



# Colorado River Source Water Protection Update

Engineering & Operations Committee

Item 6b

July 8, 2019

# Colorado River Basin

## Key Water Quality Activities

Paradox Valley Salinity Control  
Montrose County, CO (740 mi)

Mill Tailings Cleanup  
Moab, UT (650 mi)

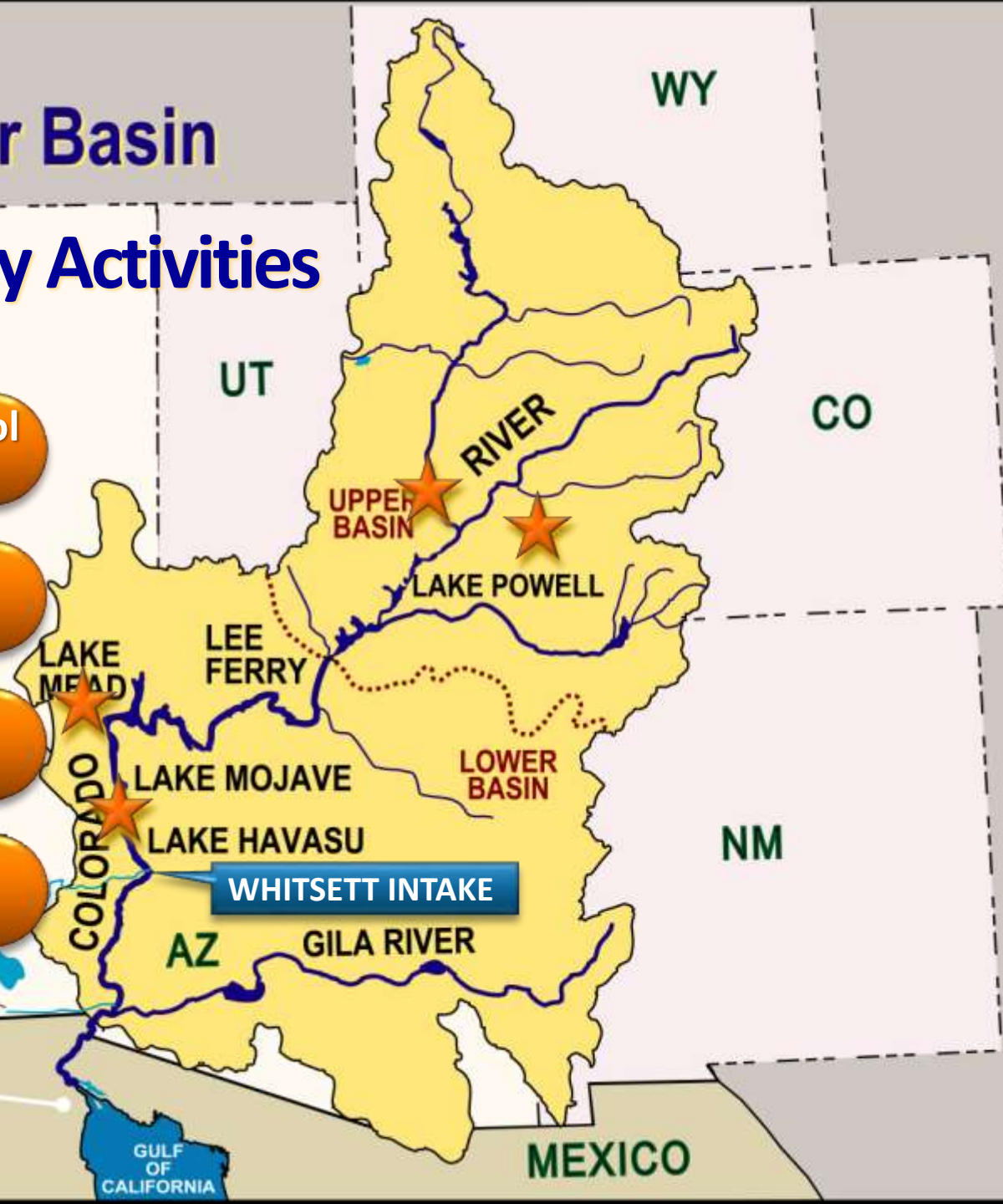
Perchlorate Remediation  
Henderson, NV (160 mi)

Chromium-6 Remediation  
Topock, AZ (40 mi)

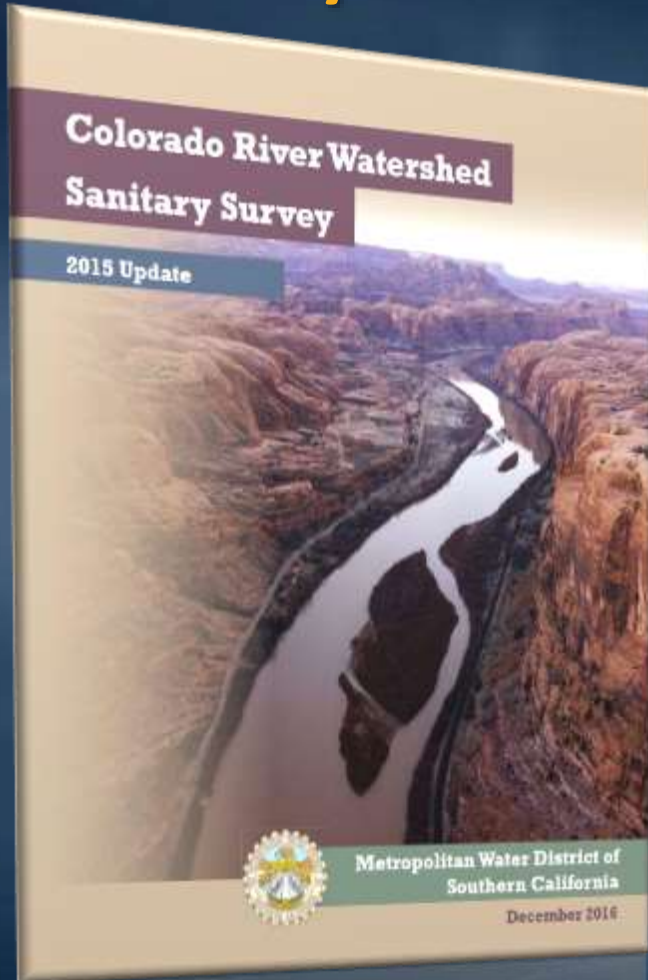
COLORADO  
RIVER  
DELTA

All-  
American  
Canal

GULF  
OF  
CALIFORNIA

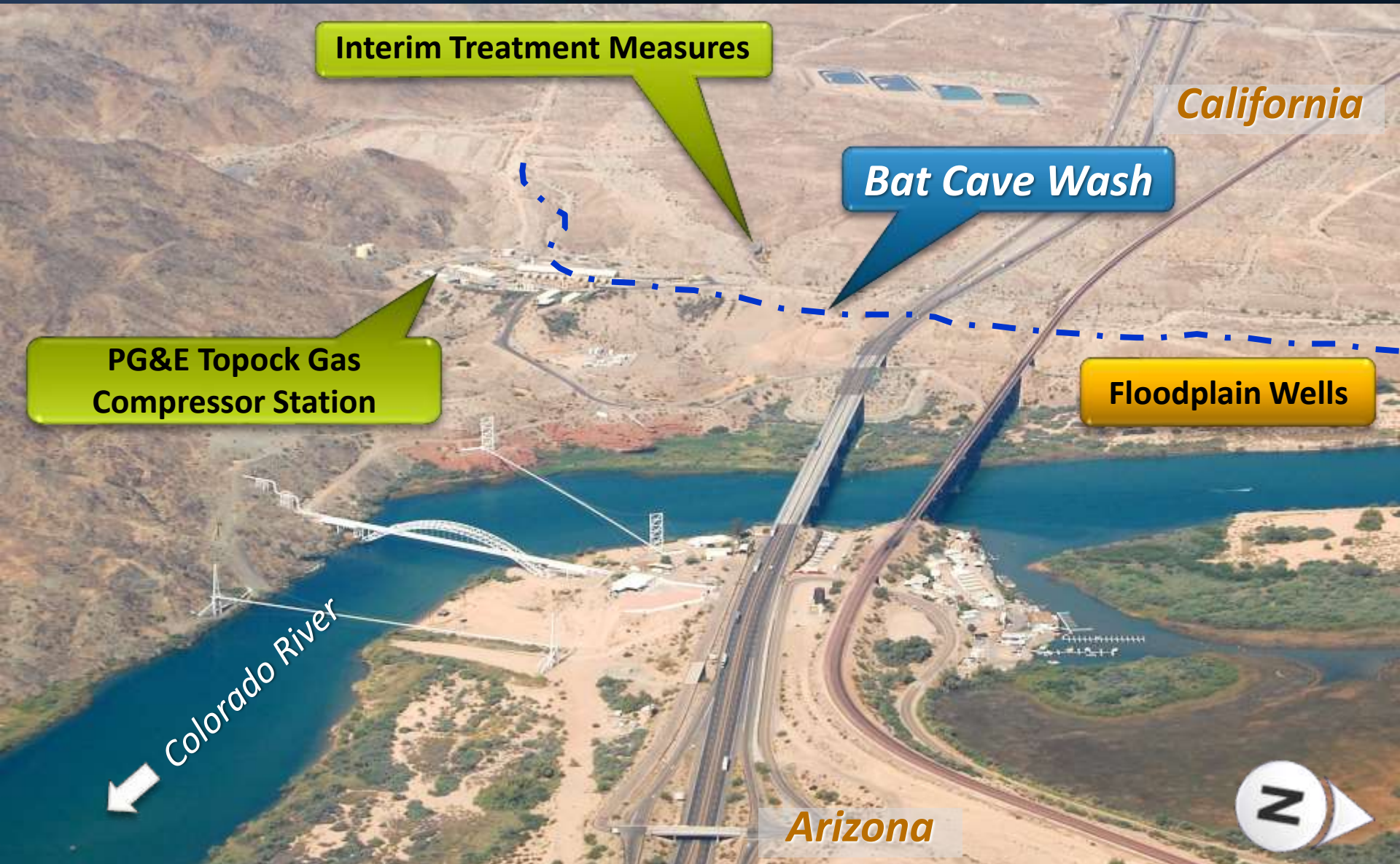


# Colorado River Watershed Sanitary Survey



- Guiding document for Metropolitan's source water protection program
  - Source water quality data
  - Watershed contaminant sources
  - Recommended actions
- Updated every 5 years

# Topock Chromium-6 Remediation



# Groundwater Remediation In-Situ Treatment for Chromium-6



# Chromium-6 Remediation Status

Jan 2011 – Final remedy/EIR

Nov 2015 – Final Design

Apr 2018 – Final SEIR certified

Oct 2018 – Construction began

*4-week Construction Shutdown due to PG&E Bankruptcy Filing*

## Schedule

- Construction ~ 2018-2023
- Remedial timeframe ~30+ years



*Photos courtesy of PG&E*

# Metropolitan Actions

## Chromium-6 Remediation

- Continue to monitor chromium-6 levels in the Colorado River
- Continue to engage in working group meetings
- Track construction activities and pending soil cleanup



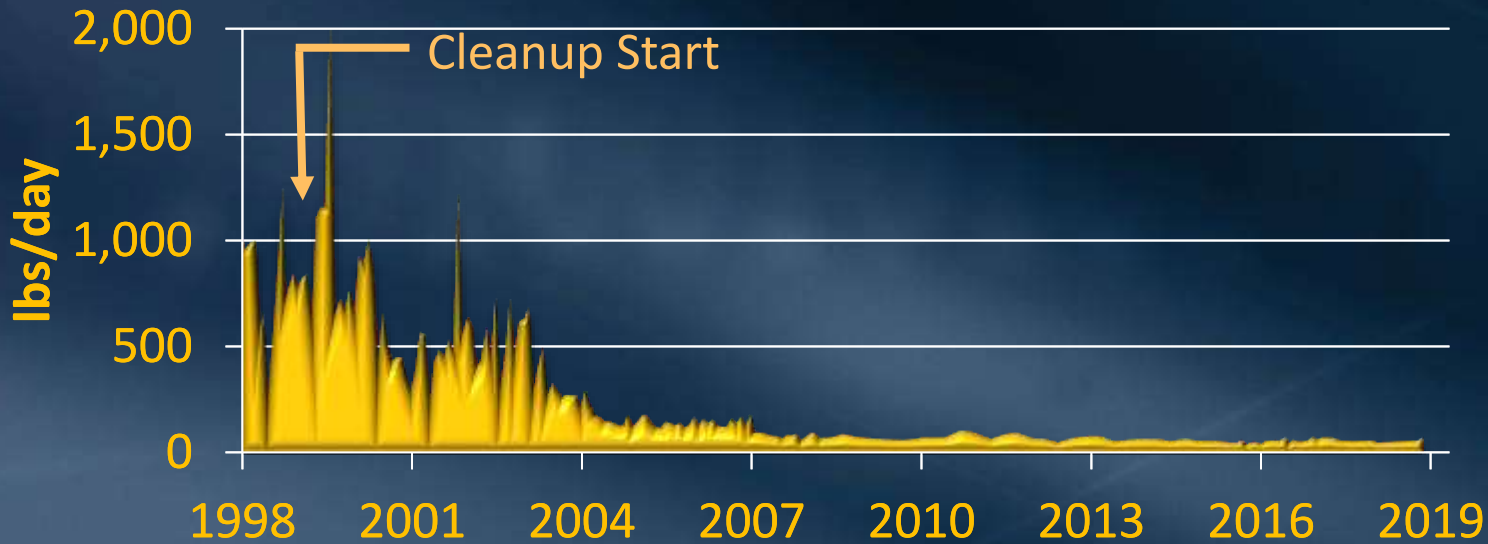
Topock Leadership Partnership Meeting (September 2018)

# Perchlorate Remediation

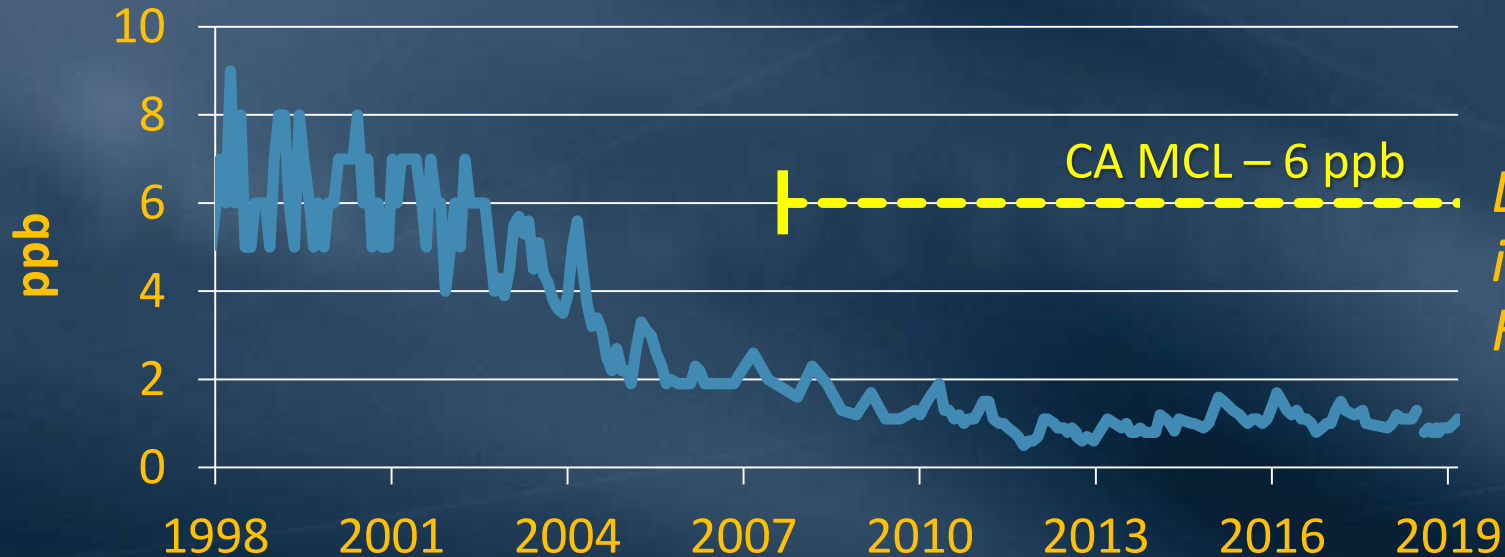




# Decline in Perchlorate Levels



*Loading into  
Las Vegas  
Wash*



*Levels at CRA  
intake at Lake  
Havasu*

# Perchlorate Groundwater Treatment

- Nevada Environmental Response Trust

- Fluidized Bed Reactors remove 1,500-2,000 lbs/day
- Bankruptcy settlement created \$81M environmental trust

- Anadarko lawsuit settlement ~\$1.1 billion to trust
- Long-term remedial plan to further accelerate site cleanup

- Endeavour

- Fluidized Bed Reactors remove up to 1,400 lbs/day



# Perchlorate Regulation Status

- California

- 2007 – 6 ppb MCL adopted
- 2015 – Public Health Goal reduced to 1 ppb
- Possible development of revised MCL under review

- Federal

- 2011 – EPA issued intent to regulate
- 2019 – EPA issued proposed MCLG/MCL
  - Proposing MCLG/MCL of 56 ppb and also considering 18 ppb, 90 ppb, or withdrawing intent to regulate

- Metropolitan submitting comment letters focused on protecting Colorado River water quality

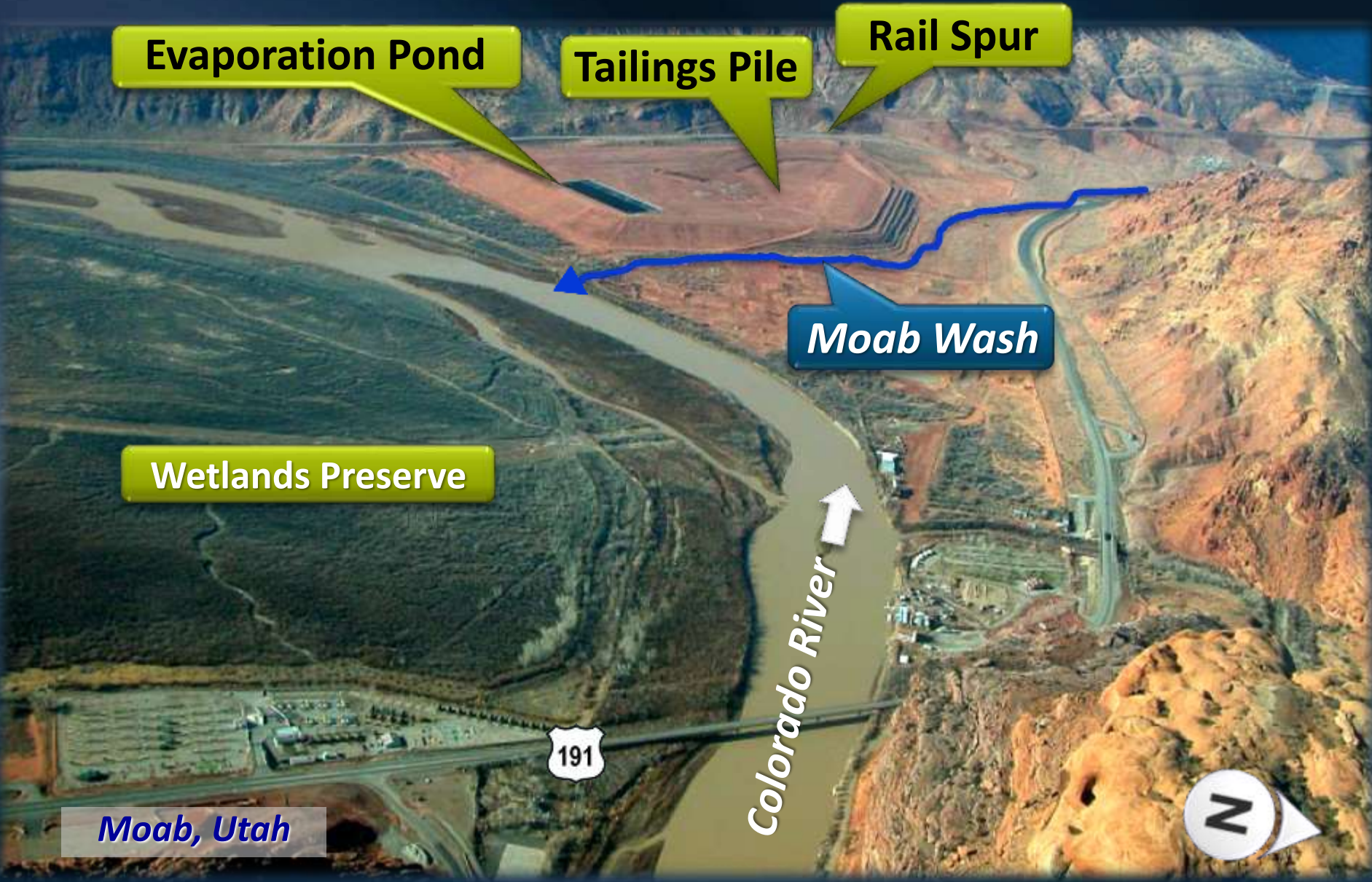
# Metropolitan Actions

## Perchlorate Remediation

- Continue to monitor perchlorate levels and remediation performance
- Participate in long-term remedial plan development
- Continue to engage in stakeholder meetings
- Participate in perchlorate regulatory development



# Moab Uranium Mill Tailings Cleanup



Evaporation Pond

Tailings Pile

Rail Spur

Moab Wash

Wetlands Preserve

Moab, Utah

191

Colorado River



# Uranium Mill Tailings Removal Update



- Initial cleanup began in 2009
- ~9.7 million tons of 16 million-ton pile removed
- \$45 million in FY 2019
- Feb. 2019 removal doubled to 4 trains/wk
- Target completion 2030s



# Metropolitan Actions

## Uranium Mill Tailings Cleanup

- Continue to advocate for increased funding
- Continue to monitor remediation activities

**Lower Colorado River Water Quality Partnership**

June 28, 2017

The Honorable Rick Perry,  
Secretary  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Perry:

Support for Cleanup of Moab Uranium Mill Tailings Pile


As the major providers of drinking water in Arizona, California, and Nevada, we closely monitor the U.S. Department of Energy's (DOE) cleanup of the uranium mill tailings pile from the abandoned Atlas Uranium Mill along the Colorado River near Moab, Utah. Our agencies deliver water from the Colorado River to over 25 million people in the American Southwest. Recently, a Fiscal Year 2017 budget of \$37.9 million (a decrease from the Fiscal Year 2016 budget of \$38.6 million) was approved to continue funding DOE's on-going efforts to remove the mill tailings. We are concerned that the current funding level would delay completion of the cleanup efforts nearly a decade beyond DOE's targeted completion date of 2025. We recognize that DOE is committed to remediating this site as quickly as possible and we strongly urge the Administration to allocate adequate funding to expedite the removal of the tailings pile and meet the target completion date.


The Moab Uranium Mill Tailings Remedial Action (UMTRA) Project achieved a significant milestone last year in removing half of the original 16 million tons of uranium mill tailings left along the Colorado River. A substantial portion of the tailings removal reflects the \$108 million in stimulus funding provided through the American Recovery and Reinvestment Act (ARRA) of 2009 that helped jumpstart the project. Nearly 2 million tons of mill tailings per year were removed in 2010 and 2011; however, removal levels have since dropped significantly with approximately 580,000 tons of mill tailings removed in FY 2016. At current funding levels, further reductions are anticipated with only 450,000 tons expected to be removed in FY 2017.


The tailings removal rate has been impacted due to additional resources needed for expanding the disposal cell at Crescent Junction, replacing operating equipment, repairing haul containers, and implementing critical safety measures. DOE is currently addressing these project needs and maintaining year-round removal of mill tailings. However, the tailings removal is occurring at a far slower removal rate than in previous years. At the current rate, the site cleanup may not be completed for another 17 years.

We respectfully ask the Administration to allocate sufficient funds in Fiscal Year 2018 within DOE's Environmental Management program for the UMTRA project to maintain year-round tailings removal to meet the 2025 target completion date. Approximately \$43 million is needed annually to meet this target date.

The mill tailings pile is located 750 feet from the Colorado River and threatens millions of downstream consumers and also harms the public's confidence in the

  
Central Arizona Project  
P.O. Box 43120  
Phoenix, Arizona 85080-3020  
623-969-2333

  
Metropolitan Water District of  
Southern California  
P.O. Box 54153  
Los Angeles, California 90054  
213-217-6000

  
SOUTHERN NEVADA  
WATER AUTHORITY  
Southern Nevada  
Water Authority  
1001 South Valley View  
Las Vegas, Nevada 89107  
702-258-3100

# Paradox Valley Salinity Control Deep Well Injection

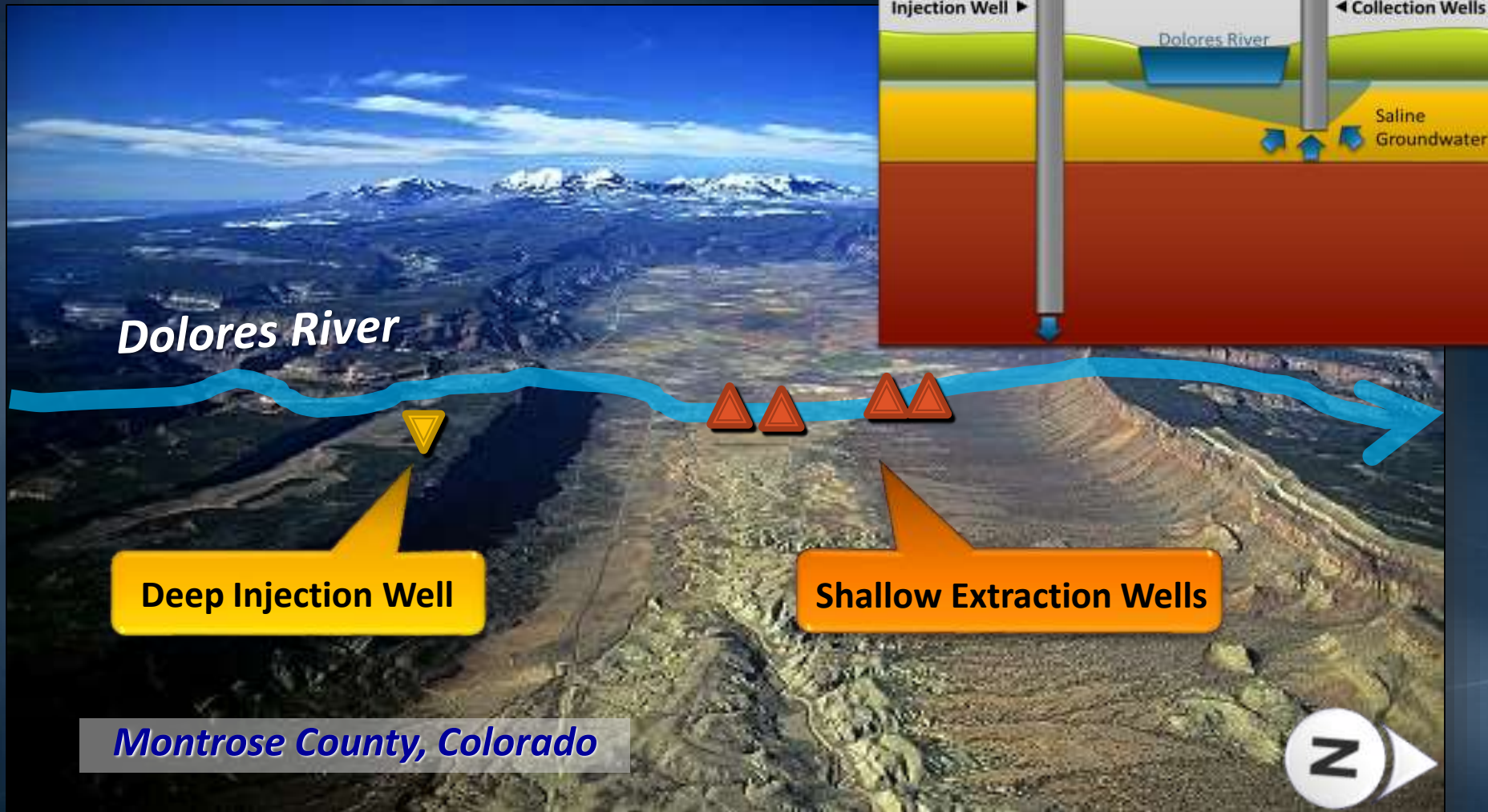


Photo courtesy of CRBSCF



# Paradox Valley Salinity Control

- Project represents 10 percent of salinity control in upper Colorado River Basin
- Deep injection well status
  - Well taken offline following 4.1 magnitude earthquake on March 4, 2019
  - Planning replacement well while assessing other alternatives
- Lake Powell and Lake Mead provide significant buffers



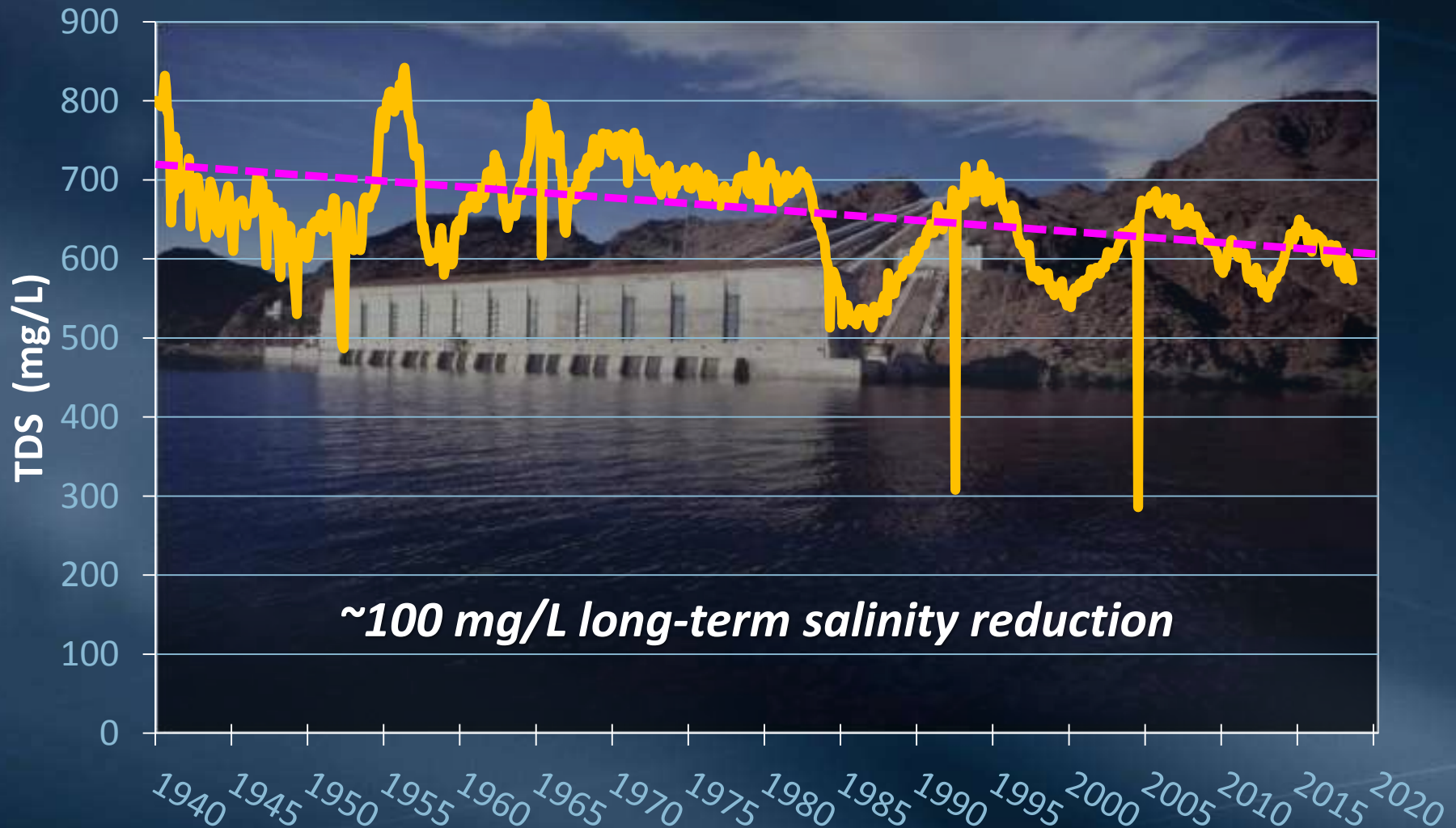
# Colorado River Basin Salinity Control Program

- Salinity Control Forum (1973); federal government and Basin states
- Salinity control measures
  - Improved irrigation practices
  - Rangeland management
  - Deep-well brine injection
- 1.3 million tons/year removed → 100 mg/L reduction
- ~\$40 million spent annually; 70% federally funded



*Photos courtesy of BLM*

# Colorado River Historical Salinity Whitsett Intake



# Metropolitan Actions

## Salinity Control

- Continue to participate in Colorado River Basin Salinity Control Forum
  - Triennial Review
  - Salinity Economic Impact Study
- Continue to support efforts to ensure the Paradox Valley replacement project is effective



