

**City of Carson City
Agenda Report**

Date Submitted: September 10, 2013

Agenda Date Requested: September 19, 2013

Time Requested: 30 minutes

To: Mayor and Supervisors

From: Public Works Department, Wastewater Division

Subject Title: Presentation and discussion on the reclaimed water supply, distribution practices and obligations. (David Bruketta)

Staff Summary: The Carson City Wastewater Reclamation Facility (WRF) implemented reclaimed watering restrictions on August 5, 2013, due to a lack of reclaimed water supply. This has had a significant impact on how much reclaimed water is available to each re-user.

Type of Action Requested: (check one)
(☐) Resolution (☐) Ordinance
(☐) Formal Action/Motion (☒) Other (Information)

Does This Action Require A Business Impact Statement: () Yes, (X) No

Recommended Board Action: Presentation and discussion only

Explanation for Recommended Board Action: Presentation and discussion only.

For reasons such as drought, economic recession and sewer pipe rehabilitation, the flows to the WRF have been decreasing over the past five (5) years by approximately 15%. This has resulted in less reclaimed water being produced and stored in the Brunswick Canyon Reservoir. Additionally, the reservoir leaks through springs that have developed in surrounding areas, which also decreases the storage levels. The springs are not new, are permitted through the Nevada Division of Environmental Protection and without this leakage the reservoir would be undersized. This storage volume is critical to meet the peak summer irrigation demands. When the storage level approaches the bottom of the reservoir, the only reclaimed water available to meet the re-user's demand is the daily production from the WRF, which is approximately 3.9 million gallons per day. Typical re-user demand in August is approximately 7 million gallons per day. In an effort to mitigate impacts, Public Works implemented a water augmentation system where domestic water is being added into the reclaimed water distribution system at a rate of approximately 0.7 million gallons per day. Staff is reviewing possible additional sources for augmenting the effluent supply.

The current re-users are the Northern Nevada Prison for their farm, Empire Ranch Golf Course, Eagle Valley Golf Course, Silver Oak Golf Course, Carson City Parks and the overhead fill stations. Carson City uses the reclaimed water to irrigate Governor's Field, Upper Centennial Field, Edmond's Field, Lone Mountain Cemetery and landscaping on Saliman and around the WRF. The overhead fill stations are located on College Parkway, Arrowhead and Butti Way and are used for construction dust control projects. Carson City has reuse contracts with the Northern Nevada Prison, Empire Ranch Golf Course and Silver Oak Golf Course and the

priority and annual quantities are defined in the Carson City Municipal Code (CCMC) 12.10.220 Priority of Reclaimed Water Service, (attached). The reuse contracts and CCMC define priorities and minimum annual quantities but do not provide for the implementation of controls prior to restrictions or provide guidance on how to distribute or allocate the remaining reclaimed water once restrictions are implemented. If the priority and minimum quantity were strictly adhered to, the prison farm would receive the remaining reclaimed water for the rest of this year and no reclaimed water would be available to the remaining re-users.

When watering restrictions have been implemented in the past, all re-users shared what reclaimed water is available from the WRF. This distribution is based on a "9 hole equivalency" (attached) where by a re-user receives a portion of the reclaimed water based on how many 9 holes or equivalent they have. Empire Ranch Golf Course has 27 holes so they would get three (3) "9 hole equivalencies" of reclaimed water. Eagle Valley Golf Course has 36 holes so they would get four (4) "9 hole equivalencies" and Silver Oak Golf Course has 18 holes so they would get two (2) "9 hole equivalencies". Approximations were made for the prison farm to get four (4) "9 hole equivalencies" and Carson City Parks gets one (1) "9 hole equivalency". Silver Oak Golf Course has requested that the method used to allocate the reclaimed water move to a calculation based on how many acres are irrigated. Staff is reviewing this allocation model.

There were early indications that the reclaimed water supply would be low this year. Starting in May, monthly reports were sent out to the re-users informing them of the storage levels in Brunswick Canyon with a comparison to last year when reclaimed watering restriction started in mid-September (attached – July 30 re-user update). Once the restriction started in August, staff has increased their flow readings from weekly to daily at each of the re-user sites. The information from these reading is then translated into a daily re-use report that is sent out to all re-users (attached – Reclaimed Water Daily Usage Log). This report assists them in controlling their daily usage.

Applicable Statute, Code, Policy, Rule or Regulation: NA

Fiscal Impact: NA

Explanation of Impact: NA

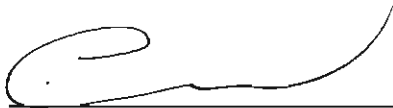
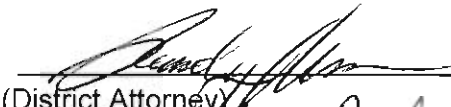
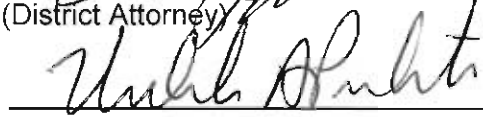
Funding Source: NA

Alternatives: NA

Supporting Material: July 30, 2013 re-user update letter, reclaimed water daily usage log, 9 hole equivalency and acres calculation spreadsheet, and CCMC 12.10.220 - Priority of reclaimed water service,

Prepared By: David Bruketta, Utility Manager

Reviewed By: DEM Bruketta Date: 9/10/13
(Department Head)

Concurrences:  Date: 9/10/13
(City Manager)
 Date: 9/10/13
(District Attorney)
 Date: 9/10/13
(Finance Director)

Board Action Taken:

Motion: _____ 1) _____ Aye/Nay
2) _____

(Vote Recorded By)

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DEPARTMENT**

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FLEET SERVICES
1001 Railroad Building A
Carson City, NV 89401-3199
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OPERATIONS
Water Services Department
Greens, Landfill, and Fire Station
3305 Southway
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PLANNING
106 E. Prater Street
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HEARING IMPAIRED
215-211

CARSON CITY NEVADA
Consolidated Municipality and State Capital



July 30, 2013

Reclaimed Water Users
Eagle Valley Golf Course (East and West)
Empire Ranch Golf Course
Silver Oak Golf Course
Department of Prisons
Carson City Parks Department

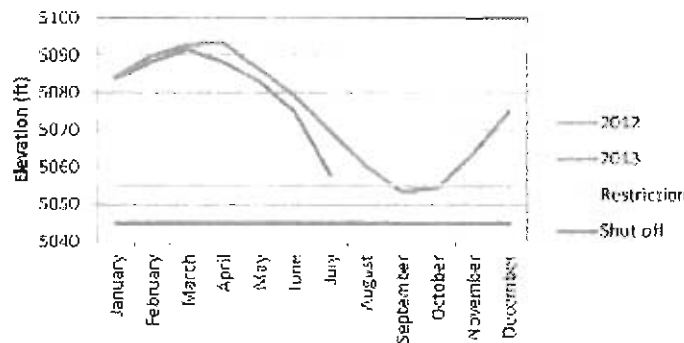
Dear Re-users:

The storage level in the Brunswick Canyon Reservoir is rapidly approaching a critically low level and we will soon have to rely only on the reclaimed water coming directly from the wastewater treatment plant. Effective Monday, August 5, 2013, the following daily volume restrictions will be put in place through the remainder of the 2013 watering season:

Carson City Parks Department: 0.3 MGD
Carson City Truck Fill Stations: 0.3 MGD
Silver Oak Golf Course: 0.5 MGD
Empire Ranch Golf Course: 0.8 MGD
Eagle Valley Golf Course: 1.0 MGD
Prison Farms: 1.0 MGD

We kindly ask each re-user to monitor and control your daily usage. If daily volume restrictions are exceeded, we may be forced to stop your flow.

Brunswick Canyon Reservoir Levels
Monthly Average



Reclaimed Water Daily Usage Log

	Eagle Valley (1.04 MGD)	Prison Farms* (1.04 MGD)	Empire Ranch (0.78 MGD)	Silver Oak (0.52 MGD)	CC Parks (0.26 MGD)	Overhead Fill (0.26 MGD)
8/5/2013	2.07	1.17		0.8	0.59	
8/6/2013	0.76	1.69	1.89	0.85	0.04	0.04
8/7/2013	0.61	1.27	1.78	0.46	0.83	0.02
8/8/2013	1.25	1.49	0.83	0.45	0.86	0.03
8/9/2013	1.09		0.82	0.46	0.15	0.06
8/10/2013	0.67		0.79	0.46		
8/11/2013	0.57		0.76	0.48		
8/12/2013	1.06	1.74	0.91	0.3	0.36	0.05
8/13/2013	0.58	1.61	0.8	0.46	0.43	0.03
8/14/2013	1.06	1.17	0.83	0.45	0.1	0.02
8/15/2013	0.94	1.18	0.78	0.67	0.39	0.01
8/16/2013	0.95	0.54	0.7	0.86	0.08	0.01
8/17/2013	0.41	0.00	0.74	0.76	0.37	0.01
8/18/2013	1.52	0.00	0.92	0.82	0.06	0.01

New Allocation based on the addition of 0.70 MGD of domestic water to the Prison Farm reservoir

	Eagle Valley (1.29 MGD)	Prison Farms (0.59 MGD)	Empire Ranch (0.97 MGD)	Silver Oak (0.65 MGD)	CC Parks (0.32 MGD)	Overhead Fill (0.08 MGD)
8/19/2013	0.93	0.66	0.71	0.54	0.24	0.01
8/20/2013	1.36	0.78	0.88	0.51	0.27	0.02
8/21/2013	1.09	0.00	0.39	0.52	0.03	0.01
8/22/2013	1.12	0.19	0.72	0.58	0.23	0.01
8/23/2013	1.17	0.00	0.89	0.81	0.04	0.01
8/24/2013	1.13	0.17	0.84	0.60	0.21	0.02
8/25/2013	1.00	0.00	0.87	0.62	0.07	0.00
8/26/2013	1.24	0.75	0.94	0.72	0.36	0.01
8/27/2013	0.83	0.19	1.21	0.65	0.30	0.02
8/28/2013	1.01	0.00	1.27	0.66	0.06	0.01
8/29/2013	0.72	0.17	0.11	0.63	0.19	0.02
8/30/2013	0.67	0.00	0.98	0.63	0.08	0.02
8/31/2013	0.96	0.47	0.82	0.71	0.29	0.00
9/1/2013	0.98	0.88	0.08	1.15	0.04	0.00
9/2/2013	1.02	0.76	0.8	0.65	0.39	0.01

New allocation based on a small storage level in the Brunswick Canyon Reservoir

	Eagle Valley (1.59 MGD)	Prison Farms (0.73 MGD)	Empire Ranch (1.20 MGD)	Silver Oak (0.80 MGD)	CC Parks (0.39 MGD)	Overhead Fill (0.10 MGD)
9/3/2013	1.38	1.02	0.72	0.89	0.04	0.02
9/4/2013	0.98	2.09	0.76	0.63	0.25	0.03

*Calculated values

12.10.220 - Priority of reclaimed water service.

At such time as the establishment of this ordinance, the quantity of reclaimed water is limited; therefore, Carson City recognizes a first in time priority program for the establishment of service. The priority of service and the annual quantity provided is as follows:

Customer	Annual Quantity (AC-FT)
1. State of Nevada Prison Farm	1,100
2. Darling Ranch	1,385
3. Eagle Valley Golf Course	1,000
4. Silver Oak Golf Course	500

Any future reclaimed water use will be prioritized based on the date of service. The utilities director in the month of February, on an annual basis, will evaluate the quantity of reclaimed water available and notify all users on the availability of the resource and potential shortages.

(Ord. 1995-50 § 1 (part), 1995).

9 hole Equivalency Method:

Re Users	9 hole equivalency	MGD per equivalence	Reclaimed water allotment (MGD)
Prison Farms	4	0.26	1.04
Eagle Valley Golf Course	4	0.26	1.04
Empire Ranch Golf Course	3	0.26	0.78
Silver Oak Golf Course	2	0.26	0.52
Carson City Parks	1	0.26	0.26
Overhead Fill Stations	1	0.26	0.26
	<u>15</u>		<u>3.90</u>

1. Plant effluent volume per day 3.9 MGD
2. Calculate how much reclaimed water / 9 hole equivalence
 - a. Determine MGD per equivalence = Plant effluent volume / total 9 hole equivalence (= C26 / B23)
3. Calculate reclaimed water allotment
 - a. 9 hole equivalence * MGD per equivalence

Acres Method:

Re Users	Acres	MGD per acre	Reclaimed water allotment (MGD)
Prison Farms	491	0.003470	1.70
Eagle Valley Golf Course	213	0.003470	0.74
Empire Ranch Golf Course	210	0.003470	0.73
Silver Oak Golf Course	170	0.003470	0.59
Carson City Parks	40	0.003470	0.14
Overhead Fill Stations	0	0.003470	0.00
	<u>1124</u>		<u>3.90</u>

1. Plant effluent volume per day 3.9 MGD
2. Calculate how much reclaimed water / Acre
 - a. Determine MGD per acre = Plant effluent volume / total acres (= C36 / B33)
3. Calculate reclaimed water allotment
 - a. Acres * MGD per acre

Comparison:	9 hole equivalency	Acres
Re Users	(MGD)	(MGD)
Prison Farms	1.04	1.70
Eagle Valley Golf Course	1.04	0.74
Empire Ranch Golf Course	0.78	0.73
Silver Oak Golf Course	0.52	0.59
Carson City Parks	0.26	0.14
Overhead Fill Stations	0.26	0.00
Total	<u>3.90</u>	<u>3.90</u>