MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 6-B

DATE: JANUARY 28, 2020

TO: BOARD OF DIRECTORS

FROM: GENERAL MANAGER

SUBJECT: QUARTERLY WATER SUPPLY UPDATE (OCT-DEC ‘19)

RECOMMENDATION:
Information only, no action required.

DISCUSSION:
The 2018/19 winter brought above-average rainfall across the State, including in Santa Barbara County, filling reservoirs and resulting in the State becoming nearly drought free for the first time since 2011. The District’s Jameson Lake filled and spilled on February 3, 2019 and, despite the entire watershed burning in the 2017 Thomas Fire, the water quality has improved. Cachuma Reservoir filled to over 80% of its full storage capacity providing for a 100% allocation for both the 2019 water year and 2020 water year. The final State Water Project (SWP) allocation for 2019 was 75%. The above-average 2018/19 winter resulted in an increase in local surface water supplies, averting the need to purchase supplemental water to meet projected annual water demands for 2019. The change in hydrologic conditions resulted in the District projecting adequate water supplies to meet projected demands over the 3-year planning period (thru 2022). In addition, the improved water supply conditions resulted in an opportunity to store water in a regional groundwater bank, Semitropic Groundwater Banking and Exchange Program, thereby bolstering the District’s available water supplies during future droughts or periods of below-average rainfall.

Due to the above-average rainfall received in the first part of 2019, followed by a relatively cool and foggy spring and early summer, the District’s 2019 customer demands dropped by 9% as compared to 2018. The District’s 12-month running average water conservation is 46% as compared to the baseline usage for 2013, which continues to exceed the current conservation target of 30%. Continued conservation helps to ensure water supply availability in future years and compliance with State regulations relating to maximum per capita water use.

The District’s water supplies continue to recover from the cumulative impacts of the historic seven-year drought spanning 2012 to 2018. Groundwater levels remain near historic lows and although the basin is showing continuing signs of recovery, it is expected to take several consecutive years of above-average rainfall to fully recover. The District’s reliance on supplemental water through the drought resulted in water debt, which has yet to be fully repaid. Jameson Lake water quality remains affected by the drought and deliveries continue to be
limited. It is expected to take several more years of above-average rainfall for the District’s water supplies to fully recover.

Recognizing the significant improvement in water supply conditions, but also the water supply challenges that remain, on April 23, 2019 the Board continued the declared water shortage emergency pursuant to Water Code Section 350 and the District’s Urban Water Management Plan 2015 Update, and reduced the declared drought stage from Stage 2 to Stage 1 conditions. Subsequently, on May 28, 2019, the Board adopted Ordinance 96 repealing Ordinance 95 and establishing updated water use restrictions consistent with the declared Stage 1 water shortage emergency and current water supply conditions including the repeal of the prohibition on issuance of new water meters.

Background

In February 2014, following several years of deepening drought conditions, declining water supplies, and increases in customer water use, the District adopted Drought Ordinance 92 declaring a Stage 4 water shortage emergency condition, implementing restrictions on certain uses of water, prohibiting the issuance of new water meters, and instituting fines for failure to comply with water use restrictions. The District also adopted Ordinance 93 establishing monthly customer water use allocations and penalty rates for consumption in excess of allocation. The customer water use allocations were increased in March 2015 with the adoption of Ordinance 94. Collectively, these actions were successful under extraordinary drought conditions in reducing customer water use by nearly 50% to be commensurate with the District’s available water supplies.

In March 2017, following a moderately wet winter that resulted in partial recovery of Cachuma Reservoir and Jameson Lake and an above-average annual State Water Project allocation, the District adopted a revision to Ordinance 92 allowing for the processing of new water service applications for which the District had issued permits prior to the adoption of Ordinance 89 (April, 2008).

Shortly thereafter, in August 2017, the District adopted Ordinance 95, which repealed Ordinances 92 and 94, including monthly customer water use allocations and penalty rates. The adoption of Ordinance 95 transitioned the District from a mandatory to a voluntary-based conservation model, established updated water use restrictions including continuing the prohibition on issuance of new water meters, and reduced the declared water shortage emergency to a Stage 2 condition.

Despite both the partial recovery of surface water supplies in early 2017, and the extremely intense short duration storm in January 2018 which caused significant runoff and devastating debris flows in Montecito, the 2018 water year was the final year of the seven consecutive driest years on record for Santa Barbara County. As a result, the District remained in a declared Stage 2 water shortage emergency condition.

Hydrologic conditions changed in early 2019 when above-average rainfall fell across the State, including Santa Barbara County. January storms produced significant inflow into Jameson Lake, filling and spilling the reservoir on February 3, 2019 for the first time since 2011. Winter storms between January and March 2019 slowly filled Cachuma Reservoir, with total storage reaching over 80% of its full capacity. Northern California experienced near-historic rainfall and snowfall leading to a State Water Project (SWP) allocation of 75%. This increase in surface
water supplies enabled the District to bank its surplus SWP water in the Semitropic Groundwater Banking and Exchange Program for use during future periods of below-average rainfall or drought conditions.

The first quarter of the 2020 water year (October to December 2019) ended with near average rainfall. As of the end of December 31, 2019, the county-wide percentage of normal rainfall as a percentage of an entire water year is 42%. The change in drought conditions has led to a short-term improvement in the District’s projected three-year water supply outlook (through 2022).

**Drought Update**

Cumulative rainfall totals as of December 31, 2019 (WY 2020) for Santa Barbara County are near average. According to Santa Barbara County data, as of January 21, 2020 the County has received 42% of average rainfall for the water year (rainfall as a percentage of an entire average water-year). In Montecito and at Jameson Lake, according to District records, rainfall accumulation totals to date for WY 2019 are 169% and 112% of average respectively. According to U.S. Drought Monitor data, as of January 14, 2020, nearly the entire State, including Santa Barbara County, remains out of drought conditions. It is important to note that the US Drought Monitor focuses on broad-scale conditions and, because of this, local conditions may vary.

**Customer Demands & Conservation**

In March of 2017, the District suspended the issuance of penalties for water use in excess of customer allocations following an improvement in water supply conditions. For nearly six months, customer demands remained at or near historic low levels, similar to demands during 2016. In August of 2017, the District repealed its monthly customer water use allocations and penalties through the adoption of Ordinance 95, changing from a mandatory- to voluntary-based
conservation model. Since that time, annual customer demands have varied slightly but remain relatively consistent with other drought years. Because of the above-average rainfall received in the first part of 2019, followed by a cool and foggy spring and early summer, the 2019 total production of approximately 3,750AF was ±9% under the 2018 total production and ±15% under the District’s projected 2019 production.

As of December 31, 2019, the District’s 12-month running average water conservation is 46%, as compared to the baseline usage for 2013, which continues to exceed the current conservation target of 30%. Over the last three months, precipitation has varied widely and consequently conservation has varied from 28% to 61%. Continued customer conservation remains important not only to ensure water supply availability in future years but also to ensure continued compliance with Senate Bill X7-7 pertaining to maximum per capita urban water use. District customers are encouraged to continue conserving water at least 30 to 35% below 2013 usage. The District remains on track for full compliance with Senate Bill X7-7 in 2020.

**Water Supply Outlook**

The District’s three-year water supply planning outlook projects water supply availability through 2022. The projections assume normal or average conditions in 2020 declining to below average rainfall conditions in 2022, with customer conservation continuing at between 30 and 35% of the 2013 usage (baseline). Conservation remains necessary to preserve available water supplies for future years and to help the District’s water supplies fully recover from the drought.

The District continuously evaluates water supply conditions and the need for additional demand-management measures to ensure water supply availability over the three-year planning period. The following table outlines the status of each water source and its projected use over the planning period.
## Water Supply by Source

<table>
<thead>
<tr>
<th>Source</th>
<th>Current Condition (As of December 31, 2019)</th>
<th>Projections (thru 2022)</th>
</tr>
</thead>
</table>
| Jameson Lake      | ▪ 82% capacity (3,990AF) based on new 2019 bathymetric survey;  
▪ Lake inflow during the beginning of the 2020WY has been minimal;  
▪ Impacts from the Thomas Fire continue with elevated levels of Total Organic Carbon (TOC);  
▪ Lake deliveries remain limited to ensure regulatory compliance with disinfection byproducts (DBPs); Lake deliveries as of January 2020 are approx. 675gpm  
▪ Treatment Plant enhancements were completed in May 2019; Noise attenuation improvements completed in Dec 2019; Blower/aeration system is operating and helping to reduce DBPs. | ▪ Maximize deliveries (Up to 2,000AFY) in 2019 in accordance with Jameson Operational Rule Curve;  
▪ Projected deliveries in 2020 of ±1,500AF;  
▪ Continue to draw down lake level following 2019 spill to create storage capacity to capture possible inflows during 2019/20 winter;  
▪ Projecting average annual lake inflow of between 1,000 -1,500AF per year. |
| Doulton Tunnel    | ▪ Tunnel Intrusion is approx. 200gpm;  
▪ Must take delivery when produced;  
▪ Superior water quality; Blended with lake water prior to treatment.                                                                                                                                                                   | ▪ Projecting moderate rainfall pattern thru planning period with a 25% and 50% reduction in deliveries for 2020 and 2021/2022 respectively.                                                                                                     |
| Groundwater       | ▪ Total potable well capacity between 500-650gpm;  
▪ Basin continuing to show signs of slow recovery but remains just above historic low conditions;  
▪ Conjunctive use of groundwater and surface water supplies; Resting wells in years of above-average rainfall;  
▪ Potable wells turned off; Rotating one well operation to maintain functionality and avoid water quality complications.                                                                                               | ▪ Continue to rest basin through 2020 depending on hydrologic conditions;  
▪ Possible minor increase in well production in 2020, increasing to full production in 2021, assuming hydrologic conditions worsen from average and below average conditions from 2020 and 2022;  
| Cachuma Project   | ▪ ±72.4% of full storage capacity;  
▪ USBR issued 100% allocation (2,651AF) for WY2020 on October 1, 2019;  
▪ Total ±5,939 AF of “project” water stored in lake as of December 31, 2019.                                                                                                       | ▪ Increased risk of spill during 2019/20 winter due to elevated lake level; ±3,288AF at risk of loss to spill;  
▪ 50% allocation for WY2021/22 and a 20% allocation projected in 2022;  
▪ Lake level projections indicate the emergency pumping barge is not needed thru 2021.                                                                                          |
<table>
<thead>
<tr>
<th>Source</th>
<th>Current Condition (As of December 31, 2019)</th>
<th>Projections (thru 2021)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Water Project</td>
<td>▪ 2020 initial allocation is 10% (330AF); ▪ Limited SWP deliveries to Lake Cachuma restored in Late December 2019; Solution involved the installation of pipe over top of dam; ▪ SWP deliveries in 2019 limited to those required under the SYRWCD ID1 Exchange obligation (±625AF), subject to SYRWCD ID1 demands; ▪ Imported water is at high risk of loss to spill at Cachuma Reservoir due to elevated lake elevation (72% of full capacity); ▪ Minimum water stored in SLR (±65AF); any SWP water carried over into 2020 would be a risk of loss to spill.</td>
<td>▪ Assume average SWP allocation (60%) in 2020 and below average allocation (40%) in 2021 &amp; 2022; ▪ Similar SWP deliveries in 2020 &amp; 2021; Limited to those required under the SYRWCD ID1 Exchange obligation; ▪ Surplus water stored in SLR in 2020 &amp; 2021 may be banked and/or used to repay existing water debt (193AF as of December 31, 2019).</td>
</tr>
<tr>
<td>Supplemental Water Purchases</td>
<td>▪ CCWA securing an arrangement with Mojave Water Agency to purchase supplemental water if needed in 2020; Similar terms as 2019 exchange; Locked in low exchange ratio; ▪ No projected need for supplemental water in 2020 to meet customer demands.</td>
<td>▪ No supplemental water needed in 2020 or 2021 to meet customer demands based on current water supply projections and water currently in storage; A spill at Cachuma could impact the District’s need for supplemental water.</td>
</tr>
<tr>
<td>Banked Water</td>
<td>▪ Water Banked in Semitropic Groundwater Banking &amp; Exchange Program totals 2,000 AF (less 10% losses); ▪ Per contract, a total of 4,500AF of groundwater storage capacity available to District.</td>
<td>▪ Project having 750 to 1,000 AF per year available for banking in Semitropic in 2020 and 2021 depending on SWP allocation.</td>
</tr>
<tr>
<td>Water Debt</td>
<td>▪ Total 193 AF of water debt owed to Mojave Water Agency (MWA); ▪ Repaid 507 AF in 2019.</td>
<td>▪ Any unpaid water debt will carry into subsequent years until full repay; 10 yrs. from purchase to repay (2027); ▪ Do not anticipate acquiring any additional water debt in 2020/21.</td>
</tr>
<tr>
<td>Conservation</td>
<td>▪ 12-month running average water conservation of 46%</td>
<td>▪ 30-35% conservation for compliance with SBX7-7</td>
</tr>
</tbody>
</table>
The District’s utilization of its available supplies over the next three-year planning period has shifted from a heavy reliance on imported supplies, i.e. SWP and supplemental water purchases to local surface water supplies, i.e. Cachuma Project and Jameson Lake. The increase in available local surface water supplies has provided the District with an opportunity to store water in a regional groundwater storage bank, i.e. Semitropic Water Storage District Groundwater Banking and Exchange Program, for use in future drought years or periods of below-average rainfall. The charts below illustrate the contrast in water supply utilization between 2018 and 2019.

![Water Use Restrictions](chart)

**Water Use Restrictions**

The District’s current customer water use restrictions are established in Ordinance 96. These water use restrictions include various water use limitations determined by the District to be necessary, based on water supply conditions, to ensure water supply availability for its customers under the current water supply conditions. The restrictions mirror those mandated by the State and/or which are the subject of current rulemaking focused on “Making Conservation a California Way of Life”.

Ordinance 96, adopted on May 28, 2019 repealed Ordinance 95 in its entirety, including the prohibition on issuance of new water meters, and established updated water use restrictions. Ordinance 96 retains many of the current water use restrictions included in Ordinance 95 in an effort to encourage water conservation and avoid unnecessary water waste.
Item 6 - B
Quarterly Water Supply Update

Board Meeting
January 28, 2020
Outline

1. Drought Status / Forecast
2. Production Comparisons & Customer Demands
3. Water Supply Status by Source
4. Current Water Supply Outlook
DROUGHT STATUS / FORECAST
Rainfall Totals
(According to District Records)
October 1, 2019 – December 31, 2019

<table>
<thead>
<tr>
<th>Location</th>
<th>WY 19-20’ Rainfall to date (in)</th>
<th>Historical Average Rainfall to Date (in)</th>
<th>% of Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jameson Lake</td>
<td>8.78</td>
<td>7.84</td>
<td>112%</td>
</tr>
<tr>
<td>Montecito (District Office)</td>
<td>9.62</td>
<td>5.69</td>
<td>169%</td>
</tr>
<tr>
<td>Toro Canyon (Doulton Tunnel)</td>
<td>8.65</td>
<td>7.92</td>
<td>109%</td>
</tr>
</tbody>
</table>
NOAA 3-Month Precipitation Outlook

February 2020 – April 2020

THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID FEB 2020
MADE 16 JAN 2020

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

Probability of Below
Probability of Near-Normal
Probability of Above
NOAA 3-Month Temperature Outlook

February 2020 – April 2020
PRODUCTION COMPARISONS & CUSTOMER DEMANDS
### Projected vs. Actual Production

<table>
<thead>
<tr>
<th>Demand</th>
<th>Oct (AF)</th>
<th>Nov (AF)</th>
<th>Dec (AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>441</td>
<td>315</td>
<td>223</td>
</tr>
<tr>
<td>Actual</td>
<td>467</td>
<td>384</td>
<td>160</td>
</tr>
<tr>
<td>% Diff</td>
<td>6%</td>
<td>20%</td>
<td>(32%)</td>
</tr>
<tr>
<td>% Conserv</td>
<td>31</td>
<td>28</td>
<td>61</td>
</tr>
</tbody>
</table>

12 Month Running Average Conservation - 46%

![Graph showing projected vs. actual production]

- Projected Production
- Actual Production
- 2013 Production
Actual Production vs. SBX7-7 Target

Production (Acre feet)

- Budget
- Actuals
- 2020 Production Target (SBX7-7)

Legend:

- Blue: Budget
- Orange: Actuals
- Green: 2020 Production Target (SBX7-7)

X-Axis:
- Jan-19 to Dec-19

Y-Axis (Past):
- 0 to 600 (in increments of 100)

Timeline:
- Jan-19 to Dec-19

Legend:
- Budget
- Actuals
- 2020 Production Target (SBX7-7)
Annual Production
(2013-2019)
Water Demand Comparison
(Single Family Residential, GPCD)

* GPCD data obtained from SWRCB

Adjusted MWD Population (2015 UWMP)

66% Reduction in GPCD
Water Demand Comparison
(Single Family Residential, AF/Acres)
WATER SUPPLY STATUS BY SOURCE
Lake Cachuma
As of December 31, 2019

1. Storage 139,884 AF* (72.4% of capacity)
2. WY 2020 Allocation – 100% (2,651AF)
3. Minimal inflow thus far in WY2020
4. MWD Cachuma deliveries in 2019 – 1,278 AF
5. MWD Balance in Cachuma
   a. Cachuma WY 2020 2,651 AF
   b. Cachuma Carryover ±3,288 AF
   c. State & Supplemental ±0 AF
   Total ±5,939 AF
4. Carryover Balance (@ risk of loss to spill) ±3,288 AF

* Data obtained from County of Santa Barbara Flood Control District – Rainfall and Reservoir Summary
Jameson Lake
As of December 31, 2019

1. Storage 3,990 AF (±82% of capacity)
2. Minimal inflow thus far in WY2020
3. Total Jameson deliveries in 2019 – 1,032 AF
4. Water Quality – TOC remains elevated
5. Doulton Tunnel Intrusion ±200gpm
6. Total Doulton Tunnel deliveries in 2019 – 547 AF
1. Potable production ±10 AF/mo.
2. Total potable GW Production in 2019 – 45AF
3. Production reduced to allow for continued basin recharge
   • GW levels remain near historic low levels
   • Continual slow recharge following above average winter
   • Several years of above average rainfall needed
5. Groundwater Management (Montecito Basin)
   • GSA meeting quarterly (January 14^{th})
   • GSP development continues
   • Preliminary grant funding approval ($1.6M)
   • Next GSA meeting April 14^{th} at MFPD
Imported Water
As of December 31, 2019

1. SWP and Supplemental
   • Final 2019 SWP Table A Allocation 75% (2,475AF)
   • SWP Water in storage
     o Cachuma ±0 AF, San Luis Res. ±65 AF
   • Current 2020 SWP Table A Allocation 15% (495AF)

2. Supplemental Water
   • None purchased in 2019, no anticipated need in 2020

3. Deliveries to Lake Cachuma
   • Deliveries suspended from Feb thru Dec 2019
   • Limited deliveries resume in late Dec 2019
   • 2020 SWP planned deliveries limited to ID1 exchange

4. Water debt owed to Mojave Water Agency - 193AF
Banked Water
As of December 31, 2019

Semitropic Groundwater Banking & Exchange Program
• Secondary right to bank up to 1,500 AFY (Total 4,500AF)
• First priority right to extract 1,500AFY
• Water Banked
  o Banked in 2018          900 AF
  o Banking in 2019         1,100 AF
  o Total Banked           2,000 AF
• 1,800 AF available for future use (after 10% loss)
• 2020 banking dependent upon 2020 SWP allocation
CURRENT WATER SUPPLY OUTLOOK
## Water Supply Balance by Source

**As of December 31, 2019**

<table>
<thead>
<tr>
<th>Source</th>
<th>Total Balance as of 12-31-19 (AF)</th>
<th>Production in 2019 (AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jameson Lake</td>
<td>3,990</td>
<td>1,032</td>
</tr>
<tr>
<td>2. Cachuma Proj. Allocation WY2020</td>
<td>2,651</td>
<td>0</td>
</tr>
<tr>
<td>3. Cachuma Proj. Carryover</td>
<td>3,288</td>
<td>1,278</td>
</tr>
<tr>
<td>4. SWP &amp; Supplemental in SLR</td>
<td>65</td>
<td>-</td>
</tr>
<tr>
<td>5. SWP Table A/Suppl. stored Cachuma</td>
<td>0</td>
<td>624</td>
</tr>
<tr>
<td>6. Potable/NP Groundwater</td>
<td>25 AF/mo</td>
<td>266(^B)</td>
</tr>
<tr>
<td>7. Doulton Tunnel Infiltration</td>
<td>35 AF/mo</td>
<td>547</td>
</tr>
<tr>
<td>8. Semitropic (includes 10% loss)</td>
<td>1,800</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11,854</strong></td>
<td><strong>3,747</strong></td>
</tr>
</tbody>
</table>

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A. Jameson Lake deliveries limited due to water quality challenges

B. Potable groundwater production reduced to between 10-15AF/mo to allow for groundwater recharge
Distribution of Water Supplies by Source

CY 2019

- SWP & Supplemental: 17%
- Groundwater: 7%
- Lake Cachuma: 34%
- Jameson Lake: 15%
- Doulton Tunnel Intrusion: 27%
**Water Supply Strategy**

- **Demand (AFY)**
  - 2013 Baseline Demand (6,850 AF)
  - 2020 Production Target (4,759 AF)

- **2016 (Actual):**
  - 3,555

- **2017 (Actual):**
  - 3,898

- **2018 (Actual):**
  - 4,107

- **2019:**
  - 3,779

- **2020:**
  - 4,442

- **2021:**
  - 4,442

- **2022:**
  - 30%

- **2023:**
  - 35%

- **2024:**
  - 35%

- **2025:**
  - 30%

**Sources:**
- Groundwater
- Doulton Tunnel
- Local Purchased Water
- Jameson Lake
- Cachuma Project
- State Water & Supply.
- Recycled Water

**Conservation:***

- **2020 Production Target (SBX7-7):**

**2013 Baseline Demand:**

- 48%
- 43%
- 40%
- 45%
- 35%
- 35%
- 30%