

**Progress Update of  
State Engineer Order 1169  
5-year Study**

**December 9, 2008**

# Requirements for Order 1169

- Five year study
- Pump at least half of the permitted rights in Coyote Spring Valley (8,050 af)
- Update Exhibit 54 from July 2001 Hearings

# Requirements for Order 1169

- Study Participants
  - Las Vegas Valley Water District
  - Southern Nevada Water Authority
  - Coyote Spring Investment, LLC
  - Moapa Valley Water District
  - NVEnergy
  - U.S. Fish and Wildlife Service
  - National Park Service

# Hydraulic Testing



December 4, 2008

Tracy Taylor, P.E. State Engineer  
Nevada Department of Conservation and Natural Resources  
Division of Water Resources  
901 South Stewart Street  
Carson City, Nevada 89701

SUBJECT: STATE ENGINEER ORDER 1169 STUDY

Dear Mr. Taylor:

Please find enclosed an updated version of the document entitled: "Hydraulic Testing of the Carbonate-Rock Aquifer Pursuant to Order 1169" dated November 25, 2008 which was previously presented in March 2005. This document provides a description of the Southern Nevada Water Authority's (SNWA), Coyote Spring Investment LLC's, and Moapa Valley Water District's (collectively the Study Participants) on-going and planned activities to perform and meet the objectives of the aquifer test required by Order 1169.

The Study Participants have updated the enclosed document to provide sufficient detail to define the scope of the monitoring and testing program and identify the necessary steps for the successful implementation and completion of the study. The Study Participants look forward to discussing this outline and providing you with more detail at the meeting scheduled for December 9, 2008 at your offices in Carson City. If you have any questions prior to the meeting, please contact me at (702) 691-5255 or Jeff Johnson at (702) 862-3748.

Sincerely,

  
William E. Rinne, Director  
Surface Water Resources Department

with concurrence by:

  
Brad Huza, General Manager  
Moapa Valley Water District

  
Carl Savelly, General Counsel  
Coyote Spring Investments LLC

WR:JJ:lmv

Enclosure

SNWA MEMBER AGENCIES  
Big Bend Water District • Boulder City • Clark County Water Reclamation District • City of Henderson • City of Las Vegas • City of North Las Vegas • Las Vegas Valley Water District

## Hydraulic Testing of the Carbonate-Rock Aquifer Pursuant to Order 1169 November 25, 2008

- Task 0% Complete       - Task 100% Complete

NOTE: This document has been previously distributed as *Conceptualization of Hydraulic Testing of the Carbonate-Rock Aquifer Pursuant to Order 1169* dated March 4, 2005; and *Conceptualization and Long-Term Monitoring of the Carbonate-Rock Aquifer* dated May 8, 2003. The name was changed to avoid confusion between this document and the SNWA monitoring plan as well as to reflect progress on the Order 1169 Study.

### 1.0 Requirements of Nevada State Engineer Order 1169

- Conduct a minimum 5-year study to provide data and information on the effects of pumping existing water rights permitted from the carbonate-rock aquifer in Coyote Spring Valley.
- Pump a minimum of fifty (50) percent of the permitted rights in Coyote Spring Valley for at least two (2) consecutive years during the study (fifty percent of the existing 16,100 acre-feet per year (afy) of permitted rights in Coyote Spring Valley equates to 8,050 afy, or approximately 5,000 gallons per minute (gpm), if pumped continuously for a year.)
- Upon completion of the study period, the Southern Nevada Water Authority (SNWA) will update Exhibit 54 from the July 2001 hearings by incorporating new data, the results of the aquifer test and associated pumping effects, and then submit the updated version of the exhibit to the State Engineer for consideration of the Las Vegas Valley Water District's (LVVWD) applications.
- At a minimum, the study participants will include the following entities:

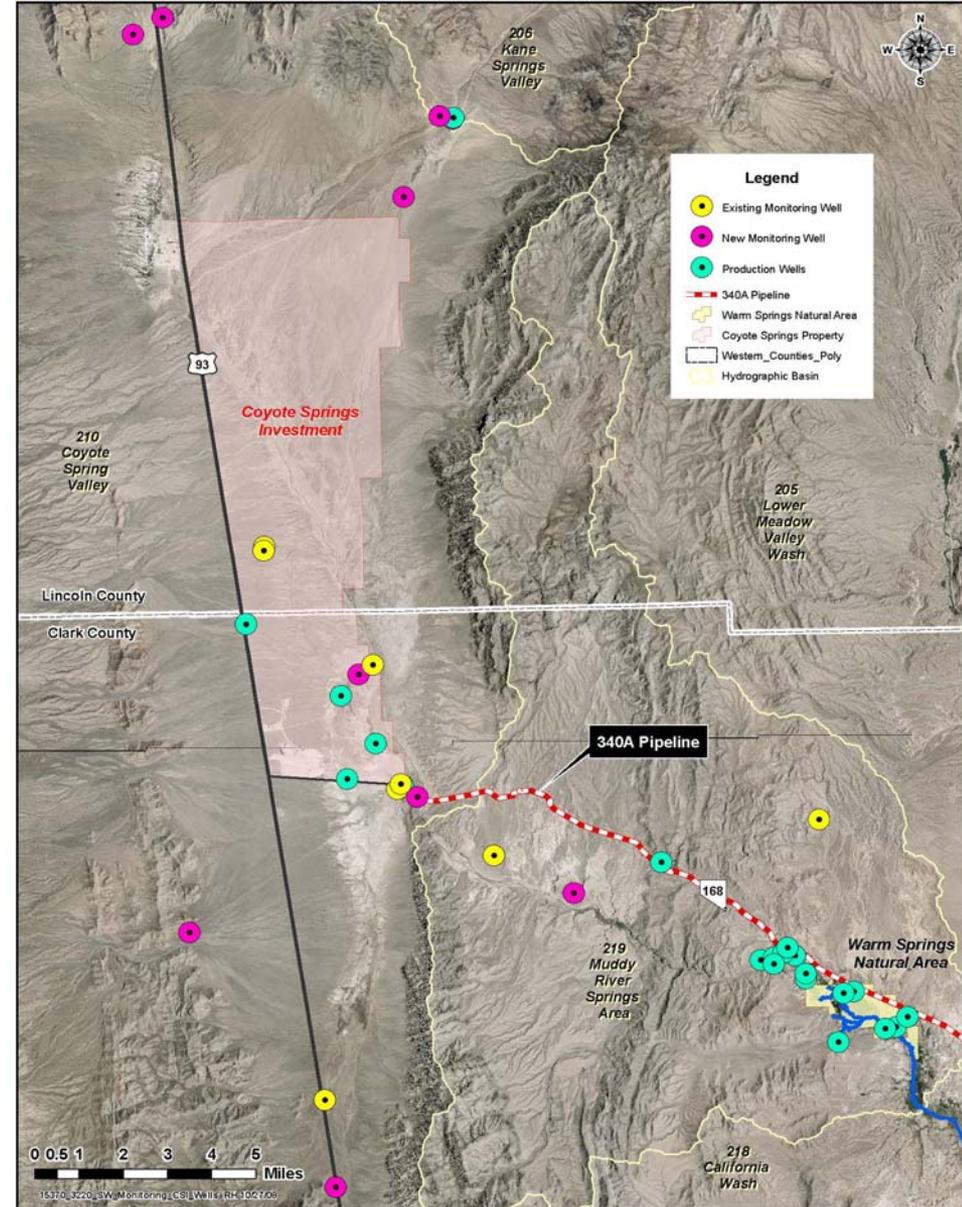
Las Vegas Valley Water District (LVVWD)  
Southern Nevada Water Authority (SNWA)  
Coyote Springs Investment, LLC (CSI)  
NVEnergy (NVE)  
Moapa Valley Water District (MVWD)

Additionally, the State Engineer has granted a request by U.S. Department of Interior to allow the Bureau of Indian Affairs, U. S. Fish & Wildlife Service (FWS), and National Park Service (NPS) (collectively referred to as the federal bureaus) to participate in the study (April 19, 2002).

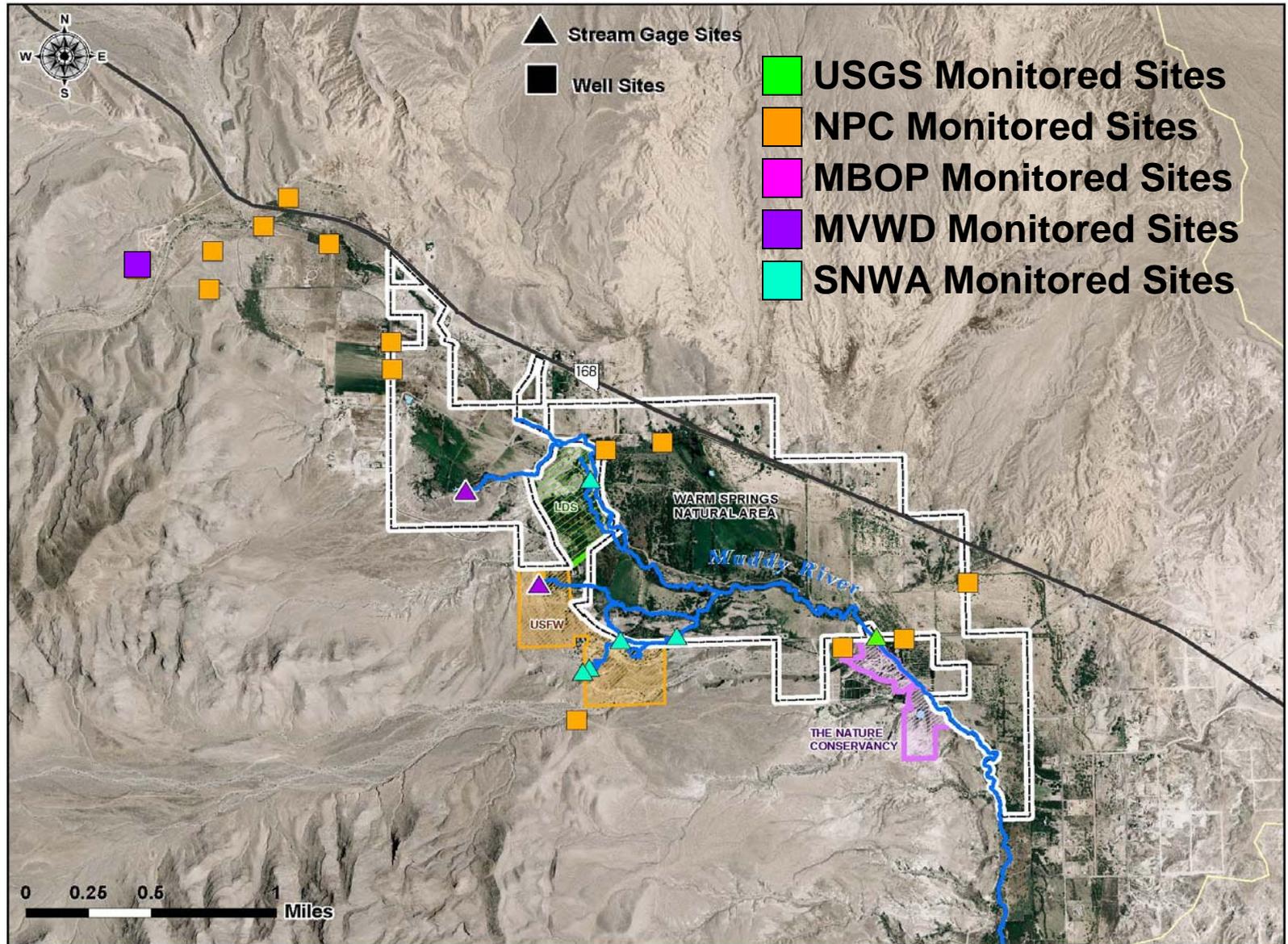
# **Monitoring and Stipulated Actions**

# Monitoring

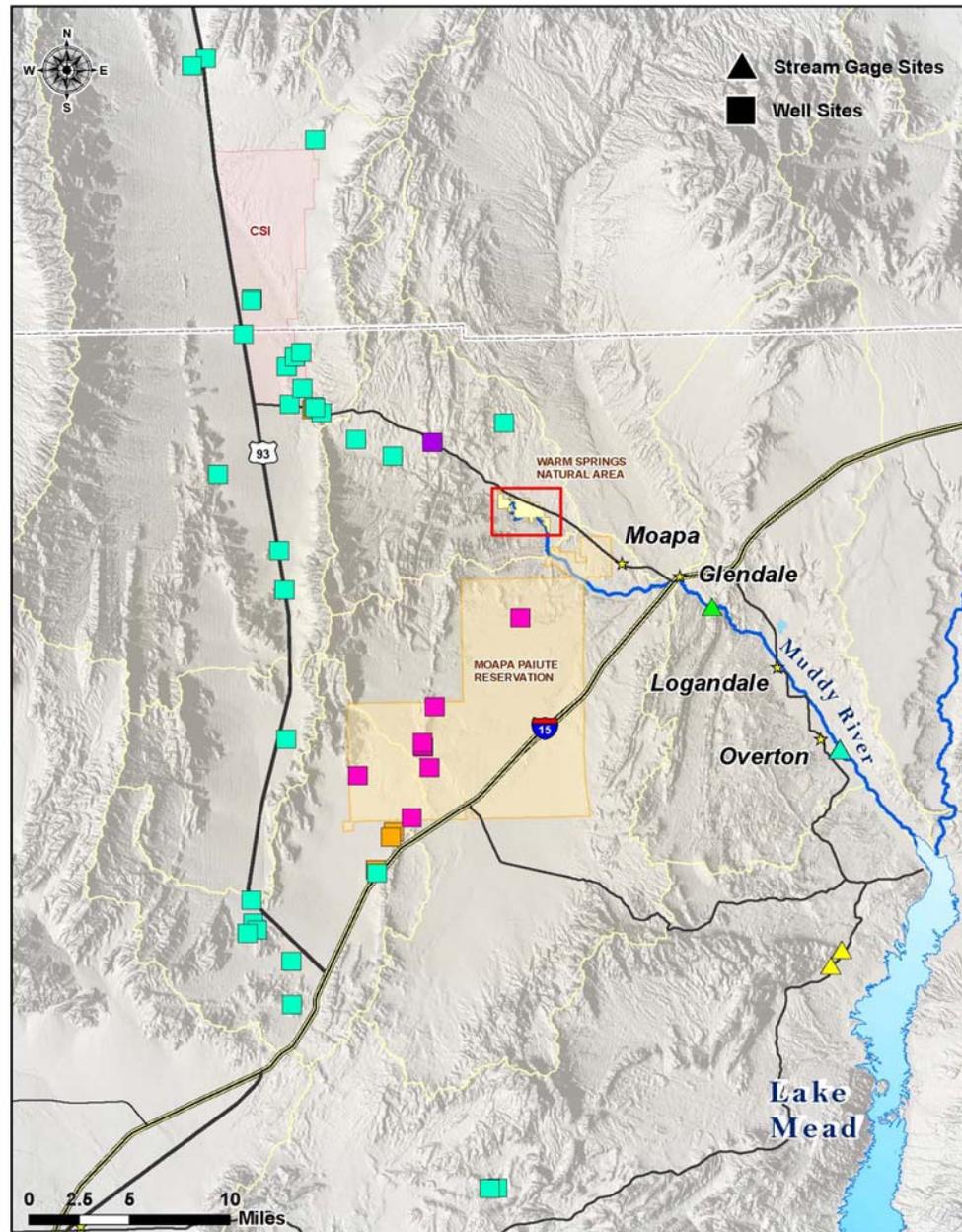
- Existing Monitor Wells
- Additional Monitor Wells
- Existing and New Production Wells



# Muddy Springs Area Monitoring



# Regional Monitoring



- USGS Monitored Sites
- NPC Monitored Sites
- MBOP Monitored Sites
- MVWD Monitored Sites
- NPS Monitored Sites
- SNWA Monitored Sites

# Elevation Survey

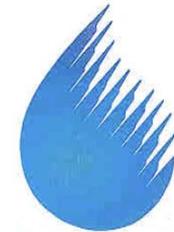


Survey of Wells and Stream Gages in the Black Mountains Area,  
California Wash Basin, Coyote Spring Valley, Garnet Valley,  
Hidden Valley and the Muddy River Springs Area, Nevada

by

Southern Nevada Water Authority

May 2003



Southern Nevada  
Water Authority

Addendum # 1  
to

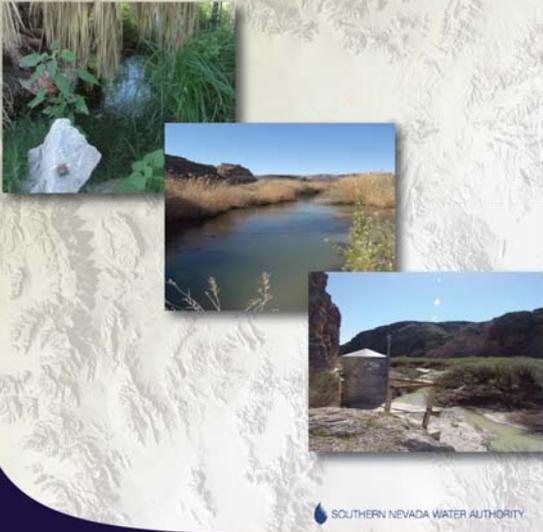
Survey of Wells and Stream Gages in the Black Mountains Area,  
California Wash Basin, Coyote Spring Valley, Garnet Valley, Hidden  
Valley, and Muddy River Springs Area  
SNWA May 2003

March 2005

# Monitoring Reports

**Monitoring Report for Southern Nevada Water Authority and  
Las Vegas Valley Water District's Groundwater Rights Permits and  
Applications in Coyote Spring Valley, Hidden Valley, and Garnet Valley  
Within Clark, Lincoln Counties, Nevada**

*Water Year 2007*



**MUDDY SPRINGS AREA MONITORING REPORT**

January 2007

Submitted by:

Moapa Valley Water District  
P.O. Box 257  
Logandale, NV 89021

PREPARED IN COOPERATION WITH:

U.S. DEPARTMENT OF INTERIOR NATIONAL PARK SERVICE  
U.S. DEPARTMENT OF INTERIOR FISH AND WILDLIFE SERVICE  
NEVADA POWER COMPANY

**GROUNDWATER LEVEL  
MONITORING PROGRAM  
2007 ANNUAL REPORT  
CLARK COUNTY, NEVADA**

Prepared for:

Nevada Power Company  
6226 West Sahara Avenue  
P.O. Box 230  
Las Vegas, NV 89151-0001

Converse Project No. 97-33147-13

July 31, 2008

 Converse Consultants



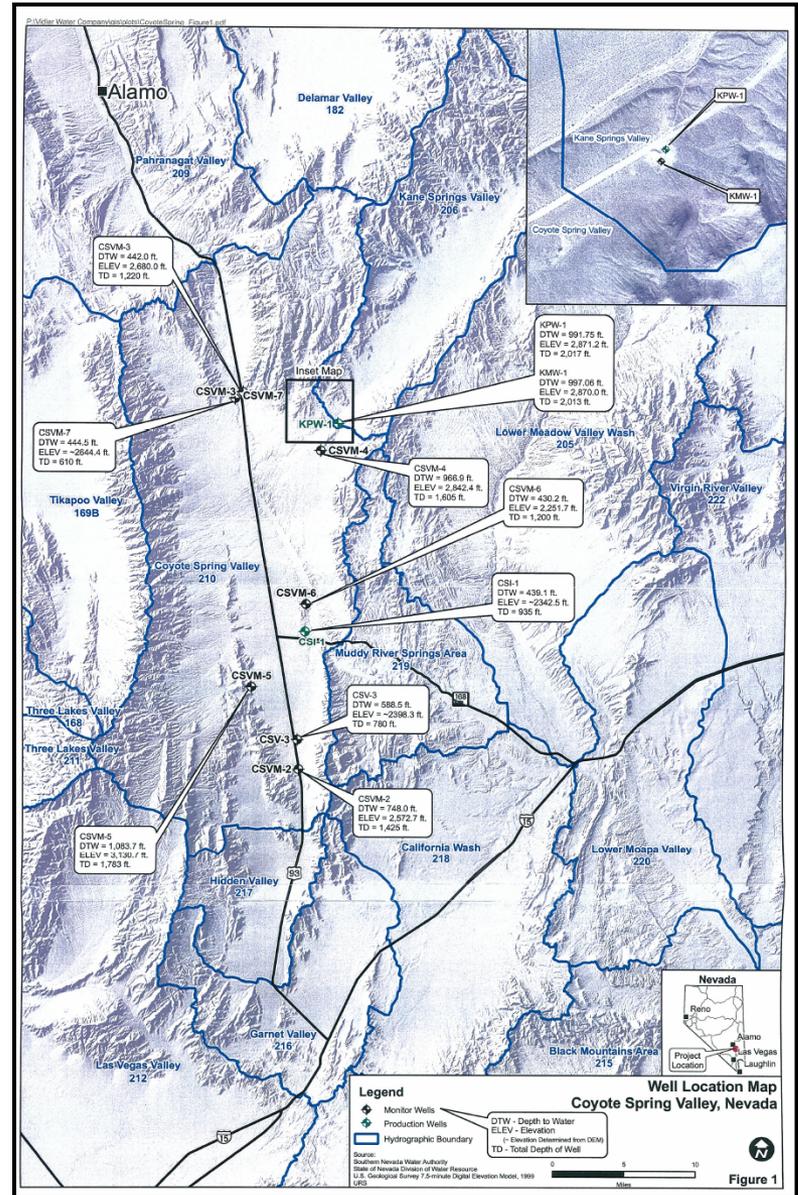
# Baseline Water Quality

# URS

FINAL  
GROUNDWATER SAMPLING  
REPORT  
COYOTE SPRING VALLEY  
NEVADA

Prepared for:  
LINCOLN COUNTY WATER  
DISTRICT AND VIDLER WATER  
COMPANY

URS Job No. 23444639  
March 15, 2006



# Regional Geologic Map



Southern Nevada Water Authority

Doc No. HAM-ED-0001

## Geology of White Pine and Lincoln Counties and Adjacent Areas, Nevada and Utah: The Geologic Framework of Regional Groundwater Flow Systems



November 2007

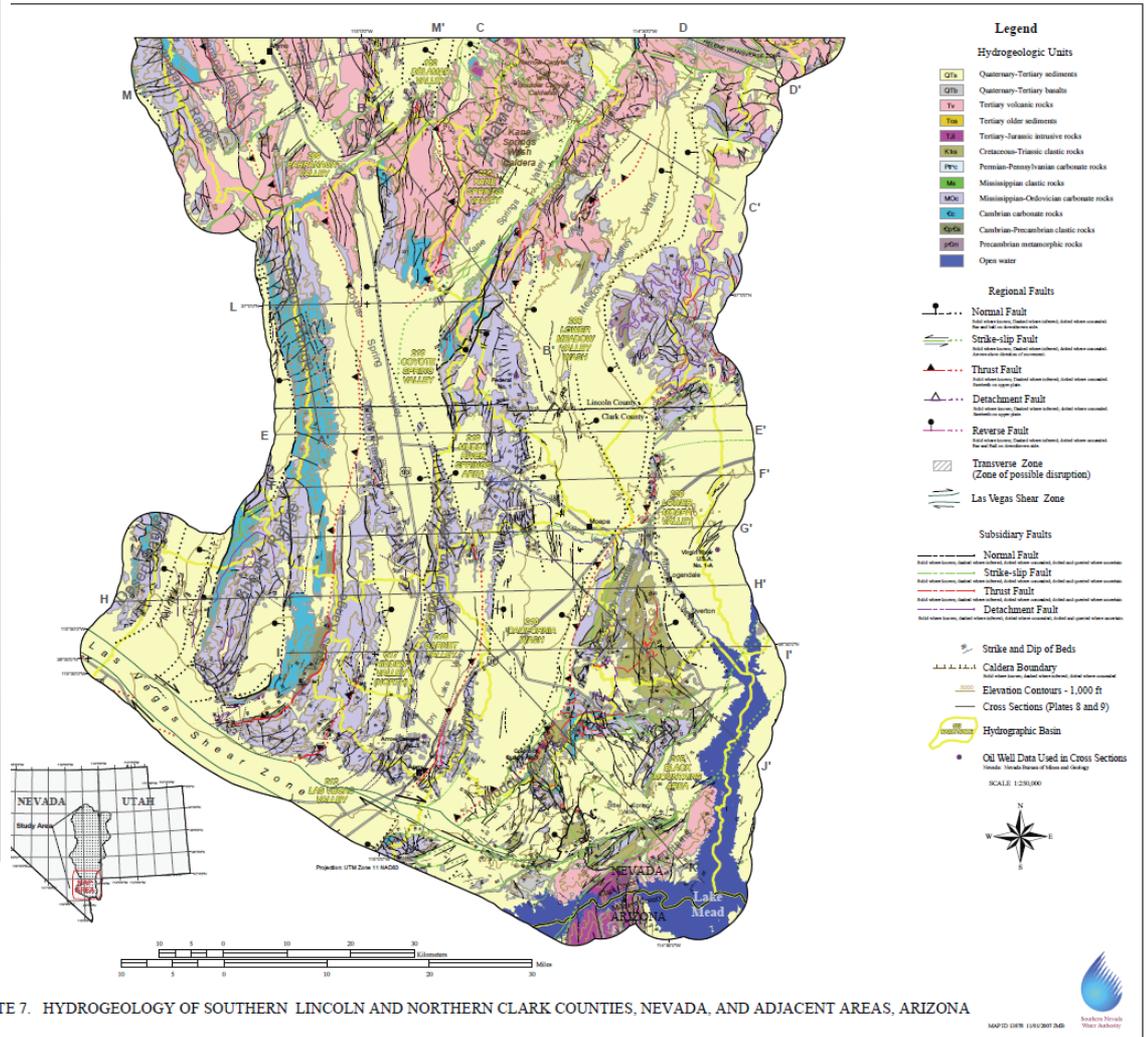


PLATE 7. HYDROGEOLOGY OF SOUTHERN LINCOLN AND NORTHERN CLARK COUNTIES, NEVADA, AND ADJACENT AREAS, ARIZONA

# USGS Gravity Study



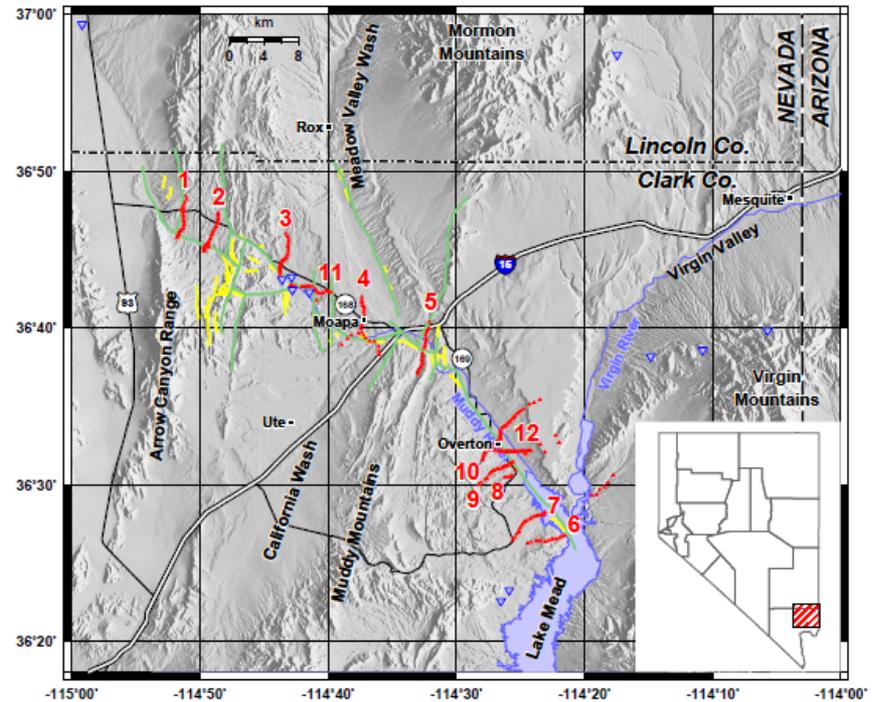
Prepared in cooperation with the Southern Nevada Water Authority

## Results of Gravity Fieldwork Conducted in March 2008 in the Moapa Valley Region of Clark County, Nevada

By Daniel S. Scheirer and Arne Døssing Andreasen

Open-File Report 2008-1300

U.S. Department of the Interior  
U.S. Geological Survey

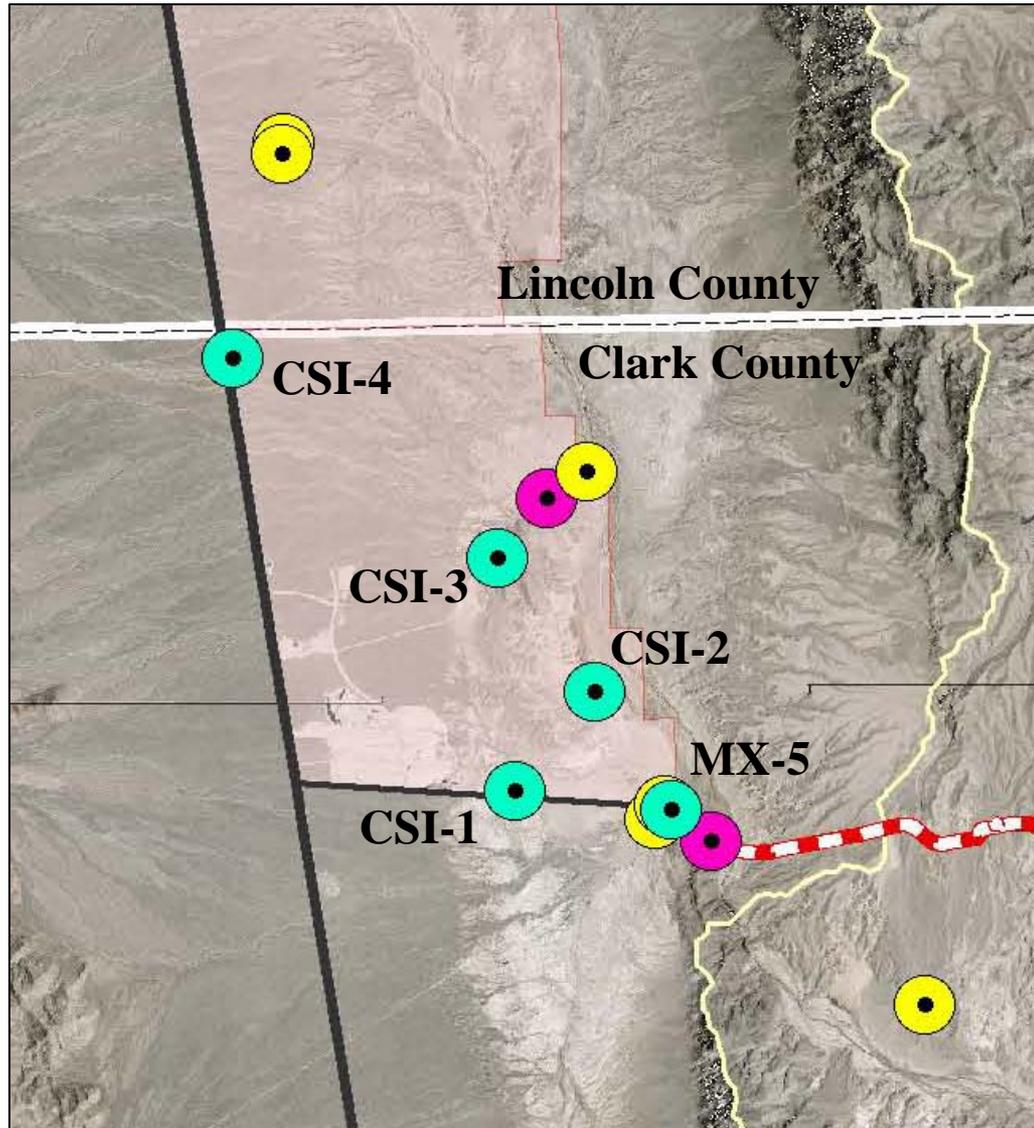


**Figure 1.** Shaded-relief map of the study area in the Moapa Valley region of southern Nevada. Red triangles indicate gravity station locations collected in March 2008, with traverses numbered. Green lines indicate the "terminus" newly-mapped faults, and yellow lines indicate the "GE7C" newly-mapped faults. Blue triangles denote spring locations. Inset shows study area (hachured box) within Nevada.

# **Development of Water Rights in Coyote Spring Valley**

## **Test Design**

# CSI and SNWA



- Legend**
-  **Production Well**
  -  **Monitor Well**
  -  **Monitor Well added since 2001**

# 340A Facilities Construction

Lincoln County

Clark County



Coyote Springs Investment

CSI-2

MX-5 Well

205 LOWER MEADOW VALLEY WASH

220 LOWER MOAPA VALLEY

219 MUDDY RIVER SPRINGS AREA

Warm Springs Natural Area

MVWD Storage Facility

Existing MVWD Pipeline

Muddy River

Moapa

Glendale

Bowman Reservoir

Wells Siding Diversion

Logandale

218 CALIFORNIA WASH

Moapa Paiute Indian Reservation

15

169

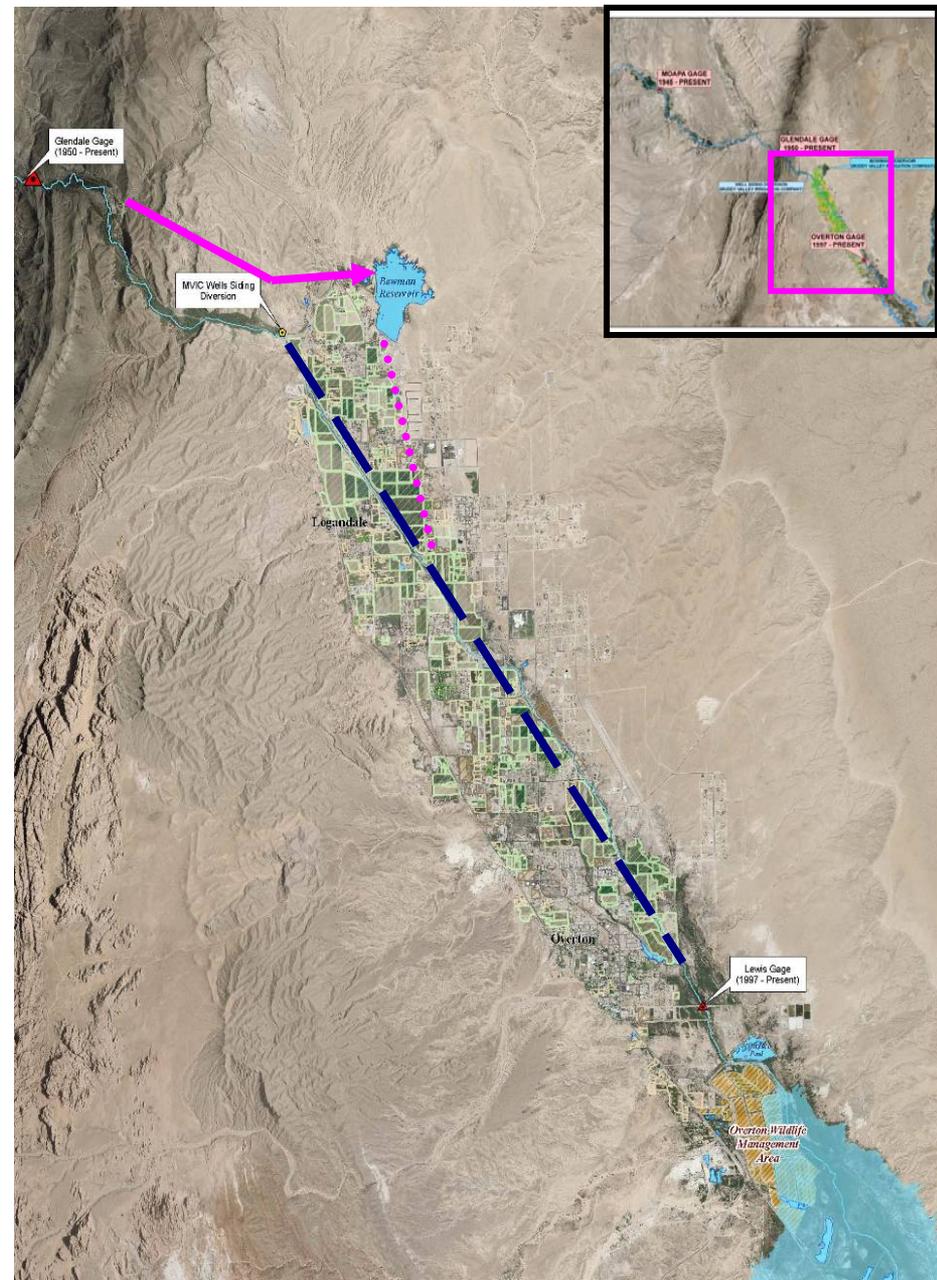
168



MVIC Irrigation Network

# Conveyance of Water to Mead

- Secretary of Interior's Interim Colorado River Guidelines
- Imported Intentionally Created Surplus

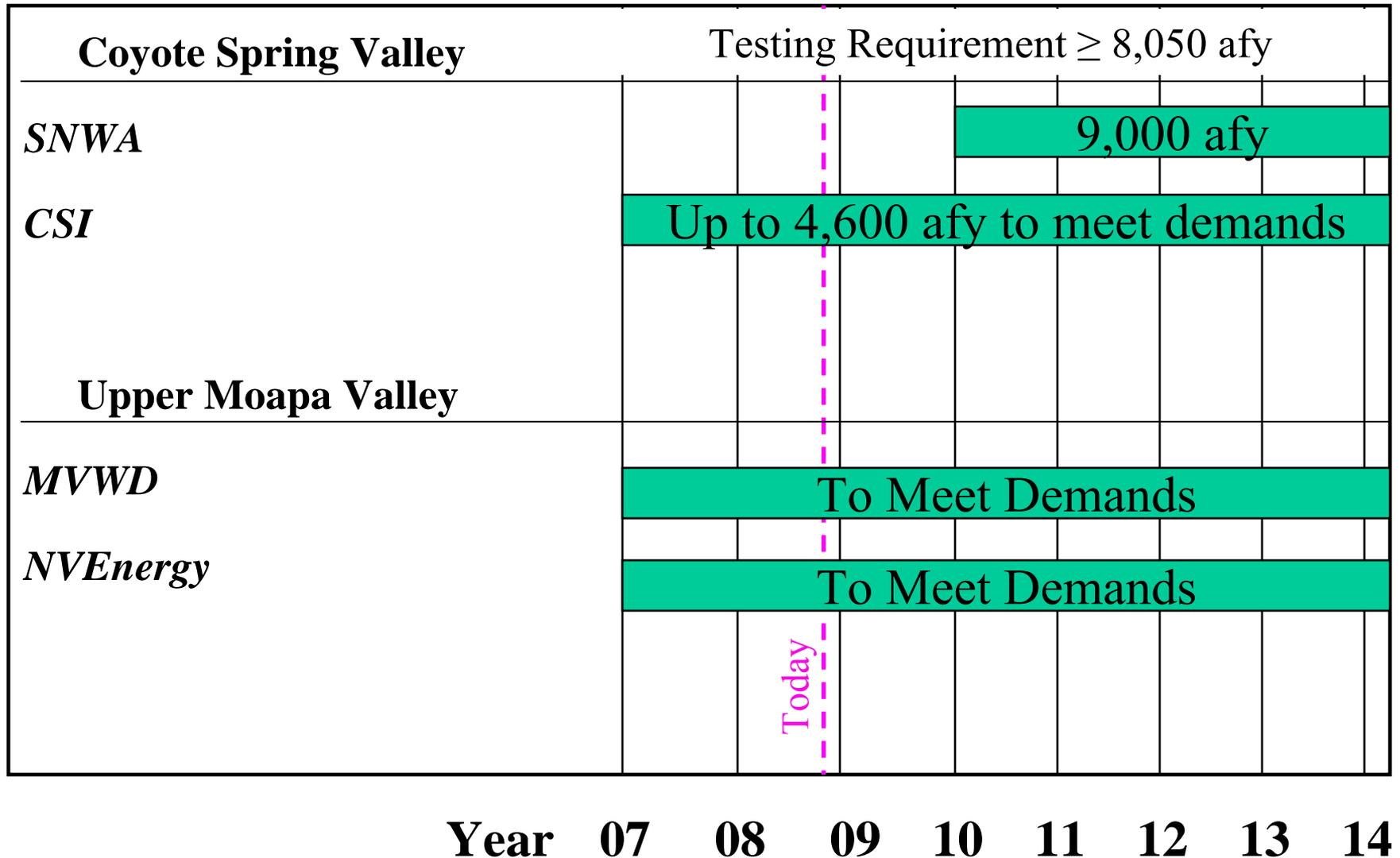


# 340A Facilities Construction

- Approx. 80,000 linear feet of pipe installed with only ~2,000 ft to go
- Overall completion is 80%
- Water Treatment Plant – Arsenic removal



# Groundwater Development



# Memorandum of Agreement

# Memorandum of Agreement

- In April 2006 the SNWA entered into a Memorandum of Agreement with U.S. Fish and Wildlife Service, CSI, and MVWD. The basic terms of the agreement are:
  - Dedication of MVWD's Jones Spring water right (1 cfs) as a pass through flow to allow for augmentation of habitat
  - Trigger flow levels to ensure protection of Moapa Dace
  - Dedication of 10% of CSI's existing rights to Moapa Dace recovery
  - Established a Recovery Implementation Program
  - Established a Hydrologic Review Team

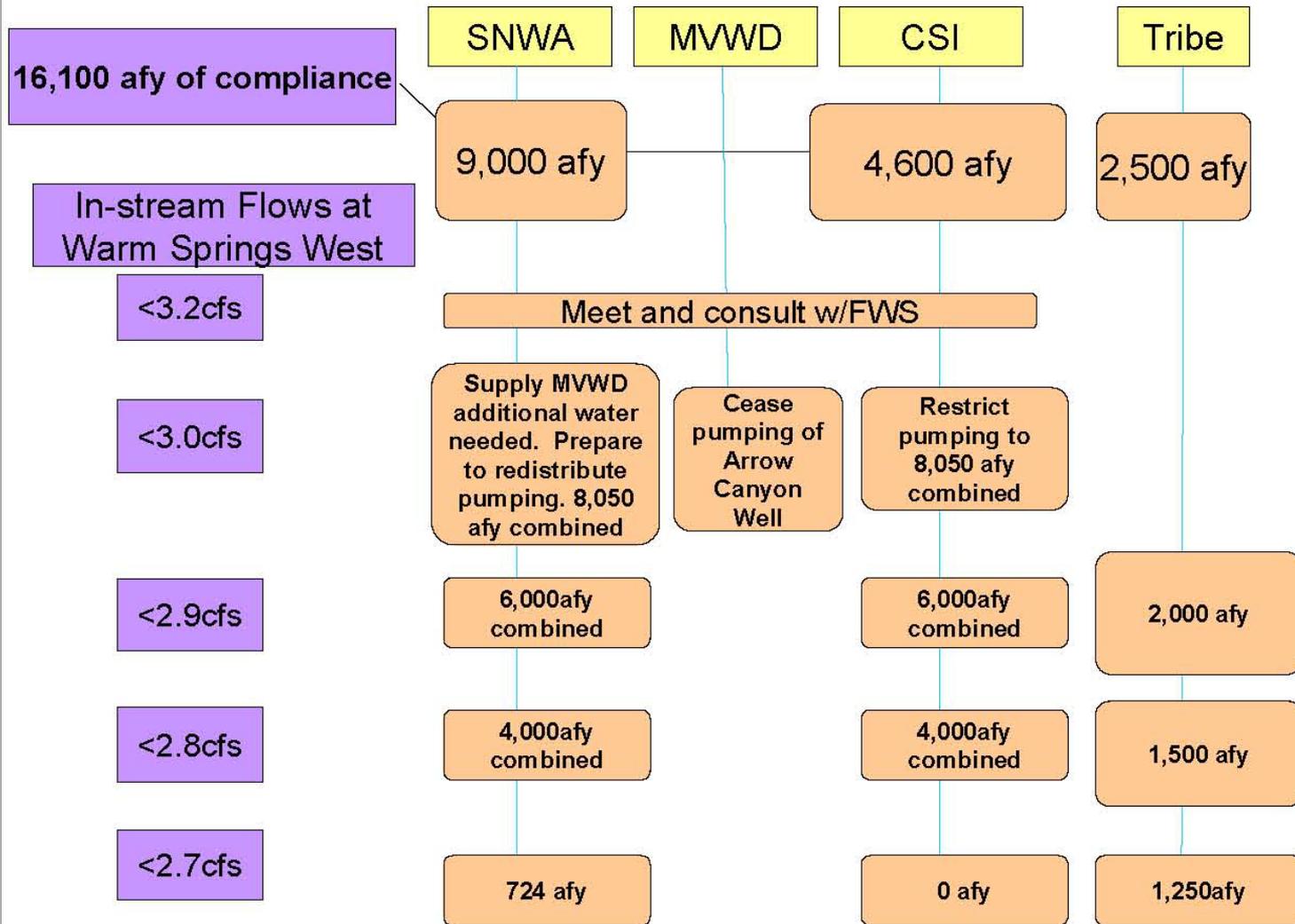
# Memorandum of Agreement

## **Baseline Pumping Report**

**Written in Compliance with the Memorandum of Agreement  
Dated April 2006 Among the Southern Nevada Water  
Authority; the United States Fish and Wildlife Service; Coyote  
Springs Investment LLC; the Moapa Band of Paiute Indians;  
and the Moapa Valley Water District**

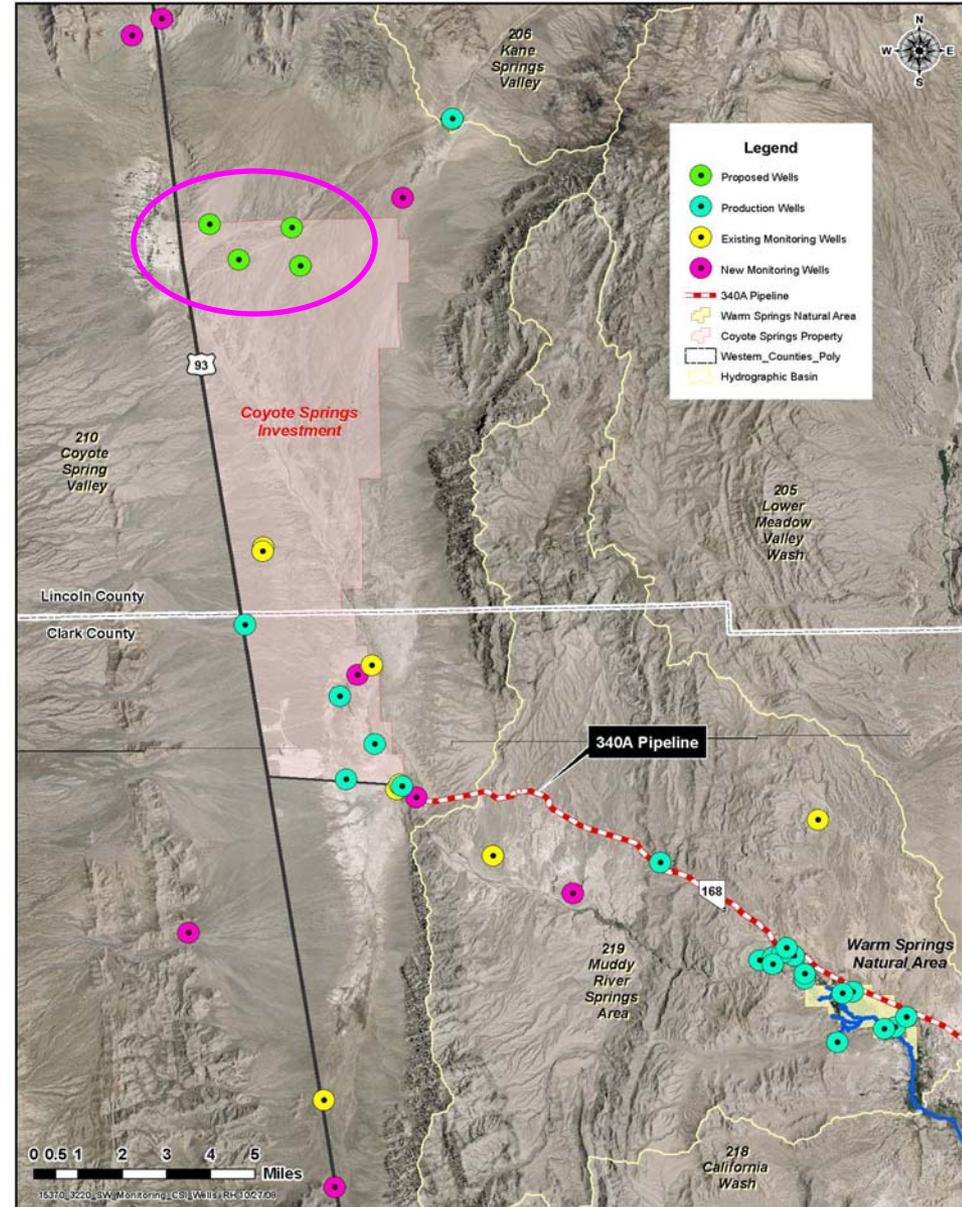
October 2007

# Memorandum of Agreement



# Additional Monitor Wells

- Examine locations for re-distribution of pumpage



# Change Applications

Nevada Division of Water Resources

## Hydrographic Abstract

Number of Records: 16

Selection Criteria: basin IN ('210') AND owner\_name LIKE '%southern nevada%' AND file\_dt >= {d '2008-08-13'}

| Basin | Application | Change of Application | Cert | File date | App status | Source | Point of Diversion |    |     |     |     | Diversion rate | Use | Irrigated Acres | Duty balance | Sup? | CO | Owner name                      |
|-------|-------------|-----------------------|------|-----------|------------|--------|--------------------|----|-----|-----|-----|----------------|-----|-----------------|--------------|------|----|---------------------------------|
|       |             |                       |      |           |            |        | QQ                 | Q  | SEC | TWN | RNG |                |     |                 |              |      |    |                                 |
| 210   | 77291       |                       |      | 08-13-08  | RFA        | UG     | SE                 | SW | 14  | 13S | 63E | 15.000         | MUN | 0.00            | 9000.00      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77292       | 46777                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 0.800          | MUN | 0.00            | 400.00       |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77293       | 49414                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 6.000          | MUN | 0.00            | 4000.00      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77294       | 49660                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 0.138          | MUN | 0.00            | 100.00       |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77295       | 49661                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 0.138          | MUN | 0.00            | 100.00       |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77296       | 49662                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 0.138          | MUN | 0.00            | 100.00       |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77297       | 49978                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77298       | 49979                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77299       | 49980                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77300       | 49981                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77301       | 49982                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77302       | 49983                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77303       | 49984                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77304       | 49985                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77305       | 49986                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |
|       | 77306       | 49987                 |      | 08-13-08  | RFA        | UG     | NE                 | NE | 26  | 13S | 63E | 2.000          | MUN | 0.00            | 1447.93      |      | CL | SOUTHERN NEVADA WATER AUTHORITY |

# Change Applications

| Original Permit Number | Duty (AFY)            |
|------------------------|-----------------------|
| 46777                  | 400                   |
| 49414                  | Not to Exceed<br>8600 |
| 49660                  |                       |
| 49661                  |                       |
| 49662                  |                       |
| 49978                  |                       |
| 49979                  |                       |
| 49980                  |                       |
| 49981                  |                       |
| 49982                  |                       |
| 49983                  |                       |
| 49984                  |                       |
| 49985                  |                       |
| 49986                  |                       |
| 49987                  |                       |
| <b>Total</b>           | <b>9,000</b>          |



Changed:

- POD to MX-5/CSI-2
- POU to SNWA
- Manner of Use to Municipal

| Change Application Number | Duty (AFY)            |
|---------------------------|-----------------------|
| 77292                     | 400                   |
| 77293                     | Not to Exceed<br>8600 |
| 77294                     |                       |
| 77295                     |                       |
| 77296                     |                       |
| 77297                     |                       |
| 77298                     |                       |
| 77299                     |                       |
| 77300                     |                       |
| 77301                     |                       |
| 77302                     |                       |
| 77303                     |                       |
| 77304                     |                       |
| 77305                     |                       |
| 77306                     |                       |
| <b>Total</b>              | <b>9,000</b>          |

# Meeting Order Objectives

- Activities will enable:
  - Parties: "...report as to the information obtained and any impacts seen to the groundwater or surfacewater resources..."
  - LVVWD/SNWA to update Exhibit 54



WATER RESOURCES AND GROUND-WATER MODELING IN THE  
WHITE RIVER AND MEADOW VALLEY FLOW SYSTEMS  
Clark, Lincoln, Nye and White Pine Counties, Nevada

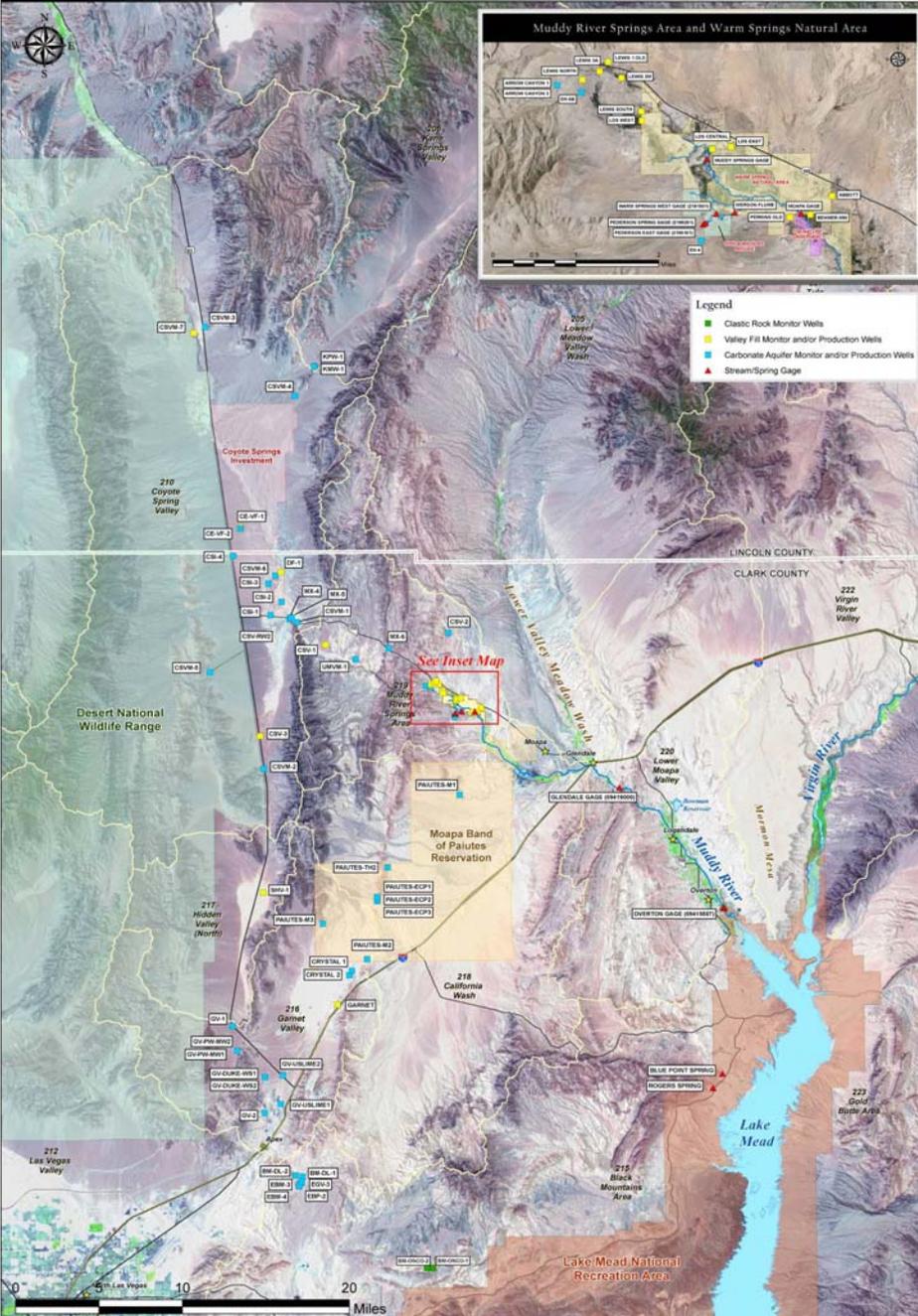
by

Las Vegas Valley Water District

June 2001



Surface and Ground-water Sites Monitored by SNWA and Other Entities in the Southern Portion of the White River and Lower Meadow Valley Wash Flow Systems



Basal Source: NAD 1983 UTM Zone 11N  
Map © 1998 ESRI/USGS  
Map © 1998 ESRI/USGS 11/20/2008

# Order 1169 Timeline

