.0	55.0	52.0	61.0	82.0	87.0	
T. Hardness as CaCO3 (mg/L)	3	142	144	143	142				142			
T. Alkalinity as CaCO3 (mg/L)	3	142	146	144	142				144			

SETTLED												
pH (units)	8	9.4	9.6	9.5	9.5	9.5			9.4	9.4		
Grab Turbidity (ntu)	2	2.7	3.8	3.3	3.8				2.7			
On-Line Turbidity (ntu)	25	0.9	4.7	2.6	3.7	4.7	3.9	3.1	2.8	3.5	4.0	
T. Hardness as CaCO3 (mg/L)	5	102	112	107	112				104			
T. Alkalinity as CaCO3 (mg/L)	5	84	94	89	94				88			

FILTER C - GAC/Sand Media												
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	24	0.0	27.8		0.0	2.7	3.1		5.5	6.1	7.9	
Avg. Headloss (in/hr)				1.2								
pH (units)	9	8.1	8.5	8.3	8.2	8.3	8.1		8.1	8.1		
Grab Turbidity (ntu)	2	0.19	0.31	0.25					0.19			
On-Line Turbidity (ntu)	25	0.14	0.53	0.23	0.53	0.17	0.17	0.16	0.14	0.14	0.15	
Particles <5 um (counts/mL)	4	281	1235	675		301			281			
Particles 5-15 um (counts/mL)	4	30	467	186		46			30			

FILTER D - Anth/Sand Media												
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	24.6		0.0	2.7	3.1	3.9	4.9	5.6	6.1	
Avg. Headloss (in/hr)				1.0								
pH (units)	9	8.1	8.5	8.3	8.2	8.3	8.1		8.1	8.1		
Grab Turbidity (ntu)	2	0.15	0.36	0.26					0.15			
On-Line Turbidity (ntu)	25	0.14	0.51	0.22	0.51	0.17	0.17	0.15	0.15	0.15	0.15	
Particles <5 um (counts/mL)	4	302	1118	647		368			302			
Particles 5-15 um (counts/mL)	4	44	351	167		71			44			

	TOC (mg/L)	% Red. From Raw
RAW	4.8	
SETTLED	3.2	33
FILTER C	3.1	35
FILTER D	3.4	30

LAB ANALYSIS	Raw	Filter D	% Red. from Raw
Geosmin (ng/L)	73	37	49
MIB (ng/L)	67	51	24

Note: Geosmin and MIB composite samples collected over run length

Run No. 2009
 Date 10/27/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	125	125	125	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	115	115	115	115	115	115	115	115	115	115	115	115	115
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60	60	60	60
PAC (mg/L)	20	20	20	20	20	20	20	20	20	20	20	20	20

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	91.0	92.0	84.0	66.0	58.0	59.0	65.0	67.0	66.0	65.0	66.0	65.0	64.0
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

SETTLED													
pH (units)	9.4												
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	3.8	4.0	3.9	4.3	3.9	2.1	2.2	1.5	0.9	0.9	1.1	1.2	1.2
T. Hardness as CaCO3 (mg/L)	108												
T. Alkalinity as CaCO3 (mg/L)	90												

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9.2	10.3	11.3	12.0	13.1	14.2	15.1	16.0	17.0	18.2	19.3	20.1	21.1
Avg. Headloss (in/hr)													
pH (units)	8.2												
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.16	0.17	0.18	0.20	0.23	0.25
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.7	7.6	8.6	9.3	10.2	11.2	12.3	13.1	14.2	15.4	16.4	17.5	18.9
Avg. Headloss (in/hr)													
pH (units)	8.2												
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.15	0.14	0.14	0.15	0.14	0.15	0.16	0.16	0.16	0.16	0.17	0.19	0.22
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

CHLORINE (mg/L)

112	112	112	112	112	112
112	112	112	112	112	112
112	112	112	112	112	112

PH (unit)

7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0

PH (unit)

7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0

PH (unit)

7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0

PH (unit)

7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0
7.0	7.0	7.0	7.0	7.0	7.0

Run No. 2010
 Date 10/30/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
CHEMICAL FEED											
Geosmin & MIB (ng/L)	25	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	25	120	120	120	120	120	120	120	120	120	120
Ferric Sulfate (mg/L)	25	45	55	53	55	55	55	55	55	55	55
PAC (mg/L)	25	30	30	30	30	30	30	30	30	30	30

RAW											
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	4	13.0	13.5	13.1	13.0				13.0		
pH (units)	4	8.4	8.5	8.5	8.5				8.5		
Grab Turbidity (ntu)	4	56.0	65.0	59.8	60.0				58.0		
On-Line Turbidity (ntu)	25	53.0	62.0	56.6	56.0	56.0	57.0	56.0	55.0	56.0	55.0
T. Hardness as CaCO3 (mg/L)	4	144	146	145	144				144		
T. Alkalinity as CaCO3 (mg/L)	4	144	146	145	146				144		

SETTLED											
pH (units)	10	9.3	9.6	9.4	9.5	9.5	9.6		9.3	9.4	9.3
Grab Turbidity (ntu)	4	1.2	3.8	2.9	3.8				3.0		
On-Line Turbidity (ntu)	25	2.0	9.4	3.6	3.7	4.4	9.4	5.0	3.0	3.5	4.1
T. Hardness as CaCO3 (mg/L)	6	108	118	114	114		108		118		114
T. Alkalinity as CaCO3 (mg/L)	6	88	96	92	94		88		96		90

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (Inches)	25	0.0	29.6		0.0	6.0	7.5	8.1	8.7	9.9	10.8
Avg. Headloss (in/hr)				1.2							
pH (units)	10	8.2	8.3	8.2	8.2	8.2	8.2		8.2	8.2	8.3
Grab Turbidity (ntu)	3	0.18	0.53	0.30					0.18		
On-Line Turbidity (ntu)	25	0.12	0.52	0.25	0.48	0.14	0.14	0.14	0.15	0.12	0.13
Particles <5 um (counts/mL)	5	258	1363	546		276			258		
Particles 5-15 um (counts/mL)	5	41	501	153		41			44		

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	28.9		0.0	5.6	7.0	7.6	8.3	9.1	10.2
Avg. Headloss (in/hr)				1.2							
pH (units)	10	8.2	8.3	8.2	8.2	8.2	8.2		8.2	8.2	8.3
Grab Turbidity (ntu)	3	0.17	0.48	0.28					0.17		
On-Line Turbidity (ntu)	25	0.13	0.53	0.25	0.49	0.15	0.14	0.14	0.15	0.13	0.15
Particles <5 um (counts/mL)	5	232	1162	548		232			294		
Particles 5-15 um (counts/mL)	5	31	415	144		31			59		

	TOC (mg/L)	% Red. From Raw
RAW	4.9	
SETTLED	3.0	39
FILTER C	2.8	42
FILTER D	3.1	37

LAB ANALYSIS	Raw	Filter D	% Red. from Raw
Geosmin (ng/L)	140	36	74
MIB (ng/L)	130	47	64

Note: Geosmin and MIB composite samples collected over run length

Run No. 2010
 Date 10/30/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Geosmin & MIB (ng/L)	125	125	125	125	125	125	125	125	125	125	125	125	125
Lime (mg/L)	120	120	120	120	120	120	120	120	120	120	120	120	120
Ferric Sulfate (mg/L)	55	55	55	55	55	55	55	55	55	55	55	55	55
PAC (mg/L)	30	30	30	30	30	30	30	30	30	30	30	30	30

RAW													
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)			13.0										
pH (units)			8.5										
Grab Turbidity (ntu)			56.0										
On-Line Turbidity (ntu)	55.0	55.0	53.0	54.0	54.0	55.0	57.0	58.0	59.0	59.0	59.0	55.0	54.0
T. Hardness as CaCO3 (mg/L)			144										
T. Alkalinity as CaCO3 (mg/L)			144										

SETTLED													
pH (units)	9.3		9.4										
Grab Turbidity (ntu)			3.7										
On-Line Turbidity (ntu)	3.8	3.3	3.8	3.7	3.0	3.0	3.2	3.0	2.2	2.2	2.0	2.1	3.2
T. Hardness as CaCO3 (mg/L)			116										
T. Alkalinity as CaCO3 (mg/L)			90										

FILTER C - GAC/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	12.1	13.2	14.5	15.5	16.3	17.0	18.1	19.0	20.1	21.0	21.8	22.7	23.5
Avg. Headloss (in/hr)													
pH (units)	8.3		8.3										
Grab Turbidity (ntu)			0.19										
On-Line Turbidity (ntu)	0.14	0.15	0.16	0.16	0.18	0.18	0.20	0.21	0.21	0.24	0.25	0.28	0.30
Particles <5 um (counts/mL)	404		431										
Particles 5-15 um (counts/mL)	92		88										

FILTER D - Anth/Sand Media													
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	11.5	12.6	13.8	14.8	15.8	16.7	17.5	18.6	19.6	20.7	21.9	22.7	23.8
Avg. Headloss (in/hr)													
pH (units)	8.3		8.3										
Grab Turbidity (ntu)			0.20										
On-Line Turbidity (ntu)	0.15	0.16	0.17	0.17	0.17	0.18	0.21	0.21	0.22	0.24	0.26	0.27	0.31
Particles <5 um (counts/mL)	515		536										
Particles 5-15 um (counts/mL)	113		101										

Run No. 2010
 Date 10/30/95
 Source Cheney

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Geosmin & MIB (ng/L)	125	125	125	125	125
Lime (mg/L)	120	120	120	120	120
Ferric Sulfate (mg/L)	55	45	45	45	45
PAC (mg/L)	30	30	30	30	30

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)				13.5	
pH (units)				8.4	
Grab Turbidity (ntu)				65.0	
On-Line Turbidity (ntu)	56.0	59.0	59.0	61.0	62.0
T. Hardness as CaCO3 (mg/L)				146	
T. Alkalinity as CaCO3 (mg/L)				144	

SETTLED

pH (units)				9.5	9.5
Grab Turbidity (ntu)				1.2	
On-Line Turbidity (ntu)	2.7	2.7	2.8	3.2	6.1
T. Hardness as CaCO3 (mg/L)				112	
T. Alkalinity as CaCO3 (mg/L)				92	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	24.4	25.4	26.6	28.0	29.6
Avg. Headloss (in/hr)					
pH (units)				8.2	8.3
Grab Turbidity (ntu)				0.53	
On-Line Turbidity (ntu)	0.34	0.39	0.46	0.51	0.52
Particles <5 um (counts/mL)				1363	
Particles 5-15 um (counts/mL)				501	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	24.8	25.7	26.8	27.8	28.9
Avg. Headloss (in/hr)					
pH (units)				8.2	8.3
Grab Turbidity (ntu)				0.48	
On-Line Turbidity (ntu)	0.36	0.40	0.45	0.50	0.53
Particles <5 um (counts/mL)				1162	
Particles 5-15 um (counts/mL)				415	

Run No. 2011
 Date 11/29/95
 Source Little Ark

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
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CHEMICAL FEED											
Lime (mg/L)	25	230	230	230	230	230	230	230	230	230	230
Soda Ash (mg/L)	25	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	25	15	20	19	15	15	15	20	20	20	20
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	11.5	12.0	11.7	12.0						
pH (units)	3	8.3	8.4	8.4	8.4						
Grab Turbidity (ntu)	3	6.2	7.1	6.7	7.1						
On-Line Turbidity (ntu)	25	6.2	7.5	6.9	7.0	7.2	6.9	7.1	7.3	7.3	7.5
T. Hardness as CaCO3 (mg/L)	3	312	316	315	316						
T. Alkalinity as CaCO3 (mg/L)	3	258	260	259	260						

SETTLED											
pH (units)	12	9.4	9.6	9.5	9.5	9.5	9.6				
Grab Turbidity (ntu)	3	4.3	5.2	4.6	5.2						
On-Line Turbidity (ntu)	25	4.1	5.4	4.6	5.2	5.3	5.4	5.1	4.9	4.9	4.8
T. Hardness as CaCO3 (mg/L)	7	110	120	113	110		112				
T. Alkalinity as CaCO3 (mg/L)	7	80	94	87	82		80				

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	30.1		0.0	1.4	2.6	3.6	4.5	5.7	7.0
Avg. Headloss (in/hr)				1.2							
pH (units)	13	8.1	8.4	8.3	8.2	8.3	8.1				
Grab Turbidity (ntu)	2	0.22	0.23	0.23							
On-Line Turbidity (ntu)	25	0.15	0.23	0.18	0.18	0.17	0.16	0.16	0.17	0.16	0.15
Particles <5 um (counts/mL)	3	95	298	198			95				
Particles 5-15 um (counts/mL)	3	20	90	57			20				

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	32.0		0.0	1.1	2.4	3.7	5.0	6.5	8.0
Avg. Headloss (in/hr)				1.3							
pH (units)	13	8.1	8.4	8.3	8.2	8.3	8.1				
Grab Turbidity (ntu)	2	0.23	0.25	0.24							
On-Line Turbidity (ntu)	25	0.18	0.30	0.22	0.20	0.18	0.18	0.18	0.20	0.20	0.20
Particles <5 um (counts/mL)	3	65	354	222			65				
Particles 5-15 um (counts/mL)	3	15	80	51			15				

	CDM TOC (mg/L)	CDM DOC (mg/L)	% TOC Red. From Raw
RAW	3.9	3.3	
SETTLED	3.7	2.7	5
FILTER A	3.4	2.6	13
FILTER B	2.4	2.1	38

LAB ANALYSIS	Raw	Filter B	% Red. From Raw
Geosmin (ng/L)	104	5.5	95
MIB (ng/L)	114	12	89

Note: Geosmin and MIB composite samples collected over run length

Run No. 2011
 Date 11/29/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	230	230	230	230	230	230	230	230	230	230	230	230	230
Soda Ash (mg/L)	30	30	30	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	20	20	20	20	20	20	20	20	20	20	20	20	20
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)									11.5				11.5
pH (units)									8.3				8.4
Grab Turbidity (ntu)									6.8				6.2
On-Line Turbidity (ntu)	7.2	7.1	6.9	6.9	7.0	7.1	6.9	6.9	6.9	6.9	6.8	6.7	6.2
T. Hardness as CaCO3 (mg/L)									312				316
T. Alkalinity as CaCO3 (mg/L)									260				258

SETTLED													
pH (units)									9.5		9.4	9.4	9.5
Grab Turbidity (ntu)									4.3				4.3
On-Line Turbidity (ntu)	4.7	4.6	4.6	4.6	4.3	4.3	4.3	4.2	4.2	4.1	4.1	4.2	4.2
T. Hardness as CaCO3 (mg/L)									114		120		116
T. Alkalinity as CaCO3 (mg/L)									86		94		90

FILTER A - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	8.1	9.3	10.6	11.7	13.0	14.4	15.6	16.9	18.2	19.5	21.0	22.4	23.8
Avg. Headloss (in/hr)									8.1	8.2	8.3	8.3	8.4
pH (units)									0.22				0.23
Grab Turbidity (ntu)									0.20	0.20	0.20	0.21	0.20
On-Line Turbidity (ntu)	0.16	0.15	0.15	0.15	0.15	0.15	0.17	0.18	0.20	0.20	0.20	0.21	0.20
Particles <5 um (counts/mL)									201				298
Particles 5-15 um (counts/mL)									61				90

FILTER B - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	9.4	10.8	12.3	13.5	14.8	16.1	17.3	18.6	20.0	21.3	22.6	24.0	25.3
Avg. Headloss (in/hr)									8.1	8.2	8.3	8.3	8.4
pH (units)									0.23				0.25
Grab Turbidity (ntu)									0.21	0.23	0.23	0.25	0.26
On-Line Turbidity (ntu)	0.21	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.23	0.23	0.25	0.26
Particles <5 um (counts/mL)									246				354
Particles 5-15 um (counts/mL)									58				80

Run No. 2011
 Date 11/29/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	230	230	230	230	230
Soda Ash (mg/L)	30	30	30	30	30
Ferric Sulfate (mg/L)	20	20	20	20	20
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)					
pH (units)					
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	6.3	6.5	6.6	6.6	6.7
T. Hardness as CaCO ₃ (mg/L)					
T. Alkalinity as CaCO ₃ (mg/L)					

SETTLED

pH (units)	9.4	9.4	9.4	9.4	9.4
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	4.1	4.2	4.5	4.6	4.6
T. Hardness as CaCO ₃ (mg/L)		110		112	
T. Alkalinity as CaCO ₃ (mg/L)		88		92	

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	24.9	26.2	27.5	28.8	30.1
Avg. Headloss (in/hr)					
pH (units)	8.3	8.3	8.3	8.3	8.4
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	0.20	0.20	0.22	0.22	0.23
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	26.6	27.9	29.3	30.7	32.0
Avg. Headloss (in/hr)					
pH (units)	8.3	8.3	8.3	8.3	8.4
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	0.26	0.27	0.27	0.28	0.30
Particles <5 um (counts/mL)					
Particles 5-15 um (counts/mL)					

Run No. 2012
 Date 12/1/95
 Source Little Ark

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	25	225	225	225	225	225	225	225	225	225	225
Soda Ash (mg/L)	25	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	25	15	15	15	15	15	15	15	15	15	15
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	11.0	11.0	11.0	11.0						
pH (units)	3	8.3	8.4	8.3	8.4						
Grab Turbidity (ntu)	3	6.8	8.3	7.6	6.8						
On-Line Turbidity (ntu)	25	6.8	8.3	7.6	6.8	7.0	7.2	7.2	7.2	7.3	7.3
T. Hardness as CaCO3 (mg/L)	3	312	316	314	316						
T. Alkalinity as CaCO3 (mg/L)	3	258	262	260	260						

SETTLED											
pH (units)	8	9.4	9.5	9.4	9.5	9.4	9.4				
Grab Turbidity (ntu)	3	4.4	4.6	4.5	4.6						
On-Line Turbidity (ntu)	25	4.1	5.0	4.5	4.7	4.6	4.6	4.5	4.5	4.4	4.2
T. Hardness as CaCO3 (mg/L)	5	110	118	114	114		114				
T. Alkalinity as CaCO3 (mg/L)	5	90	94	91	92		90				

FILTER A - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	29.5		0.0	1.8	3.0	4.1	5.3	6.5	7.8
Avg. Headloss (in/hr)				1.2							
pH (units)	8	8.2	8.3	8.3	8.2	8.3	8.3				
Grab Turbidity (ntu)	2	0.16	0.17	0.17							
On-Line Turbidity (ntu)	25	0.12	0.46	0.15	0.46	0.19	0.15	0.14	0.12	0.12	0.12
Particles <5 um (counts/mL)	2	186	588	387		186					
Particles 5-15 um (counts/mL)	2	40	101	71		40					

FILTER B - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	32.6		0.0	2.3	3.5	4.6	5.7	6.8	8.0
Avg. Headloss (in/hr)				1.3							
pH (units)	8	8.2	8.3	8.3	8.2	8.3	8.3				
Grab Turbidity (ntu)	2	0.23	0.25	0.24							
On-Line Turbidity (ntu)	25	0.15	0.38	0.19	0.38	0.19	0.17	0.16	0.16	0.15	0.15
Particles <5 um (counts/mL)	2	278	652	465		278					
Particles 5-15 um (counts/mL)	2	45	168	107		45					

	CDM TOC (mg/L)	CDM DOC (mg/L)	% TOC Red. From Raw
RAW	3.8	3.3	
SETTLED	3.0	2.7	21
FILTER A	3.1	2.2	18
FILTER B	2.7	2.6	29

LAB ANALYSIS	Raw	Filter A	% Red. From Raw
Geosmin (ng/L)	59	51	14
MIB (ng/L)	67	66	1

Note: Geosmin and MIB composite samples collected over run length

Run No. 2012
 Date 12/1/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17	18	19
CHEMICAL FEED													
Lime (mg/L)	225	225	225	225	225	225	225	225	225	225	225	225	225
Soda Ash (mg/L)	30	30	30	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	15	15	15	15	15	15	15	15	15	15	15	15	15
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW													
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	7.3	7.4	7.5	7.6	7.5	7.4	7.6	7.7	7.9	8.0	8.0	8.1	7.9
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

SETTLED													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	4.3	4.6	4.7	4.8	4.8	5.0	5.0	5.0	4.8	4.7	4.6	4.4	4.4
T. Hardness as CaCO3 (mg/L)													
T. Alkalinity as CaCO3 (mg/L)													

FILTER A - Anth/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	9.0	10.3	11.2	12.4	13.6	14.9	16.2	17.4	18.7	20.0	21.3	22.4	23.6
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.12	0.12	0.13	0.13	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

FILTER B - GAC/Sand Media													
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	9.4	10.8	12.0	13.4	14.6	16.0	17.5	19.0	20.4	21.7	23.2	24.7	26.0
Avg. Headloss (in/hr)													
pH (units)													
Grab Turbidity (ntu)													
On-Line Turbidity (ntu)	0.15	0.15	0.15	0.15	0.15	0.16	0.18	0.18	0.20	0.21	0.21	0.21	0.22
Particles <5 um (counts/mL)													
Particles 5-15 um (counts/mL)													

Run No. 2012
 Date 12/1/95
 Source Little Ark

Elapsed Time (hr) 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	225	225	225	225	225
Soda Ash (mg/L)	30	30	30	30	30
Ferric Sulfate (mg/L)	15	15	15	15	15
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	11.0				11.0
pH (units)	8.3				8.3
Grab Turbidity (ntu)	7.7				8.3
On-Line Turbidity (ntu)	7.8	7.9	8.1	8.2	8.3
T. Hardness as CaCO3 (mg/L)	312				314
T. Alkalinity as CaCO3 (mg/L)	258				262

SETTLED

pH (units)	9.4	9.4	9.4	9.4	9.4
Grab Turbidity (ntu)	4.5				4.4
On-Line Turbidity (ntu)	4.3	4.2	4.2	4.1	4.3
T. Hardness as CaCO3 (mg/L)	110		114		118
T. Alkalinity as CaCO3 (mg/L)	90		90		94

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	24.9	26.0	27.3	28.3	29.5
Avg. Headloss (in/hr)					
pH (units)	8.3	8.2	8.3	8.2	8.3
Grab Turbidity (ntu)	0.16				0.17
On-Line Turbidity (ntu)	0.13	0.14	0.14	0.14	0.15
Particles <5 um (counts/mL)					588
Particles 5-15 um (counts/mL)					101

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	27.4	28.8	30.0	31.3	32.6
Avg. Headloss (in/hr)					
pH (units)	8.3	8.2	8.3	8.2	8.3
Grab Turbidity (ntu)	0.23				0.25
On-Line Turbidity (ntu)	0.22	0.23	0.23	0.23	0.24
Particles <5 um (counts/mL)					652
Particles 5-15 um (counts/mL)					168

Run No. 3000
 Date 2/23/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Lime (mg/L)	7	120	120	120	120	120	120	120	120	120
Ferric Sulfate (mg/L)	7	35	35	35	35	35	35	35	35	35
Ferric Sulf. Filter Aid (mg/L)	7	0.0	2.0	0.9	0.0	0.0	0.0	0.0	2.0	2.0

RAW										
Pilot Plant Flowrate (gpm)	7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	2	6.0	6.0	6.0	6.0				6.0	
pH (units)	2	8.2	8.3	8.3	8.2				8.3	
Grab Turbidity (ntu)	2	11.4	11.6	11.5	11.4				11.6	
On-Line Turbidity (ntu)	7	10.7	11.6	11.2	11.4	11.0	10.8	10.7	11.6	11.5
T. Hardness as CaCO3 (mg/L)	2	184	184	184	184				184	
T. Alkalinity as CaCO3 (mg/L)	2	170	172	171	170				172	

SETTLED										
pH (units)	6	9.5	9.8	9.7	9.6	9.5	9.6		9.7	9.7
Grab Turbidity (ntu)	2	4.5	5.0	4.8	5.0				4.5	
On-Line Turbidity (ntu)	7	2.9	3.7	3.2	3.1	2.9	3.0	3.0	3.4	3.7
T. Hardness as CaCO3 (mg/L)	4	112	118	115	112		116		118	
T. Alkalinity as CaCO3 (mg/L)	4	90	98	94	90		96		98	

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6	0.0	13.7			0.0	2.9	4.8	7.2	11.5
Avg. Headloss (in/hr)				2.3						
pH (units)	6	8.0	8.6	8.3	8.4	8.6	8.1		8.3	8.1
Grab Turbidity (ntu)	1	0.54	0.54	0.54					0.54	
On-Line Turbidity (ntu)	5	0.35	0.40	0.38			0.38	0.38	0.40	0.35
Particles <5 um (counts/mL)	0	0.0	0.0	0.0						
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0						

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6	0.0	9.4			0.0	1.8	3.4	4.9	7.8
Avg. Headloss (in/hr)				1.6						
pH (units)	6	8.0	8.6	8.3	8.4	8.6	8.1		8.3	8.1
Grab Turbidity (ntu)	1	0.46	0.46	0.46					0.46	
On-Line Turbidity (ntu)	5	0.38	0.43	0.41			0.42	0.42	0.43	0.38
Particles <5 um (counts/mL)	0	0.0	0.0	0.0						
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0						

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	3.3	2.9
Ammonia dose (mg/L)	0.8	0.7
TRIHALOMETHANES		
Bromodichloromethane	9.9	16.0
Bromoform	1.5	0.8
Chloroform	7.1	16.0
Dibromochloromethane	6.2	6.1
TOTAL THM @ 24 hr (ug/L)	24.7	38.9

Run No. 3000
 Date 2/23/95
 Source Cheney

Elapsed Time (hr) 6

CHEMICAL FEED

Lime (mg/L)	120
Ferric Sulfate (mg/L)	35
Ferric Sulf. Filter Aid (mg/L)	2.0

RAW

Pilot Plant Flowrate (gpm)	2.0
Temp. (deg. C)	
pH (units)	
Grab Turbidity (ntu)	
On-Line Turbidity (ntu)	11.6
T. Hardness as CaCO3 (mg/L)	
T. Alkalinity as CaCO3 (mg/L)	

SETTLED

pH (units)	9.8
Grab Turbidity (ntu)	
On-Line Turbidity (ntu)	3.4
T. Hardness as CaCO3 (mg/L)	112
T. Alkalinity as CaCO3 (mg/L)	90

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0
Headloss (inches)	13.7
Avg. Headloss (in/hr)	
pH (units)	8.0
Grab Turbidity (ntu)	
On-Line Turbidity (ntu)	0.37
Particles <5 um (counts/mL)	
Particles 5-15 um (counts/mL)	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0
Headloss (inches)	9.4
Avg. Headloss (in/hr)	
pH (units)	8.0
Grab Turbidity (ntu)	
On-Line Turbidity (ntu)	0.39
Particles <5 um (counts/mL)	
Particles 5-15 um (counts/mL)	

Run No. 3001
 Date 2/23/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Lime (mg/L)	6	120	120	120	120	120	120	120	120	120
Ferric Chloride (mg/L)	6	30	30	30	30	30	30	30	30	30
Ferric Chl. Filter Aid (mg/L)	6	2.0	4.0	3.3	2.0	3.0	3.0	4.0	4.0	4.0

RAW										
Pilot Plant Flowrate (gpm)	6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Temp. (deg. C)	2	6.5	7.0	6.8	7.0				6.5	
pH (units)	2	8.2	8.3	8.3	8.3				8.2	
Grab Turbidity (ntu)	2	11.6	11.9	11.8	11.6				11.9	
On-Line Turbidity (ntu)	6	11.8	12.8	12.2	11.8	12.0	12.8	12.5	11.9	11.9
T. Hardness as CaCO3 (mg/L)	2	184	186	185	184				186	
T. Alkalinity as CaCO3 (mg/L)	2	170	170	170	170				170	

SETTLED										
pH (units)	6	9.5	9.7	9.7	9.5	9.6	9.7	9.7	9.7	9.7
Grab Turbidity (ntu)	1	5.1	5.1	5.1	5.1					
On-Line Turbidity (ntu)	6	3.1	4.4	3.6	4.4	3.6	3.4	3.5	3.3	3.1
T. Hardness as CaCO3 (mg/L)	3	110	120	115	120		116		110	
T. Alkalinity as CaCO3 (mg/L)	3	86	98	92	98		92		86	

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6	0.0	12.3		0.0	2.8	5.0	8.0	10.7	12.3
Avg. Headloss (in/hr)				2.1						
pH (units)	6	8.0	8.3	8.1	8.0	8.0	8.1	8.1	8.3	8.1
Grab Turbidity (ntu)	1	0.47	0.47	0.47					0.47	
On-Line Turbidity (ntu)	5	0.36	0.42	0.38		0.42	0.39	0.36	0.36	0.36
Particles <5 um (counts/mL)	0	0.0	0.0	0.0						
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0						

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6	0.0	9.8		0.0	2.0	4.0	6.1	8.1	9.8
Avg. Headloss (in/hr)				1.6						
pH (units)	6	8.0	8.3	8.1	8.0	8.0	8.1	8.0	8.3	8.1
Grab Turbidity (ntu)	1	0.46	0.46	0.46					0.46	
On-Line Turbidity (ntu)	5	0.39	0.47	0.42		0.47	0.43	0.41	0.39	0.39
Particles <5 um (counts/mL)	0	0.0	0.0	0.0						
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0						

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	3.0	2.6
Ammonia dose (mg/L)	0.8	0.7
TRIHALOMETHANES		
Bromodichloromethane	9.2	15.0
Bromoform	1.6	0.8
Chloroform	5.9	13.0
Dibromochloromethane	6.1	6.3
TOTAL THM @ 24 hr (ug/L)	22.8	35.1

Run No. 3002
 Date 4/18/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
CHEMICAL FEED										
Lime (mg/L)	25	90	90	90	90	90	90	90	90	90
Ferric Sulfate (mg/L)	25	40	40	40	40	40	40	40	40	40

RAW										
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	13.0	13.0	13.0	13.0					
pH (units)	6	8.2	8.3	8.3	8.3	8.2				
Grab Turbidity (ntu)	4	48.0	64.0	54.8	56.0					
On-Line Turbidity (ntu)	25	46.0	63.0	53.9	56.0	55.0	55.0	55.0	57.0	57.0
T. Hardness as CaCO3 (mg/L)	4	186	186	186	186					
T. Alkalinity as CaCO3 (mg/L)	4	170	172	171	172					

SETTLED										
pH (units)	10	9.0	9.5	9.3	9.0	9.1				
Grab Turbidity (ntu)	3	4.7	5.9	5.2						
On-Line Turbidity (ntu)	25	3.6	6.0	5.1	4.7	5.3	5.2	4.8	4.5	3.6
T. Hardness as CaCO3 (mg/L)	6	120	136	124	136					
T. Alkalinity as CaCO3 (mg/L)	6	96	114	101	114					

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	18.3		0.0	2.0	2.6	3.3	4.0	4.6
Avg. Headloss (ln/hr)				0.7						
pH (units)	10	7.8	8.4	8.2	7.8	7.9				
Grab Turbidity (ntu)	3	0.13	0.16	0.15						
On-Line Turbidity (ntu)	24	0.11	0.18	0.12		0.18	0.15	0.14	0.13	0.13
Particles <5 um (counts/mL)	1	79	79	79						
Particles 5-15 um (counts/mL)	1	20	20	20						

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	16.9		0.0	2.0	2.7	3.3	4.0	4.6
Avg. Headloss (ln/hr)				0.7						
pH (units)	10	7.8	8.4	8.2	7.8	7.9				
Grab Turbidity (ntu)	3	0.13	0.14	0.14						
On-Line Turbidity (ntu)	24	0.09	0.21	0.11		0.21	0.13	0.12	0.12	0.11
Particles <5 um (counts/mL)	1	116	116	116						
Particles 5-15 um (counts/mL)	1	32	32	32						

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	2.4	2.1
Ammonia dose (mg/L)	0.6	0.5
TRICHALOMETHANES		
Bromodichloromethane	11.0	16.0
Bromoform	1.4	0.8
Chloroform	9.3	19.0
Dibromochloromethane	7.2	7.0
TOTAL THM @ 24 hr (ug/L)	28.9	42.8
HALOACETIC ACIDS		
Monochloroacetic acid	1.6	2.0
Monobromoacetic acid	1.4	1.1
Dichloroacetic acid	9.7	14.0
Trichloroacetic acid	6.5	7.6
Dibromoacetic acid	4.1	3.3
HAA5 @ 24 hr (ug/L)	23.3	28.0

	TOC (mg/L)	% Red. From Raw	UV254 (cm-1)	% Red. From Raw
RAW	4.8		0.16	
SETTLED	4.5	7	0.077	52
FILTER C	3.4	29	0.044	73
FILTER D	4.2	13	0.072	55

	Ammonia (mg/L)	Bromide (mg/L)
RAW	N.D.	N.D.

Run No. 3002
 Date 4/18/95
 Source Cheney

Elapsed Time (hr)	6	7	8	9	10	11	12	13	14	15
CHEMICAL FEED										
Lime (mg/L)	90	90	90	90	90	90	90	90	90	90
Ferric Sulfate (mg/L)	40	40	40	40	40	40	40	40	40	40

RAW										
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)								13.0		13.0
pH (units)								8.3		8.2
Grab Turbidity (ntu)								51.0		
On-Line Turbidity (ntu)	58.0	57.0	57.0	56.0	55.0	52.0	50.0	50.0	51.0	51.0
T. Hardness as CaCO3 (mg/L)								186		
T. Alkalinity as CaCO3 (mg/L)								170		

SETTLED										
pH (units)								9.5	9.3	9.3
Grab Turbidity (ntu)								5.1		
On-Line Turbidity (ntu)	5.0	5.0	5.0	4.9	4.9	4.9	5.0	4.9	4.8	5.2
T. Hardness as CaCO3 (mg/L)								120		126
T. Alkalinity as CaCO3 (mg/L)								96		100

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	5.1	5.7	6.2	7.0	7.5	8.2	8.8	9.4	10.3	11.1
Avg. Headloss (in/hr)										
pH (units)								8.4	8.2	8.2
Grab Turbidity (ntu)								0.16		
On-Line Turbidity (ntu)	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.11	0.11	0.12
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	5.2	6.0	7.0	7.7	8.5	9.0	9.4	9.6	10.3	11.0
Avg. Headloss (in/hr)										
pH (units)								8.4	8.2	8.2
Grab Turbidity (ntu)								0.13		
On-Line Turbidity (ntu)	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.11	0.12	0.12
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 3002
 Date 4/18/95
 Source Cheney

Elapsed Time (hr) 16 17 18 19 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	90	90	90	90	90	90	90	90	90
Ferric Sulfate (mg/L)	40	40	40	40	40	40	40	40	40

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)							13.0		
pH (units)		8.3					8.3		
Grab Turbidity (ntu)		48.0					64.0		
On-Line Turbidity (ntu)	50.0	48.0	47.0	46.0	46.0	58.0	63.0	60.0	58.0
T. Hardness as CaCO3 (mg/L)		186					186		
T. Alkalinity as CaCO3 (mg/L)		170					172		

SETTLED

pH (units)	9.4	9.4	9.4				9.4		9.4
Grab Turbidity (ntu)		4.7					5.9		
On-Line Turbidity (ntu)	5.1	5.0	5.6	5.9	5.7	6.0	5.7	5.5	5.9
T. Hardness as CaCO3 (mg/L)		124					120		120
T. Alkalinity as CaCO3 (mg/L)		100					98		98

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	12.1	13.0	13.9	14.7	15.4	16.2	17.1	18.3	19.0
Avg. Headloss (in/hr)									
pH (units)	7.9	8.1	8.3				8.4		8.3
Grab Turbidity (ntu)		0.16					0.13		
On-Line Turbidity (ntu)	0.12	0.12	0.12	0.11	0.12	0.12	0.11	0.12	0.12
Particles <5 um (counts/mL)	79								
Particles 5-15 um (counts/mL)	20								

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.8	12.5	13.3	14.0	14.8	15.5	16.1	16.9	17.8
Avg. Headloss (in/hr)									
pH (units)	7.9	8.1	8.3				8.4		8.3
Grab Turbidity (ntu)		0.14					0.14		
On-Line Turbidity (ntu)	0.13	0.12	0.12	0.12	0.11	0.09	0.11	0.11	0.12
Particles <5 um (counts/mL)	116								
Particles 5-15 um (counts/mL)	32								

Run No. 3003
 Date 4/26/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average							
					0	1	2	3	4	5	
CHEMICAL FEED											
Lime (mg/L)	25	135	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	25	80	80	80	80	80	80	80	80	80	80

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	13.0	13.0	13.0							
pH (units)	3	8.4	8.4	8.4							
Grab Turbidity (ntu)	3	46.0	58.0	50.7							
On-Line Turbidity (ntu)	25	39.0	61.0	50.3	39.0	43.0	51.0	58.0	57.0	58.0	
T. Hardness as CaCO3 (mg/L)	3	188	190	189							
T. Alkalinity as CaCO3 (mg/L)	3	170	172	171							

SETTLED											
pH (units)	6	9.8	10.3	9.9							
Grab Turbidity (ntu)	3	1.6	2.1	1.8							
On-Line Turbidity (ntu)	25	1.3	13.8	2.2	13.8	4.2	2.4	2.3	2.2	2.0	
T. Hardness as CaCO3 (mg/L)	4	98	112	108							
T. Alkalinity as CaCO3 (mg/L)	4	60	78	71							

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	17.8		0.0	1.1	1.6	2.0	2.5	3.0	
Avg. Headloss (in/hr)				0.7							
pH (units)	6	8.1	8.8	8.5							
Grab Turbidity (ntu)	2	0.08	0.10	0.09							
On-Line Turbidity (ntu)	24	0.05	0.13	0.07		0.13	0.11	0.08	0.07	0.07	
Particles <5 um (counts/mL)	1	35	35	35							
Particles 5-15 um (counts/mL)	1	9	9	9							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	17.3		0.0	1.1	2.0	2.8	3.7	4.8	
Avg. Headloss (in/hr)				0.7							
pH (units)	6	8.1	8.8	8.5							
Grab Turbidity (ntu)	2	0.09	0.09	0.09							
On-Line Turbidity (ntu)	24	0.06	0.13	0.07		0.13	0.09	0.08	0.07	0.07	
Particles <5 um (counts/mL)	1	26	26	26							
Particles 5-15 um (counts/mL)	1	9	9	9							

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	2.1	1.9
Ammonia dose (mg/L)	0.5	0.5
TRIHALOMETHANES		
Bromodichloromethane	12.0	15.0
Bromoform	1.5	1.0
Chloroform	9.7	15.0
Dibromochloromethane	7.6	7.3
TOTAL THM @ 24 hr (ug/L)	30.8	38.3
HALOACETIC ACIDS		
Monochloroacetic acid	1.6	1.7
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	8.7	12.0
Trichloroacetic acid	5.4	7.4
Dibromoacetic acid	4.3	3.6
HAA5 @ 24 hr (ug/L)	20.0	24.7

	TOC (mg/L)	% Red. From Raw	UV254 (cm-1)	% Red. From Raw
RAW	4.8		0.31	
SETTLED	3.8	19	0.07	77
FILTER C	3.1	34	0.045	85
FILTER D	3.8	19	0.063	80

Run No. 3003
 Date 4/26/95
 Source Cheney

Elapsed Time (hr) 6 7 8 9 10 11 12 13 14 15
CHEMICAL FEED

Lime (mg/L)	135	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	80	80	80	80	80	80	80	80	80	80

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)		13.0								
pH (units)		8.4								
Grab Turbidity (ntu)		58.0								
On-Line Turbidity (ntu)	54.0	61.0	57.0	56.0	52.0	53.0	53.0	53.0	49.0	47.0
T. Hardness as CaCO3 (mg/L)		188								
T. Alkalinity as CaCO3 (mg/L)		172								

SETTLED

pH (units)		10.3								
Grab Turbidity (ntu)		2.1								
On-Line Turbidity (ntu)	1.9	1.8	1.7	1.6	1.4	1.4	1.4	1.4	1.3	1.3
T. Hardness as CaCO3 (mg/L)		98								
T. Alkalinity as CaCO3 (mg/L)		60								

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	3.6	5.5	6.2	6.8	7.5	8.1	8.9	9.6	10.3	11.0
Avg. Headloss (in/hr)										
pH (units)		8.7								
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.06	0.06	0.06	0.07	0.07	0.07	0.06	0.06	0.06	0.06
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	5.6	6.1	6.8	7.6	8.3	8.9	9.6	10.7	11.4	12.1
Avg. Headloss (in/hr)										
pH (units)		8.7								
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 3003
 Date 4/26/95
 Source Cheney

Elapsed Time (hr) 16 17 18 19 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	80	80	80	80	80	80	80	80	80

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)					13.0				13.0
pH (units)					8.4				8.4
Grab Turbidity (ntu)					46.0				48.0
On-Line Turbidity (ntu)	46.0	46.0	45.0	46.0	46.0	45.0	46.0	49.0	48.0
T. Hardness as CaCO3 (mg/L)					190				188
T. Alkalinity as CaCO3 (mg/L)					170				172

SETTLED

pH (units)					9.8	9.8	9.9	9.8	9.8
Grab Turbidity (ntu)					1.6				1.8
On-Line Turbidity (ntu)	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4
T. Hardness as CaCO3 (mg/L)					112		108		112
T. Alkalinity as CaCO3 (mg/L)					72		72		78

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	11.6	12.5	13.1	13.9	14.3	15.1	16.4	17.1	17.8
Avg. Headloss (in/hr)									
pH (units)					8.8	8.1	8.8	8.5	8.2
Grab Turbidity (ntu)					0.08				0.10
On-Line Turbidity (ntu)	0.06	0.06	0.05	0.06	0.06	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)								35	
Particles 5-15 um (counts/mL)								9	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	12.8	13.2	13.8	14.0	14.2	15.2	16.0	16.7	17.3
Avg. Headloss (in/hr)									
pH (units)					8.8	8.1	8.8	8.5	8.2
Grab Turbidity (ntu)					0.09				0.09
On-Line Turbidity (ntu)	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)								26	
Particles 5-15 um (counts/mL)								9	

Run No. 3004
 Date 5/22/95
 Source Little Ark.

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Lime (mg/L)	24	40	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	24	20	20	20	20	20	20	20	20	20
Polymer (mg/L)	24	7.0	9.0	7.9	7.0	7.0	7.0	7.0	7.0	7.0
Ferric Sulfate (mg/L)	24	130	130	130	130	130	130	130	130	130

RAW										
Pilot Plant Flowrate (gpm)	24	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	18.0	18.0	18.0	18.0					
pH (units)	3	7.6	7.7	7.6	7.7					
Grab Turbidity (ntu)	5	180	540	363	254					
On-Line Turbidity (ntu)	0	0.0	0.0	0.0	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)	3	72	92	81	92					
T. Alkalinity as CaCO3 (mg/L)	3	66	70	69	70					

SETTLED										
pH (units)	5	6.9	9.4	8.8	6.9					
Grab Turbidity (ntu)	2	4.3	5.1	4.7	5.1					
On-Line Turbidity (ntu)	23	1.1	5.7	3.0	4.5	5.7	>20	5.7	2.9	3.2
T. Hardness as CaCO3 (mg/L)	5	96	110	104	96					
T. Alkalinity as CaCO3 (mg/L)		40	84	73	40					

FILTER A - Anth/Sand Media										
Filtration Rate (gpm/sf)	24	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	24	0.0	24.5		0.0	0.9	1.9	2.9	4.0	5.1
Avg. Headloss (in/hr)				1.0						
pH (units)	5	6.9	9.1	8.2	6.9					
Grab Turbidity (ntu)	1	0.23	0.23	0.23						
On-Line Turbidity (ntu)	22	0.06	0.95	0.20		0.66	>1	0.95	0.12	0.07
Particles <5 um (counts/mL)	1	239	239	239						
Particles 5-15 um (counts/mL)	1	134	134	134						

FILTER B - GAC/Sand Media										
Filtration Rate (gpm/sf)	24	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	24	0.0	28.0		0.0	1.0	2.1	3.0	4.0	5.1
Avg. Headloss (in/hr)				1.2						
pH (units)	5	6.9	9.1	8.2	6.9					
Grab Turbidity (ntu)	1	0.24	0.24	0.24						
On-Line Turbidity (ntu)	22	0.05	0.93	0.20		0.61	>1	0.93	0.12	0.07
Particles <5 um (counts/mL)	1	290	290	290						
Particles 5-15 um (counts/mL)	1	247	247	247						

	Filter A	Filter B
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	1.1	1.8
Ammonia dose (mg/L)	0.3	0.5
TRIHALOMETHANES		
Bromodichloromethane	13.0	13.0
Bromoform	N.D.	N.D.
Chloroform	52.0	42.0
Dibromochloromethane	1.3	1.7
TOTAL THM @ 24 hr (ug/L)	66.3	56.7
HALOACETIC ACIDS		
Monochloroacetic acid	4.2	4.8
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	43.0	36.0
Trichloroacetic acid	32.0	23.0
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	79.2	63.8

	TOC (mg/L)	% Red. From Raw	UV254 (units)	% Red. From Raw
RAW	9.6		0.13	
SETTLED	6.8	29	0.15	-15
FILTER A	6.1	36	0.13	0
FILTER B	4.7	51	0.10	23

	Ammonia (mg/L)	Bromide (mg/L)
RAW	N.D.	N.D.

Run No. 3004
 Date 5/22/95
 Source Little Ark

Elapsed Time (hr)	6	7	8	9	10	11	12	13	14	15
CHEMICAL FEED										
Lime (mg/L)	40	40	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	20	20	20	20	20	20	20	20	20	20
Polymer (mg/L)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0
Ferric Sulfate (mg/L)	130	130	130	130	130	130	130	130	130	130

RAW										
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)							18.0			
pH (units)							7.6			
Grab Turbidity (ntu)							180		314	
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)							80			
T. Alkalinity as CaCO3 (mg/L)							70			

SETTLED										
pH (units)							9.1		9.4	
Grab Turbidity (ntu)							4.3			
On-Line Turbidity (ntu)	1.8	1.7	1.3	1.1	1.8	2.8	3.2	3.3	3.4	5.3
T. Hardness as CaCO3 (mg/L)							108		110	
T. Alkalinity as CaCO3 (mg/L)							82		84	

FILTER A - Anth/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6.2	7.1	8.0	9.0	10.1	11.1	12.1	13.6	15.4	16.5
Avg. Headloss (in/hr)										
pH (units)							8.2		9.1	
Grab Turbidity (ntu)							0.23			
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.06	0.06	0.08	0.18	0.23	0.21	0.29
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER B - GAC/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	6.0	7.1	8.3	9.2	10.4	11.8	13.3	14.8	16.8	18.3
Avg. Headloss (in/hr)										
pH (units)							8.2		9.1	
Grab Turbidity (ntu)							0.24			
On-Line Turbidity (ntu)	0.07	0.07	0.06	0.05	0.06	0.07	0.17	0.23	0.20	0.27
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 3004
 Date 5/22/95
 Source Little Ark

Elapsed Time (hr) 16 17 18 19 20 21 22 23

CHEMICAL FEED

Lime (mg/L)	40	40	40	40	40	40	40	40
Soda Ash (mg/L)	20	20	20	20	20	20	20	20
Polymer (mg/L)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Ferric Sulfate (mg/L)	130	130	130	130	130	130	130	130

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)						18.0		
pH (units)						7.6		
Grab Turbidity (ntu)						525		540
On-Line Turbidity (ntu)	>100	>100	>100	>100	>100	>100	>100	>100
T. Hardness as CaCO3 (mg/L)						72		
T. Alkalinity as CaCO3 (mg/L)						66		

SETTLED

pH (units)						9.3		9.2
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	4.2	1.7	2.2	2.9	3.0	2.4	2.3	3.4
T. Hardness as CaCO3 (mg/L)						108		100
T. Alkalinity as CaCO3 (mg/L)						80		78

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	17.5	18.6	19.4	20.5	21.7	23.4	23.9	24.5
Avg. Headloss (in/hr)								
pH (units)						8.6		8.4
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	0.33	0.13	0.13	0.15	0.15	0.15	0.15	0.16
Particles <5 um (counts/mL)						239		
Particles 5-15 um (counts/mL)						134		

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	19.9	21.4	23.9	25.1	26.0	26.7	27.4	28.0
Avg. Headloss (in/hr)								
pH (units)						8.6		8.4
Grab Turbidity (ntu)								
On-Line Turbidity (ntu)	0.30	0.18	0.13	0.13	0.15	0.14	0.15	0.15
Particles <5 um (counts/mL)						290		
Particles 5-15 um (counts/mL)						247		

Run No. 3005
 Date 7/31/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Pre-Ozone (mg/L)	25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	25	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	25	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	25	60	60	60	60	60	60	60	60	60

RAW										
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	25.5	26.0	25.8	25.5					26.0
pH (units)	3	8.1	8.3	8.2	8.1					8.2
Grab Turbidity (ntu)	3	49.0	79.0	64.0	79.0					64.0
On-Line Turbidity (ntu)	25	44.0	95.0	59.0	74.0	70.0	66.0	61.0	61.0	61.0
T. Hardness as CaCO3 (mg/L)	3	146	148	147	146					148
T. Alkalinity as CaCO3 (mg/L)	3	142	142	142	142					142

SETTLED										
pH (units)	7	8.9	9.0	8.9	8.9	8.9	9.0			9.0
Grab Turbidity (ntu)	3	2.2	4.8	3.6	3.9					4.8
On-Line Turbidity (ntu)	25	2.0	9.5	4.1	3.3	3.6	5.4	5.6	5.4	4.9
T. Hardness as CaCO3 (mg/L)	5	118	128	122	128		118			120
T. Alkalinity as CaCO3 (mg/L)	5	102	108	105	108		102			102

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	46.2		0.0	2.1	3.4	4.8	5.6	7.4
Avg. Headloss (in/hr)				1.8						
pH (units)	7	7.9	8.5	8.2	7.9	8.5	8.5			8.1
Grab Turbidity (ntu)	2	0.11	0.26	0.19						0.11
On-Line Turbidity (ntu)	24	0.09	0.63	0.24		0.12	0.11	0.10	0.10	0.10
Particle Counts <5	2	582	2482	1532						
Particle Counts 5-15	2	84	805	445						

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	31.3		0.0	2.2	3.3	4.5	5.5	6.8
Avg. Headloss (in/hr)				1.3						
pH (units)	7	7.9	8.5	8.2	7.9	8.5	8.5			8.1
Grab Turbidity (ntu)	2	0.09	0.24	0.17						0.09
On-Line Turbidity (ntu)	24	0.08	0.66	0.26		0.12	0.11	0.10	0.09	0.08
Particle Counts <5	2	298	1639	969						
Particle Counts 5-15	2	20	374	197						

	Filter C	Filter D
Ozone dose (mg/L)	2.0	2.0
Chlorine dose (mg/L)	1.8	1.8
Ammonia dose (mg/L)	0.5	0.5
TRIHALOMETHANES		
Bromodichloromethane	N.D.	N.D.
Bromoform	N.D.	N.D.
Chloroform	2.9	2.7
Dibromochloromethane	N.D.	N.D.
TOTAL THM @ 24 hr (ug/L)	2.9	2.7
HALOACETIC ACIDS		
Monochloroacetic acid	1.8	2.6
Monobromoacetic acid	1.0	2.4
Dichloroacetic acid	6.4	7.6
Trichloroacetic acid	N.D.	1.0
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	9.2	13.6

	TOC (mg/L)	% Red. From Raw
RAW	4.2	
SETTLED	3.6	15
FILTER C	2.7	36
FILTER D	3.3	22

Run No. 3005
 Date 7/31/95
 Source Cheney

Elapsed Time (hr) 6 7 8 9 10 11 12 13 14 15
CHEMICAL FEED

Pre-Ozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	120	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	61.0	61.0	95.0	95.0	95.0	79.0	49.0	44.0	44.0	46.0
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

SETTLED

pH (units)	9.0									
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	4.7	4.3	3.5	4.0	3.7	3.9	9.5	7.5	4.5	3.3
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8.9	9.9	10.8	12.0	13.6	14.8	16.0	17.4	19.0	22.1
Avg. Headloss (in/hr)										
pH (units)	8.1									
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.09	0.09	0.12	0.12	0.14	0.19	0.32	0.63	0.53	0.42
Particle Counts <5	582									
Particle Counts 5-15	84									

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	8.2	9.3	10.3	11.5	12.4	13.6	14.9	15.9	16.7	17.5
Avg. Headloss (in/hr)										
pH (units)	8.1									
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.08	0.08	0.09	0.08	0.10	0.13	0.23	0.66	0.65	0.54
Particle Counts <5	298									
Particle Counts 5-15	20									

Run No. 3005
 Date 7/31/95
 Source Cheney

Elapsed Time (hr)	16	17	18	19	20	21	22	23	24
CHEMICAL FEED									
Pre-Ozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60

RAW									
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)							26.0		
pH (units)							8.3		
Grab Turbidity (ntu)							49.0		
On-Line Turbidity (ntu)	49.0	44.0	44.0	46.0	46.0	46.0	46.0	46.0	46.0
T. Hardness as CaCO3 (mg/L)							148		
T. Alkalinity as CaCO3 (mg/L)							142		

SETTLED									
pH (units)							8.9		8.9
Grab Turbidity (ntu)							2.2		
On-Line Turbidity (ntu)	3.0	3.0	3.1	3.1	3.1	2.7	2.4	2.1	2.0
T. Hardness as CaCO3 (mg/L)							124		122
T. Alkalinity as CaCO3 (mg/L)							106		106

FILTER C - GAC/Sand Media									
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25.6	29.1	32.8	35.9	38.9	39.8	40.8	44.0	46.2
Avg. Headloss (in/hr)									
pH (units)							8.1		8.1
Grab Turbidity (ntu)							0.26		
On-Line Turbidity (ntu)	0.34	0.32	0.30	0.29	0.29	0.27	0.27	0.24	0.24
Particle Counts <5							2482		
Particle Counts 5-15							805		

FILTER D - Anth/Sand Media									
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	18.6	19.9	20.6	22.0	25.0	26.2	27.7	28.9	31.3
Avg. Headloss (in/hr)									
pH (units)							8.1		8.1
Grab Turbidity (ntu)							0.24		
On-Line Turbidity (ntu)	0.46	0.43	0.40	0.38	0.33	0.30	0.27	0.24	0.22
Particle Counts <5							1639		
Particle Counts 5-15							374		

Run No. 3006
 Date 8/1/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Geosmin & MIB (ng/L)	25	100	100	100	100	100	100	100	100	100
Pre-Ozone (mg/L)	25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	25	115	125	116	125	125	125	115	115	115
Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	25	55	55	55	55	55	55	55	55	55

RAW										
Pilot Plant Flowrate (gpm)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	3	25.5	25.5	25.5	25.5				25.5	
pH (units)	3	8.2	8.4	8.3	8.4				8.4	
Grab Turbidity (ntu)	3	51.0	52.0	51.3	51.0				51.0	
On-Line Turbidity (ntu)	25	44.0	58.0	48.2	47.0	48.0	48.0	48.0	48.0	48.0
T. Hardness as CaCO3 (mg/L)	3	144	148	146	146				144	
T. Alkalinity as CaCO3 (mg/L)	3	142	142	142	142				142	

SETTLED										
pH (units)	8	8.9	9.2	9.1	8.9	9.2	9.2	9.2	9.2	9.1
Grab Turbidity (ntu)	3	3.4	4.8	3.9	3.4				3.4	
On-Line Turbidity (ntu)	25	3.3	5.9	4.3	3.6	5.0	3.6	3.7	3.4	3.3
T. Hardness as CaCO3 (mg/L)	5	104	126	111	126		104		108	
T. Alkalinity as CaCO3 (mg/L)	5	88	108	94	108		88		92	

FILTER C - GAC/Sand										
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	54.3		0.0	1.5	2.9	4.3	5.5	6.9
Avg. Headloss (in/hr)				2.2						
pH (units)	8	8.2	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)	2	0.10	0.16	0.13					0.10	
On-Line Turbidity (ntu)	24	0.08	0.23	0.12		0.09	0.09	0.08	0.08	0.08
Particles <5 um (counts/mL)	2	81	794	438					81	
Particles 5-15 um (counts/mL)	2	19	201	110					19	

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	25	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	25	0.0	44.6		0.0	1.8	2.8	3.8	4.9	5.8
Avg. Headloss (in/hr)				1.8						
pH (units)	8	8.2	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)	2	0.09	0.12	0.11					0.09	
On-Line Turbidity (ntu)	24	0.08	0.16	0.10		0.10	0.09	0.08	0.08	0.08
Particles <5 um (counts/mL)	2	73	362	218					73	
Particles 5-15 um (counts/mL)	2	18	84	51					18	

	TOC (mg/L)	% Red. From Raw
RAW	4.2	
SETTLED	3.7	13
FILTER C	3.0	30
FILTER D	3.3	22

LAB ANALYSIS	Raw	Filter C	Filter D
Geosmin (ng/L)	N.A.	N.A.	N.A.
MIB (ng/L)	N.A.	N.A.	N.A.

Geosmin and MIB composite samples collected over run length
 Samples not analyzed

Run No. 3006
 Date 8/1/95
 Source Cheney

Elapsed Time (hr)	6	7	8	9	10	11	12	13	14	15
CHEMICAL FEED										
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100	100
Pre-Ozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	115	115	115	115	115	115	115	115	115	115
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	55	55	55	55	55	55	55	55	55	55

RAW										
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	47.0	46.0	46.0	45.0	45.0	44.0	45.0	46.0	48.0	48.0
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

SETTLED										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	3.5	3.4	3.7	4.0	4.0	4.3	4.4	4.4	4.9	4.4
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

FILTER C - GAC/Sand										
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	9.2	11.5	14.0	16.3	18.8	21.1	23.6	25.7	28.1	30.5
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.11	0.12
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.5	7.7	9.5	11.3	13.1	15.0	17.1	19.0	20.6	22.6
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 3006
 Date 8/1/95
 Source Cheney

Elapsed Time (hr)	16	17	18	19	20	21	22	23	24
CHEMICAL FEED									
Geosmin & MIB (ng/L)	100	100	100	100	100	100	100	100	100
Pre-Ozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	115	115	115	115	115	115	115	115	115
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	55	55	55	55	55	55	55	55	55

RAW									
Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)						25.5			
pH (units)						8.2			
Grab Turbidity (ntu)						52.0			
On-Line Turbidity (ntu)	48.0	48.0	50.0	50.0	49.0	49.0	50.0	58.0	57.0
T. Hardness as CaCO3 (mg/L)						148			
T. Alkalinity as CaCO3 (mg/L)						142			

SETTLED									
pH (units)						9.1			9.1
Grab Turbidity (ntu)						4.8			
On-Line Turbidity (ntu)	4.4	4.4	4.5	4.5	4.6	4.8	5.4	5.9	5.5
T. Hardness as CaCO3 (mg/L)						108			110
T. Alkalinity as CaCO3 (mg/L)						92			92

FILTER C - GAC/Sand									
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (Inches)	33.1	35.2	37.2	39.3	42.1	45.6	48.0	51.6	54.3
Avg. Headloss (in/hr)									
pH (units)						8.2			8.2
Grab Turbidity (ntu)						0.16			
On-Line Turbidity (ntu)	0.12	0.13	0.13	0.14	0.15	0.16	0.19	0.20	0.23
Particles <5 um (counts/mL)						794			
Particles 5-15 um (counts/mL)						201			

FILTER D - Anth/Sand Media									
Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (Inches)	24.5	26.7	28.5	30.3	31.9	36.2	39.0	41.9	44.6
Avg. Headloss (in/hr)									
pH (units)						8.2			8.2
Grab Turbidity (ntu)						0.12			
On-Line Turbidity (ntu)	0.09	0.10	0.10	0.11	0.11	0.12	0.14	0.14	0.16
Particles <5 um (counts/mL)						362			
Particles 5-15 um (counts/mL)						84			

Run No. 3007
 Date 8/2/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Lime (mg/L)	21	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	21	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	21	60	60	60	60	60	60	60	60	60

RAW										
Pilot Plant Flowrate (gpm)	21	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	2	25.5	25.5	25.5	25.5					
pH (units)	2	8.0	8.1	8.1	8.0					
Grab Turbidity (ntu)	2	56.0	59.0	57.5	59.0					
On-Line Turbidity (ntu)	21	45.0	55.0	50.0	55.0	54.0	50.0	48.0	49.0	49.0
T. Hardness as CaCO3 (mg/L)	1	144	144	144	144					
T. Alkalinity as CaCO3 (mg/L)	1	142	142	142	142					

SETTLED										
pH (units)	4	8.9	9.0	9.0	9.0	9.0	8.9			
Grab Turbidity (ntu)	2	5.6	6.0	5.8	5.6					
On-Line Turbidity (ntu)	21	4.6	9.0	6.9	5.4	4.9	4.9	5.3	5.6	6.1
T. Hardness as CaCO3 (mg/L)	3	102	116	111	102		116			
T. Alkalinity as CaCO3 (mg/L)	3	84	96	92	84		96			

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	21	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	21	0.0	22.0		0.0	1.6	2.6	3.4	4.5	5.4
Avg. Headloss (in/hr)				1.0						
pH (units)	4	8.3	8.4	8.4	8.4	8.4	8.3			
Grab Turbidity (ntu)	1	0.23	0.23	0.23						
On-Line Turbidity (ntu)	16	0.20	0.90	0.43		0.23	0.20	0.20	0.20	0.21
Particle Counts <5	1	257	257	257						
Particle Counts 5-15	1	37	37	37						

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	21	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	21	0.0	20.0		0.0	1.8	3.2	4.0	4.7	5.5
Avg. Headloss (in/hr)				1.0						
pH (units)	4	8.3	8.4	8.4	8.4	8.4	8.3			
Grab Turbidity (ntu)	1	0.21	0.21	0.21						
On-Line Turbidity (ntu)	17	0.19	0.97	0.41		0.22	0.19	0.19	0.19	0.19
Particle Counts <5	1	239	239	239						
Particle Counts 5-15	1	33	33	33						

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	2.1	1.9
Ammonia dose (mg/L)	0.5	0.5
TRIHALOMETHANES		
Bromodichloromethane	17.0	18.0
Bromoform	N.D.	N.D.
Chloroform	31.0	36.0
Dibromochloromethane	4.7	3.9
TOTAL THM @ 24 hr (ug/L)	52.7	57.9
HALOACETIC ACIDS		
Monochloroacetic acid	2.8	2.2
Monobromoacetic acid	2.2	2.7
Dichloroacetic acid	21.0	22.0
Trichloroacetic acid	11.0	14.0
Dibromoacetic acid	1.1	N.D.
HAA5 @ 24 hr (ug/L)	38.1	40.9

	TOC (mg/L)	% Red. From Raw
RAW	4.3	
SETTLED	3.8	12
FILTER C	3.3	23
FILTER D	3.9	10

Run No. 3007
 Date 8/2/95
 Source Cheney

Elapsed Time (hr) 6 7 8 9 10 11 12 13 14 15

CHEMICAL FEED

Lime (mg/L)	120	120	120	120	120	120	120	120	120	120
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	60	60	60	60	60	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)	25.5									
pH (units)	8.1									
Grab Turbidity (ntu)	56.0									
On-Line Turbidity (ntu)	52.0	48.0	45.0	45.0	47.0	48.0	49.0	50.0	52.0	50.0
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

SETTLED

pH (units)	9.0									
Grab Turbidity (ntu)	6.0									
On-Line Turbidity (ntu)	6.2	8.4	8.5	8.4	8.4	8.0	7.7	7.9	8.0	8.9
T. Hardness as CaCO3 (mg/L)	116									
T. Alkalinity as CaCO3 (mg/L)	96									

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.8	7.1	7.9	8.9	11.0	12.1	13.0	13.6	14.6	15.4
Avg. Headloss (in/hr)										
pH (units)	8.3									
Grab Turbidity (ntu)	0.23									
On-Line Turbidity (ntu)	0.22	0.25	0.29	0.32	0.37	0.50	0.59	0.70	0.77	0.90
Particle Counts <5	257									
Particle Counts 5-15	37									

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	6.3	7.2	8.0	8.9	10.0	10.7	11.5	12.5	13.6	14.5
Avg. Headloss (in/hr)										
pH (units)	8.3									
Grab Turbidity (ntu)	0.21									
On-Line Turbidity (ntu)	0.21	0.25	0.27	0.27	0.29	0.35	0.43	0.57	0.70	0.85
Particle Counts <5	239									
Particle Counts 5-15	33									

Run No. 3007
 Date 8/2/95
 Source Cheney

Elapsed Time (hr) 16 17 18 19 20

CHEMICAL FEED

Lime (mg/L)	120	120	120	120	120
Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1
Ferric Sulfate (mg/L)	60	60	60	60	60

RAW

Pilot Plant Flowrate (gpm)	4.0	4.0	4.0	4.0	4.0
Temp. (deg. C)					
pH (units)					
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	48.0	52.0	53.0	52.0	53.0
T. Hardness as CaCO3 (mg/L)					
T. Alkalinity as CaCO3 (mg/L)					

SETTLED

pH (units)					
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	9.0	9.0	4.9	4.6	4.6
T. Hardness as CaCO3 (mg/L)					
T. Alkalinity as CaCO3 (mg/L)					

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	16.1	17.5	19.0	20.6	22.0
Avg. Headloss (in/hr)					
pH (units)					
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	>1	>1	>1	>1	0.87
Particle Counts <5					
Particle Counts 5-15					

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	6.0	6.0	6.0	6.0	6.0
Headloss (inches)	15.4	16.5	17.4	18.8	20.0
Avg. Headloss (in/hr)					
pH (units)					
Grab Turbidity (ntu)					
On-Line Turbidity (ntu)	0.97	>1	>1	>1	0.90
Particle Counts <5					
Particle Counts 5-15					

Run No. 3008
 Date 11/6/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Preozone (mg/L)	25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	25	130	140	132	130	130	130	130	130	130	130
Ferric Sulfate (mg/L)	25	45	55	47	55	55	55	55	55	45	45
Filter Aid Polymer (mg/L)	25	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	11.0	11.0	11.0					11.0		
pH (units)	3	8.3	8.4	8.3					8.4		
Grab Turbidity (ntu)	2	59.0	60.0	59.5					60.0		
On-Line Turbidity (ntu)	25	55.0	58.0	55.8	58.0	57.0	57.0	56.0	56.0	56.0	56.0
T. Hardness as CaCO3 (mg/L)	3	152	160	157					152		
T. Alkalinity as CaCO3 (mg/L)	3	144	148	147					144		

SETTLED											
pH (units)	7	9.3	9.6	9.5	9.5		9.5	9.5	9.5		
Grab Turbidity (ntu)	3	0.7	5.6	3.5					5.6		
On-Line Turbidity (ntu)	25	0.9	5.2	3.2	5.2	4.5	4.6	4.5	5.2	5.1	2.6
T. Hardness as CaCO3 (mg/L)	5	110	116	113	112		110		116		
T. Alkalinity as CaCO3 (mg/L)	5	80	92	87	92		88		90		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	35.7		0.0	4.1	6.9	7.1	7.9	8.8	9.8
Avg. Headloss (in/hr)				1.4							
pH (units)	7	8.0	8.8	8.4	8.5		8.8	8.0	8.2		
Grab Turbidity (ntu)	3	0.07	0.17	0.11					0.17		
On-Line Turbidity (ntu)	25	0.04	0.18	0.05	0.18	0.11	0.08	0.09	0.08	0.04	0.04
Particles <5 um (counts/mL)	2	32	46	39							
Particles 5-15 um (counts/mL)	2	4	7	6							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	30.4		0.0	3.8	6.0	6.0	6.5	7.3	8.3
Avg. Headloss (in/hr)				1.2							
pH (units)	7	8.0	8.8	8.4	8.5		8.8	8.0	8.2		
Grab Turbidity (ntu)	2	0.06	0.18	0.12					0.18		
On-Line Turbidity (ntu)	25	0.04	0.16	0.06	0.16	0.12	0.09	0.09	0.08	0.05	0.05
Particles <5 um (counts/mL)	2	10	10	10							
Particles 5-15 um (counts/mL)	2	2	2	2							

	Filter C	Filter D
Ozone dose (mg/L)	2.0	2.0
Chlorine dose (mg/L)	1.8	1.8
Ammonia dose (mg/L)	0.5	0.5
TRIHALOMETHANES		
Bromodichloromethane	1.8	1.2
Bromoform	N.D.	N.D.
Chloroform	4.0	5.7
Dibromochloromethane	N.D.	N.D.
TOTAL THM @ 24 hr (ug/L)	5.8	6.9
HALOACETIC ACIDS		
Monochloroacetic acid	N.D.	1.2
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	2.7	3.4
Trichloroacetic acid	N.D.	N.D.
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	2.7	4.6

	Filter C	Filter D
AOC (ug/L)	270	280
TOX (mg/L)	0.084	0.039
Bromate (ug/L)	N.D.	N.D.
Acetaldehyde (ug/L)	3.4	6
Butanal (ug/L)	< 1.0	< 1.0
Formaldehyde (ug/L)	21	27
Glyoxal (ug/L)	11	12
Propanal (ug/L)	< 1.0	< 1.0
Methylglyoxal (ug/L)	6.1	6.1
Pentanal (ug/L)	< 1.0	< 1.0

	TOC (mg/L)	% Red. From Raw	DOC (mg/L)
RAW	4.8		4.6
SETTLED	3.7	23	3.5
FILTER C	3.2	33	3.1
FILTER D	3.6	25	3.4

Run No. 3008
 Date 11/6/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17
CHEMICAL FEED											
Preozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	130	130	130	130	130	130	130	130	130	130	130
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	55.0	55.0	56.0	55.0	55.0	55.0	56.0	56.0	55.0	56.0	56.0
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

SETTLED											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	2.9	3.8	3.4	3.1	3.0	2.5	2.1	2.0	1.8	1.4	1.1
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	10.9	11.8	12.7	13.7	14.8	15.7	16.9	18.1	19.4	20.8	22.2
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	9.4	10.3	11.3	12.5	13.5	14.7	15.6	16.6	17.5	18.6	19.4
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

Run No. 3008
 Date 11/6/95
 Source Cheney

Elapsed Time (hr) 18 19 20 21 22 23 24

CHEMICAL FEED

Preozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	130	130	140	140	140	140	140
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)		11.0			11.0		
pH (units)		8.3			8.3		
Grab Turbidity (ntu)		59.0					
On-Line Turbidity (ntu)	56.0	55.0	56.0	57.0	55.0	56.0	55.0
T. Hardness as CaCO3 (mg/L)		158			160		
T. Alkalinity as CaCO3 (mg/L)		148			148		

SETTLED

pH (units)		9.3			9.6		9.5
Grab Turbidity (ntu)		0.7			4.1		
On-Line Turbidity (ntu)	0.9	0.9	2.7	3.8	3.9	4.8	4.0
T. Hardness as CaCO3 (mg/L)		112			114		
T. Alkalinity as CaCO3 (mg/L)		80			84		

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	23.8	25.3	27.0	29.2	31.4	33.6	35.7
Avg. Headloss (in/hr)							
pH (units)		8.4			8.6		8.5
Grab Turbidity (ntu)		0.08			0.07		
On-Line Turbidity (ntu)	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Particles <5 um (counts/mL)		46			32		
Particles 5-15 um (counts/mL)		7			4		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	20.6	22.1	23.9	25.6	27.5	29.0	30.4
Avg. Headloss (in/hr)							
pH (units)		8.4			8.6		8.5
Grab Turbidity (ntu)					0.06		
On-Line Turbidity (ntu)	0.05	0.04	0.04	0.05	0.05	0.05	0.05
Particles <5 um (counts/mL)		10			10		
Particles 5-15 um (counts/mL)		2			2		

Run No. 3009
 Date 11/7/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Preozone (mg/L)	25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	25	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	25	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW										
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	2	10.0	11.0	10.5				11.0		
pH (units)	2	8.4	8.4	8.4				8.4		
Grab Turbidity (ntu)	2	59.0	60.0	59.5				60.0		
On-Line Turbidity (ntu)	25	54.0	57.0	54.9	55.0	55.0	56.0	55.0	54.0	54.0
T. Hardness as CaCO3 (mg/L)	2	160	162	161				162		
T. Alkalinity as CaCO3 (mg/L)	2	144	146	145				146		

SETTLED										
pH (units)	6	9.4	9.5	9.4	9.5			9.4	9.4	
Grab Turbidity (ntu)	2	3.4	3.7	3.6				3.7		
On-Line Turbidity (ntu)	17	2.3	12.4	4.2	4.9	5.1	4.1	3.9	3.2	2.3
T. Hardness as CaCO3 (mg/L)	3	108	124	117				124		
T. Alkalinity as CaCO3 (mg/L)	3	88	98	94				98		

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	4	0.0	8.0		0.0			4.9	6.4	
Avg. Headloss (in/hr)				2.0						
pH (units)	4	8.3	8.4	8.3	8.4			8.3	8.3	
Grab Turbidity (ntu)	1	0.10	0.10	0.10				0.10		
On-Line Turbidity (ntu)	11	0.05	0.37	0.09	0.37	0.10	0.07	0.06	0.05	0.05
Particles <5 um (counts/mL)	2	22	31	27				31		
Particles 5-15 um (counts/mL)	2	4	6	5				6		

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	4	0.0	8.1		0.0			4.9	6.6	
Avg. Headloss (in/hr)				2.0						
pH (units)	4	8.3	8.4	8.3	8.4			8.3	8.3	
Grab Turbidity (ntu)	1	0.08	0.08	0.08				0.08		
On-Line Turbidity (ntu)	11	0.04	0.43	0.09	0.43	0.12	0.08	0.06	0.06	0.05
Particles <5 um (counts/mL)	2	14	16	15				16		
Particles 5-15 um (counts/mL)	2	2	5	4				2		

LAB ANALYSIS	Raw	Filter C	% Red.		From Raw
			From Raw	Filter D	
Geosmin (ng/L)	89	N.D.	100	5.2	94
MIB (ng/L)	85	5.2	94	11	87

Run No. 3009
 Date 11/7/95
 Source Cheney

Elapsed Time (hr)	6	7	8	9	10	11	12	13	14	15
CHEMICAL FEED										
Preozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW										
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	55.0	57.0	56.0	55.0	55.0	55.0	55.0	54.0	55.0	55.0
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

SETTLED										
pH (units)	9.4									
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	2.6	4.0	4.0	3.4	3.7	>20	>20	>20	>20	>20
T. Hardness as CaCO3 (mg/L)	120									
T. Alkalinity as CaCO3 (mg/L)	96									

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	8.0									
Avg. Headloss (in/hr)										
pH (units)	8.3									
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.05	0.05	0.05	0.05	0.05	>1	>1	>1	>1	>1
Particles <5 um (counts/mL)	22									
Particles 5-15 um (counts/mL)	4									

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	8.1									
Avg. Headloss (in/hr)										
pH (units)	8.3									
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.05	0.05	0.05	0.05	0.04	>1	>1	>1	>1	>1
Particles <5 um (counts/mL)	14									
Particles 5-15 um (counts/mL)	5									

Run No. 3009
 Date 11/7/95
 Source Cheney

Elapsed Time (hr)	16	17	18	19	20	21	22	23	24
CHEMICAL FEED									
Preozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW									
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)							10.0		
pH (units)							8.4		
Grab Turbidity (ntu)							59.0		
On-Line Turbidity (ntu)	54.0	55.0	55.0	54.0	55.0	55.0	55.0	54.0	54.0
T. Hardness as CaCO3 (mg/L)							160		
T. Alkalinity as CaCO3 (mg/L)							144		

SETTLED									
pH (units)							9.5		9.4
Grab Turbidity (ntu)							3.4		
On-Line Turbidity (ntu)	>20	>20	>20	12.4	5.2	3.7	3.2	3.0	2.4
T. Hardness as CaCO3 (mg/L)							108		
T. Alkalinity as CaCO3 (mg/L)							88		

FILTER C - GAC/Sand Media									
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)									
Avg. Headloss (in/hr)									
pH (units)									
Grab Turbidity (ntu)									
On-Line Turbidity (ntu)	>1	>1	>1	>1					
Particles <5 um (counts/mL)									
Particles 5-15 um (counts/mL)									

FILTER D - Anth/Sand Media									
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)									
Avg. Headloss (in/hr)									
pH (units)									
Grab Turbidity (ntu)									
On-Line Turbidity (ntu)	>1	>1	>1	>1					
Particles <5 um (counts/mL)									
Particles 5-15 um (counts/mL)									

Run No. 3010
 Date 11/15/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
CHEMICAL FEED											
Preezone (mg/L)	25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	25	135	140	136	140	140	140	135	135	135	135
Ferric Sulfate (mg/L)	25	45	50	46	50	50	50	50	50	45	45
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	9.0	9.0	9.0	9.0				9.0		
pH (units)	4	8.2	8.3	8.3	8.3				8.3		
Grab Turbidity (ntu)	4	53.0	56.0	54.8	56.0				53.0		
On-Line Turbidity (ntu)	25	50.0	53.0	51.2	52.0	51.0	50.0	51.0	50.0	51.0	50.0
T. Hardness as CaCO3 (mg/L)	4	160	162	161	160				160		
T. Alkalinity as CaCO3 (mg/L)	4	142	144	143	142				142		

SETTLED											
pH (units)	8	9.3	9.4	9.4	9.4	9.3	9.3	9.3	9.4		
Grab Turbidity (ntu)	4	2.8	5.0	4.1	3.6				2.8		
On-Line Turbidity (ntu)	25	2.2	5.6	3.8	3.9	5.1	4.1	3.6	2.8	3.0	3.2
T. Hardness as CaCO3 (mg/L)	6	112	120	115	116		120		112		
T. Alkalinity as CaCO3 (mg/L)	6	84	88	86	84		88		84		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	38.4		0.0	7.9	9.8	11.0	12.3	13.6	14.8
Avg. Headloss (in/hr)				1.5							
pH (units)	8	7.9	8.6	8.3	8.6	7.9	8.3	8.2	8.3		
Grab Turbidity (ntu)	2	0.09	0.09	0.09					0.09		
On-Line Turbidity (ntu)	25	0.05	0.86	0.09	0.86	0.07	0.06	0.06	0.05	0.05	0.05
Particles <5 um (counts/mL)	2	46	69	58			46				
Particles 5-15 um (counts/mL)	2	12	24	18			12				

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	39.0		0.0	7.4	9.1	10.5	11.7	13.0	14.5
Avg. Headloss (in/hr)				1.6							
pH (units)	8	7.9	8.6	8.3	8.6	7.9	8.3	8.2	8.3		
Grab Turbidity (ntu)	2	0.08	0.10	0.09					0.10		
On-Line Turbidity (ntu)	25	0.04	0.52	0.08	0.52	0.09	0.07	0.06	0.06	0.06	0.05
Particles <5 um (counts/mL)	2	38	58	48			38				
Particles 5-15 um (counts/mL)	2	9	22	16			9				

	Filter C	Filter D
Ozone dose (mg/L)	2.0	2.0
Chlorine dose (mg/L)	1.8	1.8
Ammonia dose (mg/L)	0.5	0.5
TRIHALOMETHANES		
Bromodichloromethane	N.D.	N.D.
Bromoform	N.D.	N.D.
Chloroform	N.D.	1.4
Dibromochloromethane	N.D.	N.D.
TOTAL THM @ 24 hr (ug/L)	0.0	1.4
HALOACETIC ACIDS		
Monochloroacetic acid	1.5	1.1
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	2.4	3.3
Trichloroacetic acid	N.D.	N.D.
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	3.9	4.4

	Filter C	Filter D
AOC (ug/L)	280	300
TOX (mg/L)	0.005	0.043
Bromate (ug/L)	N.D.	N.D.
Acetaldehyde (ug/L)	2.5	5.6
Butanal (ug/L)	< 1.0	< 1.0
Formaldehyde (ug/L)	20	26
Glyoxal (ug/L)	9.8	12
Propanal (ug/L)	< 1.0	1.2
Methylglyoxal (ug/L)	< 1.0	3.1
Pentanal (ug/L)	< 1.0	1.1

	TOC (mg/L)	% Red. From Raw	DOC (mg/L)
RAW	3.9		3.2
SETTLED	3.1	21	2.0
FILTER C	2.7	31	1.7
FILTER D	2.9	26	2.0

Run No. 3010
 Date 11/15/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17
CHEMICAL FEED											
Preozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	135	135	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	51.0	51.0	52.0	53.0	52.0	51.0	51.0	51.0	50.0	51.0	51.0
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

SETTLED											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	3.0	4.1	3.8	3.6	3.0	2.9	2.9	2.7	2.4	2.2	3.5
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	16.1	17.4	18.4	19.9	21.1	22.4	23.5	24.9	26.2	27.5	28.8
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.7	16.9	18.2	19.6	20.9	22.3	23.6	24.9	26.3	27.7	29.0
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.05	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

Run No. 3010
 Date 11/15/95
 Source Cheney

Elapsed Time (hr) 18 19 20 21 22 23 24

CHEMICAL FEED

Preozone (mg/L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lime (mg/L)	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			9.0				9.0
pH (units)			8.2				8.3
Grab Turbidity (ntu)			56.0				54.0
On-Line Turbidity (ntu)	52.0	51.0	52.0	51.0	52.0	52.0	51.0
T. Hardness as CaCO3 (mg/L)			160				162
T. Alkalinity as CaCO3 (mg/L)			144				144

SETTLED

pH (units)			9.4		9.4		9.4
Grab Turbidity (ntu)			5.0				5.0
On-Line Turbidity (ntu)	4.8	5.6	5.2	5.0	5.0	5.1	4.7
T. Hardness as CaCO3 (mg/L)			112		116		114
T. Alkalinity as CaCO3 (mg/L)			86		88		88

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	30.0	31.5	33.4	34.8	35.8	37.0	38.4
Avg. Headloss (in/hr)							
pH (units)			8.3		8.4		8.4
Grab Turbidity (ntu)			0.09				
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.08	0.08	0.09	0.09
Particles <5 um (counts/mL)					69		
Particles 5-15 um (counts/mL)					24		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	30.5	32.0	34.1	35.3	36.8	37.9	39.0
Avg. Headloss (in/hr)							
pH (units)			8.3		8.4		8.4
Grab Turbidity (ntu)			0.08				
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.07	0.07	0.08	0.08
Particles <5 um (counts/mL)					58		
Particles 5-15 um (counts/mL)					22		

Run No. 3011
 Date 11/16/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average							
					0	1	2	3	4	5	
CHEMICAL FEED											
Lime (mg/L)	25	130	135	132	130	130	130	130	130	130	130
Ferric Sulfate (mg/L)	25	45	50	48	50	50	50	50	50	50	50
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	9.0	9.0	9.0	9.0				9.0		
pH (units)	4	8.3	8.4	8.3	8.4				8.3		
Grab Turbidity (ntu)	4	55.0	58.0	56.5	55.0				58.0		
On-Line Turbidity (ntu)	25	52.0	55.0	53.3	52.0	53.0	54.0	53.0	54.0	55.0	
T. Hardness as CaCO3 (mg/L)	4	160	162	161	160				162		
T. Alkalinity as CaCO3 (mg/L)	4	144	144	144	144				144		

SETTLED											
pH (units)	12	9.3	9.4	9.4	9.4	9.4	9.3	9.3	9.4		
Grab Turbidity (ntu)	4	4.0	5.1	4.6	5.1				4.0		
On-Line Turbidity (ntu)	25	1.9	5.4	3.7	5.0	4.8	4.0	3.2	3.8	3.6	
T. Hardness as CaCO3 (mg/L)	7	114	120	118	114		118		120		
T. Alkalinity as CaCO3 (mg/L)	7	86	92	90	86		90		90		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	37.0		0.0	6.2	8.0	9.1	10.3	11.7	
Avg. Headloss (in/hr)				1.5							
pH (units)	12	8.2	8.4	8.3	8.4	8.3	8.3	8.2	8.2		
Grab Turbidity (ntu)	3	0.09	0.11	0.10					0.09		
On-Line Turbidity (ntu)	25	0.05	0.86	0.09	0.86	0.07	0.06	0.06	0.05	0.05	
Particles <5 um (counts/mL)	4	68	102	86					68		
Particles 5-15 um (counts/mL)	4	14	36	27					14		

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	37.5		0.0	6.8	8.0	9.3	10.0	11.2	
Avg. Headloss (in/hr)				1.5							
pH (units)	12	8.2	8.4	8.3	8.4	8.3	8.3	8.2	8.2		
Grab Turbidity (ntu)	2	0.11	0.12	0.12							
On-Line Turbidity (ntu)	25	0.04	0.52	0.08	0.52	0.09	0.07	0.06	0.06	0.06	
Particles <5 um (counts/mL)	4	52	95	76					52		
Particles 5-15 um (counts/mL)	4	19	31	26					19		

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	3.3	3.2
Ammonia dose (mg/L)	0.8	0.8
TRIHALOMETHANES		
Bromodichloromethane	16.2	18.2
Bromoform	N.D.	N.D.
Chloroform	22.3	28.1
Dibromochloromethane	4.9	4.4
TOTAL THM @ 24 hr (ug/L)	43.4	50.7
HALOACETIC ACIDS		
Monochloroacetic acid	2.3	2.3
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	9.1	10.0
Trichloroacetic acid	6.4	7.1
Dibromoacetic acid	N.D.	4.1
HAA5 @ 24 hr (ug/L)	17.8	23.5

	TOC (mg/L)	% Red. From Raw
RAW	4.6	
SETTLED	3.9	15
FILTER C	3.7	19
FILTER D	3.8	17

Run No. 3011
 Date 11/16/95
 Source Cheney

Elapsed Time (hr)	6	7	8	9	10	11	12	13	14	15
CHEMICAL FEED										
Lime (mg/L)	130	130	130	130	130	130	130	130	130	130
Ferric Sulfate (mg/L)	50	50	50	50	50	50	50	50	50	50
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW										
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	55.0	55.0	55.0	54.0	53.0	53.0	53.0	52.0	52.0	53.0
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

SETTLED										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	3.2	3.0	2.8	2.8	2.7	2.7	2.5	2.3	2.0	1.9
T. Hardness as CaCO3 (mg/L)										
T. Alkalinity as CaCO3 (mg/L)										

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	12.8	14.0	15.4	16.4	17.6	19.0	20.3	21.7	23.0	24.3
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	12.5	13.7	15.0	16.1	17.3	18.4	19.9	21.2	22.6	24.0
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.05	0.05	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 3011
 Date 11/16/95
 Source Cheney

Elapsed Time (hr) 16 17 18 19 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	130	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	50	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)		9.0				9.0			
pH (units)		8.3				8.3			
Grab Turbidity (ntu)		57.0				56.0			
On-Line Turbidity (ntu)	54.0	53.0	53.0	53.0	53.0	53.0	53.0	52.0	52.0
T. Hardness as CaCO3 (mg/L)		162				160			
T. Alkalinity as CaCO3 (mg/L)		144				144			

SETTLED

pH (units)		9.3		9.4	9.4	9.3	9.4	9.4	9.4
Grab Turbidity (ntu)		4.7				4.7			
On-Line Turbidity (ntu)	3.5	4.9	5.4	5.0	4.8	4.6	4.0	4.2	4.8
T. Hardness as CaCO3 (mg/L)		120		118		118		116	
T. Alkalinity as CaCO3 (mg/L)		92		92		90		88	

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25.6	26.9	28.2	29.4	30.8	32.2	33.9	35.6	37.0
Avg. Headloss (in/hr)									
pH (units)		8.2		8.2	8.3	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)		0.09				0.11			
On-Line Turbidity (ntu)	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09
Particles <5 um (counts/mL)		88		85				102	
Particles 5-15 um (counts/mL)		29		30				36	

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25.2	26.6	28.0	29.5	30.6	32.0	33.5	35.9	37.5
Avg. Headloss (in/hr)									
pH (units)		8.2		8.2	8.3	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)		0.11				0.12			
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08
Particles <5 um (counts/mL)		73		84				95	
Particles 5-15 um (counts/mL)		28		25				31	

Run No. 3012
 Date 11/17/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5
					CHEMICAL FEED					
Lime (mg/L)	25	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	25	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW										
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	8.5	9.0	8.9	9.0					
pH (units)	4	8.3	8.4	8.4	8.4					
Grab Turbidity (ntu)	4	57.0	60.0	58.3	58.0					
On-Line Turbidity (ntu)	25	54.0	57.0	55.8	54.0	55.0	55.0	56.0	57.0	57.0
T. Hardness as CaCO3 (mg/L)	4	162	164	163	162					
T. Alkalinity as CaCO3 (mg/L)	4	144	146	145	146					

SETTLED										
pH (units)	14	9.2	9.4	9.4	9.4	9.4	9.4	9.3	9.3	
Grab Turbidity (ntu)	4	2.3	4.9	4.0	4.9					
On-Line Turbidity (ntu)	25	2.2	6.4	4.1	4.6	4.5	4.0	3.9	4.2	4.6
T. Hardness as CaCO3 (mg/L)	7	112	122	118	116		120			
T. Alkalinity as CaCO3 (mg/L)	7	84	94	89	88		88			

FILTER C - GAC/Sand Media										
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	40.0		0.0	7.1	8.6	10.0	11.3	12.3
Avg. Headloss (in/hr)				1.6						
pH (units)	14	8.2	8.4	8.3	8.3	8.3	8.3	8.2		
Grab Turbidity (ntu)	4	0.12	0.20	0.15						
On-Line Turbidity (ntu)	25	0.06	0.52	0.11	0.52	0.13	0.09	0.06	0.06	0.06
Particles <5 um (counts/mL)	4	30	136	72		36		30		
Particles 5-15 um (counts/mL)	4	7	46	21		9		7		

FILTER D - Anth/Sand Media										
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	38.6		0.0	6.5	8.0	10.0	11.3	12.8
Avg. Headloss (in/hr)				1.5						
pH (units)	14	8.2	8.4	8.3	8.3	8.3	8.3	8.2		
Grab Turbidity (ntu)	3	0.13	0.16	0.15						
On-Line Turbidity (ntu)	25	0.04	0.69	0.10	0.69	0.20	0.10	0.08	0.06	0.05
Particles <5 um (counts/mL)	4	28	145	69		28		28		
Particles 5-15 um (counts/mL)	4	8	41	21		8		10		

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	3.4	3.3
Ammonia dose (mg/L)	0.9	0.8
TRICHALOMETHANES		
Bromodichloromethane	16.6	18.8
Bromoform	N.D.	N.D.
Chloroform	23.0	29.5
Dibromochloromethane	4.8	4.5
TOTAL THM @ 24 hr (ug/L)	44.4	52.8
HALOACETIC ACIDS		
Monochloroacetic acid	2.1	2.2
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	9.2	12.1
Trichloroacetic acid	6.5	10.9
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	17.8	25.2

	TOC (mg/L)	% Red. From Raw
RAW	4.4	
SETTLED	4.1	7
FILTER C	3.6	19
FILTER D	4.2	6

Run No. 3012
 Date 11/17/95
 Source Cheney

Elapsed Time (hr) 6 7 8 9 10 11 12 13 14 15
CHEMICAL FEED

Lime (mg/L)	135	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										9.0
pH (units)										8.4
Grab Turbidity (ntu)										58.0
On-Line Turbidity (ntu)	56.0	57.0	57.0	57.0	56.0	56.0	57.0	57.0	57.0	56.0
T. Hardness as CaCO3 (mg/L)										162
T. Alkalinity as CaCO3 (mg/L)										144

SETTLED

pH (units)										9.4
Grab Turbidity (ntu)										2.3
On-Line Turbidity (ntu)	4.2	4.5	4.5	4.5	3.8	3.7	3.6	3.0	2.8	2.4
T. Hardness as CaCO3 (mg/L)										112
T. Alkalinity as CaCO3 (mg/L)										84

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	13.8	15.2	16.7	18.0	19.4	20.9	22.2	23.5	25.0	26.4
Avg. Headloss (in/hr)										
pH (units)										8.3
Grab Turbidity (ntu)										0.12
On-Line Turbidity (ntu)	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
Particles <5 um (counts/mL)										87
Particles 5-15 um (counts/mL)										23

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	14.0	15.5	16.9	18.2	19.5	20.8	22.0	23.2	24.6	25.9
Avg. Headloss (in/hr)										
pH (units)										8.3
Grab Turbidity (ntu)										0.13
On-Line Turbidity (ntu)	0.05	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07
Particles <5 um (counts/mL)										74
Particles 5-15 um (counts/mL)										25

Run No. 3012
 Date 11/17/95
 Source Cheney

Elapsed Time (hr)	16	17	18	19	20	21	22	23	24
CHEMICAL FEED									
Lime (mg/L)	135	135	135	135	135	135	135	135	135
Ferric Sulfate (mg/L)	45	45	45	45	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW									
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)				8.5				9.0	
pH (units)				8.4				8.3	
Grab Turbidity (ntu)				60.0				57.0	
On-Line Turbidity (ntu)	55.0	55.0	55.0	56.0	56.0	55.0	55.0	54.0	55.0
T. Hardness as CaCO3 (mg/L)				164				164	
T. Alkalinity as CaCO3 (mg/L)				144				146	

SETTLED									
pH (units)	9.4	9.3	9.3	9.4	9.4	9.2	9.3	9.4	9.4
Grab Turbidity (ntu)				4.0				4.6	
On-Line Turbidity (ntu)	2.2	3.8	4.0	4.2	6.4	4.8	5.0	4.8	4.8
T. Hardness as CaCO3 (mg/L)		118		120		122		116	
T. Alkalinity as CaCO3 (mg/L)		90		90		94		86	

FILTER C - GAC/Sand Media									
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (Inches)	28.0	29.3	30.7	32.0	33.5	35.0	37.1	38.7	40.0
Avg. Headloss (in/hr)									
pH (units)	8.3	8.2	8.2	8.3	8.4	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)		0.12		0.16				0.20	
On-Line Turbidity (ntu)	0.10	0.10	0.10	0.12	0.13	0.14	0.14	0.14	0.18
Particles <5 um (counts/mL)									136
Particles 5-15 um (counts/mL)									46

FILTER D - Anth/Sand Media									
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	27.4	28.8	30.1	31.6	33.0	34.6	36.0	37.2	38.6
Avg. Headloss (in/hr)									
pH (units)	8.3	8.2	8.2	8.3	8.4	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)				0.15				0.16	
On-Line Turbidity (ntu)	0.07	0.07	0.08	0.09	0.09	0.10	0.11	0.11	0.13
Particles <5 um (counts/mL)									145
Particles 5-15 um (counts/mL)									41

Run No. 3013
 Date 11/27/95
 Source Cheney

	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
Elapsed Time (hr)											
CHEMICAL FEED											
Lime (mg/L)	25	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	25	45	50	49	50	50	50	50	50	50	50
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	9.0	9.0	9.0	9.0				9.0		
pH (units)	4	8.3	8.3	8.3	8.3				8.3		
Grab Turbidity (ntu)	4	59.0	61.0	60.5	59.0				61.0		
On-Line Turbidity (ntu)	25	56.0	58.0	57.2	56.0	57.0	57.0	57.0	58.0	58.0	58.0
T. Hardness as CaCO3 (mg/L)	4	164	166	166	166				166		
T. Alkalinity as CaCO3 (mg/L)	4	146	148	147	148				146		

SETTLED											
pH (units)	10	9.3	9.4	9.4	9.3	9.4	9.4	9.4	9.4		
Grab Turbidity (ntu)	3	3.8	4.8	4.3	3.8						
On-Line Turbidity (ntu)	25	2.5	5.3	3.7	3.8	4.0	4.1	4.1	4.3	4.3	4.2
T. Hardness as CaCO3 (mg/L)	6	114	122	118	122		120		118		
T. Alkalinity as CaCO3 (mg/L)	6	94	98	95	98		94		94		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	43.1		0.0	6.9	8.5	10.0	11.6	13.0	14.4
Avg. Headloss (in/hr)				1.7							
pH (units)	10	8.3	8.5	8.4	8.4	8.4	8.4	8.5	8.4		
Grab Turbidity (ntu)	3	0.10	0.25	0.18					0.10		
On-Line Turbidity (ntu)	25	0.06	0.38	0.12	0.38	0.10	0.06	0.07	0.07	0.07	0.07
Particles <5 um (counts/mL)	4	60	142	102			68		60		
Particles 5-15 um (counts/mL)	4	14	35	26			23		14		

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	41.8		0.0	5.4	7.0	9.0	11.2	12.7	14.3
Avg. Headloss (in/hr)				1.7							
pH (units)	10	8.3	8.5	8.4	8.4	8.4	8.4	8.5	8.4		
Grab Turbidity (ntu)	3	0.09	0.20	0.16					0.09		
On-Line Turbidity (ntu)	25	0.05	0.58	0.11	0.58	0.17	0.09	0.06	0.06	0.06	0.05
Particles <5 um (counts/mL)	4	70	179	124			89		70		
Particles 5-15 um (counts/mL)	4	15	49	34			31		15		

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	3.4	3.3
Ammonia dose (mg/L)	0.8	0.8
TRIHALOMETHANES		
Bromodichloromethane	15.2	17.0
Bromoform	N.D.	N.D.
Chloroform	22.6	28.9
Dibromochloromethane	4.1	3.7
TOTAL THM @ 24 hr (ug/L)	41.9	49.6
HALOACETIC ACIDS		
Monochloroacetic acid	1.0	2.1
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	10.7	12.2
Trichloroacetic acid	5.6	6.8
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	17.3	21.1

	TOC (mg/L)	% Red. From Raw	DOC (mg/L)
RAW	5.4		4.7
SETTLED	4.8	11	4.0
FILTER C	4.0	26	3.8
FILTER D	4.5	17	5.0

TOX (mg/L)	0.054	0.075
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Run No. 3013
 Date 11/27/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17
CHEMICAL FEED											
Lime (mg/L)	140	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	50	50	50	50	50	50	50	50	50	50	50
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	58.0	58.0	57.0	57.0	56.0	56.0	56.0	57.0	57.0	56.0	57.0
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

SETTLED											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	3.9	3.6	3.6	3.1	3.0	3.0	2.7	2.5	2.6	2.8	2.7
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.9	17.4	18.8	20.0	21.3	23.0	24.6	26.7	28.6	30.2	31.8
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.09	0.10	0.11	0.11
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.9	17.3	18.7	20.0	21.5	22.7	24.2	25.8	27.4	29.0	30.5
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.06	0.07	0.07	0.07	0.07	0.07	0.09	0.09	0.08	0.08	0.09
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

Run No. 3013
 Date 11/27/95
 Source Cheney

Elapsed Time (hr) 18 19 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	50	50	50	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			9.0				9.0
pH (units)			8.3				8.3
Grab Turbidity (ntu)			61.0				61.0
On-Line Turbidity (ntu)	57.0	57.0	58.0	58.0	58.0	58.0	58.0
T. Hardness as CaCO3 (mg/L)			166				164
T. Alkalinity as CaCO3 (mg/L)			146				146

SETTLED

pH (units)			9.4	9.4	9.4	9.3	9.3
Grab Turbidity (ntu)			4.2				4.8
On-Line Turbidity (ntu)	3.0	2.9	4.1	4.5	5.3	5.0	5.0
T. Hardness as CaCO3 (mg/L)			116		114		118
T. Alkalinity as CaCO3 (mg/L)			94		94		96

FILTER C - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	33.3	34.9	36.6	38.2	39.9	41.7	43.1
Avg. Headloss (in/hr)							
pH (units)			8.4	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)			0.20				0.25
On-Line Turbidity (ntu)	0.12	0.14	0.16	0.17	0.20	0.20	0.21
Particles <5 um (counts/mL)			136		142		
Particles 5-15 um (counts/mL)			35		31		

FILTER D - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	32.1	33.5	35.0	36.5	38.1	39.7	41.8
Avg. Headloss (in/hr)							
pH (units)			8.4	8.3	8.3	8.3	8.3
Grab Turbidity (ntu)			0.19				0.20
On-Line Turbidity (ntu)	0.10	0.12	0.13	0.14	0.14	0.15	0.15
Particles <5 um (counts/mL)			158		179		
Particles 5-15 um (counts/mL)			42		49		

Run No. 3014
 Date 11/28/95
 Source Cheney

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6
					CHEMICAL FEED						
Lime (mg/L)	25	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	25	45	55	52	50	50	50	50	50	55	55
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	4	9.0	9.0	9.0	9.0				9.0		
pH (units)	4	8.3	8.4	8.3	8.3				8.3		
Grab Turbidity (ntu)	4	62.0	62.0	62.0	62.0				62.0		
On-Line Turbidity (ntu)	25	58.0	60.0	58.9	58.0	59.0	59.0	59.0	59.0	60.0	60.0
T. Hardness as CaCO3 (mg/L)	4	164	166	166	166				166		
T. Alkalinity as CaCO3 (mg/L)	4	146	148	147	146				146		

SETTLED											
pH (units)	11	9.3	9.4	9.4	9.4	9.4	9.3	9.4	9.4		
Grab Turbidity (ntu)	4	4.1	5.3	4.7	4.7				5.3		
On-Line Turbidity (ntu)	25	2.0	6.2	4.4	5.0	5.2	5.1	5.3	5.0	5.1	4.9
T. Hardness as CaCO3 (mg/L)	6	114	120	117	120		120		116		
T. Alkalinity as CaCO3 (mg/L)	6	90	94	92	94		94		90		

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	43.1		0.0	6.9	8.5	10.0	11.6	13.0	14.4
Avg. Headloss (in/hr)				1.7							
pH (units)	11	8.2	8.4	8.3	8.4	8.3	8.3	8.4	8.3		
Grab Turbidity (ntu)	3	0.12	0.22	0.17					0.12		
On-Line Turbidity (ntu)	25	0.06	0.88	0.14	0.88	0.25	0.08	0.09	0.08	0.07	0.07
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	41.8		0.0	5.4	7.0	9.0	11.2	12.7	14.3
Avg. Headloss (in/hr)				1.7							
pH (units)	11	8.2	8.4	8.3	8.4	8.3	8.3	8.4	8.3		
Grab Turbidity (ntu)	3	0.09	0.18	0.14					0.09		
On-Line Turbidity (ntu)	25	0.05	0.58	0.11	0.58	0.17	0.09	0.06	0.06	0.06	0.05
Particles <5 um (counts/mL)	0	0.0	0.0	0.0							
Particles 5-15 um (counts/mL)	0	0.0	0.0	0.0							

	Filter C	Filter D
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	3.4	3.2
Ammonia dose (mg/L)	0.9	0.8
TRIHALOMETHANES		
Bromodichloromethane	15.3	19.1
Bromoform	N.D.	N.D.
Chloroform	22.4	28.2
Dibromochloromethane	3.6	4.1
TOTAL THM @ 24 hr (ug/L)	41.3	51.4
HALOACETIC ACIDS		
Monochloroacetic acid	1.1	1.7
Monobromoacetic acid	N.D.	N.D.
Dichloroacetic acid	9.6	11.9
Trichloroacetic acid	7.2	9.2
Dibromoacetic acid	N.D.	N.D.
HAA5 @ 24 hr (ug/L)	17.9	22.8

	TOC (mg/L)	% Red. From Raw
RAW	4.1	
SETTLED	3.7	10
FILTER C	3.3	19
FILTER D	3.7	10

TOX (mg/L)	0.078	0.067
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Run No. 3014
 Date 11/28/95
 Source Cheney

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17
CHEMICAL FEED											
Lime (mg/L)	140	140	140	140	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	55	55	55	55	55	55	55	55	55	55	55
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	60.0	60.0	60.0	59.0	59.0	59.0	58.0	59.0	59.0	58.0	58.0
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

SETTLED											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	4.9	4.8	4.3	4.1	4.0	4.0	3.6	3.2	2.8	2.7	2.1
T. Hardness as CaCO3 (mg/L)											
T. Alkalinity as CaCO3 (mg/L)											

FILTER C - GAC/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.9	17.4	18.8	20.0	21.3	23.0	24.6	26.7	28.6	30.2	31.8
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.06	0.06	0.08	0.08	0.09	0.08	0.08	0.09	0.08	0.09	0.11
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

FILTER D - Anth/Sand Media											
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	15.9	17.3	18.7	20.0	21.5	22.7	24.2	25.8	27.4	29.0	30.5
Avg. Headloss (in/hr)											
pH (units)											
Grab Turbidity (ntu)											
On-Line Turbidity (ntu)	0.06	0.07	0.07	0.07	0.07	0.07	0.09	0.09	0.08	0.08	0.09
Particles <5 um (counts/mL)											
Particles 5-15 um (counts/mL)											

Run No. 3014
 Date 11/28/95
 Source Cheney

Elapsed Time (hr)	18	19	20	21	22	23	24
CHEMICAL FEED							
Lime (mg/L)	140	140	140	140	140	140	140
Ferric Sulfate (mg/L)	55	55	45	45	45	45	45
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW							
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)		9.0				9.0	
pH (units)		8.3				8.4	
Grab Turbidity (ntu)		62.0				62.0	
On-Line Turbidity (ntu)	58.0	58.0	58.0	58.0	59.0	59.0	59.0
T. Hardness as CaCO3 (mg/L)		166				164	
T. Alkalinity as CaCO3 (mg/L)		146				148	

SETTLED							
pH (units)		9.4	9.4	9.4	9.4	9.4	9.3
Grab Turbidity (ntu)		4.1					4.8
On-Line Turbidity (ntu)	2.0	3.9	5.3	6.2	6.0	4.9	4.8
T. Hardness as CaCO3 (mg/L)		114		114		116	
T. Alkalinity as CaCO3 (mg/L)		90		92		90	

FILTER C - GAC/Sand Media							
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	33.3	34.9	36.6	38.2	39.9	41.7	43.1
Avg. Headloss (in/hr)							
pH (units)		8.4	8.3	8.3	8.3	8.2	8.2
Grab Turbidity (ntu)		0.17				0.22	
On-Line Turbidity (ntu)	0.12	0.12	0.14	0.15	0.17	0.19	0.19
Particles <5 um (counts/mL)							
Particles 5-15 um (counts/mL)							

FILTER D - Anth/Sand Media							
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	32.1	33.5	35.0	36.5	38.1	39.7	41.8
Avg. Headloss (in/hr)							
pH (units)		8.4	8.3	8.3	8.3	8.2	8.2
Grab Turbidity (ntu)		0.15				0.18	
On-Line Turbidity (ntu)	0.10	0.12	0.13	0.14	0.14	0.15	0.15
Particles <5 um (counts/mL)							
Particles 5-15 um (counts/mL)							

Run No. 3015
 Date 11/30/95
 Source Little Ark

Elapsed Time (hr)	Count	Minimum	Maximum	Average	0	1	2	3	4	5	6	
					CHEMICAL FEED							
Lime (mg/L)	25	220	230	221	230	230	220	220	220	220	220	220
Soda Ash (mg/L)	25	30	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	25	15	20	19	20	20	20	20	20	20	20	20
Filter Aid Polymer (mg/L)	25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW												
Pilot Plant Flowrate (gpm)	25	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)	3	11.0	11.5	11.2	11.5							
pH (units)	3	8.4	8.4	8.4	8.4							
Grab Turbidity (ntu)	3	6.7	7.0	6.8	6.8							
On-Line Turbidity (ntu)	25	6.4	7.1	6.7	6.9	6.8	6.7	6.7	6.8	7.0	6.8	
T. Hardness as CaCO3 (mg/L)	3	312	320	316	320							
T. Alkalinity as CaCO3 (mg/L)	3	258	262	260	262							

SETTLED												
pH (units)	12	9.3	9.5	9.4	9.4	9.4	9.3					
Grab Turbidity (ntu)	2	4.5	5.2	4.9	5.2							
On-Line Turbidity (ntu)	25	4.0	4.9	4.4	4.9	4.8	4.8	4.7	4.6	4.4	4.2	
T. Hardness as CaCO3 (mg/L)	6	112	118	116	112		118					
T. Alkalinity as CaCO3 (mg/L)	6	88	94	92	92		94					

FILTER A - Anth/Sand Media												
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	30.0		0.0	2.0	3.1	4.2	5.5	6.5	7.7	
Avg. Headloss (in/hr)				1.2								
pH (units)	12	8.1	8.3	8.2	8.1	8.2	8.2					
Grab Turbidity (ntu)	2	0.13	0.17	0.15								
On-Line Turbidity (ntu)	25	0.10	0.25	0.14	0.25	0.22	0.20	0.19	0.17	0.15	0.13	
Particles <5 um (counts/mL)	3	88	300	197			88					
Particles 5-15 um (counts/mL)	3	21	79	49			21					

FILTER B - GAC/Sand Media												
Filtration Rate (gpm/sf)	25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	25	0.0	31.7		0.0	1.8	3.0	4.3	5.5	6.7	8.0	
Avg. Headloss (in/hr)				1.3								
pH (units)	12	8.1	8.3	8.2	8.1	8.2	8.2					
Grab Turbidity (ntu)	2	0.19	0.21	0.20								
On-Line Turbidity (ntu)	25	0.14	0.35	0.18	0.35	0.21	0.18	0.16	0.15	0.14	0.14	
Particles <5 um (counts/mL)	3	102	368	241			102					
Particles 5-15 um (counts/mL)	3	37	88	63			37					

	Filter A	Filter B
Initial Cl dose (mg/L)	4.0	4.0
Residual @ 40 min (mg/L)	2.7	3.2
Ammonia dose (mg/L)	0.7	0.8
TRIHALOMETHANES		
Bromodichloromethane	20.6	11.2
Bromoform	14.5	15.0
Chloroform	14.8	4.7
Dibromochloromethane	26.0	20.6
TOTAL THM @ 24 hr (ug/L)	75.9	51.5
HALOACETIC ACIDS		
Monochloroacetic acid	N.D.	N.D.
Monobromoacetic acid	N.D.	1.2
Dichloroacetic acid	5.3	2.3
Trichloroacetic acid	3.2	2.2
Dibromoacetic acid	5.6	6.5
HAA5 @ 24 hr (ug/L)	14.1	12.2

	TOC (mg/L)	% Red. From Raw	DOC (mg/L)
RAW	4.1		3.9
SETTLED	3.8	7	3.7
FILTER A	3.7	10	4.2
FILTER B	2.7	34	-

TOX (mg/L)	0.06	0.024
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Run No. 3015
 Date 11/30/95
 Source Little Ark

Elapsed Time (hr)	7	8	9	10	11	12	13	14	15	16	17
CHEMICAL FEED											
Lime (mg/L)	220	220	220	220	220	220	220	220	220	220	220
Soda Ash (mg/L)	30	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	20	20	20	20	20	20	20	20	20	20	20
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW											
Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)											11.0
pH (units)											8.4
Grab Turbidity (ntu)											6.7
On-Line Turbidity (ntu)	6.7	6.6	6.5	6.5	6.4	6.6	6.6	6.4	6.5	6.7	6.8
T. Hardness as CaCO3 (mg/L)											316
T. Alkalinity as CaCO3 (mg/L)											258

SETTLED												
pH (units)											9.4	9.4
Grab Turbidity (ntu)											4.5	
On-Line Turbidity (ntu)	4.2	4.1	4.2	4.0	4.0	4.2	4.2	4.1	4.2	4.3	4.4	
T. Hardness as CaCO3 (mg/L)											116	
T. Alkalinity as CaCO3 (mg/L)											88	

FILTER A - Anth/Sand Media												
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	8.9	10.1	11.3	12.3	13.5	14.7	16.0	17.3	18.5	19.9	21.3	
Avg. Headloss (in/hr)												
pH (units)											8.2	8.3
Grab Turbidity (ntu)											0.13	
On-Line Turbidity (ntu)	0.12	0.12	0.11	0.11	0.10	0.10	0.10	0.10	0.11	0.11	0.12	
Particles <5 um (counts/mL)											202	
Particles 5-15 um (counts/mL)											48	

FILTER B - GAC/Sand Media												
Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Headloss (inches)	9.2	10.5	11.8	13.0	14.4	15.8	17.1	18.5	19.7	21.0	22.4	
Avg. Headloss (in/hr)												
pH (units)											8.2	8.3
Grab Turbidity (ntu)											0.19	
On-Line Turbidity (ntu)	0.15	0.15	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.18	0.18	
Particles <5 um (counts/mL)											254	
Particles 5-15 um (counts/mL)											65	

Run No. 3015
 Date 11/30/95
 Source Little Ark

Elapsed Time (hr) 18 19 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	220	220	220	220	220	220	220
Soda Ash (mg/L)	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	20	15	15	15	15	15	15
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			11.0				
pH (units)			8.4				
Grab Turbidity (ntu)			7.0				
On-Line Turbidity (ntu)	6.8	6.9	7.1	7.0	6.9	6.7	6.6
T. Hardness as CaCO3 (mg/L)			312				
T. Alkalinity as CaCO3 (mg/L)			260				

SETTLED

pH (units)	9.4	9.4	9.4	9.4	9.5	9.4	9.4
Grab Turbidity (ntu)							
On-Line Turbidity (ntu)	4.4	4.5	4.5	4.4	4.5	4.2	4.1
T. Hardness as CaCO3 (mg/L)	118		116		116		
T. Alkalinity as CaCO3 (mg/L)	92		92		92		

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	22.5	23.8	25.0	26.2	27.5	28.7	30.0
Avg. Headloss (in/hr)							
pH (units)	8.3	8.2	8.2	8.2	8.2	8.3	8.2
Grab Turbidity (ntu)			0.17				
On-Line Turbidity (ntu)	0.13	0.13	0.14	0.15	0.16	0.16	0.17
Particles <5 um (counts/mL)			300				
Particles 5-15 um (counts/mL)			79				

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	23.7	25.0	26.3	27.7	29.0	30.3	31.7
Avg. Headloss (in/hr)							
pH (units)	8.3	8.2	8.2	8.2	8.2	8.3	8.2
Grab Turbidity (ntu)			0.21				
On-Line Turbidity (ntu)	0.19	0.19	0.19	0.21	0.21	0.21	0.22
Particles <5 um (counts/mL)			368				
Particles 5-15 um (counts/mL)			88				

Count Minimum Maximum Average

0	1	2	3	4	5
558	558	558	558	558	558
0.1	0.1	0.1	0.1	0.1	0.1
20	20	20	20	20	20
0.1	0.1	0.1	0.1	0.1	0.1

RAW

3	3	3	3	3	3
328	328	328	328	328	328
0.1	0.1	0.1	0.1	0.1	0.1
20	20	20	20	20	20
0.1	0.1	0.1	0.1	0.1	0.1

FILTERED

4	4	4	4	4	4
118	118	118	118	118	118
0.1	0.1	0.1	0.1	0.1	0.1
20	20	20	20	20	20
0.1	0.1	0.1	0.1	0.1	0.1

FILTER A - 4.7um and below

0	0	0	0	0	0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0

FILTER B - 0.45um and below

0	0	0	0	0	0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0

CDM
 TOC
 Filter B

RAW	4.1	7
FILTERED	4.1	7
FILTER A	4.1	7
FILTER B	4.1	7

HAAS O 251 (mg/L)	18.1	13.8
Diphosphate (mg/L)	0.7	0.7
Trifluoromethane (mg/L)	0.7	0.7
Hexachlorocyclopentadiene (mg/L)	0.7	0.7
Hexachlorobenzene (mg/L)	0.7	0.7
Chloroform (mg/L)	0.7	0.7
Carbon tetrachloride (mg/L)	0.7	0.7
TOTAL THM 0.2 (mg/L)	0.7	0.7
Chloroform (mg/L)	0.7	0.7
Carbon tetrachloride (mg/L)	0.7	0.7
Trifluoromethane (mg/L)	0.7	0.7
Diphosphate (mg/L)	0.7	0.7
HAAS O 251 (mg/L)	18.1	13.8

Run No. 3016
 Date 12/2/95
 Source Little Ark

Elapsed Time (hr) 6 7 8 9 10 11 12 13 14 15
CHEMICAL FEED

Lime (mg/L)	225	225	225	225	225	225	225	225	225	225
Soda Ash (mg/L)	30	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	20	20	20	20	20	20	20	20	20	20
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	7.6	7.4	7.4	7.4	7.3	7.1	6.9	6.9	6.8	6.6
T. Hardness as CaCO ₃ (mg/L)										
T. Alkalinity as CaCO ₃ (mg/L)										

SETTLED

pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	4.1	4.0	4.0	4.0	3.9	4.4	4.5	4.6	4.6	4.7
T. Hardness as CaCO ₃ (mg/L)										
T. Alkalinity as CaCO ₃ (mg/L)										

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.1	8.0	9.2	10.3	11.3	12.5	13.8	15.0	16.1	17.1
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.16
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	7.7	8.8	10.0	11.2	12.3	13.6	14.9	16.1	17.3	18.4
Avg. Headloss (in/hr)										
pH (units)										
Grab Turbidity (ntu)										
On-Line Turbidity (ntu)	0.16	0.16	0.16	0.15	0.15	0.16	0.17	0.17	0.17	0.18
Particles <5 um (counts/mL)										
Particles 5-15 um (counts/mL)										

Run No. 3016
 Date 12/2/95
 Source Little Ark

Elapsed Time (hr) 16 17 18 19 20 21 22 23 24

CHEMICAL FEED

Lime (mg/L)	225	225	225	225	225	225	225	225	225
Soda Ash (mg/L)	30	30	30	30	30	30	30	30	30
Ferric Sulfate (mg/L)	20	20	20	20	20	20	20	20	20
Filter Aid Polymer (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

RAW

Pilot Plant Flowrate (gpm)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Temp. (deg. C)			10.5				10.5		
pH (units)			8.4				8.3		
Grab Turbidity (ntu)			6.5				6.5		
On-Line Turbidity (ntu)	6.5	6.5	6.5	6.4	6.4	6.3	6.3	6.3	5.8
T. Hardness as CaCO3 (mg/L)			308				312		
T. Alkalinity as CaCO3 (mg/L)			260				260		

SETTLED

pH (units)			9.4	9.4	9.5	9.4	9.4	9.4	9.4
Grab Turbidity (ntu)			4.5				4.6		
On-Line Turbidity (ntu)	4.8	4.6	4.6	4.7	4.7	4.6	4.6	4.5	4.5
T. Hardness as CaCO3 (mg/L)			108		112		114		
T. Alkalinity as CaCO3 (mg/L)			88		90		96		

FILTER A - Anth/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	18.4	19.8	21.1	22.6	24.0	25.4	26.9	28.2	29.5
Avg. Headloss (in/hr)									
pH (units)			8.3	8.2	8.3	8.2	8.2	8.2	8.3
Grab Turbidity (ntu)			0.19				0.21		
On-Line Turbidity (ntu)	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.18
Particles <5 um (counts/mL)									
Particles 5-15 um (counts/mL)									

FILTER B - GAC/Sand Media

Filtration Rate (gpm/sf)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Headloss (inches)	19.8	21.0	22.4	23.7	25.0	26.5	28.0	29.4	30.8
Avg. Headloss (in/hr)									
pH (units)			8.3	8.2	8.3	8.2	8.2	8.2	8.3
Grab Turbidity (ntu)			0.21				0.22		
On-Line Turbidity (ntu)	0.19	0.19	0.19	0.20	0.21	0.21	0.21	0.22	0.23
Particles <5 um (counts/mL)									
Particles 5-15 um (counts/mL)									