

**FAIRFIELD SPRING
SOURCE PROTECTION PLAN
UPDATE**

Fairfield, Utah

*Prepared for:
Fairfield Culinary Water System*

December, 2019

RB&G
ENGINEERING, INC.

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EXECUTIVE SUMMARY

The Fairfield Culinary Water System (System #25011) located in Cedar Valley, Utah County, to the west of Utah Lake, has authorized an update to the Source Protection Plan for the Fairfield Springs. The Update is based upon a new source protection zone delineation using the Preferred Delineation Procedure. The newly revised delineation boundaries replace the previous delineation which used the two-mile delineation procedure.

Spring Location

The spring is located approximately 190 feet north and 69 feet east from the southwest corner of Section 29, Township 6 South, Range 2 West, Salt Lake Base and Meridian.

Source Protection Zone Delineation

The approximate 250 day (Zone 2), groundwater travel time protection zones for Fairfield Spring and Zone 4, determined from the catchment basin upgradient of the spring, are shown on Figure 4 in Appendix I. The generalized dimensions of the protection zones are summarized in the following table.

Protection Zone	Length of Protection Zone ^(a)	Width of Protection Zone ^(b)	Distance Upgradient of Protection Zone	Distance Downgradient of Protection Zone
Zone 2	2075 feet	1500 feet	1800 feet	275 feet

(a) Total length measured parallel to the direction of groundwater flow

(b) Total width measure perpendicular to the direction of groundwater flow

Potential Contamination Sources and Assessment

A total of eight (8) potential contamination sources (PCS) have been identified that affect the source protection zones for the Fairfield Spring. The PCSs, shown on Figure 2 in the plan, include one septic tank/drainfield, one active well, a chlorination building, remediated mine tailings, State Road 73, the access road to the spring, the Manning Canyon and West Lewiston Roads and agricultural areas. The septic tank/drainfield, active well and State Road 73 are deemed to be Not Adequately Controlled. The remaining PCSs are identified as Adequately Controlled.

Management Programs for Existing and Future PCSs

As all PCSs that are Not Adequately Controlled were previously included in the Source Protection Plan, there are no changes to the management plan for existing PCSs. The management program for future potential contamination sources are governed by the Utah County Ordinance 10-8, which provides restrictions on developments within the Protection Zones that may create PCSs. The System will also contact property owners within the Protection Zones to encourage Best Management Practices with agricultural activities.

Furthermore, if PCSs move into the protection zones, the PWS commits to the following course of action:

Contact each PCS as it moves into the protection areas;

Determine whether it is actually a PCS;

If it found to be a PCS, add it to the inventory;

Identify and Assess its controls, and

Plan and implement land management strategies if the PCS is not adequately controlled.

The commitments and implementation schedule are presented in Section 7 of this plan report update.

1.0 INTRODUCTION

The Fairfield Spring is the primary culinary water source for Fairfield Town, located in Cedar Valley, Utah County to the west of Utah Lake. Figure 1 shows the spring location and property ownership around the well.

This Source Protection Plan Update for Fairfield Spring is prepared as a working document to assist the Town in managing and protecting the watershed and preserving the quality of culinary water obtained from the well for the system. The document is also presented to the State of Utah Department of Environmental Quality, Division of Drinking Water (DDW) as a update to the Source Protection Plan intended to meet the requirements as set forth in Utah Administrative Code R309-600-7.

1.1 System Information

System Name:	Fairfield Culinary Water System
System No.:	25011
Address:	P.O. Box 271 Cedar Valley, UT 84013

1.2 Source Information

The drinking water source covered by this Source Protection Plan Update is called Fairfield Spring, is a single spring, listed as Water Source No. 1 (WS001) in the system. The spring is located approximately 190 feet north and 69 feet east from the southwest corner of Section 29, Township 6 South, Range 2 West, Salt Lake Base and Meridian.

1.3 Designated Person

The designated person responsible for the water system and this Source Protection Plan is:

Tyler Thomas
P.O. Box 271
Cedar Valley, UT 84013
(801) 921-0833
fairfieldtownwater@gmail.com

2.0 THE DELINEATION REPORT - R309-600-9(5)

The delineation report in the previous source protection plan was based upon the Two-Mile delineation procedure. The updated delineation report for Fairfield Spring describes the protection zones and scientific procedures used to define them, with other supporting data. The report, included in this plan as Appendix I, was prepared by Rich Emerson with Cascade Water Resources. The report contains the following information: geologic data, aquifer data, summary

of the data and methods used to establish the groundwater protection zones, and appropriate maps of the protection zones. The delineation boundaries are shown on Figure 2.

3.0 INVENTORY OF POTENTIAL CONTAMINATION SOURCES - R309-600-10

This Section of the Drinking Water Source Protection Plan identifies Potential Contamination Sources (PCSs) within the identified source protection zones that have been delineated as outlined in Chapter 2, that may have the potential to contaminate drinking water in the Spring. In addition to an inventory of PCSs, those sources are prioritized from those that create the greatest risk to those that pose the least risk to the source.

3.1 List Potential Contamination Sources - R309-600-10(1)

The following changes are made to the Inventory of Potential Contamination Sources.

3.1.a PCSs to be Deleted from the Inventory of PCSs

With the revision to the protection zone boundaries, the following PCSs previously listed are no longer located within the protection zones for the Fairfield Spring:

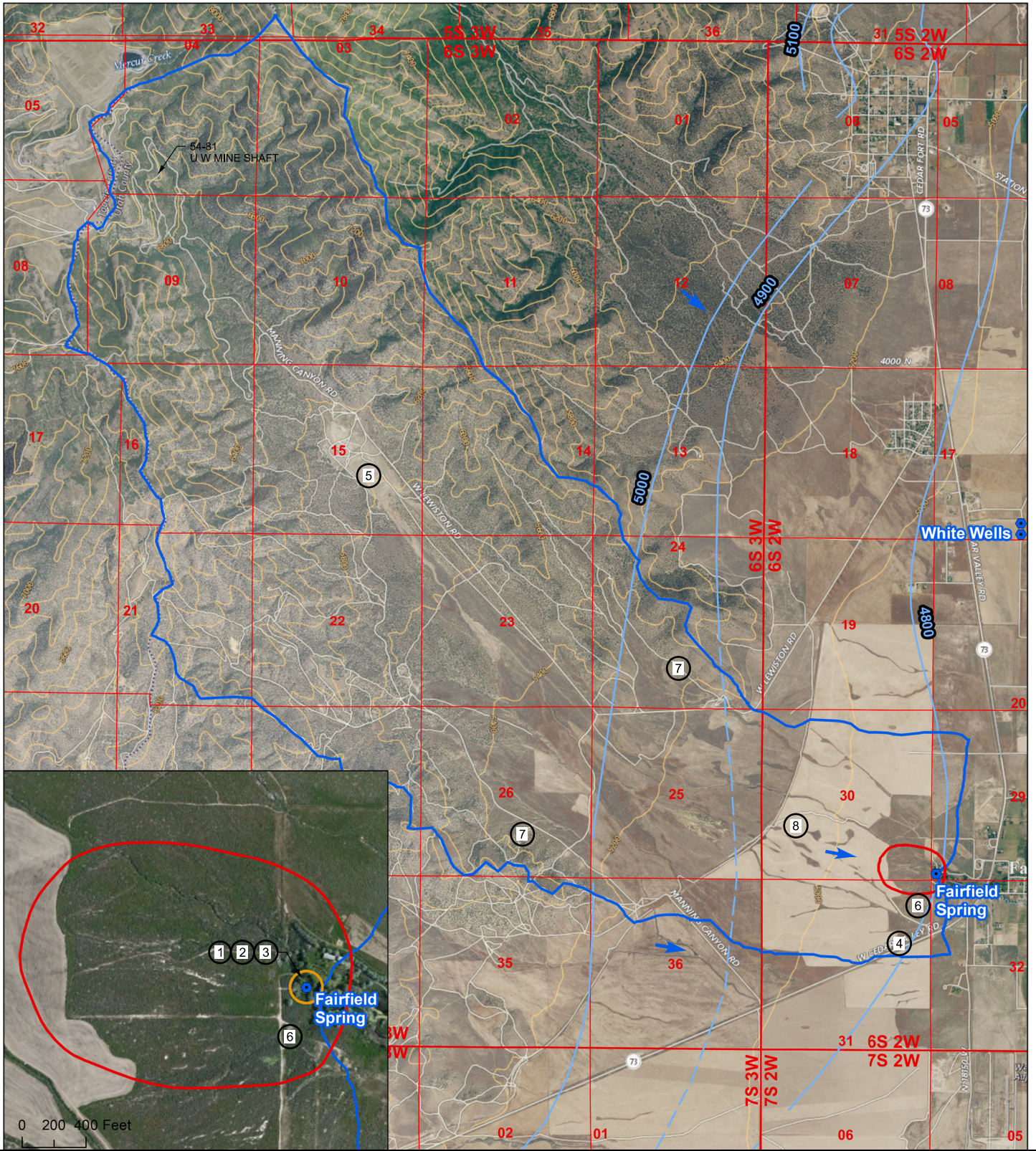
David White	18553 W 2990 N Cedar Valley	Residence/Septic Tank
Lantis Fireworks	799 N 18150 W Fairfield	Fireworks Storage

The following gravel pit was abandoned more than 15 years ago. There is currently no hazard associated with it, and therefore it has been removed from the Inventory of PCSs.

Sherie Warner (Current Property Owner) P.O. Box 1274, American Fork, UT

3.1.b Current Inventory of PCSs

The land use within the Zone 1-4 protection zone boundaries is primarily pasture or open range land. A database review and a field windshield survey were conducted for the Zone 1-4 protection zones to identify any potential PCSs within the area. The following PCSs, listed in Table 3.1-1, were identified.



- Zone 1
- Zone 2
- Zone 4
- ➔ Groundwater flow direction
- Potentiometric surface (Jordan, 2013)

POTENTIAL CONTAMINATION SOURCE

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 Septic Tank - Drain Field 2 Well (Active) 3 Chlorine Storage 4 State Hwy 73 | <ul style="list-style-type: none"> 5 Remediated Mine Tailings 6 Access Road to Spring 7 County Roads (unpaved) 8 Agricultural Fields |
|--|--|

Figure 02

SOURCE PROTECTION ZONES FOR FAIRFIELD SPRING WITH POTENTIAL CONTAMINATION SOURCES

**Table 3.1-1
List of Potential Contamination Sources**

Priority	Location	Facility	Name/Address	PCS
1	Zone 1	Individual Wastewater System/Septic Tank	Bundy, Darwin 1577 N Cedar Valley Hwy Fairfield, UT 84013	#44 Single-family septic tank/drain-field system
2	Zone 1	Domestic Well	Bundy, Darwin 1577 N Cedar Valley Hwy Fairfield, UT 84013	#1 Active Well
3	Zone 1	30 gallon Chlorine Tank	Fairfield Town P.O. Box 271 Cedar Valley, UT 84013	Chlorine Storage
4	Zone 4	State Highway 73	UDOT Region 3 658 N 1500 W Orem, UT 84058	#39 Roads, Highways and Freeways
5	Zone 4	Remediated Mine Tailings	Bureau of Land Management 440 West 200 South, Suite 500 Salt Lake City, UT 84101	#29 Mining Operations
6	Zone 1-4	Access Road to Spring	Fairfield Town P.O. Box 271 Cedar Valley, UT 84013	#39 Roads, Highways and Freeways
7	Zone 4	Manning's Canyon Road West Lewiston Road	Utah County 2855 South State Street Provo, UT 84606	#39 Roads, Highways and Freeways
8	Zones 2-4	Agricultural Dry Farming	Pace, Sandra D. 8284 Coolidge St. Midvale, UT 84047 Bundy, Darwin 1577 N Cedar Valley Hwy Fairfield, UT 84013 Cresthill Investments c/o Pulver, Paula 470 W Aspen Peak Dr South Jordan, UT 84095 Interpace Industries Incorporated c/o Rhine, John 7301 Baker Ln Sebastopol, CA 95472 Ault, Leo H & Virginia 951 E 100 S Pleasant Grove, UT 84062 Ault, Louis O. 8284 S Coolidge St Midvale, UT 84047 Worlton, Ralph W. & Maurine H 574 S 100 West #4 St. George, UT 84770-3594 Warner, Sherie A. P.O. Box 1274 American Fork, UT 84003-1274	#2 Agricultural pesticide, herbicide and fertilizer storage, use, filling and mixing areas

3.2 Identify Hazards

Potential hazards associated with the PCSs are summarized as follows:

- #1 Active Well
Possible contaminants include animal waste, pesticides, herbicides, fertilizers, paints, fuels and thinners from the residence.

- #2 Agricultural pesticide, herbicide and fertilizer storage, use filling and mixing areas:
The fields within the protection zones are not currently being cultivated, but appear to be (unfenced) open range or pasture.

- #29 Mining Operations
The mine tailings have been remediated by the Bureau of Land Management. Possible contaminants include arsenic and other toxic heavy metals.

- #39 Roads, Highways and Freeways
The access road to the spring, Manning Canyon Road and West Lewiston Road are unpaved, low volume roads which provide access to adjacent properties and recreationalists. State Highway 73 is a paved highway. Hazards may include VOCs, vehicle fluid leakage and spills of materials being transported by vehicles.

- #44 Single-family septic tank/drain-field systems
Possible contaminants are household hazardous waste and bacteria, including fecal coliforms, E-coli, viruses and nitrate from human sewage.

Chlorine Storage

The chlorine building is located immediately adjacent to the spring. The building includes a 30 gallon chlorine tank with secondary containment. Possible contaminant is chlorine, if the containment was compromised.

3.3 Prioritize the Inventory - R309-600-10(1)

The prioritization of PCSs is shown in Table 3.1-1. While none of the PCSs presently pose a serious threat to the water supply for the Fairfield Town Spring, the risks are prioritized using engineering judgment as follows:

1. Septic tank and drain field. This PCS has the highest priority because it is uncontrolled and within the Zone 1 protection zone.
2. Active Domestic Well. The well is located within or very close to the Zone 1 protection zone. It is not monitored nor inspected by Fairfield Town and it has a high priority because of its close proximity to the spring with a potential for contamination from pesticides, .
3. Chlorine building and storage tank. This facility is located immediately adjacent to the spring, although it does have containment, it should be monitored regularly.

4. State Highway 73. The potential for hazardous materials to be transported or for other spills along the highway is greater than the unpaved roadways, so it is given a higher priority than those roads.
5. Remediated Mine Tailings. While the remediation site is located more than 4 miles from the spring, it is given the next highest priority because of the presence of heavy metals. The tailings are contained.
6. Access Road to Spring. The access road is given the next priority because it is the closest road to the spring.
7. Manning's Canyon Road and West Lewiston Road. They roads are listed together because they are approximately the same distance from the spring and the potential for hazardous spills or contamination of the source is essentially the same.
8. Agricultural dry farming is given the lowest priority, because the land is not currently being cultivated. No pesticides or herbicides are being applied and there is not plan to change that practice on the part of the property owners. If the affected areas are once again placed into crop cultivation, the priorities may change.

3.4 Potential Contamination Source Location - R309-600-10(1)

The location of the PCSs with regard to Zones 1, 2 and 4 are identified in Table 3.1-1 and on the map shown in Figure 2.

3.5 Potential Contamination Sources Plotted on Map

The Potential Contamination Sources identified in Section 3.1 are plotted on the map shown in Figure 2.

4.0 ASSESSMENT OF POTENTIAL CONTAMINATION SOURCE HAZARDS

The PCSs identified in Section 3 have been evaluated to determine the adequacy of control in preventing contamination of the Fairfield culinary water system. The septic tank and drain field is considered to be not adequately controlled. The domestic well is also considered to be Not Adequately Controlled.

The chlorine building and storage is assessed as Adequately Controlled because it has secondary containment and is monitored on a regular schedule by the Water System Operator.

State Highway 73 is assessed as Not Adequately Controlled since there is potential for hazardous waste spills from vehicles transporting VOCs or other hazardous materials and use of herbicides.

The mine tailings were consolidated and capped and are considered to be Adequately Controlled by virtue of their remediation by the Bureau of Land Management.

Users of the spring access road, Manning Canyon Road and West Lewiston Road do not normally carry large amounts of chemical or hazardous materials. It is anticipated that the

possibility of hazardous spills is remote and that any potential spills would be small. Therefore, the PCSs for these roads are considered to be Adequately Controlled by negligible quantity.

All agricultural property within the protection zones is currently included in the USDA Conservation Resource Program (CRP). The land is dry farmed, but not in active agricultural production, so no fertilizers or pesticides are being applied and have not been applied for many years. Therefore, the PCS for the agricultural land is assessed to be adequately controlled by negligible quantity. Results of the assessment are summarized in Table 4.1.

**Table 4.1
Assessment of Potential Contamination Sources**

Potential Contamination Source	Activity	Adequately Controlled	Justification
Septic Tank and Drain Field	Household hazardous waste and bacteria, including fecal coliforms, E-coli, viruses and nitrate from human sewage.	No	N/A
Domestic Well (Active)	Animal waste, pesticides, herbicides, fertilizers, paints, fuels and thinners from the residence.	No	N/A
Chlorine Building and Storage	Chlorine	Yes	Secondary Containment and Regular Monitoring
State Highway 73	Vehicle Fluid Leakage and/or Spills of Materials Transported	No	N/A
Mine Tailings	Arsenic and Heavy Metals	Yes	Remediation and Containment by BLM
Unpaved Roadways	Vehicle Fluid Leakage and/or Spills of Materials Transported	Yes	Negligible Quantity
Agriculture	Agricultural pesticide, herbicide and fertilizer	Yes	Negligible Quantity

5.0 MANAGEMENT PROGRAM FOR EXISTING POTENTIAL CONTAMINATION SOURCES - R309-600-11

There are no changes to this Section.

6.0 MANAGEMENT PROGRAM FOR FUTURE POTENTIAL CONTAMINATION SOURCES - R309-600-12

Current Fairfield Town ordinances do not specifically address requirements for the Drinking Water Source Protection Zones. Utah County Ordinance 10-8, which applies to all incorporated and unincorporated areas of the County, provides Drinking Water Source Protection provisions that are consistent with those of the State Code (R309-600) that must be complied with regarding

development. These requirements apply to the Fairfield Town Spring delineation area. The ordinance restricts construction of facilities that could create PCSs within the protection zones.

As the potential exists that farming activities could resume in agricultural areas within the Protection Zones, the System will contact all of the property owners by letter and suggest that best management practices be implemented.

Furthermore, if a new potential contamination source (PCS) is identified within the Protection Zone Areas 1-4, the system agrees to:

- Contact each PCS as it moves into the protection areas;
- Determine whether it is actually a PCS;
- If it found to be a PCS, add it to the inventory;
- Identify and Assess its controls, and
- Plan and implement land management strategies, if the PCS is not adequately controlled.

7.0 THE IMPLEMENTATION SCHEDULE - R309-600-7(1)(e)

The following implementation schedule is proposed for the management strategies in Sections 5 and 6:

Land Management Strategy	Responsible Party	Beginning Implementation Date	Frequency
Letters to Property Owners regarding Protection Zone Delineation and encouraging Best Management Practices	Water System Manager	Within 90 Days after approval of Plan	As needed
Notification to Customers regarding Approval of Source Protection Plan (Section 11.0)	Water System Manager	Within 90 Days after approval of Plan	When plan changes or is updated
Evaluation of new Potential Contamination Sources	Water System Manager	Upon Discovery	As needed

8.0 THE RESOURCE EVALUATION - R309-600- 7(1)(f)

The actions described in this plan will have a minimal effect on the water system's resources, and can be completed with the system's existing resources.

9.0 THE RECORD KEEPING SECTION - R309-600- 7(1)(g)

The system will keep records of the actions described in Section 5 and 6. These records will become the basis for providing updated Drinking Water Source Protection Plans to the Division of Drinking Water in the future. Records will include the following:

Communication and Notices to System Customers
Inventory Updates to List of Potential Contamination Sources
Communication with Property Owners within the Protection Zones

10.0 THE CONTINGENCY PLAN - R309-600- 14

Boiling water and bottled water may be used temporarily if the contamination is biological. If is a toxic chemical, water from the well would be shut off and consumers would need to use bottled water. If a specific contaminant is identified and technology is available to remediate the contamination, the water system will purchase remediation technology, if feasible. If a period of water shortage is experienced, water rationing will be enforced. The water system will be responsible to educate the water uses and to implement the rationing plan.

11.0 PUBLIC NOTIFICATION - R309-600- 15

The following statement is to be included in the Town consumer confidence report and distributed to consumers upon approval of the Source Protection Plan Update by the Division of Drinking Water:

The Drinking Water Source Protection Plan for Fairfield Town Spring is available for your review. It contains information about source protection zones, potential contamination sources and management strategies to protect our drinking water. Potential contamination sources common in our protection areas are residences, septic tanks, wells, remediated mine tailings, farming and roads. Our source has a low susceptibility to potential contamination. We have also developed management strategies to further protect our source from contamination. Please contact us if you have questions or concerns about our source protection plan.

12.0 WAIVERS

Fairfield Town currently has a Reliability and Consistency waiver for this spring.

APPENDIX I

Delineation Report - Fairfield Spring

Delineation Report

Fairfield Spring

Utah County, Utah

November 11, 2019

Prepared for:

Fairfield Town & Utah Division of Drinking Water

PWS # 25011

Prepared By:

RICHARD EMERSON
CASCADE WATER RESOURCES
PO Box 982948
PARK CITY, UT 84098

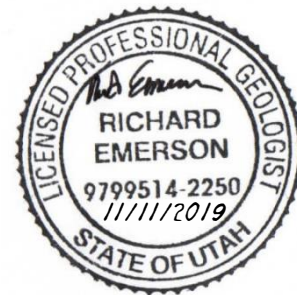


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Appendix A: Fairfield Town Culinary Use

EXECUTIVE SUMMARY

This document will serve as the Delineation Report for the Fairfield Town Culinary Water System Spring. The spring, known as Fairfield Spring, is WS001 in the water system. This document will serve as the updated delineation report for this spring.

Spring Location and Design

The spring is a single spring in Utah County approximately 190 feet north 69 feet east from the southwest corner of section 29 T6S R2W S.L.B.M.

Source Protection Zone Delineation

The approximate 250-day (Zone 2) groundwater travel time protection zone for Fairfield Spring and Zone 4, determined from the catchment basin upgradient of the spring, are shown on Figure 4. The generalized dimensions of zone 2 is shown on table 2.

Table 2. Fairfield Spring Protection Zone 2 Approximate Dimensions

Protection Zone	Length of Protection Zone^a	Width of Protection Zone^b	Distance Upgradient of Spring	Distance Downgradient of Spring
Zone 2	2075 ft.	1500 ft.	1800 ft.	275 ft.

a - Total length measured parallel to the direction of groundwater flow

b - Total width measured perpendicular to the direction of groundwater flow

1.0 INTRODUCTION

Fairfield Town's primary water source comes from Fairfield Spring. This spring discharges approximately 3700 acft of water per year (Jordan and Sabbah, 2012), 10-20 acft of which is used by Fairfield Town (Utah Water Rights, 2019). The original drinking water source protection plan for Fairfield Spring used the two-mile radius delineation which has been acceptable for this remote spring and has not required any management of PCSs within this zone. However, as development in Cedar Valley has expanded, the Preferred Delineation Procedure is now necessary to direct resources toward management of applicable PCSs to effectively protect the water supply.

This document is presented to the State of Utah Department of Environmental Quality, Division of Drinking Water (DDW) as a Delineation Report for the Fairfield Spring. This document is intended to meet the requirements of a Delineation Report as set forth in Utah Administrative Code R309-600-9(5) (UDEQ-DDW, 2000, 2007).

1.1 System Information

Name: Fairfield Culinary Water System
System #: 25011
Address: PO Box 271
Cedar Valley, UT 84013

1.2 Source Information

The drinking water source is a single spring which is called Fairfield Spring and listed as Water Source #1 (WS001) in the system. The spring located approximately 190 feet north 69 feet east from the southwest corner of section 29 T6S R2W S.L.B.M.

1.3 Designated Person

The designated person responsible for this Delineation Report is:

Tyler Thomas
PO Box 271
Cedar Valley, UT 84013
(801) 921-0833
fairfieldtownwater@gmail.com

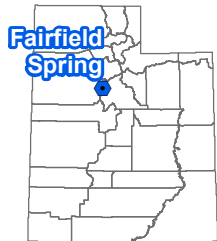
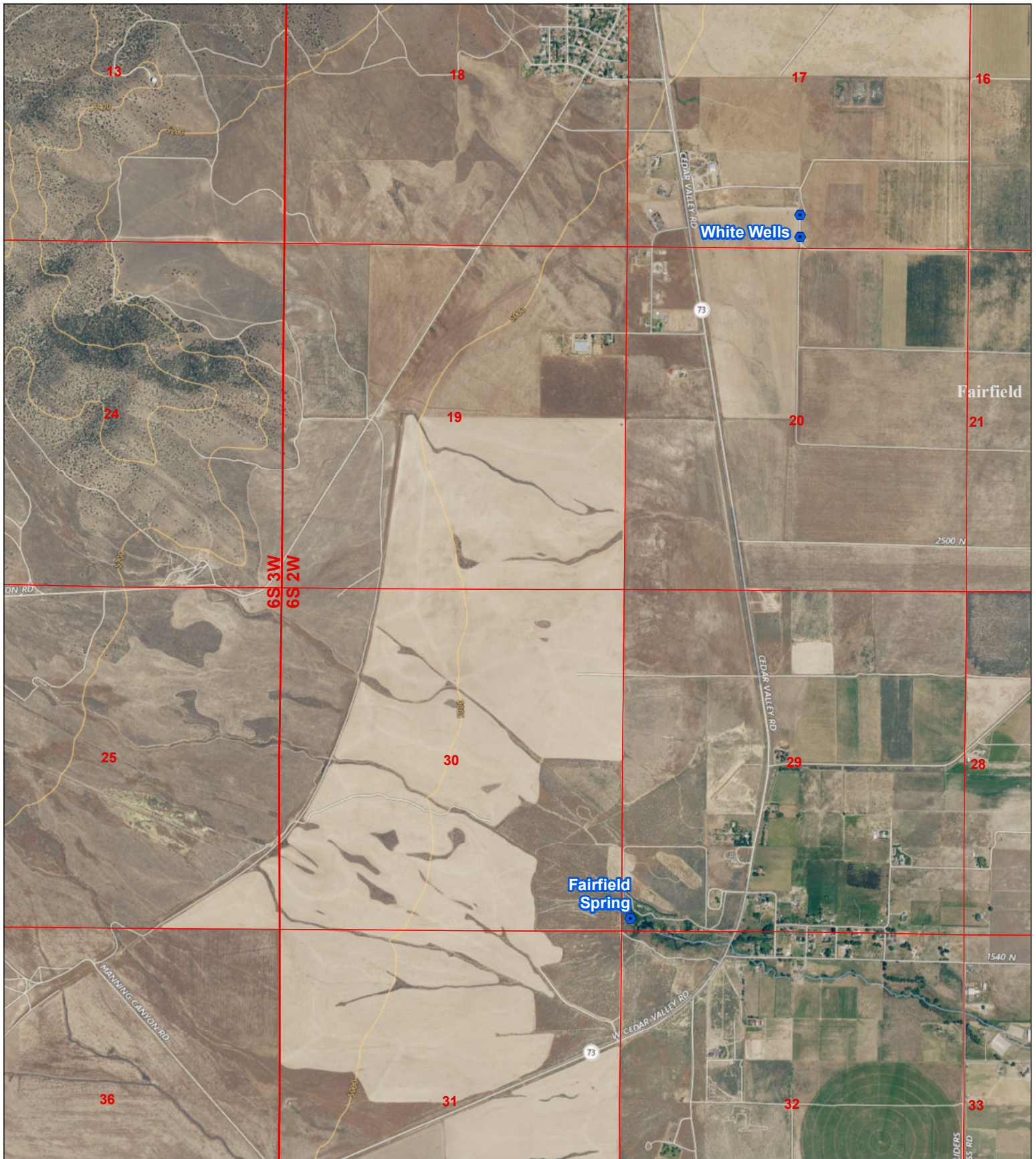
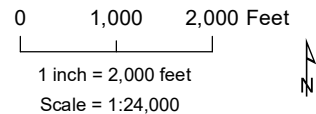


Figure 1.
Location of Fairfield Spring



Drawn By:
G3 Mapping
Rich Emerson
rich@g3mapping.com



Project Manager:
John Files
Date: November 2019



2.0 DELINEATION REPORT

The delineation report contains the following information: geologic data, aquifer data, summary of the data and methods used to establish the groundwater protection zones, and appropriate maps of the protection zones.

The Preferred Delineation Procedure was used to define protection zone 2 for Fairfield Spring.

2.1 Geography

Geographically, Fairfield is in Cedar Valley, Utah County, Utah, approximately 21 miles west of American Fork on Utah Route 73. Cedar Valley is in the Basin and Range Province and lies between the Lake Mountains to the east and the Thorpe Hills to the west. The valley is bound by the East Tintic Mountains to the south and the Oquirrh Mountains to the north. Fairfield Spring lies on alluvial sediments to the northeast of the saddle separating the Oquirrh Mountains from the Thorpe Hills to the south.

2.2 Geologic Data

Numerous geologic and hydrologic studies have been conducted in the area by the Utah Geological Survey and the United States Geological Survey. It was determined from local evaluation of wells in the area and from regional modelling conducted by the UGS (Hurlow, 2004; Jordan, 2013) and USGS (Feltis, 1967) that the recharge would be enough to sustain the needed flow for the system. Detailed aquifer studies by the Utah Geological Survey (Hurlow, 2004, Jordan, 2013) quantify the aquifer parameters for multiple aquifers in the valley, including the bedrock, basin-fill, and various perched aquifers.

2.2.1 Regional Geology

The structural evolution of Cedar Valley is typical of eastern Basin and Range valleys. Thrust faults transported younger rocks eastward during the Sevier orogeny which ended approximately 50 million years ago when compression of the inland North American plate largely ceased. One such thrust is visible on the western flank of the East Mountains where older Mississippian rocks have been transported over younger Pennsylvanian rocks (Figure 2). This period of thrust faulting and mountain building was followed by a period of volcanism in the Tertiary time period. Thick deposits of volcanic material were deposited in the region during this time and subsequently eroded in many locations. Outcrop of these volcanic deposits is visible in the Cedar Pass area (Figure 2). Finally, since the late Tertiary, the region has undergone crustal stretching, which has formed, and continues to form the topography we see today. As the crust stretches toward the west, north-south oriented mountains range and valleys form where the crust thins and breaks apart. Normal faults form on each side of the valleys as the mountains rise and the valleys sink.

2.2.2 Local Geology

Cedar Valley is a graben formed by crustal extension during the late Tertiary to Quaternary time and is dominantly controlled by north-south trending normal faults (Stewart, 1998, Hurlow, 2004). The valley is asymmetrically tilted to the east due to greater offset on the range bounding fault on the east side of the valley adjacent to the Lake Mountains. As this graben formed, it was filled with debris from the adjacent mountains as they eroded. These coarse-grained deposits are interfingered or layered with fine-grained deposits left behind by a series of lakes that have formed periodically in the valley. The largest and most well-known, Lake Bonneville, retreated approximately 16,000 years ago. The basin-fill deposits grade finer toward the center of the valley where transport of larger particles does not occur. The deposits coarsen toward the mountain fronts where alluvial fans form when debris flows from the mountains onto the valley floor.

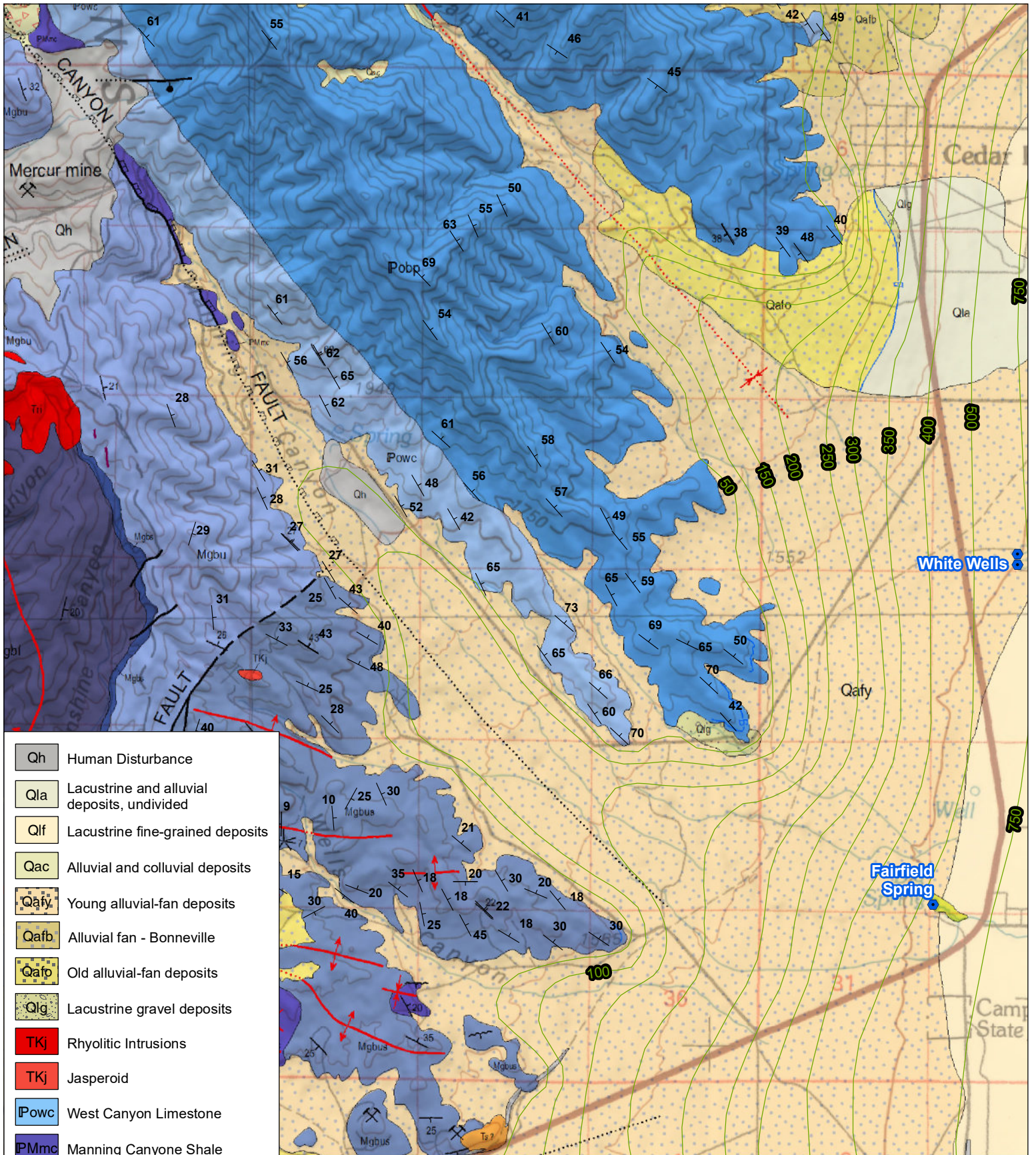
Two main aquifers are present in Cedar Valley, the bedrock aquifer, and valley-fill aquifer. These two aquifers can behave independent of one another, or function relatively homogeneously. As no perennial streams exist in Cedar Valley, the valley-fill aquifer is recharged by the bedrock aquifer and precipitation. The bedrock aquifer recharges almost exclusively from precipitation and snowmelt in the Oquirrh Mountains with an annual estimated recharge of 20,400-24,000 acft (Feltis, 1967).

The valley-fill aquifer is partially confined in the center of the valley where fine-grained sediments do not allow free-flow of groundwater, but dramatically slows its vertical movement (Jordan, 2013). Closer to the mountain fronts, the aquifer is mostly unconfined, and the two aquifers may interact more homogeneously where coarse grained sediments lie in direct contact with fractured bedrock (Hurlow, 2004).

Fairfield Spring is located on the southeast flank of the Oquirrh Mountains in the Manning Canyon drainage basin. The spring is recharged by snowmelt and precipitation in the upper elevations directly into the bedrock (Feltis, 1967, Hurlow, 2004) until it transitions to the alluvial fill aquifer at the base of the alluvial fan in Manning Canyon (Feltis, 1967). The spring is the result of this water being forced to the surface as it moves downgradient and encounters low permeability lake deposited sediments (Hurlow, 2004). Other factors likely contribute to the concentration of water at Fairfield Spring include one or more factors such as a subsurface topographic low, a fault, or subsurface alluvial gravel channels acting as conduits for water flow (Hurlow, 2004). Seismic reflection surveys conducted by the Utah Geological Survey estimate the alluvial aquifer to be approximately 500 feet deep and thinning to the west (Hurlow, 2004).

Discharge at Fairfield Spring ranges 2900-6300 acft/year with an average discharge of 3700 acft/year with discharge ranging from 1.2-9.7 cfs (Jordan and Sabbah, 2012). Approximately 10-20 acft of the water is used by Fairfield Culinary Water System (Utah Division Water Rights, 2019) with the rest being used for irrigation or flowing into The Sinks in Cedar Valley where it evaporates or recharges the basin fill aquifer (Jordan and Sabbah, 2012).

A pump test on the alluvial aquifer by the Utah Geological Survey in Fairfield reported low transmissivity (70 ft²/day). This test was conducted where the alluvial sediments are finer and the aquifer is more stratified (Jordan, 2013). The aquifer was classified as partially confined (leaky) in Fairfield and is assumed to be less stratified but still partially confined at Fairfield Spring (Jordan, 2013, Hurlow, 2004).



- Qh Human Disturbance
- Qla Lacustrine and alluvial deposits, undivided
- Qlf Lacustrine fine-grained deposits
- Qac Alluvial and colluvial deposits
- Qafy Young alluvial-fan deposits
- Qafb Alluvial fan - Bonneville
- Qafo Old alluvial-fan deposits
- Qlg Lacustrine gravel deposits
- TKj Rhyolitic Intrusions
- TKj Jasperoid
- Powc West Canyon Limestone
- PMmc Manning Canyone Shale
- Mgbus Great Blue Limestone upper limestone and shale
- Mgbu Great Blue Limestone upper limestone
- Mgbs Great Blue Limestone Long Trail Shale
- Mglb Great Blue Limestone lower limestone
- Depth to bedrock (Hurlow, 2004)

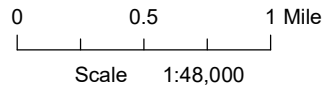
Figure 2.
Geology of the Fairfield Area

Geology from Interim Geologic Map of the Rush Valley 30' x 60' Quadrangle, Geologic Map of the Mercur 7.5' Quadrangle, and Geologic Map of the Cedar Fort 7.5' Quadrangle

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G3 Mapping
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Project Manager:
John Files
Date: November 2019



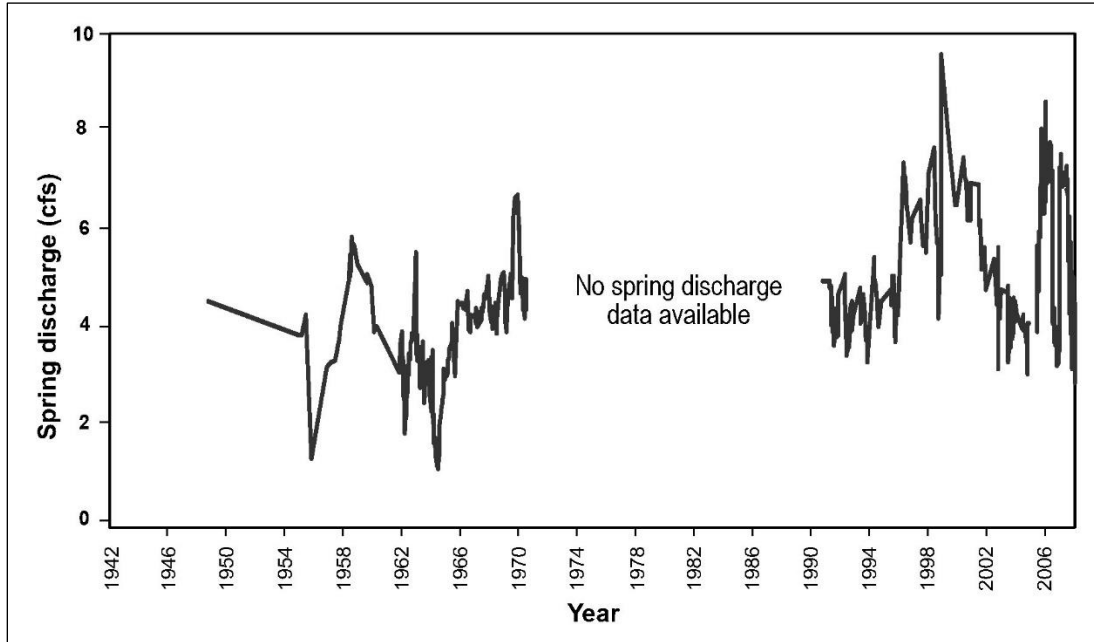
2.3 Aquifer Data

Methods of determining aquifer properties and values follow and are summarized in Table 1.

2.3.1 Spring Discharge

Records for the discharge at Fairfield Spring are monitored by Fairfield Irrigation Company. These records indicate that discharge ranges between 1.2 and 9.7 cfs with an average flow of approximately 6.1 cfs. For the purposes of delineating zone 2, the highest sustained flow value of 9.7 cfs (4350 gpm). Figure 3 shows the spring discharge since 1950's (Jordan and Sabbah, 2012).

Figure 3: Fairfield Spring Flows (modified from Jordan and Sabbah, 2012)



2.3.2 Transmissivity

No direct transmissivity values exist for this location as no wells have been completed in the zone upgradient of the spring. Hurlow (2004) speculates that a coarse-grained alluvial channel emanating from Manning Canyon at this location conveys water to Fairfield Spring. Jordan (2013) estimates moderate hydraulic conductivity at this location (5-25 ft/day) but documents wells in the alluvial fill in other locations across the valley with transmissivity values as high as 25,000 ft²/day. It can be assumed that the transmissivity is higher than 10,000 ft²/day to allow for the high volumes the spring discharges. A range of transmissivities between 10,000-25,000 ft²/day were used to determine source protection zone 2.

2.3.3 Hydraulic Gradient and Flow Direction

The flow direction and gradient were determined from potentiometric contours calculated from water levels across Cedar Valley by the Utah Geological Survey's aquifer study (Jordan, 2013). Water levels in this report were determined from well logs and, when possible, verified in the field by the author. This data shows a groundwater gradient of 0.015 ft/ft N 80° W.

2.3.4 Effective Porosity

There is no site-specific porosity information available. Driscoll (1989) estimates porosity of sand and gravel from 15-25%. A value of 20% was chosen.

2.3.5 Saturated Thickness

The total depth of the basin-fill at this location is estimated to be 520 feet (Hurlow, 2004) with the majority of this being saturated based on well logs in the area. A saturated thickness of 400 feet was used to account for clay intervals and the unsaturated top 20 feet.

2.3.1 Well Interference

Irrigation wells in the White Hills area are shown to interfere with spring outflow. As the result of legal agreements, these wells must be shut down when spring-flow decreases below 4.1 cfs. The smaller domestic wells in the Fairfield area are not thought to affect the Fairfield Springs capture zones. The White wells were modelled to interfere with Fairfield Spring. A combined rate of 3000 gpm was used for these two wells.

Parameter	Value
Effective Porosity	20%
Transmissivity (ft ² /day)	10,000-25,000
Aquifer Thickness (ft)	400
Hydraulic Conductivity (ft/day)	25-63
Gradient	0.015
Direction of Groundwater Flow	N 80° W
Discharge Rate (gpm)	4350

2.4 Hydrogeologic Methods and Calculations

Three protection zones for Fairfield Spring were delineated for management purposes using the Preferred Delineation Procedure as described in UAC R309-600-9. Zone 1 is pre-defined and encloses a 100-foot radius surrounding the springhead. Zone 2 was defined using the Environmental Protection Agency's (EPA) software Wellhead Analytic Element Model (WhAEM) (Haitjema, 2017). The semi-analytical option of this software was selected because it delineates groundwater travel time (capture zones) to the discharge point. The aquifer is thought to respond as a homogenous aquifer which is why this method of modeling was selected. Table 1 lists the parameters and model domain used in the WhAEM model. This model has significant limitations, and though the model provides an output with distinct lines for Zones, it should only be used as a guide to an approximate area for capture zones.

Zone 4 was determined using the capture zone of the spring up to the topographic divide. This area includes all of Manning Canyon above Fairfield Spring.

2.5 Boundaries of DWSP Zones

The approximate 250-day (Zone 2), Manning Canyon basin (Zone 4) groundwater travel time protection zones for Fairfield Spring are shown on figure 4. The generalized dimensions of the protection zones are summarized in Table 2.

Table 2. Fairfield Spring Protection Zone Approximate Dimensions

Protection Zone	Length of Protection Zone^a	Width of Protection Zone^b	Distance Upgradient of Spring	Distance Downgradient of Spring
Zone 2	2075 ft.	1500 ft.	1800 ft.	275 ft.

a - Total length measured on the centerline parallel to the direction of groundwater flow

b - Maximum total width measured perpendicular to the direction of groundwater flow

2.6 Status of the Aquifer

Studies classify the aquifer as confined to partially confined downgradient from Fairfield Spring. Hurlow (2004) and Jordan (2013) state that the aquifer is less stratified at Fairfield Spring and is partially confined. Confining layers must exist here to create the artesian conditions, but no data exists to show that confining conditions exist upgradient of the spring over the entirety of Zone 2. The aquifer in the area of the Fairfield does not meet the requirements of a Protected Aquifer as defined in UAC R309-600-6(1)(x).

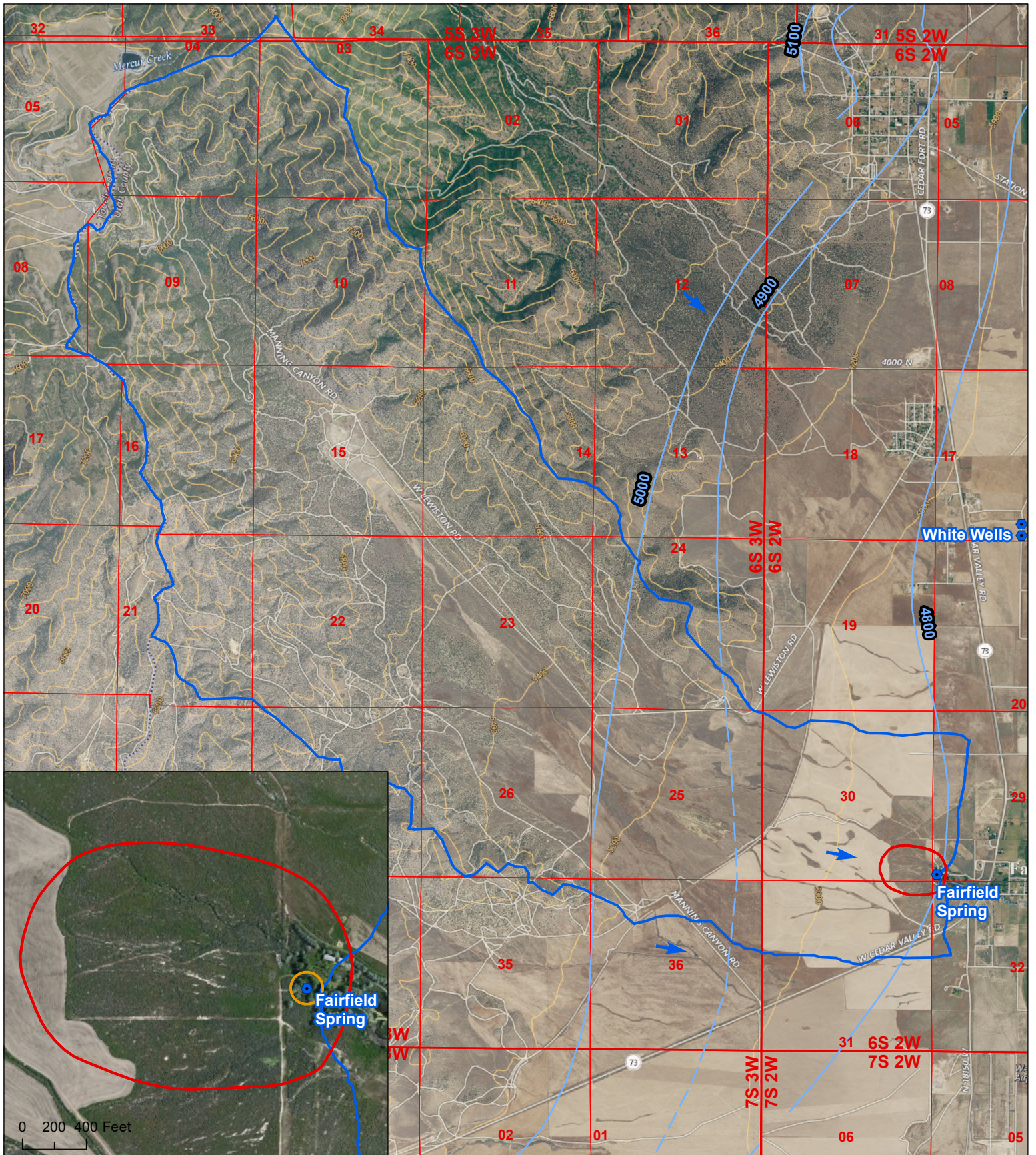
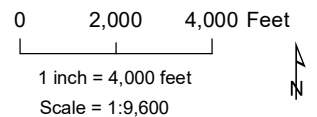


Figure 4.
Source Protection Zones for Fairfield Spring



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John Files
Date: November 2019



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- Utah Department of Environmental Quality, Division of Drinking Water, 2002, Guide to preparation of a Preliminary Evaluation Report.
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Year	Date Received	Population	Dual System Percentage	Storage 10 ³ Gal	Number Of Tanks
2018	05/13/2019	46	0	0	0
2017	04/18/2018	46	0	0	0
2016	06/07/2017	45	0	0	0
2014	02/20/2015	0		0	0

Annual Connection Info

Year	Domestic	Commercial	Industrial	Institutnl	Stock	Wholesale	Other	Unmetered	Total
2018	24	0	0	2	0	0	0	0	26
2017	18	0	0	2	0	0	0	0	20
2016	19	0	0	2	0	0	0	0	21
2014	0	0	0	0	0	0	0	0	0

Annual Use Info (Acft)

Year	Domestic	Commercial	Industrial	Institutnl	Stock	Wholesale	Other	Unmetered	Total
2018	7.59	0.00	0.00	1.38	0.00	0.00	0.00	0.00	8.96
2017	6.20	0.00	0.00	0.31	0.00	0.00	0.00	0.00	6.51
2016	7.53	0.00	0.00	0.45	0.00	0.00	0.00	0.00	7.98
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source Summary

Source Name: Fairfield Spring (WS001)
 PLS Location: N 190 ft E 69 ft from SW Cor Section 29 T6S R2W SLB&M
 Source Type: Spring
 Primary Use: Water Supplier
 Diversion Type: Withdrawal
 Hydrologic Unit Code: 16020202
 DEHN Source Code: 25011-01
 Saline Water: N

Water Right Numbers: [54-1338](#)

Source Comments:

**** 2016 **** Fairfield Spring (WS001) ****
 we have no meter readings for the meter on the spring for 2016. The numbers I have given are estimates based off of the readings that I have taken this year. To the best of my knowledge our pumping rate hasn't changed from last year to this year.

Source Record (ACFT)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	Measuring Method
2018	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	9.7	estimate
2017	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	20.2	estimate
2016	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	13.2	estimate

Source Summary

Source Name: Fairfield Town Well (WS002)
 PLS Location: S 55 ft E 80 ft from W4 Cor Section 31 T6S R2W SLB&M
 Source Type: Well
 Primary Use: Water Supplier
 Diversion Type: Withdrawal
 Hydrologic Unit Code: 16020201
 DEHN Source Code: 25011-02
 Saline Water: N
 Well ID Number: [440376](#) (Click for well information)

Water Right Numbers: [54-246](#) [54-1332](#) [a43517](#) [a43494](#) [54-1349](#) [54-1299](#) [54-1340](#) [54-1354](#) [a43493](#) [54-1343](#) [54-1338](#) [54-827](#)

Source Comments:

**** 2016 **** Fairfield Town Well (WS002) ****
 this well was not used in 2016

Bmellor Fairfield Town Well did not pump in 2017; therefore, no water was recorded.

**** 2017 ****

Fairfield Town Well did not pump in 2017; therefore no water was recorded.

Source Record (ACFT)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	Measuring Method
2018	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	2.6	meter
2017	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2016	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	meter

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APPENDIX II

Utah County Zoning Ordinance 10-8

CHAPTER 10. HEALTH

Article 10-1.	In General (Reserved)
Article 10-2.	Health Department
Article 10-3.	Right of Entry / Unlawful Acts - Criminal and Civil Liability
Article 10-4.	Food Service
Article 10-5.	Vehicle Emission Inspection/ Maintenance
Article 10-6.	Diesel and Gasoline Vehicle Emission Inspection/Maintenance
Article 10-7.	Remote Sensing Program
Article 10-8.	Utah County Drinking Water Source Protection Provisions

Article 10-1. In General (Reserved)

Article 10-2. Health Department

- 10-2-1. Creation.
- 10-2-2. Organization.
- 10-2-3. Board of Health.
- 10-2-4. Local health officer.
- 10-2-5. Powers and duties of the Utah County Health Department - Duties regarding private and public Schools
- 10-2-6. Abatement of nuisances.
- 10-2-7. Jurisdiction.
- 10-2-8. Rules and regulations.
- 10-2-9. Financing.

10-2-1. Creation.

(a) There is hereby created a County Health Department in Utah County as provided by Title 26A, Utah Code Annotated, 1953, as amended, which shall be known as the Utah County Health Department .

10-2-2. Organization.

The Utah County Health Department shall consist of a Board of Health, a local health officer and departmental personnel.

10-2-3. Board of Health.

The Board of Health members shall be appointed by the County Commission. The Board of Health shall determine the general public health policies to be followed in the administration of the Utah County Health Department and may adopt and enforce public health rules, regulations, and standards necessary to implement the board's public health policies. The Board of Health shall appoint the local health officer subject to ratification by the County Commission. He shall be the executive officer for the council. The health officer may be removed by the health council

for cause after due hearing. (R.O. 1956, Section 3-1-2) The local health officer shall serve as secretary to the Board of Health.

(a) The Board of Health shall be nonpartisan whose membership shall meet all the requirements as set forth in Title 26A, Utah Code Annotated, 1953 as amended. The number of Board members shall be set by Board bylaws, but shall be a minimum of three members. Board member terms shall be for three years.

(b) A majority of the members may not:

(i) be primarily engaged in providing health care to individuals or in the administration of facilities or institutions in which health care is provided;

(ii) hold a fiduciary position or have a fiduciary interest in any entity involved in the provision of health care;

(iii) receive either directly or through a spouse more than 1/10 of the member's gross income from any entity or activity relating to health care; and

(iv) be members of one type of business or profession.

(c) Board members may be removed by the Utah County Commission for cause prior to the expiration of the member's term. Any board member removed pursuant to this Section may request and receive a hearing before the Utah County Commission prior to the effective date of the removal.

(d) All members of the board shall reside within the boundaries of the area served by the Utah County Health Department.

(e) The Board may adopt and amend bylaws for the transaction of its business. A majority of the board members constitute a quorum.

(f) Standards and regulations may be adopted by the Board as provided in Title 26A, Utah Code Annotated, 1953 as amended, and administrative and judicial review of the Board's actions is available as provided in Title 26A, Utah Code Annotated, 1953 as amended.

10-2-4. Local health officer.

(a) The local health officer shall be the administrative and executive officer of the Department and shall devote full time to the duties of the office and is responsible to the Board of Health.

The local health officer shall meet the qualifications for that office as prescribed by the Utah Department of Health and the Utah County personnel system. The local health officer shall be the administrative and executive officer for the Board of Health. The health officer may be removed by the Board of Health or the County Commission for cause after due hearing as provided in Title 26A, Utah Code Annotated, 1953, as amended.

(b) The local health officer shall appoint other personnel by the Utah County merit system of personnel administration, provided they have the qualifications of training and experience for their positions equivalent to those approved for comparable positions by the Utah State Department of Health and Environmental Quality. Health Department staff may include:

- (1) Public health nurses.
- (2) Environmental health scientists.
- (3) Health Educators
- (4) Public Health Nutritionists
- (5) Mosquito Abatement Director
- (6) Necessary administrative staff, clerical assistants and such other personnel as may be necessary for the proper and efficient functioning of the Utah County Health Department. (Ord. No. 2011-38, 10-11-11)

10-2-5. Powers and duties of the Utah County Health Department - Duties regarding private and public schools

(a) The Utah County Health Department may:

(1) subject to the provisions in Section 26A-1-108 , enforce state laws, local ordinances, department rules, and local health department standards and regulations relating to public health and sanitation, including the plumbing code adopted by the Division of Occupational and Professional Licensing under Section 58-56-4 and under Title 26, Chapter 15a, Food Safety Manager Certification Act, in all incorporated and unincorporated areas served by the Utah County Health Department;

(2) establish, maintain, and enforce isolation and quarantine, and exercise physical control over property and over individuals as the Utah County Health Department finds necessary for the protection of the public health;

(3) establish and maintain medical, environmental, occupational, and other laboratory services considered necessary or proper for the protection of the public health;

(4) establish and operate reasonable health programs or measures not in conflict with state law that:

(A) are necessary or desirable for the promotion or protection of the public health and the control of disease; or

(B) may be necessary to ameliorate the major risk factors associated with the major causes of injury, sickness, death, and disability in the state;

(5) close theaters, schools, and other public places and prohibit gatherings of people when necessary to protect the public health;

(6) abate nuisances or eliminate sources of filth and infectious and communicable diseases affecting the

public health and bill the owner or other person in charge of the premises upon which this nuisance occurs for the cost of abatement;

(7) make necessary sanitary and health investigations and inspections on its own initiative or in cooperation with the Utah Department of Health or Environmental Quality, or both, as to any matters affecting the public health;

(8) pursuant to county ordinance:

(A) establish and collect appropriate fees for the performance of services and operation of authorized or required programs and duties. Fees shall be approved and adopted by the Board of Health in its regularly scheduled meetings;

(B) accept, use, and administer all federal, state, or private donations or grants of funds, property, services, or materials for public health purposes; and

(C) make agreements not in conflict with state law that are conditional to receiving a donation or grant subject to approval or ratification by the Utah County Commission;

(9) prepare, publish, and disseminate information necessary to inform and advise the public concerning:

(A) the health and wellness of the population, specific hazards, and risk factors that may adversely affect the health and wellness of the population; and

(B) specific activities individuals and institutions can engage in to promote and protect the health and wellness of the population;

(10) investigate the causes of morbidity and mortality;

(11) issue notices and orders necessary to carry out these powers and duties;

(12) conduct studies to identify injury problems, establish injury control systems, develop standards for the correction and prevention of future occurrences, and provide public information and instruction to special high risk groups;

(13) cooperate with boards created under Section 19-1-106 to enforce laws and rules within the jurisdiction of the boards; and

(14) cooperate with the Utah Department of Health, the Department of Corrections, the Administrative Office of the Courts, the Division of Youth Corrections, and the Crime Victims Reparations Board to conduct testing for HIV infection of convicted sexual offenders and any victims of a sexual offense.

(b) The Utah County Health Department shall:

(1) establish programs or measures to promote and protect the health and general wellness of the people within the boundaries of the Utah County Health Department;

(2) investigate infectious and other diseases of public health importance and implement measures to control the causes of epidemic and communicable

diseases and other conditions significantly affecting the public health which may include involuntary testing of convicted sexual offenders for the HIV infection pursuant to Section 76-5-502 of the Utah State Code and voluntary testing of victims of sexual offenses for HIV infection pursuant to Section 76-5-503 of the Utah State Code;

(3) cooperate with the Utah Department of Health in matters pertaining to the public health and in the administration of state health laws; and

(4) coordinate implementation of environmental programs to maximize efficient use of resources by developing with the Utah Department of Environmental Quality a Comprehensive Environmental Service Delivery Plan that:

(A) recognizes that the Utah Department of Environmental Quality and the Utah County Health Department are the foundation for providing environmental health programs in Utah County;

(B) delineates the responsibilities of the Utah Department of Environmental Quality and each of the Utah County Health Department for the efficient delivery of environmental programs using federal, state, and local authorities, responsibilities, and resources;

(C) provides for the delegation of authority and pass through of funding to the Utah County Health Department for environmental programs, to the extent allowed by applicable law, identified in the plan, and requested by the Utah County Health Department; and

(D) is reviewed and updated annually.

(c) The Utah County Health Department has the following duties regarding public and private schools within its boundaries:

(1) enforce all ordinances, standards, and regulations pertaining to the public health of persons attending public and private schools;

(2) exclude from school attendance any person, including teachers, who is suffering from any communicable or infectious disease, whether acute or chronic, if the person is likely to convey the disease to those in attendance;

(3) make regular inspections of the health-related condition of all school buildings and premises, and:

(A) report the inspections on forms furnished by the Utah Department of Health to those responsible for the condition and provide instructions for correction of any conditions that impair or endanger the health or life of those attending the schools; and

(B) provide a copy of the report to the Utah Department of Health at the time the report is made.

(d) If those responsible for the health-related condition of the school buildings and premises do not carry out any instructions for corrections provided in

a report in Subsection (3)(c), the Utah County Board of Health shall cause the conditions to be corrected at the expense of the persons responsible.

(e) The Utah County Health Department may exercise incidental authority as necessary to carry out the provisions and purposes of this section.

10-2-6. Abatement of nuisances.

The Utah County Health Department shall cause every nuisance dangerous to public health and human life, within its jurisdiction, to be abated. When complaint of such nuisance is made to it, the Utah County Health Department shall forthwith cause the matter to be investigated and shall determine whether or not the alleged nuisance is detrimental to the public health or the cause of any disease or mortality. Whenever the Utah County Health Department shall determine that a nuisance detrimental to health exists, it shall in writing, notify the owner or occupant of the premises where said nuisance may be found and shall order the abatement or removal of such nuisance. If such nuisance is not abated or removed pursuant to such order, the Utah County Health Department shall request pursuant to Title 26A, Utah Code Annotated, as amended, that the County Attorney, or a city attorney as appropriate, bring an action for the abatement of such nuisance.

10-2-7. Jurisdiction.

The Utah County Health Department shall have jurisdiction in all unincorporated and incorporated areas of Utah County and shall enforce state health laws, Utah Department of Health, Utah Department of Environmental Quality, and Utah County Health Department rules, regulations, and standards within Utah County.

10-2-8. Rules and regulations.

It shall be the duty of the Utah County Health Department to place a certified copy of its rules and regulations, pertaining to the health and sanitation of Utah County and/or its incorporated cities on file with the Utah County Clerk.

10-2-9. Financing.

The cost of establishing and maintaining the Utah County Health Department shall be financed as provided in Section 26A-1-117, Utah Code Annotated, 1953, as amended.

Article 10-3. Right of Entry / Unlawful Acts - Criminal and Civil Liability

10-3-1. Right of entry to regulated premises by representatives for inspection.

10-3-2. Unlawful acts - Criminal and civil liability.

10-3-1. Right of entry to regulated premises by representatives for inspection.

(a) Upon presenting proper identification, authorized representatives of the Utah County Health Department may enter upon the premises of properties regulated by the Utah County Health Department to perform routine inspections to insure compliance with rules, standards, regulations, and ordinances as adopted by the Utah Departments of Health and Environmental Quality, the Utah County Board of Health, the Utah County Commission, all city councils or governing bodies in Utah County, or the Division of Occupational and Professional Licensing under Section 58-56-4 of the Utah Code Annotated, 1953, as amended.

(b) Section 58-56-4 does not apply to health inspectors acting under this section.

(c) This section does not authorize local health departments to inspect private dwellings.

10-3-2. Unlawful acts - Criminal and civil liability

(a) It is unlawful for any person, association, or corporation, and the officers of the association or corporation to:

(1) violate state laws or any lawful notice, order, standard, rule, or regulation issued under state laws or local ordinances regarding public health or sanitation;

(2) violate, disobey, or disregard any notice or order issued by the Utah County Health Department pursuant to any state or federal law, federal regulation, local ordinance, rule, standard, or regulation relating to public health or sanitation;

(3) fail to make or file reports required by law relating to the existence of disease or other facts and statistics relating to the public health;

(4) willfully and falsely make or alter any certificate or certified copy issued under public health laws;

(5) fail to remove or abate from private property under the control of the person, association, or corporation at their own expense, within a reasonable time not to exceed 30 days after issuance of an order to remove or abate, any nuisance, source of filth, cause of sickness, dead animal, health hazard, or sanitation violation within the boundaries of the local health department whether the person, association, or corporation is the owner, tenant, or occupant of the private property; or

(6) pay, give, present, or otherwise convey to the local health officer or employee of a Utah County Health Department or any member of a Utah County Board

of Health any gift, remuneration, or other consideration, directly or indirectly, which the officer or employee is prohibited from receiving by state law.

(b) Removal or abatement under Subsection (2)(e) shall be ordered by the Utah County Health Department and accomplished within a reasonable time determined by the Utah County Health Department, but not exceeding 30 days after issuance of an order to remove or abate.

(c) It is unlawful for any local health officer or employee of any local health department or member of any local board of health to accept any gift, remuneration, or other consideration, directly or indirectly, for the performance of the duties imposed upon the officer, employee, or member by or on behalf of the health department or by this part.

(d) It is unlawful for any local health officer or employee of a local health department, during the hours of the officer's or employee's regular employment by the local health department, to perform any work, labor, or services other than duties assigned to the officer or employee by or on behalf of the local health department.

(e) (1) Any person, association, corporation, or the officers of the association or corporation who violates any provision of this section is:

(A) on the first violation guilty of a class B misdemeanor; and

(B) on a subsequent similar violation within two years, guilty of a class A misdemeanor.

(2) In addition any person, association, corporation, or the officers of the association or corporation, are liable for any expense incurred in removing or abating any nuisance, source of filth, cause of sickness, dead animal, health hazard, or sanitation violation.

(f) Conviction under this section or any other public health law does not relieve the person convicted from civil liability for any act that was also a violation of the public health laws.

(g) Each day of violation of this section is a separate violation.

Article 10-4. Food Service

10-4-1. Food inspection.

10-4-2. Enforcement.

10-4-3. Examination, condemnation of food, drink.

10-4-1. Food inspection.

The local health officer or an authorized employee may inspect meat and food products manufactured, produced, stored, kept, sold or offered for sale within the County. Such products suspected of being

impure, unhealthful, adulterated or counterfeit may be sampled, embargoed, and/or destroyed.

10-4-2. Enforcement.

The local health officer shall enforce proper sanitary regulations in the management and surroundings involving the production, manufacture, storage, keeping and sale of any article of food or drink prepared for human consumption. For the purpose of effectuating this ordinance, the local health officer or an authorized employee, shall have the following powers:

(a) Right of access, ingress and egress to and from all places of business, factories, farm buildings, carriages, trucks, trailers and cars used in the manufacture, transportation or sale of any article of food or drink and also into restaurants, dining halls, cafes, hotels and all rooms thereof, and all other places where food is prepared, stored or served to patrons;

10-4-3. Examination, condemnation of food, drink.

Samples of drink, meat or meat food products, rabbits, poultry, fish or seafood or other food may be taken and examined as often as deemed necessary for the detection of unwholesomeness or adulteration. The local health officer or an authorized employee may condemn and forbid the sale, or cause to be removed or destroyed, any food product or drink which is deemed by the local health office or an authorized employee to be unwholesome or adulterated.

Article 10-5. Vehicle Emission Inspection/Maintenance.

10-5-1. Adoption of Rules and Regulations.

10-5-2. Copies of Rules and Regulations.

10-5-3. Penalties.

10-5-1. Adoption of Rules and Regulations

Pursuant to Section 41-6-163.6, Utah Code Annotated, 1953, as amended, the Vehicle Emission Inspection/ Maintenance Program Rules and Regulations are hereby adopted in book form and by this reference made a part of this Chapter to the same extent and effect as though said Rules and Regulations were copied herein in full. The Rules and Regulations shall be in effect and enforced only if the County Commission is unable to implement alternative emission reduction strategies that result in the required emission reduction credits as provided for in the State Implementation Plan for Carbon Monoxide for Utah County (reference Section X Part D of the Utah State Implementation Plan). (Ord. No. 1995-02, 1-25-95)

10-5-2. Copies of Rules and Regulations.

Three (3) copies of the Vehicle Emission Inspection/ Maintenance Program Rules and Regulations are ordered to be filed in the office of the County Clerk for the use and examination by the public. (Ord. No. 1995-02, 1-25-95)

10-5-3. Penalties.

Any violation of the Rules and Regulations adopted pursuant to Section 10-5-1 shall be punished in accordance with Section 16.0 of said Rules and Regulations. (Ord. No. 1995-02, 1-25-95)

Article 10-6. Diesel and Gasoline Vehicle Emission Inspection/Maintenance (Repealed by Ord. 2005-29, 11-1-05)

10-6-1. Adoption of Rules and Regulations.

10-6-2. Copies of Rules and Regulations.

10-6-3. Penalties.

10-6-1. Adoption of Rules and Regulations.

Pursuant to Section 41-6-163.6, Utah Code Annotated, 1953, as amended, the Diesel Vehicle Emissions Inspection/Maintenance Program Rules and Regulations are hereby adopted in book form and by this reference made a part of this Chapter to the same extent and effect as though said Rules and Regulations were copied herein in full. Pursuant to Section 41-6-163.6, Utah Code Annotated, 1953, as amended, the Vehicle Emissions Inspection/Maintenance Program Rules and Regulations are hereby adopted in book form and by this reference made a part of this Chapter to the same extent and effect as though said Rules and Regulations were copied herein in full. (Ord. No. 1998-27; 12-29-98) (Repealed by Ord. 2005-29, 11-1-05)

10-6-2. Copies of Rules and Regulations.

Three (3) copies of the Diesel Vehicle Emissions Inspection/Maintenance Program Rules and Regulations, and three (3) copies of the Vehicle Emissions Inspection/Maintenance Program Rules and Regulations, are ordered to be filed in the office of the County Clerk for the use and examination by the public. (Ord. No. 1998-27; 12-29-98) (Repealed by Ord. 2005-29, 11-1-05)

10-6-3. Penalties.

Any violation of the Diesel Vehicle Emissions Inspection/Maintenance Rules and Regulations adopted pursuant to Section 10-6-1 shall be punished

in accordance with Section 17.0 of said Rules and Regulations. Any violation of the Vehicle Emissions Inspection/Maintenance Rules and Regulations adopted pursuant to Section 10-6-1 shall be punished in accordance with Section 15.0 of said Rules and Regulations. (Ord. No. 1998-27; 12-29-98) (Repealed by Ord. 2005-29, 11-1-05)

Article 10-7. Remote Sensing Program

10-7-1. Adoption of Rules and Regulations.

10-7-2. Copies of Rules and Regulations.

10-7-3. Penalties.

(Repealed by Ord. 2005-30, 11-1-05)

10-7-1. Adoption of Rules and Regulations.

Pursuant to Section 41-6-163.6, Utah Code Annotated, 1953, as amended, the Remote Sensing Program Rules and Regulations are hereby adopted in book form and by this reference made a part of this Chapter to the same extent and effect as though the Rules and Regulations were copied herein in full. (Repealed by Ord. 2005-30, 11-1-05)

10-7-2. Copies of Rules and Regulations.

Three (3) copies of the Remote Sensing Program Rules and Regulations are ordered to be filed in the office of the County Clerk for the use and examination by the public. (Repealed by Ord. 2005-30, 11-1-05)

10-7-3. Penalties.

Any violation of the Remote Sensing Program Rules and Regulations adopted pursuant to Section 10-7-1 shall be punished in accordance with Section 9.0 of said Rules and Regulations. (Repealed by Ord. 2005-30, 11-1-05)

Article 10-8. Utah County Drinking Water Source Protection Provisions

A. Short Title and Purpose

1. This Chapter shall be known as the "Utah County Drinking Water Source Protection Ordinance."

2. The purpose of this Chapter is to ensure the provision of a safe and sanitary drinking water supply to the residents of Utah County (hereinafter "County"), by the establishment of drinking water source protection zones surrounding the wells and springs used by public water systems in the County and by the designation and regulation of property uses and conditions that may be maintained within such zones. Included under this Chapter are all source protection zones or portions thereof falling within the County, including incorporated and

unincorporated areas, unless superseded by a municipal ordinance in accordance with State law. (Ord. 2010-11, 6-1-10) (Ord. 2019-8, 2-26-19)

B. Definitions

When used in this Chapter the following words and phrases shall have the following meanings:

1. "Allowed Use" means a use, activity or practice allowed by this Chapter which does not create a risk of pollution or contamination in the specified protection zone of such significance so as to require the implementation of regulatory requirements, best management practices or engineered controls.

2. "Alternative Onsite Wastewater System" means an onsite wastewater system that is not a conventional onsite wastewater system as defined in Utah Administrative Code R317-4, and includes at-grade systems, mound systems, packed bed media systems, and sand lined trench systems.

3. "Best Management Practices" means a practice or combination of practices determined to be the most effective practicable means of conducting a land use activity to minimize the potential for becoming a pollution source (including technological, economic, and institutional considerations).

4. "Collection Area" means the area surrounding a ground-water source which is underlain by collection pipes, tile, tunnels, infiltration boxes, or other ground-water collection devices.

5. "Contaminant" means any harmful physical, chemical, biological or radiological substance or matter in water, including, for purposes of this Chapter, nitrates.

6. "Controlled" means that a physical, regulatory, negligible quantity, or best management/practice control, as defined in Utah UAC R309-600, exists to prevent the discharge of contaminated or hazardous substances from a pollution source or potential contamination source. If no such control exists, the pollution source or potential contamination source is ipso facto uncontrolled.

7. "Conventional Onsite Wastewater System" means an onsite wastewater system typically consisting of a building sewer, a septic tank, and an absorption system utilizing absorption trenches, absorption beds, deep wall trenches, or seepage pits.

8. "Design Standard" means established State or National Standards for the design, construction, placement, or maintenance from a potential contamination source to prevent discharges to the ground water. An example of a Design Standard is "Secondary Containment."

9. "Division of Drinking Water" means the Utah Department of Environmental Quality, Division of Drinking Water.

10. "Drinking Water Source Protection Zone" means the specified surface and subsurface area surrounding a ground-water source of drinking water supplying a Public Water Supply, through which contaminants are reasonably likely to move toward and reach such ground-water source.

11. "Groundwater Source" means any well, spring, tunnel, adit, or other underground opening from or through which groundwater flows or is pumped from subsurface water-bearing formations.

12. "Hazardous Waste" means a waste with properties that make it dangerous or potentially harmful to human health or the environment.

13. "Onsite wastewater system" means an underground wastewater dispersal system that is designed for a capacity of 5,000 gallons per day or less, and is not designed to serve multiple dwelling units that are owned by separate owners except condominiums. It usually consists of a building sewer, a septic tank and an absorption system.

14. "Pollution Source" means a point source discharge of contaminants to ground water or potential discharges of the liquid forms of "extremely hazardous substances" which are stored in containers in excess of "applicable threshold planning quantities" as specified in SARA Title III. Examples of possible pollution sources include, but are not limited to: storage facilities that store the liquid forms of extremely hazardous substances, septic tanks, drain fields, Class V underground injection wells, landfills, open dumps, land filling of sludge and septage, manure piles, salt piles, pit privies, and animal feeding operations with more than ten animal units. The following definitions clarify the definition of "Pollution Source":

a. "Animal feeding operation" means a lot or facility where the following conditions are met: animals have been or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period, and crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. Two or more animal feeding operations under common ownership are considered to be a single feeding operation if they adjoin each other, if they use a common area, or if they use a common system for the disposal of wastes.

b. "Animal unit" means a unit of measurement for any animal feeding operation calculated by adding the following numbers: the number of slaughter and feeder cattle multiplied by 1.0, plus the number of mature dairy cattle multiplied by 1.4, plus the number of swine weighing over 55 pounds multiplied by 0.4, plus the number of sheep

multiplied by 0.1, plus the number of horses multiplied by 2.0.

c. "Extremely hazardous substances" means those substances that are identified in the Sec. 302(EHS) column of the "TITLE III LIST OF LISTS - Consolidated List of Chemicals Subject to Reporting Under SARA Title III," (EPA 560/4-91-011).

15. "Potential Contamination Source" means any facility, use or site that employs an activity or procedure which may potentially contaminate ground water, whether it currently does or not. A pollution source is also a potential contamination source.

16. "Prohibited Use" means a use, activity or practice described in Section F of this Article. A Prohibited Use is not permitted.

17. "Public Water System" means a system, either publicly or privately owned, providing water for human consumption and other domestic uses, which has at least 15 service connections, or serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes collection, treatment, storage and distribution facilities under control of the operator and used primarily in connection with the system. Additionally, the term includes collection, pretreatment or storage facilities used primarily in connection with the system but not under such control.

18. "Recharge Area" means an area in which water reaches the zone of saturation by surface infiltration.

19. "SARA Title III" means the Superfund Amendment and Reauthorization Act Article found in 40 CFR 300-302, pertaining to emergency response and right-to-know.

20. "Secondary Containment" means a type of system or design standard that is used to provide release detection and prevention, such as trays under containers, floor curbing or other systems designed to hold materials or liquids that may discharge from containers holding a potential contaminant. Examples include a double-walled tank, a double-walled integral piping system, or a single-walled tank or integral piping system that is protected by an enclosed concrete vault, liner, or an impervious containment area.

21. "Septic Tank/Drain-Field Systems" means a wastewater system, which is comprised of a septic tank and a drain-field, which accepts wastewater from buildings or facilities for subsurface treatment and disposal. By their design, septic tank/drain-field system discharges cannot be controlled with design standards.

22. "Source Protection Zone" means the specified surface and subsurface area surrounding a ground-water source of drinking water supplying a Public Water Supply, through which contaminants are reasonably likely to move toward and reach such ground-water source. These zones shall have the approval of the State of Utah, Division of Drinking Water as described in R309-600 Source Protection: Drinking Water Source Protection for Ground-Water Sources and as stated herein.

23. "Time of Travel Distance" means the distance that groundwater will travel in a specified time. This distance is generally a function of the permeability and slope of the aquifer. Time of Travel is determined from Hydrological Quality, Division of Drinking Water.

24. "Wellhead" means the upper terminal of a well, including adapters, ports, seals, valves and other attachments. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

C. Establishment of Drinking Water Source Protection Zones

There are hereby established use districts to be known as zones one, two, three, and four, and management area of the drinking water source protection area. These zones shall have the approval of the State of Utah, Division of Drinking Water as described in R309-600 Source Protection: Drinking Water Source Protection for Ground-Water Sources and are identified and described as follows:

1. "Zone One" is the area within a 100-foot radius from the wellhead or margin of the collection area.
2. "Zone Two" is the area within a 250-day groundwater time of travel to the wellhead or margin of the collection area, the boundary of the aquifer(s) which supplies water to the ground-water source, or the groundwater divide, whichever is closer.
3. "Zone Three" is the area within a 3-year groundwater time of travel to the wellhead or margin of the collection area, the boundary of the aquifer(s) which supplies water to the ground-water source, or the groundwater divide, whichever is closer.
4. "Zone Four" is the area within a 15-year groundwater time of travel to the wellhead or margin of the collection area, the boundary of the aquifer(s) which supplies water to the ground-water source, or the groundwater divide, whichever is closer.
5. "Management Area" is the area outside of zone one and within a two-mile radius where the optional Two-mile Radius Delineation Procedure has been used to identify a protection area, as described in

the Utah, Division of Drinking Water R309-600 Source Protection: Drinking Water Source Protection for Ground-Water Sources. This area shall be treated as for Zone 2.

In some cases, such as bedrock areas, Zones 2, 3, and 4 are overlapping due to the inability to determine time of travel. These are sensitive areas. In these cases, the zone shall be protected as for Zone 2. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

D. Identification of Public Water Systems and Drinking Water Source Protection Zones

1. Utah Administrative Code R309-600 requires public water systems to submit a drinking water source protection plan to the Utah State Division of Drinking Water, for each of its groundwater sources of drinking water.

2 Pursuant to Section 10-8-15, Utah Code Annotated, 1953 as amended, municipalities have extra-territorial jurisdiction to prevent the pollution or contamination of domestic and culinary water, including groundwater sources. Each municipality claiming extra-territorial jurisdiction, pursuant to Section 10-8-15, shall notify the Utah County Health Department, Division of Environmental Health, and specifically identify each of the areas over which it claims jurisdiction in the unincorporated area of Utah County. Municipalities adopting a source protection ordinance in compliance with Section 19-4-113, Utah Code Annotated, 1953 as amended, shall notify the Utah County Health Department, Division of Environmental Health, and specifically identify each of the areas over which it claims jurisdiction in Utah County. If changes to areas over which a municipality claim extra-territorial jurisdiction are made, the municipality shall notify the Utah County Health Department, Division of Environmental Health within 45 days. All notifications shall come in written form and geographic information system (GIS) data.

3. Drinking Water Source Protection Map.

As necessary, the Utah County Health Department, Division of Environmental Health, shall utilize and incorporate the source protection information maintained, updated, and provided by the Utah State Division of Drinking Water.

4. Overlapping Protection Zones.

a. Public water systems with overlapping protection zones shall cooperate in resolving conflicts in the land management strategies contained in the applicable source protection plans. If necessary, the Utah State Division of Drinking Water shall assist with the resolution of any

conflicts between source protection plans approved for the public water systems.

b. No permits or land use approvals, including, but not limited to, a subdivision approval, conditional or permitted use approval, business license or building permit shall be issued pending the resolution of any challenges to the boundaries or conflict between overlapping protection zones. In the event the challenge or conflict in overlapping protection zones cannot be resolved in 180 days, the most restrictive provision shall apply. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

E. Allowed Uses

The following land uses shall be allowed within drinking water source protection zones:

1. In Zones One, Two, Three, and Four, each use legally established before the effective date of this Chapter, and uses incidental and accessory to such use, may be continued in the same manner thereafter, provided that such use is not determined by any court of competent jurisdiction to be a nuisance under the provisions of federal, state, and/or local laws or regulations.

2. All new land uses, changes of land use, or expansions of land use, shall comply with the requirements of this Chapter. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

F. Prohibited Uses

Subject to the allowed uses, as described above, the following uses are prohibited within the following drinking water source protection zones, as shown on the Utah County Drinking Water Source Protection Zone Map:

1. Zone One.

All uses that fall within the definition in this Chapter of “pollution source” or “potential contamination source.”

2. Zone Two.

All uses that fall within the definition in this Chapter of “pollution source” or “potential contamination source,” unless permitted in accordance with Section H.2 of this Chapter.

3. Zone Three.

All uses that fall within the definition in this Chapter of “pollution source” or “potential contamination source,” unless permitted in accordance with Section H.2 of this Chapter.

4. Zone Four.

All uses that fall within the definition in this Chapter of “pollution source” or “potential contamination source,” unless permitted in accordance with Section H.2 of this Chapter. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

G. Drinking Water Source Protection Requirements

Following the effective date of this Chapter, no building permit or other form of approval from the County to develop or use real property within the County shall be issued until the applicant establishes that the applicant’s proposed development or use of real property complies with the requirements of this Chapter. Each such applicant shall provide to the Utah County Community Development Department a letter from the Utah County Health Department, Division of Environmental Health, certifying that the proposed use complies with the requirements of this Chapter. In addition, following the effective date of this Chapter, no building permit or other form of approval shall be issued by any municipality to develop or use real property within the boundaries of Utah County until the applicant establishes to the issuing municipality that its proposed development or use of real property complies with the requirements of this Chapter. Each such applicant shall provide to the issuing municipality a letter from the Utah County Health Department, Division of Environmental Health, certifying that the proposed use complies with the requirements of this Chapter. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

H. Alleged Overly Protective Zones

1. If an applicant for a permit or approval to develop or use property disagrees with the boundaries of a drinking water source protection zone, such boundaries may be disputed according to the following procedure:

a. The applicant shall submit written comments to the public drinking water system stating the reasons that the protection zone boundaries are being disputed and request that the public drinking water system authorize a new hydrogeologic study.

b. The public drinking water system may authorize a new hydrogeologic study at the expense of the applicant or elect to conduct a new hydrogeologic study at its own expense.

c. If the public drinking water system declines to authorize a new hydrogeologic study, the applicant may appeal this determination to the Utah County Board of Health. In the event that the Board of Health authorizes a new study, the study shall be conducted at the expense of the applicant.

d. Upon completion, the new hydrogeologic study shall be submitted to the Utah Division of Drinking Water for review.

e. If the Division of Drinking Water adopts the new hydrogeologic study and modifies the boundaries of the applicable drinking water source protection zones, the application shall be processed in

accordance with the modified source protection zones. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)

2. Applicants for a permit or approval to install, relocate, or expand a wastewater system may be exempt from Zone Two through Four prohibited use restrictions on wastewater systems for a parcel platted prior to June 1, 2010 if:

a. The public watersystem within which the applicant proposes to be connected receives concurrence or verification from the Utah State Division of Drinking Water indicating that the proposed wastewater system(s) does not represent a significant contamination risk to the public water system, which concurrence or verification shall be submitted to the Utah County Health Department, Division of Environmental Health in writing

i. For Zone Two, except in instances where a septic system density study, performed by a geotechnical or hydrogeologic professional licensed in the State of Utah, clearly indicates that the installation of the proposed number of a conventional onsite wastewater systems will not increase the maximum contamination level (MCL) of nitrate concentration within the affected groundwater source above the United States Environmental Protection Agency's currently stated MCL goal, in which case a conventional onsite wastewater system may be used, the proposed and installed wastewater system is a contaminant reducing alternative onsite wastewater system approved by the Utah County Health Department.

Or

b. The applicant has received written permission for the proposed onsite wastewater system from the public water system(s) who has delineated the drinking water source protection zones(s); and

i. For Zone Two, except in instances where a septic system density study, performed by a geotechnical or hydrogeologic professional licensed in the State of Utah, clearly indicates that the installation of the proposed number of a conventional onsite wastewater systems will not increase the maximum contamination level (MCL) of nitrate concentration within the affected groundwater source above the United States Environmental Protection Agency's currently stated MCL goal, in which case a conventional onsite wastewater system may be used, the proposed and installed wastewater system is a contaminant reducing alternative onsite wastewater system approved by the Utah County Health Department.

I. Administration

This Chapter shall be administered by the Utah County Health Department, provided that, in addition to any other remedies, a public water system, retail water supplier, or wholesale water supplier may seek enforcement of this Chapter in a district court located in Utah County if the County (i) notifies the public water system, retail water supplier or wholesale water supplier within 10 days of receiving notice of a violation of this Chapter that the County will not seek enforcement of this Chapter; or (ii) does not seek enforcement within two days of a notice of violation of this Chapter when the violation may cause irreparable harm to the groundwater source. (Ord. 2010-11, 6-1-10; Ord. 2019-8, 2-26-19)