Exhibit 13: State of Oklahoma, Choctaw Nation of Oklahoma, Chickasaw Nation, City of Oklahoma City Water Settlement

Lake Level Release Restriction

Accounting Memorandum

August 8, 2016

DiNatale WATER CONSULTANTS

Version: 2016-08-08

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Abbreviations

AF	acre-feet
AFY	acre-feet per year
cfs	cubic feet per second
City	City of Oklahoma City
Nations	Chickasaw Nation and the Choctaw Nation of Oklahoma
State	State of Oklahoma
USGS	United States Geological Survey
YTD	year-to-date

1 Introduction

This documentation provides a description of the draft Sardis Lake accounting that will be implemented as part of the Settlement Agreement between the Chickasaw Nation and the Choctaw Nation of Oklahoma ("Nations"), the State of Oklahoma ("State"), and the City of Oklahoma City ("City"). This documentation incorporates the terms contained in the November 24, 2015 Draft Settlement Agreement ("Draft Settlement Agreement").

The accounting has been developed as an Excel workbook. Although there are hyperlinks within the accounting workbook to the USGS website for current and historical reservoir elevations, it does not require the use of macros or links to external spreadsheets and will be able to be run on any computer that has Microsoft Excel.

This documentation describes the various features of the accounting. Detailed explanations of the formulas used in the spreadsheet can be found within the documentation contained within the Excel workbook. This documentation serves as a description of the features and functions of the workbook and the data and rules that have been used to govern the accounting.

2 Dashboard

The Dashboard is a page in the accounting workbook that directs you to other pages in the workbook. Each button in the Dashboard is linked to a page in the workbook. The pages in the workbook are described in the following sections. Each page has a button that will take the user back to the Dashboard and is illustrated in **Figure 1**.

3 Accounting Explanations and Definitions

The Accounting Explanations page provides documentation on the function of each page; where data should be entered for the accounting, as well as descriptions of the formulas, where applicable. Much of the information contained in the Accounting Explanations is described in greater detail in this report. The Definitions page describes the key terms used in the accounting:

Table 1. Accounting definitions

Inactive Storage	Storage below the lowest elevation at which water can be released from the lake
Inaccessible Storage	Storage below the lowest elevation at which water can be released or diverted without hydraulic or water quality limitations
Live Storage	Storage space between the top of the conservation pool and the specified lower elevation
Flood Pool	Storage above the flood elevation
Administrative set-aside Account	20,000 AFY set-aside in Sardis Lake for non-Oklahoma City uses
Available City Live Storage	Live storage available for Oklahoma City. Currently this is equal to Live storage.

4 City Water Supply Reservoirs Map and Current Storage Link

The City Water Supply Reservoirs and Current Storage page contains a map of the City's water supply reservoirs. All of the water supply reservoirs except for Canton Lake and McGee Creek Reservoir are owned by the City. Canton Lake is an Army Corps of Engineers reservoir that releases water for downstream diversion by the City to two of its terminal water supply reservoirs (Hefner and Overholser). McGee Creek Reservoir is a water supply and flood control reservoir owned and operated by the Bureau of Reclamation.

Each reservoir has a hyperlink to a page within the accounting for each reservoir as shown in **Figure 2**. The page for each reservoir includes a schematic of the storage pools in the reservoir and a hyperlink that will take the user externally to the United States Geological Survey (USGS) website that has the current and historical reservoir elevation.

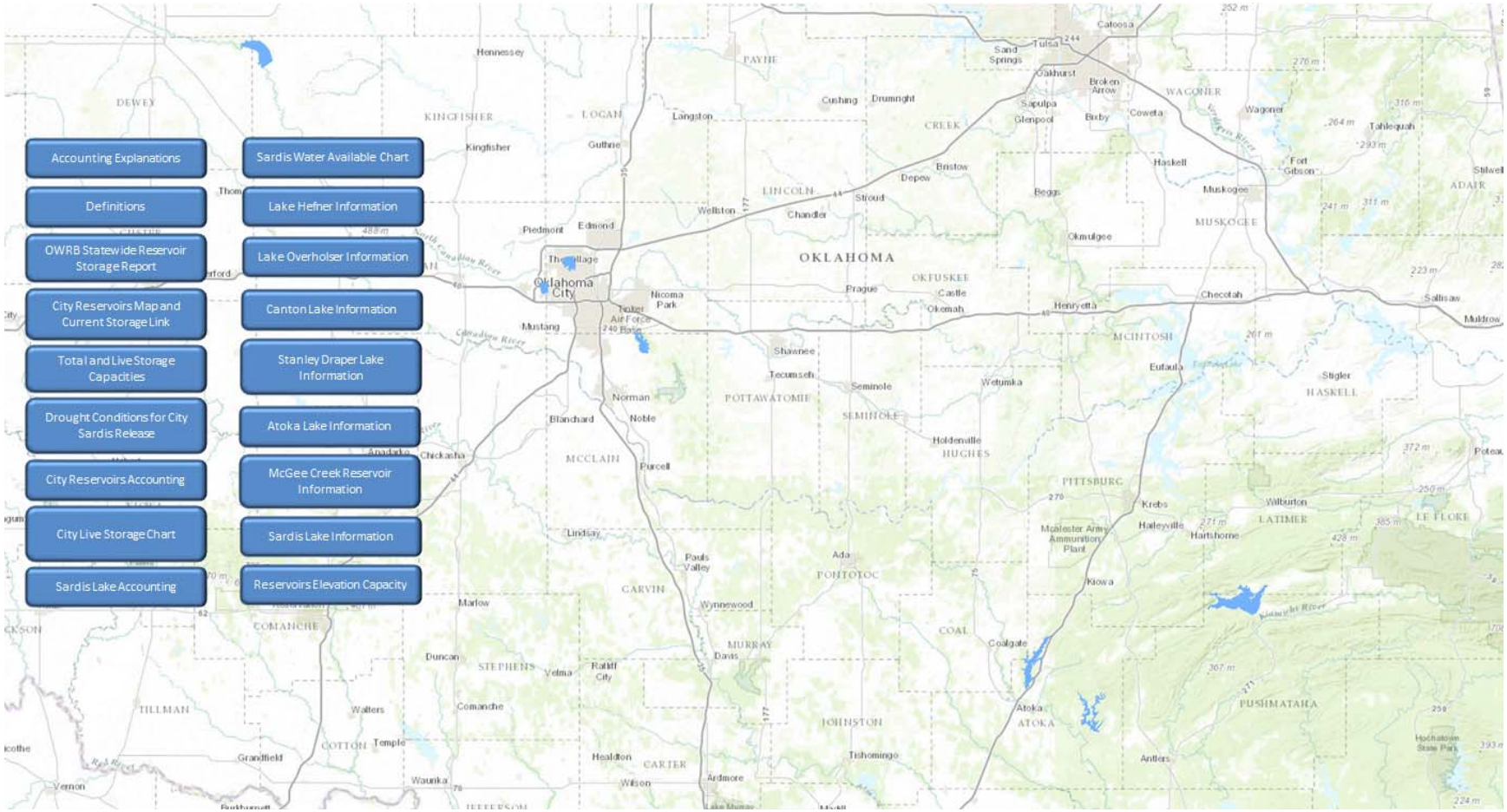

Figure 1. Example map with Dashboard hyperlinks

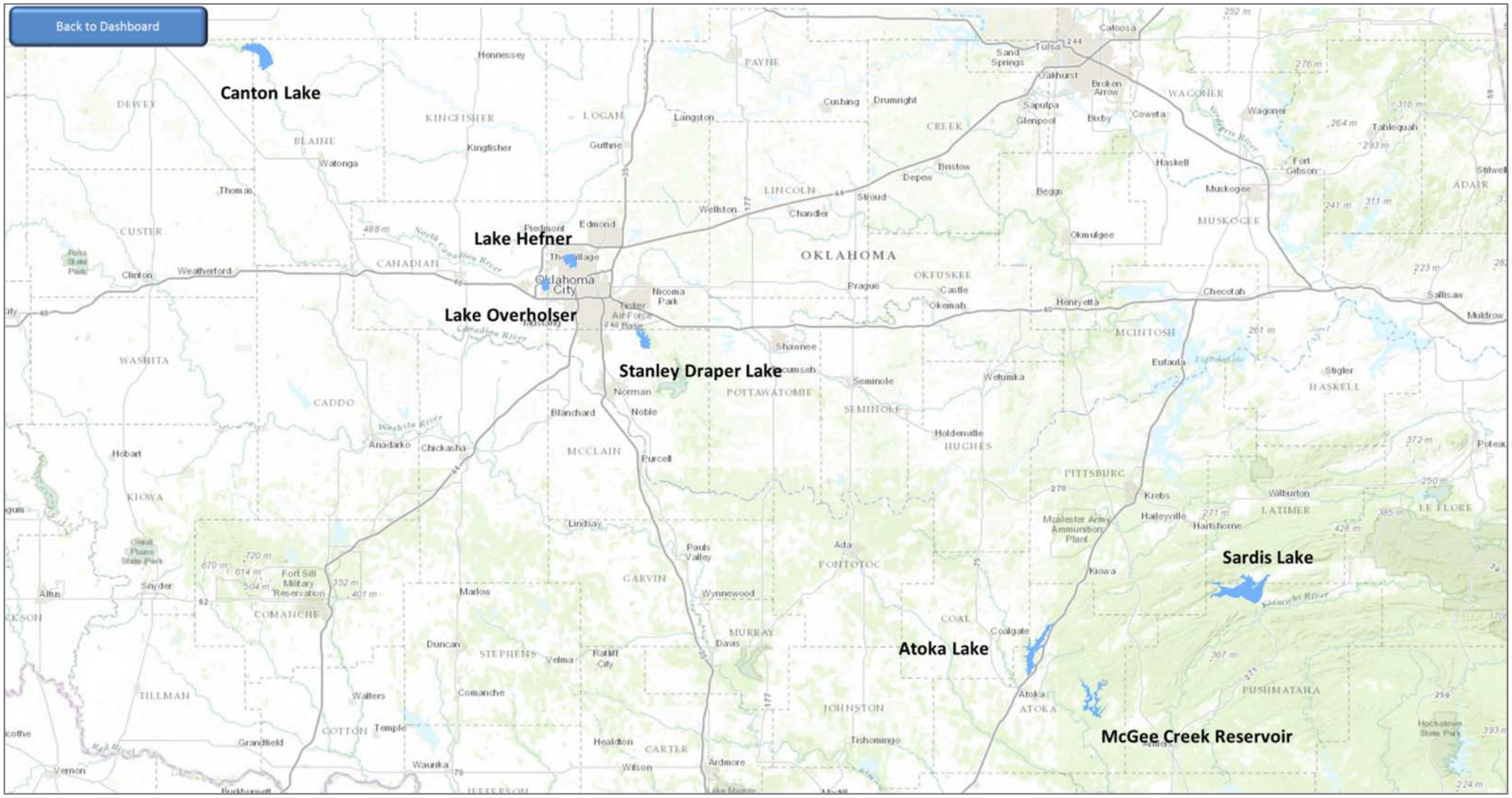

Figure 2. Example map with USGS website current storage hyperlink

5 Total and Live Storage

Live storage is defined in 6.1.8.3 of the Draft Settlement Agreement as

> *"… the volume of City Reservoir storage space between the top of the conservation pool and a negotiated lower elevation using the elevation-capacity relationship... "*

Live storage does not include any temporary storage in the flood control pool of any reservoir or storage above the spillway at Atoka Reservoir.

The dead pool infrastructure limitations are based on hydraulic capacity and water quality issues that limit the ability of the City to adequately treat water stored in the bottom of the reservoirs, as described in this section.

The City has analyzed the availability of storage in each reservoir, as shown in **Table 2**. These are updated storage volumes based on the data from the Oklahoma Water Resources Board, which recently (late 1990s and early 2000s) completed bathymetric surveys for the lakes, except Canton. Note that the Canton volume remains the same. There are a number of factors that determine the live storage and dead pool for each reservoir. The inactive pool is storage below the lowest elevation at which water can be released from the lake or diverted from the lake based on existing infrastructure. The inaccessible pool is water that cannot be withdrawn due to hydraulic or water quality limitations. The combination of the inactive and inaccessible pool for each reservoir determines the dead pool for that individual reservoir. The live storage and dead pools are described in the description of each reservoir.

Table 2. Oklahoma City current total and live storage capacities. Canton Lake's live storage has been reduced by 30% to account for transit loss in the North Canadian River.

	Revised full elevation and capacity		Inactive and inaccessible pool elevation and capacity		Live Storage (AF)
	Elevation (ft)	Storage (AF)	Elevation (ft)	Storage (AF)	
Canton Lake	1615.4	111,353	1596.5	14,177	68,023
Lake Overholser	1241.5	13,514	1231.8	605	12,909
Lake Hefner	1199.0	69,894	1165.0	12,301	57,593
North Canadian subtotal		**194,761**		**27,083**	**138,525**
Stanley Draper Lake	1191.0	87,155	1145.0	14,960	72,195
Atoka Reservoir	590.0	109,819	550.0	1,879	107,940
McGee Creek Reservoir	577.1	99,492	533.0	11,047	88,445
Southeast OK subtotal		**296,466**		**27,812**	**268,580**
Total		**491,227**		**54,895**	**407,105**

5.1 Canton Lake

- Canton is located on the North Canadian River to the northwest of the City
- Canton is owned and operated by the Army Corps of Engineers but the City retains the storage rights
- Canton is the only reservoir not directly connected to the City's water system and water is released to the North Canadian River for downstream delivery to Lake Overholser or Lake Hefner
- Water released from Canton into the North Canadian River travels a significant distance to the diversion point and due to the characteristics of the North Canadian River experiences a 30 percent transit loss due to seepage from the River
- The 30 percent loss is based on deliveries made during the wetter fall and winter months
- Transit loss would be significantly greater if releases were made during the summer or drought years
- The City applies a 30 percent loss to water stored in the conservation pool to determine available live storage
- Canton has one outlet at elevation 1,596.5 ft.
- There is 14,177 acre-feet (AF) of storage below this outlet that is inactive storage
- Since the intakes from Canton Lake are not directly connected to the City's treatment system, the reservation of storage for a water quality pool is not necessary
- There are occurrences where water is temporarily stored in the flood control pool, for subsequent release as downstream conditions allow. The determination of live pool storage stops at the conservation pool. Any water temporarily stored above elevation 1615.4 in the flood control pool is not included in the live pool storage.
- Total live storage in Canton is 68,023 AF

The schematic of the outlets, storage pools, and storage volumes for Canton Lake is shown in **Figure 3**.

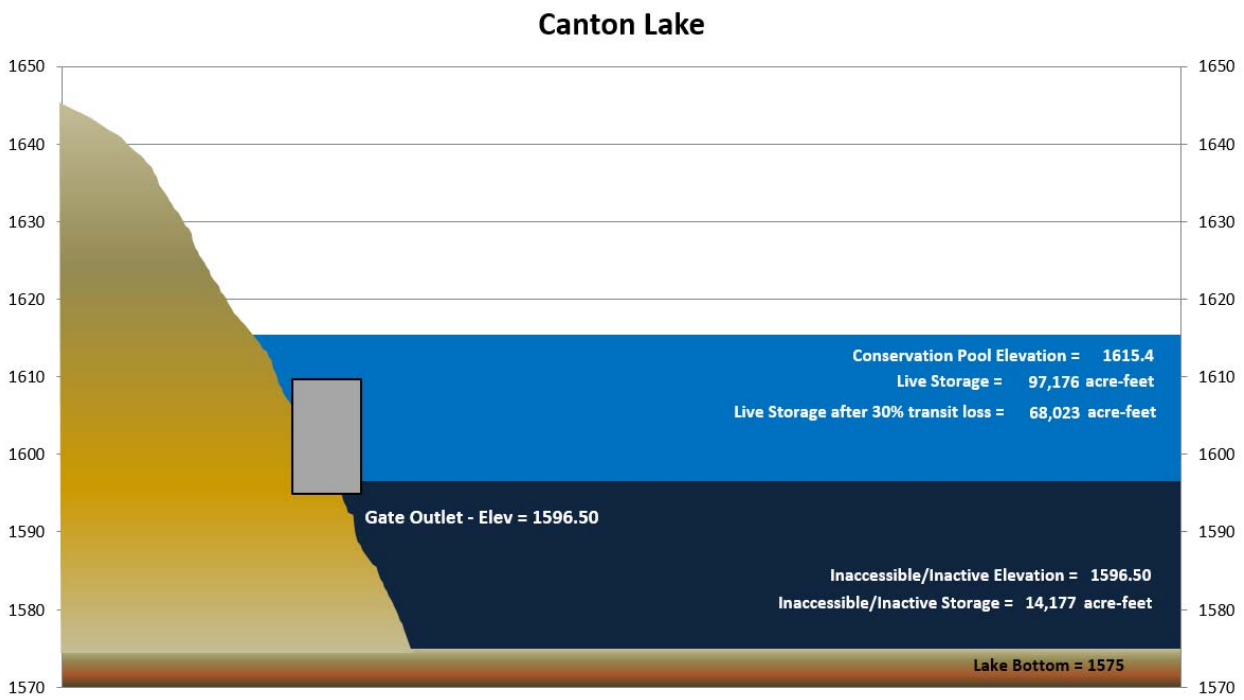

Figure 3. Canton Lake storage schematic.

5.2 Lake Overholser

- Lake Overholser is one of the City's three terminal water supply reservoirs.
- Overholser is fed from the North Canadian River system by impounding water at the Overholser Dam.
- Water is stored by the dam until it reaches an elevation that causes it to overflow the rollover dam on the northeast corner of the lake.
- Water is diverted from the lake through an intake structure that feeds a 54-inch gravity line that runs to the Overholser Water Treatment Plant.
- The lake is silted in to elevation 1,228.6 ft.
- Gates 2 and 3 are silted in and below the current lake bottom
- Gate 1 is the only operable gate at elevation 1,231.7 ft.
- There is 385 AF of storage that is not silted in below Gate 1
- The accessible level for water in the lake was determined based on physical access conditions and water quality impacts to treatment
- The inaccessible elevation at 1,231.75 ft., for an additional 220 AF of inaccessible storage
- Total inactive and inaccessible storage is 605 AF of dead pool
- Total live storage is calculated at 12,909 AF

The schematic of the outlets, storage pools, and storage volumes for Lake Overholser is shown in **Figure 4**.

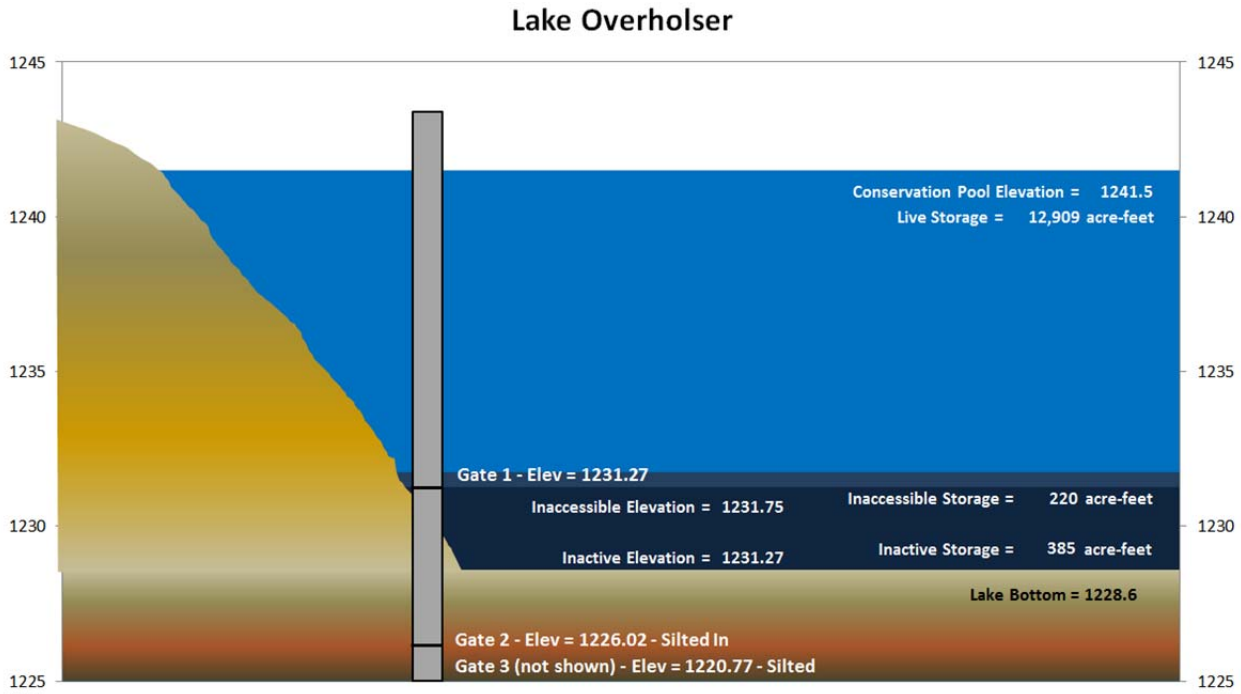

Figure 3. Lake Overholser storage schematic

5.3 Lake Hefner

- Lake Hefner is one of the City's three terminal water supply reservoirs.
- Water is diverted from the North Canadian River system through the man-made Hefner Canal (also known as Bluff Creek Canal). Water is diverted to the canal by impounding water at the Overholser Dam back to the Hefner Canal where it generally runs northeast to Lake Hefner
- Water released from Hefner flows via pipeline directly to the Hefner Water Treatment Plant
- Inactive pool is below elevation 1,148.00 ft. that contains 2,322 AF
- Gate 5 is likely inaccessible due to sedimentation
- The inaccessible level, or the water unusable above the inactive level, was determined based on experiences from the Lake Stanley Draper where water quality was significantly degraded impacting treatment at the water plant, increasing chemical costs and creating additional residuals from the treatment process
- Inaccessible elevation is at 1,165.00 ft. halfway between Gates 3 and 4 and represents 9,979 AF of storage space
- Inactive and inaccessible storage is 12,301 AF of dead pool
- Total live storage is calculated at 57,593 AF

The schematic of the outlets, storage pools, and storage volumes for Lake Hefner is shown in **Figure 5**.

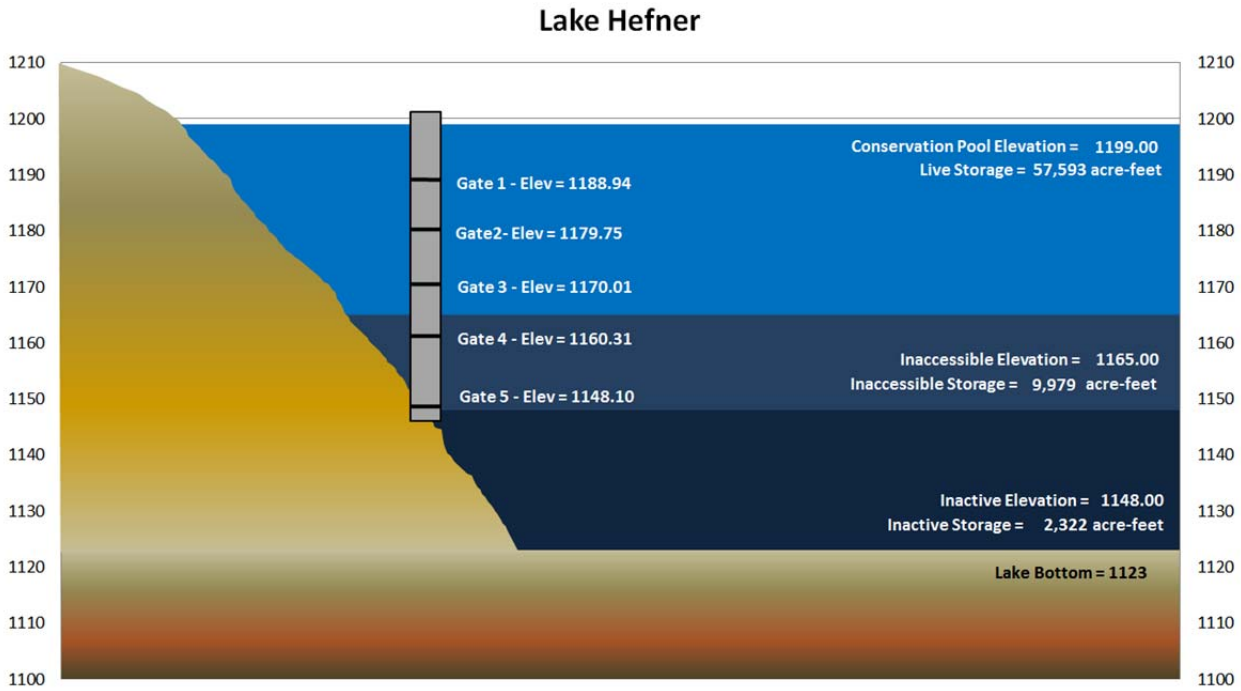

Figure 5. Lake Hefner storage schematic

5.4 Stanley Draper Lake

- Lake Stanley Draper Lake is a terminal water supply reservoir with essentially no watershed
- The significant majority of water in the lake is from the Atoka Pipeline diverting water from Lake Atoka and the McGee Creek Reservoir (first via the McGee Creek pipeline).
- Water released from Draper flows via pipeline directly to the Draper Water Treatment Plant
- Stanley Draper has five outlet gates
- Gate 5 is the bottom gate at elevation 1,123.5 ft.
- There is 2,971 AF of inactive storage below Gates 5
- Based on experiences in 2011 where turbidity for the raw water spiked when the lake was at its lowest levels since construction (approximately elevation 1158 feet), an estimate was made of the lowest level the lake that could still receive sufficient treatment while keeping the Draper plant running
- The inaccessible elevation of 1,145.0 ft. was set using the water quality criteria developed after 2011 and is halfway between Gates 3 and 4 and represents 11,989 AF of storage space
- Total inactive and inaccessible storage is 14,960 AF of dead pool
- Total live storage is 72,195 AF

The schematic of the outlets, storage pools, and storage volumes for Stanley Draper Lake is shown in **Figure 6**.

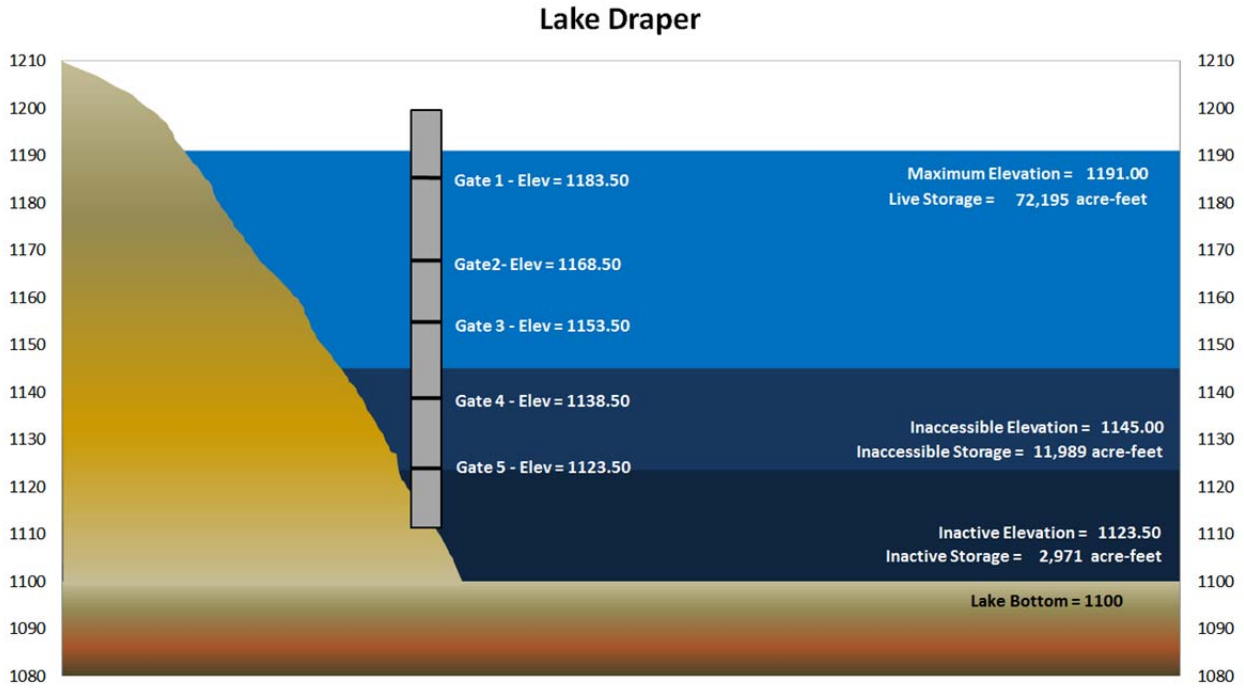

Figure 6. Stanley Draper Lake storage schematic

5.5 Lake Atoka

- Water impounded at Lake Atoka is conveyed to Stanley Draper Lake via the Atoka Pipeline
- The lake also provides temporary storage of water from the McGee Creek Reservoir until it is pumped and conveyed via the Atoka Pipeline
- The Atoka pipeline has six pump stations
- Atoka has five outlet gates
- Gate 5 is the bottom gate at elevation 540.0 ft.
- There is 100 AF of inactive storage below Gate 5
- Gate 4 was assumed to be the lowest gate from which water could be diverted from the lake while still maintaining sufficient water quality.
- The inaccessible elevation is below Gate 4 at elevation 550.0 ft. and represents 1,779 AF of storage space
- Total inactive and inaccessible storage is 1,879 AF of dead pool
- Water temporarily stored above elevation 590.0 ft., which is the top of the spillway, is not included as part of the calculation for live storage.
- Total live storage in Atoka is 107,940 AF

The schematic of the outlets, storage pools, and storage volumes for Lake Atoka is shown in **Figure 7**.

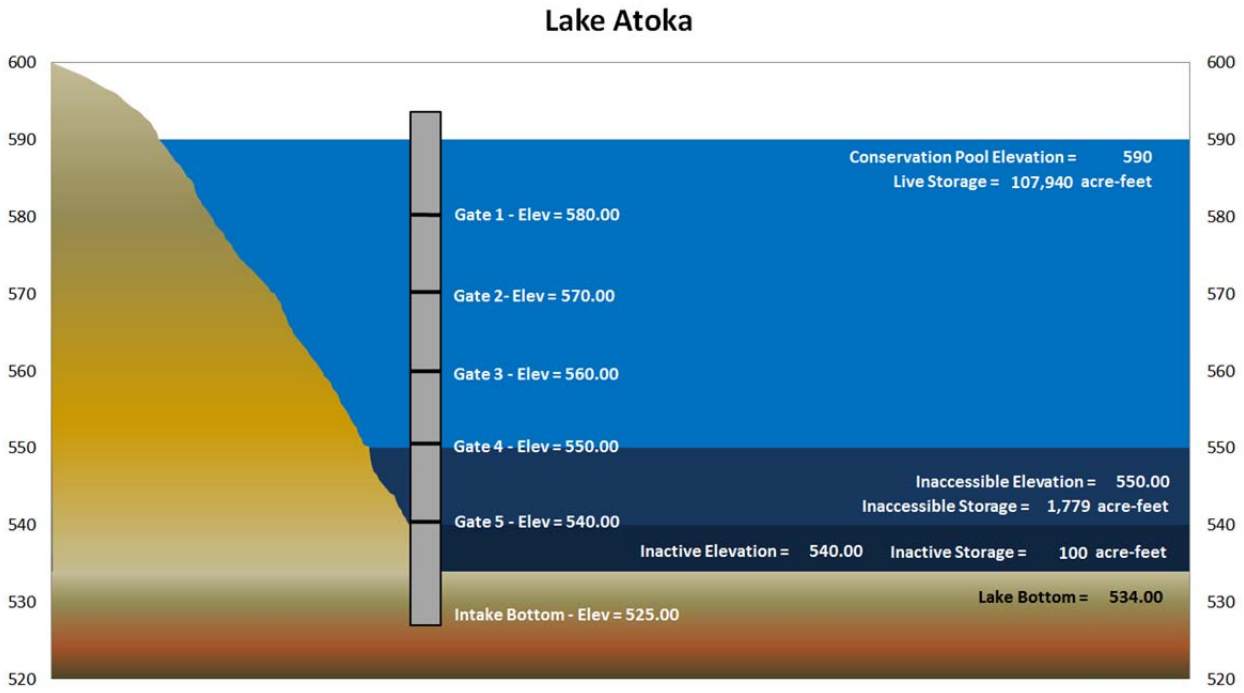

Figure 7. Lake Atoka storage schematic

5.6 McGee Creek Reservoir

- McGee Creek Reservoir is a water supply and flood control reservoir constructed, owned and operated by the Bureau of Reclamation
- Water is conveyed to the Atoka Reservoir by the McGee Creek pipeline and then to the City by the Atoka Pipeline
- McGee Creek has three outlet gates
- Gate 3 is the bottom gate at elevation 501.6 ft.
- The regulatory inactive pool is set at elevation 515 ft. which corresponds to 2,196 AF.
- The inaccessible elevation is below Gate 2 at elevation 533 ft. and represents 8,851 AF of storage space.
- Total inactive and inaccessible storage is 11,047 AF of dead pool
- The Bureau controls downstream releases from McGee Creek Reservoir. The City only controls its pumped releases.
- Any water temporarily stored above elevation 577.1 ft. in the flood control pool is not included in the live pool storage.
- Total live storage is 88,445 AF
- Oklahoma City has a permit for 40,000 AF of yield from McGee Creek Reservoir. Other entities have permits for 20,000 AF of yield. Additional analysis may be needed in accounting spreadsheet to reflect this allocation.

The schematic of the outlets, storage pools, and storage volumes for McGee Creek Reservoir is shown in **Figure 8**.

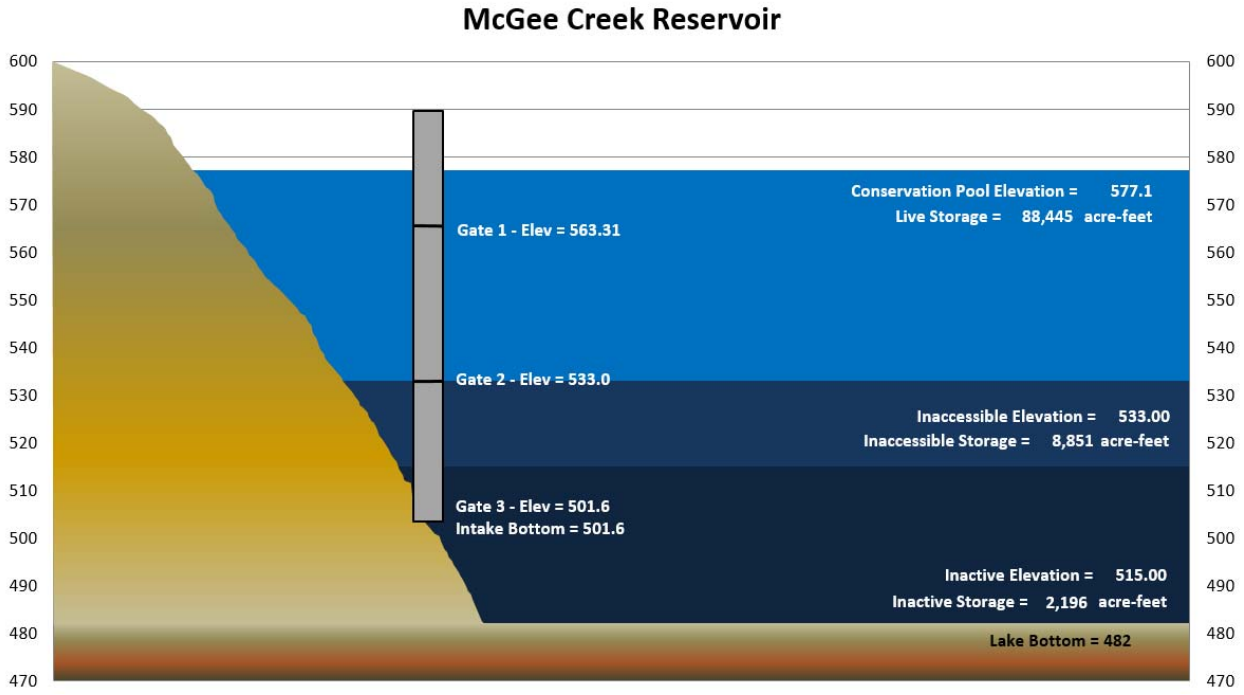

Figure 8. McGee Creek Reservoir storage schematic

6 Drought Conditions Under Settlement Agreement for Sardis Lake Release

At certain system-wide live storage conditions, as defined in the Settlement Agreement, the City is able to release different volumes of water from Sardis Lake, based on the date. The drought conditions are defined as baseline, moderate, advanced, or extreme. In general, the more extreme the drought and the lower the live storage level of the six City water supply reservoirs, the more water the City can release from Sardis Lake. However, there are minimum reservoir elevation levels for Sardis Lake that must be maintained regardless of the total City storage and/or the applicable drought condition. In the accounting, the tab "City reservoirs accounting" determines the drought condition for each day. It should be noted that in addition to the system-wide live storage criteria, Lake Hefner and Draper Lake also must individually meet the drought conditions. The different date and associated drought conditions are found in the accounting tab "Drought conditions" and shown in **Table 3**.

Table 3. Drought conditions and applicable release condition

Date	Percent of Live Storage*	Applicable Release Condition	Minimum Lake Elevation for Release, ft MSL
Apr 1 - Aug 31	N/A	Baseline	599
Sept 1 - Mar 31	N/A	Baseline	595
Jul 5 - Aug 31	<75	Moderate	597
Jan 1 - Dec 31	<65	Advanced	592
Jan 1 - Dec 31	<50	Extreme	589

* In addition to the system-wide live storage criteria, Lake Hefner and Draper Lake also must individually meet the drought conditions

7 City Reservoirs Accounting

The “City reservoirs accounting” tab tracks the storage details of the six City water supply reservoirs (Canton Lake, Lake Overholser, Lake Hefner, Stanley Draper Lake, Atoka Lake, and McGee Creek Reservoir). The elevation, total storage, live storage, and percent fill are tracked with daily accounting.

In order to determine a storage volume, a gage height reading is used in a lookup with elevation capacity tables that have been developed for each reservoir (see **Figure 9**).

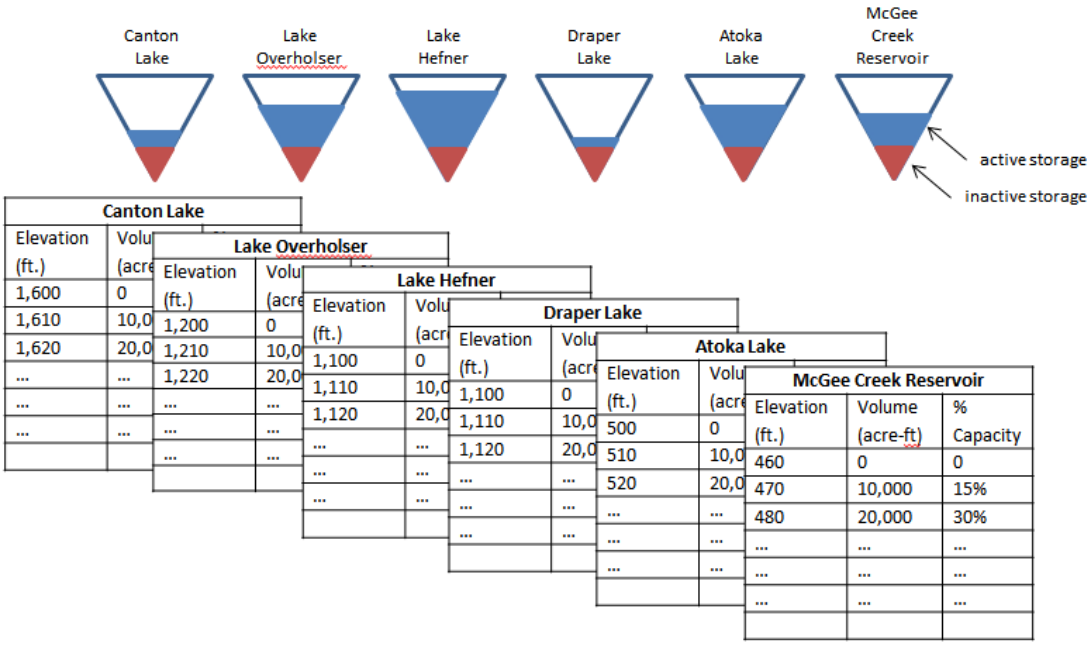

Figure 4. Example of the City reservoirs accounting tab

Of this storage, some is live storage and some is inactive and/or inaccessible (dead pool). Inactive and inaccessible storage varies for each reservoir and is explained in Section 5. Additionally, as noted, there is a 30 percent transit loss from Canton Lake to the City’s intakes, so live storage is reduced by 30 percent. In determining the percent fill of the reservoir, only the live storage and live storage capacity of the reservoir is considered.

Once the Available City Live Storage of each reservoir is determined, the percent of total live storage for the entire system is determined. This value, along with the individual percent of live storage for Draper and Hefner, is used to determine the drought condition.

8 Year-to-Date City Storage Chart

The daily total available City live storage in each of the City's water supply reservoirs and total percentage of live storage is shown in a chart on the "YTD (Year-to-Date) City storage chart" tab. An example of this chart is shown on **Figure 10**. This figure includes actual data for the 2015 calendar year.

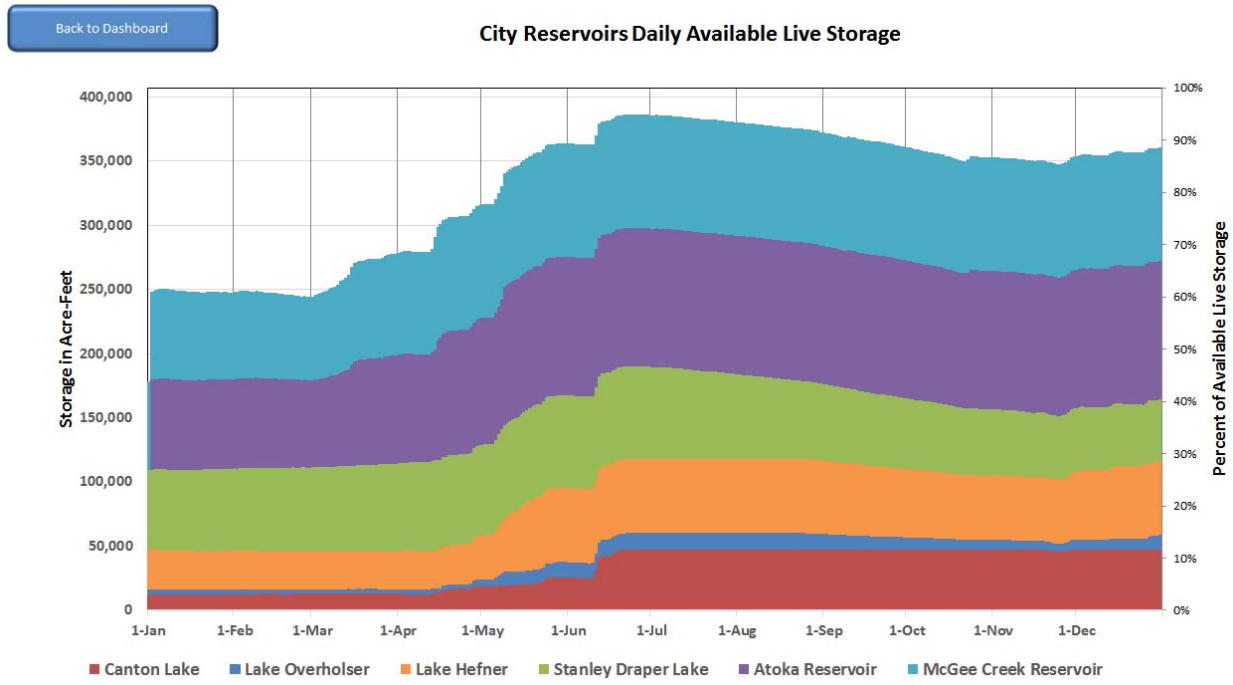

Figure 5. YTD City storage chart for 2015

9 Sardis Lake Accounting

The accounting tab "Sardis Lake accounting" details the storage level, inflows and releases, drought condition, and water available for City release for Sardis Lake.

First, the daily gage reading is used to estimate the overall storage volume of the lake. The Sardis elevation capacity table that we used is based on a 2010 Lidar Survey merged with 1983 bathymetry. These sources and methods are described in a June 14, 2013 document prepared by Joseph Large of the Army Corps of Engineers, although this memo does not describe the source of the 2010 Lidar survey. There are several other elevation-capacity tables described in this document and an alternate table can be used, if it is determined that one of the other tables represents the best data available. The elevation-capacity table that is used provides a lake volume at one-foot intervals; however, the gage reading is measured and reported to the hundredth of a foot by USGS. Therefore, a linear interpolation between the one-foot readings on the elevation capacity table is performed to most accurately estimate the volume of the lake.

All releases from the reservoir are input to the accounting. The total release from the reservoir is measured and reported daily by the Army Corps of Engineers and can be found at http://www.swt-wc.usace.army.mil/SARDcharts.html. This release can be broken into a federal release (combination of any flood release and the 4 cfs Federal Release as allowed by the Feb. 16, 1974 "Contract Between the United States of America and The Water Conservation Storage Commission of the State of Oklahoma for Water

Storage Space in Clayton Lake"), Administrative release, and City release. The City release must be less than the daily "Water Available for City Release" as calculated in the accounting based on the drought condition.

This accounting sheet shows the current drought condition, associated minimum reservoir elevation and lake volume for that drought condition, and the current conservation storage above the minimum level (if any) established based on the current drought condition. The volume above the minimum volume for the current drought condition is the maximum water available for the City to release. Any temporary storage in the flood pool is not included in this calculation.

The cumulative annual release is tracked for each account. The City is permitted to divert a maximum of 115,000 AF per year at Moyers Crossing. Releases from Sardis Lake to Moyers Crossing experience a transit loss which is calculated as part of the accounting, but does not impact the City's ability to divert 115,000 AF per year at Moyers Crossing. The cumulative annual diversion at Moyers Crossing is tracked to ensure that the City's diversions do not exceed 115,000 AF. Additionally, the Administrative set-aside account is permitted to either withdraw or release 20,000 AFY from Sardis Lake and subsequently divert such released water from the Kiamichi River. Releases and withdrawals from the Administrative set-aside account are not subject to the drought condition restrictions.

Other values associated with Sardis Lake are also tracked in this tab, such as the flow in the Kiamichi River below the City's diversion at Moyers Crossing. These values will be input by the user. A minimum flow of 50 cubic feet per second (cfs) must be maintained below the City's diversion at Moyers Crossing at times when the City is diverting water at Moyers Crossing.

10 Sardis Water Available Chart

The tab "Sardis Water Available Chart" shows the minimum Sardis Lake storage volume for the daily drought condition (calculated based on the minimum elevation), the current Sardis Lake storage, and the available water between the two elevations. It is possible that if the available water was released from Sardis Lake and stored in one of the six City water supply reservoirs, the increase of live storage in the City water supply reservoirs would lessen the severity of the drought condition and alter the minimum elevation and storage of Sardis Lake.

An example of the chart is shown in **Figure 11** using actual 2012 City and Sardis reservoirs storage and calculating the daily applicable drought condition. The red line shows the minimum storage allowed for the City's release that day. This is determined by the applicable drought condition on that day. The green line shows the total live storage in Sardis. If the green line (total live storage) is above the red line (minimum storage), the City is allowed to release water. The blue bars represent the maximum volume of water that could be withdrawn by the City on that specific day and represents the volume of water between the green and red lines. The City doesn't have control of flood storage so the volume of water in the lake is based on water in the conservation pool only. This chart does not show the daily water availability for the City to divert at Moyers, only the City's allowable release from Sardis. It is possible that there was adequate flow for the City to divert at Moyers Crossing and meet the minimum 50 cfs downstream flow requirements without a release from Sardis.

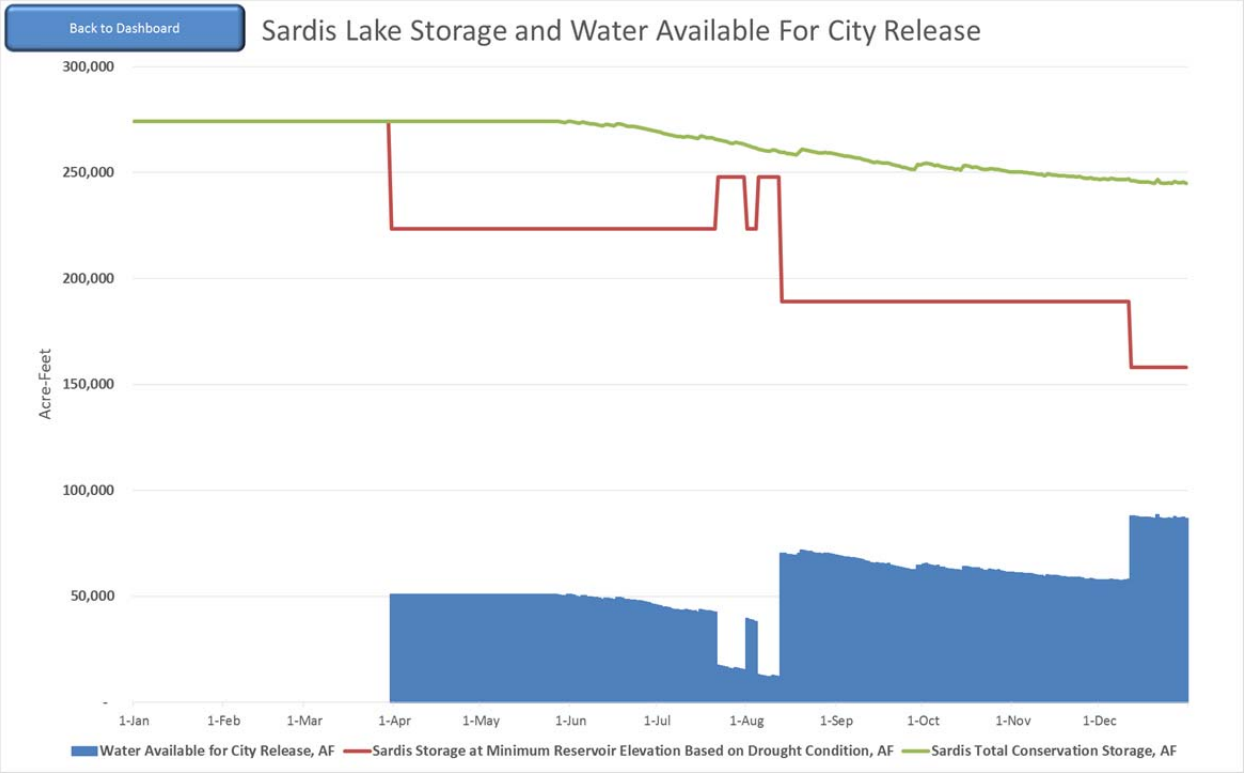

Figure 11. Example Sardis Lake water available chart from 2012