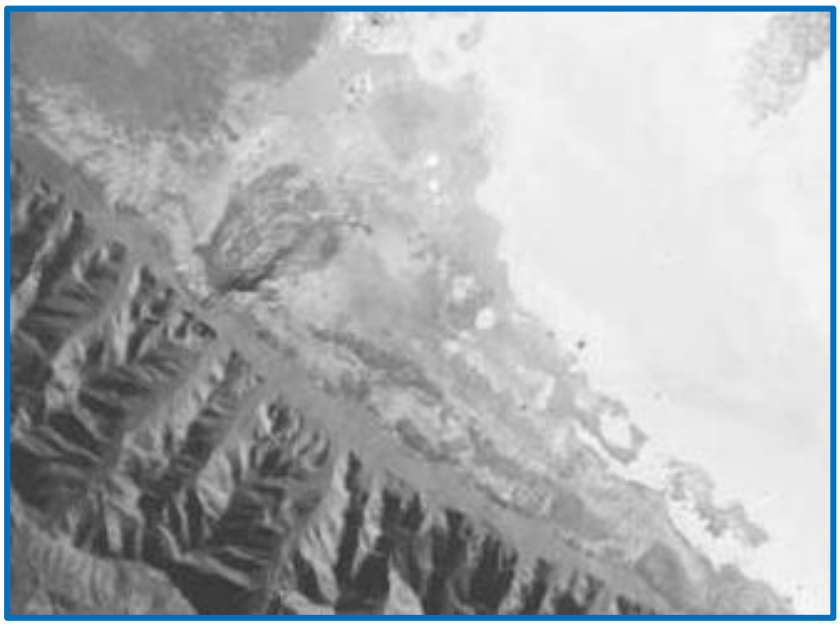
Response to State Engineer's Preliminary Order of Determination

Daniel and Amanda Venturacci, Diamond Valley
Nevada, Hydrographic Basin #153

OUTLINE OF TESTIMONY TO BE PROVIDED

Thompson, Cox, Willow, Rock, Mau Ranches and
Stock Water Vested Rights



Prepared by:

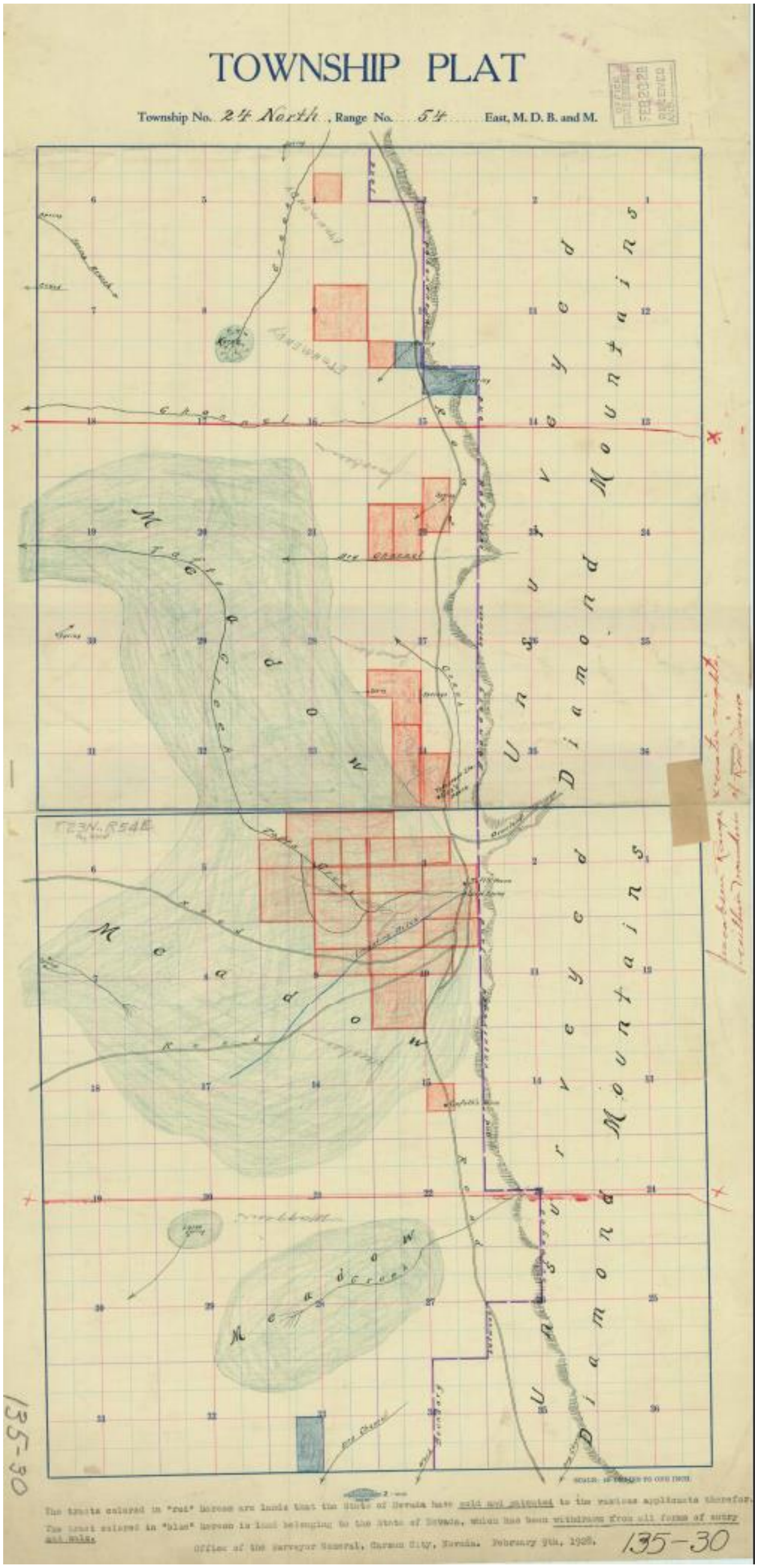
George M. Thiel, P.E., S.W.R.S
Principal Engineer

Dated: February 1, 2019

Background

Daniel and Mandi Venturacci are the successors in interest to five ranches located in the northeastern portion of Diamond Valley. These five ranches were set forth in the Range Map filing submitted by Mr. Jacobsen to the Nevada State Engineer in 1928. (see Exhibit VENT_274, bates 2626.) All five ranches were occupied and settled prior to 1905 and contain vested rights from various springs, supplemented by spring runoff from nearby canyons. The five ranches listed from north to south are known as the Box Springs Ranch (aka Mau Ranch), Rock Canyon Ranch, Willow Field, Cox Ranch (aka Telegraph Station), and Thompson Ranch (aka Diamond Springs Ranch).

Evidence was submitted through some paper records that accompanied the proof filings, were filed in binders supporting the proof claims as part of the mitigation rights hearing in 2013, and additional digital records via CD submissions in support of the proofs in May 2016 and in August 2018. Additional evidence is to be filed for the hearings in February 2019.


TOWNSHIP PLAT
Township No. 24 North, Range No. 54 East, M. D. B. and M.
Meadow
Unsurveyed
Diamond Mountains
Meadow
Unsurveyed
Diamond Mountains
Meadow Creek
Unsurveyed
Diamond Mountains
T23N. R54E.
135-30
The tracts colored in "red" hereon are lands that the State of Nevada has sold and patented to the various applicants therefor.
The tract colored in "blue" hereon is land belonging to the State of Nevada, which has been withdrawn from all forms of entry and sale.
Office of the Surveyor General, Carson City, Nevada. February 9th, 1928.
135-30

Bulletin 30-Plate 2:
Provided below is the scale map illustrating the spring discharge area and gradient of groundwater flow to the discharge areas.

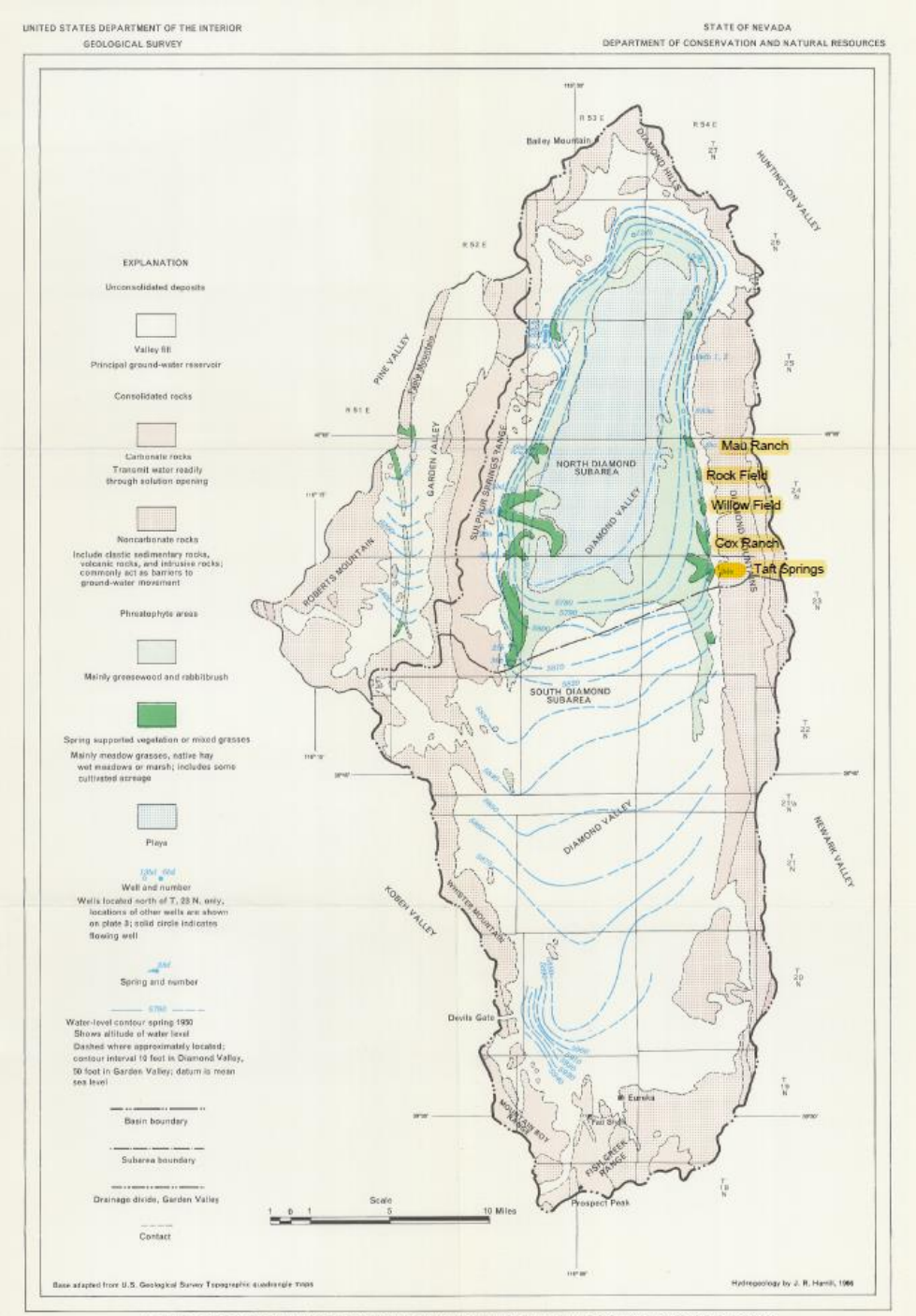


PLATE 2.—MAP SELECTED LITHOLOGIC UNITS, PHREATOPHYTES, AND WATER-LEVEL CONTOURS FOR 1950, DIAMOND VALLEY, EUREKA AND ELKO COUNTIES, NEVADA

Determination of Priorities:

- Venturacci Ranches:
    - General description of ranches and purpose pre-1905
        - Mail station, lots of stops and horses / mules-Chain of Title Documents Ramona Hage Morrison, Priority 1859
            - Overland stage route-First settled prior to 1859-Stage Station and Ranch in support of Overland Mail Company Routes (1 of 2)-This was referenced as the Diamond Station, located on the Cox Ranch to the North of the Taft Springs Ranch Sir Thomas Burton referenced this spring (*See* Exhibit VENT_188, bates 936, *see also* Exhibits VENT 143-147, bates 875-882)
            - Pony Express Station established 1859 Taft Springs-(*See* Exhibit VENT_280, bates 3545 to 3548)
            - *See* Exhibit VENT_280, bates 2876, see also Exhibit VENT_280, bates 3504.
            - Pony express station-construction and begin operation in 1859-Pony Express ends in 1861
        - The ranches were divided under several land claimants prior to 1905. *See* Exhibits VENT_086 to 140.
        - The owners dammed up springs and constructed ditches
            - Big ditch moving water
            - Other smaller capillary ditches
                - Ground Truthing (9/11/13) (*See* Exhibit VENT_257)
                    - see photos, bates 1852-1853, point 16-evidence of Peat Bog-and ditch remnants
        - The claimants cultivated crops, cut hay, pastured livestock, etc.
    - Thompson Ranch, V01115 Taft Springs
        - What did the Proof claim?
            - Priority – 1859
            - Duty – 1,636.36 acres (comingled with Horse Canyon)
                - 208.97 acres of grain and alfalfa,
                - 646.52 acres of hay, and
                - 780.87 acres of diversified pasture
        - What did the State Engineer accept in the Preliminary Order
            - Priority – 1880
            - Duty - 204.3 acres, 420.96 afa
                a. 12.36 acres Harvest, at 37.08 afa
                b. 191.94 ac Meadow, at 383.88 afa
        - Evidence to support claim of 1,636.36 acres
            - Duty Evidence

- Exhibit VENT_141 and 142: Water claims for "all water from Diamond Springs" within the SE1/4 of Section 3, T.23N., R.54E in Diamond Valley. "by virtue of [constructing?] a dam directly below said springs, making a lake . . . a ditch from the west end of said Lake of the width of 4 feet and 3 feet deep running westerly for 2 miles and conducting the source
    - Spring measurements to show the volume (*See* Exhibits VENT_237 to 245)
- GLO Plat with Springs and Ditches (*See* Exhibits VENT_188 to 191)
- Payne's notes, the Preliminary Order recognized an amount less than was observed by Payne for irrigation and culture in 1912, also flow is lower than what Payne observed (3 acre reservoir, 220 "irrigated" acres:20 acres alfalfa and grain, 200 acres meadow) (*See* Exhibit VENT_272)
- Exhibit VENT_280, bates 3502: Sir Richard Burton visited Diamond Springs as he documented the Overland Mail Company journey west and wrote, "The station is name 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."
- Soil Surveys, (*See* Exhibits VENT_216-219, 220-222, 227-230, 232, 281, 286)
    - 1937 1200+ acres cultivated
    - 1954 Soil survey says 1280 acres are irrigated/cultivated
- 1946-1970s Aerials – match claim maps and soil surveys and show springs moving water to meadows (*See* Exhibits VENT_194-211)

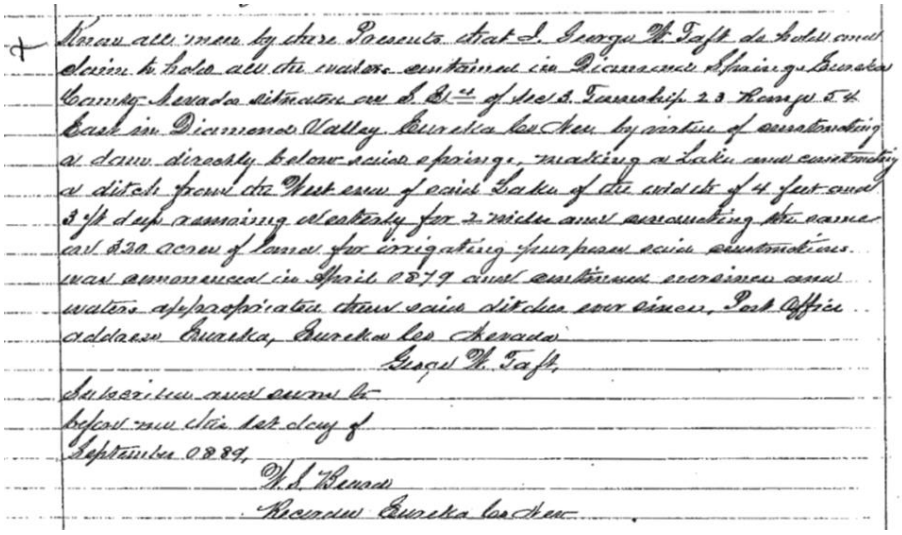
- Priority Evidence, *See* Exhibit VENT_280
    - Overland Route Info
    - VENT_280 attachments 3-14, 1865 Lander Tax assessment for Wines, includes "Diamond Springs Station"
    - VENT_280 attachment 162, horse feeding of 2,750

- Correct amount that should have been issued for these rights
    - GLO Plat of 1879 illustrates the ditch

- Exhibit VENT_141 Page 36, Book 1-Water Locations:

- George Taft filed a claim in September 1, 1889 those waters within the SE1/4 of section 3, T.23N., R.54E in Diamond Valley. This water is from the springs impounding in a dam west of the springs. The water will be conveyed through a ditch 4' wide and 3' deep a distance of 2 miles for the agricultural use on 320 acres. The

diversion of the water was commenced in April of 1879 (refer to the GLO plat). "…and existed ever since and water appropriated through said ditches ever since.



Know all men by these Presents that I George W. Taft do hereby claim and desire to hold all the waters contained in Diamond Springs Eureka County Nevada situated on E. ½ of Sec 2 Township 23 Range 54 East in Diamond Valley Eureka Co Nev by virtue of constructing a dam directly below said springs, making a Lake and constructing a ditch from the West end of said Lake of the width of 4 feet and 3 ft deep running westerly for 2 miles and surrounding the same and 320 acres of land for irrigating purposes said constructions was commenced in April 1879 and continued ever since and waters appropriated there said ditches ever since. Post Office address Eureka, Eureka Co Nevada

George W. Taft,

Subscribed and sworn to before me this 1st day of September 1889.

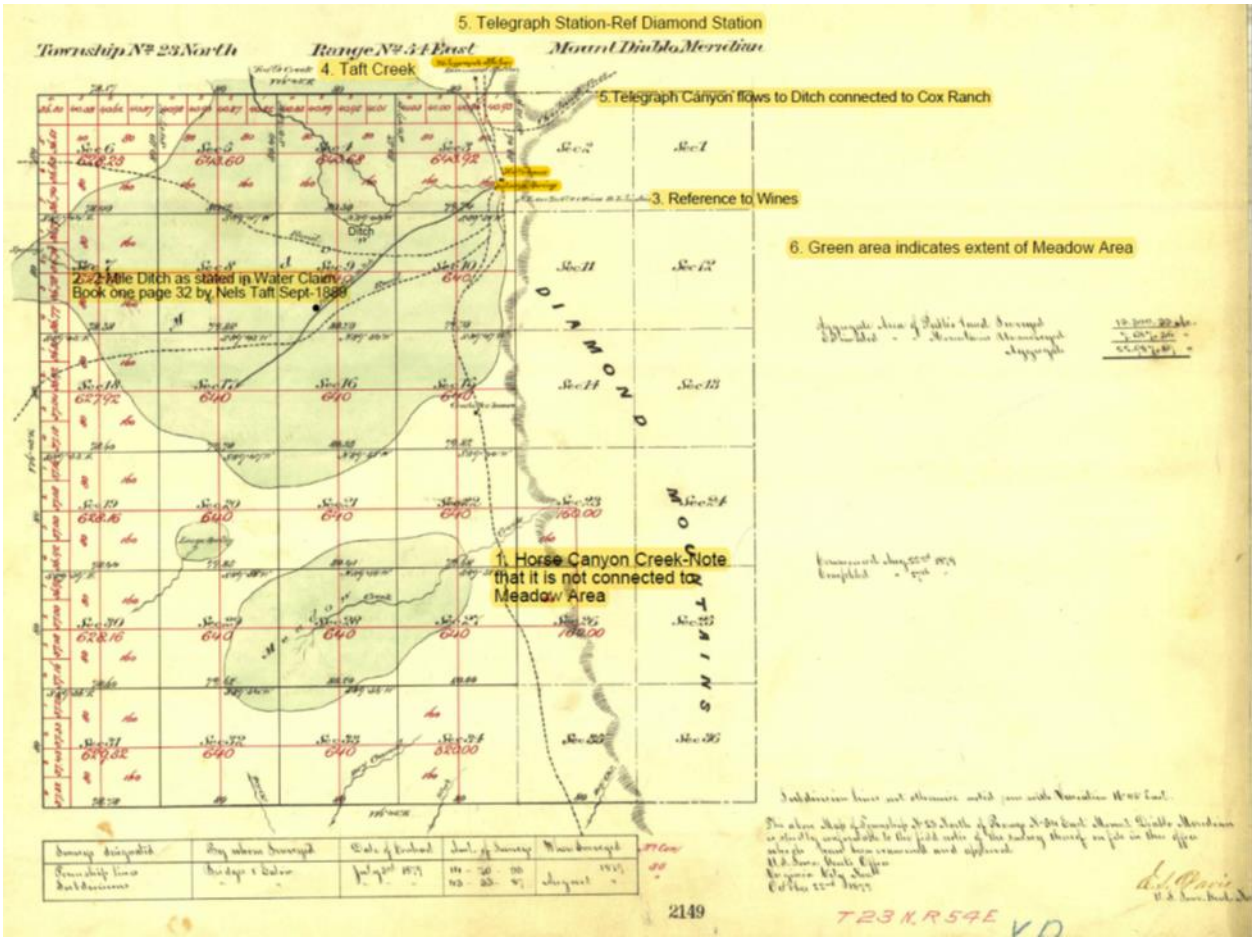
W. L. Bevan

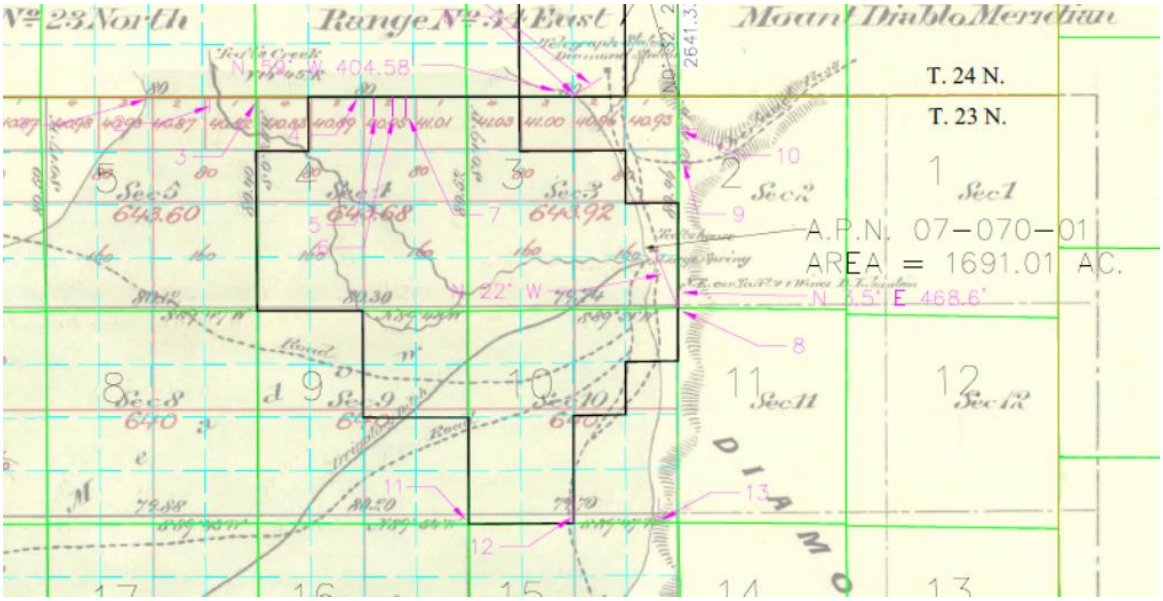
Recorder Eureka Co Nev.

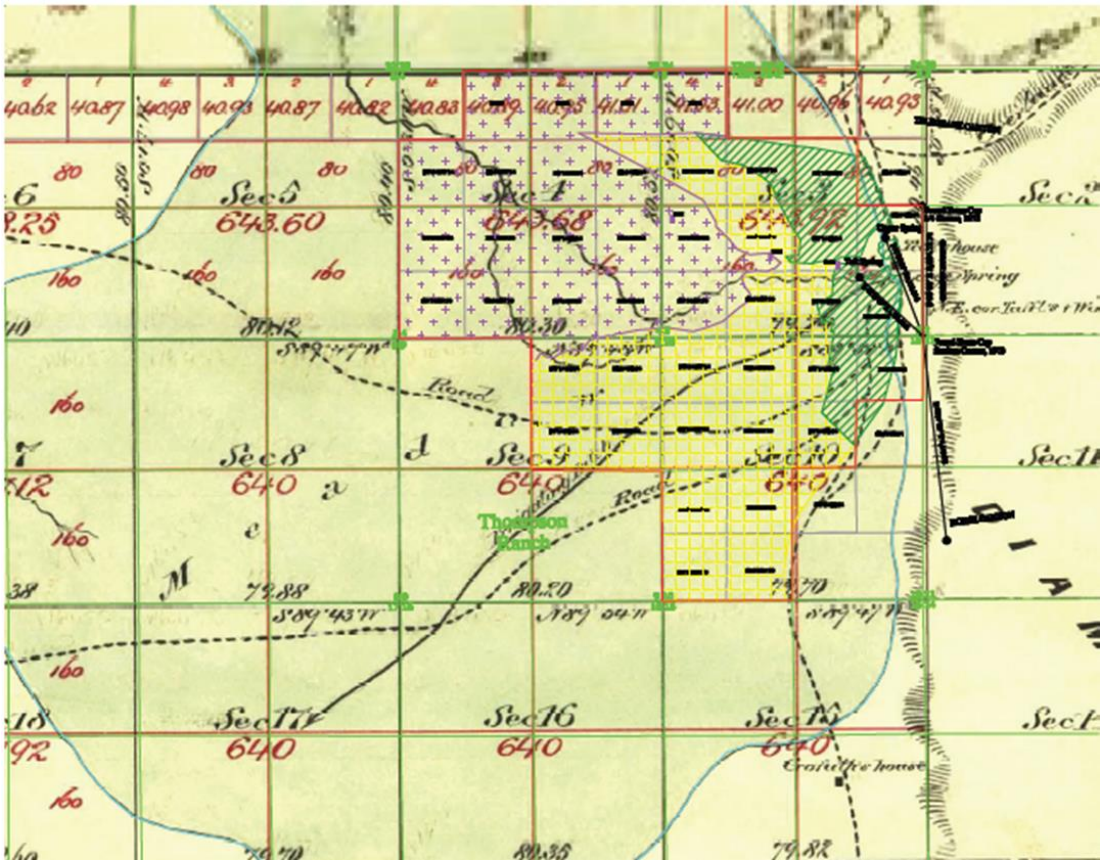
- Exhibit VENT_142 Page 41-Water locations:
    1. Nelson Toft and John Aiken filed their intent to develop two springs for agricultural purposes, Stock Cattle and horses on 320 acres two miles below Dan Dibbles and two miles SE of the head of 4 mile canyon in Eureka County. This water claim was filed on August 14, 1894.

- Additional Evidence to prove the claim
    - GLO Plats
        - GLO plat shows two ditches
        - GLO plat supports that the ditch was constructed in 1879 and is supported by the Water Claim of 1889 by George Taft (see above). George Taft also claimed that the ditch was for 320 acres and was used as such as claimed in 1889.
        - GLO Notes indicate meadow, ditches, and cultivation of hay

Thompson Ranch- Portion of Diamond Station, Taft Springs, Thompson Springs







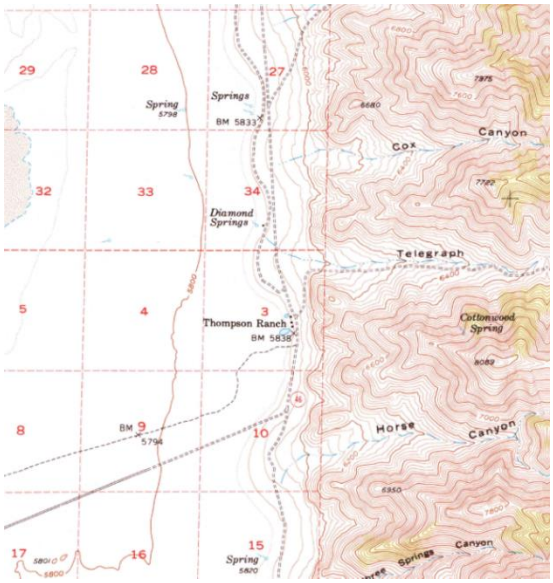
Data ascertained by review of the filed plat:

1. In 1879 Horse Canyon was not connected to the Meadow area.
2. 2 Mile Ditch as claimed by Nels Toft in the Water Book, page 31 on file in Eureka County and provided in the record. Multiple irrigation ditches, primarily the ditch constructed by Taft and Aiken in 1879 that starts in at the spring in Section 3, SE1/4 Corner as provided in the chain of title 3 ring binders describing the corner for possessory surveys. Wine-Taft; N.E. corner of the Taft and Wines D.T locations-Wines worked for the Overland Express that was responsible from conveying freight in the US. Crofuth's [sic] house is shown in the SE1/4 of Section 15. In section 2 a road is shown indicating the Overland Pass Road.
3. Taft Creek is identified with a lateral ditch found on the map, also Taft's house.
4. The ranch of George Cox is provided in the next Township (T24N), the telegraph station is referred to as Diamond Station-as described by Sir Richard Burton-1861, contiguous to the Overland Route.
5. Diamond Station/Springs. The Telegraph Station (Diamond Station) is found to the north of the plat, a creek is flowing from the green area (Meadow) to the east of the Telegraph Station. This creek is shown further on the T24N, R53E plat. Richard Burton visited the station on October 9, 1860 and noted the Mormon station keepers and the site as a water source (This is actually the location shown as Diamond Station on the map), this is where Burton Stated "warm, but sweet and beautifully clear water bubbling up from the earth." was located. The station keeper during the Pony Express period was William Cox. Cox remained at Diamond Springs when the Overland telegraph arrived. Cox served as the operator and maintenance man for stations between Cherry

6. Green area illustrated on the map is as found in the Government Land Office (BLM) Surveys. Coloring is as filed by the Surveyor. The survey notes further define the extent of the meadow area.
7. Reference to Diamond Station-Telegraph Station
    a. Provided in Memo by Jim Harrill, March 15, 1982, "Results of field visit to Diamond Valley";

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.

    b. USGS Quadrangle Map, Diamond Springs, Nevada, 1957, Exhibit 252:



Jacobson Range Map-On file with the State Engineers Office-dated rec'd 2-28-1928:

1. Noted on the map is the following; *"Jacobsen Range and Water rights within boundaries of Red Lines."* See right edge of map.
2. Similar references are found regarding the locations of Taft Creek, Irrigation Ditches (2), location of Taft House and Large Spring

Calculated acreage of cultivation by Crop Type (Thompson Ranch):

Based upon 9/10/37 Soil Conservation Service Survey of Property (*See* Exhibit VENT_281):

HOME RANCH 1 OF 4 Soil Conservation Service Map 9-10-37			
AREA	**ACREAGE**	**DESCRIPTION**	
A	503.46	Non Crop Pasture	
B	17.93	Non Crop Pasture	
C	7.42	Non Crop Pasture	
D	9.18	Non Crop Pasture	
E	86.69	Meadow	
F	125.04	Meadow	
G	3.38	Pasture	
H'	54.25	Alfalfa	
Sub Total	**807.35**		Note 5 Hay Yards Shown
HOME RANCH 2 of 4 Soil Conservation Service Map 9-10-37			
A		Non Crop Pasture	Included in 1 of 4
D'	47.94	Non Crop Pasture	
E'	40.07	Non Crop Pasture	
F		Meadow	Included in 1 of 4
F'	24.61	Non Crop Pasture	
G'	15.1	Non Crop Pasture	
H'		Alfalfa	Included in 1 of 4
Sub total	**127.72**		
HOME RANCH 3 OF 4 Soil Conservation Service Map 9-10-37			
AREA	**ACREAGE**	**DESCRIPTION**	
C'	7.82	**Non Crop Pasture**	
G		Non Crop Pasture	
H	2.87	Meadow	
H'		Alfalfa (next sheet)	
I	2.75	Meadow	
J	1.69	Clover	
K	0.84	Wheat	
L	1.21	Oats	
M	0.44	Potatoes	
N	13.66	Non Crop Pasture	
O	10.84	Clover	
P	4.41	Grasses	
Q	16.57	Non Crop Pasture	
R	65.79	Non Crop Pasture	
S	7.42	Grasses	
T	26.89	Meadow	
U	34.27	Meadow	
W	6.61	Non Crop Pasture	
X	10.69	Non Crop Pasture	
Y	24.79	Non Crop Pasture	Note Hay Yard Shown
C'	7.82	Non Crop Pasture	
Sub Total	**247.38**		
HOME RANCH 4 of 4 Soil Conservation Service Map 9/10/37			
AREA	**ACREAGE**	**DESCRIPTION**	
A'	20.2	Pasture	
B'	37.47	Pasture	
Z	33.94	Pasture	Note Hay Yard
Sub Total	**91.61**		
Total = 1,274.06 acres for the Thompson Ranch			

DESCRIPTION OF PROPERTY

Vera Martin Ranch

Eureka, Nevada

This ranch consists of five tracts located along the foot of the west slope of the Diamond mountains. The largest tract, formerly known as the "Jacobson Ranch" is about 30 miles north of the town of Eureka. Immediately north is the former "Cox Ranch", followed at short intervals by two un-named tracts and the "Mau Ranch".

The elevation is about 6,200 feet above sea level. Total annual precipitation at Eureka (the nearest point for which official records are available) averaged 12.09 inches per year between 1888 and 1930. The lowest annual total was 6.13 inches (1928) and the highest was 20.64 inches (1907). The average length of growing season between killing frosts is 105 days--June 5 to September 8. Frosts have occurred as late as July 6 and as early as August 21.

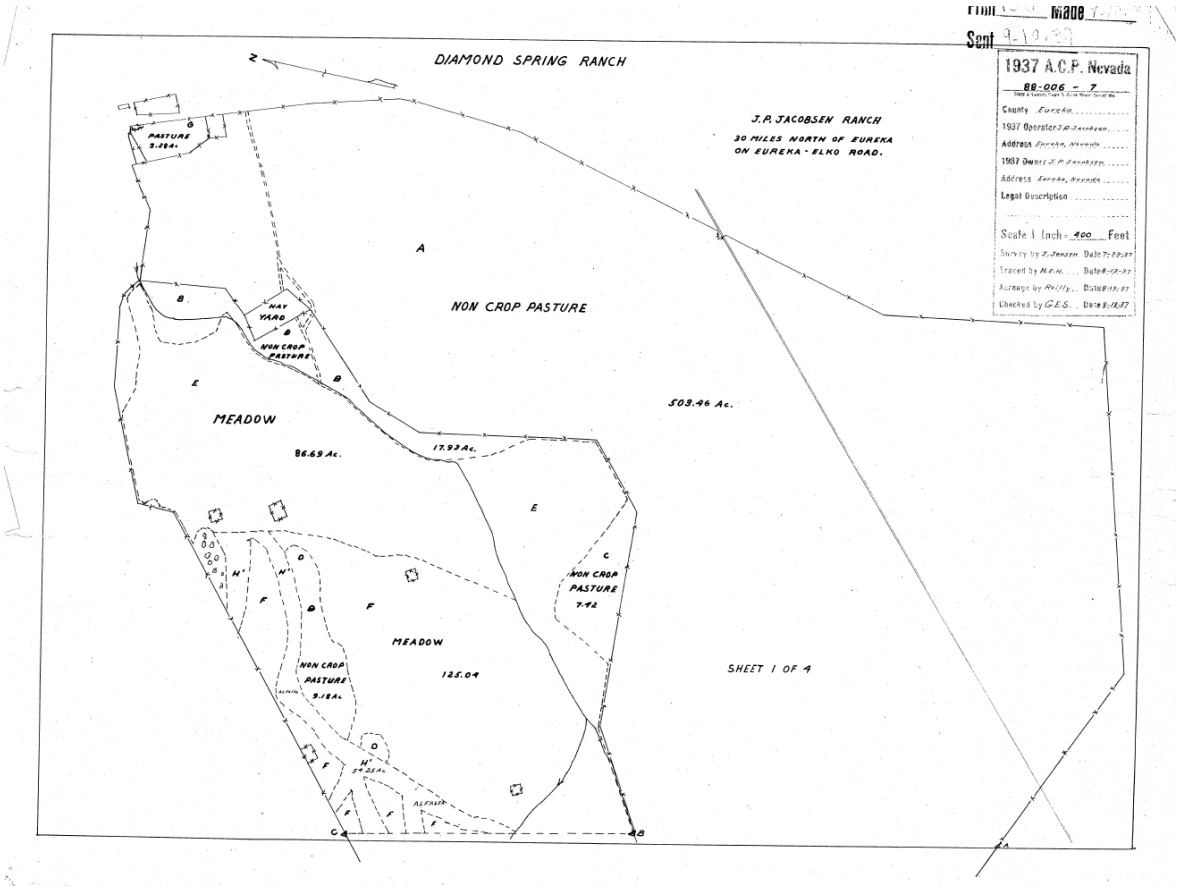
Range beef production is the principal enterprise on the ranch. The fenced meadows and cropland are used for production of winter feed to supplement grazing on the surrounding public domain and in the fenced brush and native pastures. Meadow and cropland aftermaths are grazed after the hay and grain are harvested.

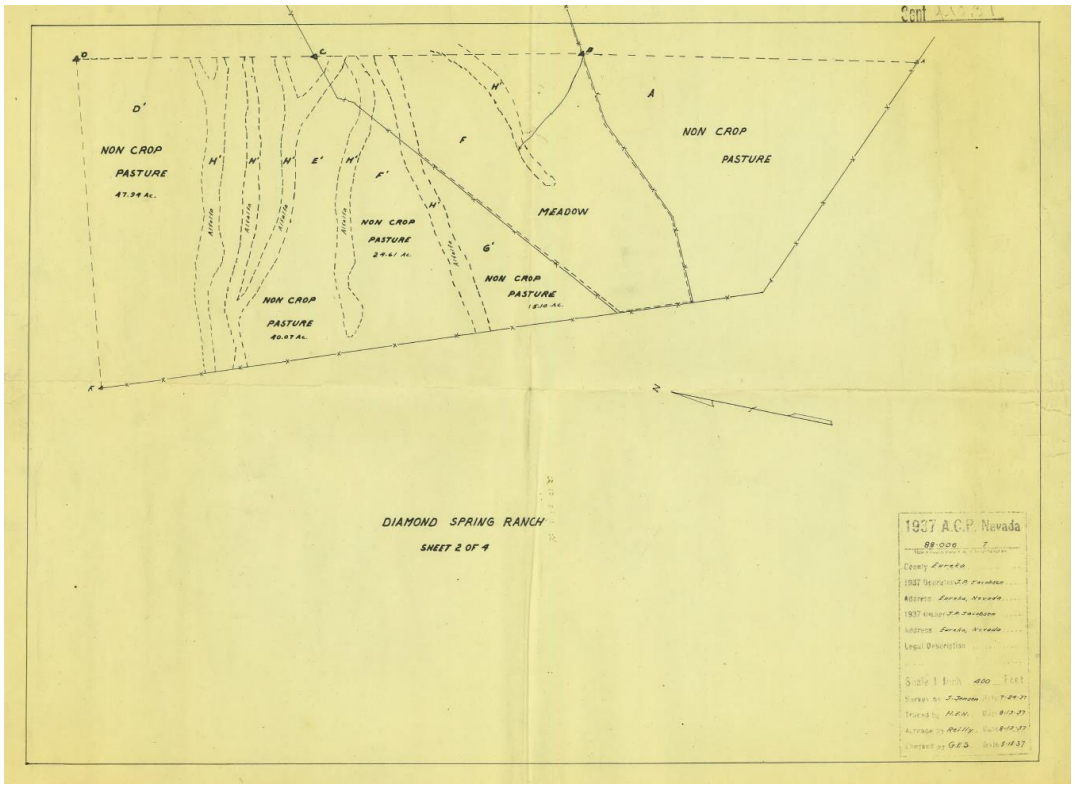
The property covers 2,400 acres, of which 2,183.5 acres are enclosed by fence. As of May 1, 1942, the fenced portion consisted of approximately:

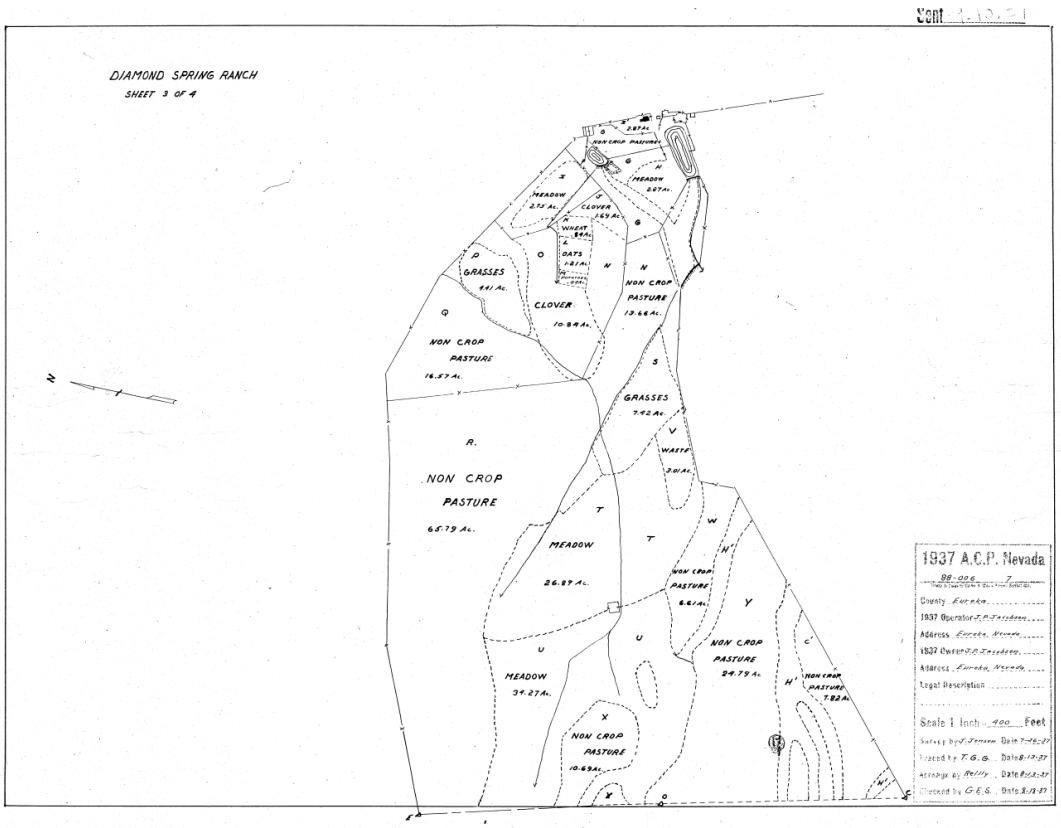
471.2	acres native meadow--mostly mowable
28.2	acres of mixed clover-grass hay
1,066.0	acres of brush-saltgrass type pasture
538.8	acres of native pasture--mowable in spots.
9.1	acres Farmstead, idle and miscellaneous
13.3	acres of cropland (grain, alfalfa, etc.)
56.9	acres of irrigated pasture including about 13 acres of ponds and sloughs

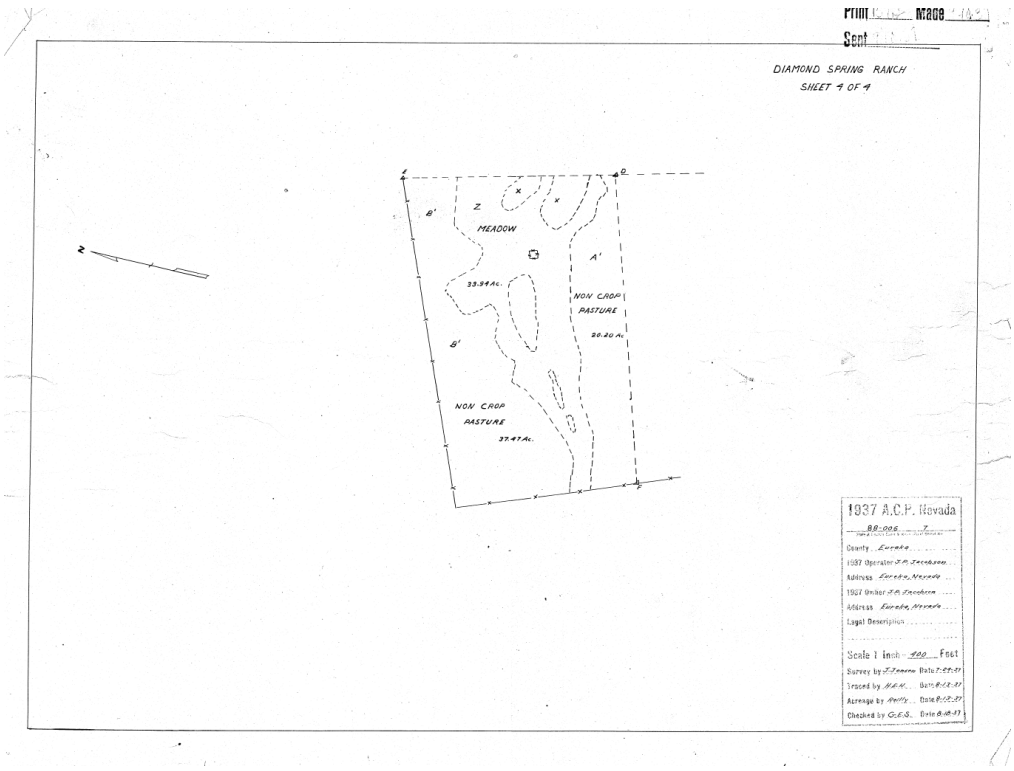
The above 1942 reference to culture is on the fenced portion of the properties only. The total fenced portion of the 2400 acres is 2183.5 acres. Omitting the 1066 acres of brush/salt grass the amount of acreage depicted in the SCS report depicts **1,117.5** acres of hay, grain, alfalfa, mowable pastures, etc. This summary was provided in the SCS Water Conservation Plan #1 pdf provided to the SE on 8/29/18 submittal disc. This references findings in 1937. While 1066 acres is listed as “brush-saltgrass type pasture”, this 1066 acres should receive credit as diversified pasture. Thus, for the five ranches, the total acreage of irrigation should be no less than 2,183.5 acres, as verified by the 1942 soils report.

The validation of the 1,274 acres from the SCS mapping data (1937) and the description of the property in the May 16, 1942 Plan of Soil and Water Conservation for the Ranch Property of Vera (Jacobsen) Martin Diamond Springs Ranch, coincides well with the claim of vested acres provided in this summary. A total of 1274 acres is either cultivated, irrigated meadow and pasture, and diversified pasture, within the fence lines. Additional acreage of vested use exists outside the fence line, but still on private property consisting of the Thompson Ranch.

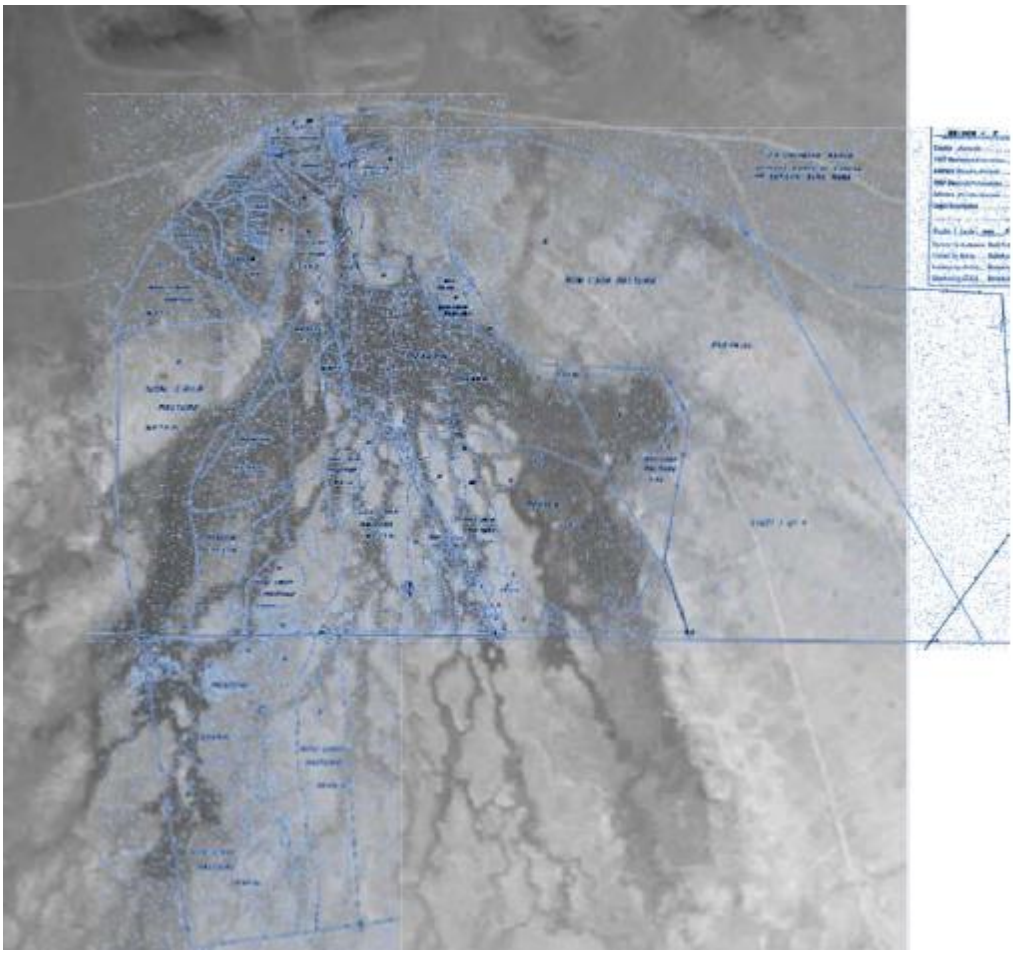

DIAMOND SPRING RANCH
J.P. JACOBSEN RANCH
30 MILES NORTH OF EUREKA
ON EUREKA - ELKO ROAD.
1937 A.C.P. Nevada
88-006 - 7
County Eureka
Address Eureka, Nevada
Address Eureka, Nevada
Legal Description
Scale 1 Inch = 400 Feet
PASTURE
3.88A.
NON CROP PASTURE
HAY YARD
NON CROP PASTURE
MEADOW
86.69 Ac.
17.92 Ac.
503.46 Ac.
NON CROP PASTURE
7.92
MEADOW
125.09
NON CROP PASTURE
9.18 Ac.
ALFALFA
SHEET 1 OF 4

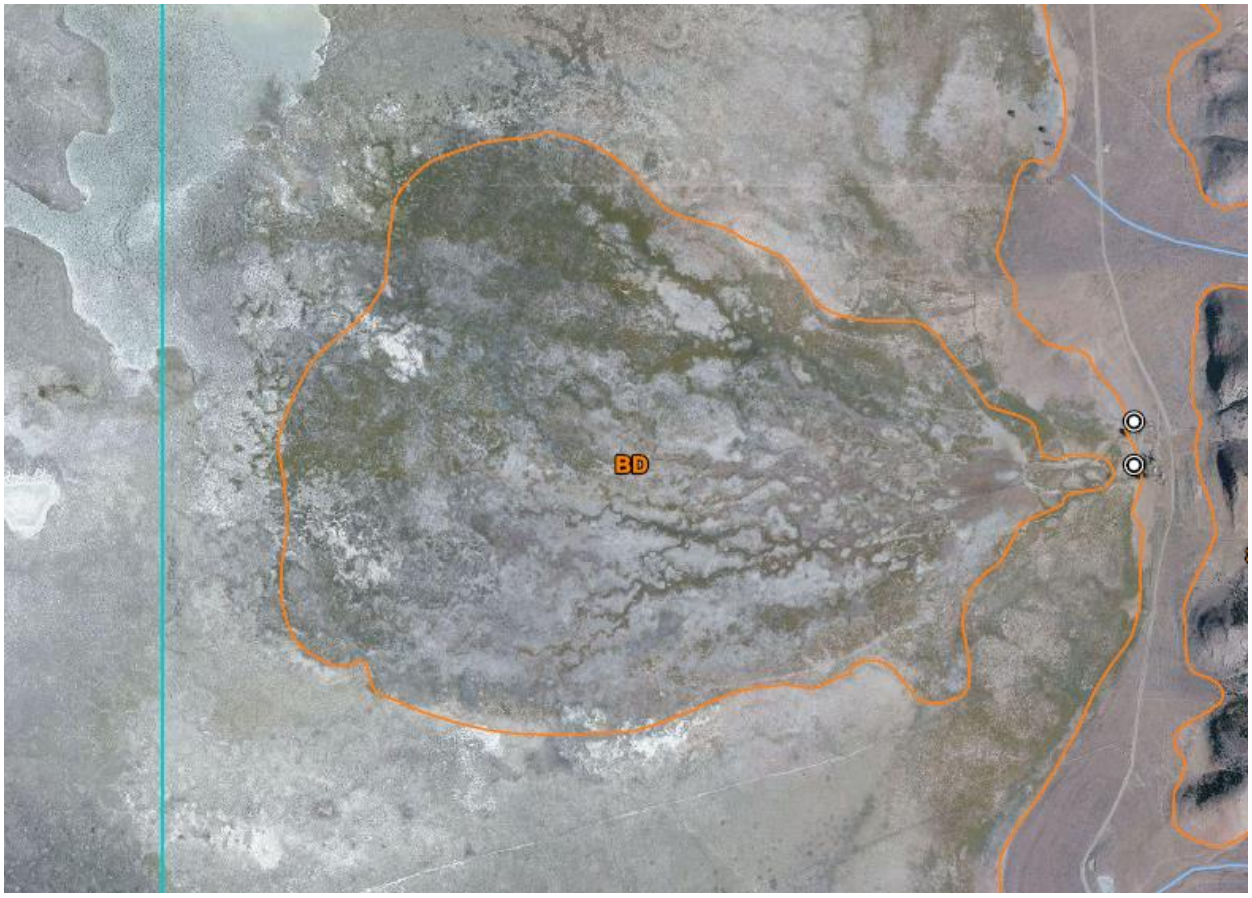

NON CROP PASTURE
47.34 Ac.
NON CROP PASTURE
40.07 Ac.
NON CROP PASTURE
24.61 Ac.
NON CROP PASTURE
1.80 Ac.
MEADOW
NON CROP PASTURE
DIAMOND SPRING RANCH
SHEET 2 OF 4
1937 A.C.P. Nevada
88-006 - 7


DIAMOND SPRING RANCH
SHEET 3 OF 4
NON CROP PASTURE
MEADOW 2.75 Ac.
CLOVER 1.69 Ac.
WHEAT 5.84 Ac.
OATS 1.81 Ac.
MEADOW 2.07 Ac.
GRASSES 1.41 Ac.
CLOVER 10.84 Ac.
NON CROP PASTURE 13.66 Ac.
NON CROP PASTURE 16.57 Ac.
GRASSES 7.42 Ac.
WASTE 2.01 Ac.
NON CROP PASTURE 65.79 Ac.
MEADOW 26.87 Ac.
NON CROP PASTURE 6.61 Ac.
NON CROP PASTURE 24.79 Ac.
MEADOW 34.27 Ac.
NON CROP PASTURE 10.69 Ac.
NON CROP PASTURE 7.82 Ac.
1937 A.C.P. Nevada
88-006 7
County Eureka
1937 Operator T.P. Jacobsen
Address Eureka, Nevada
1937 Owner T.P. Jacobsen
Address Eureka, Nevada
Legal Description
Scale 1 Inch = 400 Feet
Surveyed by V. Jensen Date 7-16-37
Traced by T.G.G. Date 8-13-37
Acreage by Reilly Date 8-23-37
Checked by G.E.S. Date 8-13-37


DIAMOND SPRING RANCH
SHEET 4 OF 4
MEADOW 33.94 Ac.
NON CROP PASTURE 20.20 Ac.
NON CROP PASTURE 37.47 Ac.
1937 A.C.P. Nevada
88-006 7
County Eureka
1937 Operator T.P. Jacobsen
Address Eureka, Nevada
1937 Owner T.P. Jacobsen
Address Eureka, Nevada
Legal Description
Scale 1 Inch = 400 Feet
Surveyed by V. Jensen Date 7-15-37
Traced by M.A.K. Date 8-13-37
Acreage by Reilly Date 8-12-37
Checked by G.E.S. Date 8-18-37

A review of the 1950s aerial closely matches the 1937 SCS maps indicating cultivated acreage and pasture use. *See* Exhibit VENT_232. The aerial also shows that the same type of use as shown on the 1932 maps extended to the deeded land outside the fence line. Later aerials also confirm that similar acreages were maintained under cultivation, until the springs were died up by impacts from junior groundwater development. Thus, at a minimum, 1280 acres was irrigated within the fence lines, with additional acreage being used outside the fence line on private land immediately adjacent to the noted acres in the SCS documents. This evidence shows a consistent use throughout recorded time of the irrigation of the ranch as claimed in Proofs V01114 and V01115, as amended.





Area is equal to a width of approximately 2 miles and a vertical distance of approximately 1.5 miles (scaled conservatively), The soil classification is BD, Bicondoa-Dianev Associations, this map covers approximately 1,423.0 acres. The soil type is broken down as 60% Bicondoa and 30% Dianev. This setting for this soil type is classified as a Landform: Floodplain (Typical of spring discharge or saturated conditions). *Source; Custom Soil resource Report for Diamond Valley Area, Nevada, Parts of Elko, Eureka and White Pine Counties, USA NRCS.* (See Exhibit VENT_233) The soil type is indicative of a meadow with a groundwater flow system/typical of a spring discharge and meadow land.

- V01114 (Horse Canyon)

  - What did the Proof claim?
    - Priority – 1880, when ditch was constructed (GLO Plat does not show ditch) connecting Horse Canyon Creek to the meadow area
  - Amended Proof Claimed a supplemental water right to the Claim of Vested Right under V-01115
    - Duty – 1,636.36 acres total (comingled with Springs)
      - 208.97 of grain and alfalfa
      - 646.52 acres of hay
      - 780.87 acres of diversified pasture

- What did the State Engineer accept?
    - Priority – 1880
    - Duty – 94.78 acres with 189.6 afa (2 af/a)
        - Completely supplemental with V01115

Horse canyon is completely supplemental to the springs on Thompson Ranch. The same opinion as to duty and acreage is that as above. When water was available from Horse Canyon, it was used to supplement irrigation in the south portion of the ranch.

Conclusion on Thompson Ranch

After reviewing all evidence described in this report, as well as the documents on file with the State Engineer's office and evidence submitted regarding the Thompson Ranch in other legal proceedings which the State Engineer's office has been a party, it is my expert opinion that the State Engineer's preliminary order did not adequately confirm V01115 and V01114 for the Taft Springs and Horse Canyon water.

The evidence demonstrates that the Thompson Ranch predecessors utilized all waters from Taft Springs for irrigation of meadows through ditch works, natural irrigation, and various forms of trenching to recharge the groundwater in the areas of the Ranch. The Spring Location included in the submitted evidence states that all waters from the springs were utilized on the ranch, and historic research demonstrates that all available water in the Diamond Valley areas were put to beneficial use when located. The historic records show that all of Thompson Ranch was settled by various parties prior to 1905. The full flow of the springs was appropriated for beneficial use prior to 1905. Surveys conducted in the early 1900s confirm that water was being used on approximately 1,280 acres within the fenced area of the ranch, and logically the same type of pasture cultivation was used outside the fenced areas consistent with the adjacent uses. Aerial documentation further supports the claimed acreage.

This water was being placed to beneficial use for most of the year, as the water was placed in storage via dams and diversions as shown in the evidence when it was not being actively irrigated on the ranch. Thus, because of storage use, and as evidenced by the historic filings, the entire flow of the Taft springs was fully captured and used to irrigate the Thompson Ranch. The trench techniques were used to supplement groundwater levels in the Thompson Ranch area year-round. As described in this report, the killing frosts for the vegetation in the Thompson Ranch lend for a longer growing season than indicated in the Preliminary Order.

The Taft Springs were the main source of irrigation for the Thompson Ranch, as the Horse Canyon waters were not connected to Thompson Ranch, demonstrated by the GLO Plat.

Further, Horse Canyon became a supplemental source of water augmenting the springs, as provided in the 1979 GLO plat that the Horse Canyon discharge was not used as an irrigation source on the Thompson Ranch. This finding was also found in the Proof of Beneficial Use filed by Toft in 1912 at the instance of the office of the State Engineer. The other observation that can

be made is that the meadow area existed without the contribution of the flows from Horse Canyon. The recorded flows are too sporadic in determining an actual flow rate of the Taft spring sources. Other than the spring measurement taken by Payne in 1912 (in the waning time of discharge), spring flow rates used in the Preliminary Order all occur after the impact of pumping within Diamond Valley with other measurements taken after the snow melt/discharge period, in fact the initial granting of Desert Land Entries/Carey Act properties occurred in the middle east side of Diamond Valley within 2 miles of Taft Springs. Bulletin 35 indicates that the wells located in this area, where most of the junior water right holders at that time were located, are in formations that would readily interact with groundwater tables in the easterly side of the basin, the impact of the Klippe exposing Carbonate Rock would also cause rapid transport of water and exacerbate lowering of the groundwater table.

The Taft Springs relied upon both groundwater recharge from precipitation in the neighboring mountains and water from a deep regional circulating system. In the 1980s, the springs ceased to flow, but based on recent local recharge in the mountains, the springs came back for a short period at 4 cfs. Thus, the Taft Springs likely flowed between a base flow from the regional system of approximately 2 cfs, as observed by the USGS following a dry year, and from the perennial system with a high of 4 cfs, as observed in the 1980s when the springs responded to a wet year. Historically, then, flows during period of higher precipitations most likely provided a combined flow up to 6 cfs, being the base regional flow plus the local recharge contribution. This calculation is based on base flows and precipitation measurements as detailed in this report. Notably, the measurement of 1.54 cfs by Payne in 1912 is inaccurate due to the time of year it was taken and the drought conditions. Combined with up to 2 cfs of flow occasionally supplied from Horse Canyon, the total duty of water used on the Thompson Ranch was in excess of 8 cfs. This amount does not include water provided to the fields using trench irrigation, which would not be measurable at the headgates. The proofs should be confirmed for a total combined duty as supported by the evidence, totaling at least 5,792 acre feet.

In conclusion, the flows from the Taft Springs were all measured (or observed) at a point after the ponds (unlined ponds/lakes-aka Trenches) and did not take into account the water discharged into the groundwater system used to create higher elevations of groundwater for natural irrigation down gradient. Other spring source remnants and areas of boggy ground were found in the very western part of the fenced property and these areas are documented in the 2013 ground truthing report, the NRCS soils report for these areas provide information as to the extent of the meadow discharge area. This is typical of other decreed properties found in the State of Nevada where the courts have assigned duties of up to 4.5 acre feet/acre for similar lands, referenced as Meadow Harvest. Reviewing the 1936 SCS plane table survey approximately 10 hay yards are found on the subject property. These hay yards are significant and represent a larger area of cultivation.

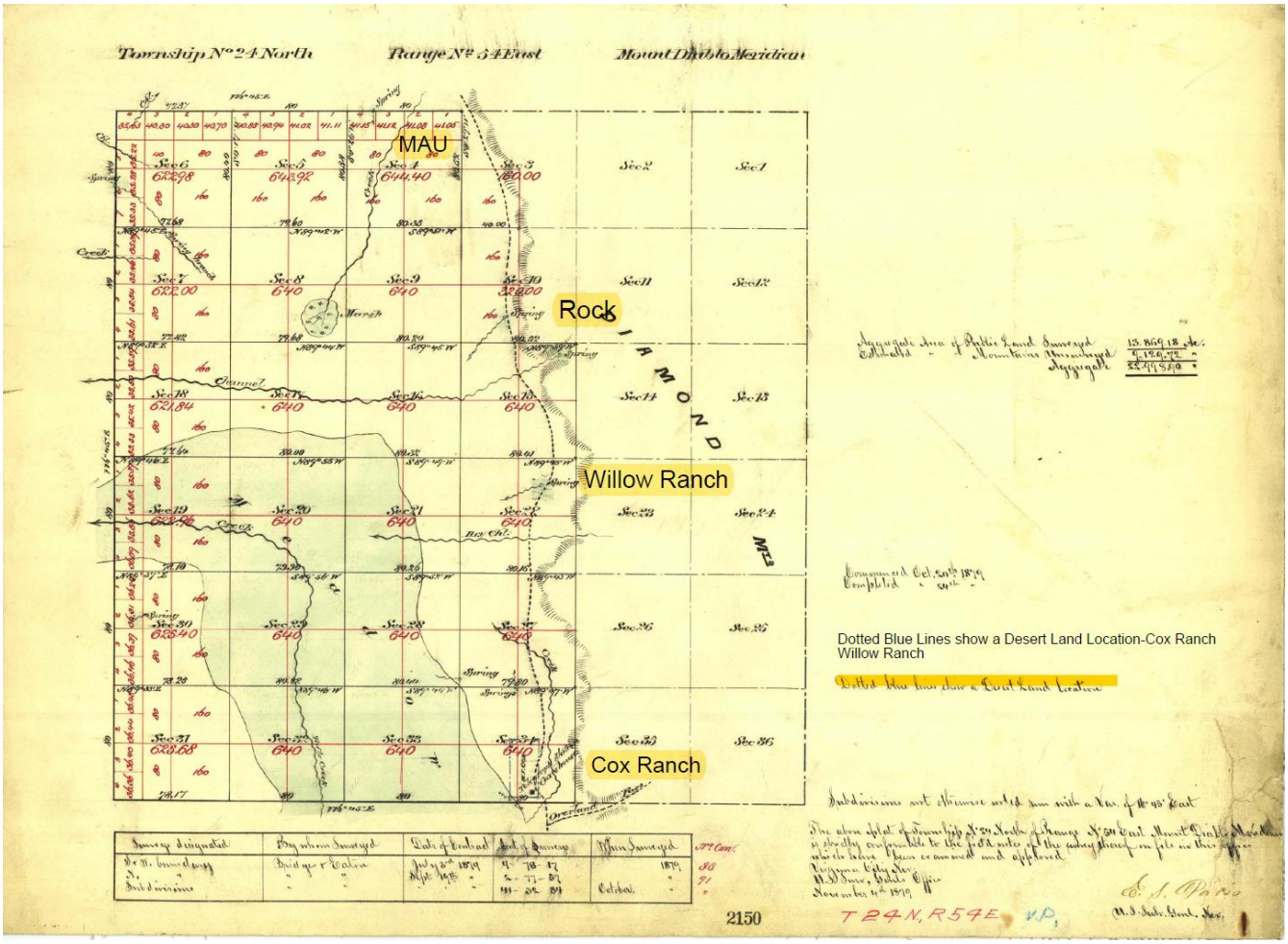
Provided in this report are graphs that indicate annual periods of precipitation, these graphs were correlated with other records to determine the effects of precipitation, spring discharge, groundwater withdrawals etc., in order to observe the potential impact to the springs. In this observation opinions have been formed that help ascertain an insight into the hydrology of Taft Springs and other springs in the ranches held now by Mr. Venturacci.

Unfortunately, the State Engineers office issued proof certificates for the water right for the subject property in 1912 based on an adjudication process in place at the time. This adjudication process was overturned by the courts in 1913. Ignoring the fact that the courts determined the 1912 process to be invalid and unconstitutional, again the State Engineer's office is adjudicating the water use on the subject property based solely on the certificates resulting from the 1912 process. The State Engineer's office should not ignore the volumes of historic documentation, opinions of water rights experts, independent soil survey investigations, aerial photographs, spring flow data, etc., and simply rely on a single piece of evidence that was dismissed by the courts in 1913. The field work completed by this office occurred after approximately 156 years after the initiation of water use, the state engineer's office is reviewing the same information after 160 years after the initiation of water use. I was involved with the State Engineer's office during the time of the initial resolution of the complaints of senior water right holders in 1982, none of the staff of the State Engineer's office was there at the time this work was done, 37 years later we are in the steps of the final resolution of resolving the concerns of senior water right holders.

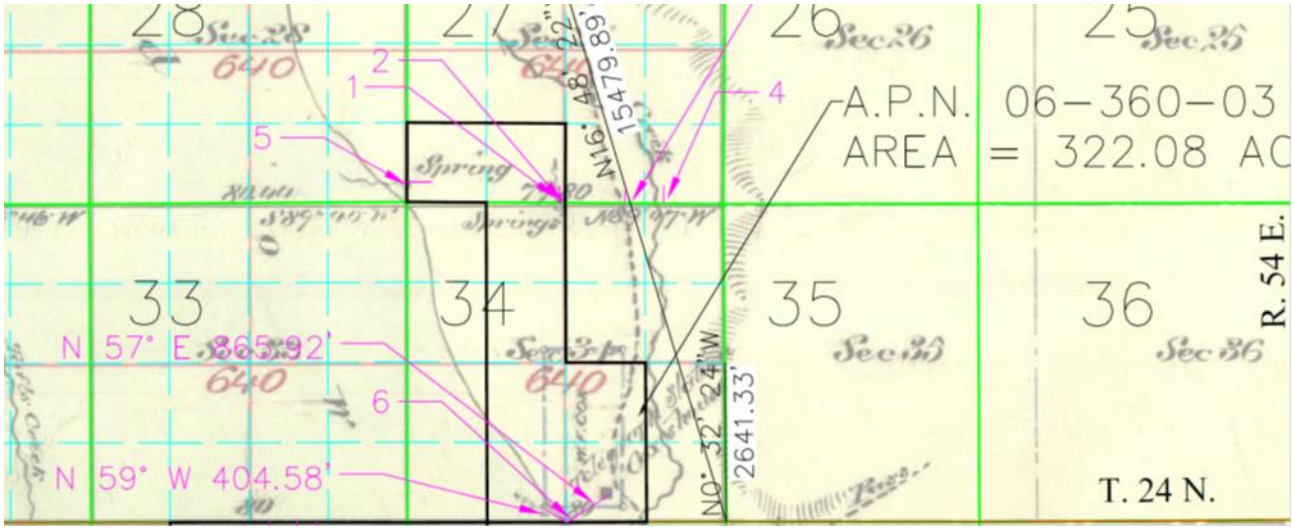
Cox Ranch

The State Engineer improperly rejected all amendments to the original proof filings. The amendments were conducted to "represent the full historic water right and its comingled nature." Along with the amendments, evidence was supplied to support the amendment, including published oral histories, tax records, applications for patent, soil records, and aerials. It was wrong for the state to prevent the owner from amending the proof based on additional research, and holding them fast to mistakes and omissions in the original filing. For example, the original claimant referenced 1901 as the priority date, however, evidence showed a much earlier priority date. Evidence also shows that the reason for the reference to 1901 is the patent date, and not the date related to the beneficial use of water. Additional errors and omissions occurred as to the inclusion of diversified pasture in the tabulation of culture.

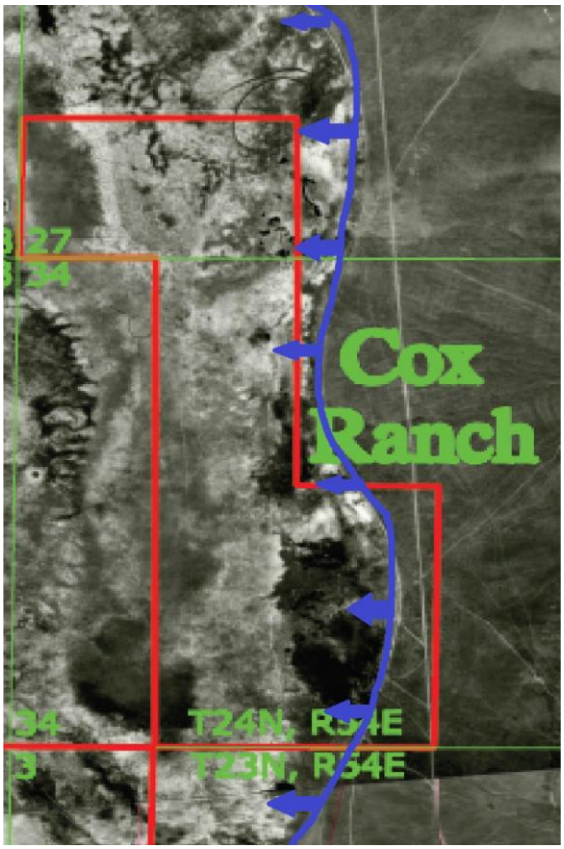
Plat-T.24N., R.54E., M.B.D.&M:



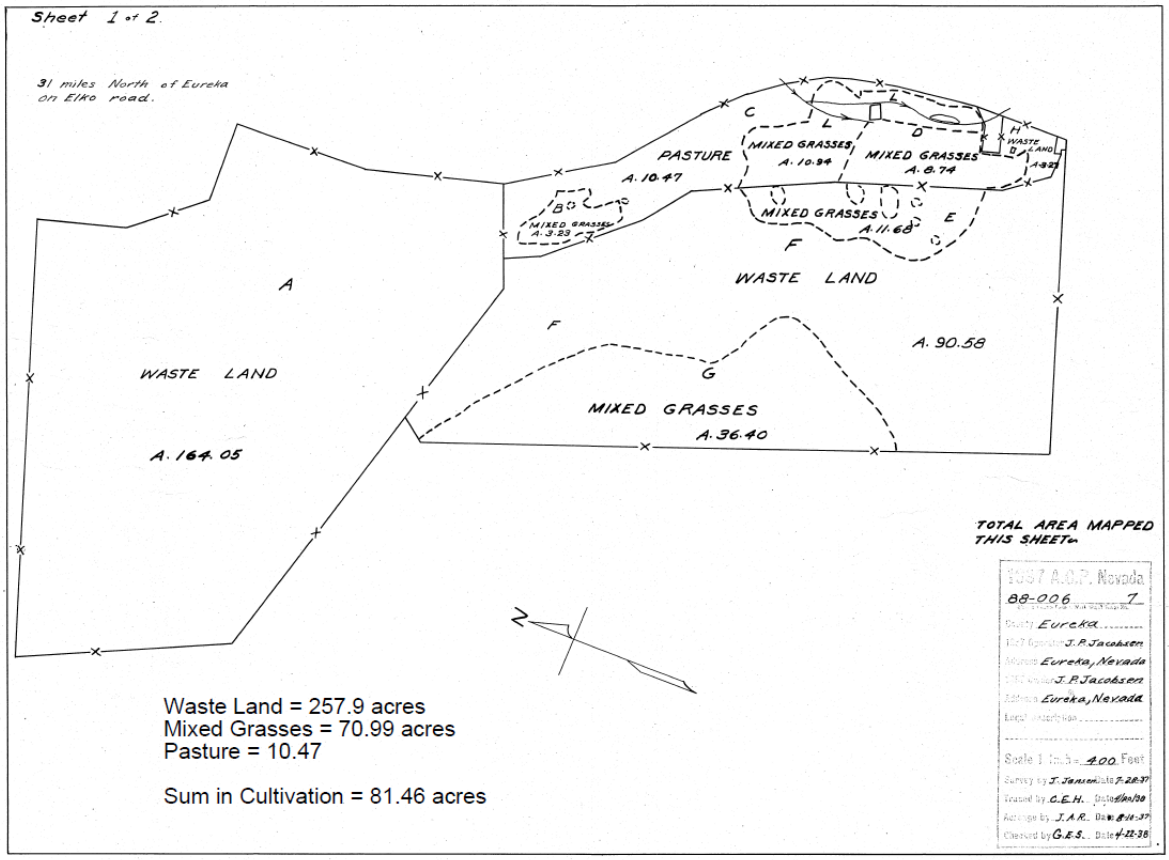
Cox Ranch-aka Diamond Springs Ranch aka Telegraph Station. This excerpt is from T.24N., R.54.E.



1949 Aerial with overlay:



Cox Ranch Irrigation Layout:



See also the discussion of all ranches in the 1942 soils report, above. As noted above, as evidenced in the 1942 soils report, the area labeled as "waste land" in 1937 is land that was clarified to be "brush-saltgrass type pasture." As referenced above, this 1066 acres should receive credit as diversified pasture. At a minimum, the evidence provides that 81.46 acres of Cox Ranch was historically irrigated as cultivated grasses and pastures. Additionally, the State Engineer should recognize the remaining 263.43 acres of diversified pasture as per the vested claim pursuant to the aerial views, images, the 1942 soils report, and other evidence. The early 1900s tax records further support the grazing use of the diversified pasture of the approximate 240 acres of "grazing land" consistent with the claim of diversified pasture.

- Cox Ranch
  - V02846 (Vested Claim on Springs)
    - What did the Proof claim?
      - Priority – Pre-1879
      - Evidence supports a priority of 1859
      - Duty
        - 72.82 acres of hay
        - 272.07 acres of pasture
    - What did the State Engineer accept?
      - Priority - 1901

- Duty
    - 29.2 acres of meadow
    - 19.97 acres of natural irrigation w/o a diversion rate
    - 10 cattle

- Evidence to prove the claim
    - Irrigation
        - State Land Patents for 320 acres in portions of the W1/2 of SE1/4, W1/2 of S34, S1/2SW1/4 of Section 27, covering portions of ranch.
        - First payment made to the State Land Office occurred in 1883
        - 1885 tax assessments showing claims of farming land
        - 1879 GLO Plat-illustrates the ranch in operation
        - Payne Notes
            - 8 acres irrigated, 70 acres cut for hay
            - 78 acres and additional springs
            - Springs pumped to irrigate
        - Statements in literature
        - Photos of hay cutting
        - Springs were utilized first and Telegraph Canyon Creek came later to supplement the spring discharge
        - 1918 tax assessments showing 240 acres of grazing land
        - 1937 SCS data showing 81.46 acres of Mixed Grasses and Pasture.
        - 1942 SCS report indicating much of the referenced 1937 "waste land" was actually pasture land consisting of brush and grasses

- V02845 (Telegraph Canyon)
    - What did the Proof claim?
        - Priority – Pre-1879
        - Duty-Supplemental-Snow melt only on wet years and a short period of time
            - 72.82 acres of hay
            - 272.07 acres of pasture
    - What did the State Engineer accept?
        - Priority – 1901
        - Duty –
            - 64.5 acres of meadow (129 af/season from all sources)
            - 150 cattle
    - Evidence to prove the claim
        - Irrigation
            - State Land Patents for 320 acres in portions of the W1/2 of SE1/4, W1/2 of S34, S1/2SW1/4 of Section 27covering portions of ranch.

        - 1885 tax assessments showing claims of farming land
        - 1879 GLO Plat
        - Payne Notes
            - 8 acres irrigated, 70 acres cut for hay
            - 78 acres and additional springs
            - Springs pumped to irrigate
        - Statements in literature
            - Jacobsen
        - Photos of hay cutting
    - Stock
        - 1918 tax assessments showing 240 acres of grazing land
- V02847 (Cox Canyon)
    - What did the Proof claim?
        - Priority - 1901
        - Duty-Supplemental, intermittent flows
            - 72.82 acres hay
            - 272.07 acres of pasture
    - What did the State Engineer accept?
        - Priority - 1901
        - Duty
            - 3.1 acres of meadow, TCD of 6.2 af/s
    - Evidence to prove the claim
        - Irrigation
            - State Land Patent for 80 acres in the W1/2 of SE1/4 of S34, covering portions of ranch.
            - 1885 tax assessments showing claims of farming land
            - 1879 GLO Plat
            - Payne Notes
                - 8 acres irrigated, 70 acres cut for hay
                - 78 acres and additional springs
                - Springs pumped to irrigate
            - Statements in literature
                - Jacobsen
            - Photos of hay cutting
        - Stock
            - 1918 tax assessments showing 240 acres of grazing land

- Also, evidence was submitted that the springs were pumped for beneficial uses. Minnie Cox, daughter of Lila and William Cox, lost her hand to the pump. *See* VENT_261, bates 1952-1953.

Conclusion on Cox Ranch

The State Engineer incorrectly references the priority of 1901. This is based off a claim of priority of 1901 filed in the original water rights filing. However, this referenced date was based on when the first patent for Cox Ranch was acquired, not when the first settlement occurred on the Cox Ranch or when beneficial use was initiated. *See* Exhibit VENT_116 and 117. Ample evidence was provided to support the priority of 1859, when the Overland Stage Route and Pony Express first initiated works of diversion for stockwater use and pasture irrigation. It is improper to disregard the evidence filed in support of the amended proofs, and insist that a mistake on the original filings persist.

After reviewing all evidence described in this report, as well as the documents on file with the State Engineer's office and evidence submitted regarding the Cox Ranch in other legal proceedings which the State Engineer's office has been a party, it is my expert opinion that the State Engineer's preliminary order did not adequately confirm the vested claims on Cox Ranch.

The evidence supports approximately 81.46 acres being cultivated on the Cox Ranch before 1905. The water used for the irrigation was primarily spring water, which was trench irrigated or pumped from the springs. The SCS surveys that were conducted on these lands in the early 1900s depict ongoing irrigation of 81.46 acres for cultivated grasses and pastures. The notes taken by Payne in 1912 state that the Cox Ranch was approximately 78 acres. The tax assessments in the late 1800s indicated that the predecessors on the Cox Ranch ran cattle as well as grew and cut hay for use later. Literature describing the uses of water and farming at in the late 1800s to the early 1900s describe water use on the Cox Ranch as being more than was found in the State Engineer's Preliminary Order. The 1942 soils report, and 1918 tax records further support that 240-260 acres of diversified pasture, or grazing land, was also beneficially used on the Cox Ranch. This land would have derived its water source from the same as the cultivated fields.

Similar to the Thompson Ranch, the evidence demonstrates that the Canyon streams were supplemental and to the springs on the Cox Ranch. Payne's notes indicated that the canyon streams were not the main source of irrigation on the Cox Ranch. The canyons discharged intermittent flows of low duration. The SCS surveys depict that the springs were the main source of irrigation on these lands.

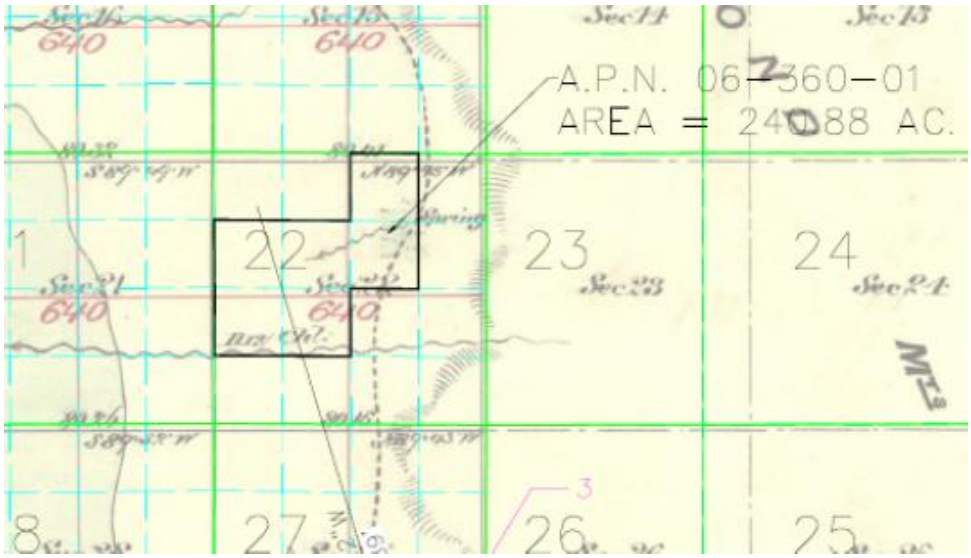
Willow Ranch

The preliminary order improperly discounts spring sources on the Willow Ranch, and specifically notes that this was in part due to the fact that the field investigators saw irrigating springs not specifically mapped by the claim map, and had trouble finding the springs included on the map. However, the proof was not limited to two springs alone. It specifically noted the claim was also for "multiple additional springs and seeps …located within the place of use" Further the comments state "the above referenced Spring point of diversion represents one of the many spring complexes within the place of use." The claimant should not be deprived of his vested rights because of a disagreement on mapping under the vested claim.

Further, the springs on the ranch were dry as a result of impacts caused by junior pumpers, so were not visible for modern-day field investigations. However, the record contains images of the springs as they existed on the Cox Ranch prior to the 1980s. Aerials also confirm the existence of springs, as do several surveys of the area.

Also, Payne noted that there was no irrigation from the springs, but he may have misinterpreted the irrigation practices unique to the area. As noted by Crofut in his book, the common irrigation at these ranches was a "trench" method of irrigation which was different than common irrigation as seen in places like Fallon. *See* Exhibit VENT_259, bates 1906.

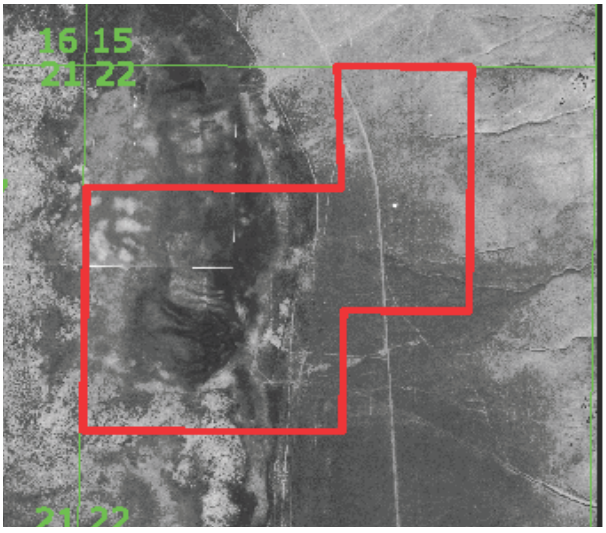
The **Willow Ranch** is found in section 22, of T.24N., R,53E., per the following:



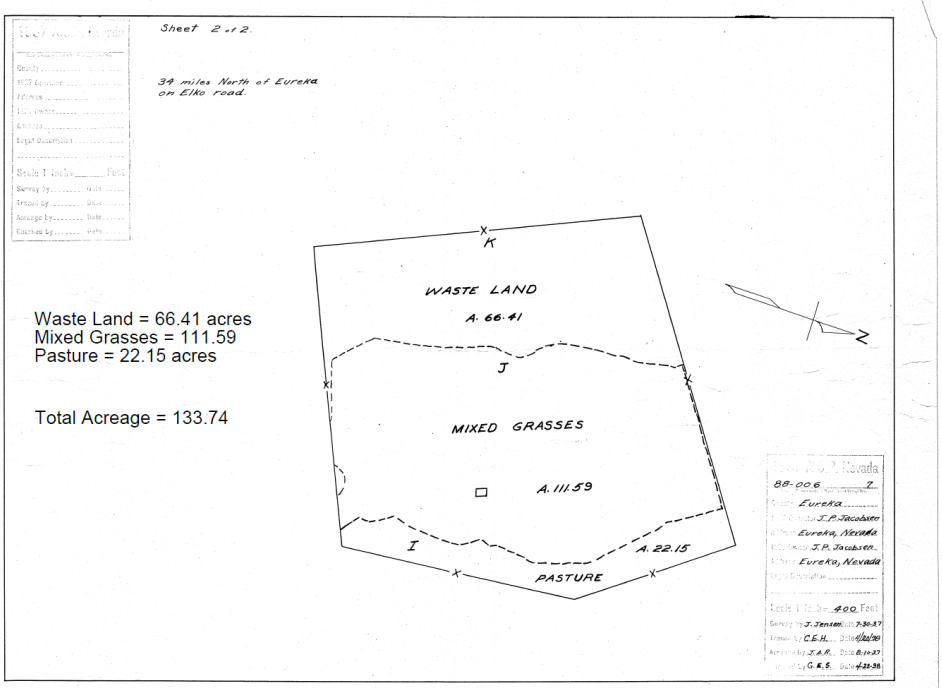
1954:

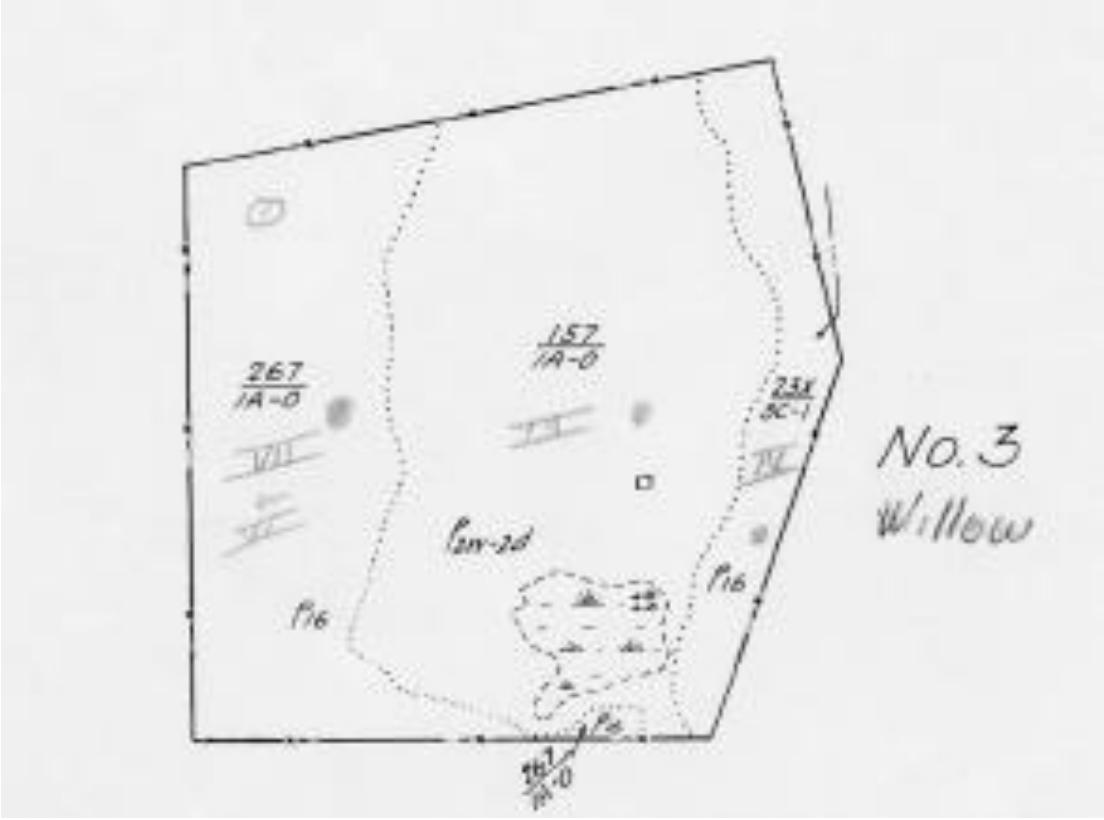
1967:

1973:



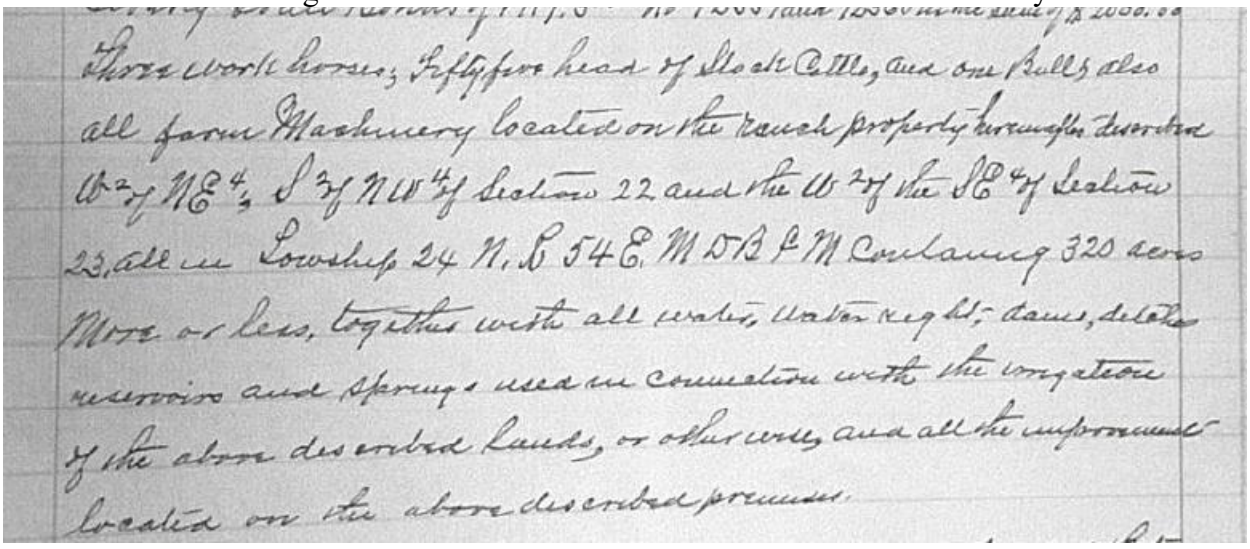
Soil Survey Maps:





- V10368 (Judd Canyon and Springs)
  - What did the Proof claim?
    - Priority – prior to 1879
    - Duty
      - 190.59 acres of pasture and grassland
      - Stock secondary use
  - What did the State Engineer accept?
    - Priority – 1885
    - Duty
      - 102.35 acres from Judd Canyon from April 1-Sept. 15
      - TCD of 200 af/s from all sources
      - 150 cattle
  - Evidence to prove the claim
    - Irrigation
      - Payne Notes
        - Judd does not flow materially to benefit Cox
        - Natural meadows and springs
        - Cox cut hay from fields
      - 1888 Tax Assessments noting "farming land"
      - 1922 deed from Cox to Wife, including "springs used in connection with the irrigation"
      - Aerials - springs with ditches from springs
      - Soil Surveys showing 133 acres of use not recognized by the State Engineer
      - ACP Map - 200 acres of pasture of grasses closely matching proof

- As far as springs being used for irrigation, when William Cox died, the property went to Lila Cox. *See* VENT_280, attachment 118. Specifically included are "springs used in connection with the irrigation of the above described lands" and "farm machinery."



Three work horses; Fifty five head of Stock Cattle, and one Bull; also all farm Machinery located on the ranch property hereinafter described W½ of NE¼, S½ of NW¼ of Section 22 and the W½ of the SE¼ of Section 23, all in Township 24 N. R 54 E. M D B & M containing 320 acres More or less, together with all water, water rights, dams, ditches reservoirs and Springs used in connection with the irrigation of the above described Lands, or other wise, and all the improvements located on the above described premises.

The Preliminary Order proper notes that "the 1938 ACP map for the Willow Field depicts a fenced parcel of about 200 acres composed of 22.15 acres of pasture along the far east side of the parcel, 111.59 acres of mixed grasses to the west of the pasture and 66.41 acres of waste land on the west side of the parcel. **These areas closely match what is claimed in the proof and depicted on the support map."** [emphasis added]

However, despite this observation, the preliminary order then only recognizes 102 acres of water righted land. The State Engineer has already recognized in the Preliminary Order that 133.74 acres of cultivation as claimed in the proof is consistent with the evidence. At a minimum the full 133.74 acres should be recognized as irrigated land. Additionally, as described above, the 1942 soils report clarifies that much of the "waste land" was a mixture of brush and grasses, or diversified pasture. Thus, the evidence in the record support the acreages claimed in the proofs.

Additionally, the preliminary order recognized that "The first year of irrigation water being put to beneficial use is not mentioned in the supporting documents but probably mirrors the beneficial use of irrigation waters on the main Cox Ranch holdings." The priority date, then, should be the same as the Cox Ranch, being 1859 as discussed above.

Conclusion on Willow Field

After reviewing all evidence described in this report, as well as the documents on file with the State Engineer's office and evidence submitted regarding the Willow Field / Ranch in other legal proceedings which the State Engineer's office has been a party, it is my expert opinion that the State Engineer's preliminary order did not adequately confirm the vested claims on Willow Field/ Ranch.

The evidence demonstrates that the main source of irrigation for the Willow Field was the springs and seeps, not Canyon Water, because available evidence shows that there were insufficient water sources in the Canyons to support the amount of growth. As noted for the other ranches, the SCS surveys are likely accurate reflections of the pre-1905 ranching and farming layout of the Willow Field. The aerials contained in the reports and submitted evidence matches the SCS surveys, showing stability over time. Tax records from the late 1800s demonstrate that the Willow Field was used as farming and ranching land. Additionally, the 1922 accounting of assets provided shows that the land was used for farming, and was maintained by springs and diversion networks.

In total, the evidence demonstrates that the vested rights on Willow Field should be confirmed for approximately 133 acres of cultivated land. Additionally, the remaining acreage under the claim is evidenced as being beneficially used for grazing, and consisted of diversified pasture.

The priority should be the same as the Cox Ranch, which as discussed above is supported by evidence to be 1859.

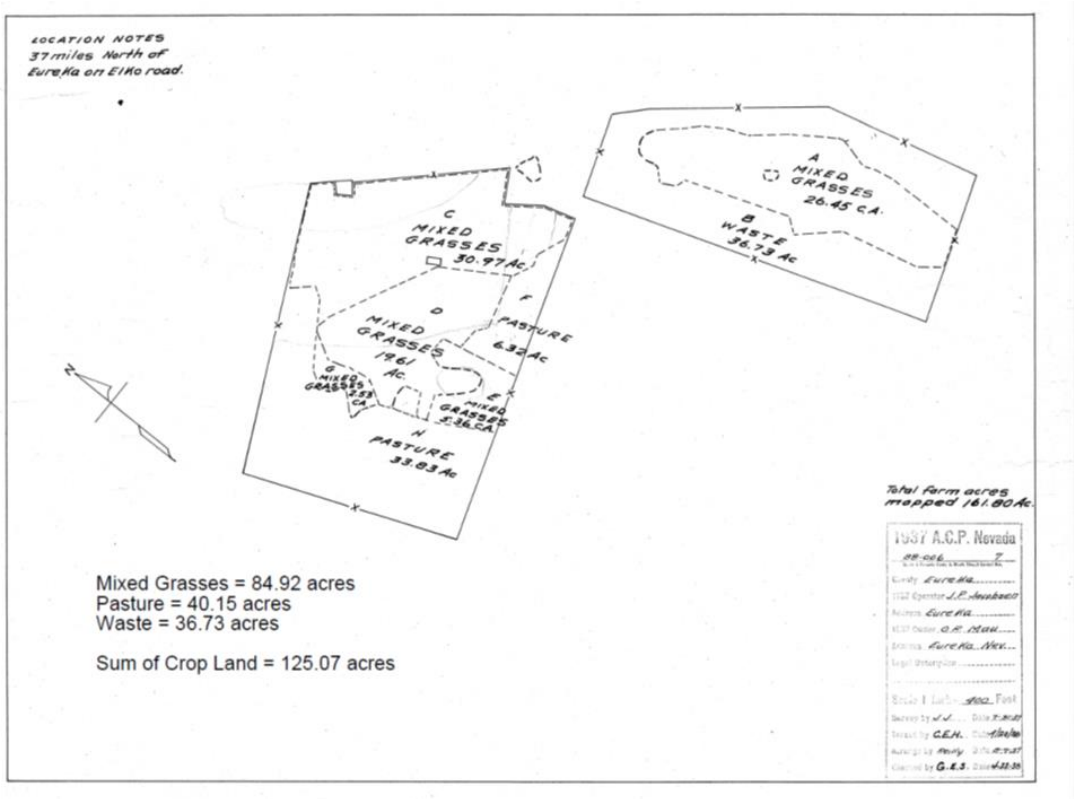
Rock Field Ranch

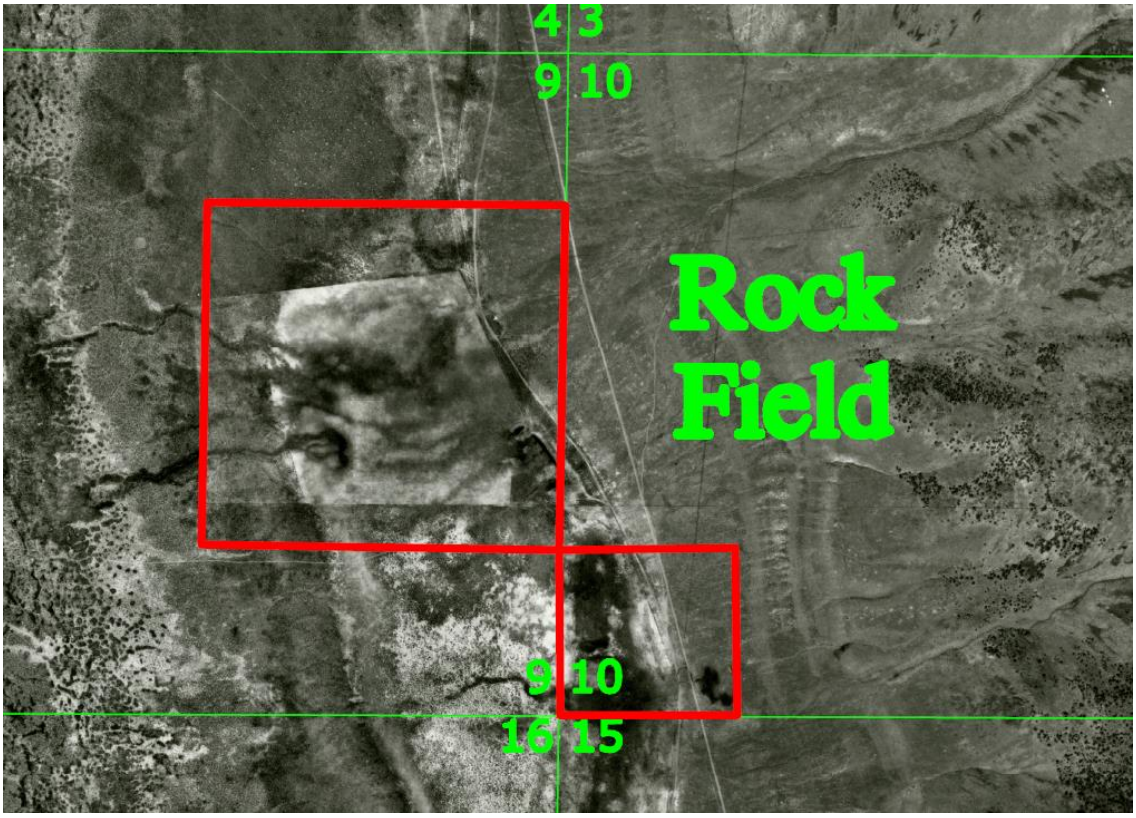
Rock Field Ranch consists of two pasture segments. The most northern field is irrigated from spring water and canyon drainage, and the lower fields are irrigated from local springs. It appears Payne investigated water use in the upper field, but his notes are silent as to the lower fields. In his visit to the upper field, Payne noted that "there is a spring in the field" but it was used for stock only, and "the sole source of water for irrigation, therefore, is derived from Rock Canyon." However, as mentioned above, this observation may have been due to Mr. Payne's unfamiliarity with the irrigation practices in Diamond Valley of trench irrigation.

The Preliminary Order contains several errors as it relates to Rock Field. Notably, on page 148 the preliminary order mistakenly states that "There were no assessment records for the area submitted in support of the claim which could have shed light on agricultural use." Submitted in the abstract of title for the proofs, Exhibit VENT_280, attachment 45, is a tax record that relates to Rock Field, and it is referenced as "farming land" in 1891.

Additional evidence supports that the northern field spring was an improved spring that was used for irrigation. The soil survey maps show an improved spring on the upper ranch irrigating the main field and grasses grown in the lower field. Aerials, especially the higher resolution aerials from 1967, clearly show multiple springs irrigating the fields as claimed. The claimed culture for the springs is meadow hay.

Rock Field/Ranch:





- V10973 (Springs)
  - What did the Proof claim?
    - Priority – 1879
    - Duty
      - 166.64 acres of meadow hay
      - Stockwater and domestic secondary
  - What did the State Engineer accept?
    - None

  - Evidence to prove the claim
    - Irrigation
      - 1879 GLO Plat
      - 1928 Jacobson map filed with the State Engineer shows meadows and Springs
      - Payne Notes
        - described natural grasses that were supported by springs
        - Says land was bought by Jacobson in 1912 but the initial rights date back 30 years or more.
      - Soil survey maps
        - 1937 Show an improved spring on the upper ranch irrigating main field

        - 1942 summary clarifies that waste land was shrub and grass land, consistent with the definition of diversified pasture.
        - Grass grown on lower fields, separate from alfala
        - Aerials show multiple springs irrigating fields
    - Assessments
        - 1891 Crofut was farming land in Sections 10 and 15, being the lower Rock Canyon field
        - "farming land" owned by Crofut
    - Soil Conservation Service indicates – 125 acres
    - 1894 patent contract
    - As Mr. Venturacci recently acquired this property, additional evidence is being research by Ramona Morrison, to be discussed at the hearing
- V01110 (Rock Canyon)
    - What did the Proof claim?
        - Priority - 1895
        - Duty - 21.25 acres of alfalfa
    - What did the State Engineer accept?
        - Priority - 1895
        - Duty – 21.25 acres of alfalfa at 63.75 afa

Conclusions on Rock Field / Ranch

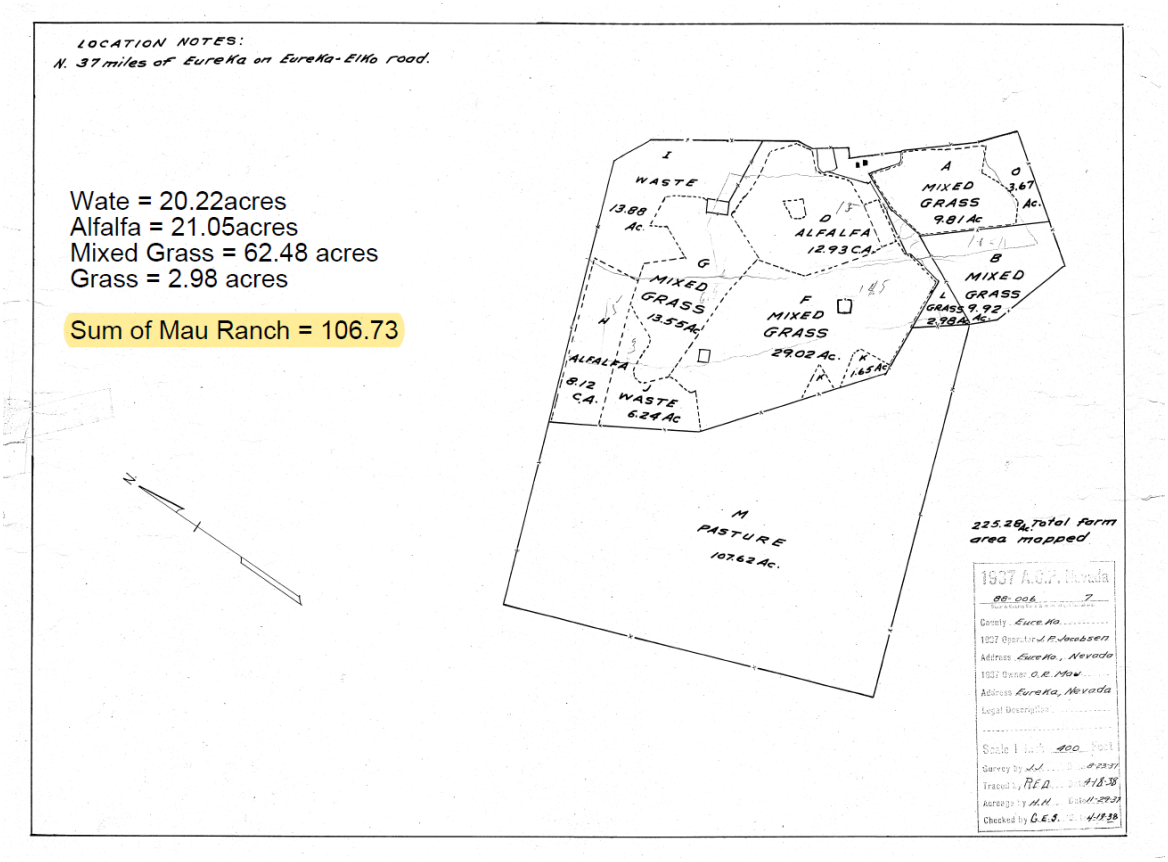
After reviewing all evidence described in this report, as well as the documents on file with the State Engineer's office and evidence submitted regarding the Rock Field / Ranch in other legal proceedings which the State Engineer's office has been a party, it is my expert opinion that the State Engineer's preliminary order did not adequately confirm the vested claims on Willow Field/ Ranch.

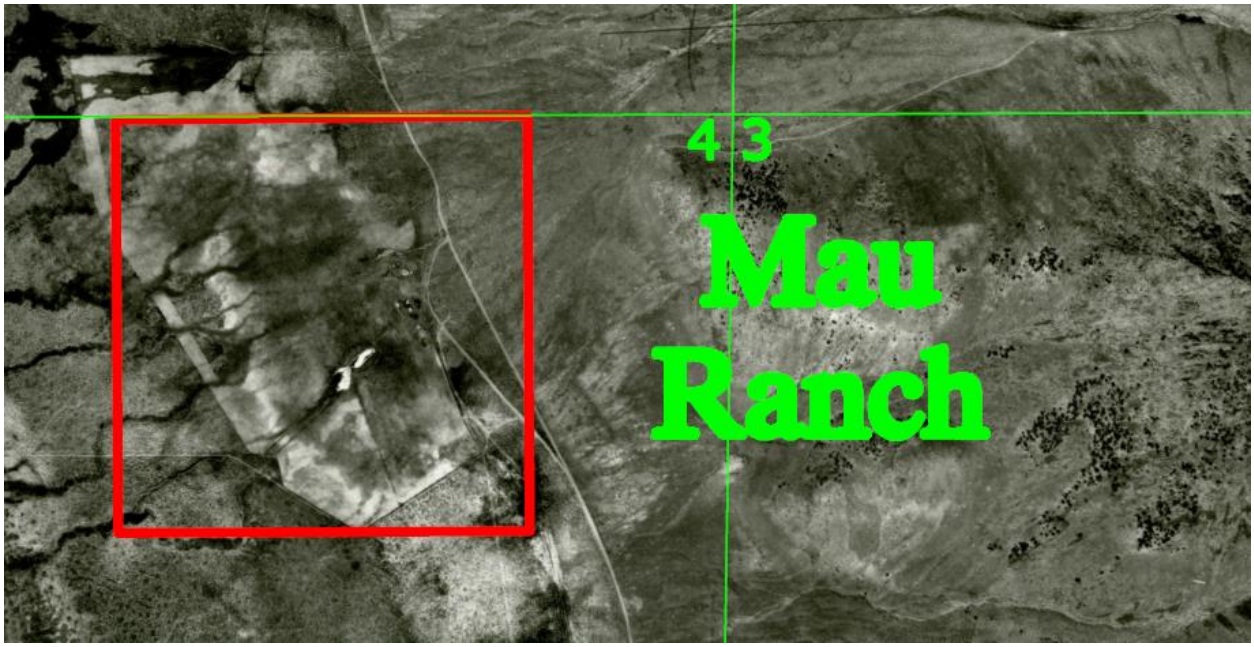
The SCS surveys indicate that the Rock Field ranch was comprised of approximately 125.07 acres of cultivated land. Additionally, the areas defined as "waste land" are actually shrub and grass land consistent with the definition of "diversified pasture." Evidence supports the amount claimed in the proof of 166.64 total acres.

The aerials included in the evidence demonstrate healthy spring sources for this property. As indicated on the late 1800s GLO Plat, the springs that fed Rock Field were good sources of water as the springs would flow through the property for some length. The notes taken by Payne in 1912 indicate 30 acres of irrigated land, but do not include the meadow lands that were naturally irrigated or trenched by nearby spring flow indicated on the GLO Plat and supported by the SCS surveys. Payne also failed to not beneficial uses on land comprising diversified pasture. In total, the vested rights for Rock Field / Ranch should be confirmed for at least 125.07 acres as verified under the 1937 soils map.

Mau Field aka Box Springs Ranch

Mau Field/Ranch:





Again, most of the springs on the Mau Ranch were discounted in the Preliminary Order, because the springs "are not mentioned as a POD for the claim." However, the proof clearly has listed as a point of diversion "additional springs and seeps area located in the place of use." While they were not mapped, since there are many, they were in fact included and referenced as points of diversion. The State Engineer field investigation for the Mau Ranch observed many springs, and dried spring areas, but the preliminary order gave no credit for the springs.

In 1912, Mr. Payne observed some cultivation on the Mau Ranch. The State Engineer impropery interpreted the notes of Mr. Payne. Mr. Payne did not say there was 35 acres of alfalfa and no other water use, as appears to be the interpretation of the Preliminary Order. He said only "the ranch consists of approximately 35 acres of alfalfa" but was silent as to any meadow or pasture or stockwater use.

The culture of alfalfa was enabled once the canyons were used to supply additional water to the land to allow the higher culture. However, based on the tax assessments and historical document, it is clear that prior to the ditches built to supply canyon water to the land, that spring water was utilized to support settlement of the property and to establish ranching operations. The canyon water was used to supplement this activity, not create it.

Other evidence, such as aerials and maps by water surveyors, and even the State field investigation, shows the springs are present on the private property of Box Springs Ranch. It is unreasonable to believe the springs were there and overflowing in 1967 but not in 1912, or that ranchers would not use water on their land, especially when the canyon water is noted as being very sporadic and unreliable.

See Exhibit VENT_259. **Andrew D. Crofut: Diamond Valley Dust, speaking about the Box Springs Ranch, aka Mau Ranch:**

"It consisted of three log rooms, quite well built of logs which were hewn and well fitted. Ouderkirke had built a large living room just to the north, which connected to the log house. This was about fourteen or sixteen by eighteen feet. It was made like a stockade. It had been homesteaded land and consisted of about a hundred acres of meadow and pastureland. There was also a spring just below the house."(bates 1895)

"*As I have told you before, our place was the Box Springs ranch, and the name Box Springs came from the fact that the original owners, perhaps before Nels Ouderkirke, had put a box, a wooden box, in the spring which was perhaps three hundred feet below the house, to the west of the house…… Water ran on down then, below, for quite a distance. But when Father came, he and my stepfather got a slip, which was a scraper, with a team of horses, and scraped out a section of the water away below the spring and piled it up across the low place and made a dam. And that way, why, it served as a sort of a pond to hold the water back. They also made a gate to put in the dam itself, so they could open it up and let the water down, down below to irrigate the garden which we had down in the field below that."* (bates 1896-1897)

- V10972 (Springs)
  - What did the Proof claim?
    - Priority – 1879
    - Duty
      - 115 acres of hay, meadow
      - Stock water secondary
  - What did the State Engineer accept?
    - Priority – 1879
    - Duty – stock water only, 112 cattle and horses
  - Evidence to prove the claim
    - Irrigation
      - Tax assessments
        - Farming land prior to canyon water
        - 1894 tax assessment shows haying tools
      - 1967 Aerials show springs with ditches running
      - Literature
        - Diamond Valley Dust says there was one hundred acres of meadow and pastureland in 1881, as noted above
      - 1937 soil surveys show fields based on springs and 106.73 acres of irrigation.
      - Again as referenced in the 1942 soils report, wasteland was land that falls under the definition of diversified pasture.
      - Water rights maps on file with the State Engineer of certificates show springs existing in the area
      - Payne notes "vegetable garden"

- V01111 (Box Springs Canyon Creek)
  - What did the Proof claim?
    - Priority – 1892
    - Duty – 36 acres of alfalfa, grain, garden
  - What did the State Engineer accept?
    - Priority - 1892
    - Duty – 36 acres at 108 af/s from April 1 to June 15,
  - Evidence to prove the claim
    - Irrigation
      - 1894 tax assessment shows haying tools
      - Ditch built in 1892

- See also Exhibit VENT_151, 1882 assessment roll, track of farming land known as Box Springs Ranch. *See also* Exhibits VENT_156, 160, 163, 166, 169, 172.

- Place was bought from Nels Ouderkirke, see quote above from Exhibit VENT_259, bates 1895, reference to a spring below the house, a hundred acres of meadow and pastureland. The person talking was born there in 1889. THIS ACREAGE CLOSELY MATCHES THE 115 acres claimed.

Conclusion on Box Spring Ranch

After reviewing all evidence described in this report, as well as the documents on file with the State Engineer's office and evidence submitted regarding the Box Spring Ranch in other legal proceedings which the State Engineer's office has been a party, it is my expert opinion that the State Engineer's preliminary order did not adequately confirm the vested claims on Box Spring Ranch.

The evidence submitted indicates that the Box Spring Ranch was used for both farming and ranching. The tax assessments from the late 1800s demonstrate that the owners had cattle on the land, as well as owned haying tools for farming the land pre-1905. Additionally, literature demonstrates that the Box Spring Ranch was approximately 100 acres in size in the 1880s. Payne's notes state that there was at least 35 acres of alfalfa being irrigated on the Box Spring Ranch, but likely do not include the meadows and hay that were being cultivated by various water sources on the ranch.

The soils report indicates alfalfa crops similar to the observations of Payne, but also include the irrigated pasture and meadowland. The two sources of evidence are support each other, and are not inconsistent. All evidence supports that at least 106.73 acres was irrigated and that the spring water was beneficially used prior to 1905 on the Mau Ranch.

Stockwater Vested Claims:

The use of the springs were first initiated in 1859 for use of the Overland Mail Co., the following is a list of the springs and their respective duties, which is a compilation of all of the tax records for the various ranches owned by the Taft, Toft, Cox, Dibble and Crofut family:

Source Description	App	Src	Qtr-Qtr	Qtr	Sec	Twn	Rng
PEETE SPRINGS	V01319	SPR	SE	NW	31	24N	55E
TELEGRAPH SPRING IMPOUNDMENT	V10990	RES	SE	NW	31	24N	55E
TOFT SPRING	V01521	SPR	NE	SW	13	23N	54E
DAVIS CANYON CREEK	V01596	STR	SE	SE	23	25N	54E
DIAMOND VALLEY SPRING #3	V10974	SPR	NE	SE	8	23N	54E
HORSE CANYON SPRINGS	V10975	SPR	NE	SE	12	23N	54E
HORSE CANYON SPRING 2	V10976	SPR	SE	NE	12	23N	54E
HORSE CANYON SPRING 3	V10977	SPR	NE	SW	6	23N	55E
HORSE CANYON SPRING 4	V10978	SPR	NE	NE	12	23N	54E
HORSE CANYON CREEK TRIBUTARY SPRINGS	V10979	SPR	SW	NE	12	23N	54E
HORSE CANYON CREEK RESERVOIR	V10980	RES	NW	SW	12	23N	54E
SOUTH HORSE CANYON SPRING	V10981	SPR	NW	NW	7	23N	55E
THREE SPRINGS CANYON SPRINGS	V10982	SPR	SE	SW	13	23N	54E
JUDD CANYON STOCK SPRING	V10983	SPR	NW	NE	25	24N	54E
JUDD CANYON SPRING 1	V10984	SPR	NW	SW	24	24N	54E

COX CANYON SPRING	V10985	SPR	NE	NE	36	24N	54E
COX CANYON SPRING 2	V10986	SPR	NE	NE	36	24N	54E
NORTH COX SPRING 4000	V10987	SPR	NW	SE	34	24N	54E
WILLOW CANYON SPRING 2	V10988	SPR	SW	NW	22	24N	54E
TELEGRAPH SPRING POND	V10989	SPR	SW	NW	32	24N	55E
DIAMOND SPRINGS 1	V10991	SPR	SW	SE	27	24N	54E
DIAMOND VALLEY SPRING 2	V10992	SPR	SW	SE	20	24N	54E
DIAMOND VALLEY SPRING 4	V10993	SPR	NE	NW	7	23N	54E
DIAMOND VALLEY SPRING 5	V10994	SPR	NE	SW	12	23N	53E
DIAMOND VALLEY SPRING 7	V10995	SPR	SE	NW	11	23N	53E
DIAMOND VALLEY SPRING 8	V10996	SPR	SW	NW	34	24N	54E
DIAMOND VALLEY SPRING 9	V10997	SPR	NW	NW	22	24N	54E
WILLOW CREEK	V10998	STR	SW	NW	14	24N	54E
ROCK CANYON SPRING	V10999	SPR	SW	SE	2	24N	54E
FOUR MILE CANYON POND	V11000	RES	NE	NE	9	24N	54E
CARBONATE SPRING	V11001	SPR	NW	SW	10	24N	54E
WILLOW CANYON SPRING	V11002	SPR	SW	NW	13	24N	54E
BOX CANYON SPRINGS	V11003	SPR	NE	SW	35	25N	54E

BOX CANYON SPRING 2	V11004	SPR	NE	SE	2	24N	54E
BOX CANYON SPRING 1	V11005	SPR	NE	SE	35	25N	54E
CROFUT SPRING	V01320	SPR	SW	NE	36	25N	54E
BOX CANYON SPRING 1	V11006	SPR	SE	SW	34	25N	54E
BOX CANYON SPRING 2	V11007	SPR	SW	NE	1	24N	54E
BOX CANYON SPRING 2	V11008	SPR	SW	NW	36	25N	54E
BOX CANYON SPRING 3	V11009	SPR	SW	NW	36	25N	54E
DAVIS CANYON SPRING	V11010	SPR	NE	SE	26	25N	54E
N. DAVIS CANYON SPRING 1	V11011	SPR	NE	SW	23	25N	54E
ETCHEMENDY SPRING 5	V11025	SPR	NE	SW	23	25N	54E
N. DAVIS CANYON SPRING 2	V11012	SPR	NE	SW	23	25N	54E
ETCHEMENDY SPRING 4	V11013	SPR	NE	SW	12	25N	54E
ETCHEMENDY SPRING 4	V11024	SPR	NE	SW	12	25N	54E
	V11014	SPR	NE	NE	9	25N	54E
FOUR MILE CANYON SPRING 4	V11015	SPR	SW	SW	12	25N	54E
FOUR MILE CANYON SPRING 5	V11016	SPR	NW	NW	13	25N	54E
FIVE MILE CANYON SPRING 1	V11017	SPR	NW	NW	14	25N	54E
FIVE MILE CANYON SPRING 2	V11018	SPR	SW	NW	14	25N	54E

TAFT CANYON SPRING	V11019	SPR	SE	NW	36	26N	54E
COTTONWOOD SPRING	V11020	SPR	SW	SW	1	23N	54E
ETCHEMENDY SPRING 1	V11021	SPR	NE	SE	11	25N	54E
ETCHEMENDY SPRING 2	V11022	SPR	NW	SW	12	25N	54E
ETCHEMENDY SPRING 3	V11023	SPR	NE	SW	12	25N	54E
ETCHEMENDY SPRING 6	V11026	SPR	SE	NW	26	25N	54E
ETCHEMENDY SPRING 7 AND 8	V11027	SPR	NE	SE	26	25N	54E
ETCHEMENDY SPRING 9	V11028	SPR	SE	SE	26	25N	54E
ETCHEMENDY SPRING 10	V11029	SPR	SW	SW	25	25N	54E

Tax records indicate that the vested rights for stockwater should have been issued far above the what was listed in the State Engineer's Preliminary Order. These records suggest that prior to 1905, the combined stock based on tax records of the multiple owners of the various ranches in question would run approximately 600 cattle, horses, mules, and other livestock.

Note: the tax records for this time period are incomplete, and only show a few of the owners of the ranches. The tax records from White Pine for this time period were destroyed in a fire. Not all owners in this time period had tax records in evidence. But at a minimum, the Preliminary Order number should be increased from 275 animals to 600 animals, with a priority of 1859

Additionally, other early water rights filed on these ranches indicate a much higher volume of stockwater use in the area.

Other water rights:
Permit 6914, filed 1923: certificate 1147: 4000 sheep (4000 sheep is equivalent of 800 cows)
Permit 7982, filed 1927: certificate 1885: 2000 sheep
Permit 8274, filed 1927: certificate: 4000 sheep
(other water rights certificated and now owned by Venturacci from this time period use same number of sheep, 2000 to 4000 sheep, and is the equivalent of 400 to 800 cows)

Other comments on Stockwater Proof Findings:

1. The Preliminary Order used the wrong priority. See above discussion on evidence for priority. Also, discussion in the preliminary order already recognized the priority was at least as early as the 1880s based on evidence, but in the conclusion the State used dates from 1894 to 1901 as the priority date.
    - V01319, the proof stated that the pipe was put in in 1901, not that it was first used in 1901.
2. The Preliminary Order rejected claims because deficiencies in map or proof.
    a. V01596 was rejected because a missing map. NRS has a procedure if such a thing occurs: notice to claimant and opportunity to amend, not rejection without notice. See NRS 533.125. Venturacci requests the ability to remedy the missing map by being allows to amend the proof.
    b. This same concept applies to springs that the field investigators could not find. Likely the reason they could not find the springs is mistakes on the field investigation, or possibly a mapping error or typo
        i. State Engineer rejected claims where they could not find the source:
            1. V11000: Four Mile Canyon Pond
            2. V10985: Cox Canyon Spring
            3. V10984: Judd Canyon Spring 1

3. The Preliminary Order improperly rejected claims as duplicates:

- V01319 and V10990
  Both vested claims appear to be in the same section but not necessarily the same part of that section. Also, V010990 was not filed for the same time period, etc., as V01319 and should not have been rejected as a duplicate.
- V01320 is not a duplicate of Proofs V11055, 11008, 11009.
- V11025 and V11011 are two separate spring sources but are near eachother, and were improperly concluded to be duplicate filings.

BLM Claims Should have been denied

Venturacci objects to Proofs R-04271 and R04277 filed by the BLM on Rock Springs and Box Springs, which are subject to vested rights on Box Springs Ranch and Rock Creek Ranch. All springs that discharge within the water sheds of those ephemeral creeks that supply water to the Venturacci ranches are fully appropriated for use on those ranches.

RELATION BACK

Water initiated by applying water to beneficial use prior to March 1, 1905, and which have been perpetually used through the years are known as vested rights.

Law of "related back" –established by the Nevada Supreme Court which relates to cases prior to the establishment of water law. The Doctrine of Relation states that the priority of an appropriation states that an appropriator had to proceed with the appropriation and place the water to beneficial use within a reasonable time period consistent with the magnitude of the project. This doctrine is recognized by the State Engineer as noted on page 8 of SUMMARY OF STATUTORY PROCEDURES FOR FILING CLAIMS OF VESTED RIGHTS, MAKING APPLICATION FOR A WATER RIGHT AND A SUMMARY OF FEES OF THE STATE ENGINEER, revised April 2018. This doctrine is also reflected in water law as referenced in NRS 533.010(2), wherein in changes to existing use retain the priority of the original appropriation.

Additional Discussion of the Payne Field Notes and Adjudication of V-01115:

"A little less than a mile from Taft Spings, is a ranch owned by W.F. Cox, Cox's Ranch derives its water for irrigation from four canyons, namely Road, Neil, Judd and Jackler Canyons. The latter three, however seldom flow enough water to benefit Mr. Cox materially, although Road Canyon will flow some water from April 1st to May 15th, the maximum at this time being about 1.5 sec ft. it is used to irrigate 8 acres of alfalfa, lying in two separate pieces. This ranch has a vested right. The lands already mentioned is all that is irrigated, but in addition there is 60 or 70 acres of natural meadow, upon which Mr. Cox cuts hay ever year. There must be water very close to the surface in this vicinity, as I noticed a number of small springs in the field, beneficial however, only for stock use."

H. Payne conducted several field visits in the fall of 1912. While this evidence is some proof of vested use, it is not the sole proof of beneficial use. Sole reliance on Payne's investigation and the adjudication process prior to 1913 was determined to be unconstitutional in *Ormsby*. The State Engineer must rely on all evidence on record, and cannot arbitrarily reject or ignore evidence supporting the proofs of appropriation.

The irrigation act of 1903, all natural water courses so appropriated would be appurtenant to the land to be irrigated, and beneficial use would be the basis, the measure and the limit of the water right. The Act of 1903 provided for the adjudication of all rights to the use of water which had become vested, or were then in process of initiation by the physical act of appropriation did not provide for rights which would be initiated later. The act of 1903 would allow a notice to be posted at the proposed point of diversion, or the diversion could be made without notice. In 1905 this act was amended requiring any person to file an application for permission to appropriate water. In

1907 the 1903 acts and the 1905 acts were repealed. The Act of 1921 clarified wording of the Statues of 1913 which the Nevada Supreme Court had declared unconstitutional. These provisions related to the adjudication procedures. *The distribution of waters by the State Engineer shall at all times be under the supervision and control of the District Court, and said officers of the Court in distributing water under and pursuant to the Order of Determination or under and pursuant to the decree of the Court."*

In the State Engineers Water Term "dictionary" Irrigation is defined as: *Supplying land with water by causing a stream to flow upon, over, or through it, as in artificial channels."* The USGS describes water use as; "***irrigation****--the controlled application of water for agricultural purposes through manmade systems to supply water requirements not satisfied by rainfall."* and "***irrigation water use****--water application on lands to assist in the growing of crops and pastures or to maintain vegetative growth in recreational lands, such as parks and golf courses."*
From the state engineer's dictionary, beneficial use is defined per the following:

> *The use of water for any beneficial purpose. Such uses include domestic use, irrigation, recreation, fish and wildlife, fire protection, navigation, power, industrial use, etc.*

Storage of water should also be placed within this provision.

At the time Payne visited there was one proof on file for Rock Canyon for Mau. The reason Jacobsen filed on the canyon is that there were competing interests in the canyon and he wanted to assert his ownership. Reasonably, he was not as concerned on the springs on his private property and did not necessarily see a need to file on them at the time.

Payne did not say there were 35 acres of alfalfa and no other water use, as appears to be the interpretation of the Preliminary Order. He said only "the ranch consists of approximately 35 acres of alfalfa" but was silent as to any meadow or pasture or stockwater use. Supplied in the record is evidence of such use. The Purpose of Payne's visit was to investigate "some" water use in Eureka, and not "all" water uses, and it was not to finally determine the full extent of all vested rights in the area. Payne was investigating the proof on file at the time, Proof V01111, which was referencing 36 acres of alfalfa irrigated from the canyon water. It was not an investigation to determine the entirety of vested water use on the ranch.

Notably, though, Payne's investigation is not contrary to the other evidence supplied. It aids support for the claim of 35 acres of culture, but in no way is evidence against the meadow and pasture use also claimed in the proofs filed before the State Engineer. Evidence supports that prior to the water imported from the canyons, being Rock Canyon prior to 1905 and Davis Canyon after 1905, that the springs supplied sufficient water to sustain approximately 115 acres of meadow hay as referenced in Proof V10972. The culture of alfalfa was enabled once the canyons were used to supply additional water to the land to allow the higher culture. However, based on the tax assessments and historical document, it is clear that prior to the ditches built to supply canyon water to the land, that spring water was utilized to support settlement of the property and to establish ranching operations. The canyon water was used to supplement this activity, not create it.

Other evidence, such as aerials and maps by water surveyors, and even the State field investigation, shows the springs are present on the private property of Box Springs Ranch. It is unreasonable to believe the springs were there and overflowing in 1967 but not in 1912, or that ranchers would not use water on their land, especially when the canyon water is noted as being very sporadic and unreliable.

Also, Payne visited 10/14/1912, after the end of the irrigation season. This is just one moment in time, and is not sufficient to discount the volumes of additional information that support the full claim of the proof.

Rock Canyon Ranch consists of two pasture segments. The most northern field is irrigated from spring water and canyon drainage, and the lower fields are irrigated from local springs. It appears Payne investigated water use in the upper field, but his notes are silent as to the lower fields. In his visit to the upper field, Payne noted that "there is a spring in the field" but it was used for stock only, and "the sole source of water for irrigation, therefore, is derived from Rock Canyon." (See discussion of the definition of "irrigation" above, that growing natural meadows and pasture might not have been in his definition of "irrigation" but where still beneficial uses Also, he might not have known the common use in Diamond Valley of trench irrigation on the five ranches.) Again, the visit was one point in time, and in the fall, after natural discharge would have slowed in certain springs. Additionally, as seen in other ranches, like the Scott Ranch on the other side of the basin, it was customary to levee or dam springs in the non-irrigation seasons to build up a head of water that could irrigate in the spring when the dam or levee was breached to apply the water to the field. If such a similar practice was used here, there would be no evidence that the spring was irrigating as its waters would have been held back at the time of the visit. The proof on file in 1912 was only filed for a small field in the upper ranch area, and nothing was said about the lower ranch fields.

Additional evidence supports that the northern field spring was an improved spring that was used for irrigation. The soil survey maps show an improved spring on the upper ranch irrigating the main field and grasses grown in the lower field. Aerials, especially the higher resolution aerials from 1967, clearly show multiple springs irrigating the fields as claimed. The claimed culture for the springs is meadow hay. This would not have been included in the reference to culture or alfalfa from Payne relating to the creek water.

Also, the fenced portion of Cox ranch at the time Payne visited was the area around the springs, possibly to keep the cattle out for haying and to keep them out of the springs. The surrounding land is pasture and gazing land. It is reasonable that one would only note the use on the fenced parcel and not note the use of surrounding meadow and pasture

Also, in his notes, Mr. Payne was only discussing the areas where visible diversion of water was taking place, and crops were being cultivated, but made no mention of the remaining portion of the ranch. This is further referenced by Mr. Payne on page 12/18 by stating that there is natural meadow that is harvested but "is not irrigated".

Discussion concerning field visit and Spring Flows:

1. Water measurement occurred in October of 1912, long after discharge from Taft Springs;
2. Payne did not look for other spring sources in the field nor did he note similar conditions on the Toft Ranch as he did on the Cox ranch even though the same conditions occurred;
3. The previous years of 1910, 1911 were below average flow years whereas 1912 was an above average flow year with three periods of time analogous to large precipitation events occurring in March, July and October of that year. These large precipitation months would most likely coincide with large discharge events during those months:

1910	0.71		0.52		0.81		0.53		0.65		0.02		2.62		0.54		1.15		0.7		0.58		0.63		9.46
1911	1.49		1.3		1.27		1.35		1.01		1.63		0.5		0		1.2		0.65		0.18		0.77	z	10.58
1912	0.72		0.13		4.05		2.33		0.8		0.79	y	3.38		0.53		0.65		4.08	x	0.87		0.69		14.15

See Exhibit VENT_288

4. Normal production in the area in that period of time was approximately ½ ton of hay per acre; this production rate would require 300 acres of land/meadow.

5. Payne notes that this ranch holds a vested right ***and*** is irrigated by Taft Springs and Horse Canyon, which has Proofs of Appropriation filed under V-01114 and V-01115. This wording indicates that the Proofs were filed and there are other vested rights.

6. The Spring discharge fluctuates and Payne was wrong about his assumption made on the field inspection.

7. The measurement made by Payne represents the only measurement made on the springs from 1912 to 1965, over 53 years no measurements were taken on the springs.

8. Precipitation years of 1913, 1914, 1917, 1918, 1939, 1940, 1941, 1967, 1968, 1969, 1970, 1971, 1975, 1976, 1977, 1978, and 1980 would be higher years of precipitation which would lead to larger rates of discharge from the springs. Taft Springs are both discharges from precipitation and base flow from a deep circulating source. From 1967 to date the springs have been highly impacted due to over pumping within the eastern south side from early periods of pumping due to the initial permits in Diamond Valley being issued in an area that would interrupt and impact the groundwater table located at Taft Springs and thereby impact the groundwater levels around the springs due to the lowering of the groundwater table.

9. The water right for the Taft Springs correlate well to a base flow rate (2.0 cfs from the deep circulating source of water) and the amount of water available from precipitation. The quandary with this method is that all of the measurements from 1965 on have been impacted by pumping by wells in close proximity to the springs and the overall pumping within the groundwater basin. Due to this issue the water rights are known to have existed in 1879 by the depiction of the meadow area and the development of the water right as acquired by Mrs. Gardner from Jacobsen and as depicted on the SCS maps in 1937.

Therefore, the state must do "reverse engineering" to determine the amount of water that was consumed by the meadows and other field areas as shown on the 1937 SCS maps.

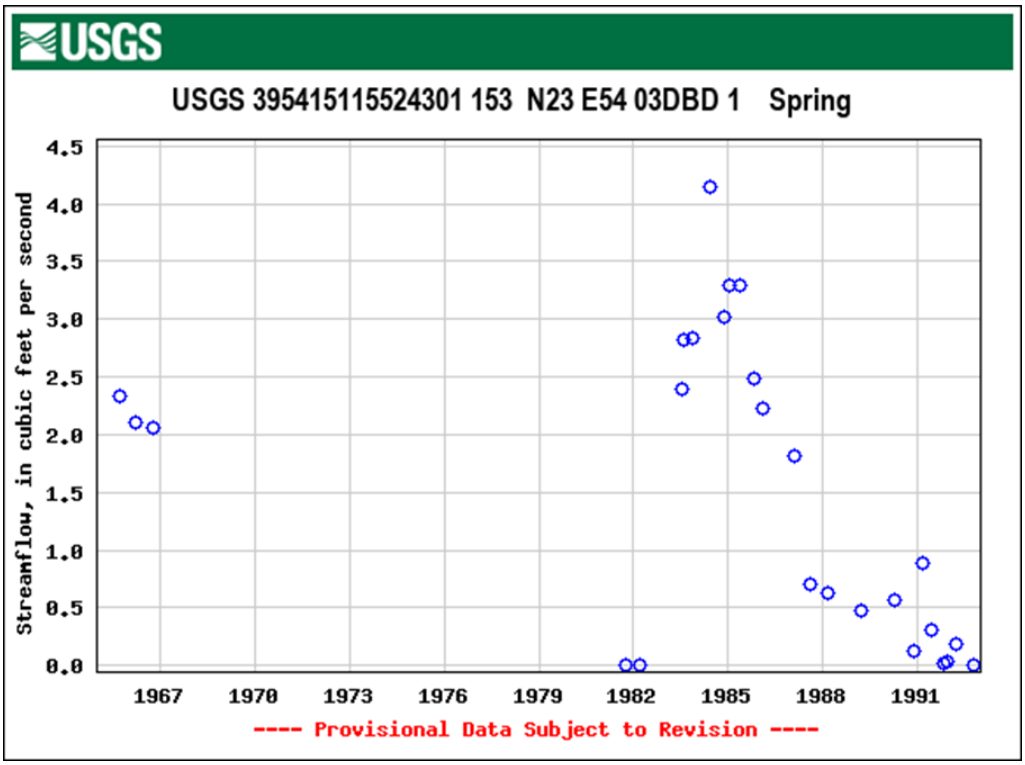
The base flow of the spring was totally gone on the reading made in 1982; the flow measurements from then on were representative of diminished groundwater tables and are representative of high recharge years from precipitation. The flow of the springs should be commensurate with the base flow (diminished year 1965 2.23 cfs) plus the high year of 4.15 cfs in the highest year (which also reflects a highly impacted spring discharge), combined the flow rate must be equal to **6.38 cfs** of sufficient water to irrigate the 1,274.06 acres on the home ranch and the total acreage between all ranches equivalent to at least **1,721.06** for all the ranches subject of this hearing.

10. Since the State Engineer used a Consumptive Duty of 3 acre feet per acre, water should be issued at a minimum for 5,133.18 acre feet, this would provide a constant diversion rate of 15 cfs to be split on a pro-rata basis between all of the ranches. (see table on estimate of pumping by the State Engineer and the USGS found later in this report). However, as demonstrated with the data in this report, the duty should be 4 af/ac, consistent with the evidence and prior practices of the State Engineer in Diamond Valley.

State Engineer used the flow data from a Memo from Jim Harrill, USGS (Exhibit VENT_241):

N23 E54 03DBD 1	395415115524301	THOMPSON RANCH SPRING	09-21-1965	1000.	S	C
		--	04-01-1966	900.	S	C
		--	10-19-1966	900.	S	C

All of the measurements from the springs were taken after the discharge cycle ended and should be recognized as base flow (See Exhibit VENT_287 and VENT_239).

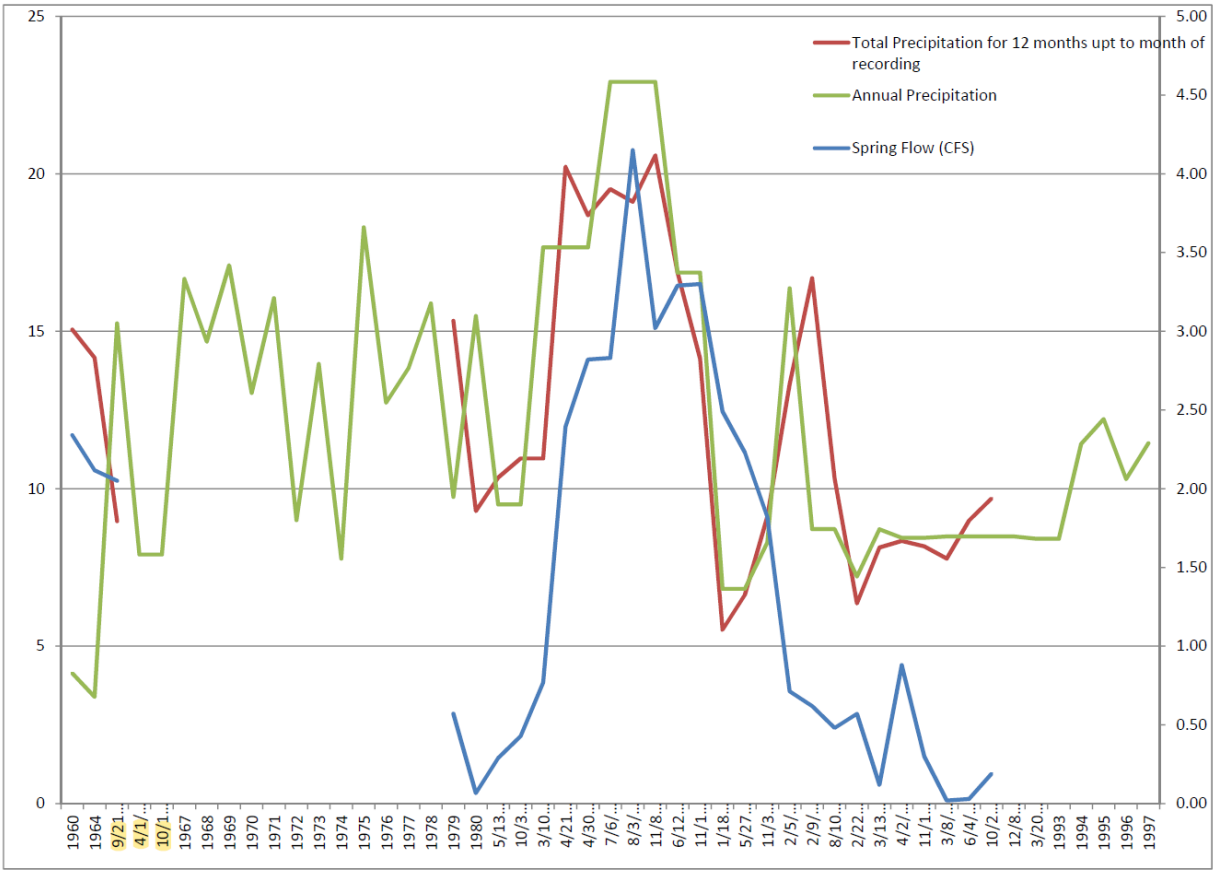


See Exhibit VENT_245

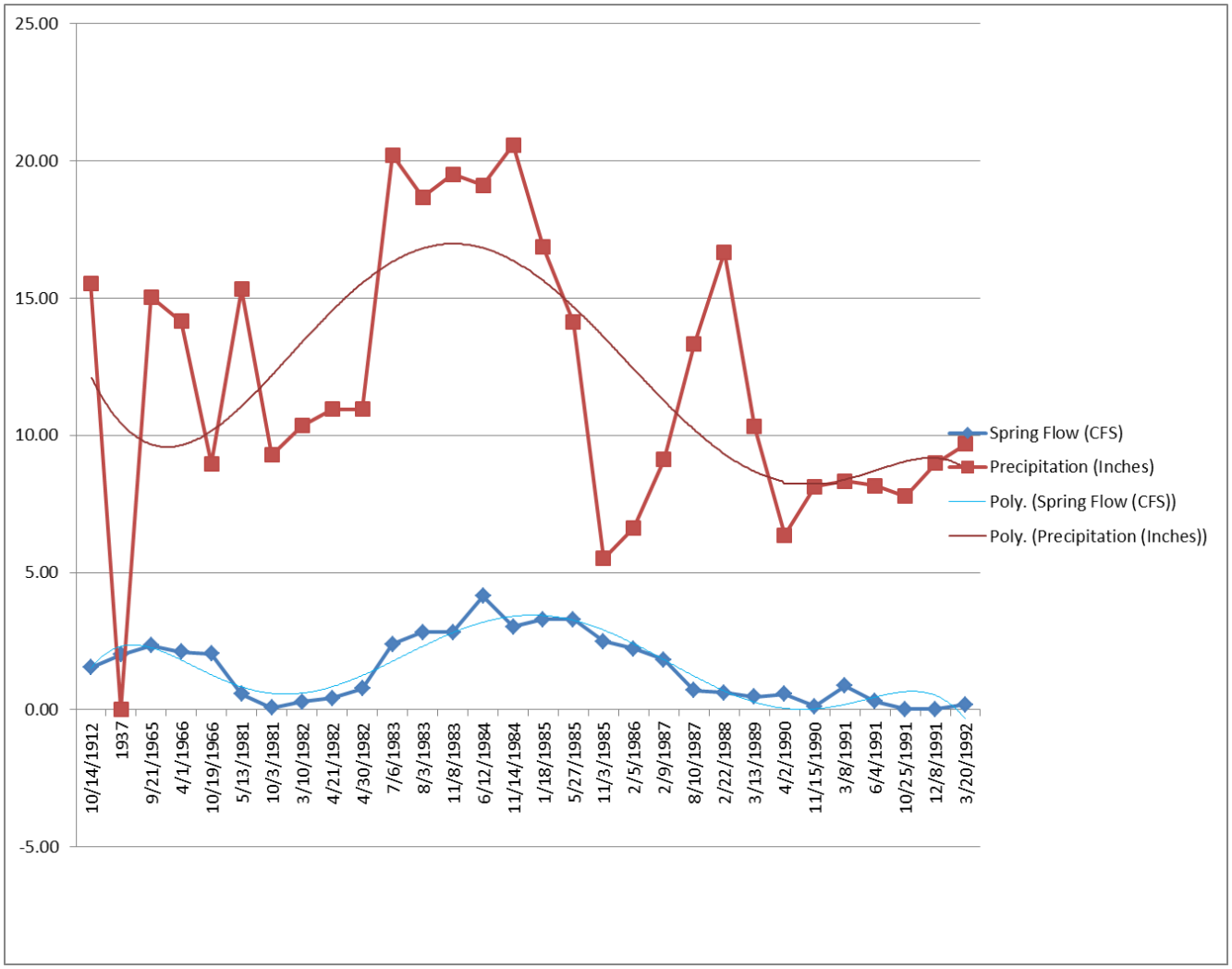
Taft/Thompson/Jacobson Springs - Measured Flow Data

Date of Measurement	Measured		Reference & Comments
	GPM	CFS	
10/14/1912	691	1.54	DWR 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 reservior. Small Spring flows 0.25 cfs and Large Spring
1937	900	2.01	USGS 1937 Thermal Springs Report No. 679-B / Referred to as Jacobson Ranch Springs. Jorgen P. Jacobsen was conveyed ownership on March 6, 1924.
9/21/1965	1050	2.34	James R. Harrill Memo to File - USGS - Dated March 15, 1982
4/1/1966	950	2.12	James R. Harrill Memo to File - USGS - Dated March 15, 1982
10/19/1966	920	2.05	James R. Harrill Memo to File - USGS - Dated March 15, 1982
5/13/1981	256	0.57	Division of Water Resources Current Meter Notes Located in Claim File V01114
10/3/1981	30	0.07	James R. Harrill Memo to File - USGS - Dated March 15, 1982
3/10/1982	130	0.29	James R. Harrill Memo to File - USGS - Dated March 15, 1982
4/21/1982	192	0.43	Division of Water Resources Current Meter Notes Located in Claim File V01114
4/30/1982	345	0.77	Division of Water Resources Current Meter Notes Located in Claim File V01114
7/6/1983	1073	2.39	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
8/3/1983	1266	2.82	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/8/1983	1270	2.83	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
6/12/1984	1863	4.15	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/14/1984	1355	3.02	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
1/18/1985	1477	3.29	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
5/27/1985	1481	3.30	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/3/1985	1118	2.49	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
2/5/1986	1001	2.23	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
2/9/1987	817	1.82	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
8/10/1987	320	0.713	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
2/22/1988	278	0.620	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
3/13/1989	215	0.480	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
4/2/1990	256	0.570	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/15/1990	54	0.120	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
3/8/1991	395	0.880	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
6/4/1991	135	0.300	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
10/25/1991	9	0.020	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
12/8/1991	13	0.030	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
3/20/1992	85	0.190	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring

The months preceding the measurements indicate precipitation measurements below average precipitation both for the annual precipitation and the 12 months prior to the meter readings:



See VENT_288


25.00
20.00
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10/14/1912
1937
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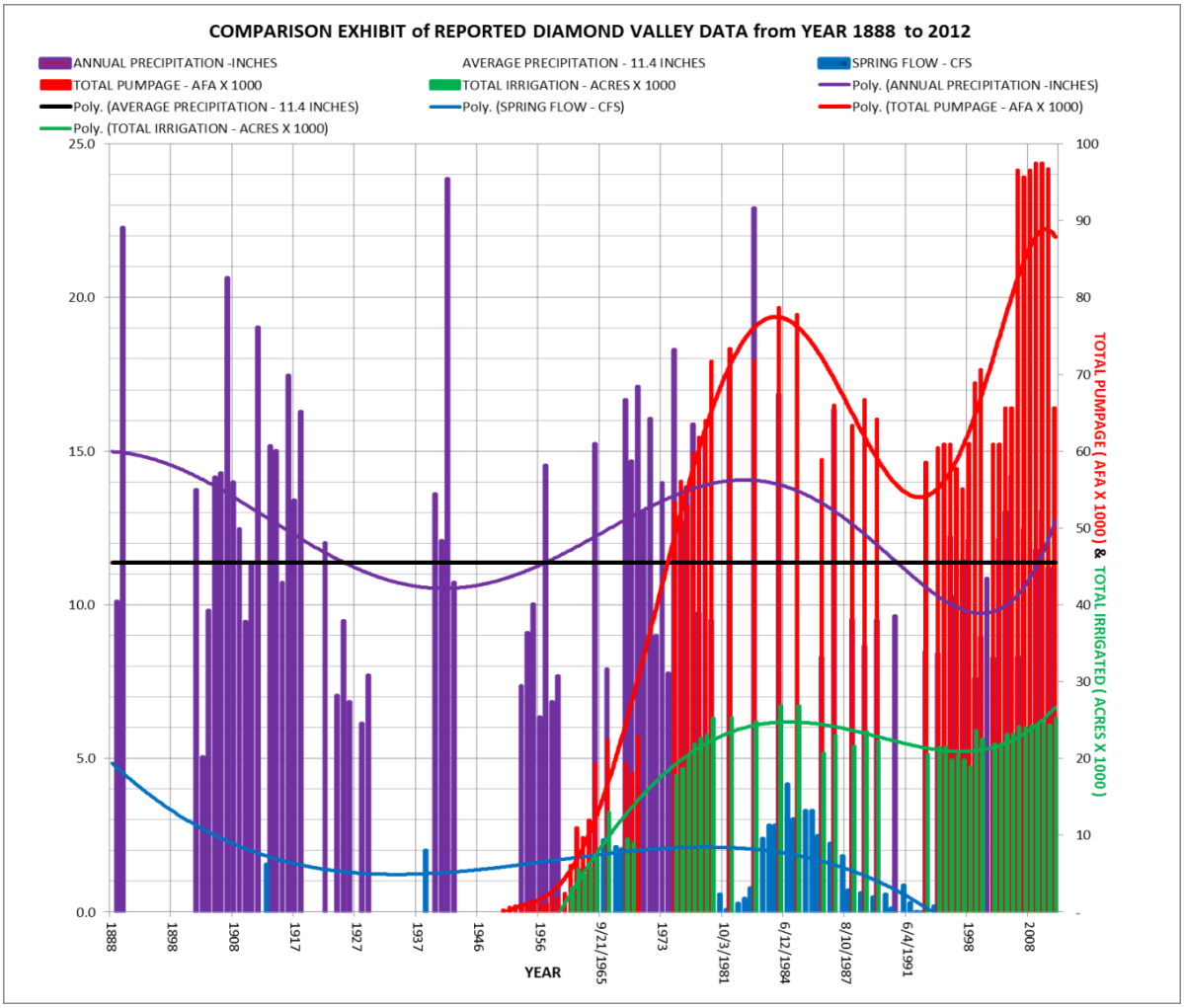
4/21/1982
4/30/1982
7/6/1983
8/3/1983
11/8/1983
6/12/1984
11/14/1984
1/18/1985
5/27/1985
11/3/1985
2/5/1986
2/9/1987
8/10/1987
2/22/1988
3/13/1989
4/2/1990
11/15/1990
3/8/1991
6/4/1991
10/25/1991
12/8/1991
3/20/1992
Spring Flow (CFS)
Precipitation (Inches)
Poly. (Spring Flow (CFS))
Poly. (Precipitation (Inches))

See VENT_242

USGS & DWR Diamond Valley Total Pumpage and Irrigation by Year				
Year	Total Pumpage	Total Irrigation	Active Wells	Wells Visited
1950	300			
1951	600			
1952	800			
1953	800			
1954	800			
1955	1,000			
1956	1,000			
1957	1,180			
1958	1,854			
1959	1,800			
1960	2,400			
1961	6,100	3,200	--	--
1962	11,000	5,600	--	--
1963	9,700	4,800	--	--
1964	12,000	5,740	--	--
1965	19,300	7,600	75	281
1966	22,400	13,000	75	
1967	19,360	9,500		
1968	18,160	9,000		
1969	22,900			
1970				
1971				
1972				
1973				
1974				
1975	53,388	17,796	125	228
1976	56,151	18,717	137	232
1977	52,956	19,988	143	233
1978	59,760	21,855	164	233
1979	61,839	22,583	172	234
1980	64,035	23,055	187	240
1981	71,745	25,279	183	238
1982	73,336	25,305	180	242
1983	71,857	24,812	188	243
1984	78,730	26,844	189	248
1985	77,848	26,844	189	248
1986	58,883	20,656	174	249
1987	66,028	22,966	166	249
1988	63,356	21,569	163	249
1989	66,734	23,485	168	239
1990	64,210	22,235	158	291
1991				
1992	58,585	20,640		
1993	60,478	21,421		
1994	60,883	21,556		
1995	60,883	19,750		
1996	57,779	20,413		
1997	55,140	19,750		
1998	60,985	18,916		
1999	68,883	23,588		
2000	70,601	22,525		
2001				
2002	60,900	21,850		
2003	60,900	21,850		
2004	65,687	23,126		
2005	65,687	23,126		
2006	96,610	24,152		
2007	95,738	24,011		
2008	96,603	24,220		
2009	97,539	24,435		
2010	97,536	24,608		
2011	96,791	24,357		
2012	65,687	25,234		



The measurement made by Payne, the measurement made by Payne on October 14, 1912 was late in the year based upon the waning period of spring discharge. The flows recorded by the State Engineer would be more indicative of base flows from *"the deep circulating source"*-regional carbonate system rather than a combined flow from recharge and from the regional system. Flows in excess of the base flow would be from discharge from annual precipitation.

The precipitation for the prior years (1958 through 1964) represent drought years which vary from the mean of 11.89" to 57% (1958), 65% (1959), 35% (1960), (No data for years 1961-1964), with a flow in 1965 equals to 28% above normal precipitation with 64% of the rainfall occurring from June to December of that year. 47% of the precipitation fell between August and December of 1965.

N23 E54 03DBD 1	395415115524301	THOMPSON RANCH SPRING	09-21-1965	1000.	S	C
		--	04-01-1966	900.	S	C
		--	10-19-1966	900.	S	C

The average conditions represent that 35% of the annual rainfall falls from August through December, indicating that the precipitation and thus the recharge was skewed from normal conditions. Conversely the normal weather pattern follows that 65% of the precipitation falls in the months of January through July. In the year leading up to the measurement of the spring on September 21, 1965 (flow rate = 1000 gpm) the precipitation conditions were below normal.

The measurement on 04/01/1966 (900) gpm indicates a below average year equal to 66% of normal. The Spring measurement taken on 10/19/1966 was measured under conditions where the precipitation up to that point in time was 54% of normal precipitation conditions.

In the years leading up to the highest recorded spring flows in 1981, 1982, 1983 and 1984 an increase in precipitation was found primarily due to early precipitation events occurring within the basin, as well as early Thompson Spring measurements during the period of recharge occurring within Diamond Valley (See Exhibit VENT_290):

1981 / 1982	1.4	0.36	3.08	0.63	2.3	0.34	0	0	0.16	1.74	0.12	0.83
1982 / 1983	2.49	0.59	2.64	2.32	0.66	1.49	1.86	1.26	4.19	1.11	0.7	0.91
1983 / 1984	0.55	0.92	1.69	1.38	0.35	1.49	0.32	4.42	1.41	1.56	1.37	3.65
1984 / 1985	0.55	0.92	1.69	1.38	0.35	1.41	2.41	2.2	3.15	1.5	0.55	0.75
1986 / 1987	1.05	1.59	1.19	2.15	0.91	0.09	0.18	0.37	0.1	1.33	0.15	0

8/3/1983	1266	2.82	22.92	18.68	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/8/1983	1270	2.83	22.92	19.51	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
6/12/1984	1863	4.15	16.86	19.11	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/14/1984	1355	3.02	16.86	20.58	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
1/18/1985	1477	3.29	6.82	16.86	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
5/27/1985	1481	3.30	6.82	14.13	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring
11/3/1985	1118	2.49	8.29	5.52	USGS Water Resources Internet Database Prinout Dated 8/17/2013 for USGS 395415115524301 153 N23 E54 03DBD1 Spring

Various years of measurement are not assumed to be reliable based upon the time of year the spring measurements were taken, the measurements taken after the irrigation system would be more probably related to base flow conditions from the deep circulating source. The discharge from the springs due to natural recharge would not be significant for measurements taken on 11/8/1983, 11/14/1983, 1/18/1985 and 11/3/1985. All of these conditions are based upon precipitation events during this time of year and carry over storage within the aquifer system.

Bulletin 35 (Exhibit VENT_266)

Table 2 (see page 5) provides the estimates for the time period between 1965-68 and illustrates a below average rainfall:

TABLE 2.—*Temperature and precipitation data, Diamond Valley, Nevada*

Month	Temperature		Precipitation
	Average daily high[1]	Average daily low[1]	Average total
	°F	°F	Inches
January	36.8	8.8	0.38
February	41.9	14.4	.65
March	48.5	20.2	1.03
April	60.2	25.3	.59
May	68.0	31.8	1.24
June	78.5	40.0	.83
July	87.4	47.4	.60
August	86.7	44.0	.45
September	78.3	38.5	.52
October	63.3	29.0	.65
November	54.7	20.0	.63
December	38.9	9.3	.46
Year	61.9	27.4	8.03

[1] Estimated.

According to the second paragraph on page 4 the growing seasons in Eureka; " *..averages 100 days, but it ranged from 47 to 147 days during the period of record during the period of record, 1902 through 1930."*

Table 1 references the average daily high which provides that all of the temperatures are above the freezing level, whereas the average daily low represents periods of killing frost, of approximately 4 months out of the year.

TABLE 1.—*Temperature and precipitation data, Eureka, Nevada*

[Period of record, 1902–1930]

Month	Temperature				Precipitation		
	Average daily high	Average daily low	Two years in 10 will have about 4 days with—		Average total	One year in 10 will have—	
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—
	°F	°F	°F	°F	Inches	Inches	Inches
January	38.2	16.2	50.4	0.8	1.18	0.20	2.45
February	41.6	19.4	51.6	5.4	1.05	.34	1.90
March	48.5	24.0	61.9	11.0	1.64	.30	2.90
April	59.1	29.6	71.2	18.3	1.23	.35	2.42
May	66.4	36.5	77.5	25.1	1.52	.10	3.46
June	78.1	44.2	89.1	31.8	.91	.08	2.38
July	87.2	54.4	93.1	41.7	.79	.01	1.92
August	85.2	52.8	91.4	43.0	.68	.01	1.65
September	76.0	44.8	85.8	31.4	.65	.01	1.46
October	63.6	34.4	75.3	23.3	.88	.01	2.23
November	51.5	26.0	64.6	11.4	.63	.01	1.50
December	40.8	19.0	53.6	2.1	.86	.19	1.80
Year	61.4	33.4			12.02		

The conclusions that can be made from this evidence is that the Thompson Spring measurements were made during low flow conditions and the spring discharge was more indicative of base flows from the deep circulating source.

DRI (Eureka Nevada (262708)) provides the following summary (See Exhibit VENT_290):

EUREKA, NEVADA (262708)

Period of Record Monthly Climate Summary

Period of Record : 4/ 1/1888 to 3/31/2013

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	38.3	41.2	48.3	57	66	77.2	86.4	84.3	74.9	63.3	48.8	39.7	60.4
Average Min. Temperature (F)	17.1	19.2	23.9	28.9	36.4	44.1	53	52	43.8	34.6	24.5	18.3	33
Average Total Precipitation (in.)	1.07	1.05	1.34	1.34	1.41	0.83	0.68	0.78	0.78	0.89	0.78	0.89	11.83
Average Total SnowFall (in.)	9.4	9.8	10.2	7	3.6	0.4	0.1	0	0.6	2.4	6.1	9.4	58.9
Average Snow Depth (in.)	3	2	1	0	0	0	0	0	0	0	1	2	1

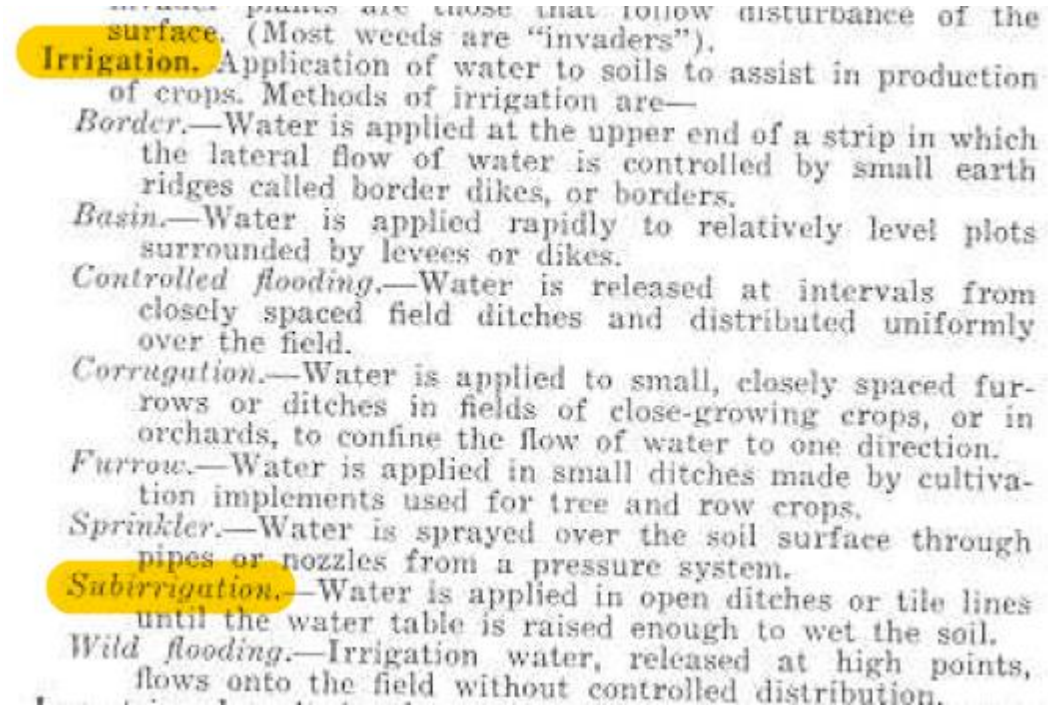
This data represents approximately 6-7 months of potential irrigation season with waters applied to storage and infiltration for the rest of the months.

With respect to this data the record states total pumpage for irrigation use started predominately in1961.

USGS & DWR Diamond Valley Total Pumpage and Irrigation by Year				
Year	Total Pumpage	Total Irrigation	Active Wells	Wells Visited
1950	300			
1951	600			
1952	800			
1953	800			
1954	800			
1955	1,000			
1956	1,000			
1957	1,180			
1958	1,854			
1959	1,800			
1960	2,400			
1961	6,100	3,200	--	--
1962	11,000	5,600	--	--
1963	9,700	4,800	--	--
1964	12,000	5,740	--	--
1965	19,300	7,600	75	281
1966	22,400	13,000	75	
1967	19,360	9,500		
1968	18,160	9,000		
1969	22,900			
1970				
1971				
1972				
1973				
1974				
1975	53,388	17,796	125	228
1976	56,151	18,717	137	232
1977	52,956	19,988	143	233
1978	59,760	21,855	164	233
1979	61,839	22,583	172	234
1980	64,035	23,055	187	240
1981	71,745	25,279	183	238
1982	73,336	25,305	180	242
1983	71,857	24,812	188	243
1984	78,730	26,844	189	248
1985	77,848	26,844	189	248
1986	58,883	20,656	174	249
1987	66,028	22,966	166	249
1988	63,356	21,569	163	249
1989	66,734	23,485	168	239
1990	64,210	22,235	158	291
1991				
1992	58,585	20,640		
1993	60,478	21,421		
1994	60,883	21,556		
1995	60,883	19,750		
1996	57,779	20,413		
1997	55,140	19,750		
1998	60,985	18,916		
1999	68,883	23,588		
2000	70,601	22,525		
2001				
2002	60,900	21,850		
2003	60,900	21,850		
2004	65,687	23,126		
2005	65,687	23,126		
2006	96,610	24,152		
2007	95,738	24,011		
2008	96,603	24,220		
2009	97,539	24,435		
2010	97,536	24,608		
2011	96,791	24,357		
2012	65,687	25,234		

Method of Irrigation:

Exhibit VENT_289,
Page 120 Types of Irrigation found in the Diamond Valley Area-NRCS Report-1980



surface. (Most weeds are "invaders").

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to relatively level plots surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops, or in orchards, to confine the flow of water to one direction.

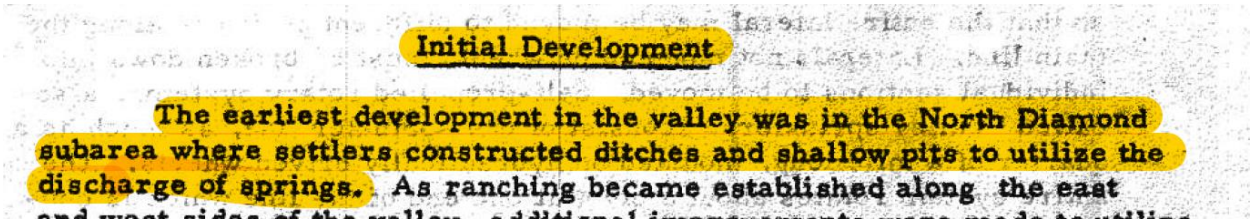
Furrow.—Water is applied in small ditches made by cultivation implements used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Irrigation water, released at high points, flows onto the field without controlled distribution.

USGS Bulletin 35, Page 44 (Exhibit VENT_266, bates 2126):



Initial Development

The earliest development in the valley was in the North Diamond subarea where settlers constructed ditches and shallow pits to utilize the discharge of springs. As ranching became established along the east

Andrew D. Crofut: Diamond Valley Dust (Exhibit VENT_259, bates 1906)

Page 164, Context-Comparing methods of irrigation of property in Fallon versus Method of Irrigation in Diamond Valley:

*"They irrigated there differently from anything that we had ever seen before. In Diamond, we always irrigated by the **trench method**, whereas here, they irrigated in check system, flooding of the ground."*

Consumptive Use Discussion:
See Exhibits VENT_264 and 267)

Office of the State Engineer (NIWR):

Basin 153 - 153 Diamond Valley
Region: Central Region
Reference ETTos (ft): 4.1

	ET Actual (ft)	NIWR (ft)
Alfalfa (ft)	3.2	2.5
Highly Managed Pasture Grass	3.1	2.5
Low Managed Pasture Grass	2.5	2
Grass Hay	3	2.4
Turf Grass	2.9	2.4
Shallow Open Water	4.3	3.5

Limitations on Growing Seasons:
See Exhibit VENT 268

Flooding of the Plants:

Page 136, Chapter 2 *Frost Protection by fogging and flooding:*

Flooding the soil surface can provide some frost protection for selected crops and locations. In some cases only the soil surface is wetted. The process seems to work because of increased evaporation from the soil leading to a more humid environment where condensation may be enhanced. Wetting the soil may also increase its ability to conduct heat to the soil surface, providing more short-term heating of plants.

Killing Frost, Chapter 2, page 230:

The growing season is determined by killing frost in the spring to killing frost period thereafter. :

The spring frost date corresponds very nearly with a mean temperature of 55 degrees, so it is obvious that many of the common crops use appreciable amounts of water before the last frost in the spring and may continue to use water after the first front in the fall.

Table 2A–3 A guide for determining planting dates, maturity dates, and lengths of growing seasons as related to mean air temperature

Crops	Earliest moisture—Use or planting date as related to mean air temperature	Latest moisture—Use or maturing date as related to mean air temperature	Growing season days
Perennial crops			
Alfalfa	50° mean temp.	28° frost	Variable
Grasses, cool	45° mean temp.	45° mean temp.	Variable

The Mean Growing period for Diamond Valley would be more representative of May, June, July, August, September and October or approximately 6 months out of the year.

From Crofut, Diamond in the Dust, starting on page 40 (See Exhibit VENT 259):

"In our-valley, we usually cut only two crops of alfalfa. As I said, after we had fenced a part of the new meadowland, we put some of the upper land, which was gravelly and had good drainage, into alfalfa. And that yielded two crops. Usually, one crop was cut right after ***the Fourth of July, and the other one in late September or early October****. To tell when alfalfa was ripe and ready to cut, Father usually decided it was ready when it first came into bloom. We always figured about one ton of hay to the animal to feed them and tide them over during the wintertime. Beside the natural wild grass that we had at home and the alfalfa that would be put in, there was also a patch of rye grass at Davis, which was about three miles farther north from our place.*

See Exhibit VENT_290

EUREKA, NEVADA (262708)

Period of Record Monthly Climate Summary

Period of Record : 4/ 1/1888 to 3/31/2013

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	38.3	41.2	48.3	57	66	77.2	86.4	84.3	74.9	63.3	48.8	39.7	60.4
Average Min. Temperature (F)	17.1	19.2	23.9	28.9	36.4	44.1	53	52	43.8	34.6	24.5	18.3	33
Average Total Precipitation (in.)	1.07	1.05	1.34	1.34	1.41	0.83	0.68	0.78	0.78	0.89	0.78	0.89	11.83
Average Total SnowFall (in.)	9.4	9.8	10.2	7	3.6	0.4	0.1	0	0.6	2.4	6.1	9.4	58.9
Average Snow Depth (in.)	3	2	1	0	0	0	0	0	0	0	1	2	1

Division of Water Resources Data

HISTORICAL CROP INVENTORY

	1975	1976	1977	1978	1979	1980	1981
Acres Irrigated	17,796	18717	19,988	21,855	22,583	23,055	25,279
Acre-Feet Pumped	53,388	56,151	52,956	59,760	61,839	64,035	71,745

	1982	1983	1984	1985	1986	1987	1988
Acres Irrigated	25,305	24,812	26,844	26,844	20,656	22,966	21,569
Acre-Feet Pumped	73,336	71,857	78,730	26,844	58,883	66,028	63,356

	1989	1990	1991	1992	1993	1994	1995
Acres Irrigated	23,485	22,235	No	20,640	21,421	21,556	19,750
Acre-Feet Pumped	66,734	64,210	Report	58,585	60,478	60,883	55,140

	1996	1997	1998	1999	2000	2001	2002
Acres Irrigated	20,413	19,750	18,916	23,588	22,525	No	21,850
Acre-Feet Pumped	57,779	55,140	60,985	68,883	70,601	Report	60,900

	2003	2004	2005	2006	2007	2009	2010
Acres Irrigated	21,850	23,126	23,126	24,152	24,011	24,435	24,608
Acre-Feet Pumped	60,900	65,687	65,687	96,610	96,738	97,539	97,536

	2011	2012					
Acres Irrigated	24,357	25,234					
Acre-Feet Pumped	96,791	65,687					

Bulletin 35-Page 30 (Exhibit VENT_266):

Table 9 lists the locations, names, discharges, and dates of measurements of the major springs. Slight decreases in discharge have occurred in both Shipley Hot Spring and Thompson Ranch spring. These changes are interpreted as adjustments to local development or as natural fluctuations, which may represent below-average precipitation in the 1950's, as indicated by Eakin and Lamke (1966, p. 19) for stations in the adjacent Humboldt River basin, rather than to pumping in the South Diamond subarea. Eventually, a gradual decrease of spring discharge in the North Diamond subarea should occur in response to pumping in the South Diamond subarea as sufficient water is removed from storage to induce subsurface flow from the spring areas toward the well field.

Bulletin 35 Consumptive Use (Exhibit VENT_266):

Table 8.--Estimated evapotranspiration of ground water

Dominant process of ground-water discharge	Phreatophyte	Areal density	Depth to water (feet)	Area (acres)	Annual Evapotranspiration	
					Acre-feet per acre	Acre-feet (rounded)
		North Diamond subarea				
Evapotranspiration	Rabbitbrush, greasewood, sparse saltgrass	Moderate to low	5 to 20	46,000	0.3	14,000
Evapotranspiration in areas supported by spring discharge	Meadowgrass, hay, some saltgrass	--	< 5	4,500	1.2	5,400
Do.	Wet meadow, marsh, normally flooded; includes some acreage of alfalfa	--	< .5	1,500	3.0	4,500
Evaporation from bare soil (playa)	--	--	< 5	50,000	.1	5,000
Subtotal (rounded)				102,000		29,000

-29-

From Bulletin 35-Table 10 (Exhibit VENT_266)::

Table 10.--Ground-water budget, in acre-feet per year, for equilibrium conditions in Diamond Valley

(All values estimated, as described in text)

Budget item	North Diamond subarea	South Diamond subarea	Total
RECHARGE:			
Precipitation (table 6)	9,000	12,000	21,000
Inflow at Devils Gate (p. 21)	--	150	150
Subsurface inflow from Garden Valley (table 7)	9,000	--	9,000
Total (rounded): (1)	18,000	12,000	30,000
DISCHARGE:			
Evapotranspiration (table 8)			
In areas of shallow ground water	14,000	1,200	15,000
In areas of spring discharge	9,900	180	10,000
From the playa	5,000	--	5,000
Total (rounded): (2)	28,900	1,400	30,000
IMBALANCE: (1) - (2)	-10,900	+10,600	0

GROUND-WATER DEVELOPMENT

Initial Development

The earliest development in the valley was in the North Diamond subarea where settlers constructed ditches and shallow pits to utilize the discharge of springs. As ranching became established along the east and west sides of the valley, additional improvements were made to utilize all readily available discharge from springs. No attempts were made to develop additional supplies until the 1940's when flowing wells were drilled on the Romano and Flynn Ranches. These wells were successful, and subsequently flowing wells were also drilled on the Siri and Saddler Ranches.

In 1966, 15 wells in the North Diamond subarea were flowing (table 20), but at rates substantially less than the reported initial discharge; two wells were pumped during the irrigation season; and irrigation water was pumped from the pond at Thompson's spring. The hydrologic system in this area was considered to be adjusting to a new set of equilibrium conditions, because these ground-water developments were either in or adjacent to areas of natural discharge and were being compensated for by local reductions in natural discharge.

Development in the South Diamond Subarea

The extensive well development in the South Diamond subarea began in 1949 when wells 22/54-27ca and 22/54-33dd were drilled along the east side of the valley. Development continued at the rate of a few wells each year until 1958, when extensive efforts were begun to develop land for irrigation. By 1964, when the area was closed to additional development, permits to pump more than 150,000 acre-feet per year had been granted, more than 200 irrigation wells had been drilled, and approximately 35,000 acres of land was to be irrigated by pumping ground water. Due to problems inherent in developing new land, production has lagged behind acquisitions, and in 1965 only 7,600 acres of cropland was harvested. The acreage is increasing each year, and maximum production probably will occur within the next decade.

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Growing Season

The growing season is determined largely by temperature, and varies with the type of crop grown. Temperature data have been recorded at Diamond Valley, Eureka, Fish Creek Ranch, Jiggs, and Rand Ranch. Table 15 shows the daily minimum temperatures, published by the U. S. Weather Bureau, used in determining the longest period of consecutive days during each year in which the temperature did not go below 32°F, 28°F, and 24°F, respectively, at four of these stations. For example, at Eureka a crop which experienced a killing frost at 28°F would have an average growing season of 118 days.

Table 16.--Approximate acreages and computed seasonal consumptive use for major irrigated crops

Crop	Approximate growing season	Computed seasonal consumptive use[1] (acre-feet per acre)	Crop acreages[2] 1961	1962	1963	1964	1965
Alfalfa[3]	5 to 5½ months[4]	1.9	70	300	400	985	2,132
Small grains	3 months	1.2	2,900	3,000	3,740	4,710	5,453
Potatoes	4 months	1.4	220	2,200	700	41	19
Onions	4 months	1.4	--	100	--	--	--
Total acreage			3,200	5,600	4,800	5,736	7,604

1. Consumptive use was estimated, using the general method outlined by Houston (1950). The percentage of daylight hours used is for a latitude of 39°40', the average monthly temperatures are those for Eureka, and a consumptive-use coefficient of 0.5 for alfalfa is used for periods of relatively slow growth before and after the frost-free period (Blaney and Hansen, 1965, p. 25).

2. Acreages from information furnished by Cooperative Extension Service, University of Nevada, White Pine and Eureka Counties Branch.

3. Includes mixtures of alfalfa and grain.

4. Includes periods of slower growth before and after the frost-free period.

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NRS 533.070 Quantity of water appropriated limited to amount reasonably required for beneficial use; duties of State Engineer in connection with water diverted or stored for purpose of irrigation.

1. The quantity of water from either a surface or underground source which may hereafter be appropriated in this state shall be limited to such water as shall reasonably be required for the beneficial use to be served.

2. Where the water is to be diverted for irrigation purposes, or where the water is to be stored for subsequent irrigation purposes, the State Engineer in determining the amount of water to be granted in a permit to appropriate water shall take into **consideration the irrigation requirements** in the section of the State in which the appropriation is to be made. The State Engineer shall consider the duty of water as theretofore established by court decree or by experimental work in such area or as near thereto as possible. The State Engineer shall also consider the growing season, type of culture, and reasonable transportation losses of water up to where the main ditch or channel enters or becomes adjacent to the land to be irrigated, and may consider any other pertinent data deemed necessary to arrive at the reasonable duty of water. In addition, in the case of storage of water, reservoir evaporation losses should be taken into consideration in determining the acre-footage of storage to be granted in a permit.

[11:140:1913; A 1945, 87; 1943 NCL § 7899]

Conclusions on Duty:

Emphasis Added:

Consumptive Use, Period of Use, Precipitation and Correlation to Spring Discharge, Requirements per Statute:

A great deal of work and analysis has been developed to ascertain accurate measurements of spring discharge reflective of Thompson Springs and other spring discharges of the 5 ranches owned by Mr. and Mrs. Venturacci. The same effort has been applied to the determination of Consumptive Use and Period of Use. As pointed out, in detail, and in compliance with NRS 533.070, analysis of precipitation, correlation with pumping in Diamond Valley, spring flow measurements has been correlated to determine the varying discharge of Thompson Spings. A step back and review of the precipitation data in correlation to spring data indicates a direct correlation to the base flow of the springs and the recharge/discharge relationship of the springs. To take one period of record would be an inaccurate assessment; to take the period of record where impacts have occurred to the groundwater table would be inaccurate. Measurements applied in the fall of the year or during the winter where discharge from snow melt (Precipitation) would be less is inaccurate. Predicated by the data, one can easily observe that there is an underprediction of the spring discharge, any measurement from the initiation of groundwater withdrawal on the easterly side of the basin, with similar soil characteristics, would have impacted the springs. Pumping with the carbonate rock and alluvial interface can

immediately lower the groundwater table and thereby diminish the flows from Thompson Spring and springs to the north.

The state has used determined the consumptive use of the water from the springs in determining the amount of water utilized for determining the duty of the water right. In 1981-1982, while working for the office of the State Engineer I personally inventoried and quantified well discharges in the area, my recall is that some of the wells in the area were discharging at rates exceeding 4 acre feet per acre, working with USGS utilizing infrared satellite imagery I was able to correlate pumping with imagery to determine water application for basin groundwater budgets. At that time the state engineer was using 4 acre feet per acre as the limitation on pumping duty. Since that time we have had a large disparity in determining consumptive use that differs from the original investigations that was performed in the early 1980's. We also know that the period of use can vary greatly, as an example to this, DRI data was obtained to look at this issue. By observation it was determined that the **average** (mean) allowed for irrigation and crop growth for 6 months out of the year. This determination balances the years that are below average for growth periods and growth periods that are above average. Beneficial Use is the limit, the measure and the extent of use, not the beneficial use is determined by the average or least measured use of water for the least period of time or the average discharge from a source or the least discharge from a source. Historical data and the use of science has proven that the actual use of water on the Venturacci properties have been vastly underestimated to the detriment to the most senior water right holder in Diamond

The Preliminary Order improperly assigned a duty of 3 acre feet per acre or less for all vested rights within the entire Diamond Valley Basin. This amount is not supported by data, does not reflect the historic use, and is in consistent with prior practices of the State Engineer and water law.

Evidence as stated above proves that the Venturacci Ranches utilized at least 4 acre feet per acre to irrigate crops, meadows, and pastureland.

CONCLUSION:

The minimum total acreage irrigated for all ranches within the fenced areas= at least 1,721.06 acres. This includes all the documented irrigated land on the Thompson Ranch (1274.06 ac), Cox Ranch (81.46 ac), Willow Field (133.74 ac), Rock Ranch (125.07 ac), and the Mau Ranch, aka Box Springs Ranch, (106.73 ac).

Additionally, evidence supports that there were hundreds of acres of diversified pasture, which was shown as "wasteland" on the 1937 maps. **The 1942 soils report reflects a total of no less than 2,183.5 acres of use within the fenced areas, including irrigation on diversified pastures.**

Also, note that 280 acres that exists outside of the westerly fenced boundary clearly exhibited culture similar to that within the fence line. While the SCS reports ended at the fence lines, aerials and other evidence (GLO plat, land entries, patents) demonstrate that the grazing land and pasture clearly existed.

Evidence supports that **up to 2,453.48 acres were irrigated**, including diversified pastures and areas outside the fenced land, but still on private property, on the Thompson Ranch.

As discussed, the duty should be established as **at least 4 acre feet per acre**, as supported by multiple approaches including calculation of known spring flows over a known acreage, NIWR plus an efficiency factor, and historic recognition of duty in the Diamond Valley Basin.

The Vested Stockwater Rights should be increased to no less than sufficient water for **600 cows/horses**.

Proofs R-04271 and R04277 filed by the BLM on Rock Springs and Box Springs, which are subject to vested rights on Box Springs Ranch and Rock Creek Ranch, should be DENIED. All springs that discharge within the water sheds of those ephemeral creeks that supply water to the Venturacci ranches are fully appropriated for use on those ranches.