



AUGUST 14, 2019
WATER CONSERVATION AND DROUGHT MANAGEMENT
ADVISORY BOARD
REGULAR MEETING 2:00 P.M.

City Council Chambers
217 East Center Street
Moab, Utah 84532

1. Call To Order
2. Approval Of Minutes
 - 2.I. Minutes Of July 10, 2019

Documents:

[WATER BOARD MINUTES 2019-07-10 DRAFT AH8-6-2019.DOCX](#)

3. Citizens To Be Heard
4. Board And Staff Reports
 - 4.I. Review Of HSA Water Budget Revision--Discussion Led By Mike Duncan And Possible Action
 - 4.II. Overnight Accommodation Water Use--Discussion Led By Rosemarie Russo
5. Other Business
 - 5.I. Vulnerability, Consequences, And Adaptation Planning Scenarios (VCAPS)--Discussion And Possible Action
 - 5.II. Moab Water Facts August 2019 Revision--Discussion And Possible Action

Documents:

[JUNE 2019 MOAB WATER FACTS.PDF](#)

- 5.III. Water Budget And Development Implications Memo--Discussion And Possible Action
6. Adjournment

Special Accommodations:

In compliance with the Americans with Disabilities Act, individuals needing special accommodations during this meeting should notify the Recorder's Office at 217 East Center Street, Moab, Utah 84532; or phone (435) 259-5121 at least three (3) working days prior to the meeting.

Check our website for updates at: www.moabcity.org

CITY OF MOAB
WATER CONSERVATION AND DROUGHT MANAGEMENT ADVISORY BOARD
REGULAR MEETING MINUTES--DRAFT
JULY 10, 2019

Call to Order: Board Vice-Chair Jeremy Lynch called the meeting to order at 2:02 PM in the City Council Chambers located at 217 East Center Street in Moab. In attendance were Arne Hultquist, Mike Duncan, Kyle Bailey, John Gould and Denver Perkins. Also in attendance were Assistant City Engineer Eric Johanson, City Engineer Chuck Williams, Sustainability Director Rosemarie Russo, Records Specialist Eve Tallman and Public Works Director Oscar Antillon. Recordings are archived at: <https://www.utah.gov/pmn/index.html> (audio) and <https://www.youtube.com/watch?v=9TpFoT1kvWs> (video).

Approval of Minutes: Hultquist moved to approve the Water Board Minutes of June 12, 2019 with one correction. Duncan seconded the motion. The motion passed 6-0 with Board members Perkins, Duncan, Gould, Lynch, Bailey and Hultquist voting aye.

Citizens to be Heard: There were no citizens to be heard.

Board and Staff Reports:

Hultquist mentioned the Vulnerability, Consequences and Adaptive Planning Study (VCAPS) workshop in the coming week and noted several members of the staff would attend. Funding shares of other agencies were mentioned. Hultquist also mentioned the Moab Area Watershed Partnership (MAWP) meeting on July 17th. The proposed agenda included discussion of monitoring wells.

Tallman announced her upcoming retirement and indicated that if there was a staffing gap, Hultquist agreed to be retained to assist the City Recorder with minutes and agendas.

Russo shared Board Chair Kara Dohrenwend's article recently published in Moab Happenings.

Water Budget and Development Implications Recommendation—Discussion:

Duncan discussed his plan to present to Council his own synthesis of the recent water quantity reports. City Engineer Williams stated he wants to review the numbers and stated he would forward the revised Phase 2 Report from Hydrologic Systems Analysis, LLC (HSA)—Ken Kolm and Paul van der Heijde). Williams noted his concern about the Estimated Surface Water figure in the Board's memo to Council. He added he asked the Utah Geological Survey (UGS) to peer review Kolm's findings. Lynch asked if the information requested by Council was time-sensitive. Duncan clarified the information desired to inform code revisions were longer-range than the current moratorium. He added the County is growing faster than the City. Williams said he wanted final numbers to be agreed upon. Johanson reported that Mayor Niehaus asked Williams to write a memo and some members of the water board and engineering staff met. Discussion ensued regarding further review of the numbers with a future meeting of some members of the board and engineering staff prior to the August water board meeting.

New Production Well:

Williams stated that the City has budgeted for the siting and design of a new production well. He explained old wells would be analyzed for new well proximity. Hultquist brought up the Hanson Allen & Luce (HAL) report which indicated the City had a storage issue not a production issue. Williams explained the HAL report was necessary to identify the storage need prior to seeking funding for the tank. With the report, the city is actively pursuing funding for a three million gallon tank at the intersection of Spanish Trail and Spanish Valley Drive.

Hydrologic and Environmental System Analysis (HESA):

Johanson asked Williams to update the Board on the City's plan to engage HSA to complete a similar analysis for the Spanish Valley aquifer.

New Public Works Director:

Oscar Antillon was introduced as the City's new Public Works Director. Water Superintendent Levi Jones was praised.

Moab Water Facts—Discussion:

Johanson stated he was concerned about the buildout number in the document. The discrepancy between the hotel room water usage number (.36 Acre Feet) versus the hotel room sewer number (.8 Equivalent Residential Unit) was discussed. Tallman agreed to forward the Wastewater Treatment Facility Master Plan to Hultquist. Russo brought up the effectiveness of the water conservation placards placed in hotels. Duncan asked if a comparison would be appropriate between the water usage of a family in a hotel and a local family at home.

HSA Report—Discussion:

Hultquist explained his disagreement with some of the findings of the HSA Phase I report regarding isotopes in the Glen Canyon Aquifer. Discussion followed regarding determining age of water, Blanchard's report and the loss of 3,000 Acre Feet below Sheley tunnel. Lynch suggested the Board could continue to bring up the discrepancies until the Utah Geological Survey (UGS) accepts or rejects the fracture zone hypothesis. Hultquist indicated he would make the UGS aware of the matter.

Outdoor Watering Campaign—Review:

Staff and board discussed the newspaper article, box ads, social media postings and determined the campaign was launched as anticipated.

Other Business:

Tallman brought up a recent water rights request published in the paper. Russo mentioned her experience with the adjudication process. Bailey brought up a recent Salt Lake Tribune article regarding global warming and the ski industry.

Future Agenda Items: Further review of the Moab Water Facts numbers.

Adjournment: Hultquist moved to adjourn. Lynch seconded the motion. By unanimous vote, the meeting was adjourned at 3:44 PM.

MOAB WATER FACTS

City of Moab Water Conservation and Drought Management Advisory Board

Updated June 2019

Estimated Current and Future Water Use for Moab & Spanish Valley

Water Provider	Estimates of current groundwater use	Estimates of groundwater production potential	Estimates of projected groundwater requirements
Moab City	2,283 AF ²	5,401 AF ²	City at build-out: 9,434 AF ²
Grand Water & Sewer Services Agency (GWSSA)	830 AF ³	3,940 AF ³ (reported as 9,444 AF yet only 3,940 AF of water rights exist)	GWSSA by 2060: 1,550 AF ³
San Juan Spanish Valley Special Services District (SJSVSSD)	0 AF (residents currently use existing wells & springs)	500 AF ¹	SJSVSSD by 2060: 500 (5,000 if full rights are developed as stated in the SJSVSSD 40-year water right plan) ¹
Private Wells for domestic use	400 AF ¹	400 AF ¹	If use stays the same: 400 AF ¹
Irrigation wells & springs (private)	700 AF ¹	700 AF ¹	700 AF ¹
Kens Lake Diversion (GCWCD & Moab Irrigation Co. at Sheley Tunnel)	3,100 AF ¹	3,100 AF ¹	3,100 AF ¹
Moab Lower Diversions	1,783 ⁴	1,783 AF ⁴	1,783 AF ⁴
	Estimated current total groundwater being diverted = 9,096 AF	Current groundwater production potential = 15,824 AF	Estimated total future water requirements = 17,467 AF

Sources:

1. Utah Division of Water Rights
2. Moab City 2016 Water Conservation Plan
3. GWSSA 2014 Water Conservation Plan
4. Moab Irrigation Company 2017 Water Distribution Plan

Moab Area Water Rights Overview

Paper Groundwater Rights:

Moab City: 10,091 AF²

GWSSA: 3,940 AF³

SJSVSSD: 500 AF¹ (pending water right appropriation for 4,500 additional AF)

Estimated private well water rights currently in use: 400 AF¹

Estimated irrigation well water rights currently in use: 700 AF¹

Surface water rights that are "base flow" or groundwater:

GCWCD & MIC @ Sheley Tunnel: 3,100 AF¹

MIC Lower Diversions: 1,783 AF⁴

Total amount of groundwater currently considered appropriated:

Paper water rights (15,631 total) + base flow rights (4,883) = 20,514 AF

Other Details from Division of Water Rights

Spanish Valley is currently closed to new appropriation of surface water¹

Current local groundwater appropriation limit for one acre parcels is 6.73 AF*¹

Spanish Valley groundwater is open to transfer appropriations¹

The adjudication process currently being administered by the Division of Water Rights will be ongoing for at least another year and may alter estimates of groundwater rights.

* See <https://www.waterrights.utah.gov/wrinfo/policy/wrareas/area05.asp>

Conversions and Acronyms:

AF=Acre Foot or Acre Feet

1 AF=325,851 gallons

cfs=cubic feet per second

1 cubic foot=~7.5 gallons

1 cfs/year=236,000,000 gallons

1 cfs/year=724 AF

100 gallons per minute=161.41 AF

GWSSA=Grand Water and Sewer Service Agency

SJSVSSD=San Juan Spanish Valley Special Service District

UDWRi=Utah Division of Water Rights

GW=Groundwater

GCWCD=Grand County Water Conservancy District

MIC=Moab Irrigation Company

TNC=The Nature Conservancy

GCA=Glen Canyon aquifer

VF=Valley Fill aquifer

MAWP=Moab Area Watershed Partnership

Estimates of Annual Use:

single-family home with landscaping = 1.0 AF
condominium without landscaping = .45 AF
seasonal cabin without landscaping = .25 AF
hotel room = .36 AF

Overall Moab Usage:

Residential 50%
Nightly Accommodations 16%
Other commercial and Institutional 17%
Cemeteries & Parks 3%
Water Loss 6%
Other 8%

Common Household Uses of Drinking Water (Gallons per Capita per Day)

Bathing: 20
Toilet Flushing: 24
Lawn Watering and Pools: 25
Laundry: 8.5
Dishwasher: 4
Car Washing: 2.5
Drinking and Cooking: 2
Garbage Disposal: 1

Wastewater Treatment Quick View

Old plant averaged 1 Million Gallons per Day (MGD)
New Water Reclamation Facility (WRF) capacity 1.7 MGD
Old plant used 2 Million Gals of water per month
New WRF uses 25,000 Gals of water per month

Groundwater or Surface Water?

Surface water comes from snowmelt or rainwater runoff and is usually associated with rivers, lakes and streams. It also comes from groundwater discharging in springs or "gaining" reaches of streams. Groundwater comes from snowmelt or rainwater infiltrating the ground. It can also come from surface water (streams) infiltrating the ground in "losing" reaches of streams. Streams with water in them when there isn't any snowmelt or precipitation runoff contain groundwater that has discharged to the stream. This amount of water is called base flow. Surface water in streams generally moves quickly through an area, whereas groundwater in aquifers generally moves very slowly. Surface water quality is determined by the geological strata it comes in contact with, along with human-caused contaminants. Groundwater quality is determined by the geological strata it comes in contact with prior to infiltration. The law of groundwater resources is different from, but related to, surface water rights. Groundwater is extracted from underground aquifers (pumping from wells or flowing from springs), the geohydrological characteristics of which vary widely. Recharge rates can vary from year to year. In many cases, they are hydrologically interconnected to surface water resources, recharging from and discharging to water in streams and lakes.

Water Resources Key Terms

Aquifer: A geologic formation that is water-bearing. A geological formation or structure that stores and/or transmits water, such as to wells and springs. Use of the term is usually restricted to those water-bearing formations capable of yielding water in sufficient quantities to constitute a usable supply for people's uses.

Build-out: The state of maximum population if all land is developed as zoned.

Discharge: Outflow that is measured as the rate at which a volume of water passes a given point in a given period of time.

Flow System: Bedrock controlled by topography, degree of dissection, continuity, and hydro structures; and alluvium controlled by collapsed anticlines/graben hydrostructures, topography, dissection, continuity, and deposit thickness.

Freshwater: Most of the water on earth is salty. Much of the global supply of freshwater is locked up in glaciers, ice caps, and elsewhere. This means that freshwater supplies for humans and ecosystems must come from the relatively small amounts that run off as surface water or are contained in accessible groundwater aquifers.

Instream flow protection: Relatively new principle that balances traditional demands for water withdrawals with services such as boating, fishing, ecosystem protection and scenic values.

Losing Stream: Stream or reach of a stream that is losing water by seepage into the ground.

Prior appropriation water rights: Awards water rights to the first party to appropriate it and makes beneficial use of it. It is sometimes called "first in time, first in right." Riparian water rights are used in the East, where water is abundant. Municipal governments have certain protections under western water law. While riparian water law tends to arbitrate right holders as equal in status, prior appropriation creates primacies such as that first users have rights that take precedence over those coming later. It was developed because of the arid climate in the West. The first user is referred to as a senior right holder. Later users known as junior rights holders can gain access to the portion of the water not used by senior holders. Appropriation water rights are also "use it or lose it" rights. The rights exist only so long as the water is actually used; if use stops, the right is lost.

Per capita domestic supply: The sum of public supply and domestic self-supply in relation to the population. U.S. domestic use averaged 123 gallons per person per day in 1960, 163 gallons in 1980, 164 in 2000 and 320 in 2016.

Recharge: Introduction of surface or groundwater into groundwater storage by natural or artificial means.

Safe yield: The amount of water that can be withdrawn from an aquifer without significant ecological impacts, which could result from reductions in streamflow where groundwater discharge to the stream provides baseflow. If the amount of groundwater withdrawn exceeds the **safe yield** amounts, the well can go dry. **Safe yield** is generally considered equal to the average replenishment rate of the aquifer from natural and artificial recharge.

Water withdrawals/consumption: Groundwater typically falls in the category of open-access resource, but in the West, groundwater laws tend to be consistent with prior appropriation. Groundwater management areas may be empowered to set and enforce rules, such as permitting, well spacing, well construction standards, allocation preferences, limited pumping rates, restrictions on place of use, and water monitoring and reporting.

Water Terminology: <https://www.waterrights.utah.gov/wrinfo/glossary.asp>