Nibley City Water Management and Conservation Plan 2013

Name of Water/Utility Company- Nibley City

A. Background Information

Nibley City, located in Northern Utah, owns and operates a culinary water system ("the System") which serves the City's approximately 5,800 residents. The service area of the System includes nearly all residents within the City's boundaries. There are a limited number of residents who are not on the culinary water system, but instead rely on a well for their water service.

Currently, there are approximately 1,650 residential water connections and 30 commercial/industrial connections. Nibley City also provides culinary water to two entities not located within City boundaries, Armor Storage and the USU South Farm. While the City does not provide a pressurized secondary water system, there are a limited number of residences with access to secondary water, which is typically operated and maintained through an HOA. Additionally, approximately 250 culinary connections are used for irrigation purposes.

Cache Landmark Engineering completed a Water Master Plan for Nibley City in March 2012 (the "Master Plan"). The City is using this plan as a guideline for how the culinary water system will grow and continue to provide water for Nibley residents in the future. Much of the information contained in this document comes from the analysis and recommendations contained in the Master Plan.

For the calendar year 2012, Nibley City billed 431,868,760 gallons of water, which equates to 204 gpcd, based on a population estimate of 5,800 (5,438 2010 census population with 3.25% growth). The average usage for the state of Utah is 260 gpcd, which demonstrates that Nibley residents' culinary water usage is approximately 22% lower than the state average.

B. Existing Resources

Nibley City's culinary water system utilizes water from Yeates Spring, a deep well on 4000 South and from the Nelson Well, located on 250 West. The spring water is chlorinated in a chlorinating facility before entering the reservoirs and being added to the system.

Nibley City currently has three storage tanks with a combined capacity of 3,350,000 gallons: one (1) 350,000 gallon tank, one (1) 1,000,000 gallon tank and one (1) 2,000,000

gallon tank. The most recently constructed tank, the 2 million gallon tank, was brought online in 2011.

The distribution system is made up of different sizes and types of pipe, with the bulk of the pipe ranging from 2”-8” for distribution lines and 10”-18” for main lines. The main line comes into the City from the storage tanks. The remainder of the system consists of smaller pipes that branch out from the main line to serve the various hookups throughout the City.

C. Water Rights Inventory

Nibley City’s water rights currently authorize diversions from two wells (4000 South Well and Nelson Well) and one diversion from Yeates Spring. The table below lists the City’s current (active) water rights used to divert water into the culinary system. The City has additional water rights and shares it has acquired through purchase or as development has occurred.

WR Number	Status	Priority	Source	Flow (cfs)	a-f (Limitation)
25-2167	Cert	1914	Yeates Spring	0.75	543.1
25-6680	Cert	1975	4000 S Well, Nelson Well	0.724	524.3
25-9048	App	2004	4000 S Well	7.0[1]	1,700[2]
			Total	**8.74**	**2,767.4**

1--The water right has a diversion rate of 7.0 cfs. However, the right is limited to 4.45 cfs (2,000 gpm) from Nelson Well
2—The limitation of this right is limited to 1,700 a-f. However, the City is required to provide mitigation water through water rights or shares.

D. Water Rate Structure

Nibley’s rate structure accounts for culinary water usage and not for a secondary system.

Base Rate- $10.50/mo
Usage Charge- $ .95/1,000 gallons

E. Current Water Use/Determination of Future Requirements

The Master Plan evaluated Nibley City’s culinary water rights, source capacity, treatment, storage capacity and distribution system. The Master Plan outlines current water use as well as projected water demands for the City through the year 2030. Comparisons of present and projected culinary water system supplies are included in the Master Plan, which also makes recommendations based on current deficiencies and anticipated future deficiencies, if no changes are made to the current culinary water

system. In making the following predictions, the Master Plan used a peak day flow rate of 5,564 gpm (8.9cfs). This plan draws upon some of the conclusions and recommendations of the Master Plan for Nibley City's future culinary water system needs.

i. Future Water Right Acquisition

Nibley City's current policy for acquiring water rights/shares requires developers to provide a minimum of one (1) share to the city per acre of land that is being converted from agricultural to residential. This policy allows the City to stay ahead of exceeding the peak daily demand, which it is anticipated to exceed within the next six (6) years, if no new shares or resources are acquired. The exception to this is in the residential estates (R-E) zone where, due to the larger size of the lots (2+ acres), only 1/3 share per acre is required.

ii. Water Source Capacity

Nibley City is in the process of bringing a new well online. This well will be located at approximately 3400 South 1200 West. This well, once operational, will serve as a backup to the two existing wells, 4000 South and the Nelson Well, and a spring near Hollow Road.

iii. Water Treatment

It is recommended that the City continue its policy of installing chlorination equipment on new tanks, wells and springs. This will allow the City to chlorinate all water sources.

iv. Water Storage Capacity

In 2011, Nibley City completed a new 2 million gallon storage tank. The Master Plan recommends that an additional 2 million gallon reservoir be constructed by 2018.

v. Water Distribution System

The Master Plan makes the following recommendations for the culinary water distribution system, all of which will improve the system efficiency:

a. Install an 18" water main from 400 West to 640 West on 4000 S
b. Install a 12" water main along 640 West
c. Install a 12" water main along Johnson Road to tie in existing infrastructure.
d. Increase the line size on Hillside Drive
e. Complete the increase in line size from a 10" to 12" main along 4000 South.
f. Complete loops on 2200 South, 3700 South, 3850 South and the Scott Farm Subdivision
g. Install a booster for Hollow Road as additional properties east of Hollow Road are annexed into the City.

vi. Additional Future Requirements

The Master Plan lays out the following anticipated needs for water rights, source, storage and distribution through the years indicated:

Water Rights (based on .845 a-f per connection)

Year	Population	ERC	A-F	Existing
2015	6,304	2,066	1,506	
2020	7,308	2,395	2,024	
2030	9,822	3,218	2,719	2,767.40
2050	17,739	5,813	4,912	

Water Source (based on 2.01 gpm per connection)

Year	Population	ERC	GPM	Existing
2015	6,304	2,066	4,153	
2020	7,308	2,395	4,814	
2030	9,822	3,218	6,468	6,060

Water Storage (based on 1340 gallons per connection)

Year	Population	ERC	MG	Existing
2015	6,304	2,066	2.77	
2020	7,308	2,395	3.21	3.35
2030	9,822	3,218	4.31	
2040	13,536	4,435	5.94	
2050	17,739	5,813	7.79	

Water Distribution (based on 3.34 gpm per connection)

Year	Population	ERC	GPM	Existing
2015	6,304	2,066	6,900.44	
2020	7,308	2,395	7,999.30	
2030	9,822	3,218	10,748.12	

F. Conservation Measures

The following measures have been considered and will continue to be considered in the future:

i. Water rate schedules can be set up so that rates escalate as usage increases and go down as water is conserved.

ii. During peak temperature days, prohibit watering during times of the day when water loss is the greatest (i.e. 10 a.m. - 6 p.m.). The City currently sets an example of this by not watering its own properties during those times.

iii. The City can encourage its residents to conserve and use water more efficiently through the dissemination of public information online, in direct mailings, and information available at City Hall.

iv. The City may encourage and provide some sort of incentive to residents who install water efficient fixtures and appliances (toilets, shower fixtures, faucets, etc.). Approximately 400 of the homes in the city were constructed prior to the year 2000, an may not have water efficient fixtures. However, the remainder, built after that date, were likely to have been constructed with efficient fixtures.

v. Another alternative that would not only conserve water, but allow what resources we do have to last longer and serve more people, is to provide a pressurized secondary irrigation system.

Because these measures are not currently implemented, it is difficult to gauge the exact number of gallons and dollars each would save.

G. Other Conservation Measures

The following is a list of Best Management Practices (BMPs) recommended by the Utah Division of Water Resources and which may be implemented in the future. While specific costs savings are not available at this time, it is estimated that some of these measures may reduce usage by as much as twenty-five percent.

BMP 1 – Comprehensive Water Conservation Plans

- Develop a water management and conservation plan as required by law, and submit to the Utah Division of Water Resources.
- Plans are to be adopted by the water agency authority (city council, board of directors, etc.) and updated no less than every five years. The City adopted a water master plan in March of 2012.

BMP 2 – Universal Metering (already being implemented)

- Install meters on all residential, commercial, institutional and industrial water connections. Meters should be read on a regular basis. As of 2013, approximately 90% of the meters in the city are radio-read meters, which allows for monthly reading and makes leak detection easier.
- Establish a maintenance and replacement program for existing meters.
- Meter secondary water at the most specific level possible, somewhere below source water metering. Individual secondary connection metering should be done as soon as technology permits.

BMP 3 – Incentive Water Conservation Pricing

- Implement a water pricing policy that promotes water conservation.

BMP 4 – Water Conservation Ordinances

- Adopt an incentive water rate structure.
- Adopt a time-of-day watering ordinance.
- Adopt an ordinance requiring water-efficient landscaping in all new commercial development. This should include irrigation system efficiency standards and acceptable plant materials lists.
- Adopt a landscape ordinance that encourages water conservation.

BMP 5 – Water Conservation Coordinator

- Designate a Water Conservation Coordinator to facilitate water conservation programs. The city also belongs to a stormwater coalition as part of its efforts to control water quality.

BMP 6 – Public Information Program

- Implement a public information program consistent with the recommendations of the Governor's Water Conservation Team. Such programs can be adapted to meet the specific needs of the local area and may use the "Slow the Flow" logo with approval of the Utah Division of Water Resources.

BMP 7 – System Water Audits, Leak Detection and Repair

- Set specific goals to reduce unaccounted for water to an acceptable level.
- Set standards for annual water system accounting that will quantify system losses and trigger repair and replacement programs, using methods consistent with American Water Works Association's *Water Audit and Leak Detection Guidebook*.

BMP 8 – Large Landscape Conservation Programs and Incentives

- Promote a specialized large landscape water conservation program for all schools, parks and businesses.
- Encourage all large landscape facility managers and workers to attend specialized training in water conservation.
- Provide outdoor water audits to customers with large amenity landscapes.

BMP 9 – Water Survey Programs for Residential Customers

- Implement residential indoor and outdoor water audits to educate residents on how to save water.

BMP 10 – Plumbing Standards

- Review existing plumbing codes and revise them as necessary to ensure water-conserving measures in all new construction.
- Identify homes, office building and other structures built prior to 1992 and develop a strategy to distribute or install high-efficiency plumbing fixtures such as ultra-low-flow toilets, showerheads, faucet aerators, etc.
- Offer rebates for high efficiency appliances to promote water conservation indoors.

BMP 11 – School Education Programs

- Support state and local water education programs for elementary school students.

BMP 12 – Conservation Programs for Commercial, Industrial and Institutional Customers

- Change business license requirements to require water reuse and recycling in new commercial and industrial facilities where feasible.
- Provide comprehensive site water audits to those customers known to be large water users.
- Encourage the installation of separate meters for landscapes.

BMP 13 – Reclaimed Water Use

- Use reclaimed or recycled water where feasible.

BMP 14 – "Smart Controller" Technology

- Install "smart controller" technology to irrigate public open spaces where feasible.
- Encourage customers to utilize "smart controller" technology by offering rebates for these products.

H. Water Emergency Plan

Part of Nibley City's Emergency Response Plan details that the City will hold water in the storage tanks. In the event of an emergency where continual water supply is cut off, the City will notify its residents of the emergency through radio, reverse 911 system, email, or door-to-door notification. The method of contact will depend on the severity of the emergency and the available time frame for notification. Examples of emergencies would include, but are not limited to: source contamination, main line breaks and water sampling violations.

I. Periodic Evaluation

Nibley City will review and update the Master Plan every five years. If conditions change due to a spike in growth or other circumstances which create a need to re-analyze the water system, the Master Plan will be updated more frequently.

J. City Officials

As of the date of adoption of this plan, the Nibley City Officers and Staff responsible for this Plan are:

Mayor Gerald K. Knight
Councilmember Carrie F. Cook
Councilmember Bryan R. Hansen
Councilmember Larry E. Jacobsen
Councilmember Thayne R. Mickelson
Councilmember Shawn B. Platt
City Manager David N. Zook