

APPENDIX C

Water Use Data

1992 Water Use and Water Quality Data

DATE	FLOW RATE (m3)			Personnel on Station	Per Capita Flowrate (Lpcd)
	Rww	Backwash	Consumption		
Jan	9762	34	5919	210	28
Feb					
March					
April	9822	35	6045	202	30
May	98918	35	5967	210	28
June	8573	35	5115	220	23
July	9156	35	6013	350	17
Aug	9488	35	6261	496	13
Sept	8985	35	5893	233	25
Oct	9862	35	6363	198	32
Nov	9563	30	6592	200	33
Dec	10212	48	7008	200	35

pH range 7.9 - 8.2
 Hardness range 102 - 136 mg/L

2006 Water Use and Water Quality Data

DATE	FLOW RATE (gpm)		Flow Rate (L)	Personnel on Station	Per Capita Flowrate (Lpcd)
	Raw	Return			
Jan	51	20	168,739	96	1,758
Feb	51	20	168,739	116	1,455
March	50	20	163,296	130	1,256
April	51	20	168,739	196	861
May	50	20	163,296	140	1,166
June	50	20	163,296	157	1,040
July	50	20	163,296	195	837
Aug				186	
Sept				163	
Oct				136	
Nov				128	
Dec				125	

pH range 7.1 - 8.25
 TDS range 107 - 124 mg/L
 Hardness range 93 - 111 mg/L
 raw turbidity range 0.1 - 0.3 NTU

2007 Water Use and Water Quality Data

Month	FLOW RATE (gpm)		Flow Rate (L)	pH range	TDS (average) mg/L	Hardness (average) mg/L	raw turbidity range NTU	Personnel on Station	Per Capita Flowrate (Lpcd)
	Raw	Return							
Jan	50	20	163,296	8.0 - 8.3	109	103	0.2 - 0.5	90	1,814
Feb	55	22	179,626	8.1 - 8.3	10	112	0.1 - 0.5	95	1,891
March	55	22	179,626	8.0 - 8.2	114	112	0.15 - 0.35	90	1,996
April	55	22	179,626	8.0 - 8.1	117	112	0.15 - 0.37	140	1,283
May	55	22	179,626	7.9 - 8.1	118	110	0.15 - 0.21	105	1,711
June								100	
July	50	22	152,410	7.9 - 8.2	110	114	0.1 - 1.0	90	1,693
Aug	51	20	168,739	8.0 - 8.2	107	104	0.5 - 0.9	90	1,875
Sept	52	18	185,069	7.4 - 8.0	110	100	0.5 - 0.9	140	1,322
Oct	51	18	179,626	7.5 - 8.0	107	102	0.2 - 0.5	74	2,427
Nov	51	18	179,626	7.6 - 8.0	110	103	0.17 - 0.4	87	2,065
Dec	51	18	179,626	7.8 - 8.0	107	104	0.2 - 0.6	81	2,218

LOWER WATER PUMP HOUSE DAILY RECORD

MONTH: MAY YEAR: 2008

DATE	PUMPS ON			PHONE WORKING	AIR COMP		PRESSURE RAW	RETURN WATER TEMPERATURE	FLOW RATE (gpm)		HEAT TRACE WORKING
	# 1	# 2	# 3		OIL	DRAIN			RAW	RETURN	
1		2		ok	ok	ok	135	19	52	18	yes
2		2		ok	ok	ok	135	18	52	18	yes
3		2		ok	ok	ok	135	18	52	18	yes
4		2		ok	ok	ok	135	18	50	18	yes
5			3	ok	ok	ok	120	18	50	18	yes
6			3	ok	ok	ok	120	18	50	18	yes
7			3	ok	ok	ok	125	18	50	18	yes
8			3	ok	ok	ok	125	18	50	18	yes
9			3	ok	ok	ok	125	18	50	18	yes
10			3	ok	ok	ok	125	18	50	18	yes
11			3	ok	ok	ok	125	18	50	18	yes
12			3	ok	ok	ok	125	18	50	18	yes
13	1			ok	ok	ok	120	18	50	18	yes
14	1			ok	ok	ok	120	18	50	18	yes
15	1			ok	ok	ok	120	20	50	18	yes
16	1			ok	ok	ok	120	20	50	18	yes
17	1			ok	ok	ok	120	18	50	18	yes
18	1			ok	ok	ok	120	18	50	18	yes
19	1			ok	ok	ok	120	18	50	18	yes
20		2		ok	ok	ok	135	18	52	18	yes
21		2		ok	ok	ok	135	20	52	18	yes
22		2		ok	ok	ok	135	20	52	18	yes
23		2		ok	ok	ok	135	20	52	18	yes
24		2		ok	ok	ok	135	20	52	18	yes
25		2		ok	ok	ok	135	20	52	18	yes
26			3	ok	ok	ok	120	20	50	18	yes
27			2	ok	ok	ok	120	20	50	18	yes
28			2	ok	ok	ok	120	20	50	18	yes
29			2	ok	ok	ok	120	20	50	18	yes
30			2	ok	ok	ok	120	20	50	18	yes
31			2	ok	ok	ok	120	20	50	18	yes
TOTAL	7	10	14						Average	51	18
HOURS	168	240	336						Max	52	18
									Min	50	18

LOWER WATER PUMP HOUSE DAILY RECORD

MONTH: JUNE

YEAR: 2008

DATE	PUMPS ON			PHONE WORKING	AIR COMP.		PRESSURE RAW	RETURN WATER TEMPERATURE	FLOW RATE (gpm)		HEAT EXCH. WORKING
	#1	#2	#3		OIL	DRAIN			RAW	RETURN	
1			Y	Y	OK	Y	120	20	50	18	yes
2			Y	Y	OK	Y	120	20	50	18	yes
3	Y			Y	OK	Y	120	20	50	18	yes
4	Y			Y	OK	Y	120	20	50	18	yes
5	Y			Y	OK	Y	120	20	50	18	yes
6	Y			Y	OK	Y	120	20	50	18	yes
7	Y			Y	OK	Y	120	19	50	18	yes
8	Y			Y	OK	Y	120	18	50	18	yes
9	Y			Y	OK	Y	120	18	50	18	yes
10		Y		Y	OK	Y	135	18	52	18	yes
11		Y		Y	OK	Y	130	18	52	18	yes
12		Y		Y	OK	Y	135	18	52	18	yes
13		Y		Y	OK	Y	135	19	52	18	yes
14		Y		Y	OK	Y	135	19	52	18	yes
15		Y		Y	OK	Y	135	19	52	18	yes
16		Y		Y	OK	Y	135	19	52	18	yes
17			Y	Y	OK	Y	125	19	52	18	yes
18			Y	Y	OK	Y	125	19	52	18	yes
19			Y	Y	OK	Y	125	19	52	18	yes
20			Y	Y	OK	Y	125	19	52	18	yes
21											yes
22											yes
23			Y	Y	OK	Y	125	19	52	18	yes
24	Y			Y	OK	Y	125	19	52	18	yes
25	Y			Y	OK	Y	125	20	52	18	yes
26	Y			Y	OK	Y	125	20	52	18	yes
27	Y			Y		Y	125	20	52	18	yes
28											yes
29											yes
30		Y		Y	OK	Y	135	20	52	18	yes
31											yes
TOTAL	11	8	7					Average	51	18	
HOURS	264	192	168					Max	52	18	
								Min	50	18	

LOWER WATER PUMP HOUSE DAILY RECORD

MONTH: July

YEAR: 2008

DATE	PUMPS ON			PHONE WORKING	AIR COMP		PRESSURE RAW	RETURN WATER TEMPERATURE	FLOW RATE (gpm)		HEAT TRACE WORKING
	# 1	# 2	# 3		OIL	DRAIN			RAW	RETURN	
1		x									yes
2		x		Yes	Ok	Yes	135	21	52	18	yes
3		x		Yes	Ok	Yes	135	20	52	18	yes
4		x		Yes	Ok	Yes	135	20	52	18	yes
5		x									yes
6		x									yes
7			x	Yes	Ok	Yes	125	20	52	18	yes
8			x	Yes	Ok	Yes	125	20	52	18	yes
9			x	Yes	Ok	Yes	125	20	52	18	yes
10			x	Yes	Ok	Yes	125	20	52	18	yes
11			x	Yes	Ok	Yes	125	20	52	18	yes
12			x	Yes	Ok	Yes	125	20	52	18	yes
13			x	Yes	Ok	Yes	125	19	52	18	yes
14	x			Yes	Ok	Yes	125	19	52	18	yes
15	x			Yes	Ok	Yes	120	19	52	18	yes
16	x			Yes	Ok	Yes	120	19	52	18	yes
17	x			Yes	Ok	Yes	120	19	52	18	yes
18	x			Yes	Ok	Yes	120	19	52	18	yes
19	x			Yes	Ok	Yes	120	20	52	18	yes
20	x			Yes	Ok	Yes	120	20	52	18	yes
21	x			Yes	Ok	Yes	120	19	52	18	yes
22		x		Yes	Ok	Yes	140	20	52	18	yes
23		x		Yes	Ok	Yes	135	21	52	18	yes
24		x		Yes	Ok	Yes	140	22	52	18	yes
25		x		Yes	Ok	Yes	140	20	52	18	yes
26		x		Yes	Ok	Yes	135	21	52	18	yes
27		x		Yes	Ok	Yes	135	21	52	18	yes
28		x		Yes	Ok	Yes	135	21	52	18	yes
29			x	Yes	Ok	Yes	120	21	52	18	yes
30			x	Yes	Ok	Yes	120	20	52	18	yes
31			x	Yes	Ok	Yes	120	21	52	18	yes
TOTAL	8	13	10					Average	52	18	
HOURS	192	312	240					Max	52	18	
								Min	52	18	

LOWER WATER PUMP HOUSE DAILY RECORD

MONTH: Aug

YEAR: 2008

DATE	PUMPS ON			PHONE WORKING	AIR COMP		PRESSURE RAW	RETURN WATER TEMPERATURE	FLOW RATE (gpm)		HEAT TRACE WORKING
	# 1	# 2	# 3		OIL	DRAIN			RAW	RETURN	
1			X	YES	X	X	120	20	52	18	yes
2			X	YES	X	X	120	20	52	18	yes
3			X	YES	X	X	120	20	52	18	yes
4	X			YES	X	X	120	20	52	18	yes
5	X			YES	X	X	120	13	52	18	yes
6	X			YES	X	X	120	12	52	18	yes
7	X			YES	X	X	120	22	52	18	yes
8	X			YES	X	X	120	21	52	18	yes
9	X			YES	X	X	120	20	52	18	yes
10	X			YES	X	X	120	20	52	18	yes
11		X		YES	X	X	120	19	52	18	yes
12		X		YES	X	X	135	18	52	18	yes
13		X		YES	X	X	135	18	52	18	yes
14		X		YES	X	X	135	18	52	18	yes
15		X		YES	X	X	135	18	52	18	yes
16		X		YES	X	X	135	17	52	18	yes
17		X		YES	X	X	135	19	52	18	yes
18		X		YES	X	X	135	19	52	18	yes
19			X	YES	X	X	120	19	50	18	yes
20			X	YES	X	X	120	18	50	18	yes
21			X	YES	X	X	120	19	50	18	yes
22			X	YES	X	X	120	18	50	18	yes
23			X	YES	X	X	120	17	50	18	yes
24			X	YES	X	X	120	17	50	18	yes
25			X	YES	X	X	120	16	50	18	yes
26	X			YES	X	X	120	19	50	18	yes
27	X			YES	X	X	120	19	50	18	yes
28	X			YES	X	X	120	19	50	18	yes
29	X			YES	X	X	120	19	50	18	yes
30	X			YES	X	X	120	19	50	18	yes
31	X			YES	X	X	120	19	50	18	yes
TOTAL	13	8	10					Average	51	18	
HOURS	312	192	240					Max	52	18	
								Min	50	18	

LOWER WATER PUMP HOUSE DAILY RECORD

MONTH: Sept

YEAR: 2008

DATE	PUMPS ON			PHONE WORKING	AIR COMP		PRESSURE RAW	RETURN WATER TEMPERATURE	FLOW RATE (GPM)		HEAT TRACE WORKING
	#1	#2	#3		OIL	DRAIN			RAW	RETURN	
1		X		X	X	X	135	19	52	18	yes
2		X		X	X	X	135	19	52	18	yes
3		X		X	X	X	135	19	52	18	yes
4		X		X	X	X	135	19	52	18	yes
5		X		X	X	X	135	19	52	18	yes
6		X		X	X	X	135	19	52	18	yes
7		X		X	X	X	135	19	52	18	yes
8		X		X	X	X	135	18	52	18	yes
9			X	X	X	X	100	18	35	18	yes
10			X	X	X	X	100	18	35	18	yes
11			X	X	X	X	100	18	35	18	yes
12			X	X	X	X	100	18	35	18	yes
13			X	X	X	X	100	18	35	18	yes
14			X	X	X	X	100	18	35	18	yes
15			X	X	X	X	100	18	35	18	yes
16	X			X	X	X	135	18	52	18	yes
17	X			X	X	X	135	18	52	18	yes
18	X			X	X	X	135	18	52	18	yes
19	X			X	X	X	135	18	52	18	yes
20	X			X	X	X	135	18	52	18	yes
21	X			X	X	X	135	18	52	18	yes
22	X			X	X	X	135	18	52	18	yes
23		X		X	X	X	135	18	52	18	yes
24		X		X	X	X	135	18	52	18	yes
25		X		X	X	X	135	18	52	18	yes
26		X		X	X	X	135	18	52	18	yes
27		X		X	X	X	135	18	52	18	yes
28		X		X	X	X	135	18	52	18	yes
29		X		X	X	X	135	18	52	18	yes
30	X			X	X	X	135	18	52	18	yes
31											yes
TOTAL	8	15	7					Average	48	18	
HOURS	192	360	168					Max	52	18	
								Min	35	18	

LOWER WATER PUMP HOUSE DAILY RECORD

MONTH: October YEAR: 2008

DATE	PUMPS ON			PHONE W	AIR COMP		PRESSURE F	PRESSUR	RETURN WATER	FLOW RATE (gpm)	HEAT TRACE WORKING
	# 1	# 2	# 3	OIL	DRAIN			TEMPERATURE	RAW	RETURN	
1		on					135	8	17.5	52	18 YES
2		on					135	8	18	52	17 YES
3			on	X	X	X	133	11	18	51	17 YES
4			on	X	X	X	132	8	18	51	17 YES
5			on	X	X	X	133	8	18.1	51	17 YES
6			on	X	X	X	133	8	18.5	51	17 YES
7			on	X	X	X	133	8	18.5	51	17 YES
8			on	X	X	X	133	8	18.5	51	17 YES
9			on	X	X	X	133	8	18.5	51	17 YES
10	on			X	X	X	133	8	18.5	51	17 YES
11	on			X	X	X	133	8	18.5	51	17 YES
12	on			X	X	X	133	8	18.5	51	17 YES
13	on			X	X	X	134	8.2	18.2	51	18 YES
14	on			X	X	X	134	8.1	18.2	52	18 YES
15	on			X	X	X	133	8.1	18	51	17 YES
16	on			X	X	X	132	8	17.8	51	17 YES
17		on		X	X	X	132	8	18	51	17 YES
18		on		X	X	X	136	8	18	52	18 YES
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
TOTAL	7	4	7				133	8 Average		51	17
HOURS	168	96	168				136	11 Max		52	18
							132	8 Min		51	17

Note - It was found that operating sample tap on return line as temperature sensor provided a more accurate results.

YEAR: 2008

Note - It was found that operating sample tap on return line as temperature sensor provided a more accurate result.

