BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

Cause No. 46171

FULLER WELL 1

Well Formation Log

City of Anderson - Fuller Property - Test Well 22-1

X	TEST	DATE	7-19-22	State	Indiana	Project	5016-F
		Well No	TW #1	City	Anderson	Section	5
	PERMANENT	UTM 16T	613906	County	Madison	Township	20N
		UTM	4452913	Civil Twsp		Range	8E
OWNER		City of Anderson - Fuller Property - CR 800					
LAND DESCRIPTION		1088' E of N State Road 9					
Street or Road		201' S of CR 800W					

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Top soil	0	1	1	
Gray clay	1	10	9	
Sand and gravel	10	17	7	
Hard gray clay w/ gravel	17	33	16	
Sandy gray clay-coarse sand mix	33	43	10	
Hard gray clay w/ gravel	43	48	5	
Fine medium coarse sand & gravel	48	50	2	
Fine medium coarse sand & gravel-1-3" rocks	50	58	8	
Very fine medium coarse sand-				
fine medium coarse gravel 1-2" rocks	58	60	2	
Semi dry sand w/fine medium coarse gravel	60	65	5	
Fine medium coarse sand-fine to coarse gravel-				
some 2" rocks	65	72	7	
Fine to medium semi dry sand	72	82	10	
Tight packed, hard dry clay mix	82	87	5	
Fine medium coarse sand & gravel-1-3" rocks	87	88	1	

Hole 24" dia Drilled by Cable Tool

Rotary Hole Grouted with

Casing _____ OD from _____ above grade to _____ below grade.

Screen _____ set from _____ to _____ feet Weight _____

Make _____ Type _____ Slot _____

Pumping test GPM drawdown to _____ feet after _____ hours pumping.

Driller: Jim Parsley
License #2058 WD PI

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

FULLER WELL 1

Well Formation Log

City of Anderson - Fuller Property - Test Well 22-1

X	TEST	DATE	7-19-22	State	Indiana	Project	5016-F
		Well No	TW #1	City	Anderson	Section	5
	PERMANENT	UTM 16T	613906	County	Madison	Township	20N
		UTM	4452913	Civil Twsp		Range	8E
OWNER		City of Anderson - Fuller Property - CR 800					
LAND DESCRIPTION		1088' E of N State Road 9					
Street or Road		201' S of CR 800W					

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Very fine to coarse dry sand	88	89	1	
Fine medium coarse sand & gravel-1-3" rocks	89	92	3	
Fine to coarse sand-fine medium coarse				
gravel-large rocks/boulders	92	98	6	
Very fine medium coarse sand - fine				
medium coarse gravel-some 2" rocks	98	100	2	
Very fine medium coarse sand-some fine gravel	100	101	1	
Very fine medium coarse sand & gravel	101	106	5	
Tight pack to coarse sand	106	111	5	
Fine medium coarse sand-fine gravel	111	113	2	
Fine medium coarse snad & gravel-1-3"				
rocks-some larger-soft sand gravel mix	113	118	5	
Fine medium coarse sand & gravel-1-3" rocks	118	120	2	
Fine medium coarse sand & gravel - 1-2" rocks	120	125	5	
Fine medium coarse sand & gravel -2-3"				
rocks/boulders	125	127	2	

Hole 24" dia Drilled by Cable Tool

Rotary Hole Grouted with

Casing _____ OD from _____ above grade to _____ below grade.

Screen _____ set from _____ to _____ feet Weight _____

Make _____ Type _____ Slot _____

Pumping test GPM drawdown to _____ feet after _____ hours pumping.

Driller: Jim Parsley
License #2058 WD PI

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

FULLER WELL 1

Well Formation Log

City of Anderson - Fuller Property - Test Well 22-1

X	TEST	DATE	7-19-22	State	Indiana	Project	5016-F
		Well No	TW #1	City	Anderson	Section	5
	PERMANENT	UTM 16T	613906	County	Madison	Township	20N
		UTM	4452913	Civil Twsp		Range	8E
OWNER		City of Anderson - Fuller Property - CR 800					
LAND DESCRIPTION		1088' E of N State Road 9					
Street or Road		201' S of CR 800W					

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Fine to coarse sand-fine medium coarse				
gravel - 1-2" rocks	127	133	5	
Limestone	133			

Hole 24" dia Drilled by Cable Tool

Rotary Hole Grouted with

Casing _____ OD from _____ above grade to _____ below grade.

Screen _____ set from _____ to _____ feet Weight _____

Make _____ Type _____ Slot _____

Pumping test _____ GPM drawdown to _____ feet after _____ hours pumping.

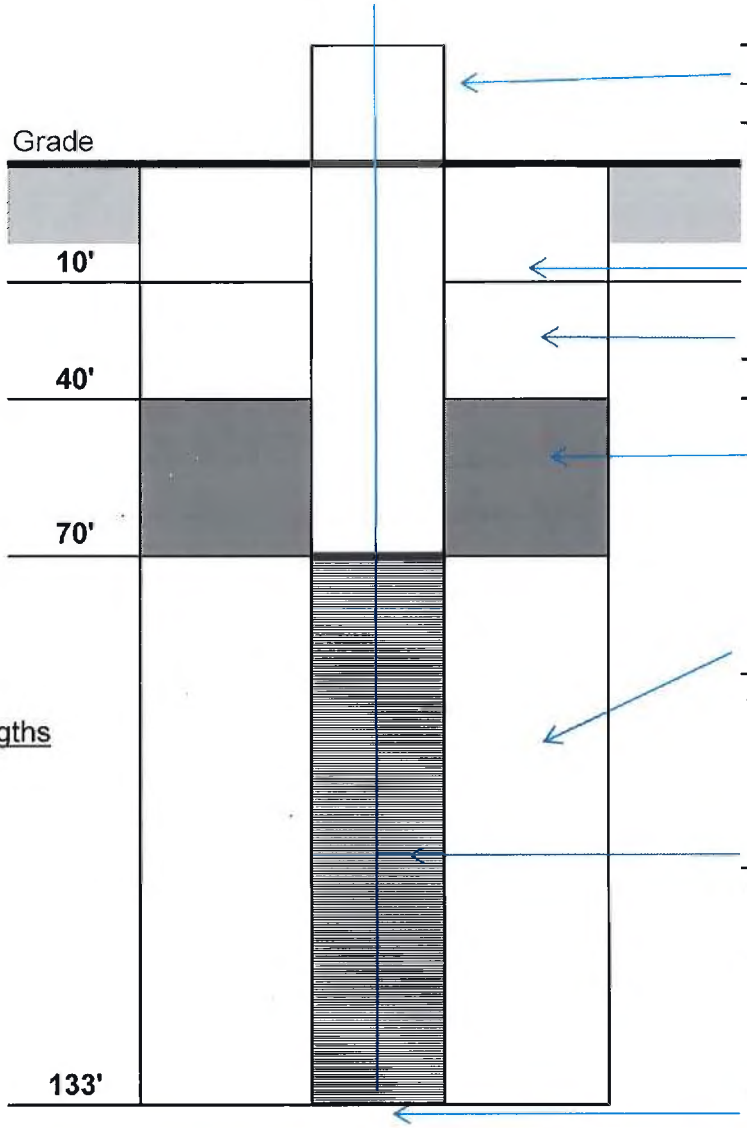
Driller: Jim Parsley
License #2058 WD PI

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson - Fuller - Well #1 - Gravel Wall Well Print

Customer	City of Anderson	Gravel Wall Well #	Fuller Well #1
Date	10/10/2022	County	Madison
Job#	5016-F	Twsp	20N
Location	Fuller Well Field	Section	5
Tower Height		State	8E



16"	Steel Casing
.500"	Wall Thickness
3'	Above Grade
10'	Backfill Material
30' Bentonite	seal from
10' to 40'	
30'	Formation Stabilizer
63'	ft of silica gravel
Size	Red Flint 60 Slot
43'	
Make	Johnson Hi Flow
Type	Stainless Steel
Slot	.060
	Stainless steel bottom plate

Pipe Lengths
1-9'
4-21'

Specific Capacity	32.14	Static level	8.31
Drawdown	65.96	pumped	2120
GPM at a	74.27	pumping level for	
72	hours.		

Fill used from bottom up	
Silica gravel	133' - 70'
Fill from	70' - 40'
Form. Stabil.	40' - 10'
Bentonite seal	

Driller:	Jim Parsley - License #2058 WD PI	Date:	10/10/2022

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

Well Formation Log

City of Anderson - Test Well 22-1

X	TEST	DATE	1-6-22	*State*	Indiana	*Project*	4971-F
		Well No	22-1	*City*	Anderson	*Section*	5
	PERMANENT	UTM 16T	0613914	*County*	Madison	*Township*	20N
		UTM	4452909	*Civil Twsp*		*Range*	8E

OWNER	City of Anderson
LAND DESCRIPTION	200' S of CR800 W - 1,082' E of SR 9
Street or Road	225' E of W Property Line

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Top soil	0	1	1	
Gray clay w/ gravel	1	10	9	
Fine medium coarse sand & gravel	10	15	5	
Gray clay	15	16	1	
Fine medium coarse sand & gravel w/clay	16	19	3	1'6"
Sandy gray clay	19	61	42	Above Grade
Very sandy gray clay w/ gravel	61	68	7	
Fine medium coarse sand-fine to coarse gravel	68	75	7	
Fine medium coarse sand-fine to coarse gravel-				
large rocks - 2-3"	75	78	3	
Fine medium sand-trace of fine to med gravel-				
trace of clay	78	81	3	
Sandy gray clay w/ gravel	81	88	7	
Fine medium coarse sand-some fine to coarse				
gravel - boulders	88	92	4	
Boulders	92	98	6	

Hole	6"	dia	Drilled by	Cable Tool			
Rotary Hole Grouted with							
Casing	6 5/8"	OD from	3'	above grade to	130'	below grade.	
Screen	5"	set from	128'	to 133'	feet	Weight	18.97
Make	Shop	Type	PVC	Slot	.020		
Pumping test		GPM drawdown to		feet after		hours pumping.	

Driller

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

Well Formation Log

City of Anderson - Test Well 22-1

X	TEST	DATE	1-6-22	*State*	Indiana	*Project*	4971-F
		Well No	22-1	*City*	Anderson	*Section*	5
	PERMANENT	UTM 16T	0613914	*County*	Madison	*Township*	20N
		UTM	4452909	*Civil Twsp*		*Range*	8E

OWNER	City of Anderson
LAND DESCRIPTION	200' S of CR800 W - 1,082' E of SR 9
Street or Road	225' E of W Property Line

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Fine medium coarse sand & gravel	98	103	5	
Fine medium coarse sand-fine to coarse gravel	103	108	5	
Fine medium coarse sand - fine gravel	108	113	5	
Fine medium coarse sand-fine to coarse gravel-				
large rocks-boulders	113	119	6	
Fine medium coarse gravel-medium to coarse				
sand	119	124	5	
Fine medium coarse gravel-medium to coarse				
sand - large rocks 2-3"	124	129	5	
Fine medium coarse sand & gravel	129	133	4	
Sandy gray clay	133	134	1	
Limestone	134	136	2	

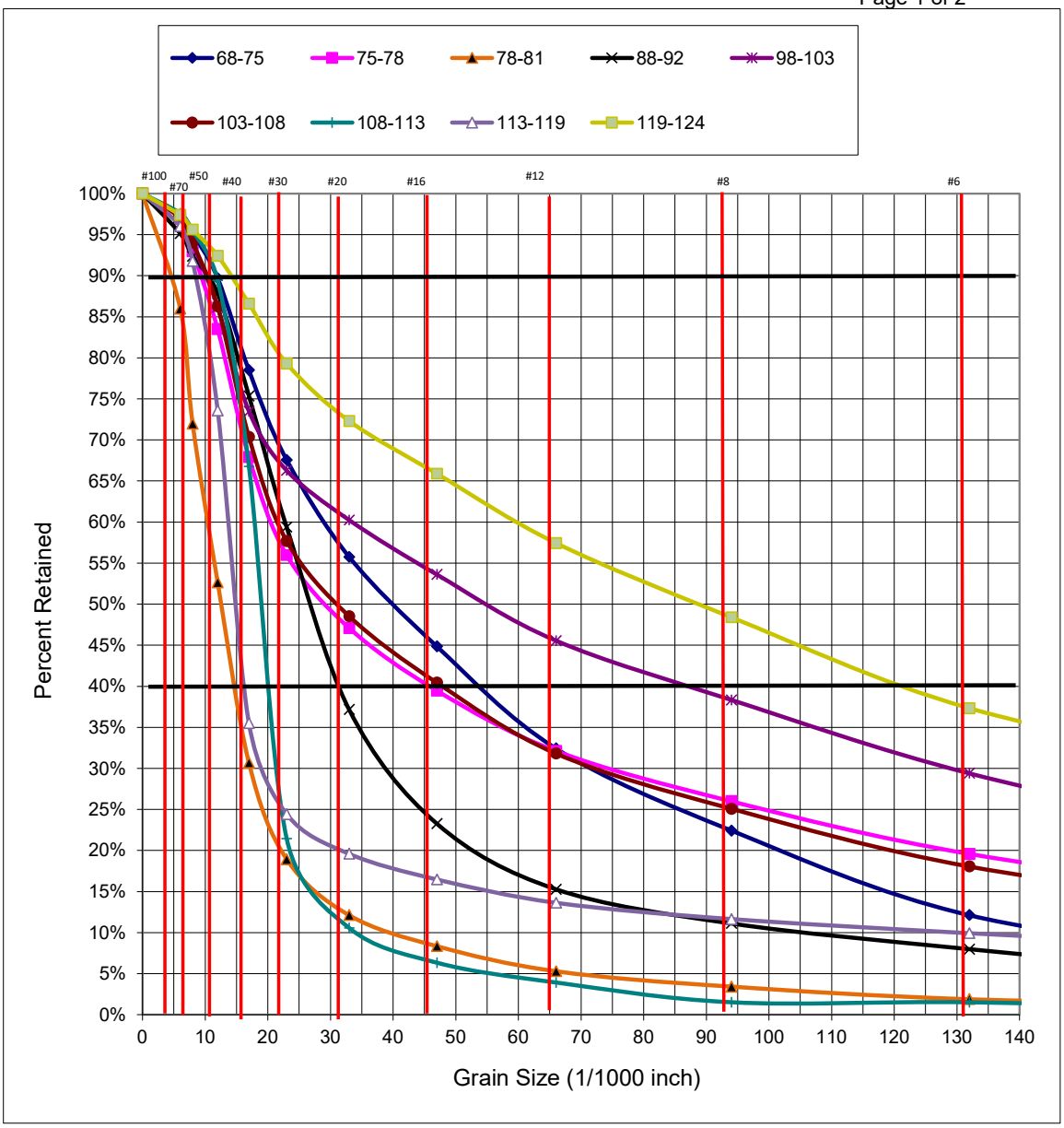
Hole	6"	dia	Drilled by	Cable Tool			
Rotary Hole Grouted with							
Casing	6 5/8"	OD from	3'	above grade to	130'	below grade.	
Screen	5"	set from	128'	to 133'	feet	Weight	18.97
Make	Shop	Type	PVC	Slot	.020		
Pumping test		GPM drawdown to		feet after		hours pumping.	

	Driller	**Rex Bussinger** **License #768 WD PI**

Johnson Screens
651-636-3900

Johnson Screens

SAND ANALYSIS



Job Name	City of Anderson TW22-1	Sample ID	011122-11
Location	Anderson, IN	Analyzed by:	Duvall, Steven
Driller	Bastin Logan	Date:	1/11/2022
Casing ϕ	24 in	Desired Yield	1000+ GPM
Screen ϕ	24 TEL	SWL (ft)	1" to 6" above grade

Recommended Slot Size: 50 slot (0.050") 71'-77' & 101'-107', 15 slot (0.015") 107'-122', 100 slot (0.100") 122'-128', 50 slot (0.050") 128'-133' bgs.

Recommended Gravel Pack: Natural Development

Based exclusively on the samples provided by the contractor, a sieve analysis graph and suggested screen slot size is provided as requested. Since numerous construction considerations and site circumstances influence successful well completion, Johnson Screens assumes no responsibility for final well performance nor awareness of local regulations pertaining to well installations.

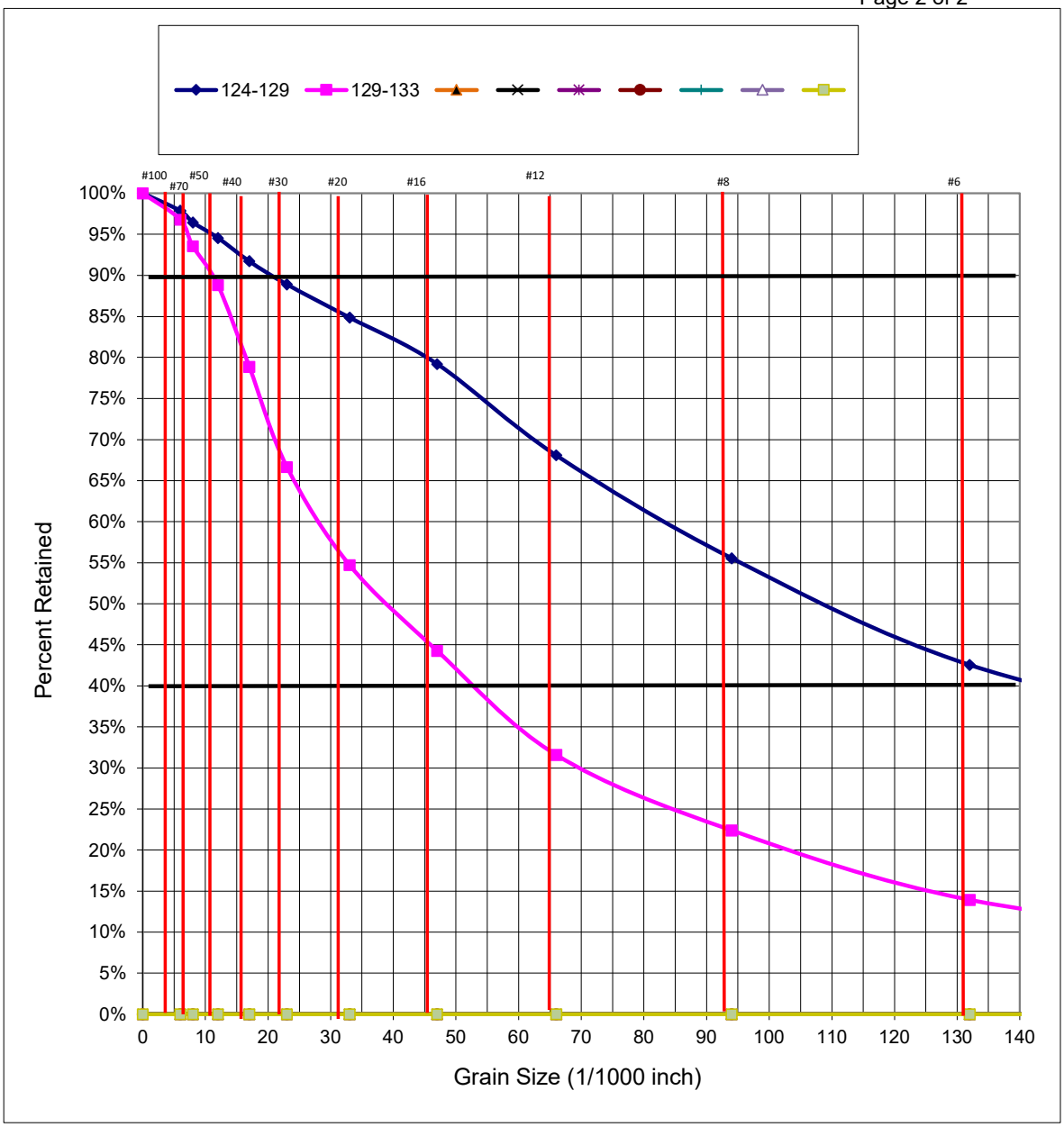
Prepared by:Duvall, Steven

Send Samples to 1950 Old Highway 8, New Brighton, MN 55112

Johnson Screens
651-636-3900

Johnson Screens

SAND ANALYSIS



Job Name	City of Anderson TW22-1	Sample ID	011122-11
Location	Anderson, IN	Analyzed by:	Duvall, Steven
Driller	Bastin Logan	Date:	1/11/2022
Casing ϕ	24 in	Desired Yield	1000+ GPM
Screen ϕ	24 TEL	SWL (ft)	1" to 6" above grade

Recommended Slot Size See page 1 of 2.
Recommended Gravel Pack Natural Development

Based exclusively on the samples provided by the contractor, a sieve analysis graph and suggested screen slot size is provided as requested. Since numerous construction considerations and site circumstances influence successful well completion, Johnson Screens assumes no responsibility for final well performance nor awareness of local regulations pertaining to well installations.

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

Well Formation Log

City of Anderson - Test Well 22-2

X	TEST	DATE	1-21-22	State	Indiana	Project	4971-F
		Well No	22-2	City	Anderson	Section	5
	PERMANENT	UTM 16T	0613932	County	Madison	Township	20N
		UTM	4452881	Civil Twsp		Range	8E
OWNER		City of Anderson					
LAND DESCRIPTION		100' N of S Property Line - 100' W of E Property Line					
Street or Road		312' S of SR9 - 1,155' E of SR 9					

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Top soil	0	1	1	
Brown clay w/gravel	1	9	8	
Sandy brown clay w/gravel	9	11	2	
Fine medium coarse sand & gravel-lg rocks 2-3"	11	15	4	
Fine medium coarse sand & gravel-boulders	15	19	4	6'
Sandy gray clay	19	22	3	
Brown clay	22	39	17	
Sandy brown clay w/gravel	39	48	9	
Sandy gray clay	48	66	18	
Fine medium coarse sand & gravel	66	71	5	
Sandy gray clay w/gravel	71	83	12	
Fine medium coarse sand-fine to coarse gravel	83	88	5	
Fine medium coarse sand-fine to coarse gravel	88	93	5	
Fine medium coarse sand-fine to coarse gravel	93	98	5	
Fine medium coarse sand & gravel-lg rocks 2-3"				
and boulders	98	103	5	

Hole	6"	dia	Drilled by	Cable Tool			
Rotary Hole Grouted with							
Casing	6 5/8"	OD from	3'	above grade to	116'	below grade.	
Screen	5"	set from	110'	to 120'	feet	Weight	18.97
Make	Shop	Type	PVC	Slot	.040		
Pumping test		GPM drawdown to		feet after		hours pumping.	

Driller

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

Well Formation Log

City of Anderson - Test Well 22-2

X	TEST	DATE	1-21-22	State	Indiana	Project	4971-F
		Well No	22-2	City	Anderson	Section	5
	PERMANENT	UTM 16T	0613932	County	Madison	Township	20N
		UTM	4452881	Civil Twsp		Range	8E

OWNER	City of Anderson
LAND DESCRIPTION	100' N of S Property Line - 100' W of E Property Line
Street or Road	312' S of SR9 - 1,155' E of SR 9

FORMATION	From Natural Ground Level			
	Depth top of stratum (ft)	Depth bottom of stratum (ft)	Thickness of stratum	Static Water level
Fine medium coarse sand & gravel-lg rocks 1-2"	103	108	5	
Fine medium coarse sand & gravel-lg rocks 1-2"	108	113	5	
Fine medium coarse sand- fine to coarse gravel	113	120	7	
Sandy gray clay with boulders	120	124	4	
Limestone	124	126	2	

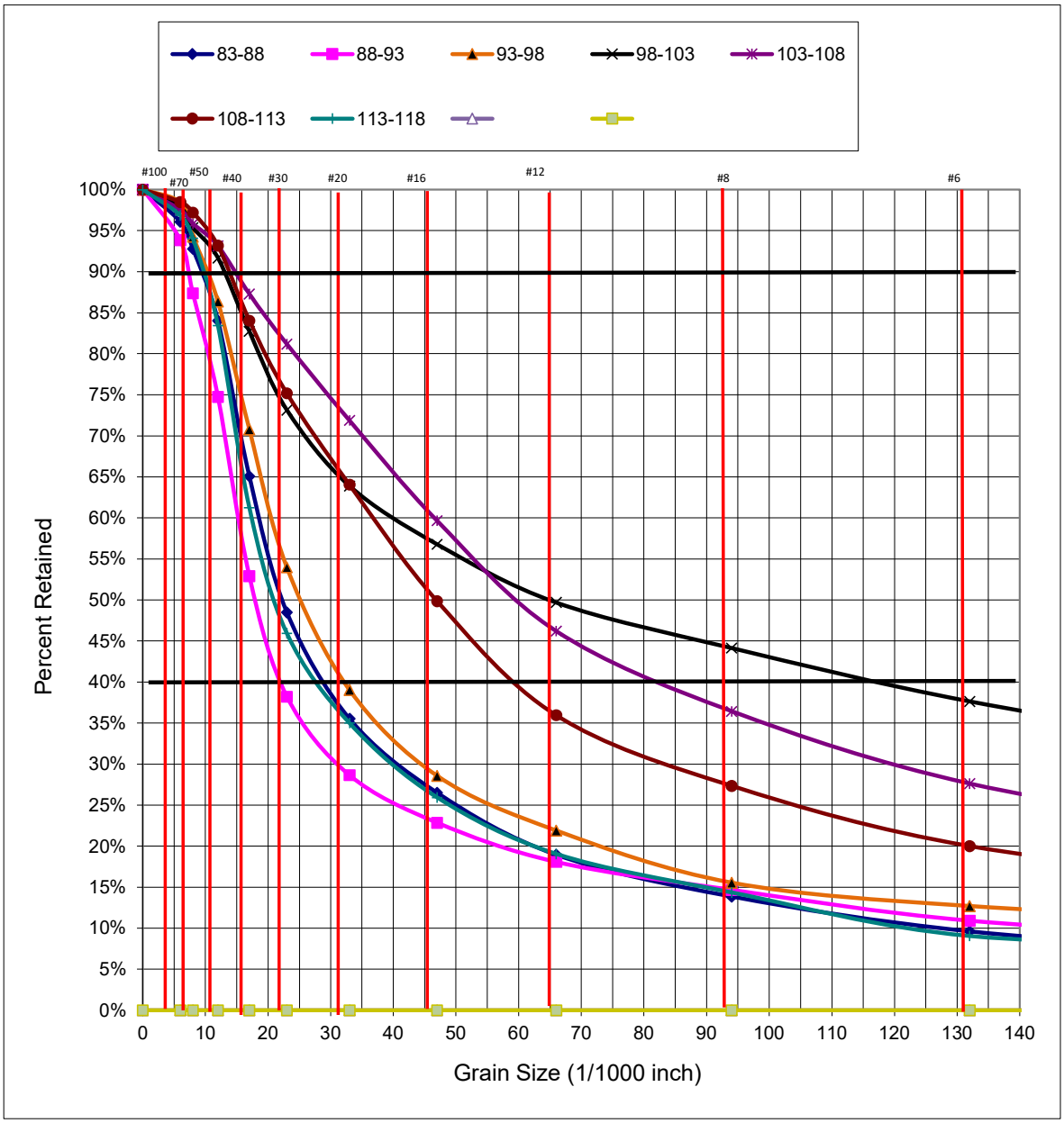
Hole	6"	dia	Drilled by	Cable Tool			
Rotary Hole Grouted with							
Casing	6 5/8"	OD from	3'	above grade to	116'	below grade.	
Screen	5"	set from	110'	to 120'	feet	Weight	18.97
Make	Shop	Type	PVC	Slot	.040		
Pumping test		GPM drawdown to		feet after		hours pumping.	

Driller	Rex Bussinger License #768 WD PI

Johnson Screens
651-636-3900

Johnson Screens

SAND ANALYSIS



Job Name	City of Anderson TW22-2	Sample ID	012822-7
Location	Anderson, IN	Analyzed by:	Duvall, Steven
Driller	Bastin Logan	Date:	1/31/2022
Casing ϕ	16 in	Desired Yield	1000+ GPM
Screen ϕ	16 in	SWL (ft)	6

Recommended Slot Size 60 slot (0.060") 88'-118' bgs.
Recommended Gravel Pack Red Flint #60

Based exclusively on the samples provided by the contractor, a sieve analysis graph and suggested screen slot size is provided as requested. Since numerous construction considerations and site circumstances influence successful well completion, Johnson Screens assumes no responsibility for final well performance nor awareness of local regulations pertaining to well installations.

Prepared by:Duvall, Steven

Send Samples to 1950 Old Highway 8, New Brighton, MN 55112

APPENDIX B.

WATER-LEVEL DATA FROM PUMPING TESTS OF FULLER WELL 1

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
Step Test
October 13, 2022

Monitoring Point 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
10/13/2022	9:00 AM			8.31
	9:01 AM	22.42	768	
	9:02 AM	22.92		
	9:03 AM	23.31		
	9:04 AM	23.42		
	9:05 AM	23.60		
	9:06 AM	23.75		
	9:07 AM	23.86		
	9:08 AM	24.00		
	9:09 AM	24.10		
	9:10 AM	24.21	768	
	9:15 AM	24.51		
	9:20 AM	24.73		
	9:25 AM	24.86		
	9:30 AM	25.01		
	9:35 AM	25.09		
	9:40 AM	25.20		
	9:45 AM	25.28		
	9:50 AM	25.34		
	9:55 AM	25.41		
	10:00 AM	25.45	768	
	10:01 AM		1167	
	10:02 AM	35.59		
	10:03 AM	36.02		
	10:04 AM	36.16		
	10:05 AM	36.26		
	10:06 AM	36.41		
	10:07 AM	36.45		
	10:08 AM	36.53		
	10:09 AM	36.57		
	10:10 AM	36.64	1167	
	10:15 AM	36.85		
	10:20 AM	37.01		
	10:25 AM	37.13		

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
Step Test
October 13, 2022

Monitoring Point 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
10/13/2022	10:30 AM	37.24	1167	
	10:35 AM	37.34		
	10:40 AM	37.43		
	10:45 AM	37.51		
	10:50 AM	37.61		
	10:55 AM	37.65		
	11:00 AM	37.71	1167	
	11:01 AM		1609	
	11:02 AM	48.58		
	11:03 AM	48.93		
	11:04 AM	49.13		
	11:05 AM	49.34		
	11:06 AM	49.46		
	11:07 AM	49.60		
	11:08 AM	49.68		
	11:09 AM	49.76		
	11:10 AM	49.82	1609	
	11:15 AM	50.06		
	11:20 AM	50.25		
	11:25 AM	50.37		
	11:30 AM	50.50		
	11:35 AM	50.58		
	11:40 AM	50.69		
	11:45 AM	50.75		
	11:50 AM	50.82		
	11:55 AM	50.88		
	12:00 PM	50.95	1609	
	12:01 PM	67.32	2183	
	12:02 PM	68.11		
	12:03 PM	68.37		
	12:04 PM	68.64		
	12:05 PM	68.77		
	12:06 PM	68.91		
	12:07 PM	69.00		

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
Step Test
October 13, 2022

Monitoring Point 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
10/13/2022	12:08 PM	69.07		
	12:09 PM	69.15		
	12:10 PM	69.22	2183	
	12:15 PM	69.50		
	12:20 PM	69.70		
	12:25 PM	69.85		
	12:30 PM	69.92		
	12:35 PM	70.03		
	12:40 PM	70.15		
	12:45 PM	70.22	2183	
	12:50 PM	70.28		
	12:55 PM	70.35		
	1:00 PM	70.38	2183	

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
72 Hour Production Test
October 17, 2022

Monitoring Point taken from 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
10/17/2022	8:00 AM			8.30
	8:15 AM			8.31
	8:30 AM			8.30
	8:45 AM			8.30
	9:00 AM			8.31
Start Test	9:01 AM	64.91	2120	
	9:02 AM	66.63		
	9:03 AM	67.33		
	9:04 AM	67.80		
	9:05 AM	68.09		
	9:06 AM	68.38		
	9:07 AM	68.54		
	9:08 AM	68.79		
	9:09 AM	68.89		
	9:10 AM	69.02	2120	
	9:15 AM	69.57		
	9:20 AM	69.90		
	9:25 AM	70.15		
	9:30 AM	70.34		
	9:35 AM	70.54		
	9:40 AM	70.67		
	9:45 AM	70.80	2120	
	9:50 AM	70.89		
	9:55 AM	70.96		
	10:00 AM	71.04		
	10:10 AM	71.21		
	10:20 AM	71.40		
	10:30 AM	71.45		
	10:40 AM	71.56		
	10:50 AM	71.62		
	11:00 AM	71.71	2120	
	11:15 AM	71.79		
	11:30 AM	71.90		
	11:45 AM	71.93		

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
72 Hour Production Test
October 17, 2022

Monitoring Point taken from 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
10/17/2022	12:00 PM	72.02	2120	
	12:30 PM	72.12		
	1:00 PM	72.18		
	2:00 PM	72.33		
	3:00 PM	72.38		
	4:00 PM	72.57	2120	
	5:00 PM	72.68		
	6:00 PM	72.75	2120	
	7:00 PM	72.82		
	8:00 PM	72.90		
	9:00 PM	72.93		
	10:00 PM	72.96		
	11:00 PM	72.99		
10/18/2022	12:00 AM	73.05		
	1:00 AM	73.10		
	2:00 AM	73.15		
	3:00 AM	73.13	2120	
	4:00 AM	73.17		
	5:00 AM	73.15		
	6:00 AM	73.20		
	7:00 AM	73.22		
	8:00 AM	73.23		
	9:00 AM	73.30		
	10:00 AM	73.29		
	11:00 AM	73.28		
	12:00 PM	73.28	2120	
	1:00 PM	73.29		
	2:00 PM	73.30		
	3:00 PM	73.30		
	4:00 PM	73.31		
	5:00 PM	73.41	2120	
	6:00 PM	73.45		
	7:00 PM	73.45		
	8:00 PM	73.45	2120	
	9:00 PM	73.58		
	10:00 PM	73.56	2120	

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
72 Hour Production Test
October 17, 2022

Monitoring Point taken from 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
	11:00 PM	73.55	2120	
10/19/2022	12:00 AM	73.58		
	1:00 AM	73.60		
	2:00 AM	73.56		
	3:00 AM	73.62		
	4:00 AM	73.68		
	5:00 AM	73.68		
	6:00 AM	73.71		
	7:00 AM	73.71		
	8:00 AM	73.73		
	9:00 AM	73.76	2120	
	10:00 AM	73.77		
	11:00 AM	73.76		
	12:00 PM	73.74		
	1:00 PM	73.70	2120	
	2:00 PM	73.70		
	3:00 PM	73.75	2120	
	4:00 PM	73.72		
	5:00 PM	73.81	2120	
	6:00 PM	73.84		
	7:00 PM	73.91		
	8:00 PM	73.95		
	9:00 PM	74.01		
	10:00 PM	74.02		
	11:00 PM	74.11		
10/20/2022	12:00 AM	74.10		
	1:00 AM	74.11	2120	
	2:00 AM	74.15		
	3:00 AM	74.16		
	4:00 AM	74.21		
	5:00 AM	74.22		
	6:00 AM	74.21		
	7:00 AM	74.25	2120	
	8:00 AM	74.26		
	9:00 AM	74.27		

BASTIN LOGAN WATER SERVICES INC.

1010 N. HURRICANE ROAD
P.O. BOX 55
FRANKLIN, INDIANA 46131
(317) 738-4577
FAX (317) 738-9295

City of Anderson
Fuller Well #1
72 Hour Production Test
October 17, 2022

Monitoring Point taken from 3'6" above grade

Date	Time	Pumping Level (ft)	GPM	Static Water Level (ft)
Recovery	9:01 AM			18.40
	9:02 AM			17.50
	9:03 AM			16.81
	9:04 AM			15.32
	9:05 AM			14.91
	9:06 AM			14.61
	9:07 AM			14.31
	9:08 AM			14.15
	9:09 AM			13.95
	9:10 AM			13.80
	9:15 AM			13.18
	9:20 AM			12.75
	9:25 AM			12.43
	9:30 AM			12.17
	9:35 AM			11.97
	9:40 AM			11.80
	9:45 AM			11.65
	9:50 AM			11.52
	9:55 AM			11.41
	10:00 AM			11.31
	10:10 AM			11.13
	10:20 AM			11.00
	10:30 AM			10.88
	10:40 AM			10.77
	10:50 AM			10.68
	11:00 AM			10.60

APPENDIX C.

WATER-QUALITY DATA

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102176
PO No.:
Date Received: 10/20/2022
Report Date: 01/17/2023
Project Name: 2022-10 NEW WELL - RS30 IOC

Notes: Revision#: 230117 Iron and Manganese results added into the report.

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102176	2022102176-1	Drinking Water	FULLER WELL	10/19/2022	09:30	MF		Paid

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Nickel, Total Rec.-(ICP)	<0.0040	mg/L	HW	0.0040	EPA 200.7	10/24/2022
	Sodium, Total Rec.-(ICP)	6.95	mg/L	HW	1.0	EPA 200.7	10/24/2022
	Mercury, Total Rec.-(CVAA)	<0.0002	mg/L	BRB	0.0002	SM 3112B	10/28/2022
	Thallium,Total Rec.-(ICP/MS)	<0.0010	mg/L	SPH	0.0010	EPA 200.8	10/26/2022
	Selenium,Total Rec.-(ICP/MS)	<0.002	mg/L	SPH	0.002	EPA 200.8	10/26/2022
	Antimony,Total Rec.-(ICP/MS)	<0.0010	mg/L	SPH	0.0010	EPA 200.8	10/26/2022
	Beryllium, Total Rec.-(ICP)	<0.002	mg/L	HW	0.002	EPA 200.7	10/24/2022
	Barium, Total Rec.-(ICP)	0.209	mg/L	HW	0.02	EPA 200.7	10/24/2022
	Arsenic, Total Rec.-(ICP/MS)	<0.0010	mg/L	SPH	0.0010	EPA 200.8	10/26/2022
	CVAA Mercury Digestion-Liquid	DONE		BRB		SM-3112B	10/27/2022
	Chromium, Total Rec.-(ICP)	<0.0060	mg/L	HW	0.0060	EPA 200.7	10/24/2022
	Cadmium,Total Rec.-(ICP/MS)	<0.001	mg/L	SPH	0.001	EPA 200.8	10/26/2022
	Iron, Total Rec.-(ICP)	2.03	mg/L	HW	0.3	EPA 200.7	10/24/2022
	Manganese, Total Rec.-(ICP)	0.079	mg/L	HW	0.008	EPA 200.7	10/24/2022
	Comments:						

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.

635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102176
PO No.:
Date Received: 10/20/2022
Report Date: 01/17/2023
Project Name: 2022-10 NEW WELL - RS30 IOC

Notes: Revision#: 230117 Iron and Manganese results added into the report.

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102176	2022102176-2	Drinking Water	FULLER WELL	10/19/2022	09:30	MF		Paid

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Cyanide, Free (DW)	<0.02	mg/L	BRB	0.02	SM-4500CN-G & E	10/31/2022
	Comments:						

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102176	2022102176-3	Drinking Water	FULLER WELL	10/19/2022	09:30	MF		Paid

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Fluoride	0.177	mg/L	BRB	0.02	EPA 300.1	10/26/2022
	Nitrate (as N)	<0.05	mg/L	BRB	0.05	EPA 300.1	10/26/2022
	Comments:						

Approved by:

Whitney Wu, Ph.D., Lab Manager

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102177
PO No.:
Date Received: 10/20/2022
Report Date: 10/26/2022
Project Name: 2022-10 NEW WELL - RS30 VOC

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102177	2022102177-1	Drinking Water	FULLER WELL	10/19/2022	09:35	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Methylene Chloride (Dichloromethane)	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Styrene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Ethylbenzene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Chlorobenzene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Carbon Tetrachloride	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Total Xylenes	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,1,1-Trichloroethane	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Vinyl Chloride	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Trichloroethylene (TCE)	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Tetrachloroethylene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Toluene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Benzene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,1-Dichloroethylene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,2,4-Trichlorobenzene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,1,2-Trichloroethane	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	4-Bromofluorobenzene (SS)	89.42	percent	SPH		EPA 524.2	10/21/2022
	1,4-Dichlorobenzene-d4 (SS)	94.90	percent	SPH		EPA 524.2	10/21/2022

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102177
PO No.:
Date Received: 10/20/2022
Report Date: 10/26/2022
Project Name: 2022-10 NEW WELL - RS30 VOC

	1,2-Dichloroethylene,cis	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,2-Dichloroethylene,trans	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,4-Dichlorobenzene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,2-Dichloroethane	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,2-Dichlorobenzene	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	1,2-Dichloropropane	<0.5	ug/L	SPH	0.5	EPA 524.2	10/21/2022
	Comments:						

Approved by:

Whitney Wu, Ph.D., Lab Manager

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102175
PO No.:
Date Received: 10/20/2022
Report Date: 11/21/2022
Project Name: 2022-10 NEW WELL - RS30 SOC

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-1	Drinking Water	FULLER WELL	10/19/2022	10:25	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Di(2-ethylhexyl)phthalate	<0.6	ug/L	HW	0.6	EPA 525.2	10/27/2022
	Methoxychlor	<0.1	ug/L	HW	0.1	EPA 525.2	10/27/2022
	SOC AG-SPE Extraction	DONE		TRS		EPA 525.2	10/26/2022
	Benzo(a)pyrene	<0.1	ug/L	HW	0.1	EPA 525.2	10/27/2022
	Di(2-ethylhexyl)adipate	<0.6	ug/L	HW	0.6	EPA 525.2	10/27/2022
	Simazine	<0.2	ug/L	HW	0.2	EPA 525.2	10/27/2022
	Hexachlorocyclopentadiene	<0.5	ug/L	HW	0.5	EPA 525.2	10/27/2022
	Alachlor (Lasso)	<0.2	ug/L	HW	0.2	EPA 525.2	10/27/2022
	Atrazine	<0.2	ug/L	HW	0.2	EPA 525.2	10/27/2022
	Comments:						

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-2	Drinking Water	FULLER WELL	10/19/2022	09:55	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	SOC B Sample Filtration	DONE		HW		EPA 531.1	10/27/2022
	Carbofuran	<0.9	ug/L	HW	0.9	EPA 531.1	10/27/2022
	Oxamyl (Vydate)	<1.0	ug/L	HW	1.0	EPA 531.1	10/27/2022

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102175
PO No.:
Date Received: 10/20/2022
Report Date: 11/21/2022
Project Name: 2022-10 NEW WELL - RS30 SOC

Comments:

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-3	Drinking Water	FULLER WELL	10/19/2022	10:30	MF		ApprovedForRelease

Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
Endrin	<0.1	ug/L	HW	0.1	EPA 508.1	10/31/2022
Chlordane (alpha gamma)	<0.05	ug/L	HW	0.05	EPA 508.1	10/31/2022
SOC C-SPE Extraction	DONE		TRS		EPA 508.1	10/28/2022
Toxaphene	<1.0	ug/L	HW	1.0	EPA 508.1	10/31/2022
Lindane	<0.1	ug/L	HW	0.1	EPA 508.1	10/31/2022
Hexachlorobenzene	<0.1	ug/L	HW	0.1	EPA 508.1	10/31/2022
Heptachlor Epoxide	<0.1	ug/L	HW	0.1	EPA 508.1	10/31/2022
Heptachlor	<0.2	ug/L	HW	0.2	EPA 508.1	10/31/2022

Comments:

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-4	Drinking Water	FULLER WELL	10/19/2022	10:20	MF		ApprovedForRelease

Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
Pentachlorophenol	<0.4	ug/L	HW	0.4	EPA 515.2	10/27/2022
Picloram (Tordon)	<1	ug/L	HW	1	EPA 515.2	10/27/2022
SOC E-SPE Extraction	DONE		TRS		EPA 515.2	10/24/2022

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102175
PO No.:
Date Received: 10/20/2022
Report Date: 11/21/2022
Project Name: 2022-10 NEW WELL - RS30 SOC

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-4	Drinking Water	FULLER WELL	10/19/2022	10:20	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	2,4-D	<1	ug/L	HW	1	EPA 515.2	10/27/2022
	2,4,5-TP	<1	ug/L	HW	1	EPA 515.2	10/27/2022
	Dinoseb	<1	ug/L	HW	1	EPA 515.2	10/27/2022

Comments:

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-5	Drinking Water	FULLER WELL	10/19/2022	09:50	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Dalapon-LL Extraction	DONE		SPH		EPA 552.2	10/24/2022
	Dalapon	<5	ug/L	SPH	5	EPA 552.2	10/25/2022

Comments:

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-6	Drinking Water	FULLER WELL	10/19/2022	09:48	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	SOC F-LL Extraction	DONE		HW		EPA 504.1	10/26/2022
	Ethylene Dibromide (EDB)	<10.0	ng/L	HW	10.0	EPA 504.1	10/26/2022

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102175
PO No.:
Date Received: 10/20/2022
Report Date: 11/21/2022
Project Name: 2022-10 NEW WELL - RS30 SOC

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-6	Drinking Water	FULLER WELL	10/19/2022	09:48	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	1,2-Dibromo-3-Chloropropane (DBCP)	<0.02	ug/L	HW	0.02	EPA 504.1	10/26/2022
	Comments:						

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-7	Drinking Water	FULLER WELL	10/19/2022	10:15	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	SOC H-SPE Extraction	DONE		TRS		EPA 549.2	10/21/2022
	Diquat	<2.0	ug/L	HW	2.0	EPA 549.2	10/31/2022
	Comments:						

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-8	Drinking Water	FULLER WELL	10/19/2022	10:30	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	SOC I-SPE Extraction	DONE		TRS		EPA 548.1	10/21/2022
	Endothall	<9	ug/L	HW	9	EPA 548.1	10/31/2022
	Comments:						

Laboratory Analysis

Instantly access all of your Data 24/7/365 by going to www.envirolabsinc.com and clicking on Client Data Support.

Environmental Laboratories, Inc.
635 Green Road, PO Box 968, Madison, IN 47250
Tel: 812.273.6699 Fax: 812.273.5788

Report To:

Neal McKee
Anderson Water-5248002
1128 Cincinnati Avenue
Anderson, IN 46011

Order No.: 2022102175
PO No.:
Date Received: 10/20/2022
Report Date: 11/21/2022
Project Name: 2022-10 NEW WELL - RS30 SOC

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-9	Drinking Water	FULLER WELL	10/19/2022	10:00	MF		ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	Sample Preparation-Filtration	DONE		HW		EPA 547	10/28/2022
	Glyphosate (Round-up)	<70	ug/L	HW	70	EPA 547	10/28/2022
	Comments:						

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-10	Drinking Water	FULLER WELL	10/19/2022	10:05	MF	Pace Sample ID: 2104660-01	ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	PCB Screening	<0.0002	mg/L	FO	0.0002	EPA 508	10/27/2022
	Comments:	Pace Madisonville lab performed the analysis of the sample and CMDP uploading. PCB sample had lab error at Pace/Madisonville.					

Order Number	Lab Id	Matrix	Location	Date Collected	Time Collected	Collected By	Description	Status
2022102175	2022102175-11	Drinking Water	FULLER WELL	10/19/2022	10:10	MF	Pace Sample ID: 2104660-02	ApprovedForRelease

	Test Name	Results	Units	Analyst	Detection Limit	Test Method	Analysis Date
	2,3,7,8-TCDD (Dioxin - Drinking Water)	<5.00	pg/L	FO	5.00	EPA 1613	10/31/2022
	Comments:	Pace Minneapolis Lab & Madisonville lab performed the analysis of the sample and CMDP uploading.					

Approved by:

Whitney Wu, Ph.D., Lab Manager

Anderson

CHEM WO = Internal Chemical Wash Out w/Report | VIS = Visual Inspection w/Report | PW = External Pressure Wash | Mixer = PAX active mixer with warranty

REPAIRS = Welding, OSHA compliance, etc | EXT = Exterior Overcoat | INT WET = Internal Renovation | EXT SP6 = Exterior Blast / Containment

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Tank	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
8th Street 500KG-Elv	EXT INT WET REPAIRS MIXER	VIS	VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	EXT	CHEM WO	VIS	VIS	INT WET	VIS	VIS	CHEM WO	VIS
$ / YR	$56,557	$56,557	$56,557	$56,557	$56,557	$56,557	$56,557	$56,557	$56,557	$56,557	$39,613	$41,015	$42,467	$43,971	$45,527	$47,139	$48,808	$50,535	$52,324	$54,177
10th Street 500KG-Elv	MIXER CHEM WO REPAIRS	VIS	EXT INT WET	VIS	VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	EXT	VIS	VIS	CHEM WO	INT WET	VIS	VIS
$ / YR	$49,788	$49,788	$49,788	$49,788	$49,788	$49,788	$49,788	$49,788	$49,788	$49,788	$39,045	$40,427	$41,858	$43,340	$44,874	$46,463	$48,108	$49,811	$51,574	$53,400
Range Line 1MM-Elv	MIXER CHEM WO REPAIRS	VIS	VIS	EXT INT DRY INT WET REPAIRS	VIS	VIS	CHEM WO	VIS	PW VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	EXT	VIS	VIS	CHEM WO	INT WET	VIS
$ / YR	$74,426	$74,426	$74,426	$74,426	$74,426	$74,426	$74,426	$74,426	$74,426	$74,426	$64,799	$67,093	$69,468	$71,927	$74,473	$77,110	$79,839	$82,666	$85,592	$88,622
Columbus 1MM-ELV	MIXER CHEM WO REPAIRS PW	VIS	VIS	CHEM WO	VIS	VIS	EXT SP6 INT WET REPAIRS	VIS	CHEM WO	VIS	PW VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	EXT	VIS	CHEM WO	INT WET
$ / YR	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$164,278	$164,278	$164,278	$164,278	$164,278	$164,278	$71,778	$74,319	$76,950	$79,674	$82,494	$85,415	$88,438	$91,569
Fairview 1MM-Elv	WO	VIS	VIS	WO	VIS	VIS	WO	VIS	VIS	WO										
$ / YR	$1,604	$1,604	$1,604	$1,604	$1,604	$1,604	$1,604	$1,604	$1,604	$1,604										
Cross Street 500KG-Elv	MIXER CHEM WO REPAIRS	VIS	VIS	VIS	EXT INT WET REPAIRS	VIS	VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	VIS	CHEM WO	VIS	EXT	CHEM WO	VIS	VIS	INT WET
$ / YR	$44,496	$44,496	$44,496	$44,496	$44,496	$44,496	$44,496	$44,496	$44,496	$44,496	$39,068	$40,451	$41,883	$43,366	$44,901	$46,490	$48,136	$49,840	$51,604	$53,431
Park Road 2MM-Hydro	WO	VIS	VIS	WO	VIS	VIS	WO	VIS	VIS	WO										
$ / YR	$1,961	$1,961	$1,961	$1,961	$1,961	$1,961	$1,961	$1,961	$1,961	$1,961										
Total $ / YR	$288,832	$288,832	$288,832	$288,832	$288,832	$288,832	$393,110	$393,110	$393,110	$393,110	$346,803	$353,264	$267,455	$276,922	$286,725	$296,876	$307,385	$318,266	$329,533	$341,198
Total $ / Month	$24,069	$24,069	$24,069	$24,069	$24,069	$24,069	$32,759	$32,759	$32,759	$32,759	$28,900	$29,439	$22,288	$23,077	$23,894	$24,740	$25,615	$26,522	$27,461	$28,433
21,500 meters, $ / Meter / Month	$1.12	$1.12	$1.12	$1.12	$1.12	$1.12	$1.52	$1.52	$1.52	$1.52	$1.34	$1.37	$1.04	$1.07	$1.11	$1.15	$1.19	$1.23	$1.28	$1.32

8th Street - REPAIRS

Remove CP system
Seal weld 14 CP holes
Install Safety Cable Climbs
Install PAX mixer
Install conduit to roof for mixer

10th Street - REPAIRS

Install Safety Cable Climbs
Install PAX mixer
Install conduit to roof for mixer

Range Line - REPAIRS

Install Safety Cable Climbs
Install PAX mixer
Install conduit to roof for mixer
Concrete foundation repair

Columbus - REPAIRS

Lead Containment System
Install PAX mixer
Install Safety Cable Climbs

Fairview - REPAIRS

Cross Street - REPAIRS

Install Safety Cable Climbs
Install PAX mixer
Install conduit to roof for mixer

Park Road - REPAIRS

8th Street - PAINT

Exterior - Extra Prep work on riser
Exterior - Heavy Power Wash
Exterior - SP2/SP3 preparation
Exterior - Re-trace logo x 1 side
Exterior - 2-Coat Over Coat
INT WET - SP10 preparation
INT WET - Stripe weld seams
INT WET - 2-Coats Epoxy

10th Street - PAINT

Exterior - Heavy Power Wash
Exterior - SP2/SP3 preparation
Exterior - Re-trace logo x 2 sides
Exterior - 2-Coat Over Coat
INT WET - SP10 preparation
INT WET - Stripe weld seams
INT WET - 2-Coats Epoxy

Range Line - PAINT

Exterior - Heavy Power Wash
Exterior - SP2/SP3 preparation
Exterior - Re-trace logo x 2 sides
Exterior - 2-Coat Over Coat
INT DRY - SP7 preparation
INT DRY - 1-Coat Epoxy
INT WET - SP10 preparation
INT WET - Stripe Weld Seams
INT WET - 2-Coats Epoxy

Columbus - PAINT

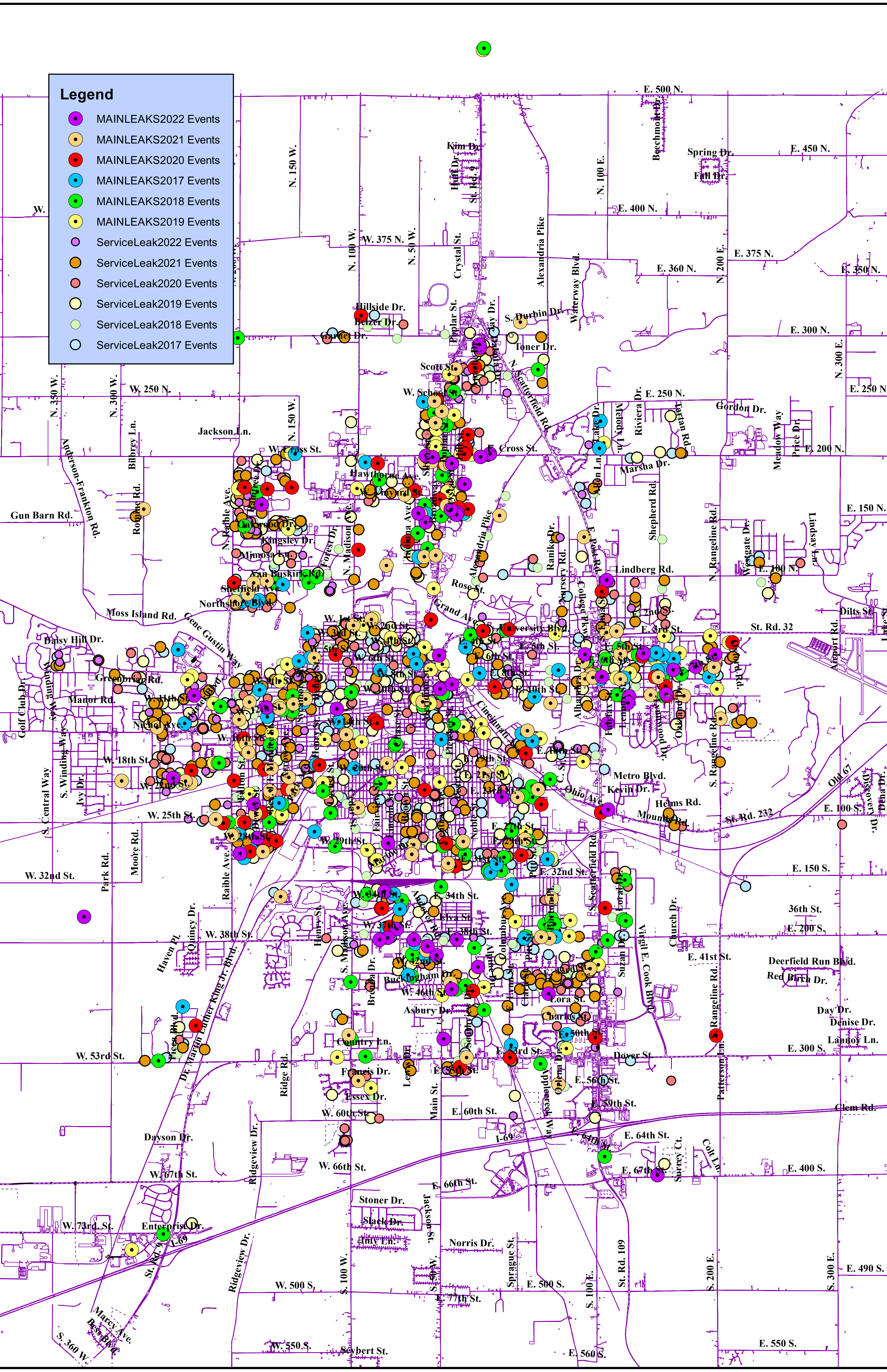
Exterior - SP6 Blast
Exterior - 2 New Logos
Exterior - 3-Coats Paint
INT WET - SP10 preparation
INT WET - 2-Coats Epoxy
INT WET -Stripe Weld Seams

Fairview - PAINT

Cross Street - PAINT

Exterior - Heavy Power Wash
Exterior - SP2/SP3 preparation
Exterior - Re-trace logo x 1 side
Exterior - 2-Coat Over Coat
INT WET - SP10 preparation
INT WET - Stripe weld seams
INT WET - 2-Coats Epoxy

Park Road - PAINT



Legend
MAINLEAKS2022 Events
MAINLEAKS2021 Events
MAINLEAKS2020 Events
MAINLEAKS2017 Events
MAINLEAKS2018 Events
MAINLEAKS2019 Events
ServiceLeak2022 Events
ServiceLeak2021 Events
ServiceLeak2020 Events
ServiceLeak2019 Events
ServiceLeak2018 Events
ServiceLeak2017 Events
E. 500 N.
Kim Dr.
Huff Dr.
St. Rd. 9
Beechmont Dr.
Spring Dr.
Fall Dr.
E. 450 N.
N. 150 W.
N. 100 E.
E. 400 N.
W. 375 N.
N. 100 W.
N. 50 W.
Crystal St.
Alexandria Pike
Waterway Blvd.
E. 375 N.
E. 360 N.
N. 200 E.
E. 350 N.
Hillside Dr.
Belzer Dr.
Garnet Dr.
Poplar St.
Jay Dr.
S. Durbin Dr.
Toner Dr.
E. 300 N.
N. 300 E.
Scott St.
W. School St.
N. Scatterfield Rd.
W. 250 N.
N. 350 W.
N. 300 W.
E. 250 N.
Gordon Dr.
Riviera Dr.
Tartan Rd.
Melody Ln.
Lake Dr.
Meadow Way
Price Dr.
E. 200 N.
Jackson Ln.
Bilbrey Ln.
Anderson-Frankton Rd.
W. Cross St.
E. Cross St.
Marsha Dr.
Allen Ln.
Hawthorne Ave.
W. Vinyard St.
Gun Barn Rd.
Romine Rd.
N. Raible Ave.
Oakwood Dr.
Kingsley Dr.
Mimosa Ln.
Forest Dr.
N. Madison Ave.
Indiana Ave.
Shepherd Rd.
E. 150 N.
N. Rangeline Rd.
Westgate Dr.
Lindsay Ln.
Ranike Dr.
Nursery Rd.
E. Post Rd.
Lindberg Rd.
E. 100 N.
Van Buskirk Rd.
Sheffield Ave.
Northshore Blvd.
Rose St.
Grand Ave.
College Pkwy.
Moss Island Rd.
Gene Gustin Way
Daisy Hill Dr.
W. 1st St.
W. 2nd St.
W. 3rd St.
W. 4th St.
W. 5th St.
W. 6th St.
W. 8th St.
W. 9th St.
W. 10th St.
University Blvd.
E. 2nd St.
E. 3rd St.
St. Rd. 32
Dilts St.
Airport Rd.
Lake St.
E. 4th St.
E. 5th St.
E. 6th St.
E. 7th St.
E. 8th St.
E. 10th St.
Oxford Rd.
Greenbriar Rd.
Manor Rd.
Golf Club Dr.
Winding Way
W. 11th St.
W. 12th St.
Nichol Ave.
W. 14th St.
W. 16th St.
Cincinnati Ave.
Alhambra Dr.
Fairfax
Lenox St.
Oakland Dr.
S. Rangeline Rd.
W. 18th St.
S. Winding Way
Ivy Dr.
S. Central Way
W. 20th St.
W. 22nd St.
E. 18th St.
E. 19th St.
E. 21st St.
E. 23rd St.
Metro Blvd.
Kevin Dr.
Ohio Ave.
Helms Rd.
Mounds Rd.
St. Rd. 232
Old 67
E. 100 S.
Discovery Dr.
Dena Dr.
W. 25th St.
W. 28th St.
W. 29th St.
Marine Dr.
Fulton St.
E. 27th St.
E. 29th St.
E. 31st St.
E. 32nd St.
Noble St.
Pitt St.
S. Scatterfield Rd.
Loral Dr.
E. 150 S.
W. 32nd St.
Park Rd.
Moore Rd.
Raible Ave.
W. 34th St.
E. 34th St.
Elva St.
Andover Rd.
W. 37th St.
E. 38th St.
Columbus Ave.
Burton Dr.
36th St.
E. 200 S.
Church Dr.
Virgil E. Cook Blvd.
Suzan Dr.
W. 38th St.
Quincy Dr.
Haven Pl.
Henry St.
S. Madison Ave.
Dr. Martin Luther King Jr. Blvd.
W. 42nd St.
Buckingham Dr.
W. 46th St.
Brenda Dr.
Asbury Dr.
E. 41st St.
E. 43rd St.
Lora St.
Charles St.
E. 50th St.
Deerfield Run Blvd.
Red Birch Dr.
Day Dr.
Denise Dr.
Lannoy Ln.
Rangeline Rd.
E. 300 S.
Pecca Blvd.
W. 53rd St.
Country Ln.
Francis Dr.
Essex Dr.
Lewis Dr.
E. 53rd St.
E. 55th St.
Dover St.
E. 56th St.
Orlena Dr.
Applecreek Way
Ridge Rd.
W. 60th St.
E. 59th St.
E. 60th St.
Main St.
Clem Rd.
Patterson Ln.
Dayson Dr.
Ridgeview Dr.
W. 66th St.
I-69
E. 64th St.
Surrey Ct.
Colt Ln.
E. 67th St.
E. 400 S.
W. 67th St.
E. 66th St.
Stoner Dr.
Jackson St.
W. 73rd. St.
Enterprise Dr.
Slack Dr.
Imy Ln.
Norris Dr.
Sprague St.
St. Rd. 9
S. 100 W.
S. 50 W.
W. 500 S.
E. 500 S.
S. 100 E.
St. Rd. 109
S. 200 E.
S. 300 E.
E. 490 S.
E. 77th St.
Marcy Ave.
Bess Blvd.
S. 360 W.
W. 550 S.
Seybert St.
E. 560 S.
E. 550 S.

AWWA Free Water Audit Software v5.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits
for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:	Neal McKee
Email Address:	nmckee@cityofanderson.com
Telephone (incl Ext.):	765-648-6420
Name of City / Utility:	City of Anderson Water
City/Town/Municipality:	Anderson
State / Province:	Indiana (IN)
Country:	US
Year:	2019
Start Date:	01/2019 Enter MM/YYYY numeric format
End Date:	12/2019 Enter MM/YYYY numeric format
Audit Preparation Date:	10/14/2020
Volume Reporting Units:	Million gallons (US)
PWSID / Other ID:	IN5248002

The following guidance will help you complete the Audit

All audit data are entered on the ***Reporting Worksheet***

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: 0.25% Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

Instructions
The current sheet. Enter contact information and basic audit details (year, units etc)

Reporting Worksheet
Enter the required data on this worksheet to calculate the water balance and data grading

Comments
Enter comments to explain how values were calculated or to document data sources

Performance Indicators
Review the performance indicators to evaluate the results of the audit

Water Balance
The values entered in the Reporting Worksheet are used to populate the Water Balance

Dashboard
A graphical summary of the water balance and Non-Revenue Water components

Grading Matrix
Presents the possible grading options for each input component of the audit

Service Connection Diagram
Diagrams depicting possible customer service connection line configurations

Definitions
Use this sheet to understand the terms used in the audit process

Loss Control Planning
Use this sheet to interpret the results of the audit validity score and performance indicators

Example Audits
Reporting Worksheet and Performance Indicators examples are shown for two validated audits

Acknowledgements
Acknowledgements for the AWWA Free Water Audit Software v5.0

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
\+ Click to add a comment

Water Audit Report for: City of Anderson Water (IN5248002)
Reporting Year: 2019 1/2019 - 12/2019

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' --------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	5	3,798.321	MG/Yr	5	-2.00%		MG/Yr
Water imported:	n/a		MG/Yr				MG/Yr
Water exported:	n/a		MG/Yr				MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 3,875.838 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	2,378.991	MG/Yr			
Billed unmetered:	n/a		MG/Yr			
Unbilled metered:	n/a		MG/Yr			
Unbilled unmetered:	5	48.448	MG/Yr	1.25%		MG/Yr

Use buttons to select percentage of water supplied **OR** value

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 2,427.439 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

1,448.399 MG/Yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		9.690	MG/Yr	0.25%		MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	5	125.210	MG/Yr	5.00%	MG/Yr
Systematic data handling errors:	5	5.947	MG/Yr	0.25%	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 140.847 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1,307.552 MG/Yr

WATER LOSSES: 1,448.399 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,496.847 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	420.0	miles
Number of active AND inactive service connections:	7	24,766	
Service connection density:		59	conn./mile main

Are customer meters typically located at the curbstop or property line?		Yes
Average length of customer service line:		

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	9	60.0	psi

COST DATA

Total annual cost of operating water system:	7	$16,714,103	$/Year
Customer retail unit cost (applied to Apparent Losses):	8	$3.30	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	7	$239.28	$/Million gallons

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 60 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Customer metering inaccuracies
3: Billed metered

AWWA Free Water Audit Software:
System Attributes and Performance Indicators

Water Audit Report for: City of Anderson Water (IN5248002)
Reporting Year: 2019 | 1/2019 - 12/2019

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 60 out of 100 ***

System Attributes:

	Apparent Losses:	140.847	MG/Yr
+	Real Losses:	1,307.552	MG/Yr
=	**Water Losses:**	**1,448.399**	MG/Yr
?	Unavoidable Annual Real Losses (UARL):	131.12	MG/Yr
	Annual cost of Apparent Losses:	$621,341	
	Annual cost of Real Losses:	$312,871	Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumpiton

Performance Indicators:

Financial:	Non-revenue water as percent by volume of Water Supplied:	38.6%	
	Non-revenue water as percent by cost of operating system:	5.7%	Real Losses valued at Variable Production Cost
Operational Efficiency:	Apparent Losses per service connection per day:	15.58	gallons/connection/day
	Real Losses per service connection per day:	144.65	gallons/connection/day
	Real Losses per length of main per day*:	N/A	
	Real Losses per service connection per day per psi pressure:	2.41	gallons/connection/day/psi
	From Above, Real Losses = Current Annual Real Losses (CARL):	1,307.55	million gallons/year
?	Infrastructure Leakage Index (ILI) [CARL/UARL]:	9.97	

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

AWWA Free Water Audit Software v6.0

FWAS v6.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format and is not meant to take the place of a full-scale, comprehensive water audit format. Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targeting loss reduction levels. This tool contains several separate worksheets. Sheets can be accessed using the tabs at the bottom of the screen, or by clicking the TOC links below.

Table of Contents (TOC)

AWWA Web Resources for Water Loss Control

https://www.awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control

Items referenced in the Free Water Audit Software v6.0 on the web:

- Data Grading Matrix v6.0
- Example Water Audit v6.0
- Water Audit Compiler v6.0
- AWWA Reports on Performance Indicators
- M36 Manual

Enter Basic Information

Name of Utility:	Anderson Water Department
Name of Contact Person:	Neal McKee
Email:	nmckee@cityofanderson.com
Telephone | Ext.:	765-648-6420
City/Town/Municipality:	Anderson
State / Province:	Indiana (IN)
Country:	USA
Audit Preparation Date:	Jun 10 2021
Audit Year:	2021
Audit Year Label:	Calendar (Fiscal, Calendar, etc)
Audit Period Start Date:	Jan 01 2021
Audit Period End Date:	Dec 31 2021
Volume Reporting Units:	Million gallons (US)
Water System Structure:	Retail
Water Type:	Potable Water
System ID Number:	5248002
Validator Name/ID:	Jill Curry
Validator Email:	jill@recurry.com/WV220069
Estimated Total Population Served by Water Utility:	58,542

Key of Input Acronyms

In order of appearance in the Worksheet

VOS	Volume from Own Sources
VOSEA	VOS Error Adjustment
WI	Water Imported
WIEA	WI Error Adjustment
WE	Water Exported
WEEA	WE Error Adjustment
BMAC	Billed Metered Authorized Consumption
BUAC	Billed Unmetered Authorized Consumption
UMAC	Unbilled Metered Authorized Consumption
UUAC	Unbilled Unmetered Authorized Consumption
SDHE	Systematic Data Handling Errors
CMI	Customer Metering Inaccuracies
UC	Unauthorized Consumption
Lm	Length of mains
Nc	Number of service connections
Lp	Average length of (private) customer service line
AOP	Average Operating Pressure
CRUC	Customer Retail Unit Charge
VPC	Variable Production Cost

Color Key — User input | Calculated | Optional default

Guidance for the Worksheet

Choosing to enter unit of **percent** or **volume** (applies to VOSEA, WIEA, WEEA, CMI) choose entry option:

1.00%	percent	*or*	
	volume		25.000

Choosing to enter **default** or **custom input** (applies to UUAC, SDHE, UC) choose entry option:

0.25%	default	*or*	
	custom		75.000

Guidance for the Interactive Data Grading

Use acronym buttons in IDG header to navigate among inputs. Acronym Key above. White = needs answers, orange = complete, clear = not required. Example below.

After clicking an acronym button, answer all visible questions in the order they're presented, choosing best-fit answer

Grade will populate when all visible questions are complete for an input: **7**

The limiting criteria will be labeled along the right. If only 1 limiting criterion is shown, improving on that criterion will achieve a higher data grade. If multiple limiting criteria are shown, improving on *each* limiting criterion is necessary to achieve a higher data grade. A complete inventory of data grading criteria is available in the Data Grading Matrix v6.0 (see web resources)

Limiting

If you have questions or comments regarding this software please contact us at: wlc@awwa.org

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

Water Audit Report for: Anderson Water Department
Audit Year: 2021 | Jan 01 2021 - Dec 31 2021 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

VOS	Volume from Own Sources:	n	g	3	3,964.984	MG/Yr	n	g	8	0.00% percent	VOSEA
WI	Water Imported:	n	g	n/a		MG/Yr					WIEA
WE	Water Exported:	n	g	n/a		MG/Yr					WEEA

WATER SUPPLIED: 3,964.984 MG/Yr

AUTHORIZED CONSUMPTION

BMAC	Billed Metered:	n	g	5	2,252.148	MG/Yr		
BUAC	Billed Unmetered:	n	g	n/a		MG/Yr		
UMAC	Unbilled Metered:	n	g	10	87.345	MG/Yr	choose entry option:	
UUAC	Unbilled Unmetered:	n	g	5	95.164	MG/Yr	custom 95.164	MG/Yr

AUTHORIZED CONSUMPTION: 2,434.657 MG/Yr

WATER LOSSES

1,530.327 MG/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

choose entry option:

SDHE	Systematic Data Handling Errors:	n	g	3	5.630	MG/Yr	0.25% default	
CMI	Customer Metering Inaccuracies:	n	g	6	123.131	MG/Yr	5.00% percent	under-registration
UC	Unauthorized Consumption:	n	g	3	5.630	MG/Yr	0.25% default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 134.392 MG/Yr

Real Losses

Real Losses: 1,395.935 MG/Yr

WATER LOSSES: 1,530.327 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,712.836 MG/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	8	420.0	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	5	24,800		(active *and* inactive)
	Service connection density:				59	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp: n g 10

Average length of customer service line has been set to zero and a data grading of 10 has been applied

AOP: Average Operating Pressure: n g 7 60.0 psi

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	9	$5.03	$/1000 gallons (US)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	9	$260.39	$/Million gallons	$15,693,780	$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier III (51-70). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Billed Metered (BMAC)
3: Number of Service Connections (Nc)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

FWAS v6.0

AWWA Free Water Audit Software: Dashboard

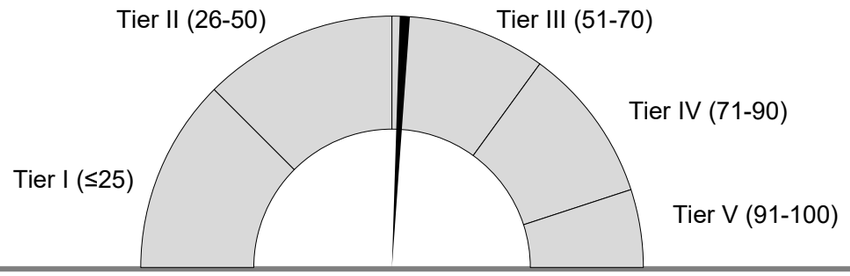
go to worksheet | go to grading | go to references

Water Audit Report for: Anderson Water Department **Audit Year:** 2021 Calendar Jan 01 2021 - Dec 31 2021

Data Validity

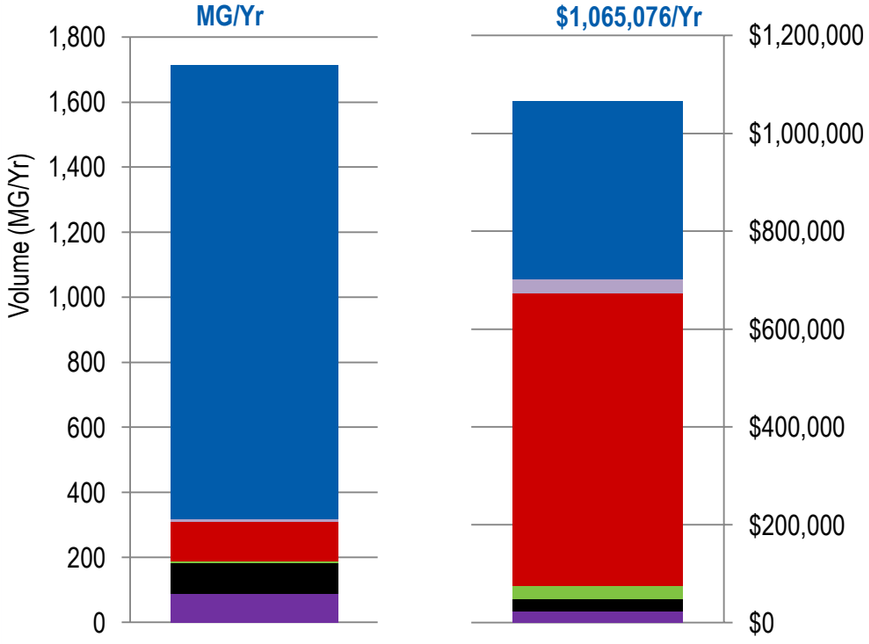
Data Validity Score: 51 **Data Validity Tier:** Tier III (51-70)

See Loss Control Planning for Tier Details



NRW Components Summary

Total Volume of NRW = 1,708 MG/Yr **Total Cost of NRW = $1,065,076/Yr**



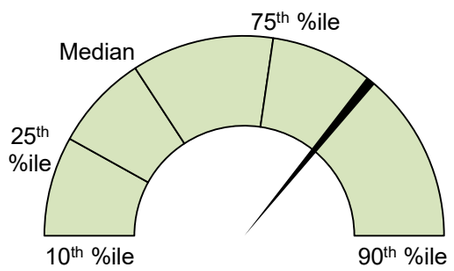
	Volume MG/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	134.4	$654,065	CRUC
Real Losses	1,395.9	$363,488	VPC
Unbilled Authorized Cons	182.5	$47,524	VPC
Non-Revenue Water	1,712.8	$1,065,076	Blended

Key Performance Indicators

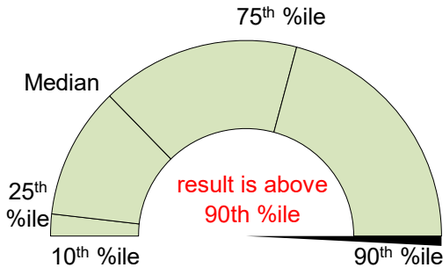
Actual KPI result

Target (see Worksheet)

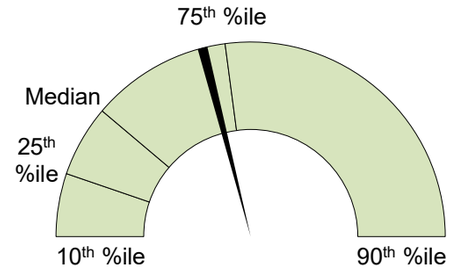
gauge %iles per validated industry ranges[2]



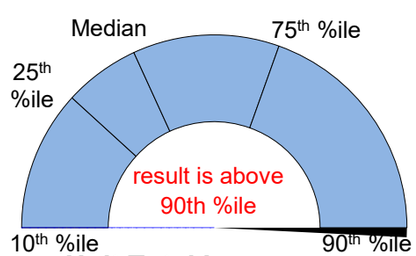
Total Loss Cost Rate
41.03 $/conn/year



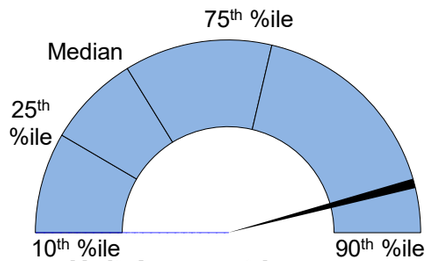
Apparent Loss Cost Rate
26.37 $/conn/year



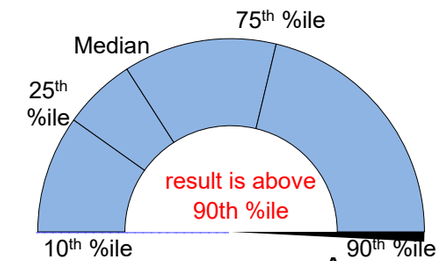
Real Loss Cost Rate
14.66 $/conn/year



Unit Total Losses
169.1 gal/conn/day

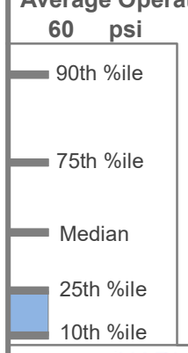


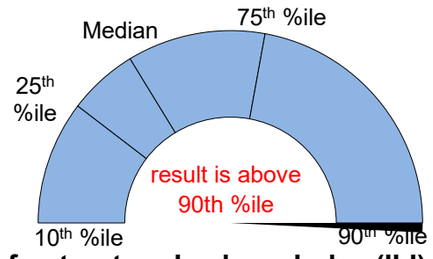
Unit Apparent Losses
14.8 gal/conn/day



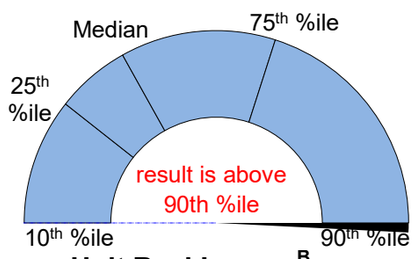
Unit Real Losses[A]
154.2 gal/conn/day

Average Operating Pressure
60 psi





Infrastructure Leakage Index (ILI)
10.6 dimensionless



Unit Real Losses[B]
9,106 gal/mile/day

See UARL definition for additional guidance on the ILI

(UARL) Unavoidable Annual Real Losses	131.2 MG/Yr	14.5 gal/conn/day

Guidance Information for Key Performance

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs[1].
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
- See Table 1 below for Uses and Limitations for each KPI, excerpted from the AWWA Water Loss Control Committee Report (2020)[1], with naming conventions updated.
- Percentiles (%iles) shown on KPI gauges come from Level 1 validated data in the AWWA WLCC Reference Water Audit Dataset (2020)[2].
- KPI %iles shown above are not segregated by cohorts. Limited KPI data by cohorts may be found in WRF 4695 Guidance Manual, Appendix B (2019)[5].
- Actual KPI results that fall below 10th %ile or above 90th %ile do not necessarily imply error, but should be viewed with scrutiny.
- Percentiles not intended to imply targets. Targets may be input by user for operational KPIs, if desired, on Worksheet.
- See UARL and ILI in Definitions tab for discussion of size and pressure limitations.
- Systems that fall on the extreme ends of size or connection density should use caution when interpreting Unit Losses KPIs.

121 Commerce Drive
Suite 101
Danville, Indiana 46122
www.maximautomation.com

April 18, 2023
City of Anderson, Indiana

RE: Control System Upgrade

Maxim Automation has reviewed Anderson's current control system for the Water Department. Based upon this review we recommend replacing most of the PLCs and the entire HMI system at both treatment plants. All but one of the existing PLCs are either discontinued or about to be discontinued. Rockwell Automation has four categories for the lifecycle of equipment. These are Active, Active Mature, End of Life and Discontinued. The only PLC that is "Active" is the Filter PLC at the Lafayette Treatment Plant.

We recommend a complete upgrade of the entire control system, including the PLCs and associated hardware and the HMI PCs at both Wheeler & Lafayette treatment plants. We also recommend switching communications to ethernet cellular based service instead of serial based radios. The HMI computers at both treatment plants are beyond the recommended lifespan of 5 years for a PC. It is critical to keep these HMI computers up to date for security, data reliability and availability.

This quotation is broken down into three parts to provide a piecemeal approach to upgrading the entire control system as budgets allow.

Part 1: Remote Sites

The remote sites can be done individually as budget constraints allow. Generally speaking each remote site has a cost of $21,190.13 with the exception of Fairview. Fairview has a cost of $36,348.25. Please see the attached site cost breakdown for a list of remote sites.

Part 2: Wheeler Treatment Plant

The Wheeler Treatment Plant upgrade requires all PLCs and HMI to be upgraded at the same time. We are proposing a redundant pair of Allen-Bradley ControlLogix PLCs to run the entire plant. Remote IO modules will be used throughout the treatment plant communicating over ethernet back to the redundant PLCs. This will provide backup control in case of a PLC failure. The current control system is at risk of any one PLC failing causing a loss of control of the associated systems with that PLC. Replacement of both HMI computers with GE iFix HMI software has been included in this cost. Total cost for the Wheeler Treatment Plant is $310,385.88

Part 3: Lafayette Treatment Plant

The Lafayette Treatment Plant only requires upgrading the Main PLC processor card as it has been discontinued and replacement of both HMI computers with GE iFix HMI software. Total cost for the Lafayette Treatment Plant is $143,902.88. Please keep in mind that the Lafayette Treatment Plant can't be upgraded until all the related remote sites have been upgraded. This is due to a technical limitation involving the existing serial radio. The new PLC processor does

121 Commerce Drive
Suite 101
Danville, Indiana 46122
www.maximautomation.com

not support the serial radio network. The new processor will only support communication via ethernet, thus requiring the related remote sites to be on the cellular network.

Maxim's Responsibilities

We will provide all the necessary PLC hardware and associated equipment to replace the interior components of each control panel. This will allow us to build the new backpanels at our panel shop and install them as complete units. We will custom build these backpanels to allow for easy installation with the existing wiring. New UPSs will be supplied with each backpanel to allow for reliable backup power. We will provide programming services to match the existing control sequence of the existing PLCs. We will provide development of the GE iFix HMI system to interface with the new Allen-Bradley PLCs and existing PLCs. We will develop screens to allow for similar monitoring and control of the entire water system.

Please see the attached Bill of Materials for detailed information about what is included in this quote.

We can provide design and programming services to fully automate any desired system at an additional cost. This will require further discussion about the details of what systems will need additional attention to fully automate.

There are very long lead times on some of the equipment contained in this quote (some in excess of a year). It is critical that this equipment is ordered as soon as possible to avoid delays.

Exceptions

All wiring and conduit that leaves our supplied control panels will be the responsibility of others. No bonding expenses have been included in this quote.

Total Combined Cost: $ 955,014.20

Thank you for the opportunity to offer our services. If you have any questions, please contact me anytime by cell phone at 317-418-9560.

Sincerely,

Jeff Bumgardner
Maxim Automation, Inc.