Near-Term Risks: Options to Address Declining Reservoirs

John Entsminger
Senior Deputy General Manager
Southern Nevada Water Authority
Lake Mead Elevation Projections

**NEAR-TERM RISKS: Facility Interruptions**

- **Representation of Ongoing Drought**
- **August 24-Month Study**
  - (7.48 MAF release in 2014 and 2015)

- **Elevation of Intake 1**
- **Shortage Conditions Begin**
NEAR-TERM RISKS: Supply Shortages

Statistical Percentiles for Lake Mead Elevations

Lake Mead Elevation in Feet

YEAR
Addressing impacts from declining reservoirs will require multiple actions.

There is no single solution.
Southern Nevada uses nearly 90,000 acre-feet less water than it did ten years ago, despite annual population increases and millions of annual visitors.
Southern Nevada has secured temporary resources to meet short-term demands.

**Groundwater Banks**
- Arizona
- California
- Southern Nevada

**Intentionally Created Surplus Projects**
- Binational ICS
- Brock Reservoir ICS water
- Yuma Desalting Plant ICS water
- Coyote Spring ICS
- Virgin and Muddy River ICS

**ACTION:** Develop Temporary Supplies

SNWA’s ICS Projects
ACTION: Evaluate Facility Risks

A new drinking water intake in Lake Mead protects Nevada’s ability to draw Colorado River water at low lake elevations.

- Protects system capacity and reliability if lake levels fall below elevation 1,050 feet and Intake No. 1 cannot operate

- Accesses better water quality
Current Progress

Current Tunnel Progress - 50%

INTAKE TUNNEL

ACCESS SHAFTS (Complete)

Completed Mar 2012

Underground Excavation Completed May 2013

INTAKE STRUCTURE

Completed Jun 2010

INTAKE 1

INTAKE 2 CONNECTION

WATER TREATMENT FACILITY
Intake System Operations With
Intake Pumping Station No. 1 Out of Service
And Intake No. 3 Incomplete

Intake 3 Isolation Gate
RMWTF
Spur Tunnel
AMSWTF
Bypass
IPSW-2
Intake 1 Lowest Operation Limit approx. elev. 1065 feet

Lake Mead Water Surface in 2015

Intake 1 Tunnel
Water above thermocline

Water Flow

Intake 2 Tunnel
Isolation Gate

Bypass Energy Penalty = $6 to $11 Million per Year
Intake System Operations With Spur Tunnel Connected to Intake Pumping Station No. 1 And Intake No. 3 Operational

Lake Mead Water Surface in 2015

IPS-1Lowest Operation Limit approx. elev. 1050 feet

Intake 2 capped to force water to flow from Intake No. 3 to IPS-2

Intake 1 capped to force water to flow from Intake No. 3 to IPS-1

Connection Change Order

Water above thermocline

Water Flow
Rather than trying to reopen the Colorado River Compact, Nevada has benefitted from the flexibility it offers.

- **Coordinated operations** of Lakes Powell and Mead have helped protect Lake Mead’s elevations.
- Resources secured through **Intentionally Created Surplus** provisions help meet current demands and provide some relief in the event of supply shortages.