

**Table 1****ASR Pilot Testing Volumes (Water Years 2004-2017)**

City of Pendleton - Year 17 Pilot Test Results

Water Year	Testing Year	Cycle	Account Carryover (MG)	Recharge (MG)	Total Storage (MG)	5% Loss Condition (MG)	Recoverable Volume (MG)	Total Pumping (MG)	ASR Recovery (MG)	Native Groundwater (MG)	Account Balance (MG)
<b>Well 1 (Byers)</b>											
2004	1	1,2	0.0	124.6	124.6	6.2	118.4	149.1	118.4	30.7	0.0
2005	2	3	0.0	132.7	132.7	6.6	126.0	193.0	126.0	66.9	0.0
2006	3	4	0.0	188.1	188.1	9.4	178.7	221.7	178.7	43.0	0.0
2007	4	5	0.0	216.8	216.8	10.8	205.9	258.2	205.9	52.3	0.0
2008	5	6	0.0	269.2	269.2	13.5	255.8	196.0	196.0	0.0	59.7
2009	6	7	59.7	240.7	300.4	15.0	285.4	233.9	233.9	0.0	51.5
2010	7	8	51.5	296.1	347.6	17.4	330.2	187.0	187.0	0.0	143.2
2011	8	9	143.2	278.6	421.8	21.1	400.7	176.4	176.4	0.0	224.3
2012	9	10	224.3	209.6	433.9	21.7	412.2	170.0	170.0	0.0	242.2
2013	10	11	242.2	265.1	507.3	25.4	482.0	137.1	137.1	0.0	344.9
2014	11	12	344.9	226.0	570.9	28.5	542.3	31.0	31.0	0.0	511.3
2015	12	13	511.3	110.0	621.3	31.1	590.2	77.1	77.1	0.0	513.1
2016	13	14	513.1	219.3	732.4	36.6	695.8	158.9	158.9	0.0	536.9
2017	14	15	536.9	286.1	823.0	41.1	781.8	100.0	100.0	0.0	681.9
<b>Well 4 (Hospital)</b>											
2013	10	11	0.0	108.8	108.8	5.4	103.3	51.4	51.4	0.0	52.0
2014	11	12	52.0	169.0	221.0	11.0	209.9	125.0	125.0	0.0	84.9
2015	12	13	84.9	150.9	235.8	11.8	224.0	122.1	122.1	0.0	101.9
2016	13	14	101.9	162.7	264.6	13.2	251.4	148.6	148.6	0.0	102.8
2017	14	15	102.8	173.0	275.8	13.8	262.0	100.5	100.5	0.0	161.5
<b>Well 5 (Stillman)</b>											
2004	1	1,2	0.0	240.4	240.4	12.0	228.4	220.9	220.9	0.0	7.4
2005	2	3	7.4	102.9	110.4	5.5	104.9	264.0	104.9	159.1	0.0
2006	3	4	0.0	304.8	304.8	15.2	289.6	35.2	35.2	0.0	254.4
2007	4	5	254.4	150.7	405.1	20.3	384.9	29.4	29.4	0.0	355.5

**Table 1**

## ASR Pilot Testing Volumes (Water Years 2004-2017)

City of Pendleton - Year 17 Pilot Test Results

Water Year	Testing Year	Cycle	Account Carryover (MG)	Recharge (MG)	Total Storage (MG)	5% Loss Condition (MG)	Recoverable Volume (MG)	Total Pumping (MG)	ASR Recovery (MG)	Native Groundwater (MG)	Account Balance (MG)
2008	5	6	355.5	126.3	481.8	24.1	457.7	17.4	17.4	0.0	440.3
2009	6	7	440.3	101.1	541.3	27.1	514.3	0.1	0.1	0.0	514.2
2010	7	8	514.2	142.8	657.0	32.9	624.2	0.0	0.0	0.0	624.2
2011	8	9	624.2	179.4	803.6	40.2	763.4	0.0	0.0	0.0	763.4
2012	9	10	763.4	240.3	1003.7	50.2	953.5	217.3	217.3	0.0	736.1
2013	10	11	736.1	288.7	1024.8	51.2	973.6	154.1	154.1	0.0	819.5
2014	11	12	819.5	180.0	999.5	50.0	949.5	171.0	171.0	0.0	778.5
2015	12	13	778.5	266.1	1044.6	52.2	992.4	251.6	251.6	0.0	740.7
2016	13	14	740.7	175.5	916.2	45.8	870.4	235.0	235.0	0.0	635.4
2017	14	15	635.4	136.6	772.1	38.6	733.4	93.4	93.4	0.0	640.1
<b>Well 8 (Prison)</b>											
2013	10	11	0.0	112.6	112.6	5.6	107.0	107.0	107.0	0.0	0.0
2014	11	12	0.0	171.0	171.0	8.6	162.5	97.0	97.0	0.0	65.5
2015	12	13	65.5	177.2	242.6	12.1	230.5	115.5	115.5	0.0	115.0
2016	13	14	115.0	152.1	267.0	13.4	253.7	67.5	67.5	0.0	186.2
2017	14	15	186.2	162.7	348.9	17.4	331.5	138.8	138.8	0.0	192.7
<b>Well 14</b>											
2004	1	1,2	0.0	11.4	11.4	0.6	10.8	4.9	4.9	0.0	5.9
2005	2	3	5.9	0.0	5.9	0.3	5.6	0.0	0.0	0.0	5.6
2006	3	4	5.6	0.0	5.6	0.3	5.3	0.0	0.0	0.0	5.3
2007	4	5	5.3	22.9	28.2	1.4	26.8	34.4	26.8	7.6	0.0
2008	5	6	0.0	78.1	78.1	3.9	74.2	78.4	74.2	4.2	0.0
2009	6	7	0.0	63.2	63.2	3.2	60.1	87.4	60.6	26.8	0.0
2010	7	8	0.0	79.7	79.7	4.0	75.7	71.6	71.6	0.0	4.1
2011	8	9	4.1	75.6	79.7	4.0	75.7	99.6	87.7	12.0	0.0
2012	9	10	0.0	89.6	89.6	4.5	85.1	71.1	71.1	0.0	14.0

**Table 1****ASR Pilot Testing Volumes (Water Years 2004-2017)**

City of Pendleton - Year 17 Pilot Test Results

Water Year	Testing Year	Cycle	Account Carryover (MG)	Recharge (MG)	Total Storage (MG)	5% Loss Condition (MG)	Recoverable Volume (MG)	Total Pumping (MG)	ASR Recovery (MG)	Native Groundwater (MG)	Account Balance (MG)
2013	10	11	14.0	108.7	122.7	6.1	116.6	63.2	63.2	0.0	53.3
2014	11	12	53.3	96.0	149.3	7.5	141.9	72.0	72.0	0.0	69.9
2015	12	13	69.9	101.6	171.4	8.6	162.9	111.4	111.4	0.0	51.4
2016	13	14	51.4	68.4	119.8	6.0	113.8	41.8	41.8	0.0	72.0
<b>Project Totals</b>											
2004	1	1,2	0.0	376.4	376.4	18.8	357.6	375.0	344.3	30.7	13.3
2005	2	3	13.3	235.6	248.9	12.4	236.5	457.0	230.9	226.1	5.6
2006	3	4	5.6	492.9	498.5	24.9	473.6	256.9	213.9	43.0	259.7
2007	4	5	259.7	390.3	650.1	32.5	617.6	322.0	262.1	59.9	355.5
2008	5	6	355.5	473.6	829.1	41.5	787.6	291.8	287.6	4.2	500.0
2009	6	7	500.0	405.0	905.0	45.2	859.7	321.4	294.6	26.8	565.7
2010	7	8	565.7	518.6	1,084.3	54.2	1,030.1	258.6	258.6	0.0	771.5
2011	8	9	771.5	533.6	1,305.1	65.3	1,239.9	276.1	264.1	12.0	987.7
2012	9	10	987.7	539.5	1,527.2	76.4	1,450.9	458.5	458.5	0.0	992.4
2013	10	11	992.4	883.8	1,876.3	93.8	1,782.4	512.8	512.8	0.0	1,269.6
2014	11	12	1,269.6	842.0	2,111.6	105.6	2,006.0	496.0	496.0	0.0	1,510.0
2015	12	13	1,510.0	805.7	2,315.8	115.8	2,200.0	677.9	677.9	0.0	1,522.1
2016	13	14	1,522.1	778.0	2,300.1	115.0	2,185.1	651.8	651.8	0.0	1,533.3
2017	14	15	1,533.3	844.9	2,378.1	118.9	2,259.2	497.3	497.3	0.0	1,761.9

**Table 2**

## ASR Pilot Testing Volumes (Water Years 2018-2020)

City of Pendleton - Year 17 Pilot Test Results

Location	Water Year	Testing Year	ASR Cycle	Account Carryover (MG)	Recharge (MG)	Total Storage (MG)	5% Loss Condition (MG)	Recoverable Volume (MG)	Total Pumping (MG)	ASR Recovery (MG)	Native Groundwater (MG)	Account Balance (MG)
Wellfield	2018	15	16	1,761.9	851.5	2,613.4	130.7	2,482.7	676.4	676.4	0.0	1,806.4
Well 1					326.6				150.2			
Well 2					-				152.7			
Well 4					118.1				80.5			
Well 5					146.1				115.3			
Well 8					170.7				105.5			
Well 14					90				72.2			
Wellfield	2019	16	17	1,806.4	497.1	2,303.5	115.2	2,188.3	511.4	511.4	0.0	1,676.9
Well 1					272.9				127.3			
Well 2					-				83.4			
Well 4					47.8				87.5			
Well 5					29.1				109.8			
Well 8					76.3				31.2			
Well 14					71				72.2			
Wellfield	2020	17	18	1,676.9	511.6	2,188.5	109.4	2,079.1	608.5	608.5	0.0	1,470.6
Well 1					232.5				164.0			
Well 2					-				134.4			
Well 4					102.1				39.1			
Well 5					8.0				78.9			
Well 8					132.5				95.7			
Well 14					36.5				96.4			

**Table 3**

## Summary of Year 17 Operations

City of Pendleton - Year 17 Pilot Test Results

Operations Interval	Well 1 Byers UMAT 531	Well 2 Round-Up UMAT 53635	Well 4 Hospital UMAT 55619	Well 5 Stillman UMAT 530	Well 8 Prison UMAT 554	Well 14 John Deere UMAT 54072	Overall
<b>Year 16 Recovery</b>							
Year 16 end of recovery	10/31/2019	9/10/2019	9/30/2019	9/5/2019	12/4/2019	1/10/2020	1/10/2020
Inactive days before recharge	74	NA	113	267	40	3	3
<b>Year 17 Recharge (2019/20)</b>							
Start date	1/13/2020	NA	1/21/2020	5/29/2020	1/13/2020	1/13/2020	1/13/2020
End date	6/5/2020	NA	6/5/2020	6/5/2020	6/6/2020	6/4/2020	6/6/2020
Days from start to end	144	NA	136	7	145	143	145
Active recharge days	119	NA	69	5	83	62	--
% Active recharge	83%	NA	51%	66%	57%	43%	--
Number of start cycles	90	NA	170	17	165	152	--
Recharge volume (MG)	232.5	NA	102.1	8.0	132.5	36.5	511.6
Average flow rate (gpm)	1,352	NA	1,022	1,201	1,108	409	--
Maximum flow rate (gpm)	1,409	NA	1,854	1,419	1,285	1,066	--
<b>Year 17 Storage</b>							
Days of storage	5	NA	5	34	5	6	4
<b>Year 17 Recovery</b>							
Start date	6/10/2020	6/12/2020	6/10/2020	7/9/2020	6/11/2020	6/10/2020	6/10/2020
End date	12/11/2020	8/24/2020	11/23/2020	8/31/2020	12/18/2020	10/28/2020	12/18/2020
Days from start to end	184	73	166	53	190	140	191
Active recovery days	95	34	34	50	78	135	--
% Active recovery	52%	47%	21%	95%	41%	96%	--
Number of start cycles	113	66	118	48	150	24	--
Recovery volume (MG)	164.0	134.4	39.1	78.9	95.7	96.4	608.5
Average flow rate (gpm)	1,196	1,697	798	1,087	853	496	--
Maximum flow rate (gpm)	1,952	1,877	871	1,463	876	501	--
Inactive days before recharge	10	NA	28	NA	3	60	3
<b>Year 18 Recharge (2020/21)</b>							
Start date	12/21/2020	NA	12/21/2020	NA	12/21/2020	12/27/2020	12/21/2020

**Table 4****Water Level Response to Year 17 ASR Operations**

City of Pendleton - Year 17 Pilot Test Results

Measurement	ASR Wells					Observation Wells	
	Well 1	Well 4	Well 5	Well 8	Well 14	Well 2	Well 3
	Byers UMAT 531	Hospital UMAT 55619	Stillman UMAT 530	Prison UMAT 554	John Deere UMAT 54072	Roundup UMAT 53635	SW 21 <sup>st</sup> UMAT 53636
Land Surface Elevation (ft NGVD29)	1,093.1	1,047.6	1,070.7	1,027.3	1,048.9	1,053.1	1,061.8
Pre-Recharge Water Level (ft NGVD29)	794.6	787.9	788.9	791.6	790.5	787.5	*
Maximum Water Level (ft NGVD29)	841.1	990.8	902.1	811.9	827.3	791.5	*
Maximum Water Level Buildup (ft)	46.5	202.9	113.2	20.3	36.8	4.0	*
Minimum Available Buildup <sup>a</sup> (ft)	222.0	26.8	138.6	185.4	191.6	231.6	*
Pre-Recovery Water Level (ft NGVD29)	745.5	793.4	788.4	797.2	793.1	790.5	*
Minimum Pumping Level (ft NGVD29)	698.6	675.9	764.6	780.6	757.1	678.8	*
Maximum Water Level Drawdown (ft)	46.9	117.5	23.8	16.6	36.0	111.7	*

**Notes:**<sup>a</sup> The remaining distance from the maximum water level observed and a 30-foot buffer below ground surface

\* Water level and pumping data for Well 3 for the recharge and recovery period was lost due to malfunctioning of the well's data logging system.

ft = feet

NGVD29 = National Geodetic Vertical Datum of 1929

**Table 5**  
**Specific Capacity Summary**  
 City of Pendleton - Year 17 Pilot Test Results

Water Year	Testing Year	Cycle	Specific Capacity (gpm/foot)									
			Well 1		Well 4		Well 5		Well 8		Well 14	
			Recharge	Recovery	Recharge	Recovery	Recharge	Recovery	Recharge	Recovery	Recharge	Recovery
		Baseline	--	--	--	--	--	48.6	--	--	12.4	30.1
2004	1	1	46.5	--	--	--	33.9	48.6	--	--	11	--
2004	1.5	2	47	52	--	--	79.4	36.4	--	--	11.2	--
2005	2	3	84.8	--	--	--	41	37.4	--	--	--	--
2006	3	4	36.5	61.8	--	--	14.8	36.9	--	--	--	--
2007	4	5	33.7	62.8	--	--	23.5	15.6	--	--	10.8	18.4
2008	5	6	35.6	--	--	--	32.5	16	--	--	19.3	17.5
2009	6	7	34.6	58.9	--	--	--	--	--	--	24.7	19
2010	7	8	66.3	--	--	--	28.3	--	--	--	--	18.1
2011	8	9	81	64	--	--	24	--	--	--	38	23
2012	9	10	27	52	--	--	17	41	--	--	13	19
2013	10	11	26.5	--	5.2	10.6	11	50.2	61.7	37.3	11.1	21.3
2014	11	12	29	no data	5.2	7.8	13.4	44.6	34.8	52.7	10.7	17.5
2015	12	13	36.2	no trend	5.6	10.4	11.9	38.5	46.4	38.7	8.4	16.3
2016	13	14	28.0	no trend	5.2	9.2	8.8	36.0	46.0	45.0	7.9	18.0
2017	14	15	31.0	30.0	5.0	9.0	9.5	36.0	48.0	58.0	6.9	25.0
2018	15	16	94.0	20.6	5.2	7.8	9.3	48.5	56.3	59.3	8.3	17.7
2019	16	17	39.3	26.0	5.6	8.7	9.6	46.1	59.2	49.9	9.7	17.1
2020	17	18	29.2	25.3	5.1	11.1	11.9	42.9	62.6	69.3	13.2	14.2

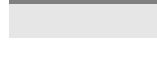
**Table 6****Pre-Recharge Static Water Levels**

City of Pendleton - Year 17 Pilot Test Results

Water Year	Testing Year	Cycle	Pre-Recharge Static Water Level Elevation (feet NGVD29)						
			ASR Wells					Observation Wells	
			Well 1	Well 4	Well 5	Well 8	Well 14	Well 2	Well 3
2004	1	1	809	803.4	811.4		817.5	809.1	805.5
2004	1.5	2	811.8	810.4	811.9		810.4	810.9	811.6
2005	2	3	805	808.7	809		808.7	807.7	814.3
2006	3	4	803.7	805.7	802.9		809.6	805.1	807.4
2007	4	5	803.1		802.2		809.8	807.1	804.7
2008	5	6	801		804.2		807.7	802.1	804.9
2009	6	7	798.9		799		807.1	801.1	803.6
2010	7	8	797.2		796.5		804.8	798.6	801.4
2011	8	9	796.5		796.1		804.3	803.2	801.7
2012	9	10	794.1	800.5	795		804.6	805.8	802.4
2013	10	11	793.7	799.2	794	804.1	802.4	796.1	800.2
2014	11	12	795	797	792.5	792	801	794.5	806.5
2015	12	13	794	800.2	791.5	796.5	798.5	805.4	806.5
2016	13	14	789.9	792.9	782.3	792.5	796.5	791	
2017	14	15	794	792.4	787.2	792.6	789.7	789.7	793.6
2018	15	16	792.9	790.9	786.6	792.8	794	790	791.5
2019	16	17	791.5	790.9	794.3	789	788.2	788.8	791.3
2020	17	18	795.9	790.7	788.9	791.6	790.5	787.5	792.5
Average Rate of Change* (ft/y)			-1.0	-1.1	-1.5	-1.4	-1.6	-1.3	-1.1
			Average of All Wells:		-1.3 feet per year (ft/y)				

**Notes:**

 Shading indicates measurements unavailable

 Shading indicates measurements not included in calculations. In December 2006, Well 14 was sealed off to a depth of 824 feet, abandoning the lower 262 feet of the original borehole. Only measurements taken after the well alteration are considered in this analysis.

\* Based on slope of the linear regression



**Table 7**  
**Water Quality Monitoring Plan**  
 City of Pendleton - Year 17 Pilot Test Results

Monitoring Plan Approved October 2018

Sample Location: DWP Designation: Sample Period	WTP EP-A	WELL 1 EP-B	WELL 5 EP-F	WELL 8 EP-G	WELL 14 EP-H	WELL 4 EP-E	WELL 3* EP-D	WELL 2* EP-C
	4th Quarter	During Recovery (or pumping) at the Sampled Well						
Analyte Group	Source Water	Recovered Water						Groundwater **
Field Parameters (FPs)	1	1	1	1	1	1	1	1
Geochemical Parameters (GCs)	1	1	1	1	1	1	1	1
Disinfection Byproducts (DBPs)						1		
Inorganic Chemicals (IOCs)	9					9	9	9
Nitrate	1	1	1	1	1	1	1	1
Radiological Parameters, excluding Uranium	9					9	9	9
Uranium	9					6	6	6
Synthetic Organic Compounds (SOCs)	3*					3*	3*	3*
Volatile Organic Compounds (VOCs)	1					3	3	3

**Notes:**

Numbers in table denote sample frequency in years

\* Two consecutive quarters

\*\* Well 2 is not included in the limited license as an approved recovery well but will be monitored for comparison to the other wells.

	Shading indicates existing Drinking Water Program requirement
	Shading indicates additional monitoring for aquifer storage and recovery
	Shading indicates wells not used for recharge

**Table 8**  
**Laboratory Analytical Results**  
 City of Pendleton - Year 17 Pilot Test Results

Date:	Source		Recovered Water / Groundwater										
	7/8/2020 WFP	12/16/2020 WFP	8/5/2020 Well #1 (Byers)	8/5/2020 Well #5 (Stillman)	8/5/2020 Well #8 (Prison)	8/5/2020 Well #14 (JD)	8/5/2020 Well #4 (Hospital)	7/8/2020 Well #2 (Roundup)	7/8/2020 Well #3 (21st)	10/7/2020 Well #3 (21st)			
Sample Location: Common Well Name:	Edge 20-22677	Edge 20-44841	Edge 20-26700	Edge 20-26700	Edge 20-26700	Edge 20-26700	Edge 20-26656	Edge 20-22684	Edge 20-22686	Edge 20-35755			
Lab: Lab Report #:	Edge 20-22677	Edge 20-44841	Edge 20-26700	Edge 20-26700	Edge 20-26700	Edge 20-26700	Edge 20-26656	Edge 20-22684	Edge 20-22686	Edge 20-35755			
Analyte Group / Analyte	Standard	Criteria	Unit										
<b>Geochemical Parameters (GCs)</b>													
Alkalinity			mg/L		<b>64.8</b>	<b>32.1</b>	<b>144.0</b>	<b>46.6</b>	<b>81.8</b>	<b>36.7</b>			
Ammonia-N			mg/L		0.010 U	0.010 U	<b>0.02</b>	0.010 U	<b>0.008</b> J	0.010 U			
Bicarbonate as CaCO <sub>3</sub>			mg/L		<b>64.8</b>	<b>32.1</b>	<b>144.0</b>	<b>46.6</b>	<b>81.8</b>	<b>36.7</b>			
Calcium			mg/L			<b>5.7</b>	<b>38.0</b>	<b>11.4</b>	<b>15.8</b>				
Carbonate as CaCO <sub>3</sub>			mg/L		1 U	1 U	1 U	1 U	1 U	1 U			
Chloride	250	SMCL	mg/L			<b>5.2</b>	<b>23.8</b>	<b>8.9</b>	<b>9.0</b>	<b>6.4</b>			
Hardness (as CaCO <sub>3</sub> )			mg/L		<b>57.2</b>	<b>22.9</b>	<b>152.5</b>	<b>45.8</b>	<b>63.7</b>	<b>30.9</b>			
Magnesium			mg/L			<b>2.1</b>	<b>14.0</b>	<b>4.2</b>	<b>5.9</b>				
Phosphorus, Total			mg/L		0.010 U	<b>0.013</b>	<b>0.028</b>	<b>0.032</b>	<b>0.014</b>	<b>0.026</b>			
Potassium			mg/L			<b>2.0</b>	<b>5.7</b>	<b>2.3</b>	<b>3.3</b>				
Silica			mg/L		<b>36.6</b>	<b>37.3</b>	<b>44.6</b>	<b>36.2</b>	<b>45.9</b>	<b>37.2</b>			
Sodium			mg/L	<b>11.4</b>	<b>11.5</b>	<b>8.5</b>	<b>26.4</b>	<b>9.6</b>	<b>16.7</b>	<b>7.8</b>	<b>39.3</b>	<b>44.2</b>	
Sulfate	250	SMCL	mg/L			<b>2.2</b>	<b>38.7</b>	<b>9.2</b>	<b>10.5</b>	<b>4.1</b>			
Total Dissolved Solids	500	SMCL	mg/L			<b>101</b>	<b>300</b>	<b>127</b>	<b>172</b>	<b>106</b>			
Total Organic Carbon			mg/L			<b>1.32</b>	<b>0.86</b>	<b>1.12</b>	<b>0.53</b>	<b>1.17</b>			
Total Suspended Solids			mg/L			2 U	2 U	2 U	2 U	2 U			
<b>Inorganic Chemicals (IOCs) and Metals</b>													
Aluminum	0.05 - 0.2	SMCL	mg/L			0.010 U	<b>0.02</b>	0.010 U	0.010 U				
Antimony	0.006	MCL	mg/L	0.001 U						0.001 U	0.001 U	0.001 U	
Arsenic	0.01	MCL	mg/L	0.001 U						0.001 U	<b>0.0013</b>	<b>0.0016</b>	
Barium	2	MCL	mg/L	<b>0.0158</b>	<b>0.0159</b>	<b>0.0082</b>	<b>0.0267</b>	<b>0.0104</b>	<b>0.0118</b>	<b>0.0075</b>	<b>0.0264</b>	<b>0.0485</b>	
Beryllium	0.004	MCL	mg/L	0.0003 U						0.0003 U	0.0003 U	0.0003 U	
Cadmium	0.005	MCL	mg/L	0.001 U						0.001 U	0.001 U	0.001 U	
Chromium	0.1	MCL	mg/L	0.001 U	0.001 U	0.001 U	<b>0.0016</b>	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Copper	1.3	MCL, SMCL	mg/L							0.005 U			
Cyanide, Total	0.2	MCL	mg/L	0.010 U						0.010 U	0.010 U	0.010 U	
Fluoride	2	MCL, MML, SMCL	mg/L	<b>0.12</b>		<b>0.12</b>	<b>0.11</b>	<b>0.11</b>	<b>0.35</b>	<b>0.12</b>	<b>0.34</b>	<b>0.36</b>	
Iron (Total)	0.3	SMCL	mg/L		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U			
Iron (Dissolved)			mg/L			<b>0.008</b> J	<b>0.006</b> J	<b>0.0019</b>	<b>0.0024</b> J	<b>0.003</b> J			
Lead	0.015	MCL/Acton Level	mg/L		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U			
Manganese (Total)	0.05	SMCL	mg/L		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U			
Manganese (Dissolved)			mg/L			0.001 U	<b>0.0009</b> J	0.001 U	0.001 U	0.001 U			
Mercury	0.002	MCL	mg/L	0.0002 U						0.0001 U	0.0002 U	0.0002	



**Table 8**  
**Laboratory Analytical Results**  
 City of Pendleton - Year 17 Pilot Test Results

Date:	Source		Recovered Water / Groundwater											
	7/8/2020 WFP	12/16/2020 WFP	8/5/2020 Well #1 (Byers)	8/5/2020 Well #5 (Stillman)	8/5/2020 Well #8 (Prison)	8/5/2020 Well #14 (JD)	8/5/2020 Well #4 (Hospital)	7/8/2020 Well #2 (Roundup)	7/8/2020 Well #3 (21st)	10/7/2020 Well #3 (21st)	Common Well Name:			
Sample Location:	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	
Lab Report #:	20-22677	20-44841	20-26700	20-26700	20-26700	20-26700	20-26700	20-26656	20-22684	20-22686	20-35755			
Analyte Group / Analyte	Standard	Criteria	Unit											
Nickel			mg/L	0.001 U	0.001 U	0.001 U	<b>0.0015</b>	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Nitrate as N	10	MCL	mg/L	<b>0.24</b>		0.100 U	<b>3.40</b>	<b>0.52</b>	<b>0.83</b>	<b>0.22</b>	<b>3.87</b>	<b>5.13</b>		
Nitrite as N	1	MCL	mg/L	0.10 U		0.10 U	0.10 U	0.10 U	0.10 U	0.1 U	<b>0.08</b>	<b>0.08</b>		
Nitrate+Nitrite	10	MCL	mg/L	<b>0.24</b>						<b>0.22</b>	<b>3.94</b>	<b>5.21</b>		
Selenium	0.05	MCL	mg/L	0.002 U						0.002 U	0.002 U	0.002 U		
Thallium	0.002	MCL	mg/L	0.0001 U						0.0001 U	0.0001 U	0.0001 U		
<b>Disinfection By-Products (DBPs)</b>														
Bromochloroacetic Acid			mg/L							0.001 U				
Monochloroacetic Acid			mg/L							0.002 U				
Dichloroacetic Acid			mg/L							0.001 U				
Trichloroacetic Acid			mg/L							0.001 U				
Monobromoacetic Acid			mg/L							0.001 U				
Dibromoacetic Acid			mg/L							0.001 U				
<b>Total Haloacetic Acids</b>	0.06	MCL	mg/L							0.001 U				
Chloroform (Trichloromethane)			mg/L							<b>0.0354</b> †				
Bromodichloromethane			mg/L							<b>0.0018</b> †				
Dibromochloromethane			mg/L							0.0005 U†				
Bromoform (Tribromomethane)			mg/L							0.0005 U†				
<b>Total Trihalomethanes</b>	0.08	MCL, MML	mg/L							<b>0.0372</b> †				
<b>Radiological Parameters (RADs) and Uranium</b>														
Gross ALPHA	15	MCL	pCi/L								3 U§			
Gross BETA			pCi/L								<b>4.18</b> §			
Radium 226			pCi/L								1 U§			
Radium 228			pCi/L								1 U§			
Radium Combined (226&228)	5	MCL	pCi/L								1 U§			
Uranium	0.03	MCL	mg/L								<b>0.0024</b> U§	<b>0.0070</b> §		
<b>Synthetic Organic Compounds (SOCs)</b>														
2,4,5-TP (Silvex)	0.01	MCL, MML	mg/L	0.0001 U*							0.0001 U*	0.0001 U*	0.0001 U*	0.0001 U*
2,4-D	0.07	MCL, MML	mg/L	0.0001 U*							0.0001 U*	0.0001 U*	0.0001 U*	0.0001 U*
Alachlor (Lasso)	0.002	MCL	mg/L	0.00005 U*							0.00005 U*	0.00005 U*	0.00005 U*	0.00005 U*
Atrazine	0.003	MCL	mg/L	0.00005 U*							0.00005 U*	0.00005 U*	0.00005 U*	0.00005 U*
Benzo(a)Pyrene	0.0002	MCL	mg/L	0.00005 U*							0.00005 U*	0.00005 U*	0.00005 U*	0.00005 U*
BHC-gamma (Lindane)	0.0002	MCL, MML	mg/L	0.00005 U*							0.00005 U*	0.00005 U*	0.00005 U*	0.00005 U*
Carbofuran	0.04	MCL	mg/L	0.001 U*							0.001 U*	0.001 U*	0.001 U*	0.001 U*



**Table 8**  
**Laboratory Analytical Results**  
 City of Pendleton - Year 17 Pilot Test Results

Analyte Group / Analyte	Standard	Criteria	Unit	Source				Recovered Water / Groundwater										
				7/8/2020	12/16/2020	8/5/2020	8/5/2020	8/5/2020	8/5/2020	8/5/2020	7/8/2020	7/8/2020	10/7/2020					
				WFP	WFP	Well #1	Well #5	Well #8	Well #14	Well #4	Well #2	Well #3	Well #3					
				Date:				Common Well Name:										
				Sample Location:				Lab:										
				Edge				Lab Report #:										
				20-22677				20-44841										
				Edge				20-26700										
				20-26700				20-26700										
				20-26700				20-26700										
				20-26700				20-26656										
				20-26656				20-22684										
				20-22684				20-22686										
				20-22686				20-35755										
				20-35755														
Chlordane	0.002	MCL	mg/L	0.0001	U*						0.0001	U*	0.0001	U*	0.0001	U*	0.0001	U*
Dalapon	0.2	MCL	mg/L	0.0005	U*						0.0005	U*	0.0005	U*	0.0005	U*	0.0005	U*
Di(2-ethylhexyl)adipate (adipates)	0.4	MCL	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Di(2-ethylhexyl)phthalate (phthalates)	0.006	MCL	mg/L	0.0001	U*						0.0001	U*	0.0001	U*	0.0001	U*	0.0001	U*
Dibromochloropropane (DBCP)	0.00002	MCL	mg/L	0.00002	U*						0.00002	U*	0.00002	U*	0.00002	U*	0.00002	U*
Dinoseb	0.007	MCL	mg/L	0.0001	U*						0.0001	U*	0.0001	U*	0.0001	U*	0.0001	U*
Diquat	0.02	MCL	mg/L	0.002	U*						0.002	U*	0.002	U*	0.002	U*	0.002	U*
Endothall	0.1	MCL	mg/L	0.005	U*						0.005	U*	0.005	U*	0.005	U*	0.005	U*
Endrin	0.0002	MCL, MML	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Ethylene Dibromide (EDB)	0.00005	MCL	mg/L	0.00002	U*						0.00002	U*	0.00002	U*	0.00002	U*	0.00002	U*
Glyphosate	0.7	MCL	mg/L	0.005	U*						0.005	U*	0.005	U*	0.005	U*	0.005	U*
Heptachlor	0.0004	MCL	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Heptachlor Epoxide	0.0002	MCL	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Hexachlorobenzene (HCB)	0.001	MCL	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Hexachlorocyclopentadiene	0.05	MCL	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Methoxychlor	0.04	MCL, MML	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Pentachlorophenol	0.001	MCL	mg/L	0.00004	U*						0.00004	U*	0.00004	U*	0.00004	U*	0.00004	U*
Picloram	0.5	MCL	mg/L	0.0001	U*						0.0001	U*	0.0001	U*	0.0001	U*	0.0001	U*
Simazine	0.004	MCL	mg/L	0.00005	U*						0.00005	U*	0.00005	U*	0.00005	U*	0.00005	U*
Total Polychlorinated Biphenyls (PCBs)	0.0005	MCL	mg/L	0.0002	U*						0.0002	U*	0.0002	U*	0.0002	U*	0.0002	U*
Toxaphene	0.003	MCL, MML	mg/L	0.001	U*						0.001	U*	0.001	U*	0.001	U*	0.001	U*
Vydate (Oxamyl)	0.2	MCL	mg/L	0.001	U*						0.001	U*	0.001	U*	0.001	U*	0.001	U*
<b>Volatile Organic Compounds (VOCs)</b>																		
1,1,1-Trichloroethane	0.2	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,1,2-Trichloroethane	0.005	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,1-Dichloroethylene	0.007	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,2,4-Trichlorobenzene	0.07	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,2-Dichlorobenzene (o)	0.6	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,2-Dichloroethane (EDC)	0.005	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,2-Dichloropropane	0.005	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
1,4-Dichlorobenzene (p)	0.075	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
Benzene	0.005	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
Carbon tetrachloride	0.005	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	
Chlorobenzene (monochlorobenzene)	0.1	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡	



**Table 8**  
**Laboratory Analytical Results**  
 City of Pendleton - Year 17 Pilot Test Results

Analyte Group / Analyte	Standard	Criteria	Unit	Source				Recovered Water / Groundwater									
				7/8/2020		12/16/2020		8/5/2020	8/5/2020	8/5/2020	8/5/2020	8/5/2020	7/8/2020	7/8/2020	10/7/2020		
				WFP	WFP	Well #1	Well #5	Well #8	Well #14	Well #4	Well #2	Well #3	Well #3				
Date: Sample Location: Common Well Name: Lab: Lab Report #:				Edge	Edge	(Byers)	(Stillman)	(Prison)	(JD)	(Hospital)	(Roundup)	(21st)	(21st)				
				20-22677	20-44841	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge	Edge			
				20-22677	20-44841	20-26700	20-26700	20-26700	20-26700	20-26700	20-26656	20-22684	20-22686	20-35755			
cis-1,2-Dichloroethylene	0.07	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Ethylbenzene	0.7	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Methylene Chloride	5E-06	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Styrene	0.1	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Tetrachloroethylene (PCE)	0.005	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Toluene	1	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Total Xylenes	10	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
trans-1,2-Dichloroethylene	0.1	MCL	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Trichloroethylene (TCE)	0.005	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡
Vinyl chloride	0.002	MCL, MML	mg/L	0.005	U‡	0.005	U¶					0.005	U‡	0.005	U‡	0.005	U‡

**Notes:**

ASR Injection Standards = Lowest value within MCL/2, MML/2, or SMCL except disinfection by-products.

ASR Injection Standards for disinfection by-products = Lowest value within MCL, MML, or SMCL.

ASR = aquifer storage and recovery

MCL = maximum contaminant level for drinking water

MML = groundwater maximum measurable level

Shading indicates monitoring not analyzed, measured, or defined

\* SOCs collected on 8/5/2020; Lab Report # 20-26708

† Total trihalomethanes collected on 8/5/20; Lab Report # 20-26708

‡ VOCs collected on 8/5/2020; Lab Report # 20-26708

§ RADs and uranium collected on 8/31/2020; Lab Report #'s 20-30383, -30386, and -38036

¶ VOCs collected on 12/16/2020; Lab Report # 20-45119



**Table 9****Field Parameter Measurements**

City of Pendleton - Year 17 Pilot Test Results

Date	Temperature (°F)	pH (s.u.)	DO (ppm)	ORP (mV)	Conductivity (µS)	Turbidity (NTU)
<b>Well 1</b>						
6/4/2020	58.5	7.3	5.24	138	105	0.16
7/14/2020	52.5	7.4	4.10	257	100.9	0.17
8/4/2020	51.0	7.4	4.70	184	124	0.13
9/3/2020	49.2	7.3	3.93	202	126.5	0.13
<b>Well 2</b>						
6/22/2020	63.8	7.5	6.46	145	592	0.10
7/15/2020	64.1	7.47	6.79	153	578	0.11
8/4/2020	63.5	7.54	5.85	125	578	0.18
9/3/2020	63.1	7.62	8.37	204	526	0.20
<b>Well 3</b>						
7/8/2020	55.4	7.76	9.10	197	314	0.14
8/4/2020	55.7	7.85	8.12	172	148	0.12
10/5/2020	55.9	8.25	7.48	165	207	0.12
<b>Well 4</b>						
6/4/2020	52.6	7.50	9.87	151	97	0.08
6/11/2020	51.0	7.50	9.52	170	101	0.11
7/15/2020	50.3	7.53	10.66	181	129	0.12
8/4/2020	50.8	7.39	10.05	181	181	0.12
9/3/2020	51.0	7.54	9.87	180	188	0.11
10/5/2020	51.1	7.62	10.09	270	230	0.12
<b>Well 5</b>						
6/4/2020	54.1	7.70	10.56	165	150.8	0.13
7/15/2020	56.9	7.43	10.17	200	108.0	0.16
8/4/2020	52.4	7.47	8.95	204	190.0	0.13
<b>Well 8</b>						
6/4/2020	54.5	7.41	10.19	168	93.0	0.11
6/11/2020	51.9	7.30	10.80	152	96.0	0.11
7/15/2020	50.4	7.36	10.60	182	141.0	0.10
8/4/2020	51.0	7.61	10.33	187	186.0	0.11
9/3/2020	50.6	7.49	10.16	192	235.0	0.10
10/5/2020	51.4	7.52	10.21	198	269.0	0.11

## Table 9

### Field Parameter Measurements

City of Pendleton - Year 17 Pilot Test Results

Date	Temperature (°F)	pH (s.u.)	DO (ppm)	ORP (mV)	Conductivity (µS)	Turbidity (NTU)
<b>Well 14</b>						
6/4/2020	56.6	7.81	9.50	167	322	0.13
6/11/2020	54.0	7.56	8.69	167	97	0.12
7/14/2020	53.8	7.86	8.90	171	124	0.11
8/4/2020	54.9	7.89	8.58	193	161	0.11
9/3/2020	55.8	8.01	7.96	182	184	0.09
10/5/2020	56.7	8.27	7.13	171	250	0.14

**Notes:** °F is degrees Fahrenheit; s.u. is standard units; ppm is parts per million; mV is millivolts;

µS is microsiemens; and NTU is nephelometric turbidity unit