#### **VENT\_277**

**VENT\_277** 

# Hearing before the office of the State Engineer Daniel Venturacci

## Qualifications George M. Thiel, P.E., S.W.R.S.

**Professional Engineer** 



#### **Expert Witness Credentials**

- 1976: University of Washington, Bachelor of Science in Civil Engineering
- 1977-1978: Nevada Division of Environmental Protection, Air Quality Division
- 1979-1980: Washoe County District Health Department
- 1980-1984: Nevada Division of Water Resources
- 1984-1986: Consulting Engineering Services, Inc.,
- 1986-present: private consulting engineer
- Qualified as an expert witness in Administrative and legal proceedings
  - State Engineer
  - Environmental Commission
  - Various District Courts-Nevada and California
  - Federal District Courts
- Over 35 years of experience in civil engineering and water resources engineering.

#### REGISTERED CIVIL ENGINEER

- State of Nevada
- State of California
- State of Arizona
- State of Utah
- State of Idaho

## Previous Hearings Expert Testimony (partial list)

- Arbitration-NDOT Vs Washoe Ranch Properties
- Dayton Valley-Churchill County and PLPT Vs Lyon County
- Tahoe Regional Industrial Center-Tracy Canyon Segment
- Churchill County Vs United States Fish and Wildlife Service

- South Tahoe Public Utilities-Condemnation of the Heise Ranch Alpine County-Federal Court
- United States Department of Energy-hearings before the office of the SE
- Aqueduct 1- Protested by TCID and Churchill County-Federal Court
- Big Springs Ranch Vs Town of Wendover
- Douglas County Vs Theodore Stokes
- Etc.

#### Overview

- Order 1226-Diamond Valley-Hydrographic Basin #153
  - Daniel Venturacci has filed applications to mitigate the Senior Priority water rights in accordance with Order 1226. The applications were protested by Eureka County etal.
  - The hearing will resolve the merits of the protest and will take evidence in support of the replacement of prestatutory rights lost due to appropriations of junior underground water right holders as per:
    - Exception #4:
      - 4. Those applications filed to mitigate senior surface water rights that have been impacted by groundwater pumping under junior water rights."

#### **Filings**

#### ■ 81825 – Home Ranch V01115

- Application for supplemental irrigation use (filed prior to Order 1226)-Filed prior to order 1226,
- 8 cfs-607.93 acres-supplemental to the first amended proof V-01115
- V-01114-Horse Canyon Diversion, Supplemental to the Place of Use
- Mitigation appropriation of the loss of Springs,
   Seeps and groundwater discharges that were beficially used on the subject property

#### ■ 82570 – Cox Well #2 – V02846

- Irrigation and Domestic Use
- Mitigation Underground water right,
- 2.5 cfs on 344.89 acres
- Telegraph Canyon Creek (V02845), Cox Canyon (V02847) -Supplemental to the Place of Use

#### ■ 82571 - Cox Well #1 - V02846

- Irrigation and Domestic Use,
- Mitigation Underground water right,
- 2.5 cfs on 344.89acres,
- Telegraph Canyon Creek (V02845), Cox Canyon (V02847) -Supplemental to the Place of Use

#### ■ 82572 - Home Ranch - V01115

- Irrigation and Domestic Use,
- Mitigation Underground water right,
- 5.0 cfs-1,636.36 acres,
- Horse Canyon Creek (V0114), Supplemental to the Place of Use

#### ■ 82573 – Willow Ranch – V010368

- Irrigation and Domestic Use,
- Mitigation Underground water right,
- 2.0 cfs 190.59 acres,
- Judd Canyon Creek (V10368), Supplemental to the Place of Use
- Vested use for Stockwatering will be applied for in the future to replace the vested beneficial use

## Three Ranches Subject of this hearing:

- Taft Ranch-(Thompson Ranch, Home Ranch),
- Cox Ranch,
- Willow Ranch,
- Vested Use-Irrigation, Stockwater, and Domestic
- All Vested Filings are for Springs, Seeps and Intermittent Stream Flows

#### Taft/Thompson/Home Ranch

Sir Richard Burton visited Diamond Springs on October 9, 1860. He said:

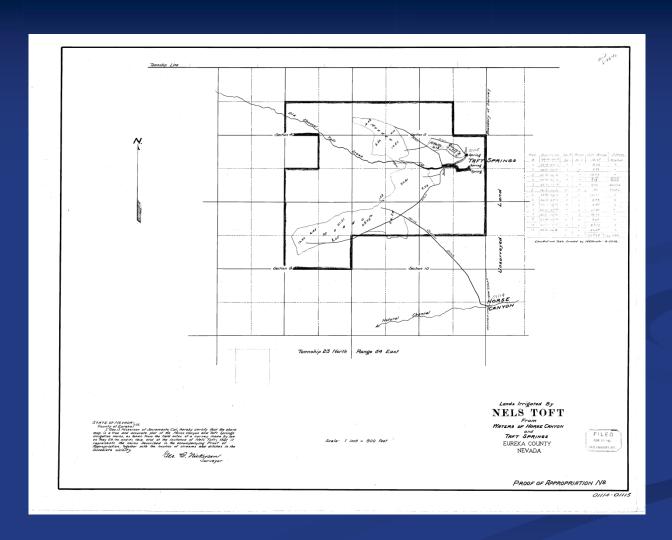
"The station is named Diamond Springs, from an eye of warm, but sweet and beautifully clear water bubbling up from the earth. A little below it drains off in a deep rushy ditch, with a gravel bottom containing equal parts of comminuted shells; we found it an agreeable and opportune bath. . .

"The station folks were Mormons, but not particularly civil; they afterwards had to fly before the savages - which perhaps they will be pleased to consider a 'judgment' upon them."-James H. Simpson, *Report of Explorations across the Great Basin in 1859.* 

#### **Prior Filings**

- Home Ranch-Thompson/Taft Ranch
  - Proof filed 6-26-1912-Nels Toft for <u>Taft</u>
    <u>Springs</u>
    - 204.3 acres including 50 acres from Horse Canyon
    - Jurat sources are Taft Springs and Horse Canyon, irrigation works based upon a survey in 1912-includes streams and ditches
  - First Amended Proof Filed January 30, 1975 for <u>Taft Springs</u> by Theodore and Olive Thompson
    - Total Acreage = 607.93 acres

#### Proof V01114-V01115

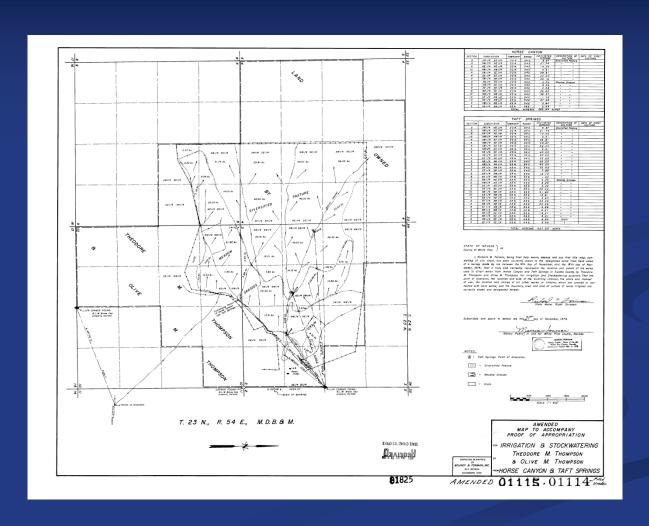


STATE OF NEVADA 355.

County of Eureka 3 55.

[, Geo. S. Nickerson of Sacramento, Cal, hereby certify that the above map is a true and accurate plat of the Horse Canyon and Taft Springs irribation works, as taken from the field notes of a survey made by me on May 29.30, and 31, 1912, and at the instance of Nels Toft; that it represents the works described in the accompanying Proof of Appropriation, together with the location of streams and ditches in the immediate vicinity. Geo. O. nickerson Surveyor

#### First Amended Proof V01114-V01115



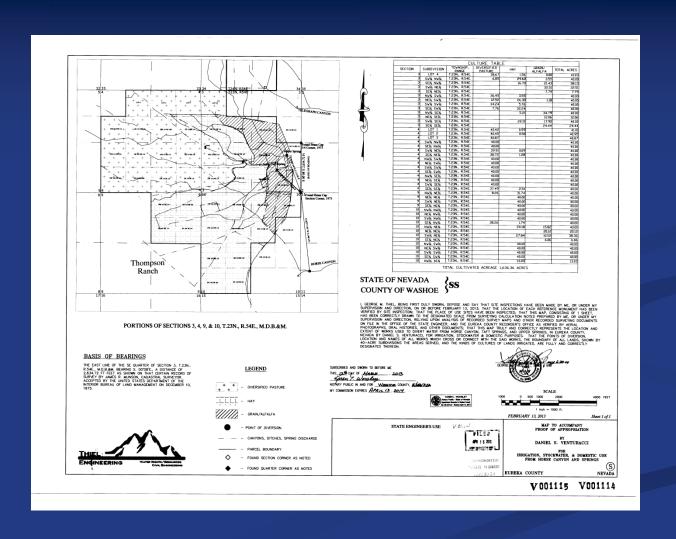
STATE OF NEVADA County of White Pine ss

I, Richard W. Forman, being first duly sworn, depose and say that this map, consisting of one sheet, has been correctly drawn to the designated scale from field notes of a survey made by me between the l4th day of November, and the 18th day of November, 1974; that it truly and correctly represents the location and extent of the works used to divert water from Horse Canyon and Taft Springs in Eureka County, by Theodore M. Thompson and Olive M. Thompson for Irrigation and Stockwatering purposes. That the point of diversion, the location and size of the diverting channel, the place and manner of use, the location and names of all other works or streams which are crossed or connected with said works, and the boundary, area and kind of culture of lands irrigated are correctly shown and designated hereon.

State Water Right Surveyor

- Jurat States the following: "...based upon field notes of a survey made by me on the 14<sup>th</sup> of November and the 19<sup>th</sup> day of November 1974..."
  - Based upon the jurat the survey was based upon existing conditions as surveyed in 1974 and only from discharges from Taft Springs.
- Proof Filed on February 25, 2013 for Daniel Venturacci for <u>Springs and Seeps</u>
  - The Jurat in the map for this exhibit, states that the maps is based upon a plethora of documentation including Aerial Photographs, oral histories, and other documents, including the records of the office of the State Engineer and Eureka County

#### 2<sup>nd</sup> Amended Proof-V01115-V01114



#### STATE OF NEVADA COUNTY OF WASHOE

I, GEORGE M. THIEL, BEING FIRST DULY SWORN, DEPOSE AND SAY THAT SITE INSPECTIONS HAVE BEEN MADE BY ME, OR UNDER MY SUPERVISION AND DIRECTION, ON OR BEFORE FEBRUARY 13, 2013; THAT THE LOCATION OF EACH REFERENCE MONUMENT HAS BEEN VERIFIED BY SITE INSPECTION; THAT THE PLACE OF USE SITES HAVE BEEN INSPECTED; THAT THIS MAP, CONSISTING OF 1 SHEET, HAS BEEN CORRECTLY DRAWN TO THE DESIGNATED SCALE FROM SURVEYING CALCULATION NOTES PREPARED BY ME, OR UNDER MY SUPERVISION AND DIRECTION, RELYING UPON ANALYSIS OF RECORDED SURVEY MAPS AND OTHER RECORDED SURVEYING DOCUMENTS ON FILE IN THE OFFICE OF THE STATE ENGINEER, AND THE EUREKA COUNTY RECORDER'S OFFICE AS VERIFIED BY AERIAL PHOTOGRAPHS, ORAL HISTORIES, AND OTHER DOCUMENTS; THAT THIS MAP TRULY AND CORRECTLY REPRESENTS THE LOCATION AND EXTENT OF WORKS USED TO DIVERT WATER FROM HORSE CANYON, TAFT SPRINGS, AND UPPER SPRINGS, IN EUREKA COUNTY, NEVADA BY DANIEL S. VENTURACCI, FOR IRRIGATION, STOCKWATER & DOMESTIC PURPOSES. THAT THE POINTS OF DIVERSION, LOCATION AND NAMES OF ALL WORKS WHICH CROSS OR CONNECT WITH THE SAID WORKS, THE BOUNDARY OF ALL LANDS, SHOWN BY 40-ACRE SUBDIVISIONS THE AREAS SERVED, AND THE KINDS OF CULTURES OF LANDS IRRIGATED, ARE FULLY AND CORRECTLY DESIGNATED THEREON.

SWORN TO BEFORE ME

MARCH , 2013.

AND FOR MALES COUNTY AND LOCAL

- Total Acreage for 3 crop types = 1636.36 acres:
  - Diversified Pasture
  - Hay
  - Grain/Alfalfa
- Other Notes:
  - Filing in 1912-"the above statement (referring to the number of acres estimated) is only an estimate as there is no evidence at hand"
    - Ditch references are shown on the 1879 GLO Survey Plat
    - Map only illustrates the Dewey patent in 1894 and

#### 1910 with reference to lands in 1918 patent "under contract"

- Place of use was limited to a smaller area of land
- The Current property is an accumulation of several patents, originally held by multiple possesery interests
- Filing in 1975 (First Amended Proof)
  - Ignores the land outside of fenced areas
  - Amended to "show pasture lands not shown in the original filing" and adds Stockwatering
  - Area expanded to 607.03 acres
  - Expanded to annual use

- Filing in 2013
  - Illustrates those lands grazed outside of fenced area
  - Diversified Pasture = 780.87 acres
  - Hay = 646.52 acres
  - Grain and Alfalfa = 208.97 acres
- Amended application illustrates the full historic use of the property and commingled nature of the various sources of water, with hundreds of springs and seeps within the place of use
- Establishes vested use as on or before 1859

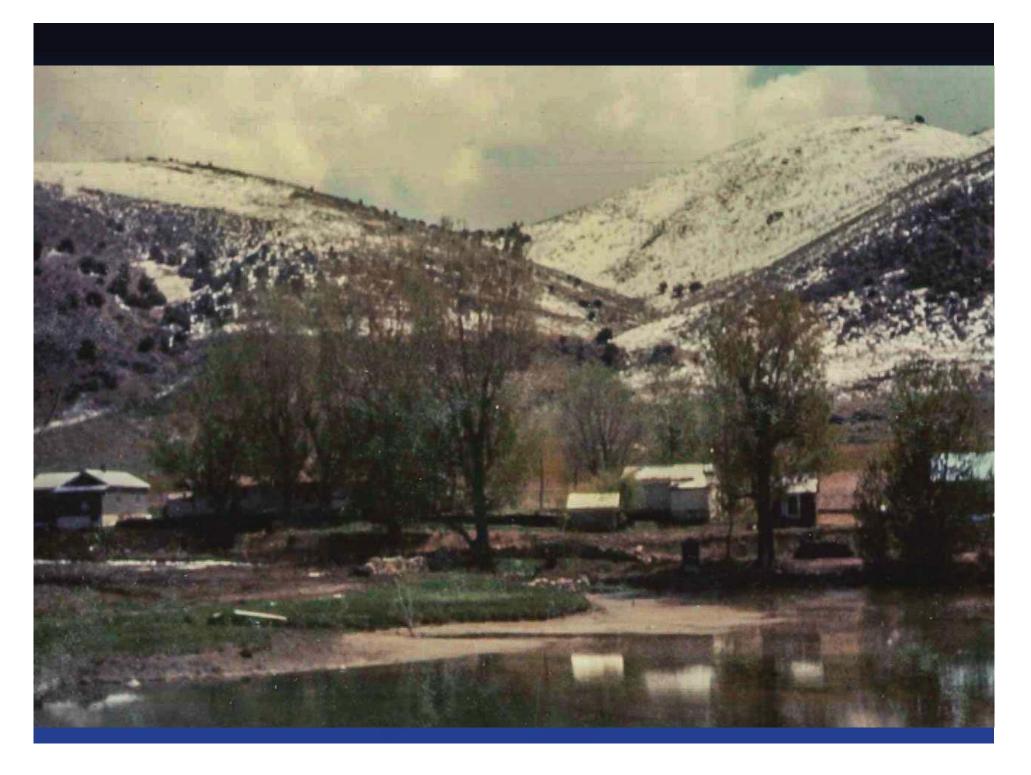
Further referenced by the Pony Express Station and the location of the Simpson Route/Southern Route of the Overland trail and elsewhere in the submitted evidence.

- Water has been continuously used to the extent it is available, present supply is for domestic use within existing residences
- Place of use is that portion of the irrigated land shown on the 1879 survey to that smaller portion "owned lands by the applicant and adjacent fenced improvements."

#### **Continued Use**

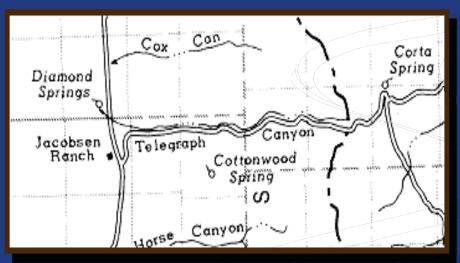
 Irrigation, Stockwater and Domestic use has continued to the extent water has been available





#### Cox Ranch

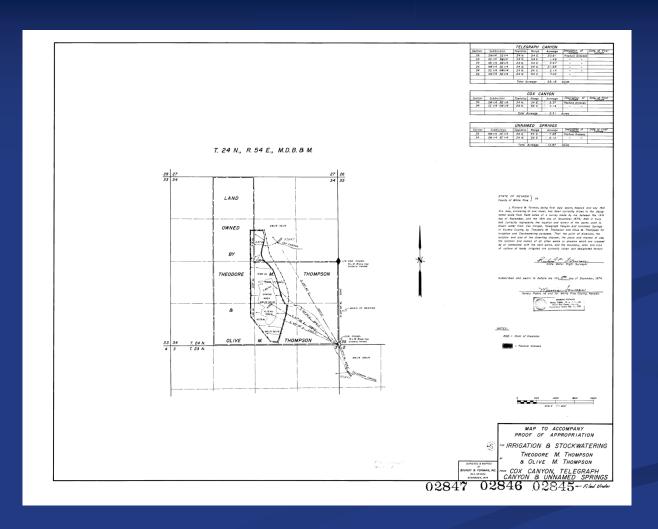
"When the Overland Telegraph tapped the end of the Pony Express, William Cox stayed on at Diamond Springs and became a telegraph operator and maintenance man for the Overland Telegraph Company. He was responsible for repairs of the line as far east as Cherry Creek and as far west as Robert's Creek Station. He taught his wife to send and receive messages. When he was out on the line, she became the telegraph operator." Nevada State Journal January 3, 1960, Edna B. Patterson



#### **Prior Filings**

- Cox Ranch
  - Proof Filed January 30, 1975 for by Theodore and Olive Thompson
    - Total Acreage = 80.66
      - 13.97 acres from unnamed Springs
      - 58.18 acres from Telegraph Canyon
      - 8.51 acres from Cox Canyon
      - All for Pasture Grasses
    - Survey predicated upon a field survey performed in November 1974

#### Proof Filing V-02845-V02847-V02847 1974



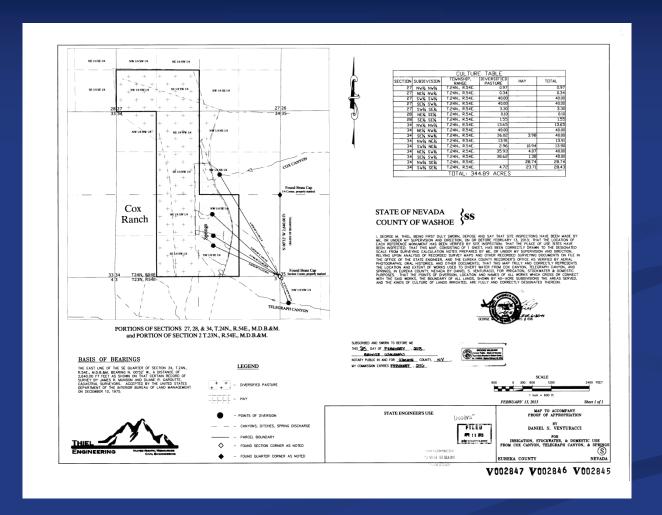
STATE OF NEVADA County of White Pine .

I, Richard W. Forman, being first duly sworn, depose and say that this map, consisting of one sheet, has been correctly drawn to the designated scale from field notes of a survey made by me between the 14th day of November, and the 18th day of November, 1974; that it truly and correctly represents the location and extent of the works used to divert water from Cox Canyon, Telegraph Canyon and Unnamed Springs in Eureka County, by Theodore M. Thompson and Olive M. Thompson for Irrigation and Stockwatering purposes. That the point of diversion, the location and size of the diverting channel, the place and manner of use, the location and names of all other works or streams which are crossed by or connected with the said works, and the boundary, area and kind of culture of lands irrigated are correctly shown and designated hereon.

- Priority Date based upon 1901 patent
- Ignored priority date based upon actual vesting of use
- Ignores Pasture areas
- Ignores 1879 survey, original settlement
- Lists culture as it existed in 1974 when it was hayed within the fenced areas
- Actual Diversion of water was prior to 1859

- First Amended Proof filed February 25, 2013
   Springs and Seeps
  - The Jurat in the map for this exhibit, states that the maps is based upon a plethora of documentation including Aerial Photographs, oral histories, and other documents, including the records of the office of the State Engineer and Eureka County
- 272 acres of Diversified Pasture, 72.82 acres of Hay = 344.89 acres
- Cox Ranch illustrated in 1879 Survey,
- Added stock use and domestic use

### 1<sup>st</sup> Amended Proof V02845, V02846, V02847



#### STATE OF NEVADA COUNTY OF WASHOE

I, GEORGE M. THIEL, BEING FIRST DULY SWORN, DEPOSE AND SAY THAT SITE INSPECTIONS HAVE BEEN MADE BY ME, OR UNDER MY SUPERVISION AND DIRECTION, ON OR BEFORE FEBRUARY 13, 2013; THAT THE LOCATION OF EACH REFERENCE MONUMENT HAS BEEN VERIFIED BY SITE INSPECTION; THAT THE PLACE OF USE SITES HAVE BEEN INSPECTED; THAT THIS MAP, CONSISTING OF 1 SHEET, HAS BEEN CORRECTLY DRAWN TO THE DESIGNATED SCALE FROM SURVEYING CALCULATION NOTES PREPARED BY ME, OR UNDER MY SUPERVISION AND DIRECTION, RELYING UPON ANALYSIS OF RECORDED SURVEY MAPS AND OTHER RECORDED SURVEYING DOCUMENTS ON FILE IN THE OFFICE OF THE STATE ENGINEER, AND THE EUREKA COUNTY RECORDER'S OFFICE AS VERIFIED BY AERIAL PHOTOGRAPHS, ORAL HISTORIES, AND OTHER DOCUMENTS; THAT THIS MAP TRULY AND CORRECTLY REPRESENTS THE LOCATION AND EXTENT OF WORKS USED TO DIVERT WATER FROM COX CANYON, TELEGRAPH CANYON, AND SPRINGS, IN EUREKA COUNTY, NEVADA BY DANIEL S. VENTURACCI, FOR IRRIGATION, STOCKWATER & DOMESTIC PURPOSES. THAT THE POINTS OF DIVERSION, LOCATION AND NAMES OF ALL WORKS WHICH CROSS OR CONNECT WITH THE SAID WORKS, THE BOUNDARY OF ALL LANDS, SHOWN BY 40—ACRE SUBDIVISIONS THE AREAS SERVED, AND THE KINDS OF CULTURE OF LANDS IRRIGATED, ARE FULLY AND CORRECTLY DESIGNATED THEREON.



#### Patents:

- 4657-1901 Cox
- 5980 1907 Cox
- 6126- 1908 Cox
- Associated water rights:
  - V02845- Telegraph Canyon Creek (Intermittent Flow)
  - V02846-Springs and Seeps
  - V02847- Cox Canyon Creek (Intermittent Flow)

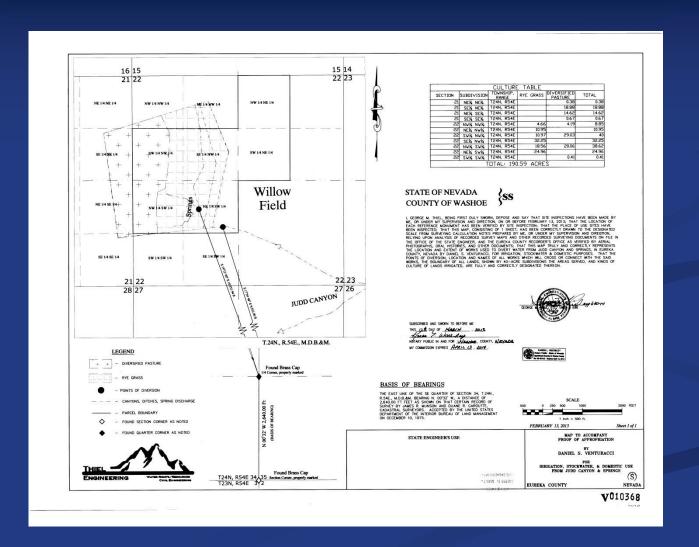
#### Willow Ranch

Proof filed February 25, 2013

V010368

Judd Canyon Creek, Unnamed Springs and Seeps

# **Proof Filing V010368**



#### Willow Ranch

# STATE OF NEVADA COUNTY OF WASHOE

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SUBSCRIBED AND SWORN TO BEFORE ME

#### Patents:

- 4656 1901 Cox
- 4809 1902 Cox
- 4810 1902 Cox
- Place of Use
  - 190.59 acres:
    - 88.24 acres of pasture
    - 102.35 acres of hay
    - 100 horses and 500 cattle
- Prior to 1879

#### **Findings**

- 1912 Filing (Thompson Ranch)
  - Taft Springs only
  - Patented lands only (Portion)
  - Horse canyon has a limited discharge
    - Seasonal use
  - Based upon field findings
- 1975 Filing (Thompson and Cox Ranch)
  - Based upon conditions as they exist in 1974
  - Limited to fenced areas only
  - Does not illustrate lands in possession outside of fenced area
  - Purpose of the filing was to "show pasture lands not shown in the original filing".
  - Only reference was to pasture and grain and was expanded to an annual use
  - Filing is not based upon historical research

#### 2013 filing based upon the following - All Ranches:

- Aerial photographs from various years
  - Illustrates extent of "wet areas" and distribution of water and ditches
  - Illustrates evidence of improved fields
  - Corroborates information provided in the GLO survey of 1879 (to be discussed later)
- Record research
  - Eureka County, and Battle Mountain Recorder, Assessor and Archival records
  - Office of the State Engineer
  - GLO records-maps and field notes
  - Oral Histories, literature, historical records and interviews
    - Andrew Crofut-Diamond Valley Dust
    - Milton Thompson
    - Eureka Memories
    - The Pony Express in Nevada 1976
    - Others
  - Patent Research
  - USGS-Reports and Records
  - Ground Truthing

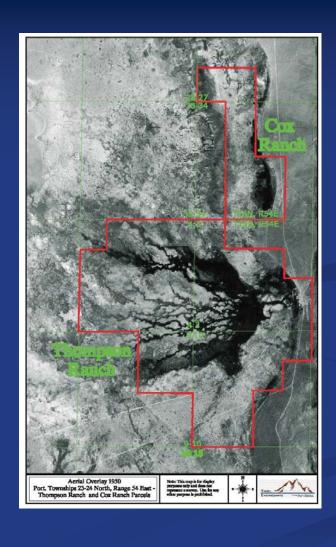
#### Investigation

- Aerial Photographs
- Record Research-BLM, County, State
- Historical Research
- Field Investigation
- USGS documentation of discharge area
- Title research
- Tax Records

#### **Aerial Photographs**

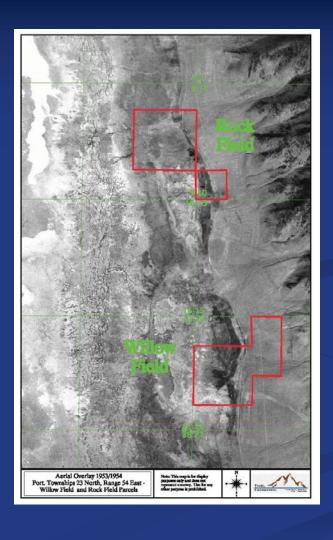
- 1950-no date provided other than year of the photograph
- 1953-September 29
- 1967-May 20
- 1973-September 27

#### 1950 Cox and Home Ranch



# 1953/1954 Aerial Overlay 1953/1954 Port. Townships 23-24 North, Range 54 East Thompson Ranch and Cox Ranch Parcels

### 1953/54 Willow



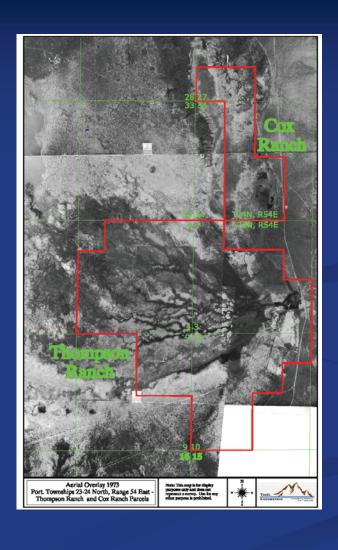
#### 1967 Cox and Home Ranch



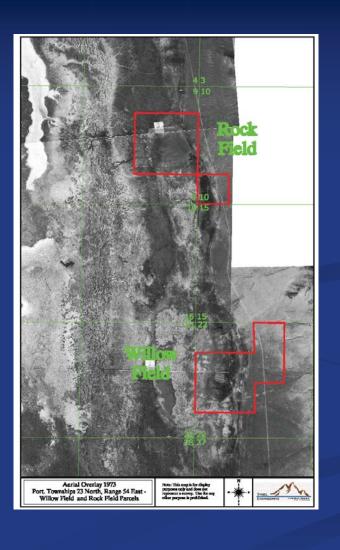
#### 1967-Willow Ranch



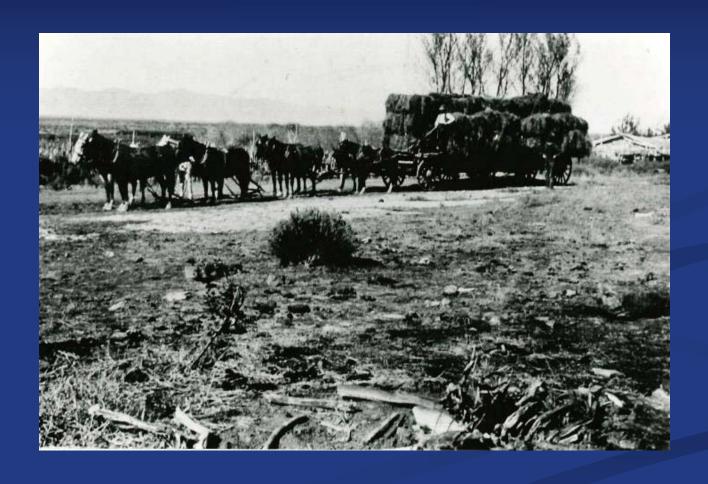
#### 1973 Cox and Home Ranch



### 1973-Willow

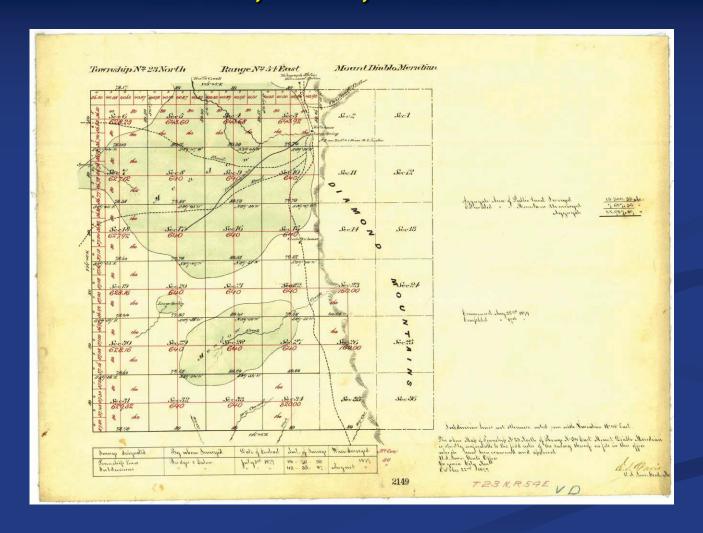


# GLO 1879 Survey Plats and Notes

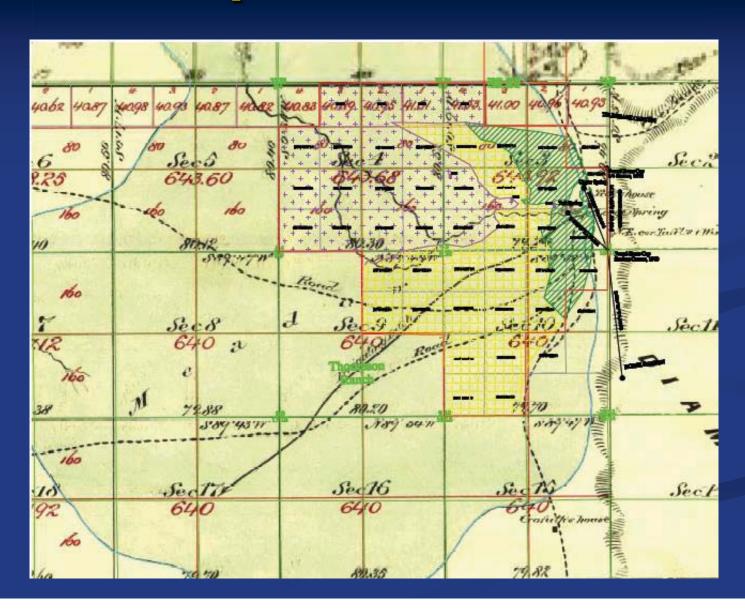


#### Record Research

T23N., R54E., M.D.B.&M.

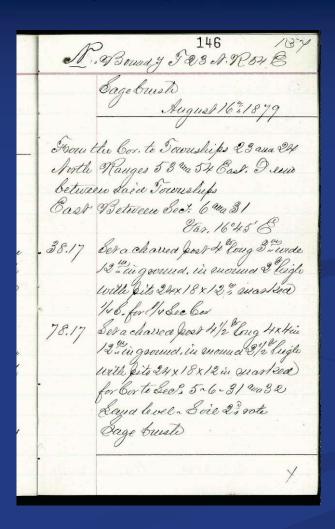


### Thompson/Home Ranch



#### Field Notes pgs 146 – 150

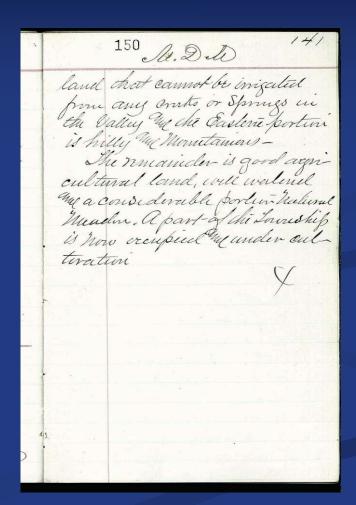
T23N, R54E, M.D.B.&M



#### **General Description**

T23N, R54E, M.D.B.&M

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#### **General Description**

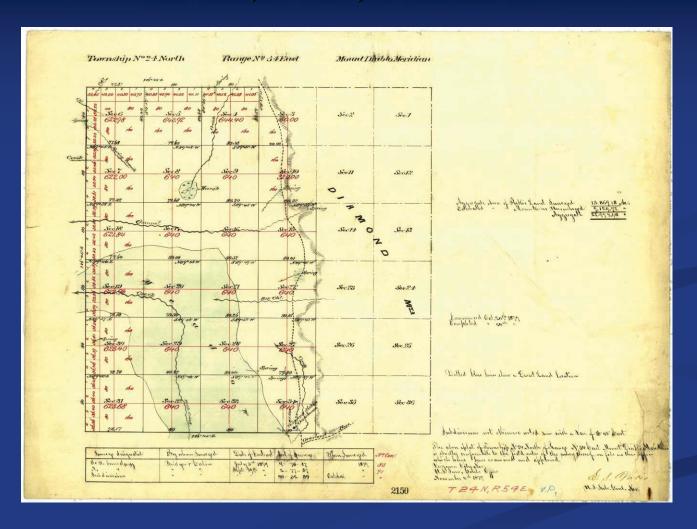
T23N, R54E, M.D.B.&M

The South East portion of this Township is High Sage Brush land that cannot be irrigated from any creeks or springs in the Valley and the Eastern portion is hilly and mountainous-

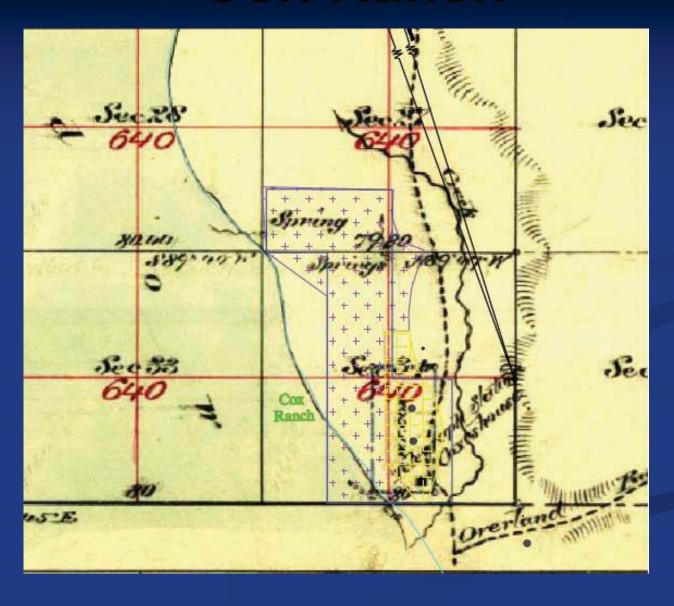
The remainder is good agricultural land, well watered and a considerable portion Natural Meadow. A part of this township is now occupied and under cultivation.

#### Record Research

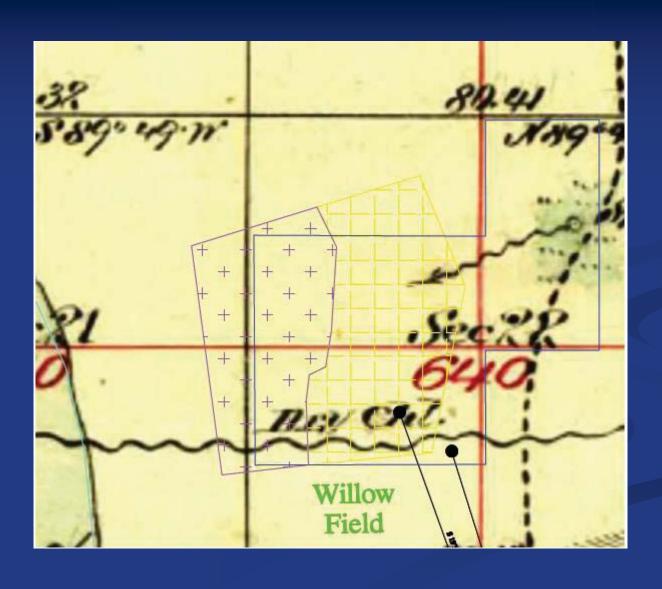
T24N., R54E., M.D.B.&M.



#### Cox Ranch



## Willow Ranch

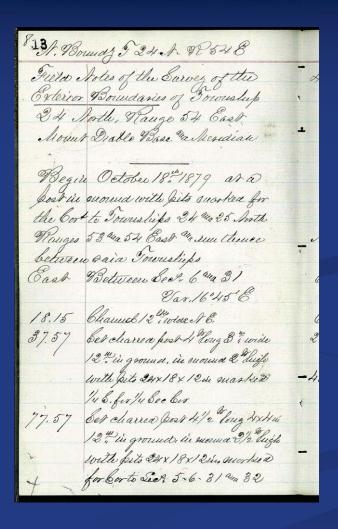


#### **Observed Features on the Plats**

- Flow Channels derived from Spring Flows
  - Survey Notes
- Crystal Springs-Identification of the source
  - Referenced in historical documents as occurring north of the Taft Ranch
  - Also Referenced in modern documents as the Taft Springs
- Locations of ditches
- Geographical References

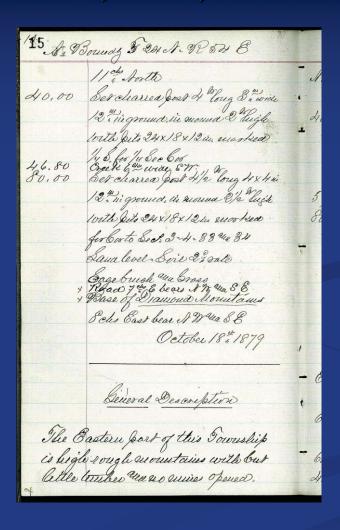
#### Field Notes pgs 146 - 150

T24N, R54E, M.D.B.&M



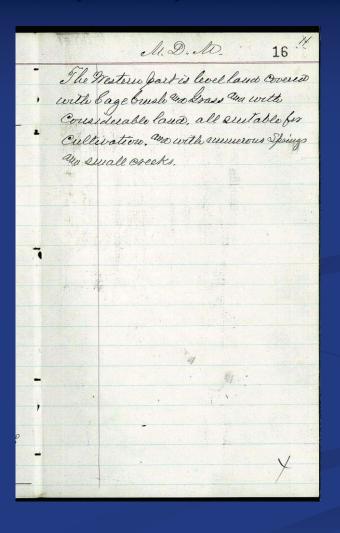
## **General Description 1/2**

T24N, R54E, M.D.B.&M



#### **General Description 2/2**

T24N, R54E, M.D.B.&M

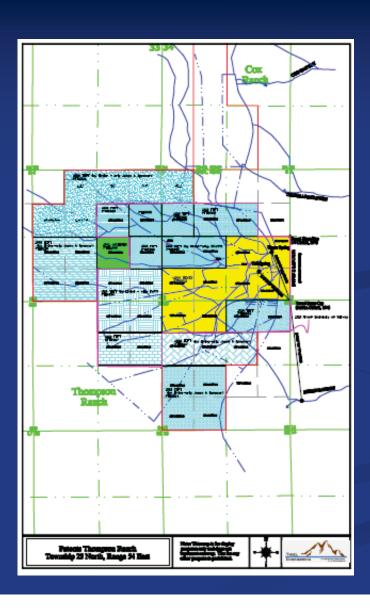


# Transcribed General Description

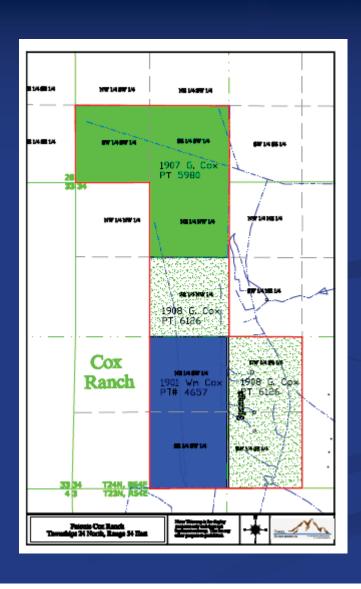
The Eastern part of this Township is high rough mountains to the east with but little timber and no mines opened.

The western part is level land covered with Sagebrush and Grass with considerable land all suitable for cultivation and with numerous springs and small creeks.

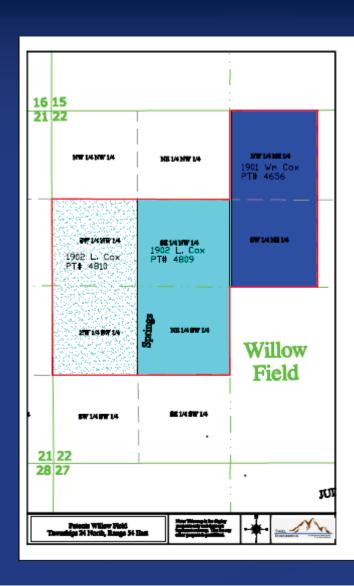
#### **Patent Information-Home Ranch**



#### **Patent Information-Cox Ranch**



#### **Patent Information-Willow Ranch**

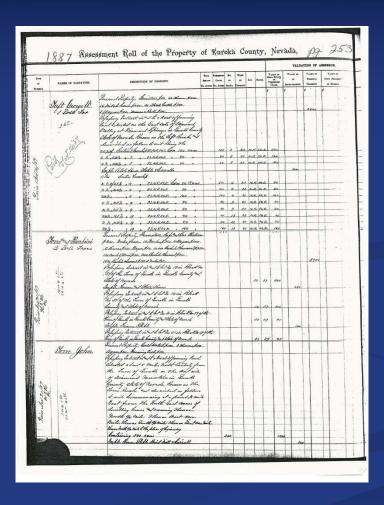


#### **Tax Assessments Eureka County**



#### **Tax Records**

1887, 1900, 1912, 1918, 1922, 1956, 1967



#### **Transcribed**

1887, 1900, 1912, 1918, 1922, 1956, 1967

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# Summary of Acreage Assessed 1887

- Henry Millett
  - Henry Millett Taxes paid by Nels Toft
    - "Possessory interest in and to tract of farming and grazing land situated on the E. Side of Diamond Valley at the Diamond Springs in Eureka County, State of Nevada known as the Taft Ranch""

#### Nels Toft

- Personal Property, funiture \$50, 60 horses \$1800, 15 milk cows \$450, 20 Stead Cattle \$320, 2 Wagons \$100, Mowers and Rake\$100. Possessory interest in to a tract of farming land situated on the eastside of Diamond Valley at Diamond Springs in Eureka County, State of Nevada, known as the Taft Ranch .."
- Total Acreage = 1,120 acres

#### Cox Ranch

- George E. Cox-240 acres of Grazing
  - S1/2 of SW1/4 of Section 27-80 acres
  - E1/2 of W1/2 of Section 34- 160 acres

#### Willow Ranch

- W.F. Cox- 40 acres of Hay-280 acres of Grazing-
- W1/2 of NE1/4 of Section 22 80 acres
- SW1/2 of NW1/4 " 80 acres
- N1/2 of SW1/4 " " 80 acres
- W1/2 of SE1/4 " " 34 80 acres

# Other years Comparative Summary

## **Findings**

- According to the record research with regard to patent data and the tax information the records indicate the following:
  - The original water filings underestimated the extent of water use on the property
    - 1912 on the Home Ranch
    - 1975 on the Cox Ranch
  - 2013 filing corroborates the investigation as to the extent of water use on the Willow Ranch

# Impact of Pumping to Groundwater Discharge

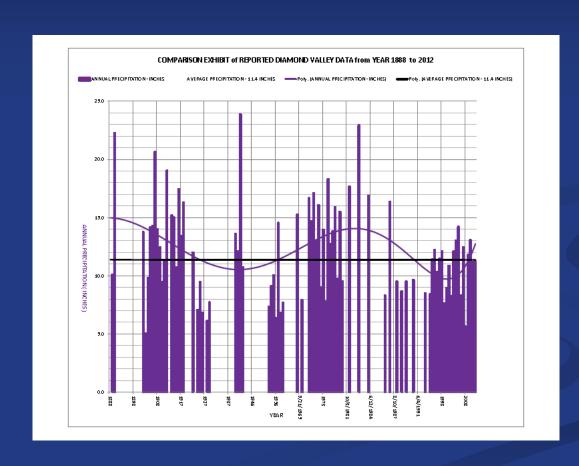
- The following pages will present information regarding the correlation to precipitation, spring flow, groundwater pumping within the hydrographic region
- Second phase is a discussion of the USGS reports – evaluation and findings

#### Reference data for Graphs

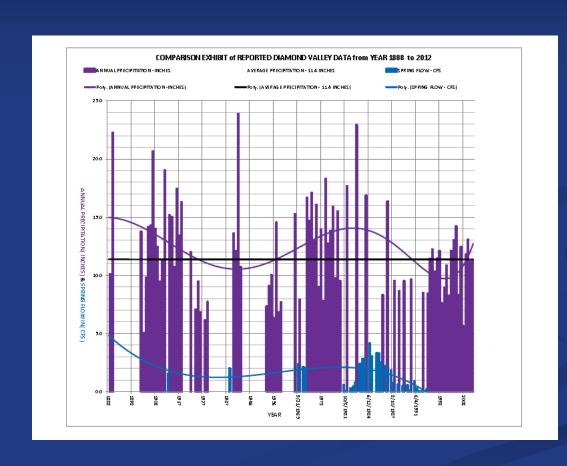
#### Reference Material

- 1. Monthly Total Precipitation (inches), Eureka, Nevada; Web Address http://www.wrccdri.edu/cgi-bir/cliMAIN.pl?nv2708; Desert Research Institute Climate Summary
- 2. Taft/Thompson/Jacobson Springs Flow Measure ments; Sources:
  - a. Water-Supply Card and Notes that are in the back of Eureka County field book No. 8 Field book indicates that there are two springs that can be combined in reservoir. Small Spring flows 0.25 cfs and Large Spring flows 1.29 cfs; Division of Water Resources, State of Nevada;
  - b. USGS 1937 Thermal Springs Report No. 679-8; Referred to as Jacobson Panch Springs; Jorgen P. Jacobsen was conveyed ownership on March 6, 1924.
  - c. James R. Hamill Memo to File; USGS; Dated March 15, 1982.
  - d. Current Meter Notes; Located in Claim File VO1114; Division of Water Resources, State of Nevada.
  - e. USGS Water Resources Internet Database Printout; Dated 8/17/2013 for USGS Site 3954151155 24301 15 3 N 23 E54 0 3 DB D1 Spring.
- 3. Table 1 Estimated irrigated acreage and estimated pumpage in Diamond Valley, Nevada, 1950-90, (Page 5); USGS 1990 Diamond Valley Report.
- 4. Historical Crop Inventory; Received by email on 9/3/2013 from the Diamond Valley Basin Engineer; Division of Water Resources, State of Nevada.

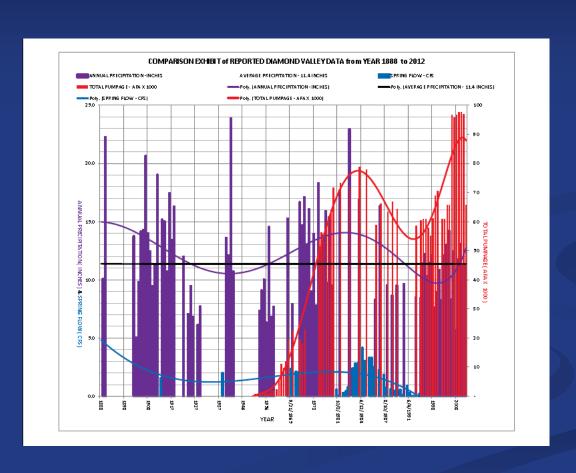
# **Precipitation data**



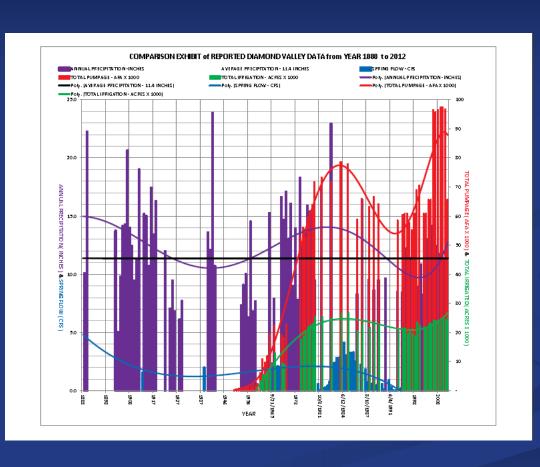
# **Precipitation and Spring Flow**



# **Pumping Data Added**



# Irrigated Acreage Added



## **Findings**

- Precipitation within the record data indicates wide variability's in precipitation (Eureka)
- "An ounce of observation is equal to a pound of prediction"
- Average Precipitation is equal to approximately 11.3"
- Minimal data available from the Taft Spring discharge
  - The graph correlating spring flow to precipitation indicates a direct correlation to precipitation
  - Precipitation correlates directly to recharge events
  - Precipitation could also correlate to spring discharge more localized into a "subregion" without further investigation
  - Even with above average years in 1984 and 1985 declines in spring discharge were observed
  - The point of measurement was used far removed from the spring discharge area, downstream of upper diversions, measurements did not take into consideration flows from other springs and seeps on the subject property

- Graph 3-Pumping added represents a correlation with the decline of spring flow to pumping during the time represented on the graph, especially in the high recharge years of 1984 and 1985
- The decline of spring flow correlates directly to the groundwater withdrawal within the groundwater basin

#### Reference data for Exhibits

#### DIAMOND VALLEY IMAGE EXHIBITS

#### REFERENCES:

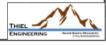
PLATE 2 - MAP SELECTED LITHOLOGIC UNITS, PHREATOPHYTES, AND WATER-LEVEL CONTOURS FOR 1950, DIAMOND VALLEY, EUREKA AND ELKO COUNTIES, NEVADA; HYDROLOGIC RESPONSE TO IRRIGATION PUMPING IN DIAMOND VALLEY, EUREKA AND ELKO COUNTIES, NEVADA, 1950-65; STATE OF NEVADA, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES; BY J. R. HARRILL WITH SECTION ON SURFACE WATER BY R. D. LAMKE; PREPARED IN COOPERATION WITH THE UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY, 1968.

HIGURE 7 - ESTIMATED SPECIFIC-YIELD DISTRIBUTION; HYDROLOGIC RESPONSE TO IRRIGATION PUMPING IN DIAMOND VALLEY, EUREKA AND ELKO COUNTIES, NEVADA, 1950-65; STATE OF NEVADA, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES; BY J. R. HARRILL WITH SECTION ON SURFACE WATER BY R. D. LAMKE; PREPARED IN COOPERATION WITH THE UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY, 1968.

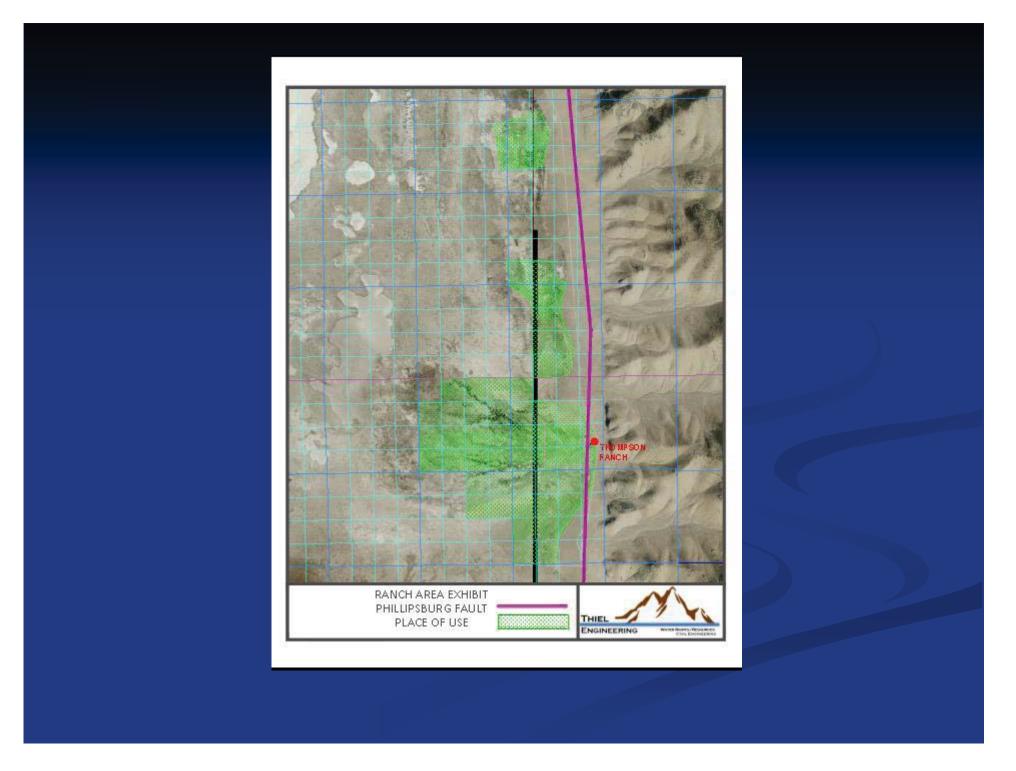
HGURE 2 - DEPTH TO WATER IN SPRING 2001 IN THE DIAMOND VALLEY HYDROGRAPHIC AREA (153), NEVADA; UNITED STATE DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY; WATER-TABLE LEVELS AND GRADIENTS, NEVADA, 1947-2004.

FAULT UNES; FILE - myfault3utm.zip; WEBSITE ADDRESShttp://keck.library.unr.edu/Data/GreatbasinGeoScience; W.M.KECK EARTH SCIENCES & MINING RESEARCH INFORMATION CENTER; SECTION ON GREAT BASIN GEOSCIENCE DATA BASE.

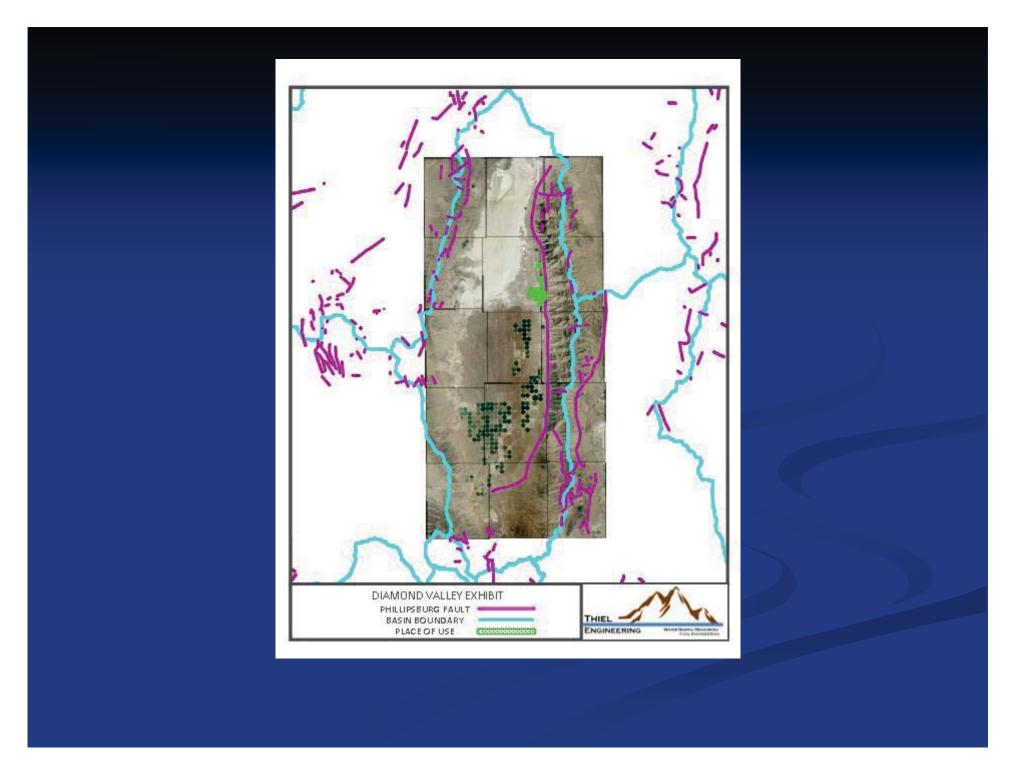
BASIN BOUNDARY LINES; FILE - state\_engineer\_basin\_boundaries.zip; WEBSITE ADDRESS - http://water.nv.gov/mapping/gis/; STATE OF NEVADA, DIVISION OF WATER RESOURCES; SECTION ON GIS DATA.

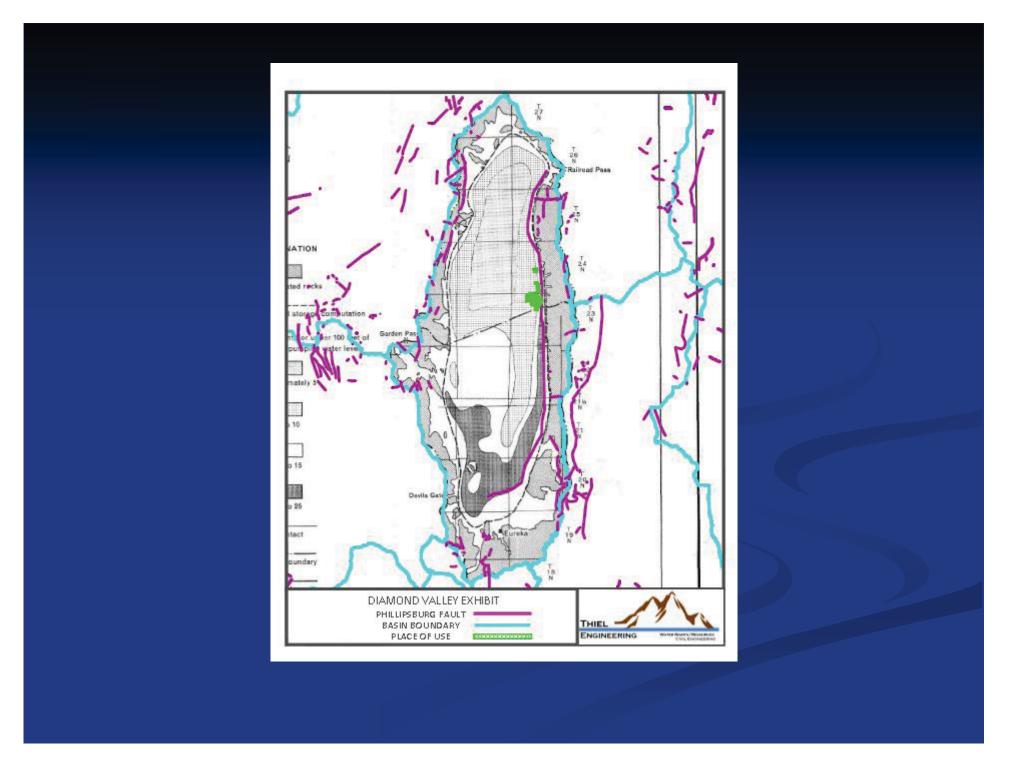


# Hydrology RANCH AREA EXHIBIT PHILLIPSBURG FAULT

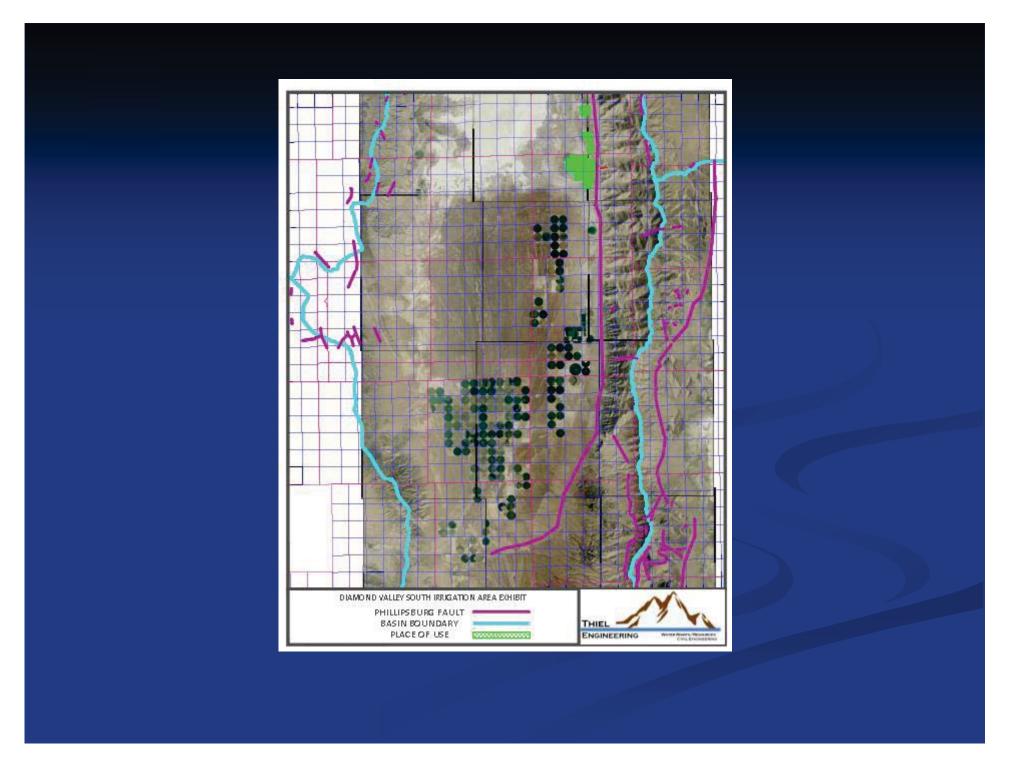


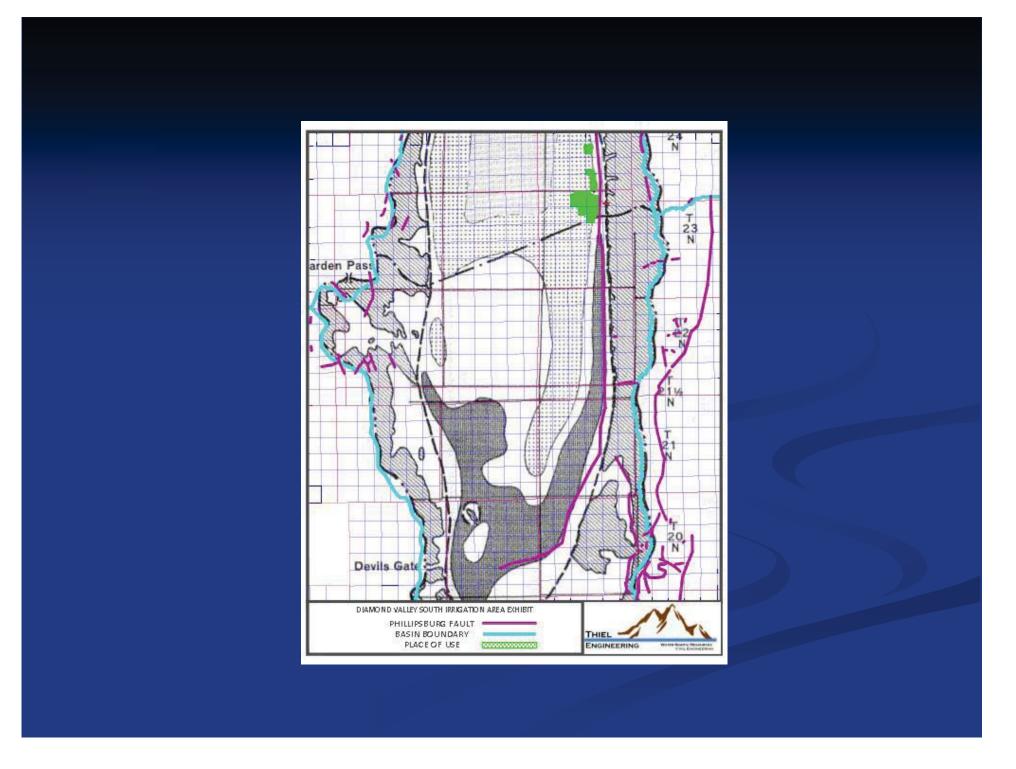


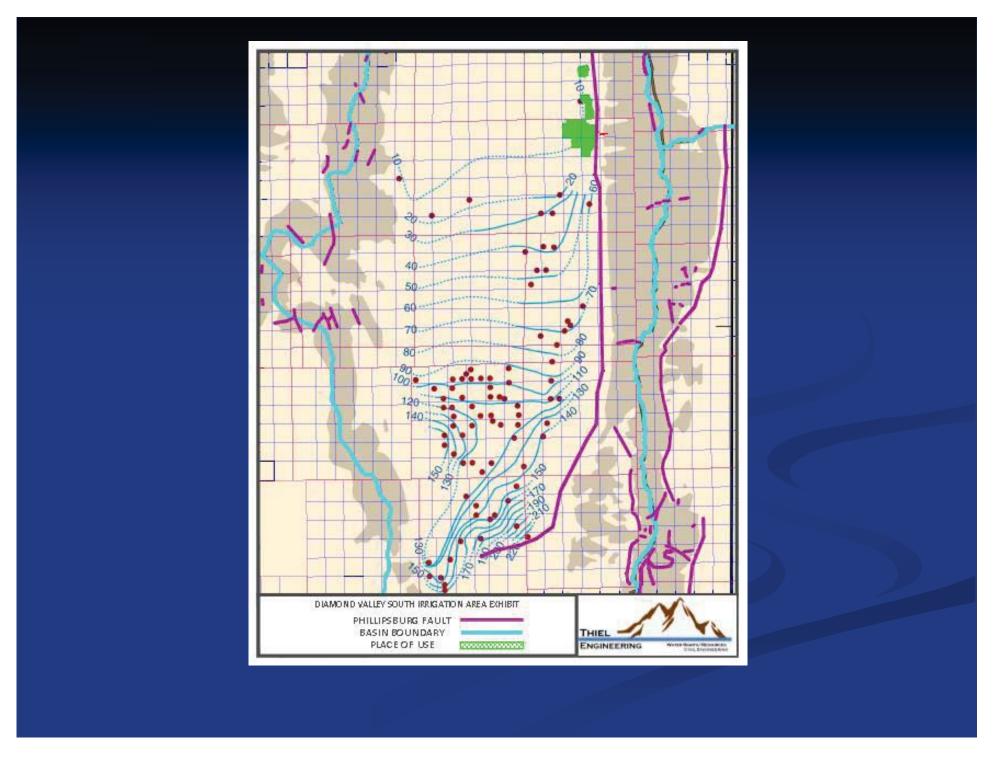






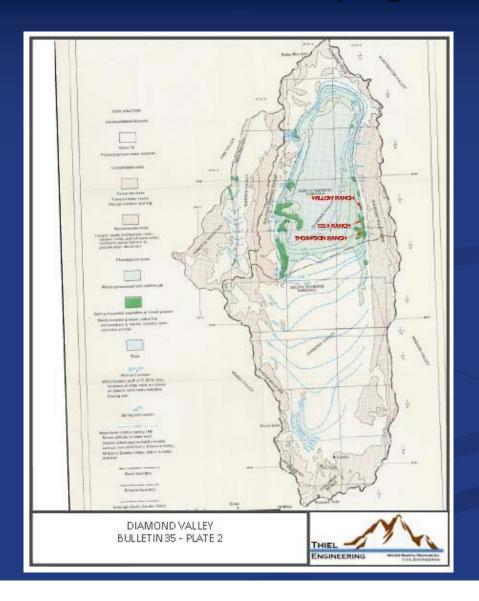






#### **Bulletin 35 Plate 2**

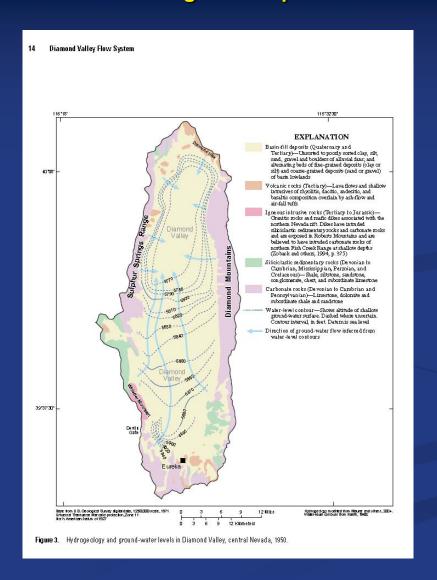
**Groundwater Contour Intervals and Spring Discharge Areas** 



#### **Groundwater Gradient**

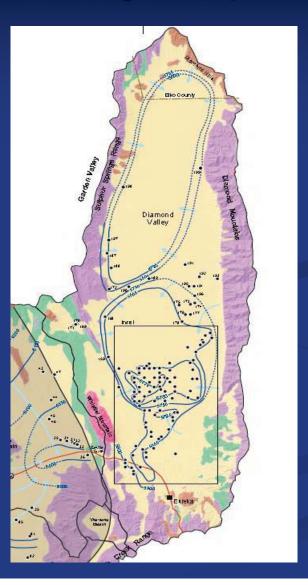
**Pre-Groundwater Development 1947** 

**Scientific Investigation Report 2006-5249** 



#### **Groundwater Gradient**

**Post Groundwater Development Scientific Investigation Report 2006-5249** 



#### **Ground Truthing**

- Filed Verification of Ranching Use
- Verification of topographical features
- Verification of conveyance infrastructure
- Historical Information from Predecessor in interest to Venturacci

#### **USGS**

- Recon Report #6
- Bulletin 35
- USGS "Water Table Levels and Gradients,
- Nevada 1947-2004

# James R Harrill

**Memo to File Dated March 15, 1982** 



#### United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division Room 227, Federal Building Carson City, Nevada 89701 March 15, 1982

#### MEMORANDUM

To: The Record

rom: James R. Harrill

Subject: Results of field visit to Diamond Valley

On March 10, 1982, James Harrill accompanied Jerry Brownfield, Ralph Camboa, and two BlM employees on a field visit to the Thompson Ranch in Dismond Valley. Discharge of the Thompson Ranch springs has decreased markedly and the purpose of this trip was to observe conditions that might be related to this change. The day was spent as follows:

- 1. Arrived at Thompson Ranch at about 9:30 a.m.
- 2. Milt Thompson schowed us some shot holes and springs located 1 to 4 miles west of the Thompsonskanen.
- Drove north of the ranch and viewed (from the road) an area where a large amount of water was from new road unplugged shot holes. The condition of pastures and phreatophyte areas west of the road was observed at stills time.
- Inspected the Thompson Ranch Spring and made an estamate of discharge.
- Visited several wells south of the ranch and measured water levels where possible.
- Drove to west side of the valley and visited Suthfur Spring and Tule Dam Spring and observed general conditions along west side of the valley south of Romano Ranch:



ONE HUNDRED YEARS OF EARTH SCIENCE IN THE PUBLIC SERVICE

The following observations were made: SHOT HOLES a. Hole closest to Thompson Ranch-This hole had a 3" pipe inserted in it and had flowed for a number of years. Stain on casing indicated former flow from a hole in the casing 2.2 feet above land surface. Currently, water stood at level of 0.05 feet above land surface. Pipe was silted into land surface and was unable to measure depth. Some seepage around pipe was indicated by a muddy area around the casing. No flow was observed. b. Hole .2 miles west of first hole--Hole had a 3" pipe inserted in it and was flowing at several gallons per minute (<5) through a hole in the casing .2 to .3 feet above land surface. Casing was sounded to a depth of 29.6 feet below land surface. Milt Thompson reported that this hole had formerly flowed enough to create a pond in the winter. Now all water remains in a small area surrounding the casing. c. Hole about .2 miles west of second hold-Hole has a 3" pipe in it and was flowing at about 5 gallons per minute through a hole in the casing about 1:1 feet above land surface. Casing was sanded to a depth of 44 feet below land surface. Stains on casing indicate that water had formerly flowed over the top of the casing at a height of about 3 feet above land surface. In past years water had reportedly ponded over a significant area. Water is now contained in a small area around the casing. d. Visited a shot hole about 2.1 miles west of the third hole visited that had been plugged with concrete. Several other holes in the vicinity were scheduled to be plugged as soon as the area was dry enough to allow access with heavy equipment. e. Visited several springs in the same general area and that had recently gone dry. f. Visited a spring in Sec. 12 (T. 23 N., R. 53 E) that was still flowing. Discharge was estimated to be between 20 to 30 gpm.

- 8. Visited hole 23 N/55 E-18 cba that had formerly flowed to provide stock water and now has dried up. Casing was sounded to a depth of about 15 feet below land surface. Was probably sanded in and hole may be between 40 to 80 feet deep. Water level was at 1.7 feet below land surface.
- h. Observed, from road, areas in Sections 20 and 17 of T. 25 N., R. 54 E. where currently there was suffi-cient flow from unplugged shot holes to water to pond water over a large area. Milt Thompson reported that after these holes were dug, some older flowing holes to the north ceased to flow. This area is about 9 miles north of the Thompson Ranch Springs. Several other smaller areas of ponded flow about 4-5 miles north of the Thompson Ranch Spring were also pointed out to us.

#### SPRING MEASUREMENTS

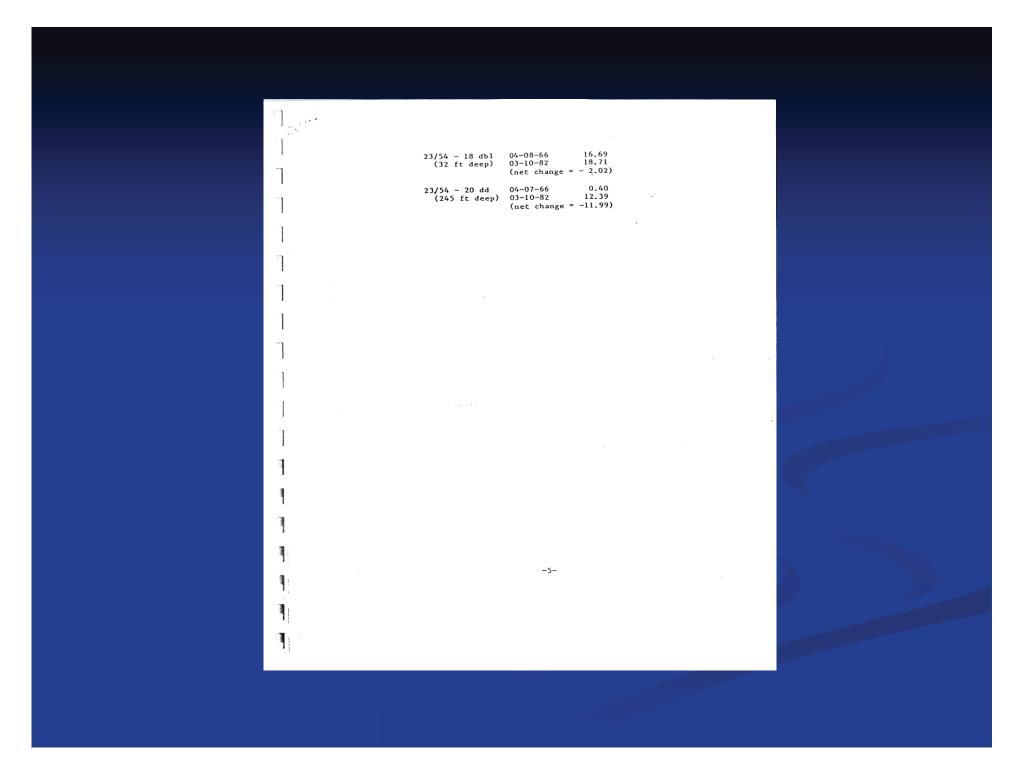
a. Thompson Ranch Springs--Flow as estimated to be 130 gpm. Available flow data on this spring are summarized below (rounded):

9-21-65	1050	gpm
4-01-66	950	gpm
10-19-66	920	gpm
10-03-81	30	gpm
3-10-82	130	gpm

The increase from 30 gpm to 130 gpm can be correlated with seasonal variation in pumping. In Bulletin 35, the same type of fluctuation was noted in the hydrograph of well 21/53-22cd (figure 13). Also Manse Spring in Pahrump Valley had similar seasonal fluctuations that correlated with pumping.

- b. Diamond Springs—Located about 1 mile north of Thompson Ranch Springs. This spring was dry during this visit and Jerry Brownfield reported that it was dry last fall when he visited the area. Tules and willows formerly present (1965-66) in the vicinity of the spring were gone.
- c. Sulphur Spring—On the west side of the valley at 23/52-36 b. This is the spring closest to pumping on the west side of the valley. The following flow data are available:

1		
	11-16-65 40 gpm	
~7	10-03-81 dry	
1	3-10-82 dry	
7	<ul> <li>On 3-10-82, a pipe had been driven into the bottom of the pond and the water level was about 3.8 feet below</li> </ul>	
J	the pond bottom. This is about 6 feet below the estimated level of the pond in 1965. Tules present	
7	in 1965 were gone.	
3	d. Tule Dam Spring—On west side of valley about 1 mile north of Sulphur Spring at 23/52 25b. The following	
7	flow data are available:	
	11-16-65 54 gpm	
	3-10-82 dry	
- 3	A 12" pipe west of the spring (located several feet west of fence) was sounded to a depth of 70 feet below	
	land surface. Water level was 10.52 feet below land surface. This well had formerly flowed.	
1	e. Observations from the road suggested that wells in	
,	the SW $\frac{1}{4}$ of Sec. 24, T. 23 N., R. 52 E. had also ceased to flow.	
]	f. Shipley Hot SpringWas not visited on 3-10-82,	
, .	however, the following flow data are available:	
	9-22-65 3,230 gpm 4-01-66 3,150 gpm	
T	10-19-66 2,780 gpm 4-22-77 2,530 gpm	
J.	10-03-81 2,570 gpm	
1	It is significant to note that between 1977 and 1981	
1	there appeared to be no significant decrease in flow at this site.	
1	WATER-LEVEL MEASUREMENTS	
	Water-level measurements were made in two USGS observation wells	
1	and the irrigation well located closest to Thompson Ranch. They are as follows (below LSD):	
3	23/53-27 BB1 04-08-66 12.97	
1	(23 ft deep) 03-10-82 13.37 (net change = -0.4)	
1	-4-	
,		
•		
	N .	



# Harrill 3a Excerpt

#### SPRING MEASUREMENTS

a. Thompson Ranch Springs—Flow as estimated to be 130 gpm. Available flow data on this spring are summarized below (rounded):

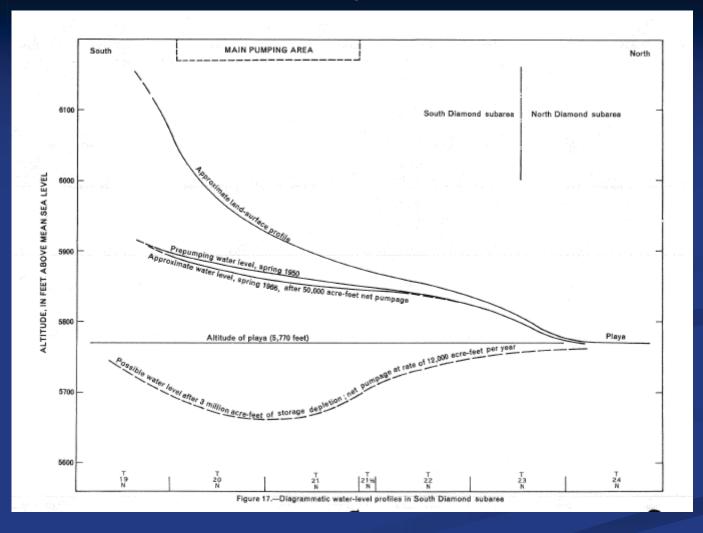
9-21-65	<b>JQ</b> 50	
4-01-66	950	gpm .
10-19-66	920	${\bf gpm}$
10-03-81	30	gpm
3-10-82	130	$\mathbf{g}\mathbf{p}\mathbf{m}$

The increase from 30 gpm to 130 gpm can be correlated with seasonal variation in pumping. In Bulletin 35, the same type of fluctuation was noted in the hydrograph of well 21/53-22cd (figure 13). Also Manse Spring in Pahrump Valley had similar seasonal fluctuations that correlated with pumping.

# USGS Bulletin 35-1968 Conclusions Page 60

5. Pumping in the South Diamond subarea eventually should decrease the natural discharge from springs in the North Diamond subarea, which during the summer 1965 was largely being used beneficially. In time, the discharge from springs may have to be supplemented or replaced by pumping from wells. Although more costly, this procedure would salvage the large amount of water (about 6,000 acre-feet per year) now running to waste during the nongrowing season.

#### Bulletin 35 Figure 17



# Looking Back

- The lower line of Figure 17 illustrates the effects of pumping on water levels once 3 million acre feet have been pumped; net pumping rate of 12,000 acre feet per year
- Based upon a look back at historic levels predicated on pumping 3M acre feet out of pumpage on a constant rate of 12,000 acre feet per annum. In 2012 the estimated pumping has equated to 2.6M acre feet being removed from storage.

# Bulletin 35 page 59

As previously mentioned, permits to pump approximately 150,000 acre-feet per year in Diamond Valley have been granted by the State. Thus, future utilization of existing permits will result in a massive local overdraft and accelerated rates of water-level decline.

# **Prior Actions**

- 63497
- V01104



CORRECTED PERMIT NO. 63497	
APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA	
Date of filing in State Engineer's Office OCT 10 1997	
Returned to applicant for correction	
Corrected application filed	
Map filed OCT 10 1997	
******	
The applicant Wilfred R. Bailey, Barbara Bailey and Fred Bailey, hereby make application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated.	
******	
1. The source of the proposed appropriation is Underground	
2. The amount of water applied for is 2.0 cfs. second-feet	
(a) If stored in reservoir give number of acre-feet	
3. The water to be used for Irrigation	
4. If use is for:	
(a) Irrigation, state number of acres to be irrigated 130 acres	
(b) Stockwater, state number and kinds of animals to be watered	
(c) Other use (describe fully under No. 12. "Remarks")	
(d) Power: (1) Horsepower developed	
(2) Point of return of water to stream	
5. The water is to be diverted from its source at the following point SE $_4^1$ SW $_4^1$ of Section 36, T24N - R52E, MDBAM, at a point from which the Southwest corner of Section 36, T24N - R52E' bears S 61 $^6$ 42' 35" W, 2246.79 feet.	
6. Place of Use Portions of the NW\(\frac{1}{2}\) SW\(\frac{1}{4}\), SW\(\frac{1}{4}\) SW\(\frac{1}{4}\), SW\(\frac{1}{4}\) SW\(\frac{1}{4}\), SW\(\frac{1}{4}\) SU\(\frac{1}{4}\), SU\(\frac{1}{4}\) SU\(\frac{1}{4}\), SU\(\	
7. Use will begin about January 1 and end about December 31 of each year.	
8. Description of proposed works Well, pipelines, and sprinkler system	
9. Estimated cost of works \$10,000	
10. Estimated time required to construct works 3 years	
11. Estimated time required to complete the application of water to beneficial	
use 5 years	
12. Remarks:	
HIGH DESERT Engineering, Agent By s/Robert E. Morley 640 Idaho Street Elko, NV 89803	
Compared my/CMS lw/cms	
Protested	

#### 63497

#### CORRECTED PERMIT \*\*\*\*\*\*\*

#### APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. This well shall be equipped with a two (2) inch opening for measuring depth to water. If the well is flowing, a valve must be installed and maintained to prevent waste. A totalizing meter must be installed and maintained in the discharge pipeline near the point of diversion and accurate measurements must be kept of water placed to beneficial use. The totalizing meter must be installed before any use of water begins, or before the Proof of Completion of Work is filed. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

This permit does not extend the permittee the right of ingress

and egress on public, private or corporate lands. The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

This permit is issued for the express purpose of allowing this permit to replace the water historically placed to beneficial use under Proof 01104, Certificates 140 and 147 and with the understanding that this right cannot be moved to outside of the spring discharge area as determined by the State Engineer. The period of use of this permit is limited to April 1st through September 30th of each year.

This permit is issued supplemental to Proof 01104 and with the understanding that irrigation is limited to a maximum of 126.0 acres at a seasonal duty of 4.0 acre-feet per acre. (CONTINUED ON PAGE 2)

CORRECTED PERMIT  Page 2 (PERMIT TERMS CONTINUED)  The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 2_0 cubic feet per second, but not to exceed 504.0 acre-feet seasonally, and not to exceed a seasonal duty of 4.0 acre-feet per acre of land irrigated from any and/or all sources.  Work must be prosecuted with reasonable diligence and be completed on or before:  March 27, 2000  Proof of completion of work shall be filed before: April 27, 2000  Application of water to beneficial use shall be filed on or before: March 27, 2003  Proof of the application of water to beneficial use shall be filed on or before: April 27, 2003	
Map in support of proof of beneficial use shall be filed on or before:  ADTIL 27, 2003  IN TESTIMONY WHEREOF, I, R. MICHAEL TURNIPSEED, P.E.,  State Engineer of Nevada, have hereunto set my hand and the seal of my office, this 21st day of December, A.D. 1998  Completion of work filed Proof of beneficial use filed Cultural map filed  Certificate No. Issued  Issued	

# Spring/Well Measurements

USGS

#### **Permit 63497**

- Date Filed October 10, 1997
- Filed for 2.0 cfs for 130 acres of land
- Permit approved December 21, 1998
- Permit Approved for 504 acre feet at 4.0 acre feet per acre
- Issued for the amount of water filed under the proof
  - 126 acres at "about 2.0 cfs"
- Permit issued prior to order 1226, after order 815, including Notices of Curtailment

#### **Permit 63497**

This permit is issued for the express purpose of allowing this permit to replace the water historically placed to beneficial use under Proof 01104, Certificates 140 and 147 and with the understanding that this right cannot be moved to outside of the spring discharge area as determined by the State Engineer. The period of use of this permit is limited to April 1st through September 30th of each year.

This permit is issued supplemental to Proof 01104 and with the understanding that irrigation is limited to a maximum of 126.0 acres at a seasonal duty of 4.0 acre-feet per acre. (CONTINUED ON PAGE 2)

# **Findings**

- Summary of findings:
  - Validation of Irrigated property
  - Impact of pumping on Spring Sources