
From: Kunysz,Kathy
Sent: Friday, July 10, 2015 11:32 AM
To: Ti,Mike N
Subject: FW: MWD IRP UPDATE: CENTRAL-WEST COAST GROUNDWATER HOMEWORK
Attachments: Copy of Long Beach.xlsx

From: Kevin Wattier [mailto:Kevin.Wattier@lbwater.org]
Sent: Tuesday, June 09, 2015 3:23 PM
To: Kunysz,Kathy; Peter.Dugan@ladwp.com; Simon.Hsu@LADWP.com; delon.kwan@ladwp.com; Rafael.Viramontes@ladwp.com; David Pettijohn - LADWP (david.pettijohn@ladwp.com); Penny.Falcon@ladwp.com; Heather.Yegiazaryan@LADWP.com; greg.reed@ladwp.com; Sarah.Lacombe@ladwp.com; Kevin Hunt (kevinh@centralbasin.org); carlosc@centralbasin.org; edwardc@westbasin.org; fernandop@westbasin.org; Chuck Schaich (CSchaich@TorranceCA.gov); Rob Beste (Rbeste@TorranceCA.gov); Anatole Falagan; Sandy Fox; tammyh@centralbasin.org; Chad Blais (CBlais@comptoncity.org); Michael Harvey; Leighanne Kirk (leighannek@westbasin.org); rwhitaker@wrdd.org; Jason Weeks (jweeks@wrdd.org)
Cc: Hacker,Matthew D; Sumi,David H; Nevills,Jennifer C; Anatole Falagan; Eric Leung; Matthew Lyons
Subject: RE: MWD IRP UPDATE: CENTRAL-WEST COAST GROUNDWATER HOMEWORK

Kathy:

Here are our corrections, we have made the following modifications:

1. Our APA is 32,692 AFY
2. Assumed 2,000 AFY of additional GW production in the West Coast Basin starting in 2020. Predesign is currently under way.
3. Assumed 3,000 AFY of GW replenishment by injection in the Central Basin with recycled water, starting in 2024, and additional GW production starting the following year (GW augmentation project).

Kevin Wattier
General Manager
Long Beach Water Department

From: Kunysz,Kathy [mailto:kkunysz@mwdh2o.com]
Sent: Tuesday, June 09, 2015 11:39 AM
To: Peter.Dugan@ladwp.com; Simon.Hsu@LADWP.com; delon.kwan@ladwp.com; Rafael.Viramontes@ladwp.com; David Pettijohn - LADWP (david.pettijohn@ladwp.com); Penny.Falcon@ladwp.com; Heather.Yegiazaryan@LADWP.com; greg.reed@ladwp.com; Sarah.Lacombe@ladwp.com; Kevin Hunt (kevinh@centralbasin.org); carlosc@centralbasin.org; edwardc@westbasin.org; fernandop@westbasin.org; Chuck Schaich (CSchaich@TorranceCA.gov); Rob Beste (Rbeste@TorranceCA.gov); Kevin Wattier; Anatole Falagan; Sandy Fox; tammyh@centralbasin.org; Chad Blais (CBlais@comptoncity.org); Michael Harvey; Leighanne Kirk (leighannek@westbasin.org); rwhitaker@wrdd.org; Jason Weeks (jweeks@wrdd.org)
Cc: Kunysz,Kathy; Hacker,Matthew D; Sumi,David H; Nevills,Jennifer C
Subject: MWD IRP UPDATE: CENTRAL-WEST COAST GROUNDWATER HOMEWORK

Dear Member Agency and Groundwater Managers and Staff,

Attached are the excel spreadsheets for your agency and groundwater basin showing draft projections for groundwater production and projections of sources and amounts of groundwater recharge in normal and multiple-dry-year situations. This information is being used in Metropolitan's 2015 update of its Integrated Resources Plan. Also attached is a slide from the IRP Member Agency Workshop #1 for Groundwater held on May 27. The slide shows a draft projection of the total regional deficit of groundwater recharge under the multiple-dry-year scenario. As part of this IRP Update, it is our objective to finalize this deficit amount with your input, and to identify strategies and policies to address it. Metropolitan is seeking to ensure that groundwater production is sustainable—groundwater is a significant component of regional water supply reliability.

Where there are multiple member agencies overlying a groundwater basin, we have sent the spreadsheets to all overlying member agencies and to the groundwater basin manager. The intent is for a coordinated review. Please review your spreadsheet(s) carefully and **provide corrections to the production and recharge projections in RED**. Please also list the assumption/rationale for the correction in RED. When reviewing the groundwater production projections, please note that Metropolitan has assigned groundwater production within a Metropolitan member agency's service area to that member agency. Also, the data is shown by calendar year.

Please return the modified spreadsheets to David Sumi with copy to Kathy Kunysz and Matt Hacker by Monday, June 22. If you have questions, please call Kathy Kunysz (213-217-6272) or Matt Hacker (213-217-6756). We will report the adjusted projections at an IRP workshop later this summer.

Thank you,
Kathy Kunysz
Program Manager, Groundwater Issues
Metropolitan Water District of Southern California

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City of Long Beach

Groundwater

| Agency | Type | IMP/EXP | Basin/Reservoir | 2009 | 2010 | 2011 | 2012 | 2013 | Average 2009-2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 |
|------------|------|---------|------------------|--------|--------|--------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|
| Long Beach | GW | OWN | Central Basin | 31,616 | 35,426 | 17,349 | 30,959 | 28,117 | 28,693 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 32,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | 35,692 | | |
| Long Beach | GW | OWN | West Coast Basin | | | | | | | | | | | | | | | | | | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | |

| Groundwater Projection | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Projection Normal | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | |
| Projection Dry | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 | 32,684 |
| Projection Wet | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 | 29,425 |

Long Beach's pumping rights is 32,692AF
 Normal/wet year production is 10% below adjudicated rights -

**We do not use these projections

Recharge

| Normal Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|--|
| Long Beach IMPORT OWN Central Basin Seawater barrier | 2,841 | 2,647 | 2,480 | 2,330 | 2,191 | 2,061 | 1,938 | 1,820 | 1,705 | 1,595 | 1,487 | 1,382 | 1,279 | 1,177 | 1,078 | 980 | 883 | 787 | 692 | 598 | 505 | 413 | 395 | 378 | 363 | 348 | 333 | 319 | 305 | 292 | 280 | 267 | 255 | 243 | 232 | 221 | | | | | | | |
| Long Beach STORM OWN Central Basin No spreading basins in Long Beach. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Long Beach REC OWN Central Basin Seawater barrier | 3,159 | 3,353 | 3,520 | 3,670 | 3,809 | 3,939 | 4,062 | 4,180 | 4,295 | 4,405 | 4,513 | 4,618 | 4,721 | 4,823 | 4,922 | 5,020 | 5,117 | 5,213 | 5,308 | 5,402 | 5,495 | 5,587 | 5,605 | 5,622 | 5,637 | 5,652 | 5,667 | 5,681 | 5,695 | 5,708 | 5,720 | 5,733 | 5,745 | 5,757 | 5,768 | 5,779 | | | | | | | |
| Long Beach REC OWN Central Basin Injection | | | | | | | | | | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | |
| Multiple Dry Year (actual 2012-2014) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Long Beach IMPORT OWN Central Basin Seawater barrier | 2,841 | 2,647 | 2,480 | 2,330 | 2,191 | 2,061 | 1,938 | 1,820 | 1,705 | 1,595 | 1,487 | 1,382 | 1,279 | 1,177 | 1,078 | 980 | 883 | 787 | 692 | 598 | 505 | 413 | 395 | 378 | 363 | 348 | 333 | 319 | 305 | 292 | 280 | 267 | 255 | 243 | 232 | 221 | | | | | | | |
| Long Beach STORM OWN Central Basin No spreading basins in Long Beach. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Long Beach REC OWN Central Basin Seawater barrier | 3,159 | 3,353 | 3,520 | 3,670 | 3,809 | 3,939 | 4,062 | 4,180 | 4,295 | 4,405 | 4,513 | 4,618 | 4,721 | 4,823 | 4,922 | 5,020 | 5,117 | 5,213 | 5,308 | 5,402 | 5,495 | 5,587 | 5,605 | 5,622 | 5,637 | 5,652 | 5,667 | 5,681 | 5,695 | 5,708 | 5,720 | 5,733 | 5,745 | 5,757 | 5,768 | 5,779 | | | | | | | |
| Long Beach REC OWN Central Basin Injection | | | | | | | | | | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | |