MEMORANDUM

TO: **City of Santa Fe Public Utilities Committee**
City of Santa Fe Water Conservation Committee
Buckman Direct Diversion Board

FROM: **Rick Carpenter, Water Resources and Conservation Manager**

VIA: **Brian Snyder, Public Utilities Department and Water Division Director**

DATE: **May 23, 2013**

SUBJECT: Update on Drought, Monsoon, and Water Resource Management

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CURRENT PUC UPDATE

As the Committee is aware, our region is still suffering through a severe drought. Our region has gone through two consecutive years of record drought and heat. It is now apparent that we are in a third consecutive year of severe drought and heat which will present significant challenges to all water purveyors and irrigators. Approximately 98% of the state of New Mexico is in "extreme" drought conditions or worse. New Mexico appears to be the epicenter of the regional drought. This situation is unprecedented and the City's Water Division takes this situation very seriously.

The National Oceanographic and Atmospheric Administration (NOAA) recently updated its monthly report on its El Nino/Southern Oscillation (ENSO) Diagnostic. This report indicates that current model predictions more strongly favor El Nino conditions to be neutral to weak (dry) through the spring of 2013. The long-term forecast for this coming winter seems to be trending away from El Nino, towards neutral, with an increasing chance of a return to La Nina conditions. Above average temperatures are also expected.

The City of Santa Fe has invested in a robust and diverse portfolio of four distinct water supply sources that allows for flexibility in meeting demand: Buckman well field, City well field, Canyon Road Water Treatment Plant on the Upper Santa Fe River, and the Buckman Direct Diversion on the Rio Grande.

Water Resource Management

Some recent BoR/USACoE models indicate the possibility of critically low flows that could affect BDD diversion capability later this summer. Also, the Canyon Road Water Treatment Plant may also experience significant supply shortfalls later this year. However, City water resource managers are closely monitoring the water supply situation and are prepared to offer a variety of options to decision-makers. For example, the City has several years-worth of San Juan-Chama Project water stored in reservoirs, in case deliveries from the federal Bureau of Reclamation of San Juan-Chama Project water are curtailed. The City could therefore choose to release some of that water if needed. Additionally, the City has been "resting" the Buckman well

field since early 2010 in case decision-makers opt to pump significant amounts of water from the aquifer. Also, policy makers may consider implementation of Emergency Drought Stages pursuant to the Conservation Ordinance. Therefore, City decision-makers and resource managers have a variety of policy options available in order to meet water supply demands during times of drought.

Local Conditions

	Reservoir Level	Santa Fe Snow Gage	Reservoir Inflow
May 24, 2013	34.7%	0.0 inches	2.80 MGD
5-Year Average This Date (2008 – 2012)	76.6%	12.5 inches	11.1 MGD

The City of Santa Fe has rights to a total of up to 5,040 acre-feet per year in Nichols and McClure Reservoirs. City Water Division staff are estimating receiving only about 1,200 – 1,300 acre-feet of water from the upper Santa Fe River watershed this year. It is anticipated that this water will be available beginning in June through September. As of the date of this memo, there is almost zero snow pack left in the upper watershed. Snowmelt runoff into local reservoirs will soon begin to sharply decrease.

Rio Grande Basin

Surface flows in the Rio Grande and its tributaries have been well below normal, storage levels in regional reservoirs are very low currently, and the federal BoR recently stated that if there is no "meaningful moisture" received this winter/spring then this would mark the lowest water levels ever in New Mexico reservoirs prior to entering into a new irrigation season. With large moisture deficits deeply entrenched across the region, meaningful improvement seems unlikely. For example, the most recent forecast of runoff into the Rio Grande at Otowi Gage (upstream from the BDD diversion structure) is for about 17% of normal flow. Legal and hydrologic compliance with the various Biological Opinions (Endangered Species Act, e.g., silvery minnow) in the middle and upper reaches of the Rio Grande will become very difficult, if not impossible, through the coming summer months.

San Juan Basin

According to the NRCS' March 1, 2013 Basin Outlook Report, "streamflow forecasts for the San Juan River Basin is 75 percent of the 30 year avg. (1981-2010). The San Juan-Chama Project delivery forecast was recently updated by BoR (March 18th). BoR is now projecting a <u>full allocation</u> of San Juan-Chama Project water to San Juan-Chama contractors for this year (up from a previous forecast of only 80%); however, conditions could significantly worsen for San Juan Chama Project deliveries next year if the drought persists due to a lack of carry-over storage in Heron Reservoir. If conditions do not change, after deliveries are made out of Heron Reservoir this year, that reservoir will be heading into the next water –year at historically low levels.

For the last few weeks, the snowpack, as measured in inches of snow water equivalent (SWE), in the San Miguel, Dolores, Animas, and San Juan basins has been declining rapidly. These basins reached their peak snowpack around March 22nd, and then began to melt. Recent snow surveys reported that the snowpack is more-or-less gone and there will be very little snowmelt runoff for the remainder of the water-year.

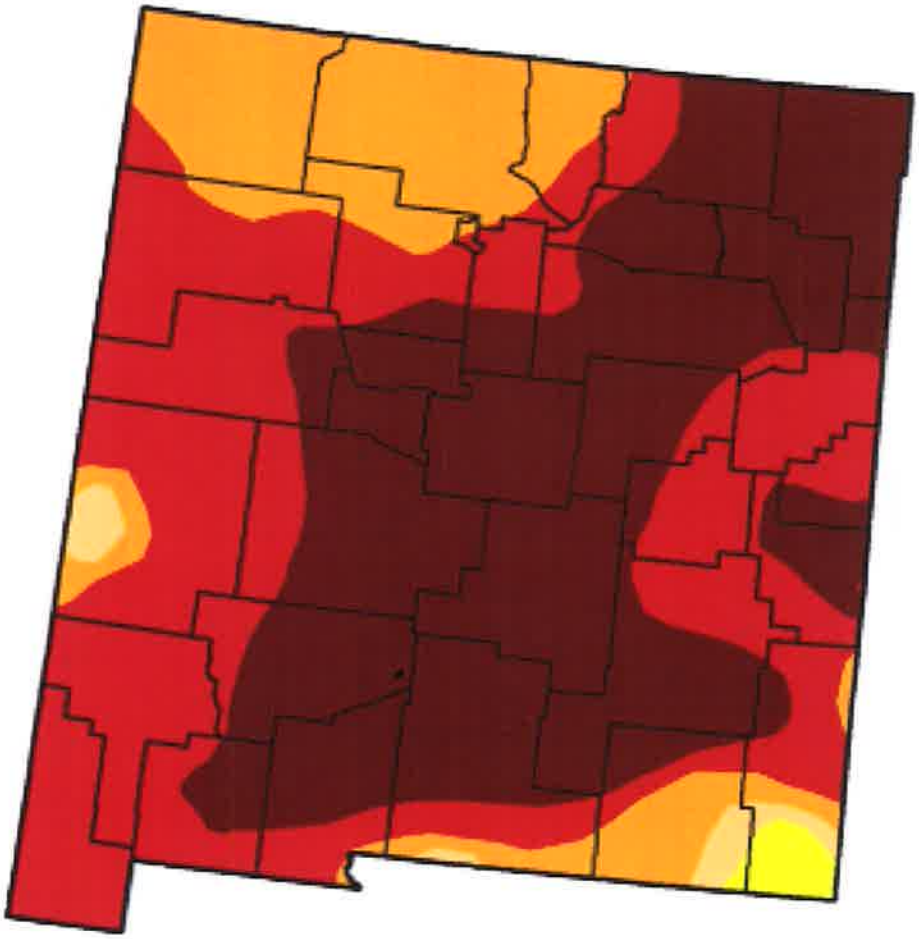
U.S. Drought Monitor

May 14, 2013
Valid 7 a.m. EST

New Mexico

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.04	97.63	81.68	44.14
Last Week (05/07/2013 map)	0.00	100.00	99.04	97.75	81.82	39.89
3 Months Ago (02/12/2013 map)	0.20	99.80	98.45	89.85	25.36	0.97
Start of Calendar Year (01/01/2013 map)	0.00	100.00	98.83	94.05	31.88	0.97
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	62.56	12.25	0.66
One Year Ago (05/08/2012 map)	0.00	100.00	96.20	68.67	27.26	3.49



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

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Rich Tinker, Climate Prediction Center/NCEP/NWS/NOAA