

**SUMMIT COUNTY BOARD OF HEALTH
WATER CONCURRENCY**

**AN ORDINANCE PROVIDING FOR THE ESTABLISHMENT OF
REQUIREMENTS FOR A COMMITMENT OF SERVICE LETTER WITHIN
SUMMIT COUNTY BASED ON THE ABILITY OF WATER SYSTEMS TO
DELIVER SAFE AND RELIABLE WATER AND PROMOTING THE
CONSERVATION AND WISE USE OF ALL SUMMIT COUNTY WATER
RESOURCES**

Preamble

WHEREAS, the Summit County Board of Health (the "Board") recognizes that the health, safety and welfare of the inhabitants of Summit County (the "County") depends, in large part, upon the availability of drinking water and the reliability of the Water Suppliers; and,

WHEREAS, it is the intention of the Board to implement this Ordinance in phases with the initial phase encompassing the unincorporated portions of the Snyderville Basin Planning District (the "Basin"); and,

WHEREAS, it is the intention of the Board to implement a water concurrency program through the enactment of a future ordinance pertaining to the unincorporated Eastern Summit County Planning District within the next three (3) years; and,

WHEREAS, it is the intention of the Board to exempt all municipalities from this Ordinance, as such municipalities have independent general police powers to regulate water and water quality within their boundaries; and,

WHEREAS, drought conditions have historically, and at times, resulted in water source deficiencies and/or some degradation of water quality within some Basin water systems, which has thereby affected the ability of some water systems to provide adequate water service to existing connections or to permit new connections to be made to the water systems; and,

WHEREAS, according to the World Health Organization, "water has a profound influence on human health." Ensuring both an adequate and safe supply of potable water is essential to the public health of any community. Hunter PR, MacDonald AM, Carter RC (2010) Water Supply and Health PLoS Med 7(11): e1000361. Doi:10.1371/journal.pmed.1000361. While the Utah Division of Drinking Water regulates the quality of water resources in Utah (both "water quality sampling" and "safe yield") and the

Utah State Engineer regulates water rights (essentially “paper water”), in practice neither typically requires monthly monitoring of the on-going adequacy (safe yield) of water sources or the trending of local water quality; thus forming a potential gap in water regulation practice within the State of Utah; and,

WHEREAS, the use of water concurrency regulations to fill such regulatory practice gaps has become a common practice in land use regimes. Strachan A., Concurrency Laws: Water As a Land-Use Regulation, 21 Journal of Land, Resources and Environmental Law 435 (2001); Arnold, Wet Growth: Should Water Law Control Land Use? (Environmental Law Institute, Washington, D.C. 2005); and,

WHEREAS, Summit County adopted an emergency Ordinance No. 385, on May 15, 2000, known as the Water Concurrency Ordinance, which imposed temporary zoning regulations on the western side of Summit County that tied development approvals and the issuance of building permits to the availability of water, and Summit County has subsequently adopted Ordinances Nos. 400, 415, 415a, 436 and 525, perpetuating the concurrency requirement of the temporary zoning ordinance (together, the “Water Concurrency Program”); and,

WHEREAS, the Water Concurrency Program was upheld by the Utah Court of Appeals in the case of Summit Water Distribution Company v. Mountain Regional Water, 108 P.3d 119 (Utah App. 2005) (“We find nothing in the Utah Code that expresses either an explicit or implicit intent to preempt local attempts, like Summit County’s, to regulate water. Neither do we find Ordinance No. 436 to be in conflict with State water law. In fact, section 19-4-110 of the Safe Drinking Water Act indicates that the legislature expressly allowed for local control over water supply systems”); and,

WHEREAS, the Western Summit County Project Master Agreement by and between the Weber Basin Water Conservancy District, Park City Municipal Corporation, Park City Water Service District, Mountain Regional Water Special Service District, Summit Water Distribution Company, Snyderville Basin Water Reclamation District and Summit County, dated June 26, 2013, (the “Weber Basin Project”) was enacted to assist in resolving water concurrency problems within the Basin; and,

WHEREAS, Weber Basin Water Conservancy District (“Weber Basin”) has indicated that the Water Concurrency Program contemplated by this Ordinance is beneficial to Weber Basin and serves as an auditing tool to the Weber Basin Project; and,

WHEREAS, David E. Hansen, PhD, PE, a principal with Hansen, Allen & Luce, Inc., and an expert in water hydrology, has prepared and issued to the Board a report (the “Water Concurrency Expert Report”), which is incorporated into this Ordinance by this reference as additional evidentiary findings (Exhibit B), which Water Concurrency Expert Report concludes that the continuation of the Water Concurrency Program is essential for the public health of the residents of the Basin specifically, and the unincorporated County generally; and,

WHEREAS, the Board strongly believes that new growth should not occur unless the Water Supplier who will serve the new growth can demonstrate that it has and will have the ability to develop the physical water resources to provide the anticipated service; and,

WHEREAS, the Utah Drinking Water Board has promulgated R309-200 (water quality standards), R309-205 (water quality testing), R309-400-6 (means to permit periodic measurement of water levels) and R309-515 (constant-rate testing), which require constant-rate testing and water quality testing, reserving its ability, should it deem such appropriate, to require more periodic pump testing or measurement of water levels to ensure adequate source capacity and/or more frequent water quality sampling. However in practice, the Utah Drinking Water Board generally does not require such ongoing monitoring of safe yield or water quality; thus creating the aforementioned regulatory practice gap; and,

WHEREAS, R309-515 is a type of water concurrency regulation, as is the feasibility of adequate water supply required by R309-100-6; and,

WHEREAS, R309-100-9(3) empowers the Director of the Division of Drinking Water (the “Director”) to respond to emergency situations involving public drinking water and issuing orders to water suppliers, which orders could include additional constant-rate testing or additional water quality sampling and testing; and,

WHEREAS, UCA §19-4-106(2)(d)(iii) provides that the Director may order remedial actions against any water supplier, which power contemplates a potential requirement of additional constant-rate testing or water quality sampling/testing; and,

WHEREAS, such constant-rate testing and water quality testing are not related to the “construction, operation and maintenance of facilities for conveying irrigation water to the place of use,” as these regulations relate to public drinking water systems, as that term is more fully defined in R309-100-4(1); and,

WHEREAS, UCA §19-4-104(1)(a)(ii) empowers the Utah Drinking Water Board to regulate the design, construction, operation and maintenance of public water systems; and,

WHEREAS, these regulations are not inconsistent with the rules promulgated by the Utah Drinking Water Board pursuant to Utah Code Ann. (“UCA”), Title 19, Chapter 4, as they do not require monitoring or sampling not otherwise contemplated within R309 and the powers of the Director or the Utah Drinking Water Board; and,

WHEREAS, the State Engineer has the responsibility to review Water Supplier compliance with established water rights through the submission and approval of an Annual Water Use Plan and Weber River Commissioner reports; and,

WHEREAS, Summit County believes that development permits should not be issued for new construction unless the physical water supply then currently exists to serve the new connection, and that once a commitment for service is given by a Water Supplier that it should be irrevocable to protect the property owner's ability to obtain water service and to preserve the marketability of the property (the “Water Concurrency Policy”); and,

WHEREAS, the Board agrees with the Water Concurrency Policy of Summit County; and,

WHEREAS, the Board promotes the conservation and wise use of water resources to better utilize available water resources for domestic, irrigation and other uses and needs as is required by UCA §§73-10-32 and 73-10-32.5; and,

WHEREAS, the Board is authorized pursuant to UCA §26A-1-121 and §19-4-110 to adopt regulations establishing these water regulations; and,

WHEREAS, these regulations have been extensively vetted and reviewed by all of the Water Suppliers operating within the Basin; and,

WHEREAS, these regulations have been posted for at least thirty (30) days to the Board’s website prior to the public hearing for public comment; and,

WHEREAS, public comment was received from the Snyderville Basin Water Reclamation District, Mountain Regional Water Special Service District, Matthew C. Lindon, Canyons RVMA, and Summit Water Distribution Company; and,

WHEREAS, notice was posted on April 19, 2016, and published on April 23, April 27 and April 30, 2016 in *The Park Record*, a newspaper of general circulation throughout the County, of a public hearing, which was held on May 2, 2016, wherein the Board took public comment on these regulations; and,

WHEREAS, some public comment presumes that some of these regulations may be more stringent than R309-200; R309-205 (water quality) and R309-515(10) (safe yield from constant-rate testing); and,

WHEREAS, UCA §26A-1-121(1)(c) provides that the Board may enact regulations which are more stringent than federal and state laws and regulations, so long as a finding is made that the current federal and state laws and regulations do not adequately protect public health and the environment; and,

WHEREAS, the Board does not believe that these regulations are more stringent than R309, as both contemplate constant-rate testing and water quality sampling, and the Utah Court of Appeals has upheld a previous, more restrictive water concurrency regulation, finding it to be neither preempted, nor “in conflict” with Utah water law; and,

WHEREAS, in the alternative, should a court of competent jurisdiction find that these regulations are more stringent than state or federal laws and regulations, the Board finds, based upon the Water Concurrency Expert Report, that federal and state laws and regulations, including but not limited to R309-200, R309-205, and R309-515, do not adequately protect the public health and the environment because they do not provide for a robust Water Concurrency Program that ensures both adequate water Source Capacity to residents of the County (safe yield) and adequate water quality sampling to show trends - thus constituting regulatory practice “gaps,” necessitating these regulations as set forth in Exhibit A herein; and,

WHEREAS, the Board finds that compelling public health interests necessitate the regulation of water Source Capacity and/or quality.

NOW, THEREFORE, the Board of Health of Summit County, State of Utah, ordains as follows:

Section 1. **Adoption.** The Water Concurrency regulations, Title 1, Chapter 5, Section 2 of the Summit County Code of Health, which has been published as a code in book form, as set forth in Exhibit A herein, five copies of which have been filed for use

and examination in the office of the Director of Health, are hereby adopted.

Section 2. **Severability.** If, for any reason, any part, term, or provision of this Ordinance is held by a court of competent jurisdiction to be illegal, void or unenforceable, the validity of the remaining provisions shall not be affected, and such shall thereafter be construed and enforced as if the Ordinance did not contain the particular provision held to be invalid.

Section 3. **Effective Date.** This Ordinance shall take effect on October 1, 2016.

Enacted this 6th day of June, 2016.

SUMMIT COUNTY BOARD OF HEALTH

Heidi Jaeger, Chair

SUMMIT COUNTY HEALTH OFFICER

APPROVED AS TO FORM:

Richard Bullough



David L. Thomas
Chief Civil Deputy

VOTING OF BOARD OF HEALTH:

Member Nilson	<u>AYE</u>
Member Watterson	<u>AYE</u>
Member Jaeger	<u>AYE</u>
Member Carson	<u>AYE</u>
Member Simpson	<u>AYE</u>
Member Adams	<u>AYE</u>
Member Davis	<u>AYE</u>

EXHIBIT A

1-5-2: Water Concurrency.

A. Applicability.

1-5-2 applies to all unincorporated areas of Summit County within the Snyderville Basin Planning District, plus the geographical area of the Promontory Development, and applies to all Water Suppliers serving these areas, including all shareholder-owned mutual water companies, regulated public utilities or governmental entities, and applies to all surface and groundwater sources of drinking water. This water concurrency regulation does not apply to Small Water Systems having fewer than 15 full-time occupancy service connections or to individually owned drinking water wells serving a single residence. The Weber Basin Water Conservancy District (“Weber Basin”) is exempt from this water concurrency regulation; however, those Water Suppliers with 15 or more full-time service connections that purchase water under contract from the Weber Basin must comply with these regulations.

B. Definitions. The following defined terms are used throughout this regulation:

1. Application. An application form prepared by the County Health Officer for submittal by the Water Supplier that contains information identifying the system contact, water sources, system demands, source capacity reserves, and summary source data spreadsheets.
2. Audit. A detailed review and investigation by the County Health Officer or agent(s) thereof, of a Water Supplier's water source production and water quality records, metered use and other demand records, ground water aquifer pumping response and trends, and any and all files relating to the Water Supplier's compliance with the requirements of these regulations and the regulations of the DDW.
3. Commitment-of-Service Letter. An irrevocable, contractual commitment in letter form issued by a Water Supplier to a Developer or Customer, in consideration for payment of the Water Supplier's impact and/or connection fees.
4. County Health Officer. The Director of the Summit County Health Department under the direction of the Summit County Board of Health. The County Health Officer, at his/her discretion, may utilize internal staff and/or retain competent and qualified professionals, to inform his/her decisions or opinions related to these regulations.
5. Customer. The Customer is a lot owner or other consumer of water through a culinary water distribution system operated by a Water Supplier, and whose name or organization appear on the Commitment-of-Service Letter required by these regulations and the Summit County Code.

6. Decision Document. The written decision of the County Health Officer with respect to determinations of Good Standing.
7. Deficit Capacity. See Water Supply/Demand Status.
8. Demand. When evaluating demands, all system demands must be considered, including but not limited to residential, commercial, and industrial users, irrigation and snowmaking, as well as any and all contracted commitments made to other Water Suppliers, whether short- or long-term, and system water losses.
9. Developer. The Developer is the owner or authorized agent of land proposed to be subdivided or developed who is responsible for any undertaking that requires review and/or approval of a subdivision plat, and who proposes to take water through a culinary water distribution system operated by a Water Supplier. The Developer's name appears on the Commitment-of-Service Letter required by these regulations and the Summit County Code.
10. DDW. The Utah Department of Environmental Quality, Division of Drinking Water.
11. Equivalent Residential Connection ("ERC"). This term specifically refers to the quantity of water a normal or average single residential connection would use. The term ERC is commonly used to quantify the number of equivalent residential service connections which non-residential type consumers will place on the system. The number of ERC's defined for a non-residential connection is determined by dividing the DDW defined or engineering calculated demand for the specific type of connection by the ERC Demand Factor, as defined below.
12. ERC Demand Factor. Consistent with R309-510, ERC Demand Factor is a calculated number in gallons per minute (gpm) based on the Peak Day Demand or System Peak Demand. The ERC Demand Factor may be used in conjunction with projected growth factors to estimate future demand on a water system under these regulations.
13. Good Standing. A determination by the County Health Officer that the Water Supplier is in substantial compliance with §1-5-2(F) of the Health Code. Good Standing authorizes the Water Supplier to issue Commitment-of-Service Letters in accordance with its Status, as set forth in the Decision Document.
14. New Development. Any Project or Development for which a completed land use application has been filed with the Summit County Department of Community Development.

15. Peak Day Demand. The amount of water utilized by a Water Supplier on the day of highest consumption, generally expressed in gallons per day (gpd), or gallons per minute (gpm) averaged over a peak day. Water systems are sized to deliver the Peak Day Demand to each Developer and/or Customer on the system plus required fire flows.
16. Project or Development. The Project or Development to receive water service from a Water Supplier, whether residential, commercial, or recreational in nature.
17. Reserve Source Capacity. The reserve requirements set forth in §1-5-2(D)(3).
18. Small Water System. A Water System serving fewer than fifteen (15) full-time connections.
19. Source. A Source is a specific available drinking water supply that can be used to meet the demands placed on any given water system. They can be springs, tunnels, treated or untreated (i.e. irrigation) surface water, or ground water, owned by either the Water Supplier or by another Water Supplier, as long as the Source meets the requirements of the DDW, if applicable.
20. Source Capacity. The amount of water expressed in gallons per minute (gpm) which may be reliably and consistently produced from a DDW approved water source. This definition applies to all water sources including treated and untreated surface and ground water. The DDW rating shall be considered to be the Source Capacity of a given source; however, the DDW rating may be further limited by quality, available quantity, or trending conditions following a review by the County Health Officer. The Source Capacity of a given Source cannot exceed the Water Rights approved for that Source by the State Engineer. Water storage, consisting of pipe or reservoir storage, cannot be used as a factor when calculating a Source Capacity.

21. Source Contractual Commitment. If a Water Supplier receives Source Capacity through any other outside, non-owned or non-controlled Water Supplier, documentation showing a commitment to supply the declared amount of water must be provided by the supplying entity. Documentation certifying the capacity of the connection to deliver said water must also be provided. Any commitment to supply water to another entity, whether included in the Concurrency program or not, must be also declared as a Demand by the granting entity as well as a Source by the contracting entity. A temporary contractual commitment of 15 years or less shall not be used as Source Capacity by the contracting entity under these regulations without a clear and defined plan for replacement water acceptable to the County Health Officer.
22. Standby Fee or Standby ERC. A fee imposed upon a Developer, lot owner, or to those contractually obligated, that can be serviced by a Water Supplier but are currently not connected to its system. The standby fee offsets the fixed costs to the Water Supplier allocable to standby accounts based upon the total number of Water Supplier connections and standby fees assessed. The standby fee includes operations and maintenance costs, appropriate water lease and reservation fees, and any other cost incurred by the Water Supplier to ensure the availability of water and to provide for fire flow and property protection capability to standby lots and Developments.
23. Surplus Capacity. Surplus Capacity means existing total Source Capacity in excess of any reserve requirements for drought and emergency needs mandated by DDW regulations and by these regulations, and in excess of that quantity of water required to meet the service Demand of the Water Supplier's existing Customers, any outstanding Commitment-of-Service Letters for new service, or other Demand obligations as identified in the Water Supplier's Water Supply/Demand Report.
24. System Peak Demand. Consistent with R309-510-7, System Peak Demand is the estimated demand which would be reasonably expected to occur during the year.
25. Ten-Year Forecast. A summary and estimate of projected source supply and demand data for the ten ensuing years. A Ten-Year-Forecast shall be included as part of the annual Water Supply/Demand Report in the format defined by the County Health Officer.
26. Water Conservation Plan. A plan developed and implemented by each Water Supplier to reduce the average annual water consumption per ERC on the Water Supplier's system in accordance with Utah Code Ann. §73-10-32, *et. seq.*

27. Water Rights. Water Rights are the legal right granted by the State of Utah to divert a quantity of water from a Source as determined by the State Engineer. In western Summit County, a Water Use Plan, as required by the State Engineer, is to be submitted to the Division of Water Rights annually by each Water Supplier. Water Rights compliance is monitored and regulated by the State Engineer, through the Weber River Water Commissioner and his/her designee or enforcement officer.
28. Water Supplier. Any water system, whether public or private, providing wholesale or retail water service to the general public, including water for indoor culinary use, outdoor irrigation use, and any other beneficial use such as livestock water, snowmaking, industrial use, etc., including service by water systems to areas outside of their corporate boundaries or service areas.
29. Water Supply/Demand Status (“Status”). The current, overall ability of a Water Supplier to meet demands and obligations considering available water Source Capacity, Reserve Source Capacity, Surplus Capacity, System Peak Demand, the current number of service connections, outstanding Commitment-of-Service Letters and other system demands. The Water Supply/Demand Status demonstrates the Water Supplier to have either a Surplus or a Deficit Capacity, as measured in ERCs, to meet the needs of its current and future Customers. Historically, the Status has been referred to as the water concurrency rating. To be in Good Standing, a Water Supplier cannot have a Deficit Capacity.
30. Water Supply/Demand Report (“Report”). An up-to-date Source, Demand and system report, as is further defined in §1-5-2(D), detailing the currently available Source Capacity, Reserve Source Capacity, Surplus Capacity, Demand, System Peak Demands, Source Contractual Commitments, number of existing and projected service connections, outstanding Commitment-of-Service Letters and other contractual demands. The Water Supply/Demand Report shall indicate the Status of the Water Supplier, including the number of new ERCs for which the Water Supplier can issue Commitment-of-Service Letters. The Water Supply/Demand Report will also include a summary rolling Ten Year Forecast of anticipated new service connections and other system demands, in accordance with §1-5-2(D)(2)(h).
31. Willing-to-Serve Letter. A letter issued by a Water Supplier indicating that the Water Supplier will provide water service to a Project or New Development, provided that the applicant complies with all of the terms of the agreement and the rules and regulations of the Water Supplier for the receipt of water service. This is not the same as a Commitment-of Service Letter.

C. Commitment-of-Service Letters.

1. Willing-to-Serve Letter Required for Plat Approval. In accordance with §10-10-8(A) of the Summit County Code, as part of the development plat approval process, the Water Supplier shall issue a Willing-to-Serve Letter to the developer of a new Development parcel, indicating the Water Supplier's willingness to provide water service. A Water Supplier can issue a Willing-to-Serve Letter only if the Water Supplier demonstrates through its required and various submittals to the County Health Officer, including the Ten Year Forecast, that it will have available at the time required the legal water Source Capacity required to provide the service at the pressure, volume and quality required by DDW regulations and these regulations.

2. Commitment-of-Service Letter Required for Building Permit. In accordance with §10-10-8(C) of the Summit County Code, Customers must obtain a Commitment-of-Service Letter from the Water Supplier providing drinking water service as a precondition to the issuance of a building permit. This letter is issued upon the following standards:
 - (a) Present Ability to Provide Service. A Water Supplier may not issue a Commitment-of-Service Letter to a Customer unless the Water Supplier is in Good Standing, thus demonstrating the present ability to deliver physical and legal water in the quantities, pressure, and quality required by DDW regulations and these regulations.

 - (b) Issuance Date. The Commitment-of-Service Letter shall be issued in consideration of and within five (5) working days of the Customer's payment of the Water Supplier's impact fees and/or other connection fees.

 - (c) Irrevocable Commitment of Resources. Absent one of the conditions set forth in 1-5-2(C)(3)(b), by the acceptance of a Customer's payment of the Water Supplier's applicable fees and the issuance of a Commitment-of-Service Letter to a Customer, a Water Supplier will be deemed to have entered into an irrevocable, contractual commitment of water capacity required to meet the service requirements of a connection within the Water Supplier's service area, including water to meet the reasonable irrigation or snowmaking requirements of the connection, so that water service can be safely and reliably provided on demand.

3. Failure to Serve. The failure of a Water Supplier to honor a Commitment-of-Service Letter in providing service to the Developer and/or Customer on demand (in whole or in part) shall result in the immediate suspension by the County Health Officer of the Water Supplier's determination of being in Good Standing. All new connections to the water system will be deferred until such time as the Water Supplier honors the Commitment-of-Service Letter and the County Health Officer finds anew that the Water Supplier is in Good Standing. This remedy shall be in addition to any other applicable remedies and penalties imposed by these regulations and/or by state law.
- (a) Civil Action Preserved. Nothing contained herein shall prevent a Developer and/or Customer who has received a Commitment-of-Service Letter and then been denied service (in whole or in part) by a Water Supplier from pursuing any civil remedy available at law or in equity.
- (b) Deferral of Service Commitment. A Water Supplier that has issued a Commitment-of-Service Letter to a Developer and/or Customer, who is in Good Standing with the County Health Officer, may defer providing water service to such Developer and/or Customer, if between the date of issuance of the Commitment-of-Service Letter and the date service is requested one of the following has occurred:
- (i) Legal Process. Lawful order of any court of competent jurisdiction has required the Water Supplier to suspend service to the Developer and/or Customer.
- (ii) Emergency Conditions. Emergency conditions that are reasonably beyond the control and foreseeability of the Water Supplier have occurred.
- (c) Notification. A water supplier who has experienced an event listed in 1-5-2(C)(3)(b), shall notify the County Health Officer and the Summit County Department of Community Development in writing, within twenty-four (24) hours of the occurrence of the event. This shall result in the immediate review of the Water Supplier's Status. In the event that the County Health Officer determines that the Water Supplier has a Deficit Capacity, the Water Supplier's determination of being in Good Standing may be suspended. If the Water Supplier's Good Standing is suspended, all new connections to the water system will be deferred until such time as the County Health Officer finds anew the Water Supplier to be in Good Standing with Surplus Capacity.

- (d) Duty to Cure. A Water Supplier that has experienced an event under 1-5-2(C)(3)(b) and has complied with the notification provisions of 1-5-2(C)(3)(c), is authorized to defer providing service to Developers and/or Customers holding Commitment-of-Service Letters. The Water Supplier shall take all reasonable steps to resolve this situation so that service can be provided as soon as reasonably practicable.
- (e) Resumption of Service. Water service shall be provided to a Developer and/or Customer holding a Commitment-of-Service Letter within thirty (30) days following the resolution of the conditions for deferral of service referenced in 1-5-2(C)(3)(b).

D. Water Supply/Demand Report. Water Supply/Demand Reports shall include data through December 31st of the preceding year in a form prescribed by the County Health Officer.

1. Submittal Frequency. Water Suppliers in Good Standing shall file annually a Water Supply/Demand Report. Water Suppliers not in Good Standing may be required to submit an updated Water Supply/Demand Report at shorter intervals or as requested by the County Health Officer. The County Health Officer may allow a Water Supplier in Good Standing to submit biennially (every two years) if it is shown that the Water Supplier has, in the opinion of the County Health Officer, significant and adequate Surplus Capacity and the County Health Officer determines that there are no significant or consequential changes to the system and its operation since the last Report.
2. Contents of Water Supply/Demand Report. Key to the proper evaluation of this Report is a better knowledge of the Source Capacity and Demand patterns associated with the peak month and day(s) of the affected Water Supplier(s). Apart from the Report data requirements listed below, at a minimum, the first or initial Report submitted by a Water Supplier will require more effort and will show the currently available water Source Capacity, Reserve Source Capacity, System Peak Demand, Source Contractual Commitments, the current number of service connections, outstanding Commitment-of-Service Letters and other system Demands, including the number of outstanding platted lots for which Willing-to-Serve Letters have been issued to developers but Commitment-of-Service Letters have not been issued to customers, existing Surplus Capacity, the number of new ERCs for which the Water Supplier can issue Commitment-of-Service Letters with this Surplus Capacity, water source flow or volume, water loss, Source water quality and pumping tests, daily and/or monthly production data on all water Sources for the preceding 5 (five) years (or what period data is available), ERC's served, water quality

sampling as required by these regulations, a rolling Ten-Year Forecast of anticipated new ERCs and other system Demands and projected new Source Capacities. Subsequent submissions after the initial submission will contain data as specified below. All of the required data as described in this section shall be submitted on a form or forms provided by the County Health Officer and shall contain the following certification: I DECLARE THAT THIS REPORT, AND ALL INFORMATION SUBMITTED WITH THIS REPORT, IS TRUE, COMPLETE, AND ACCURATE TO THE BEST OF MY KNOWLEDGE. SHOULD ANY INFORMATION OR REPRESENTATION SUBMITTED IN CONNECTION WITH THIS REPORT BE QUESTIONABLE, INCORRECT, OR UNTRUE, I UNDERSTAND THAT THE COUNTY HEALTH OFFICER MAY CONDUCT AN AUDIT OF THIS REPORT AND THE DATA UPON WHICH IT RELIES. I FURTHER UNDERSTAND THAT THIS REPORT WILL BECOME A PERMANENT RECORD ON FILE FOR PUBLIC INSPECTION WITH THE BOARD OF HEALTH.

- (a) Identify New Source and System Upgrades. The Water Supply/Demand Report shall identify the need for additional water Sources, upgrading of system water Sources and the projected timing when these improvements will be required to meet anticipated service demands within their system based upon a future rolling Ten-Year Forecast.
- (b) Annual Supply Submittal. As part of the Water Supplier's annual Water Supply/Demand Report each Water Supplier will supply monthly production data on all water Sources and Source Contractual Commitments for the preceding year. For the peak month of the year, daily water production data will be provided from each Source. This daily data will contain the daily volume in gallons for each Source, and the peak flow rate of each Source in gallons per minute. The peak day, as determined by the above data will be further evaluated to show the times or durations which each Source ran in hours and tenths of hours thereof. If daily data is not available, the estimated peak day will be calculated by taking the average day supply volume of the peak month and multiplying it by a factor of 1.3.
- (c) Annual Demand Submittal. As part of the Water Supplier's annual Water Supply/Demand Report, each Water Supplier will supply monthly customer Demand data derived from all Developer and/or Customer or end user meters for the preceding year. Secondary irrigation and all contract sales will also be accounted for in the submittal.

- (d) ERC Data. The Water Supplier will provide an up-to-date accounting of all Commitment-to Serve Letters which are outstanding or are not yet connected to the water system.
- (e) Accounting of Standby Fees. If a Water Supplier assesses and collects Standby Fees on any plated lots, which do not currently receive water service, including any future lots or other development service type commitments, then the Water Supplier shall show on the Water Supply/Demand Report a record of the same listing the total number of Standby ERC's as of December 31st of each year for the past five (5) years, the current actual Standby ERC count as of the date of the report submission, and an estimated projection of the same for the next 10 years.
- (f) Water Loss. The Water Supply/Demand Report will provide a water loss calculation as a volume and percent for each month and year by subtracting the demand data from the supply data as provided in this section. This water loss will be factored into the final Surplus Capacity as an extra demand.
- (g) Source Measurement and Water Quality Sampling Parameters. The Water Supply/Demand Report will also contain the following additional detailed information:
 - (i) Well static and dynamic (pumped) water levels of all well sources, taken as a monthly average during the peak demand month. This will normally occur in August, but may be different for systems providing sources for snow making; and
 - (ii) Total dissolved solids (TDS) or conductivity ($\mu\text{mhos/cm}$) for all active sources, taken during the first week of September.

If after a water quality review with the DDW, the County Health Officer determines that current or potential water quality issues may exist with any one or more Sources of a Water Supplier, the County Health Officer may require additional detailed information and tests. The County Health Officer, may also amend the frequency of measurements and water quality data required as set forth herein upon thirty (30) days' notice to the Water Supplier.

- (h) Additional Data Requirement. The County Health Officer may request and/or require the collection and submittal of additional water quantity or quality data for any Source should there be a concern regarding the status of the Source, or the ability of that

Source to be used as an acceptable long-term water supply.

- (i) Ten-Year Forecast. The Ten-Year Forecast shall include future supply data in gallons-per-minute (“gpm”) for all new sources, including proposed contract supplies, as well as all future irrigation or contract demands in gpm. Projected new ERC counts for ten years will also be provided.

- (j) Questions and Actions. The Supply/Demand Report shall contain a list of questions which shall be answered with each submittal. The intent of these questions is to identify and/or verify known or anticipated source conditions that may affect the long term viability of the Source, and to identify and/or verify actions taken or to be taken to mitigate any water quality concern. Any question answered in the affirmative will be provided with an explanation and comments, including any relevant documentation to assist the County Health Officer in determining any actions or assistance, if warranted, to remedy a problem or related concern. The evaluation questions are as follows:
 - (i) Have you shut-off or curtailed the water use of ANY Developer or Customer this past year due to lack of supply?
 - (ii) Do you have any Water Quality issues with ANY of your water sources?
 - (iii) Are there any degrading Water Quality trends in any monitored parameter?
 - (iv) Have you failed in this past year to routinely monitor and review source flow or pump rates for all your Sources, including static and dynamic (pumped) water levels in well sources?
 - (v) Have you seen a non-typical reduction in Static or Dynamic Well Levels for any Source?
 - (vi) Have you seen a reduction in water production capability from ANY Source or Source Contractual Commitment?
 - (vii) Do you anticipate any water Source or Source Contractual Commitment reductions in supply next year?
 - (viii) Have you failed to file an up-to-date Water Conservation Plan with the State?

(k) Exemptions. Upon application by a Water Supplier in Good Standing, the County Health Officer, may find that Water Supplier exempt from the requirement to file an annual Water Supply/Demand Report. Said Exemption shall not supersede a Water Supplier's continuing obligation to provide the certifications set forth in §1-5-2(E). Exemptions may only be granted where the County Health Officer has found substantial evidence that:

- (i) The Water Supplier has fully subscribed 90% of all Customers within its service area; and
- (ii) The Water Supplier has adequate Reserve Source Capacity to satisfy all outstanding Willing-to-Serve Letters and Commitment-of-Service Letters; and
- (iii) The Water Supplier has demonstrated redundancy back-up water Sources, either through interconnections to adjoining Water Suppliers or otherwise.

3. Reserve Source Capacity. Water Suppliers will responsibly maintain reserves of Source Capacity as required by DDW regulations. However, for older wells or other water Sources for which DDW has not imposed a reserve requirement, the Water Supplier will hold in reserve at least 15% of the Source's most recent rated capacity, as protection against the interruption of service to its existing Customers. In order to waive this 15% reserve requirement, the County Health Officer must find that there is an adequate reserve already built into the DDW rating based upon performance data so as to protect existing Customers, or that there are so many Sources available that a viable redundancy can be easily achieved. The County Health Officer may require a Water Supplier to hold more than 15%, but not more than 33%, of the Source's rated capacity in reserve. If the Water Supplier has only a single source of supply, the 33% reserve requirement will be mandatory. Single source systems are encouraged to interconnect their distribution systems as soon as possible with other Water Suppliers to provide access to alternative water Sources during an emergency.

- (a) Decline in Source Capacity. If a Water Supplier's Ten-Year Forecast included in its Water Supply/Demand Report or other available data demonstrates a declining trend in Source production or water quality, the County Health Officer will notify the Water Supplier that future Source ratings may be reduced if the trend is not reversed or additional approved replacement Sources are not acquired or developed,
- (b) Loss of Reserve Capacity. If a Water Supplier's data demonstrates that its Reserve Source Capacity drops below the reserves required by DDW regulations or these regulations, the County Health

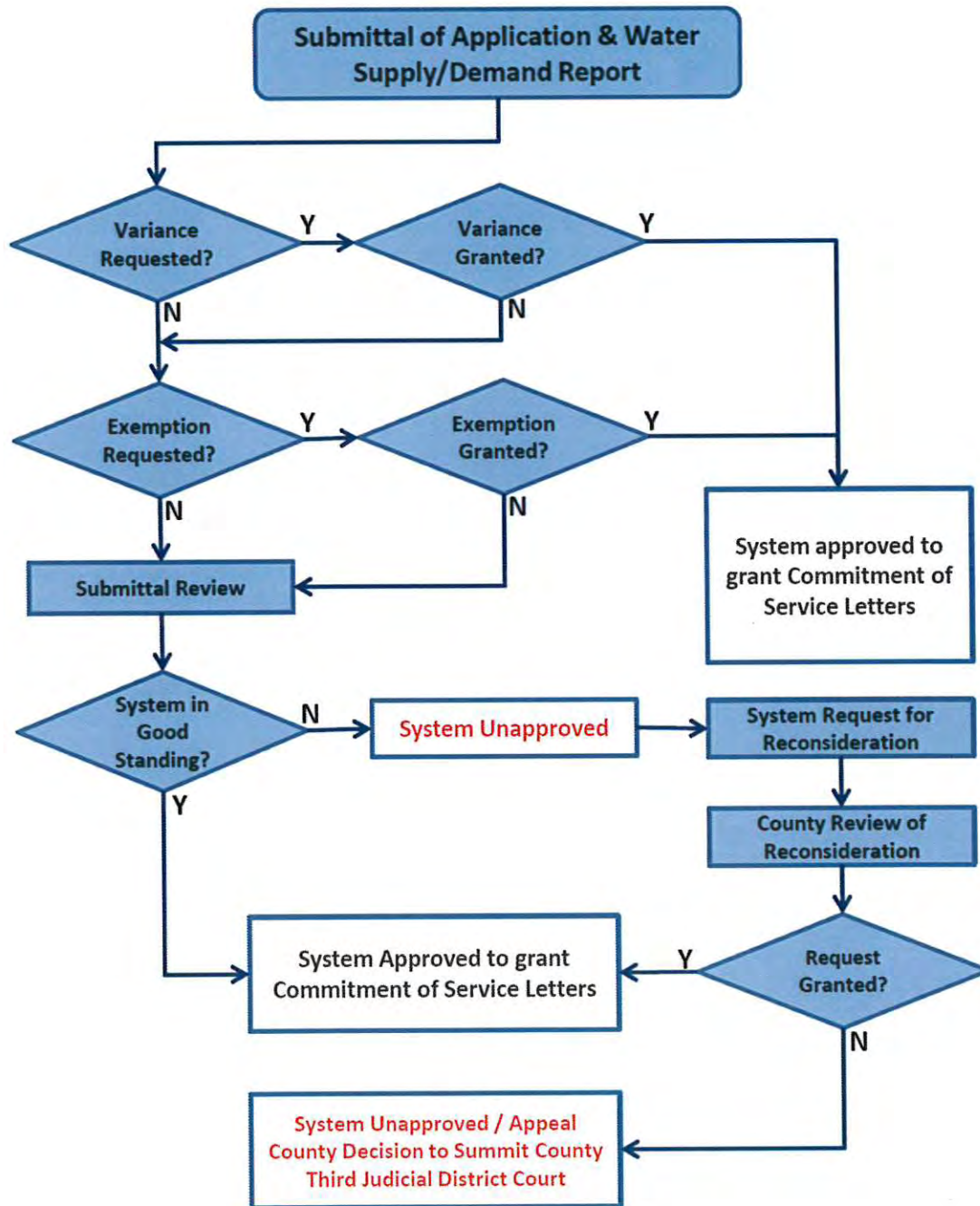
Officer shall suspend the Water Supplier's determination of being in Good Standing. No new connections will be made to the water system, until such time as the Water Supplier develops or acquires the required Reserve Source Capacity.

4. Testing of Existing Wells and Sources. Existing wells and other Sources of drinking water will be re-tested by the Water Supplier at the direction of the County Health Officer if production or flow records in his/her opinion indicate a significant or trending deviation in production or flow levels, recovery levels, and/or a material change in water quality, or an inability to supply water from the Source. Each water Source must be operated at least one time every two years for sufficient duration to verify its quality and quantity rating to be considered a currently viable Source. Sources not used or tested a minimum of every two years will not be considered in the concurrency source rating. Testing protocol will conform to DDW regulations. The County Health Officer may re-rate existing wells and other Sources of drinking water at any time at the request and at the expense of the Water Supplier. However, in no event shall the Source Capacity of a Source be rated higher than the DDW rating.
5. Base Line Data to be Provided for all New State-Approved Sources. Water Suppliers will provide as a part of their Water Supply/Demand Report base line well test data for new wells and for other state-approved Sources of drinking water, using testing protocol that conforms to DDW regulations.
6. Other Related Data. Water Suppliers will provide any and all other data reasonably required by the County Health Officer that is related to Source production and water quality.
7. Filing of Water Supply/Demand Report. All Water Suppliers regulated hereunder shall submit a complete paper and electronic copy of their annual Water Supply/Demand Report, and applicable fees to the Summit County Health Department no later than April 1st of each calendar year. Electronic copies shall be in format(s) as designated by the County Health Officer.
8. Public Review of Water Supply/Demand Report.
 - (a) Public Review. The Water Supply/Demand Report submitted by all Water Suppliers are public documents. Electronic copies of the Water Supply/Demand Reports shall be available at the offices of the Summit County Health Department within ten (10) calendar days of the date of submittal and shall be made available for review by any interested parties.

9. Late Submittals of Water Supply/Demand Report. If an annual Water Supply/Demand Report is submitted after the deadline, the County Health Officer may suspend the Water Supplier's determination of being in Good Standing. No new water Commitment-of-Service Letters will be issued until such time as the County Health Officer finds anew that the Water Supplier Is in Good Standing and has a Surplus Capacity.
10. Water Suppliers not in Good Standing. An annual Water Supply/Demand Report shall be filed on April 1st of each year even if a Water Supplier has been determined by the County Health Officer to be not in Good Standing.
11. Spills and Contamination. Within 24 hours of their knowledge, the Water Supplier will report to the County Health Officer any known spill or contamination that occurs within their service area, and the nature and extent of the spill. The County Health Officer will then coordinate with the Water Supplier to assess the potential for contamination of a water Source(s) and potential pro-active measures to secure and protect the drinking water Sources.

Figure 1: Water Concurrency Process

Water Concurrency Process



E. Other Data to be reviewed by the County Health Officer. As part of the Water Supply/Demand Report review and Good Standing determination process, the County Health Officer will request certification letter(s) for compliance verification from the Water Supplier for the following:

1. Water Rights Compliance. Certification that the Water Supplier is in compliance with its Water Rights and most recently submitted Water Use Plan.
2. Water Quality Compliance. Certification that the Water Supplier is in compliance with all current and applicable water quality and sampling regulations.
3. Water Conservation Plan Compliance. Certification that the Water System has submitted a timely Water Conservation Plan that is in compliance with its rules and regulations.

F. Good Standing Determination. Upon receipt and review of all applicable submitted data as required under these regulations, the County Health Officer, in the exercise of his/her reasonable discretion, shall determine whether a Water Supplier is in Good Standing. (See Figure 1 for a graphic representation of the water concurrency process)

1. Basic Review Criteria. The County Health Officer shall review each Water Supply/Demand Report for substantial compliance with the following criteria:
 - (a) Compliance with Applicable Regulations. That the Water Supplier has complied with the basic requirements and intent of these regulations and applicable State law and County ordinances, including §1-5-2(E);
 - (b) Timeliness. That the Water Supply/Demand Report was submitted in a timely fashion;
 - (c) Lack of Deficit Capacity. That the Status indicates there is no Deficit Capacity;
 - (d) Present Ability to Serve Existing Customers. That the Water Supplier has the present ability to provide water service to its existing Developers and/or Customers and to those Developers and/or Customers holding outstanding Commitment-of-Service Letters; and
 - (e) Service to New Developers and/or Customers. That based upon the Water Supplier's Water Supply/Demand Report, it will have

the ability to provide service to a predetermined number of new ERC's and may issue Commitment-of-Service Letters to that predetermined number of ERCs.

2. Optional Input. The County Health Officer may seek input from peer Water Suppliers and/or independent consultants to better inform his/her determination of Good Standing for a Water Supplier. When such input is relied upon to inform such a determination, the County Health Officer shall disclose such input in his/her written decision as set forth in §1-5-2(F)(4).
3. Identification of Conditions Which May Warrant Variances. If a Water Supplier is not in full compliance with these regulations, but in the opinion of the County Health Officer, the issue or issues of non-compliance are temporary, non-substantive, are not contrary to the intent of these regulations, and the Water Supplier has submitted to the County Health Officer a written explanation and/or plan to promptly correct the deficiencies and attain prompt compliance, the County Health Officer may issue a temporary or permanent variance to the Water Supplier.
4. Decision to be in Writing. The County Health Officer's decision with respect to a determination of Good Standing of the Water Supplier shall be in writing (the "Decision Document"). Efforts will be made to provide the written decision to the Water Supplier within a reasonable time following the submission of its Water Supply/Demand Report, which for purposes of these regulations means sixty (60) days, unless unusual conditions exist that delay the receipt of necessary data needed for the decision. The Decision Document shall be a public record.
5. Reconsideration of Good Standing Determination. The Water Supplier may seek reconsideration of a Good Standing determination by re-submitting an amended Water Supply/Demand Report addressing the deficiencies cited in the Decision Document within twenty (20) calendar days of the issuance of the Decision Document (the "Reconsideration"). The County Health Officer shall review the amended Water Supply/Demand Report and shall issue a determination. In the event that the County Health Officer does not issue a determination within thirty (30) calendar days of submission of the Reconsideration request, the Reconsideration shall be deemed denied.
6. Appeal. If the Water Supplier disputes the decision of the County Health Officer, the Water Supplier may appeal the County Health Officer's decision to the Board within thirty (30) calendar days of the issuance of the Decision Document or Reconsideration determination. The appeal hearing before the Board shall be *de novo*. The Board shall issue a written decision, which shall serve as the final administrative decision of the

Board of Health (“BOH Decision”). The BOH Decision may be appealed within thirty (30) calendar days of issuance to the Third Judicial District Court in and for Summit County, Utah. The Court’s review shall be limited to the administrative record before the Board. The Court shall presume that the BOH Decision is valid and determine only whether or not the decision is arbitrary or capricious.

7. Audit of Water Supplier. The County Health Officer may require an Audit of a Water Supplier's data if the County Health Officer questions the validity of the submitted data. Costs of any Audit shall be borne by the affected Water Supplier.

(a) Independent Consultant. The Audit requirement may include the review of data by an independent professional engineering consultant hired by the County Health Officer at the Water Supplier's expense to review and verify submitted data.

(b) On-Site Audit. If it appears from the Audit that data has been falsified or is inaccurate, the County Health Officer may conduct a full, on-site Audit of all of the Water Supplier's records and all facilities, require DDW supervised well and other water source performance testing, review all meter reading data, water quality testing and data, and any other review reasonably related to compliance with State and Board regulations, all at the Water Supplier's expense.

(c) Referral of Possible Civil or Criminal Violations to State and County Officials. The County Health Officer will refer any apparent violations of state law and DDW regulations to DDW compliance officers for enforcement action. In addition, the falsification of any reported data shall constitute a Class "B" misdemeanor.

G. Disclaimer. Nothing contained in these regulations, or in a Decision Document, shall be construed by any Developer, Customer or prospective Developer and/or Customer of a Water Supplier as a guarantee by the Board, Summit County, or the State of Utah, that water will always be available for service from the Water Supplier. By accepting payment of impact fees and/or connection fees and the issuance of Commitment-of-Service Letters, a Water Supplier assumes full and complete liability to Developers and its Customers if it cannot provide service in a legal quantity or quality to those Developers and/or Customers holding Commitment-of-Service Letters or to those Developers and/or Customers who are connected to the water distribution system, except where service is deferred or interrupted for causes reasonably beyond the control of the Water Supplier.

H. Conservation Requirement.

1. Water Conservation Plan. All Water Suppliers regulated under these regulations shall provide to the County Health Officer a copy of their current Water Conservation Plan on file with the DWR in accordance with Utah Code Ann. §73-10-32, *et. seq.* Plans shall be resubmitted when they are updated. If not included in the Water Conservation Plan, the Water Supplier is encouraged to adopt a water rate structure designed to promote more efficient use of water and an adopted education component to educate and encourage Developers and its Customers to conserve and use water wisely.
2. Failure of a Water Supplier to comply with 1-5-2(H)(1) will result in a finding that the Water Supplier is not in Good Standing.

I. Fees to be Imposed. The Board may charge reasonable fees to all Water Suppliers regulated by these regulations, in an amount to be determined by the Board from time to time, to equitably and proportionately defray the cost of administering these regulations.

J. Source Contractual Commitments. A Water Supplier may receive or deliver water to another Water Supplier under a Source Contractual Commitment or other similar contract, whether wholesale or otherwise. Such supply and/or Demand commitments must be accounted for in the relevant Water Supply/Demand Reports. While Weber Basin is exempt from the application of these regulations, Water Suppliers under contract with them to provide water to the public are not exempt from regulation. All permanent contracts with Weber Basin for water Source governed by this Ordinance are subject to all regulations contained herein. If however, a Water Supplier receives wholesale water from Weber Basin, or any other Water Supplier for that matter, under a temporary, conditional, emergency back-up, or other specific time duration Source Contractual Commitment (“Temporary Water”), such supply will not be usable as Source of water under these regulations unless the Water Supplier adequately demonstrates to the satisfaction of the County Health Officer that a long term permanent Source of water will replace the Temporary Water. A temporary Source Contractual Commitment for water is defined as any water commitment lasting for a period of 15 years or less.

K. Criminal Penalties. Each Water Supplier, its responsible owners, board members, officers, agents and employees which willfully or with criminal recklessness or criminal negligence, as defined by the Utah Criminal Code, supplies any false information to the Board in its Application, Water Supply/Demand Report, or other submitted information, in addition to being subject to prosecution for Falsification in Official Matters under Title 76, Chapter 8 of the Utah Code, is guilty of a Class "B" misdemeanor and subject to a fine of not more than \$200.00 per day for each day from the filing of the Water

Supply/Demand Report until the Water Supply/Demand Report has been amended to eliminate the false information and provide the correct information.

EXHIBIT B

David E. Hansen, Ph.D., P.E.

Managing Principal

Professional Experience

Summary

Dr. Hansen, a Principal of Hansen, Allen & Luce, Inc. has more than 34 years' experience in the design and management of water related engineering studies and design projects. His experience has focused on civil engineering and water resources including surface and ground water studies and investigations, permitting, evaluation and design of water projects including pipelines, well designs and evaluations, well house and pumping facility design, pipelines, regulatory compliance, water rights, and litigation support. Dr. Hansen has held various positions within AWWA including a term as Section Chair. He currently serves as the Summit County District Engineer over the Water Concurrency Program, and as a board member of Timber Lakes Water Special Service District. Dr. Hansen has a B.S.C.E. degree from the University of Utah, and M.S. and Ph.D. degrees from Utah State University in Water Resources and Hydrology, and Hydraulics respectively.

Resume

1979 – Present.. Principal - Project Manager/Engineer for Hansen, Allen & Luce, Inc.

Dr. Hansen has been involved in a wide range of water resource investigation and design projects involving both surface systems and ground water applications, including project management of several municipal water system design projects. He has also provided litigation support for many of his clients and legal firms. He has served as Principal in Charge, Project Manager, Project Engineer, or Chief Investigator on a wide range of engineering projects:

Groundwater Investigation and Design

- Planning, design and development of several exploratory and production wells ranging in cased diameter up to 24 inches and 6,000 gpm capacity for clients including Bear River Water Conservancy District, Circle Four Farms, Central Utah Water Conservancy District, Granger-Hunter Water Improvement District, Hill Air Force Base, Jordan Valley Water Conservancy District, Lakeside Power, Magnum Energy, Oquirrh Mountain Water Company, Provo City, Sandy City, PacifiCorp Power, Park City, Price City, and West Jordan City. Two of these designs have included special considerations including varied screen and gravel packs within the same borehole, and boring at a 17° angle to intercept an existing coal mine tunnel.
- Multi-dimensional modeling and model evaluation of deep and shallow ground water aquifers to define and evaluate ground water movement, velocity, static and dynamic water table elevations, and local and regional interference and impacts. Typical clients include Bear River Water Conservancy District, Central Utah Water Conservancy District, Ensign Group, Granger-Hunter Improvement District, Jordan Valley Water Conservancy District, West Jordan City, and various legal entities.
- Evaluation of Aquifer Storage and Recovery well injection systems for Jordan Valley Water Conservancy District and Brigham City.
- Pollutant, ground water transport, and ground water source evaluations for clients some of which include Circle 4 Hog Farms, Jordan Valley Water Conservancy District, PacifiCorp Power, Salt Lake City, Summit County, Wasatch County, Washington County Water Conservancy District, West Jordan City, and various Legal clients.
- Resource master planning and/or evaluation for clients some of which include Bear River Water Conservancy District, Ensign Group, Granger-Hunter Improvement District, Park City, Pinnacle Potash International, Salt Lake City, Summit County, US Bureau of Reclamation, Utah Division of Water Resources, West Jordan City, and several legal clients.
- Ground water source due diligence investigations for First Quality Enterprises, Pinnacle Potash, and Procter & Gamble Paper Products.
- Ground water source evaluation, source water and IUC injection well permitting, and well design for Magnum Gas Storage LLC to develop 5 source wells for the creation of 4 underground gas storage caverns near Delta, Utah.



Education

Ph.D.
Civil and Environmental Engineering
Fluid Mechanics and Hydraulics
Utah State University

Masters of Science
Civil and Environmental Engineering
Utah State University

Bachelors of Science
Civil Engineering / Water Resources
University of Utah

Registrations

Professional Engineer – Utah, Idaho,
Wyoming, Colorado

Certified Ground Water Professional, 1994-
2003

Affiliations

American Society of Civil Engineers

American Water Works Association Chair,
2003 – 2004

National Water Well Association

Utah Consulting Engineers Council

Timber Lakes Water Special Service District
Board 2003 – present, Chair 2003-2008

Awards

The George Warren Fuller Award AWWA,
2007

Distinguished Service Award AWWA, 2003

Magna Cum Laude Graduate, 1983

Magna Cum Laude Graduate, 1981

Surface Water Investigation and Design

- Runoff and reservoir control, conveyance and measuring facilities for typical clients including Coastal States Energy, Energy West Coal Mines (a subsidiary of PacifiCorp Power), Ensign Ranches, Kennecott Utah Copper, Logan City, PacifiCorp Power, Plateau Mining, Saddleback Partners, Salt Lake County Flood Control, Valley Camp of Utah, Wellington Coal Loadout Facility, Genwal Mines, White Oak Mining, and several other public, private, and legal entities.
- Investigation, design and construction observation activities for several snowmelt and rainfall runoff flood control and channel restoration projects throughout Utah.
- Surface water source due diligence investigations for Procter & Gamble Paper Products and First Quality Enterprises.
- Stream Alteration design and permitting.

Pipeline and Pump Station Evaluation and Design

- Preliminary and final design of large diameter culinary pipelines, pump or booster stations, and well pump houses for Jordan Valley Water Conservancy District, Granger-Hunter Improvement District, Price, City, Sandy City, PacifiCorp Power, Saddleback Partners and City of West Jordan.
- Investigative due diligence feasibility and costs evaluations of pipeline routes & pump stations for Procter & Gamble Paper Products and another large industry.
- Saratoga Pump Station Evaluation and Preliminary Design, and Pump Station Upgrades for the Jordan River Board of Canal Presidents.
- Irrigation pipeline delivery system evaluation for the Rose Ranch near Snowville, Utah.
- Hydraulic analysis and optimization of a proposed 120 MGD transmission pipeline from Box Elder County to Salt Lake County for the Utah Division of Water Resources.

Mine Permitting and Reclamation

- Mine permitting reclamation design, and runoff conveyance and control for several Utah coal mines including the Energy West Des-Bee-Dove and Deer Creek Mines, the Skyline Mine, the Wellington Loadout facility, the White Oak Mine, Valley Camp of Utah, Genwal Mines, Coastal States Energy, Kinney Mine, and Andalex Coal.

Litigation Support

- Surface water runoff, conveyance, control, and impact evaluations for various legal clients in Utah.
- General water right investigation and water right hearing support for many legal clients within Utah.
- Water Right support for Salt Lake City regarding canyon development and interference of existing water rights.
- Irrigation interference investigation in Southern Idaho.
- Ground water right interference in Mona, Utah and Grover, Utah.
- Western Water Project water right defense to multiple entities including Salt Lake City DPU, JWCD, CUWCD, and others.
- Big Sand Wash Reservoir expansion project evaluating development potentials of adjacent properties for CUWCD.
- Chief Consolidated Mining water right protest for Central Utah Water Conservancy District.
- Salt Lake City - East Jordan Canal Failure for Salt Lake City Department of Public Utilities.
- Ground and surface water rights for Larry H. Miller Group and Oquirrh Mountain Water Company.
- Ground water well interference for Granger-Hunter Water Improvement District.

1981 - 1983: Graduate Research Assistant, Utah Water Research Laboratory

Prepared a Stochastic stream flow generation model for analysis of available periods and quantities of water within the Weber River. The stochastic model results were then combined with a two dimensional finite element ground water model to assess the feasibility of artificial ground water recharge to the Delta Aquifer in the Ogden, Utah area.

1981: Civil Engineer for Vaughn Hansen Associates

Conducted various field assignments collecting and evaluating surface water hydrology and water quality considerations, and in-house evaluations to help determine hydrologic impacts of mining.

1980 – 1981: Graduate Research Assistant, Utah State University Department of Civil and Environmental Engineering

Developed a computer model to stimulate the hydrology of Farmington Bay and Farmington Bay Bird Refuge. The model was subsequently updated to include water quality considerations by Utah State University for the purposes of evaluating the feasibility of converting a portion of the Great Salt Lake into a fresh water body.

1976 – 1980: Engineer Aid / Field Technician for Vaughn Hansen Associates



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David L. Thomas
Chief Civil Deputy Summit County Attorney
60 N. Main St.
P.O. Box 128
Coalville, UT 84017

March 23, 2016

RE: Summit County Board of Health Water Concurrency Ordinance
HAL Project # 151.15.100

Dear Mr. Thomas:

Pursuant to your direction as the attorney for the Summit County Board of Health, I have been asked to provide documentation and my opinion supporting the need for the Summit County Board of Health Water Concurrency Ordinance based on historic data, my observations, reviews, findings and conclusions. My credentials to accomplish this assignment are as follows: I am a registered professional engineer in the State of Utah holding B.S., M.S. and Ph.D. degrees in engineering, water resources and hydrology, and fluid mechanics and hydraulics from the University of Utah and Utah State University with 33 years' experience specializing in water resource engineering and have expertise specifically related to Utah hydrogeology, surface and ground water investigation and development, water rights and other water resource expertise. I have also worked on and been intimately involved in the water Concurrency program promulgated by Summit County, Utah for over 14 years.

GENERAL BACKGROUND

The need for more oversight and review of water systems within Summit County strongly came to light in the early 1980's as documented in "A History of Mountain Regional Water Special Service District"¹.

According to the history, local water service at that time was fragmented with service areas focused on development. Some water systems were healthy and viable, while others suffered with varying degrees of service problems. The biggest problem seemed to be focused on Summit Park, a high elevation development of close to 850 lots. The capacity of the source wells declined which affected the water company's ability to meet demands. It rapidly became apparent that the water system was under designed and built and was quickly falling apart. The health and safety issues associated with this system became a high priority for County officials prompting the creation of Summit Park Water Special Service District in 1987.

¹ http://stagecoachstates.com/documents/Water/2005_MRWSSD%20History.pdf

The issues experienced in the early 1980's were not immediately solved, but required months of trucked water deliveries, the expenditure of countless hours of effort and the expenditure of significant resources to provide a new quality water source to the Summit Park residents. These early experiences are not unique to the Summit Park Water Special Service District, but in varying degrees have and are being experienced throughout the County. Some areas have had or are experiencing more significant issues than others.

Summit County responded appropriately to these water issues through the creation of a water Concurrency Ordinance, which was originally a land use ordinance focusing on the Snyderville Basin area. When implemented, there were approximately 30 separate water entities providing water to the public. Today, through acquisition by either the Summit Water Distribution Company (SWDC) or the Mountain Regional Water Special Service District (MRWSSD), this number has been significantly reduced to five, plus the Park City Municipal Corporation Water System and the Community Water Company which is at buildout and not a part of concurrency.

Problems and challenges are not unique to the Snyderville Basin area. The issues of management, funding, source capacity, wells, motor and pump failures, drought, potentially declining ground water levels, and water quality affect many areas throughout Summit County and the State. The need for initial and ongoing reviews of all water systems, through concurrency, is needed County wide.

BASIC REVIEW OF HYDROGEOLOGY

The following geologic report extraction provides a good overview of local Snyderville Basin geology².

“Urbanization of parts of the Snyderville basin has been accompanied by an increasing demand to develop the area’s ground-water resources. Ground water is present in shallow unconsolidated deposits and fractured rock. Because of the limited extent and thickness of the unconsolidated deposits, the ground-water resources in fractured rock have a greater potential for future development.

The unconsolidated deposits consist primarily of alluvium and glacial till and outwash. Glacial or colluvial deposits form only a thin veneer in most upland areas. In lowland areas, the thickness of the deposits generally exceeds 40 feet (12 m), and may be as much as 275 feet (84 m) in the southern part of Parleys Park. The combination of the exceptional thickness of unconsolidated deposits and shallow water table in the southern part of Parleys Park suggests that the unconsolidated aquifer is more substantial here than elsewhere in the study area. However, the deposits are typically fine-grained and unlikely to produce high-yielding wells.

Fractured sedimentary and volcanic rocks consist of limestone, sandstone, quartzite, siltstone, shale, tuff, and volcanic breccia. Permeability in these rocks is primarily a result of fracturing which may be locally enhanced by solution widening in limestone and other calcareous units. Primary permeability in Cretaceous sedimentary rocks and locally in the lower part of the Keetley Volcanics may be sufficiently high to yield small

² The Geology Of The Snyderville Basin, Western Summit County, Utah, And Its Relation To Ground-Water Conditions, Utah Geological Survey, Water Resource Bulletin 28, Francis X. Ashland, Charles E. Bishop, Mike Lowe, and Bea H. Mayes, 2001.

quantities of water to wells. However, primary permeability in Jurassic or older limestones and sandstones is probably negligible.

Fracture characteristics, excluding attitude, are generally controlled by lithology and therefore do not vary significantly in a lithologically homogeneous formation or member. Joints, bedding joints, and cleavage fractures likely enhance rock permeability but the overall increase in rock-mass permeability because of their presence may locally be negligible. Faults may act as conduits, increasing permeability parallel to the fault but generally inhibiting ground-water flow perpendicular to the fault. In general, fractures in limestone and sandstone are more persistent than fractures in shale, allowing ground water to flow perpendicular to beds. High angle-to-bedding fractures in shale generally have very low persistence, terminate against shale partings or ductile beds, and are tight or clay-infilled. Whereas persistent bedding fractures in shale may act as ground-water conduits parallel to bedding, high-angle-to-bedding fractures likely have a negligible influence on the ability of ground water to flow perpendicular to bedding. Hydraulic conductivities of fracture-poor shale beds, such as the gypsiferous shale bed in the lower part of the Woodside Shale, likely approach that of intact (unfractured) shale.

Fractured limestone and sandstone beds form stratigraphic ground-water compartments (SGWCs) that are separated by shale confining beds that have very low hydraulic conductivity perpendicular to bedding. Aquifer-test results indicate a lack of hydraulic communication between wells completed in fractured limestone and sandstone SGWCs separated by intervening shale confining beds. Stratigraphic control of ground-water flow is also indicated by historical accounts from mine workings. Water accumulation above fracture-poor shale beds likely reflects the inability of ground water to flow perpendicular to these beds.

Macroscopic faults act in a complex manner as groundwater conduit-barrier systems and also sever the continuity of SGWCs. Fault-zone cores commonly consist of gouge zones that likely act as barriers to ground-water flow. Gouge-zone width is a function of wall-rock type and the amount of displacement on the fault. Zones of interconnected subsidiary fractures in brittle wall rock may act as conduits parallel to the fault, but may terminate along strike at contacts with ductile rock types.

Severing of SGWCs by faults has resulted in the formation of at least sixteen discrete ground-water compartments (GWCs). Several GWCs, including those in the Twin Creek Limestone and Thaynes Formation, may be subdividable on the basis that they contain an intraformational confining bed. All GWCs vary considerably in extent, thickness, physiography, and hydrology. Some GWCs have small recharge areas and thus have low safe yields.

Although fracture trends vary across the study area, distinct fracture domains with different fracture trends are recognizable. Whereas major structures or geologic contacts in many cases are fracture-domain boundaries, in some cases, such as in the Keetley Volcanics, fracture-domain boundaries are less well defined and transitional. Fracture patterns presented on rose diagrams may be useful in predicting hydraulic communication between wells in a single GWC and help predict the shape of drawdown cones. Fracture-trend data determined from outcrops correlate well with subsurface fracture data, but correlate poorly with linear-trace data.

Other factors may affect the production history or yields of wells completed in fractured rock. Reduction in pore pressure during continuous pumping may close fractures. Fracture aperture may not recover as a result of seasonal spring recharge, causing diminishing well yields over time. Solution widening in limestone and calcareous rocks may gradually increase fracture permeability and may favor specific structural settings such as the crests of anticlines. As a result of the steep dip of most fractures, vertical wells are less likely to intercept transmissive fracture zones. Higher well yields may be achieved using inclined drilling methods, particularly in formations such as the Nugget Sandstone and Weber Quartzite, where moderate- to low-angle bedding fractures are rare. Water-well-production-history data reveal seasonal fluctuations in well yields that suggest fracture-storage characteristics may preclude long-term storage of recharge.”

Alluvial valley aquifers generally have the ability to store and retain relatively large volumes of water within the soil structure. Water within these alluvial systems travels relatively slowly, generally traveling only a few feet to a few hundred feet per year. Storage is released from alluvial aquifers with water flowing toward a well when the well is pumped and water level lowered.

Storage and flow within the bedrock wells most commonly found in the Snyderville Basin is different. Water storage within bedrock aquifers is limited to the porosity of the relatively tight bedrock formation itself, and to the limited space within faults and fractures. Water moving within fault and fracture systems can travel several hundred feet a day. This presents a condition wherein only short term storage of water is possible since recharge water quickly enters and exits (or is lost from) the system. The long term viability of any bedrock well is therefore highly dependent upon short term snowmelt recharge and a careful balance to ensure that annual recharge can replace withdrawn water.

In reference to safe yields within the Snyderville Basin area the report continues to document the fact that well yield can vary greatly within the basin.

“The discrete GWCs vary considerably in extent, thickness, physiography, and hydrology. These factors will influence the maximum safe yield. Whereas some of the larger GWCs have large recharge areas, others have small recharge areas. Still others may be recharged mostly by flow of ground water along bounding faults (Queen Esther GWC) or by infiltration from overlying saturated unconsolidated deposits (Hi Ute GWC). Whereas some of these GWCs may supply large safe yields over the long term, those of smaller extent may supply only small safe yields over the long term. Such a wide variability in gross characteristics implies that each of the discrete GWCs may require separate long-term management plans to prevent exceeding safe yield.”

Experience has shown this to be the case. Some wells show relatively consistent yields over extended periods of time, whereas others show heavy drawdowns over the few months of pumping during high demand periods. These later sources require periods of rest which can easily span several months wherein the water levels are allowed to recover. An example of this is provided later.

HISTORIC REVIEWS AND OBSERVATIONS

It has been my observation that some water companies, both within and near the Snyderville Basin have historically had either a single source, or very limited sources of water. In many cases the water companies have historically serviced small localized systems, have had no or limited interconnections with adjacent water systems, have had limited management capacity, and have had tight financial budgets. These water systems typically perform well at start-up, but without vigilant monitoring, oversight and financial resources can easily fall into disrepair or neglect. Some historic and present issues include the following:

Water Level

It is important to monitor both static (unpumped) and dynamic (pumped) water levels in wells. Changes in static water levels help identify seasonal and long term trends. Seasonal variation provides information related to the natural recharge of the ground water system. Long term monitoring provides information related to the ability of the aquifer to reliably supply the water being withdrawn. Withdrawals exceeding recharge will result in a declining trend in water levels (ground water mining), an unacceptable condition for any ground water system.

During the start-up phases of concurrency in the late 1980's and early 1990's, it was noted that several water companies within Snyderville Basin did not have water level monitoring ability at some well locations. The wells either didn't have access, or equipment wasn't installed to monitor water levels. Several of these wells have since been voluntarily eliminated as sources within the concurrency program. Others have been retrofitted and upgraded with monitoring equipment. Based on experience, it is highly likely that if investigated, several municipal or culinary wells within other portions of the county would be found to have limited to no current water level data.

Examples of water level data collected at two sources before and during concurrency are provided in Figures 1 and 2. The names of the sources in these and following examples have been eliminated since it is the intent to show the issue rather than focus on any individual source. The information provided in Figures 1 and 2 are typical of many wells in the concurrency program.

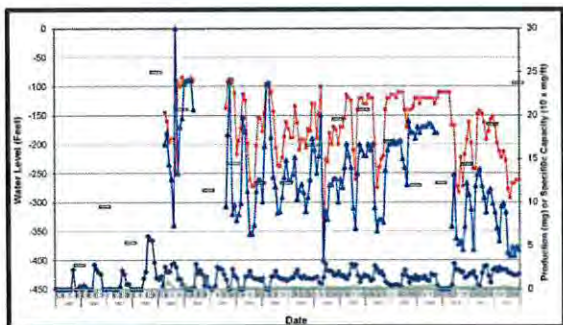


Figure 1. Water Level Example 1

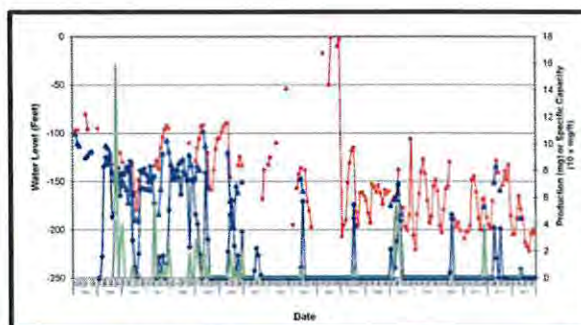


Figure 2. Water Level Example 2

In the figures, blue diamonds represent production, red squares represent static water level and blue triangles represent pumped water level. Notice in Figure 1 that the well was put into production in 1995 but that water level wasn't recorded until starting in 1999. Also note in the

three last years of data a decline in both static and pumped water levels, indicating a change in the well and/or a local impact on aquifer system. In Figure 2, it may be observed that there has been, and continues to be, a decline in static water level since the well was put into operation in 1994. It is also important to note that this downward trend has continued in spite of significantly decreased pumping since 2003. The cause for this downward trend in water level is likely over pumping of the aquifer and/or a natural hydrologic response to drought. Regardless of the cause, the downward trend is disconcerting in that continued declines in water level are not sustainable and eventually water production at the well must be reduced or eliminated.

This example shows that without water level monitoring it is impossible to know the health of the well or sustainability of the aquifer. The Public Health Ordinance will continue to help water systems monitor their sources since it requires the water system to monitor water levels monthly with annual reviews to identify changes and trends.

Water Quality

Water quality in some wells has been noted to change over time within Snyderville Basin, especially in bedrock wells. Some of these changes show relatively minor trends while others show strong trends. Water systems are required to submit various water quality data to the Utah Division of Drinking Water (DDW). The frequency of these required submittals however varies, and in some instances, as in the case of total dissolved solids (TDS), is generally only required every two to three years. This sampling frequency is often adequate in aquifer formations which are experiencing little change, but is inadequate to evaluate and determine water quality trends in stressed formations such as are located in the Snyderville Basin. For example, changes due to natural variability, sampling errors, or data outliers as noted in Figures 3 and 4 require more frequent sampling. In the figures, TDS is shown as red triangles, sulfate as yellow boxes and nitrate as green circles.

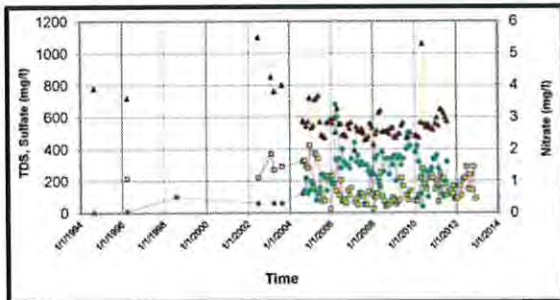


Figure 3. Water Quality Example 1

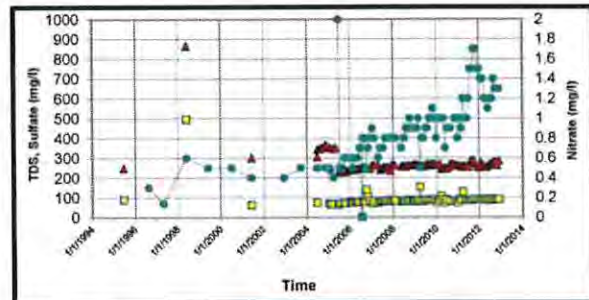


Figure 4. Water Quality Example 2

Note in both figures the sparsity of data prior to 2004 based on the sampling period required by (DDW). The figures show that TDS has been generally reported every 2 years, sulfate every 3 years and nitrate annually. Although the sampling frequency is adequate to evaluate overall water quality at a point in time, it is inadequate to evaluate trends. Limited data also prevents the ability to determine whether the high values of TDS, sulfate and nitrate are real data, outliers or indicative of a trend.

A review of graphs submitted as part of concurrency has shown that some wells have data gaps of up to 10 years, with several having gaps in excess of 3 years. As such, a requirement to provide monthly field data for TDS, sulfate and nitrate was implemented in 2004 to help identify

bad data and confirm trends. A variance from requiring monthly field monitoring has been granted to those sources which can be shown to have consistently acceptable water quality without trends.

Although graphed data is not required to be submitted under the proposed ordinance, it does require the water system to review the data and certify that water quality does not violate drinking water standards, and that there are no negative water quality trends.

WHY IS THE PUBLIC HEALTH ORDINANCE NEEDED

Public Health Concerns

The quality of life and health depends on safe, reliable water supplies in terms of both quality and quantity. The concurrency ordinance was adopted to help resolve public health concerns and ensure reliable water supplies for the citizens of Summit County by addressing the following issues:

Ground Water Supplies

A significant number of ground water wells within Summit County are drilled within fractured bedrock aquifers which behave differently than alluvial aquifers. The majority of wells drilled within these bedrock systems show relatively heavy and continued drawdowns during the peak demand periods, followed by periods of lower or no flow as shown in Figure 5. Although these wells were rated appropriately by the DDW based on an approved 24-hour pump test, pumping at the rated capacity over extended periods of time is not sustainable. For example, the water level for a well may be observed in Figure 5. The well has a DDW rating of 1,105 gpm and supplied a total water volume of 46,544,000 gallons (average of 1,042 gpm) during the month of August 2002. This is nearly its rated capacity. If pumping were to have continued at this rate after August, water levels would likely have continued to drop as estimated by the dashed lines, a condition that is not sustainable for this source. What is interesting to note is the fact that in 2003 water levels were rebounding at a September flow rate of 30,893,000 gallons (715 gpm). Additional evaluation is needed, but it is expected that the "long term" sustainable flow rate for this source may be on the order of 800 gpm.

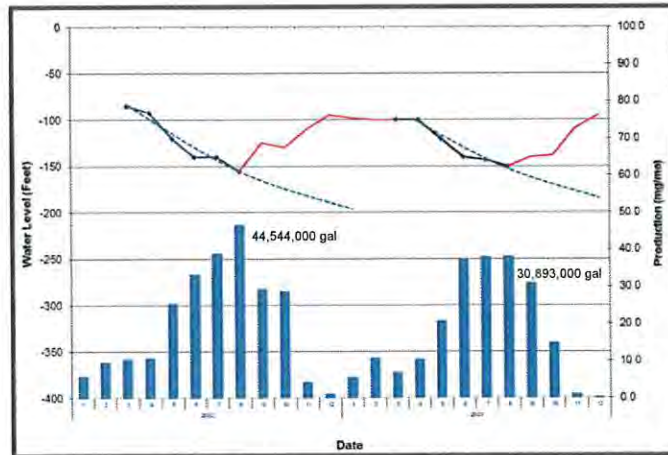


Figure 5. Example of Flow and Drawdown

In rating each new source the DDW confirms that the equipped capacity of the source is in compliance with the limits of the water right based on a 24-hour pump test. They then de-rate the source by 1/3 as a safety factor that the source will be sustainable. This is a conservative safety factor that is believed to take into account several issues including: drought, long term drawdown, the fact that most ground water sources are not used year round, etc. However, the management of each source is left appropriately up to the water system provider. Furthermore, due to limited manpower and resources, DDW usually re-evaluates or reviews a source only when a problem is noted or brought to light.

The ordinance therefore requires water system managers to monitor, review and certify this data annually to ensure the ongoing viability of each water source. The ordinance also requires the submittal of more data for review by the county if there is reason to believe a problem exists.

Water Quality

DDW regulations currently scrutinize source quality before being put on-line. Regulations then require routine monitoring for primary health concerns such as the presence of coliform bacteria, but generally only require infrequent testing for other parameters such as Total Dissolved Solids (TDS), nitrate, sulfate, etc. Infrequent testing on a state level for several of these parameters is adequate as the state is primarily concerned as to whether the water is safe to be used a public water supply. However, the sampling frequency required by the state for key parameters is inadequate to evaluate short and long term trends, and hence the long term viability of the source. Limited manpower and resources of the state would prohibit them from monitoring water quality trends for long term viability of the source even if they had the data.

The ordinance as presented no longer requires the unilateral submittal of water quality plots, but it does require the water system to monitor and review water quality and certify that the source is a viable long term source, and it requires the submittal of more data for review by the county if there is reason to believe a problem exists.

Plat Approvals

Plats are currently approved based on a "Willing to Serve" letter from the water supplier. This letter is an acknowledgement of the intended size and scope of the development and a commitment that the water system will serve it. However, although the water system commits to provide the water, the water source to physically serve the development may not yet be constructed or connected. Furthermore, it is assumed that large developments will build out over time, thus providing time for the water system to obtain the water source and have the needed infrastructure in place by the time the development is constructed and/or needed. This process has the potential for demands to exceed current or future planned resources that will leave the development without water if the development of the water source is delayed.

The ordinance as planned proposes to modify this process so that a water source is identified and constructed so that it is available to fully satisfy the demands of the development at the time of plat approval.

Water Rights

Three major facts exist related to the development of water as discussed herein. First, the number of water rights held by a water system will almost always exceed the amount of water developed. Second, it is usually economically advisable to only capitalize and develop the amount of water reasonably needed in the short term. Finally, undeveloped water rights (or the lack of water in a source for which water rights exist) cannot be credited and relied upon as a water source since water may not be actually available

Addressing the first item, it is clear that water systems must have adequate water rights before the water can be committed, developed or used. The Utah Division of Water Rights (DWRi) regulates, grants, and monitors these rights. Nothing more than certification by the Water System should be required within the Concurrency ordinance.

Addressing the second item, since a water system is not required to fully develop its rights until they are needed, the water system will most likely have some undeveloped water rights. These rights will be put to use as sources are developed in response to demands. However, it must be remembered that the development of a water right into a source does not occur overnight, within a month, or even a year.

Addressing the third item, undeveloped water rights (or the lack of water in a source for which water rights exist) cannot be credited and relied upon as a source and the quantity of water of the new source cannot be verified until it is fully developed. I provide the following two historic examples to illustrate these issues:

Well Development Example

The general process to drill, equip and put a well into service can be extensive and may take up to three years if any changes are required to the water right. Although the DWRi is attempting to streamline their approval process, water right changes involve an application, public notice, protest period, a public hearing, testimony at the hearing, reviews by the DWRi, and the preparation of an Order granting or denying the application. This process has historically taken 15 – 18 months. Any legal action including requests for reconsideration or formal court action by any opposing party will delay the process for additional months and possibly years, depending upon the issues.

Following the water right approval, a well design has to be completed, the well has to be bid out and drilled, and a well house has to be designed, bid and constructed, and pump tested to evaluate its source potential, including submittals to and approvals by the DDW and local planning authorities for each step along the way. Combined, without interruption, and assuming water is found this process that can take between 12 and 18 months. If the well is unsuccessful, the process of locating a new well site, getting the water rights, etc. is potentially repeated.

Surface Water Treatment Example

A water treatment facility (WTP) for Summit Water Distribution Company (SWDC) was successfully designed and constructed just south of Jeremy Ranch. The source water for this 1,120 gpm rated facility, which accounted for 25% of the total 2013 source rating, is a

direct stream diversion from East Canyon Creek. This facility is now owned by Weber Basin Water Conservancy District (WBWCD). The following major historic issues and concerns have been related to this facility.

- A. Records show that flows within East Canyon Creek are seldom adequate to provide the rated capacity during peak demand periods. Historic claims by the owner are that they 1) have priority water rights and 2) that in times of shortage the State Engineer must shut off lower priority rights if needed to protect their water right. I agree with the statement that they have priority water rights on the system and that a pleading with the State Engineer can be made to enforce their water rights. However, to my knowledge this process has not been fully implemented historically by SWDC and it takes time for the State Engineer to consider and implement any order. Time is usually not a commodity available in emergency or rapidly increasing peak demand periods.
- B. Second, SWDC realized they needed a more secure water source and had plans to construct a new pipeline to deliver water to the WTP from East Canyon Reservoir. This pipeline, which according to the 2008 concurrency review letter was originally planned to have been constructed in 2008, was never completed. The project was delayed with what is believed to have been financial, technical and/or legal battles. A discussion with WBWCD³ confirmed that in order to fully utilize the WTP they will require a new water source delivered from outside the basin. There may be enough water in the spring to run the facility for a few weeks, but there is inadequate water to run it through the peak summer period. The District is currently evaluating the various source options to accomplish this; however the timing however of when the delivery of an alternate source of water to the WTP might be made remains undetermined³.
- C. Third, as of the date of this report it would require time and effort, including repairs to the creek intake structure, to start up the idled facility so that it is fully operational. Unless the plant is maintained in fully operational condition, a switch cannot be thrown to deliver water at will. WBWCD indicated that it would take 6 to 8 months to get the plant operational from its current condition; however, once operational with an adequate water supply, the WTP is capable of delivering water within a few hours of startup³.

The resulting impact of the WTP scenario provided above is that homes have been built based upon existing water rights and the historic 1,120 gpm WTP rating. The 2013 concurrency submittal by SWDC indicated that they had a Total Supply Obligation 3,538 gpm. Without the 1,120 gpm WTP rating, the system had a net source rating of 3,245 gpm, a deficit of 293 gpm over demands. Under this scenario SWDC had the water right for the full source rating, but there was a general deficit in wet water deliverable without the WTP.

To cover this deficit in 2015 SWDC contracted with WBWCD for the delivery of 400 ac-ft of water, which according to MRWSSD was delivered by MRWSSD at an average rate of between 550 and 600 gpm between July and December, enough to cover the deficit. A permanent contract has now been entered into between SWDC and WBWCD for the delivery of 700 ac-ft of water³, which will initially be delivered by MRWSSD via their

³ Personal communication with Scott Paxman, Assistant General Manager, Weber Basin Water Conservancy District, March 22, 2016.

connection on Old Ranch Road⁴. The delivery of this permanent water source may change over time as WBWCD completes other local projects including the possible new source pipeline to the WTP³. This new contract will help SWDC more effectively utilize their available water rights.

Shortages and Coordination

Although data has not been provided under the concurrency program over the past two years to verify this condition, I have received some verbal input that some wells have not been used during peak demand periods because they needed to be “rested”. It has been observed that many of the bedrock wells within Snyderville Basin are not used during the low demand winter period. This non-use or resting allows the ground water bedrock systems to recharge. However the primary purpose of concurrency is to ensure that all sources, including wells, are rated for and capable of being used to meet peak day demands. It would be troubling if a well requires resting during the peak demand period as it suggests that the well may be over rated or over pumped, or both. Any source that is unable to fully function during peak demand periods should be re-rated or removed from the concurrency rating.

The conclusion is that 1) new development takes time and paper water rights must be translated into wet water for there to be a benefit at the tap, 2) you can't flip a switch on a new source without significant planning and time, and 3) all sources must be able to deliver the rated water with acceptable water quality upon demand.

Drought

Drought impacts are not specifically considered by the State in a source rating, although the 1/3 rule discussed previously likely takes this at least partially into account. Concurrency requires the water system to monitor and review their source data beyond that required by the State. Annual certification by the water system provider indicates that they have monitored and reviewed source data where they can visibly see the direct or lagged impacts from heavy precipitation periods or drought.

Drought also creates a concern with septic system operation that is not often identified or discussed. Septic systems discharge water into the shallow ground water system. In times of drought the amount of receiving water is reduced and therefore has less diluting potential than during normal or high ground water flow conditions. The result is increased concentrations of nitrates and other waste constituents that can become a direct public health concern when the water is then pumped into private water systems or returns to the surface environment.

CONCLUSIONS

Based on personal experience with the Summit County Concurrency Program since 2001, it is my opinion that the Concurrency Ordinance is appropriate and needed as a public health ordinance. Although many water system improvements have been made over the past 15 years, the changes are not administered county wide, nor are all sources within western Summit County free from current and/or future trending water quality issues.

⁴ Personal communication with Andy Armstrong, Manager, Mountain Regional Water Special Service District, March 17, 2016.

The overall risk to the public health through inadequate source water or water use restrictions that limit drinking, bathing, and washing, or reduced ground waters that receive septic system waste in times of drought, is real.

I reserve the right to update my findings and conclusions based on new information or evidence that comes to light in this matter.

Please call if you have any questions regarding the information contained herein.

Sincerely,

HANSEN, ALLEN & LUCE, INC.

A handwritten signature in black ink, appearing to read "David E. Hansen", is written over a horizontal line.

David E. Hansen, Ph.D., P.E.
Managing Principal
Hansen, Allen & Luce, Inc.