Colorado River Source Water Protection Update

Engineering & Operations Committee
Item 6b
January 11, 2021

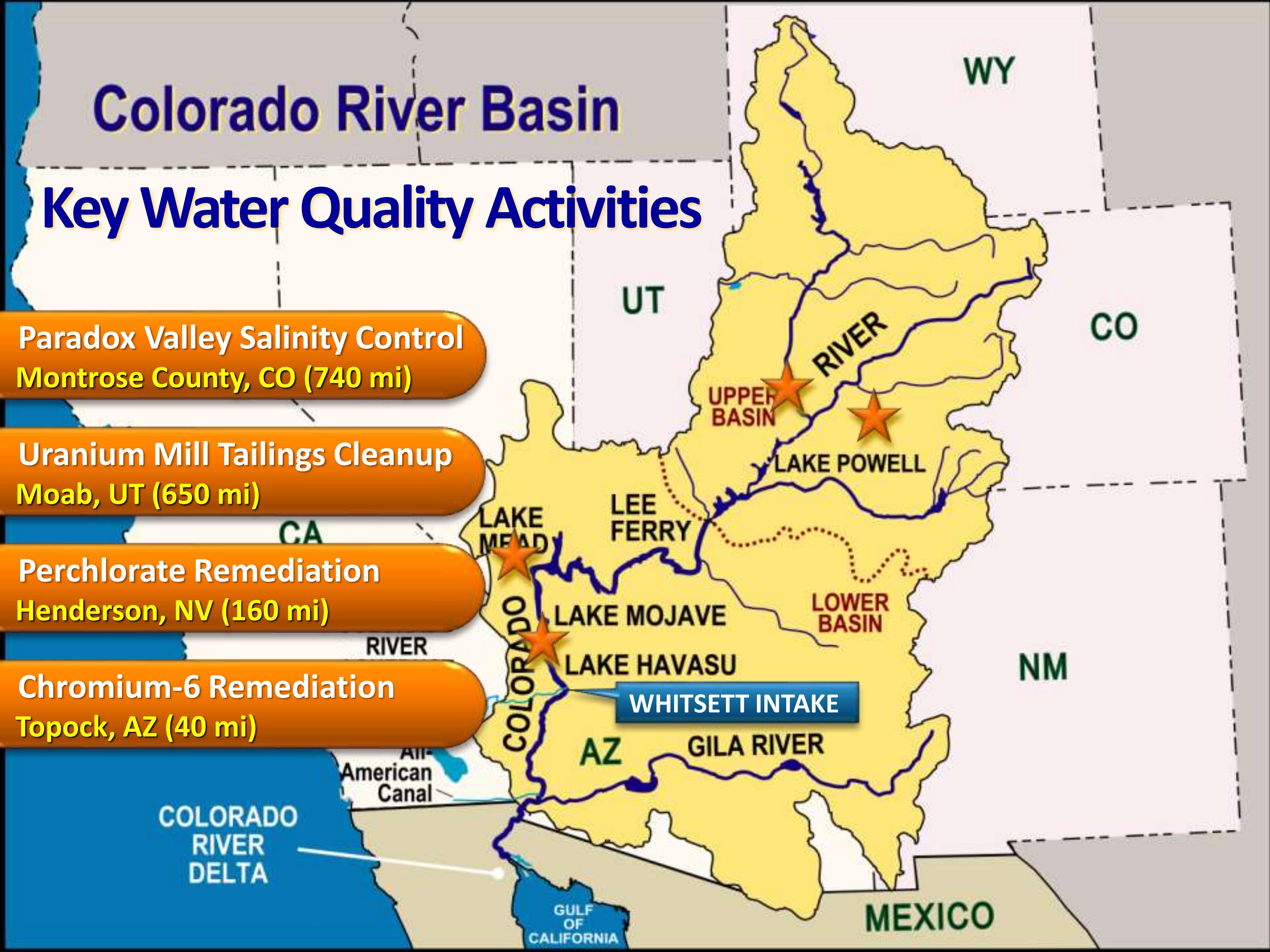
Key Water Quality Activities

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

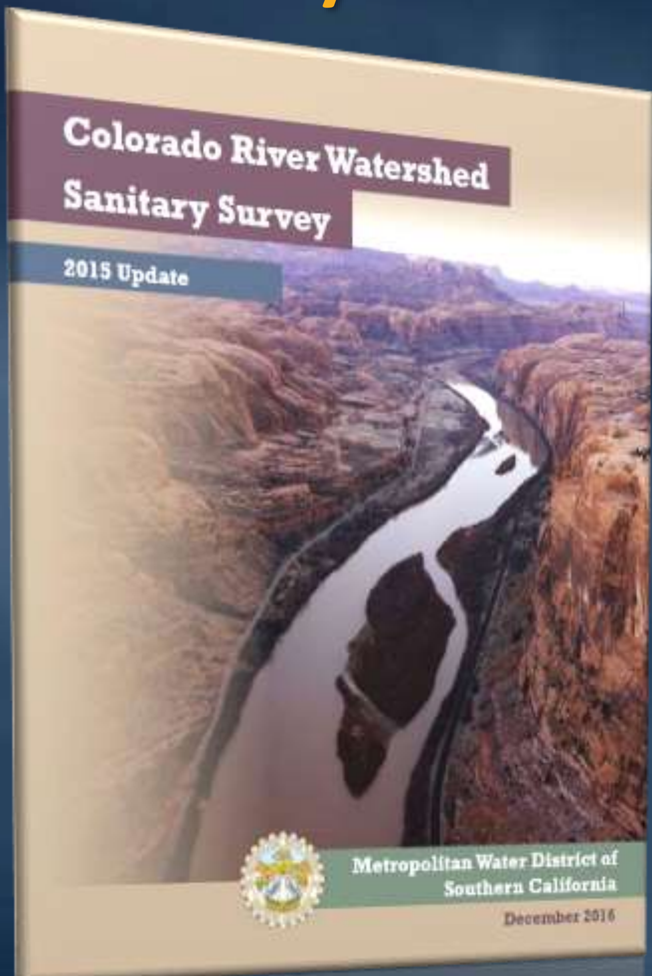
Uranium Mill Tailings Cleanup
Moab, UT (650 mi)

Perchlorate Remediation
Henderson, NV (160 mi)

Chromium-6 Remediation
Topock, AZ (40 mi)

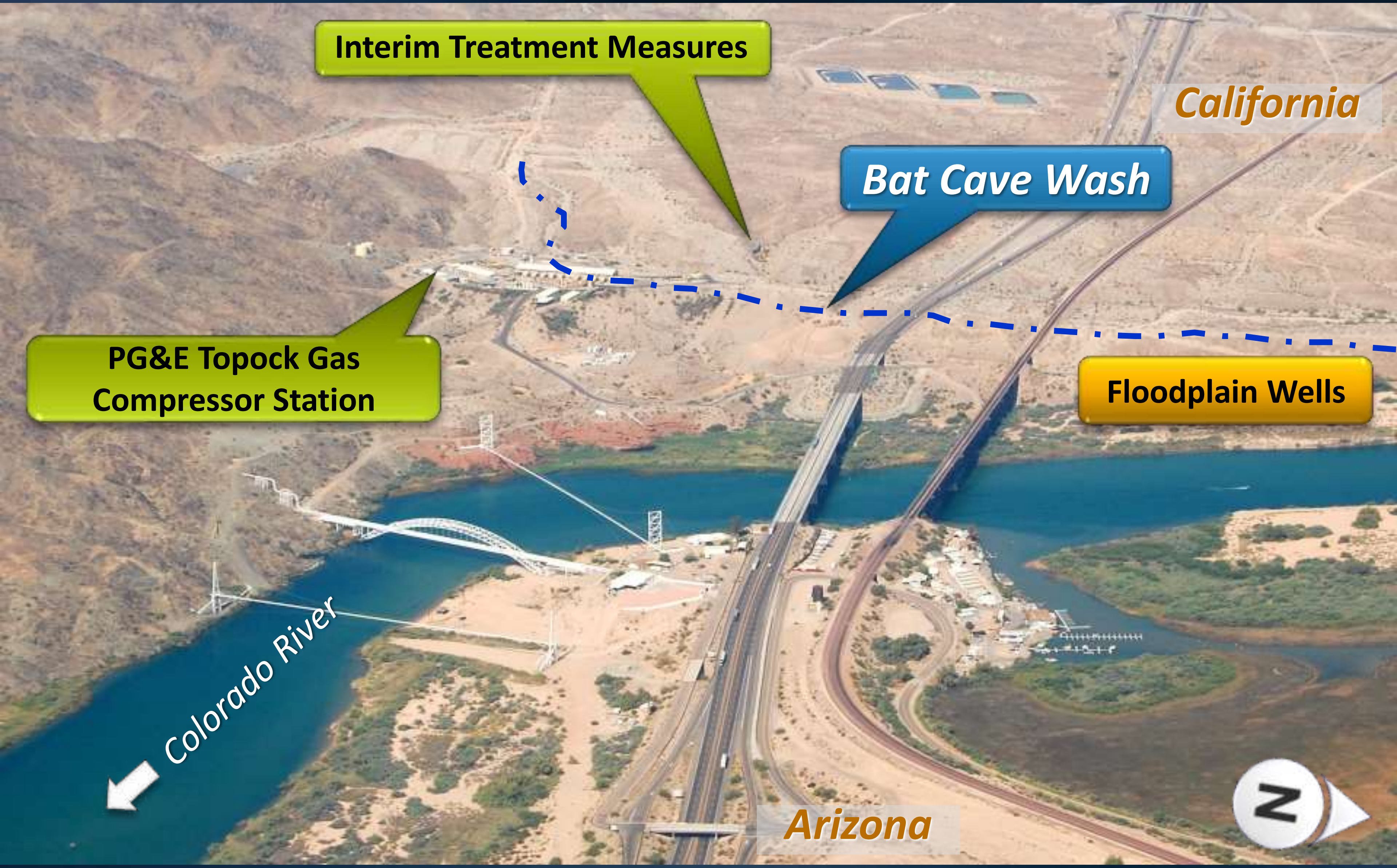


Colorado River Watershed Sanitary Survey



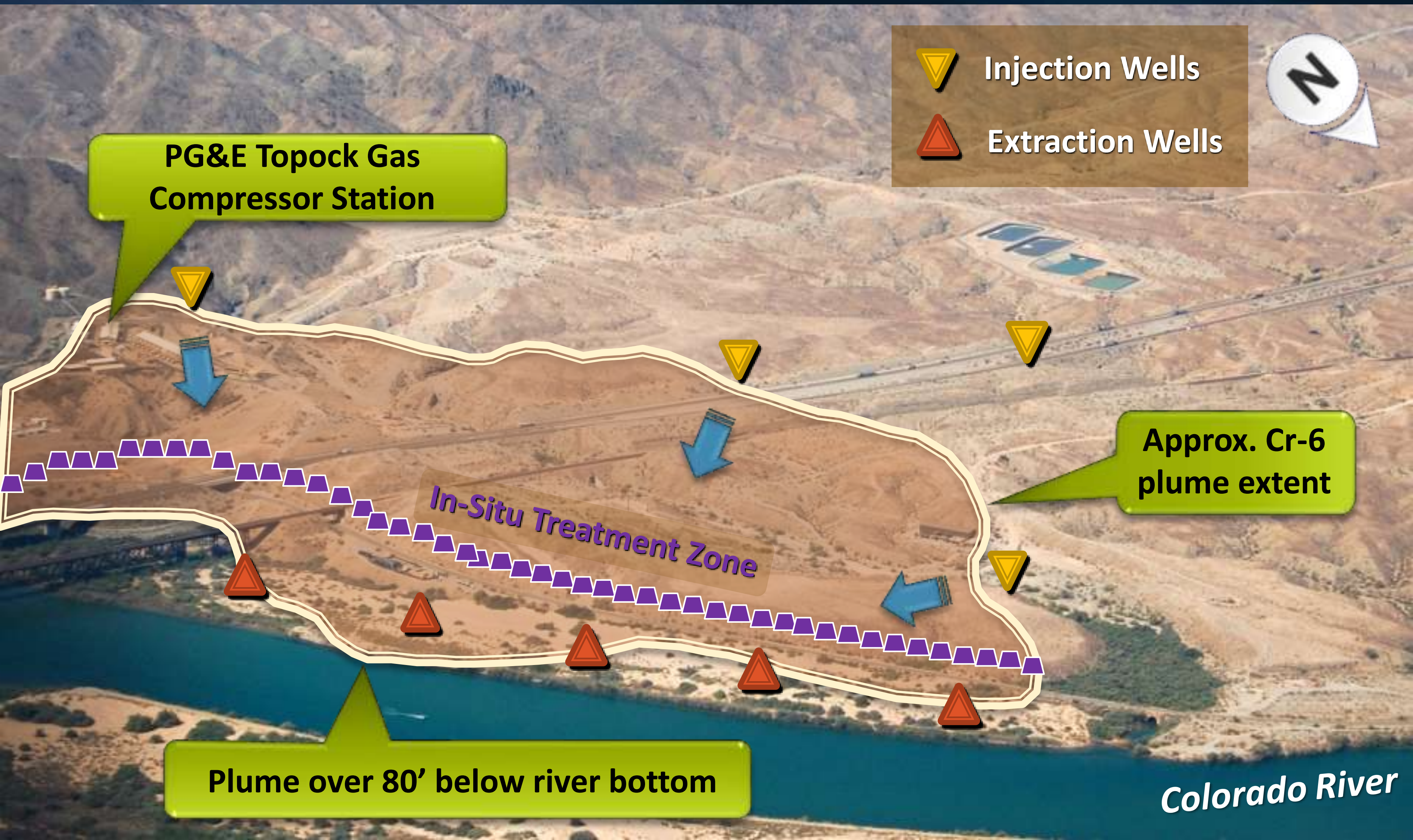
- Guiding document for Metropolitan's source water protection program
  - Source water quality data
  - Watershed contaminant sources
  - Recommended actions
- Updated every 5 years

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
Ongoing – Soil remedy development

Schedule

- Construction ~ 2018-2025
- Remedial timeframe ~30+ years

Pipeline Excavation along National Trails Highway

Erection of Carbon Amendment Bldg

Photos courtesy of PG&E

Chromium-6 Regulation Status

- California
  - 2011 – 0.02 ppb Public Health Goal finalized
  - 2014 – 10 ppb MCL adopted
  - 2017 – MCL rescinded
  - Proposed new MCL in 2021
- Federal
  - Regulated as Total Chromium, 100 ppb MCL
- Metropolitan reviewing economic feasibility/ cost estimate documents

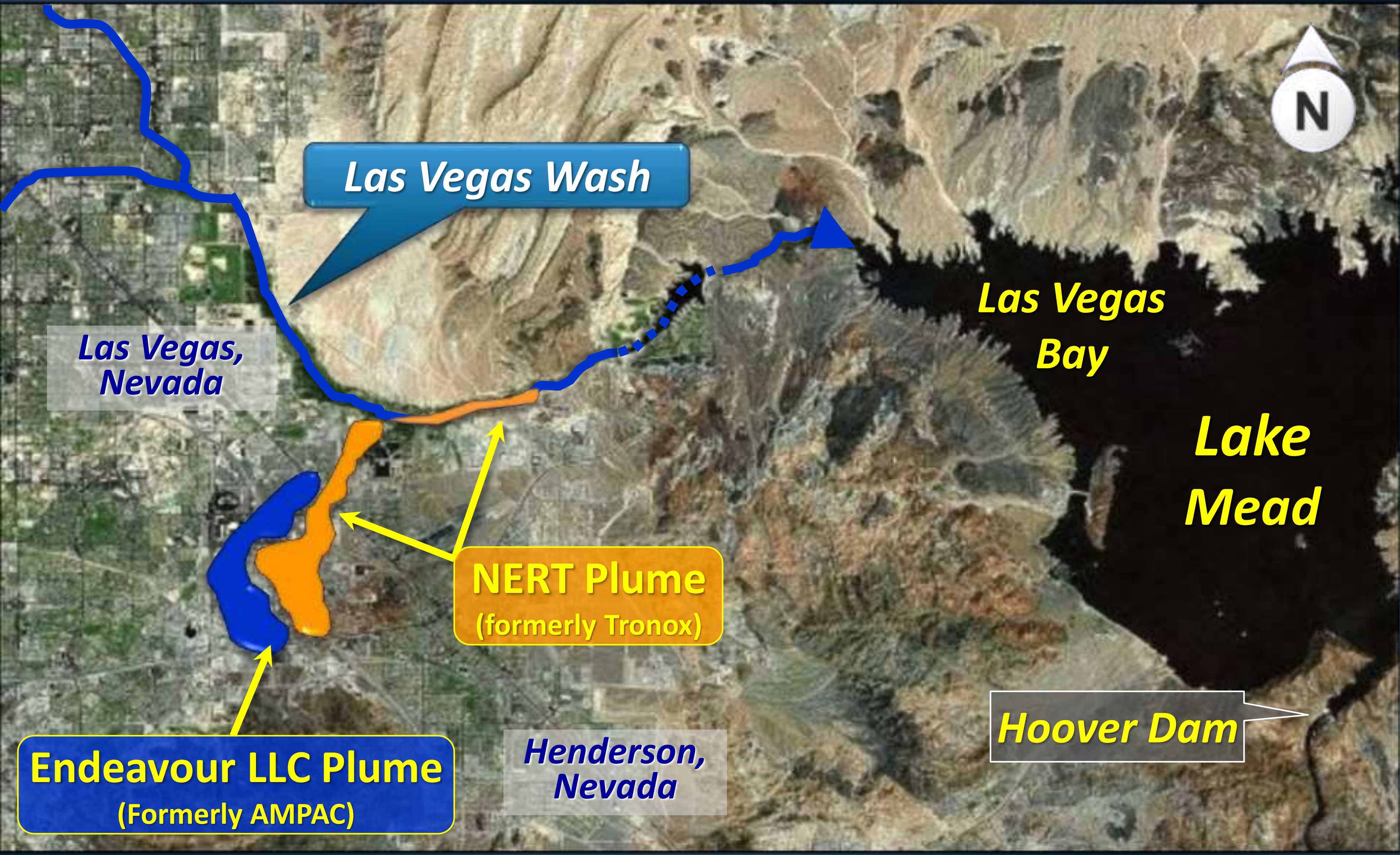
Metropolitan Actions
Chromium-6 Remediation

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

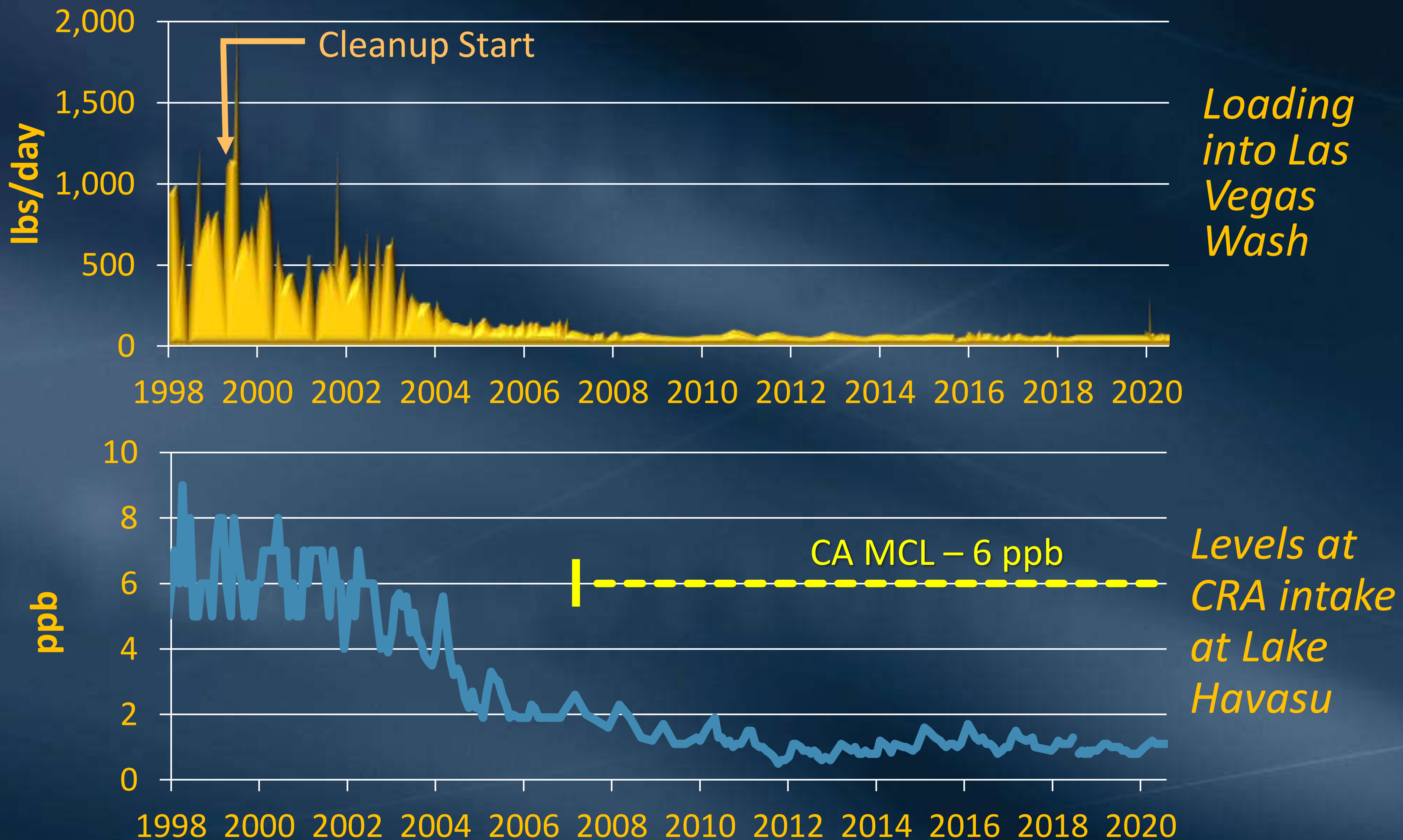
Topock Leadership Partnership Meeting (September 2018)

- Participate in chromium-6 regulatory development

Perchlorate Remediation



Decline in Perchlorate Levels



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

Tronox/NERT FBR

- 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
  - 2020 – EPA decided not to regulate perchlorate
- Metropolitan submitted comment letters focused on protecting Colorado River water quality

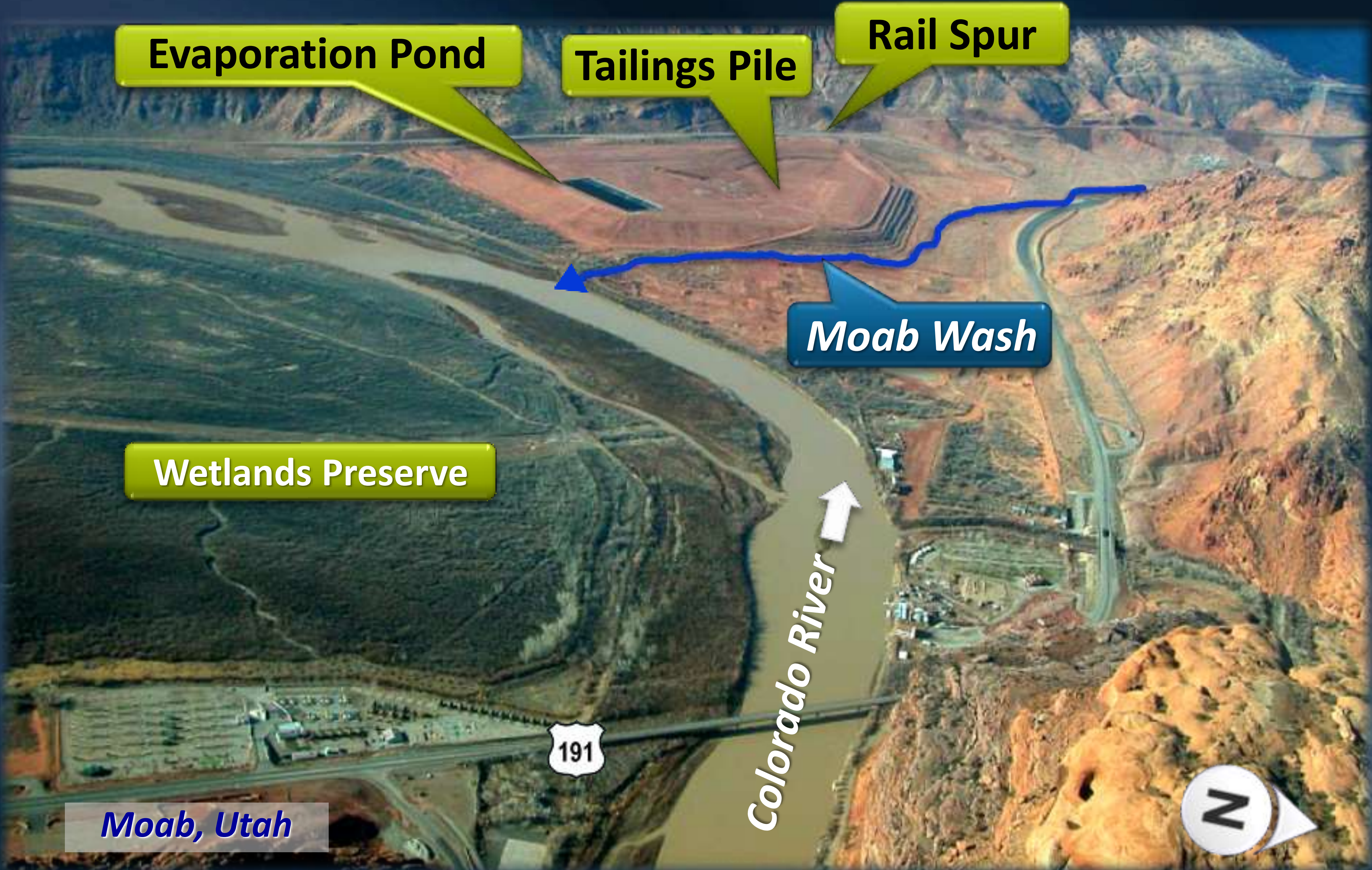
Metropolitan Actions
Perchlorate Remediation

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

Site Visit March 2018

- Continue to engage in stakeholder meetings
- Participate in perchlorate regulatory development

Moab Uranium Mill Tailings Cleanup



Uranium Mill Tailings Removal Update

Photo courtesy of DOE

- Initial cleanup began in 2009
- ~11.1 million tons of 16 million-ton pile removed
- Transported 30 miles to Crescent Junction
- $47.65 million in FY 2021
- Oct. 2020 train shipment expanded
- Target completion 2030s

Metropolitan Actions
Uranium Mill Tailings Cleanup

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

Photo courtesy of DOE

Paradox Valley Salinity Control
Deep Well Injection

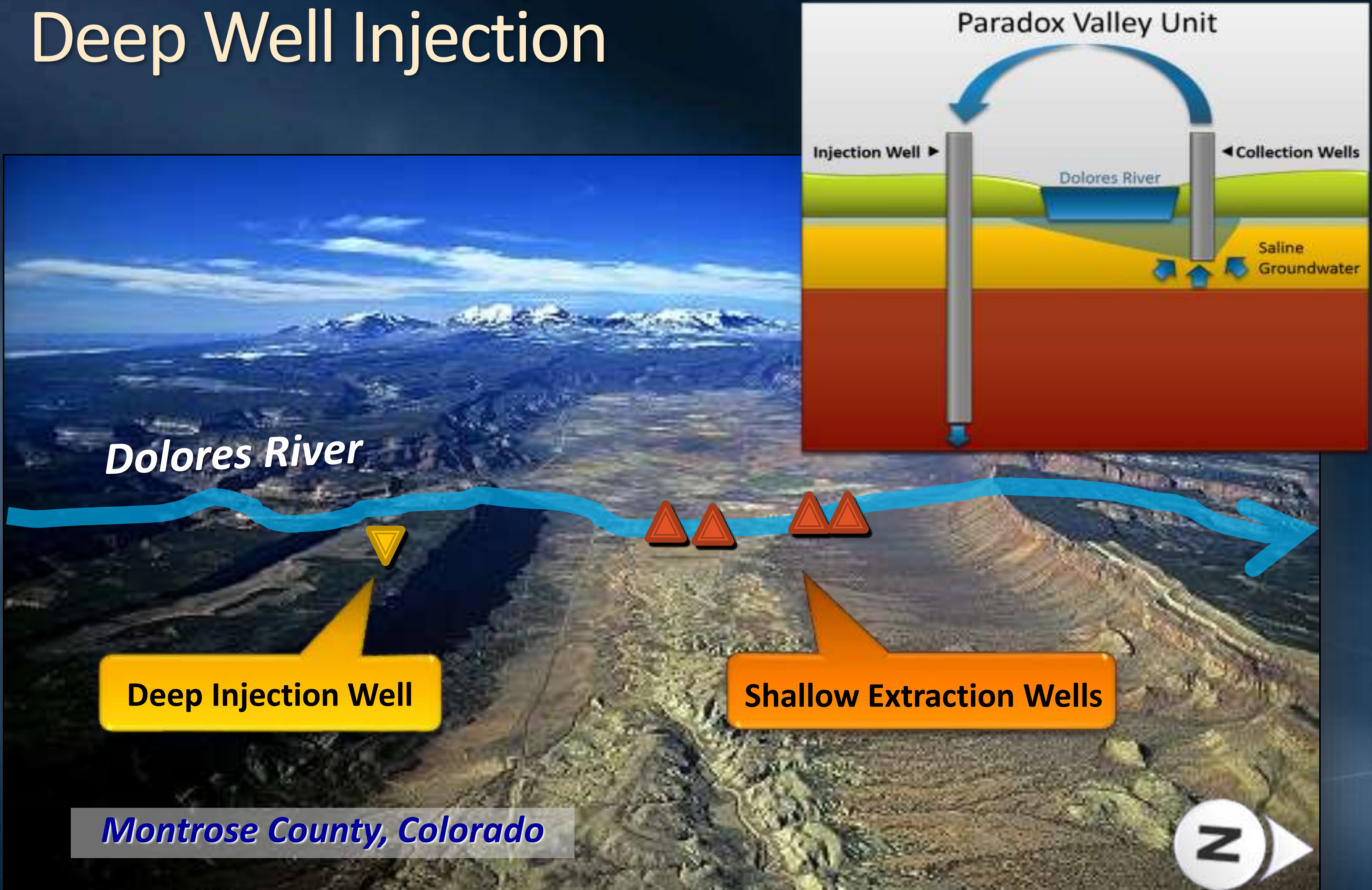


Photo courtesy of CRBSCF

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
  - Final Environmental Impact Statement (Dec. 2020) evaluated replacement and other alternatives
- Lake Powell and Lake Mead provide significant buffers

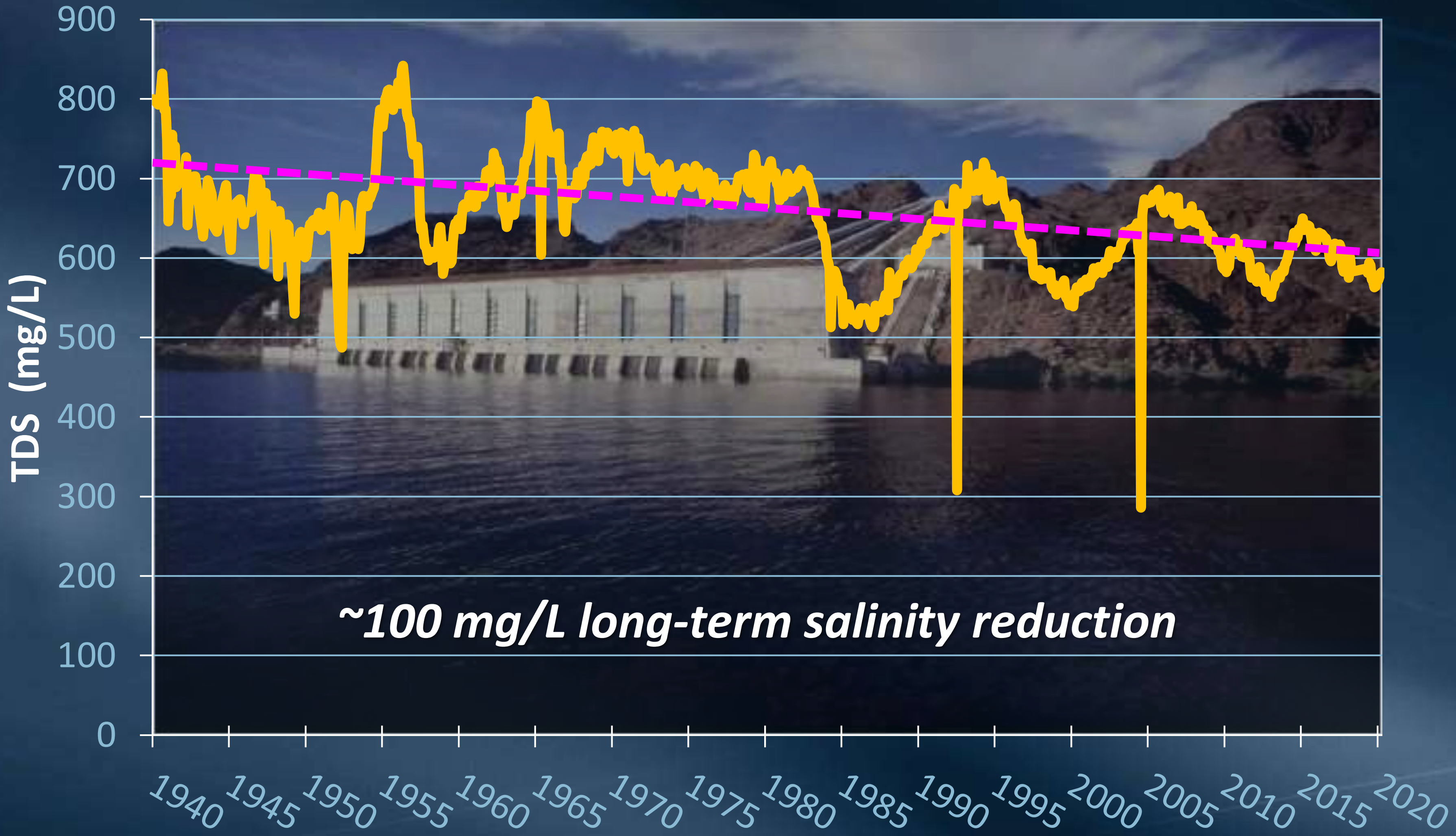
Colorado River Basin Salinity Control Program

- Salinity Control Forum (1973); federal government and Basin states
- Salinity control measures
  - Improved irrigation practices
  - Rangeland management
  - Deep-well brine injection

Photos courtesy of BLM

- 1.3 million tons/year removed → 100 mg/L reduction
- ~$40 million spent annually; 70% federally funded

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

2020 Wildfire Water Quality Impacts

- Potential Impacts
  - Burns protective vegetation
  - Increases sediment loading
- Parameters of concern
  - Increased phosphorus, turbidity, metals, organics, aesthetic concerns, etc.
- Post-fire management strategies
  - Fire assessment and water quality monitoring
  - Local reservoir tier changes
  - Treatment optimization
- No changes to Metropolitan source waters

North Complex Fire
August 17 – December 3, 2020

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

1928