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DATED this 21<sup>st</sup> day of December, 2012.

/s/ Nancy Fontenot

and, given the discussions at the meeting held in Battle Mountain on May 26, 2010, the cooperating agencies involved understand this facet of modeling. For this reason, monitoring the response of the groundwater flow system to the stress of pumping by the Mount Hope project will be critical. Even more critical will be the plan to meaningfully mitigate any adverse impact such as a reduction in spring discharge or stream flow or unreasonable lowering of the water level in wells.

#### Projected extent of the 10-foot drawdown contour

The cover letter to the report contains responses to comments related to the October 2009 *Hydrogeology and Numerical Flow Modeling, Mount Hope Area, Eureka County Nevada*. These include the comments provided by Lahontan GeoScience in a memorandum dated December 31, 2009. In the memo, the County's consultants suggested that the contour line depicting the projected maximum extent of 10 feet of drawdown arising from the mine's groundwater extractions (Figure ES-5) provides "... a false sense of security with respect to future changes ..." In other words, the extent of the 10-foot contour may be larger than the figure indicates and the figure does not provide any sense of the potential error. For that reason we suggested a figure that depicts the extent of the 5-foot drawdown. Based on the written response and the discussion during the meeting in Battle Mountain on May 26<sup>th</sup>, we understand that 10 feet of drawdown was chosen by the BLM to represent the extent of projected drawdown so as to be consistent with other environmental assessments conducted by them. After a lengthy discussion on May 26<sup>th</sup>, it was recognized there is some degree of uncertainty regarding the location of the 10-foot contour, but that it is difficult to assess, furthermore, the BLM has not required a rigorous analysis of model predictive uncertainty for previous environmental documents. We believe that some additional discussion of the uncertainty as to the location of the 10-foot contour be included in the appropriate sections of the report.

Characterizing model predictive uncertainty aids the reviewer in interpreting the uncertainty in the model results including predicted impacts. One method to do this is by performing sensitivity analyses for at least one of the predictive simulations (Anderson and Woessner, pg 257). For example the recharge rate could be varied within reasonable bounds and the model predictions performed. The change in the head distribution as shown by the 10 foot contour line location from the different recharge rates would indicate the uncertainty of the head distribution and predicted impacts to well levels, spring flow, underflow and other hydrologic factors.

Another approach would be to verify the model by calibrating it to a new set of data, for example a different year selected to represent steady state conditions, if available. This model was calibrated to the year 1955 for steady state conditions. Data from a different early time year could possibly be used to re-calibrate the steady state model and the results compared. If the new data can generate a similar head distribution without having to change calibration parameters such as K values then the model has been verified and model predictions would be considered more reliable. No such analysis has

been performed to date so the uncertainty associated with the model predictions is unclear.

#### Potential impact to decreed water rights of Henderson Creek

Figure ES-5 of the report depicts the maximum extent of the water-table 10-foot drawdown contour arising from the proposed action alternative. In later time model predictions which are post project pumping the 10-foot contour extends into the headwaters of Henderson Creek and to the creek itself. The waters of Henderson Creek have been fully adjudicated. On page 6 of the Pete Hansen and Henderson Creek decree (US District Court, 1976), it is stated that

"These proceedings adjudicate *all stream waters* [emphasis added] tributary to both Pete Hansen Creek and Henderson Creek.

Henderson Creek, the principal east tributary to the drainage basin, transports stream waters from the east flank of the Roberts Mountains and the western slopes of the Sulphur Springs Range south of Table Mountain.

Several perennial springs situated in the stream system as well as snow melt waters, contribute to the stream system flow."

Figure ES-5 also shows six springs within the 10-foot contour, two of which are identified as having "impacted water rights." Two additional springs are situated along upper Henderson Creek coincident with the 10-foot contour. Consequently, the model results show a potential for a decrease in spring discharge and stream flow in the headwaters of Henderson creek. Considering that *all* water in Henderson Creek has been adjudicated, *any* decrease in spring or stream flow must be mitigated, no matter how small. Granted, there is an unknown level of uncertainty in the accuracy of the drawdown determinations, which underscores the need for a well-defined monitoring and mitigation plan.

#### Transient model calibration

Water levels in wells in Diamond Valley were vital to calibrating the transient groundwater flow model. Review of the hydrographs in the current report that compare observed and model-simulated water levels versus time (Figures 4.1-32 through 4.1-46) show generally good correlation from the beginning of the simulation through about 1985, after which there is a departure between observed and simulated water levels, e.g., the model simulates more drawdown than that which was observed in most of the wells. Another way to look at the overall trend is to plot the residuals from several wells on a single graph. The residuals for calibration points in the model are provided in Appendix K of the report and these were plotted versus time in Figure 1, below. A second-order polynomial trend line can be fit to the data that accounts for approximately 80% of the variance of the residuals. A fifth-order polynomial provides a better fit to the

residuals, accounting for 83% of the variance (Figure 2) and does not imply the potential for grossly over-estimated future drawdown suggested by Figure 1.

To individuals bent on discrediting the model, this trend might be construed as evidence the model may not predict future drawdown arising from pumping in Diamond Valley with sufficient accuracy.

Alternatively, the residuals might be construed to mean the model may not accurately portray the agricultural pumping in Diamond Valley since the early 1990's. As Dr. Stone pointed out during the May 26<sup>th</sup> meeting, Figures 1 and 2 may be interpreted as representing a "step function" indicated by the two groupings shown in figures, suggesting that model input (agricultural consumptive use in Diamond Valley) since the 1990s simply may be incorrect. The mine's consultants expended considerable effort to identify the cause for the observed data trend, but were unable to correlate the change in residuals with recharge or other phenomena.

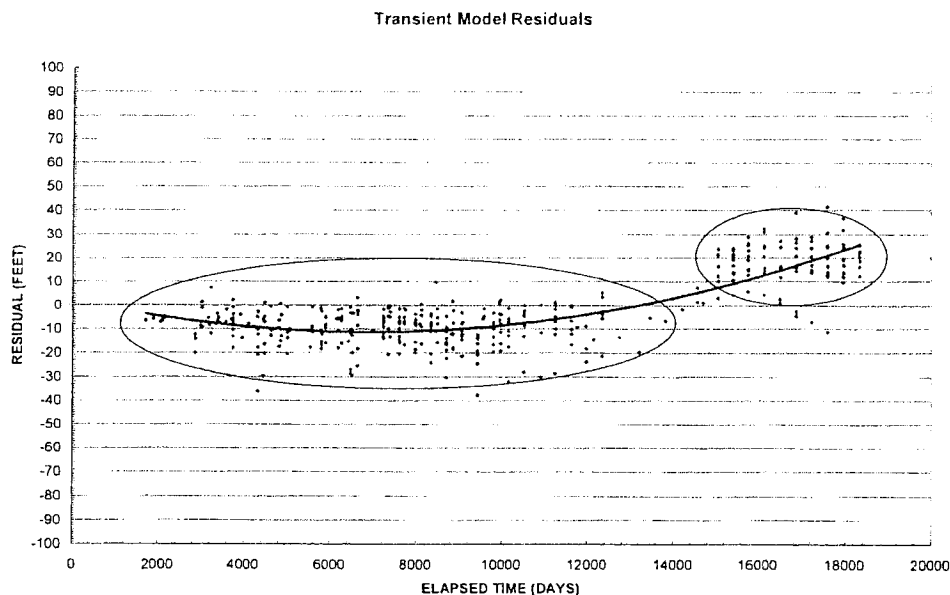


Figure 1



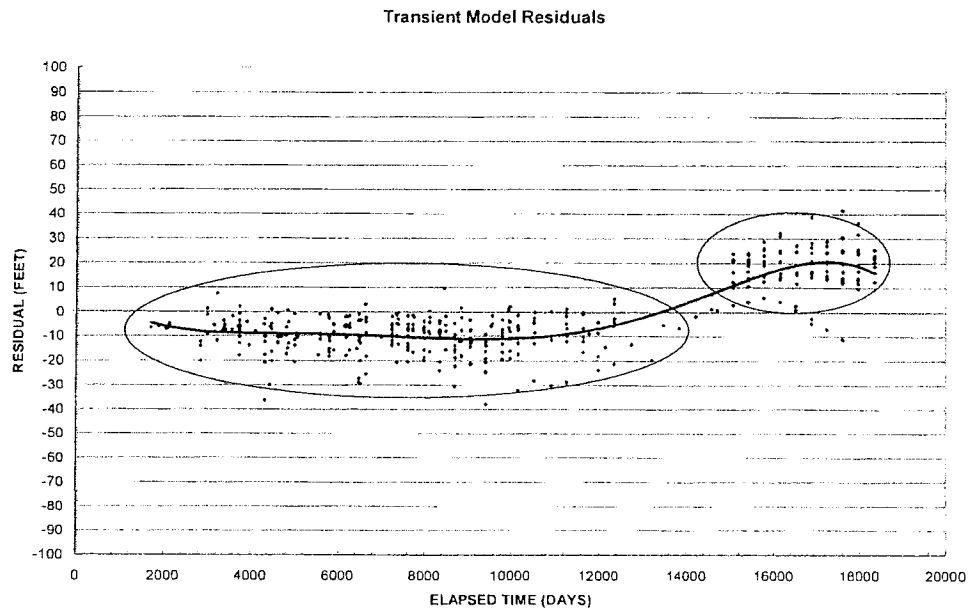


Figure 2

Figure 4.4.2 of the report (which is labeled incorrectly as "groundwater pumping") illustrates the agricultural consumptive use assumed in the model for Diamond Valley. If, as one interpretation of the Diamond Valley transient model residuals suggests, the model overstates agricultural consumptive use, then the model may over state the predicted future drawdown in the head waters of the streams north of Mount Hope arising from agricultural pumping. It also would over state the drawdown in Diamond Valley, which is of major concern to the residents whose livelihood depends on economical pumping of the resource. Because agricultural consumptive use is estimated, not measured, it might be useful to use the model to refine agricultural consumptive use and then use the refined estimate in the predictions.

Yet another alternative interpretation of the residual plot is that the model overestimates relatively recent drawdown due to pumping in Diamond Valley because some unrecognized source of recharge to the valley comes into play as a result of the large drawdown in the Diamond Valley aquifer. During the May 26<sup>th</sup> meeting, Dr. Stone remarked that the eastern boundary of the model comprises a no-flow boundary that precludes groundwater influx from the east through deep carbonate rocks. He went on to say that predicted model drawdown in Diamond Valley conceivably might turn out to be conservative if drawdown in the alluvial basin incites flow through the carbonates

from the east. Could the positive residual since the 1990s represent the onset of flow into the valley from the east?

One possible means of squelching potential criticism of the predictive capability of the model is to verify the drawdown predictions with data that have become available since the end of the transient model calibration period in 2006. Incorporating data from 2007, 2008 and 2009 (if available) and comparing them to predicted water levels may help verify the predictive capability of the model.

Regardless of the cause for the observed change in residuals, it may be worth while to enhance the appropriate section of the report to reduce criticism of the model, and eventually the EIS, by opponents to the project.

#### Use of Large Total Head Change Values

The County's consultant team and the mine's consultants continue to have different opinions regarding what constitutes acceptable error in the model and we probably will not reconcile this difference of opinion. We have reiterated our opinion below for the record.

Statistical analyses are used to evaluate the acceptability of a model for use in predicting impacts. In particular, the root mean square error (RMSE) or residual standard deviation (RSD) is divided by the total head change over the model. If this value is less than approximately 10 to 15 % the model is considered acceptable. In this case the total head change over the model is 1,962 feet. There is no explanation as to where the data points were selected to achieve this value although presumably they were selected from the highest and lowest groundwater elevations throughout the entire regional model regardless of the fact that the regional model incorporates five hydrographic basins with only limited interconnection between the basins.

In our opinion the total head change used to assess the quality of the model should be related to the each of individual basins. The examples of models using the total head change method provided in the April 2010 memo seem to support this idea as the areas being modeled are specific to one location or aquifer such as the San Joaquin Valley, or the Ogallala or Edwards aquifers. When evaluating Diamond Valley alone the modelers used a total head change of 873 feet to evaluate the quality of the calibration, not 1,962 feet. This presumably represents the Diamond Valley aquifer alone and seems more correct than using the larger head value which represents the entire regional multi-basin aquifer. Changing the total head difference value could significantly affect the model calibration and predictive abilities and continues to be a source of concern to the model reviewers.

### Sensitivity Analyses

Likewise, the County's consultants and the mine's consultant team continue to have different opinions regarding the range of values appropriate for model sensitivity analysis. We have restated our opinion below for the record.

The same limited range in model parameters used to perform the sensitivity analyses in this model were used in the previous model. The parameters were varied by multiplying them by a range of values from the multiplier minimum of 0.45 to maximum of 1.5. This was done regardless of whether the parameter itself might realistically vary more than this, for example hydraulic conductivity. Variation of an order of magnitude is quite reasonable, but was not used for the sensitivity analyses. The explanation for this in the April 2010 memorandum was that varying the parameters would cause confusion due to the necessity of using different scales on figures. This explanation does not seem to address the question of why limiting the range of values is acceptable.

### Status of the Mine's water rights

The last paragraph of page ES-3 states water rights to appropriate 11,300 AF/yr of groundwater have been granted by the State Engineer. Because ruling 5966 was overturned in district Court and the matter of the mine's water rights applications remanded back to the Nevada State Engineer, the applicable reference should be revised to describe the current status of the mine's water rights.

### Predicted water-level changes in the Vinini and Henderson Creek watersheds from project and baseline pumping

The minimum drawdown contour depicted on figures in the April 2010 report from various pumping scenarios is 10 feet per guidance from the BLM. As a result head values at less than 10 feet do not appear on executive summary drawdown figures although they are present. Figure 4.4-17 in the 2010 report shows a hydrograph over the period 1950 to 2310 generated from model cells selected in the headwaters of the creeks showing predicted drawdown for different modeling scenarios. In the no action alternative, which incorporates pumping primarily in Diamond Valley, drawdown of up to 16 feet by the year 2220 is predicted. The mine-only pumping scenario or proposed action alternative reaches a maximum of 6 feet at around year 2160. Right after project pumping ceases at 2045 the drawdown in the hydrograph is less than 6 feet for all three pumping scenarios regardless of whether the scenario start is 1955 or 2009.

Figures 3 through 5 (below) incorporate a higher level of detail (1 to 2-foot contour interval) for the head distribution in the creek area and show patterns of small recharge and discharge mounds located entirely in the vicinity of the creek. This head distribution appears to be related to contours extending from the mine pit, from the Hydraulic Flow Barrier (HFB) located to the south, from localized recharge, hydraulic conductivity, ET and, possibly, from flux between deeper layers and Diamond Valley pumping. Figure 3

depicts ET which is centered on one of the small depressions ranging from 1 to 4 feet, which may explain its origins. Similar patterns are found in all three figures in layers 1 and 3 for different times. The amount of drawdown that may or may not originate from Diamond Valley pumping is unclear at best. Additional work needs to be done to determine the source of head variation in the creeks areas before any statements can be made that the primary source of potential future impacts to the creeks arise from Diamond Valley pumping.

Figure 3 Layer 1 Drawdown, 1 Foot Ct  
120 Years, No Action Alternative  
April 2010 Model with ET

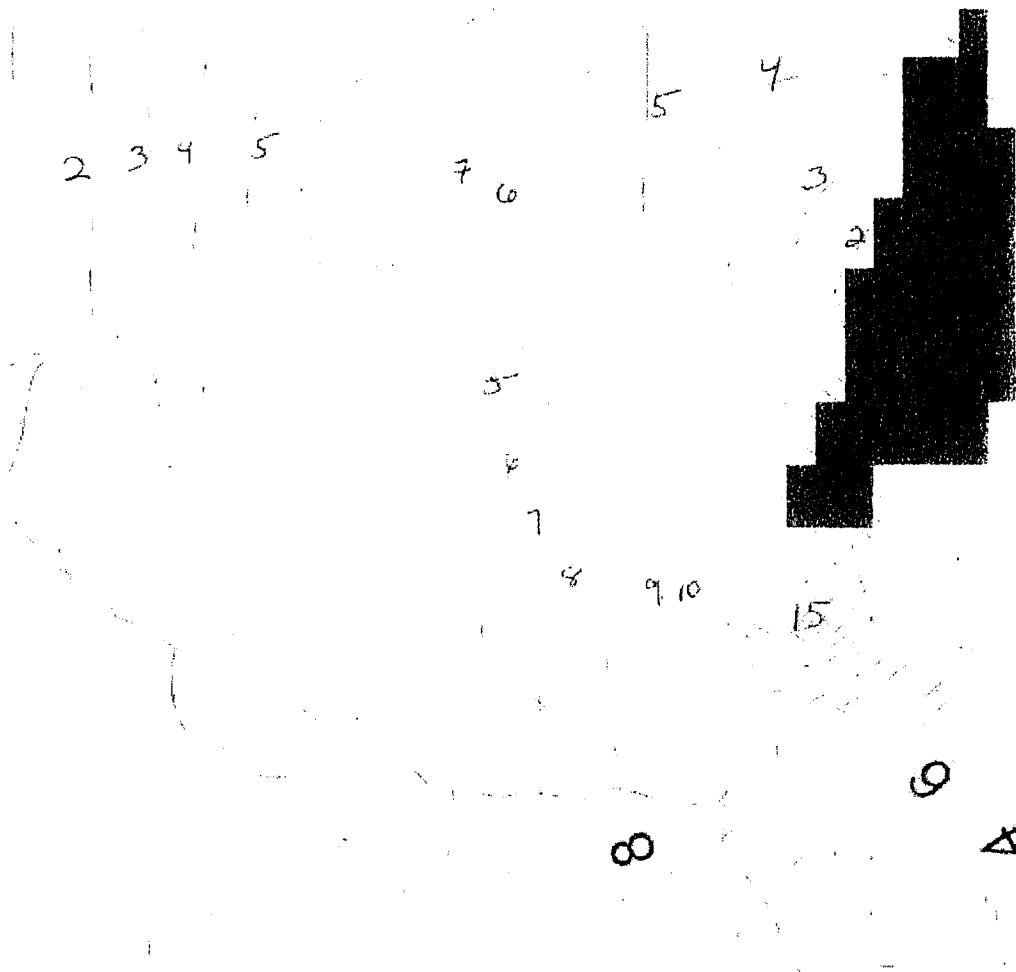


Figure 4 Layer 3 Drawdown, 1 Foot Ct  
120 Years, No Action Alternative  
Henderson and Vinini Creeks  
April 2010

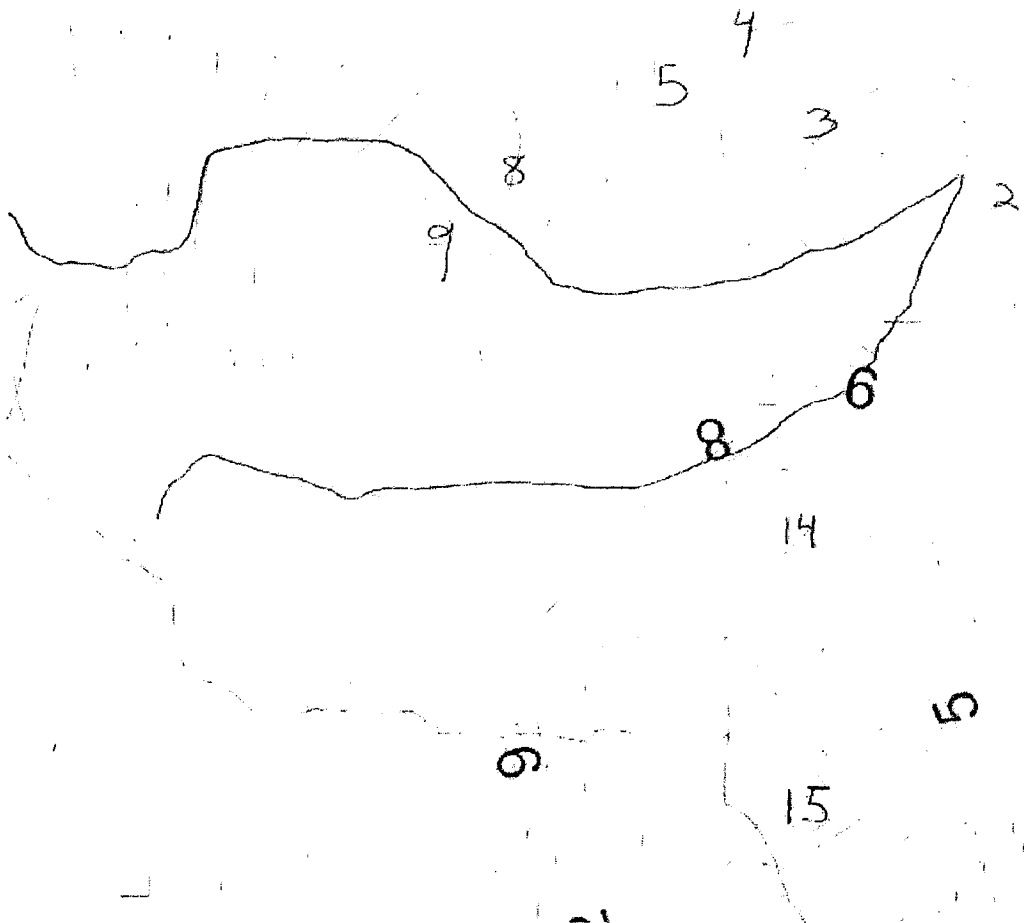
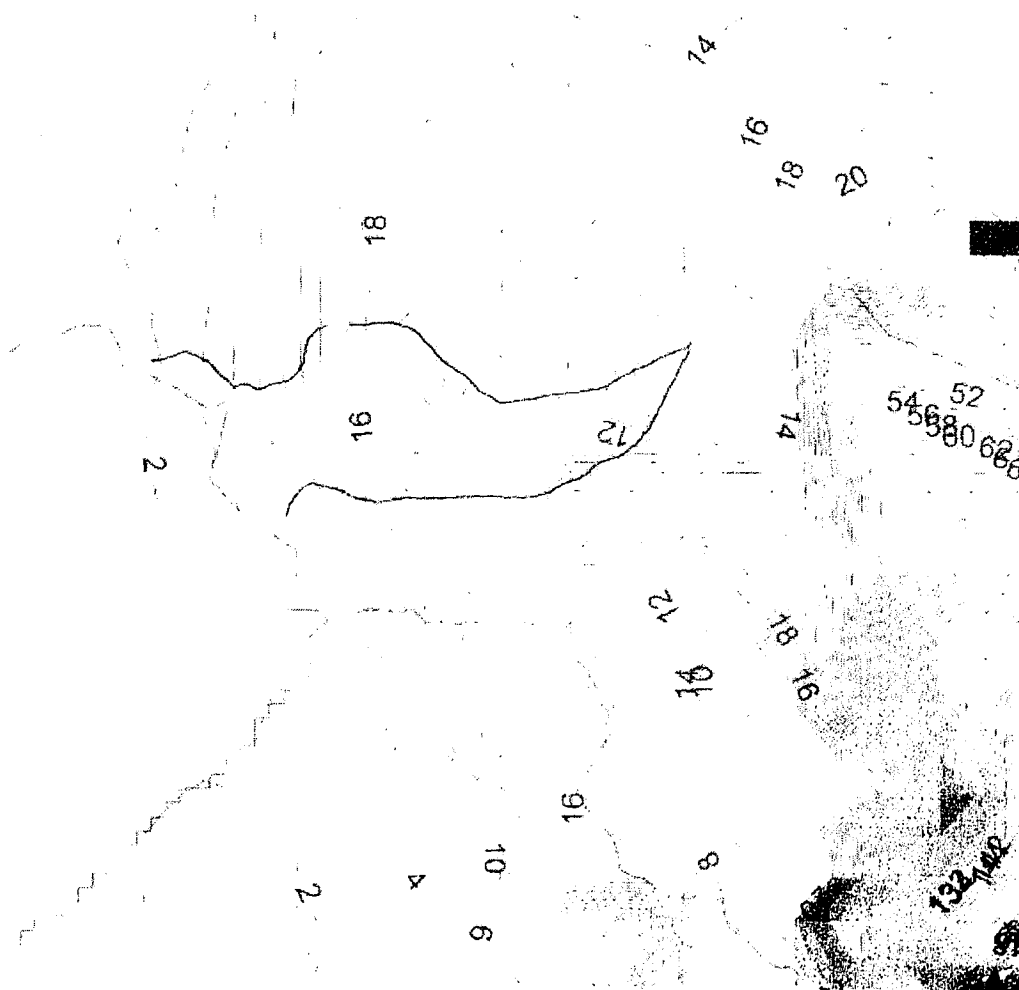
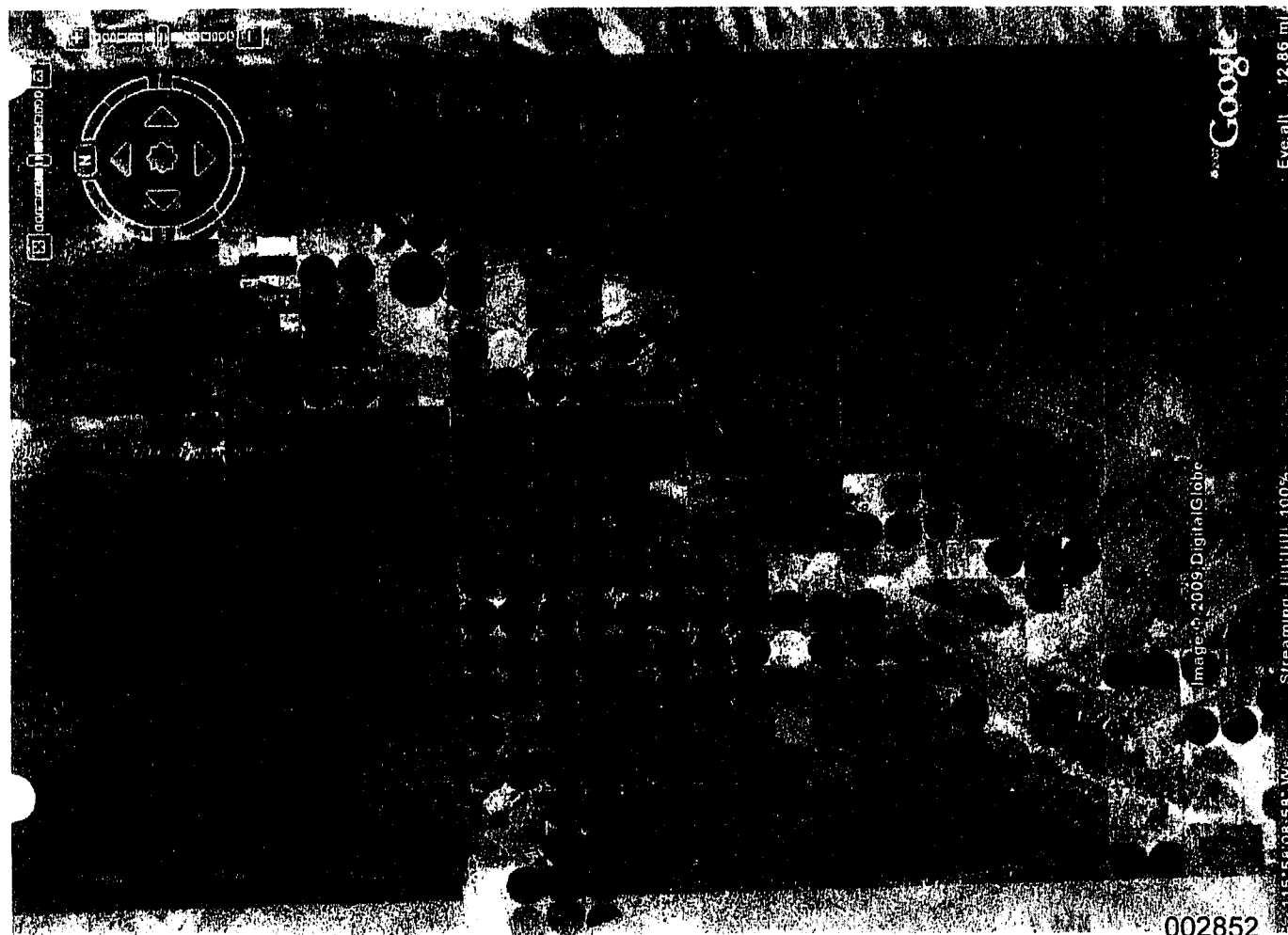


Figure 5 Layer 1 Drawdown, 1 Foot Ct  
200 Years, No Action Alternative  
April 2010 Model with ET



# Diamond Valley Water Resource Management

March 19, 2009  
Eureka, Nevada





# Introductions

- Jason King, Acting State Engineer
- Kelvin Hickenbottom, Deputy State Engineer
- Rick Felling, Chief of Hydrology
- Tom Gallagher, Chief of Water Rights
- Tim Wilson, Hearings Officer
- Kirk Owsley, Supervising Water Commissioner (Elko Office)
- Rich Perry, Basin Inventory Engineer (Elko Office)

# Why Are We Here?

- The basin is severely over-appropriated
  - 133,000 AF committed
  - 75,000 AF pumped
  - 30,000 AF perennial yield
- Initiate discussions on how to best manage the water resources in Diamond Valley.
- Let you know what tools are available.
- Incorporate suggestions from the water users in Diamond Valley.
- Explore all options that will reduce or delay the adverse effects of ground-water pumping in the basin.

## We Are Not Here To:

- **WE ARE NOT** here to say that beginning tomorrow we will begin cutting off rights by priority.
- **WE ARE NOT** here to say that we are beginning an adjudication of the basin.
- **WE ARE NOT** here to place blame for mistakes made in the past.
- **WE ARE NOT** here as a result of activities in Kobreh Valley.

# Agenda

1. Administering Ground Water in Nevada
2. Hydrology Overview
3. Perennial Yield of Diamond Valley
4. Existing Ground-water Rights in Diamond Valley
5. How did the Basin get Over Appropriated?
6. Pumpage Inventory
7. Water Table Drawdown
8. Review of Previous Stakeholder Meetings
9. Decisions and Orders of the State Engineer in Diamond Valley
10. Management of the Basin - Options
11. Open Discussion on Future Management of Diamond Valley

3/19/2009

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JA4268

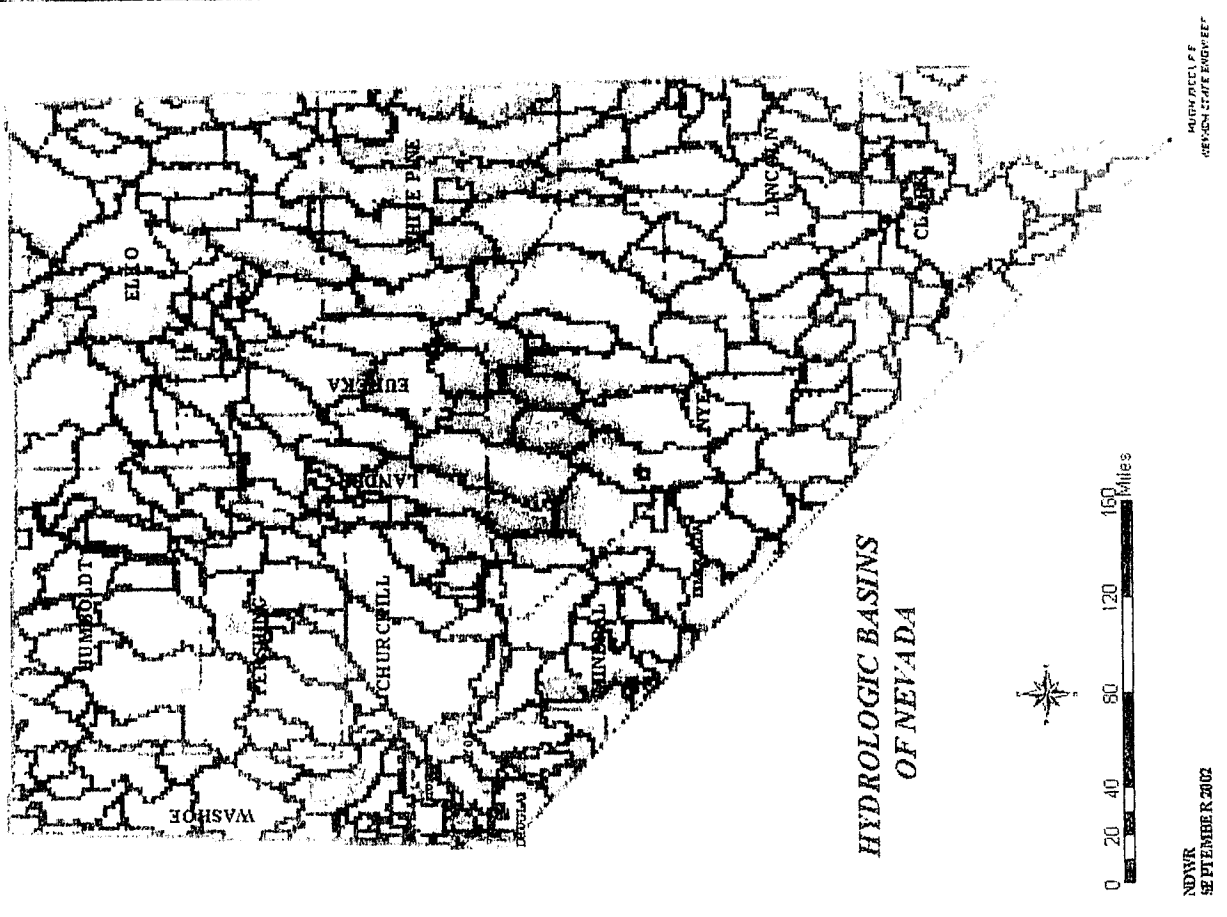
# Ground Water

State divided into  
256 hydrographic  
basins and sub-  
basins.

Each basin is  
administered  
separately.

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3/19/2009



# Ground Water

- Ground-Water Basins are Managed Based on the Perennial Yield Concept
  - The maximum amount of ground water that can be used each year over the long term without depleting the ground-water reservoir.
  - The goal is to appropriate water up to the perennial yield of a basin.
    - We exceeded that goal in Diamond Valley!

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# Perennial Yield

## Origin of Estimates of Perennial Yield

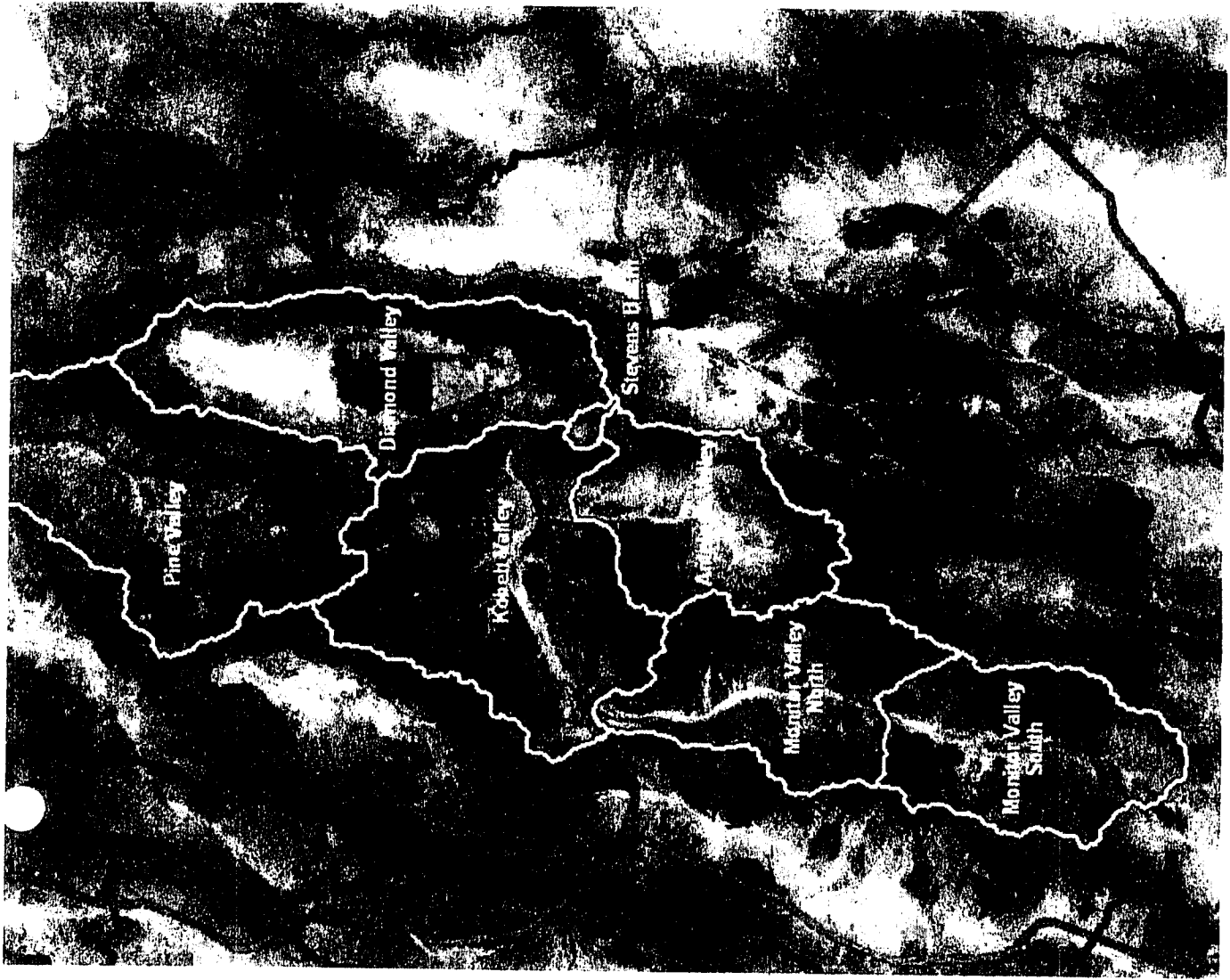
- 1960 Legislature authorized surveys by the USGS to establish perennial yields for all basins statewide (some work had been done since 1945)
  - Very good estimates of water availability
- As technology advances, estimates of PY are updated.

# Designated vs. Non-Designated Ground-Water Basins

- Designating a basin enables the State Engineer to impose additional conditions and restrictions on water use.
- A designated basin is not necessarily closed to additional appropriations. Preferred uses of water may be allowed; e.g., commercial, industrial, typically for minimal amounts.



# Diamond Valley Flow System



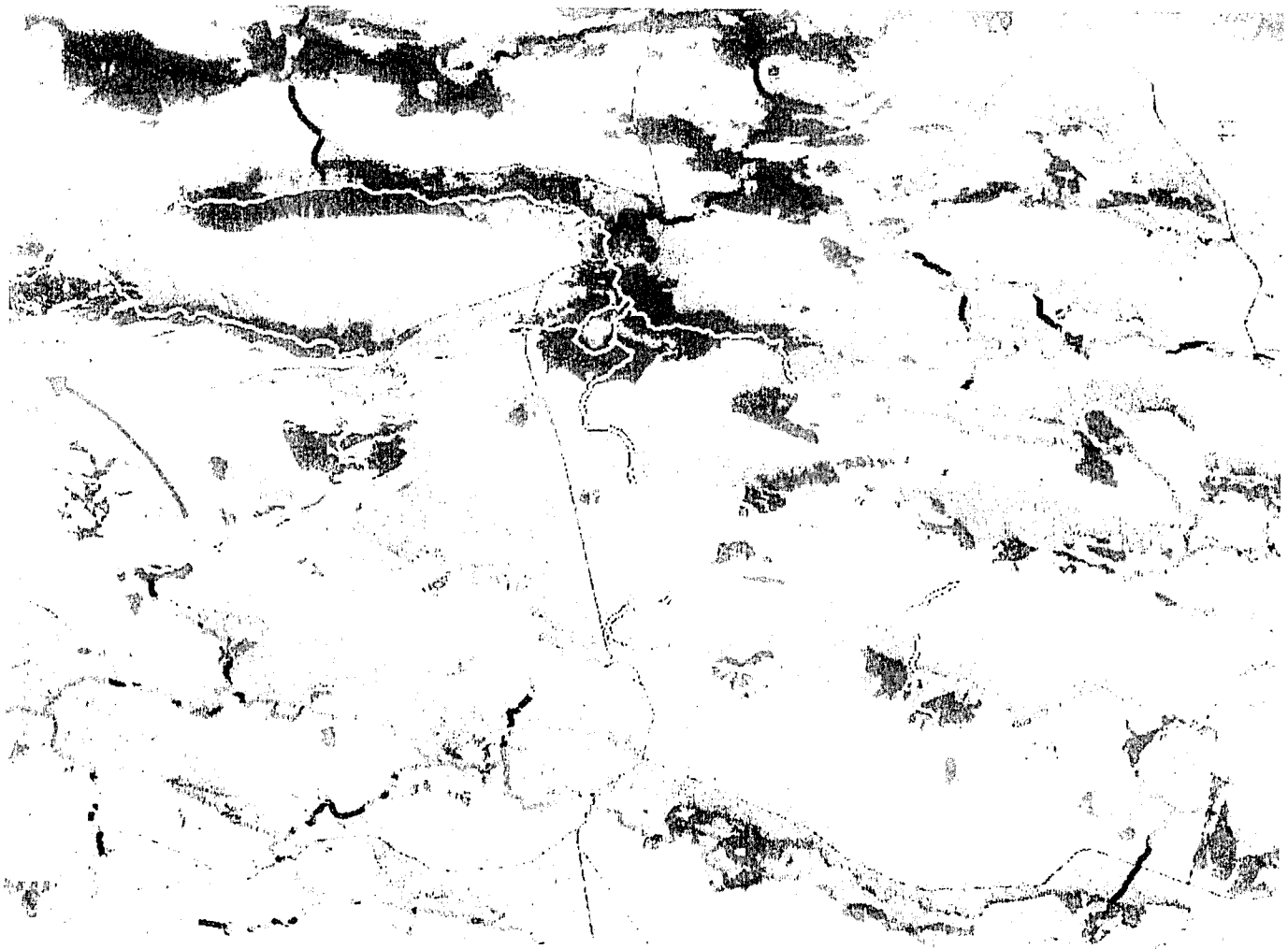
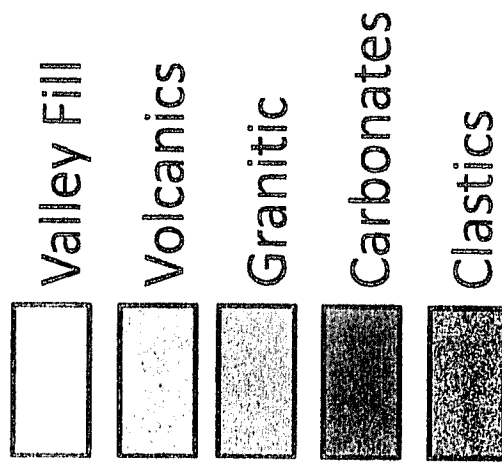
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# Diamond Valley Flow System

## General Hydrogeology

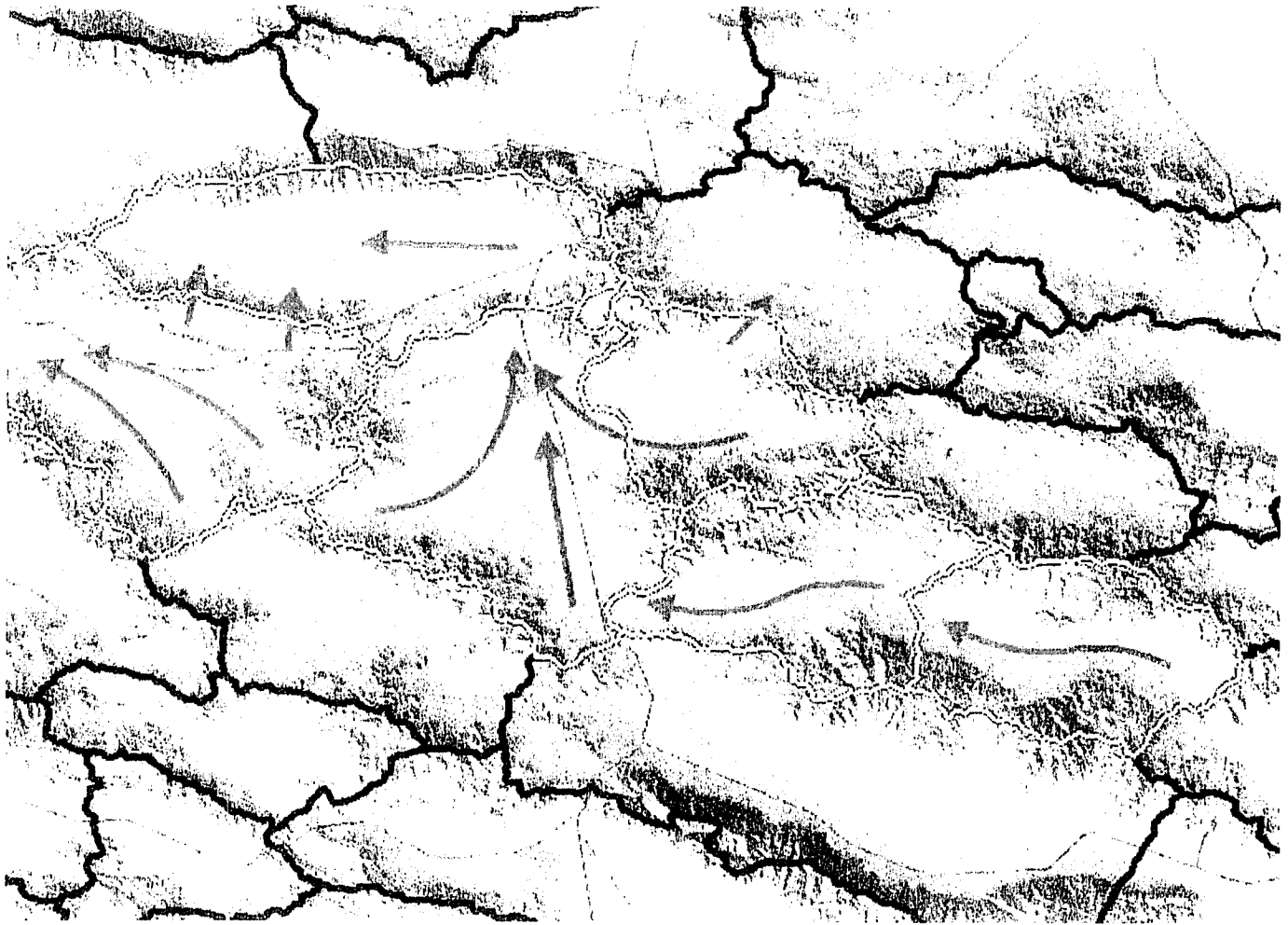


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# Diamond Valley Flow System

## Ground-Water Flow Paths



3/19/2009

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# Diamond Valley

## Water Budget Studies

	<u>Eakin, 1962</u>	<u>Harrill, 1968</u>
Recharge:	16,000 AF	21,000 AF
ET:	23,000 AF	30,000 AF
Perennial Yield:	23,000 AF	30,000 AF

Diamond Valley

Basin Overview



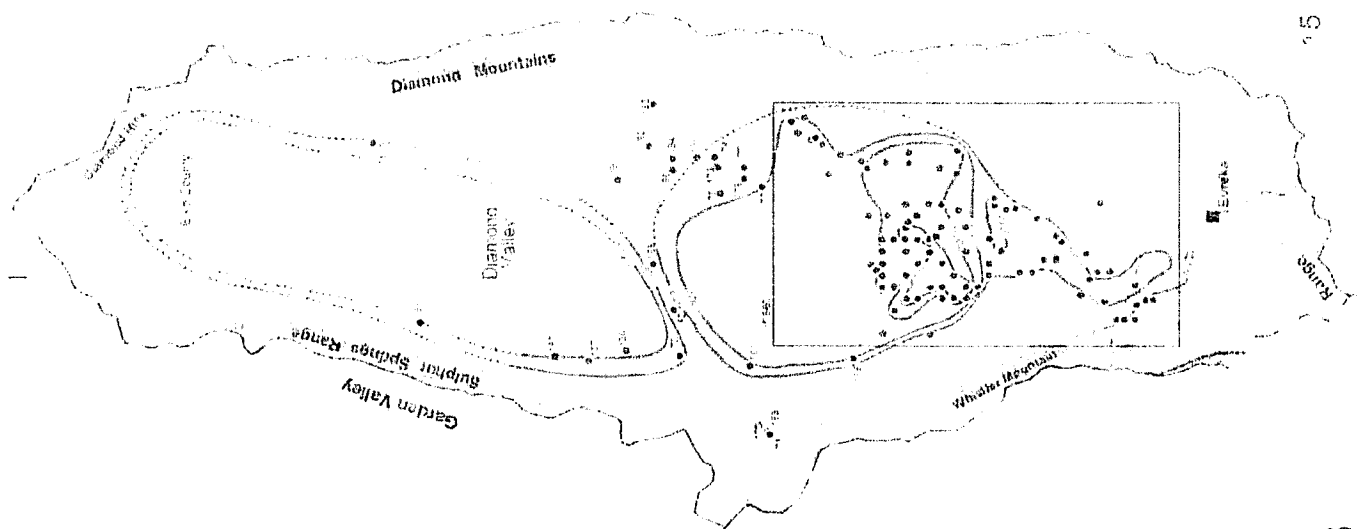
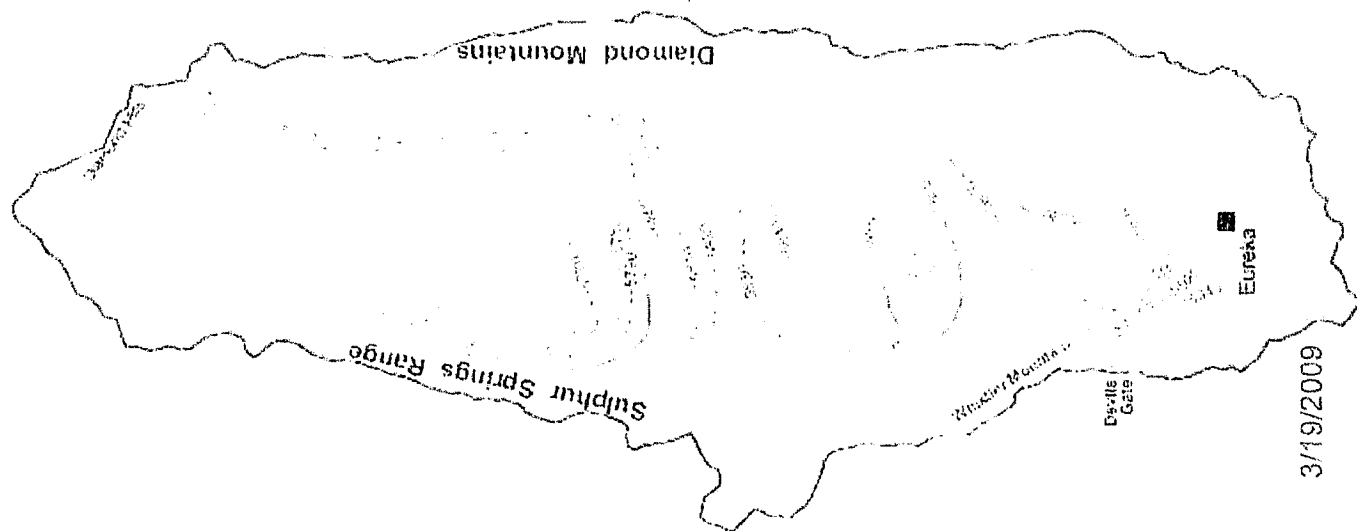
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# EXPLANATION

- Basin-fill deposits (quaternary and Tertiary)—Unsorted to poorly sorted clay, silt, sand, gravel, and fragments of alluvial fans and alternating beds of fine-grained deposits, clay, silt, and coarse-grained deposits, sand and gravel, of basin lowland.
- Volcanic rocks (Tertiary)—Lava flows and shallow intrusions of rhyolite, dacite, andesite, and basaltic composition overlying ash-flow and air-fall tuff.
- Limestone intrusives (Tertiary to Jurassic)—Granite rock (and nearby dikes associated with the northern Nevada rift). These have intruded siliceous sedimentary rocks and carbonate rocks and are exposed in Roberts Mountains and are believed to have intruded carbonate rocks of northern Fish Creek Range at shallow depths (Zerbe and others, 1994, p. 375).
- Siliclastic sedimentary rocks (Devonian to Cambrian, Mississippian, Permian, and Cretaceous)—Shale, siltstone, sandstone, conglomerate, chert, and subordinate limestone.
- Carbonate rocks (Devonian to Cambrian and Pennsylvanian)—Limestone, dolomite, and subordinate shale and anhydrite.
- Water-level contour—Shows altitude of shallow ground-water surface. Dashed where uncertain. Contour interval, in feet, follows sea level.
- Direction of ground-water flow inferred from water-level contours



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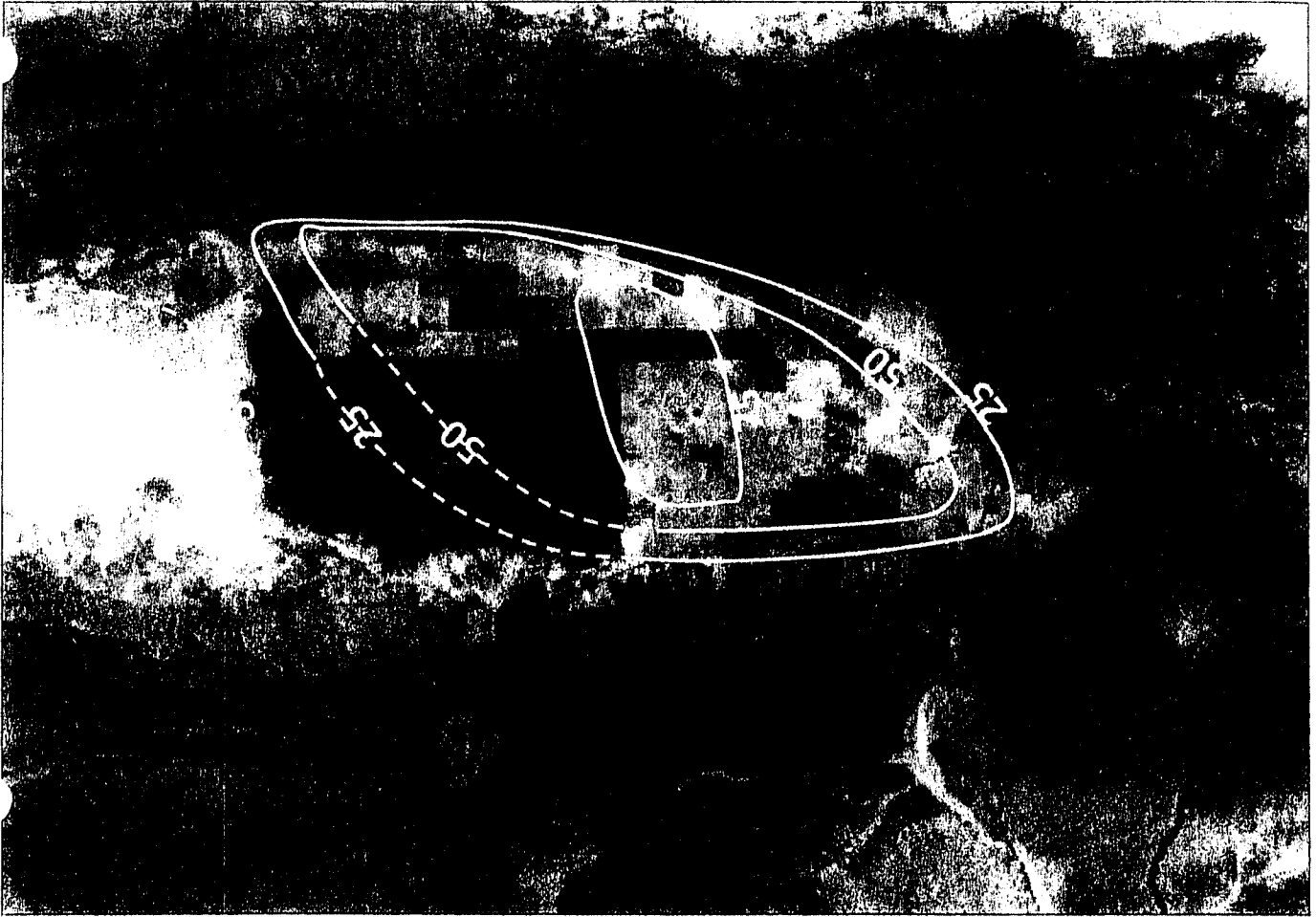
From: Tumbusch and Plume, 2006

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# Diamond Valley Ground-Water Level Decline Due to Agricultural Pumping

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3/19/2009



# Diamond Valley

## Hydrographic Area Summary

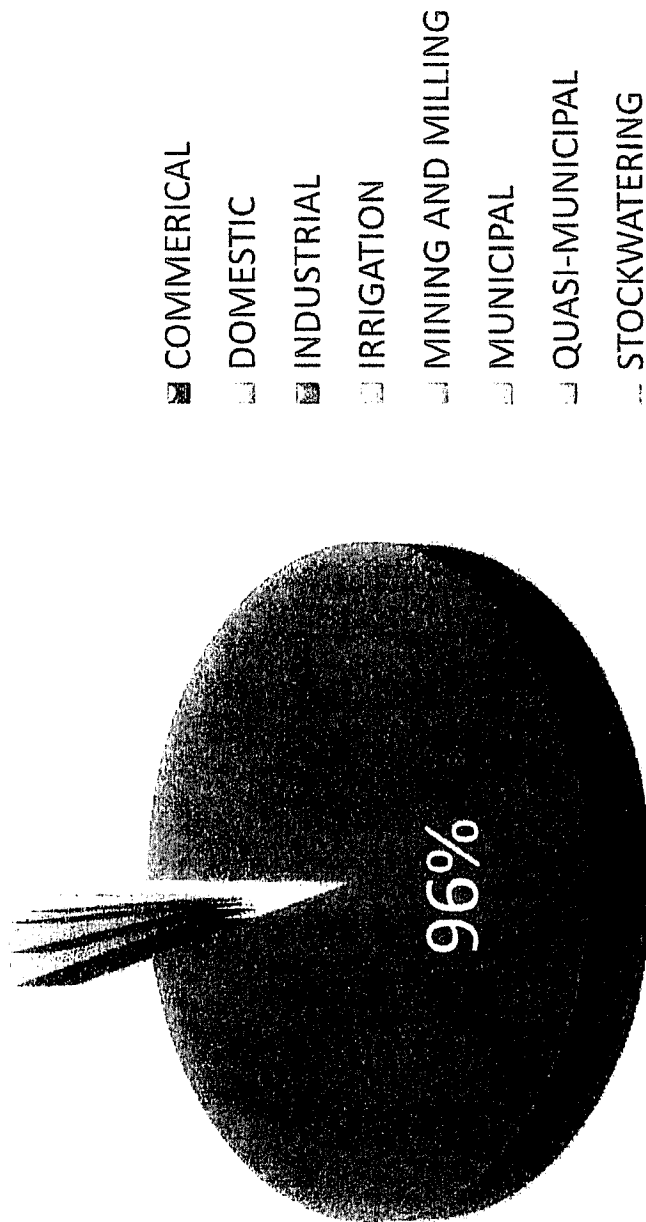
•Hydrographic Area Number	10-153
•Designated	Yes
•State Engineer Orders	
•277 – Designation	August 5, 1964
•280 – Amended Designation	August 28, 1964
•541 – Notification of Curtailment	December 22, 1975
•717 - Notification of Curtailment	July 10, 1978
•815 – Amended Designation	April 4, 1983
•Committed Ground-water Resources	133,248 Acre-Feet
•Perennial Yield	30,000 Acre-Feet
•Reference	USGS Bulletin 35
•Consumptive Use (Alfalfa)	2.3 Acre-feet



# Ground-water Development Manner Of Use

<u>MANNER USE</u>	<u>ACRE-FEET</u>
Commercial	3
Domestic	34
Industrial	40
Irrigation	128,320
Mining and Milling	1,707
Municipal	1,679
Quasi-Municipal	483
Stockwatering	987
<b>TOTAL</b>	<b>133,248 AF</b>

# DIAMOND VALLEY BASIN SUMMARY BY MANNER OF USE

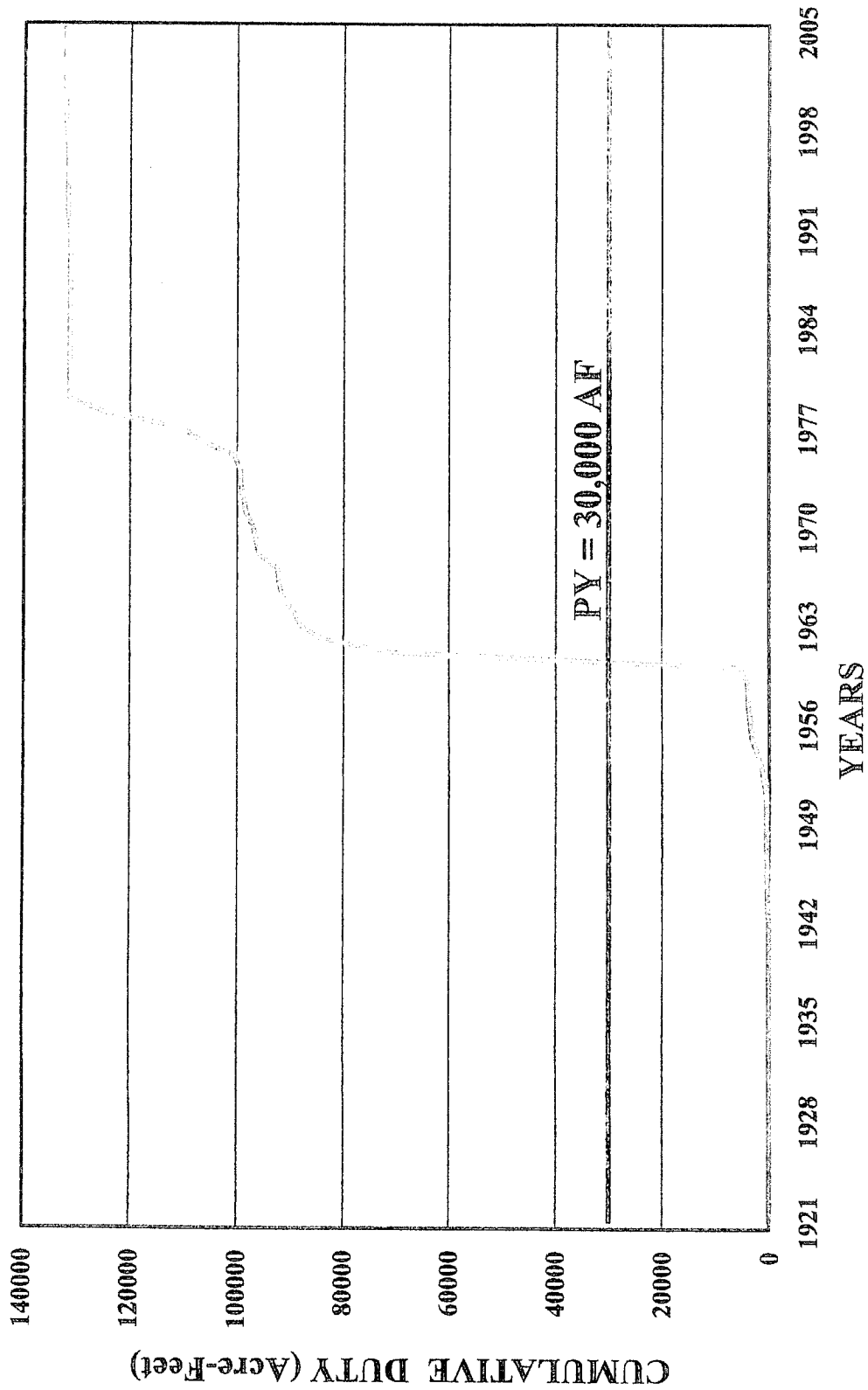


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# WATER RIGHTS IN DIAMOND VALLEY

## 1921 - 2005



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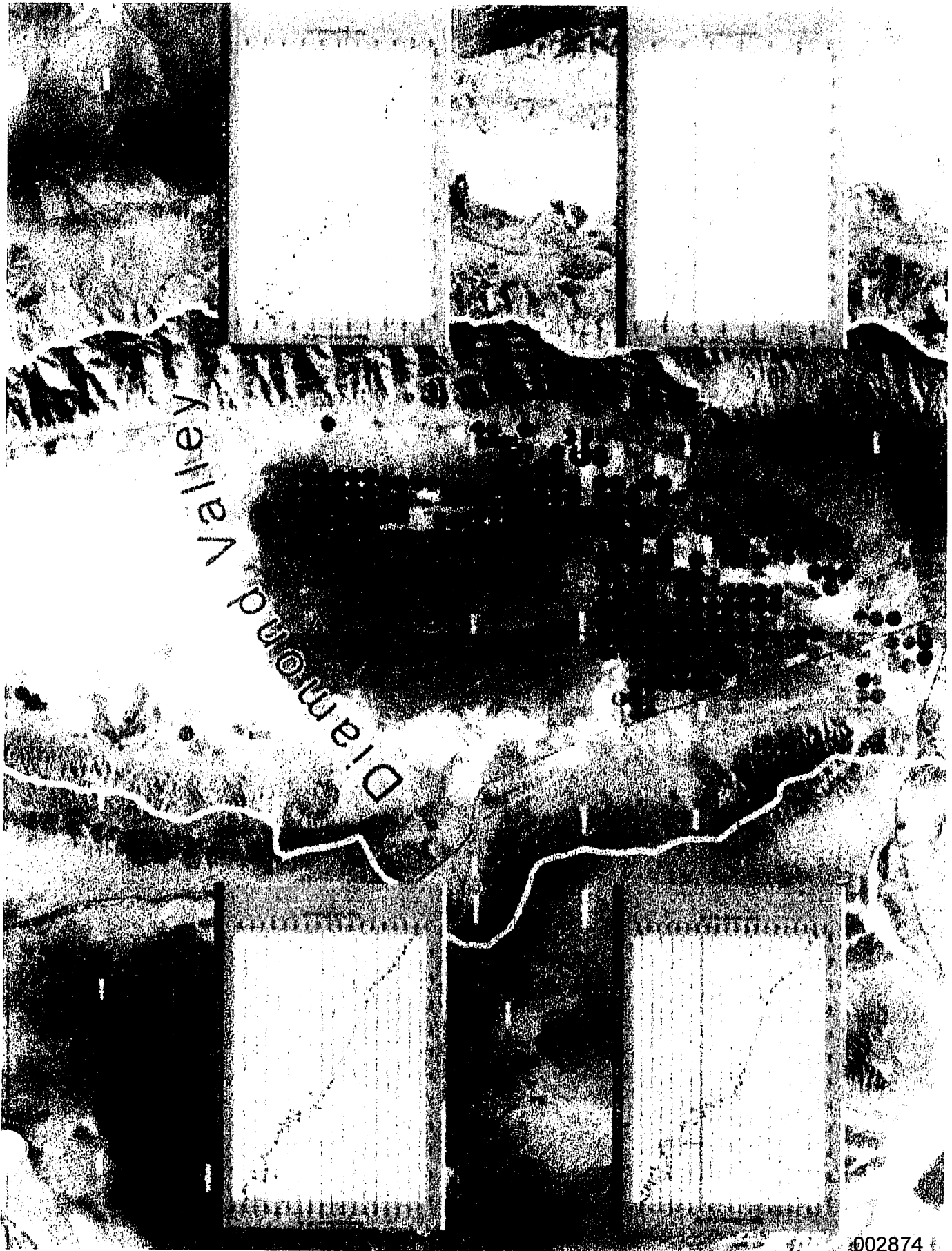
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# GROUND-WATER DEVELOPMENT

- First Ground-water Irrigation Water Right Approved 1951
- First Estimates of Irrigated Acreage
  - 1957 500 acres (1,180 ac-ft)
  - 1958 370 acres (1,854 ac-ft)
- Major Ground-water Development in 1960's
  - 1965 19,300 ac-ft
  - 1966 22,400 ac-ft
  - 1967 19,360 ac-ft
  - 1968 18,160 ac-ft
  - 1969 22,900 ac-ft
- Electricity Comes to Diamond Valley
  - 1975 to 1981 ~ 70,000 ac-ft/year

# Diamond Valley Ground-Water Basin

- Estimated perennial yield = 30,000 acre-feet
- Total committed water rights around 133,000 acre-feet
- Review water-level declines in the south half of the valley in response to development
- How much is pumped each year?
- Where do we get the pumpage values?



Diamond Valley

002874

# Estimated Irrigated Acreage and Estimated Ground-Water Pumpage, Diamond Valley, Nevada, 1950-2008

- Review the historical inventories of irrigated acreage
- Early estimate of the duty of water applied
- Overall capacity of the wells in the valley
- Growing season
- Estimating pumpage
- Total ground-water pumpage

## Estimated Irrigated Acreage Diamond Valley, Nevada, 1950-2008

- Early historical inventories of irrigated acreage were made by the State Engineer's Office and USGS.
- Between 1950 and 1960 the total ground water pumped was less than 3,000 acre-feet annually.
- First crop inventory published in 1965 with 7,600 acres irrigated, 16,000 acre-feet used for a duty of about 2.1 acre-feet per acre.



# Estimated Duty Diamond Valley, Nevada, 1950-2008

- This duty gradually increased in the State Engineer's inventories to about 2.5 acre-feet per acre through 1974.
- After 1975 all crop inventories use about 3 acre-feet per acre.
- So, how did we generate these duty values?

# Estimated Duty

## Diamond Valley, Nevada, 1950-2008

- Based on the climate data available in 1975, the State Engineer estimated the consumptive use of water for alfalfa at 1.9 acre-feet per acre.
- Then we applied an irrigation efficiency of between 65 and 75 percent for a gross pumpage estimate of 2.5 to 3.0 acre-feet per acre.
- What other ways can we estimate pumpage?

# Well Capacity in Diamond Valley

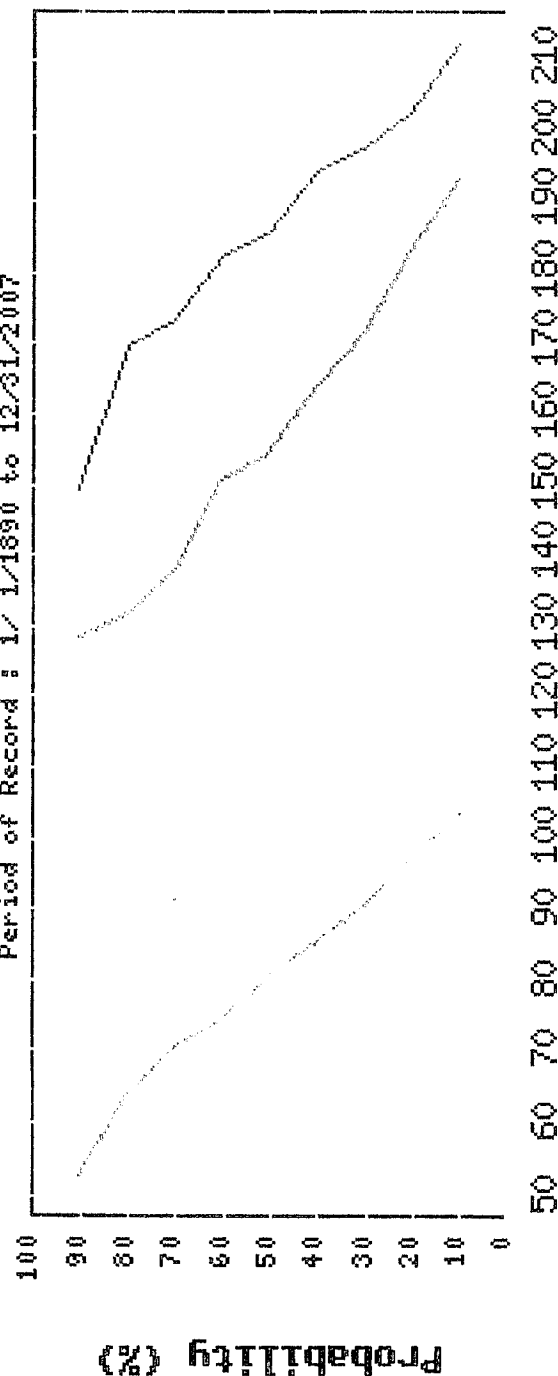
- USGS published results of 285 well tests, 71% of which were within T21N, R53E & R54E.
- Median value of wells tested was about 905 gallons per minute (gpm), (Arteaga et al., Figure 4, p. 9, 1995).
- $905 \text{ gpm} / 448.83 \text{ gpm/cfs} = 2.0 \text{ cubic feet per second}$ .
- $2.0 \text{ cfs} * 1.98 \text{ acre-feet per day per cfs} = 4.00 \text{ AF per day per well}$ .
- Estimating the number of days of round-the-clock operation gives total acre-feet pumped each season per well.

# Estimated Growing Season

EUREKA, NEVADA (262708)

Probability for # of days between last spring and first fall occurrences of given temperature

Period of Record : 1/ 1/1890 to 12/31/2007



Number of Days

— 20°F — 24°F — 28°F — 32°F — 36°F

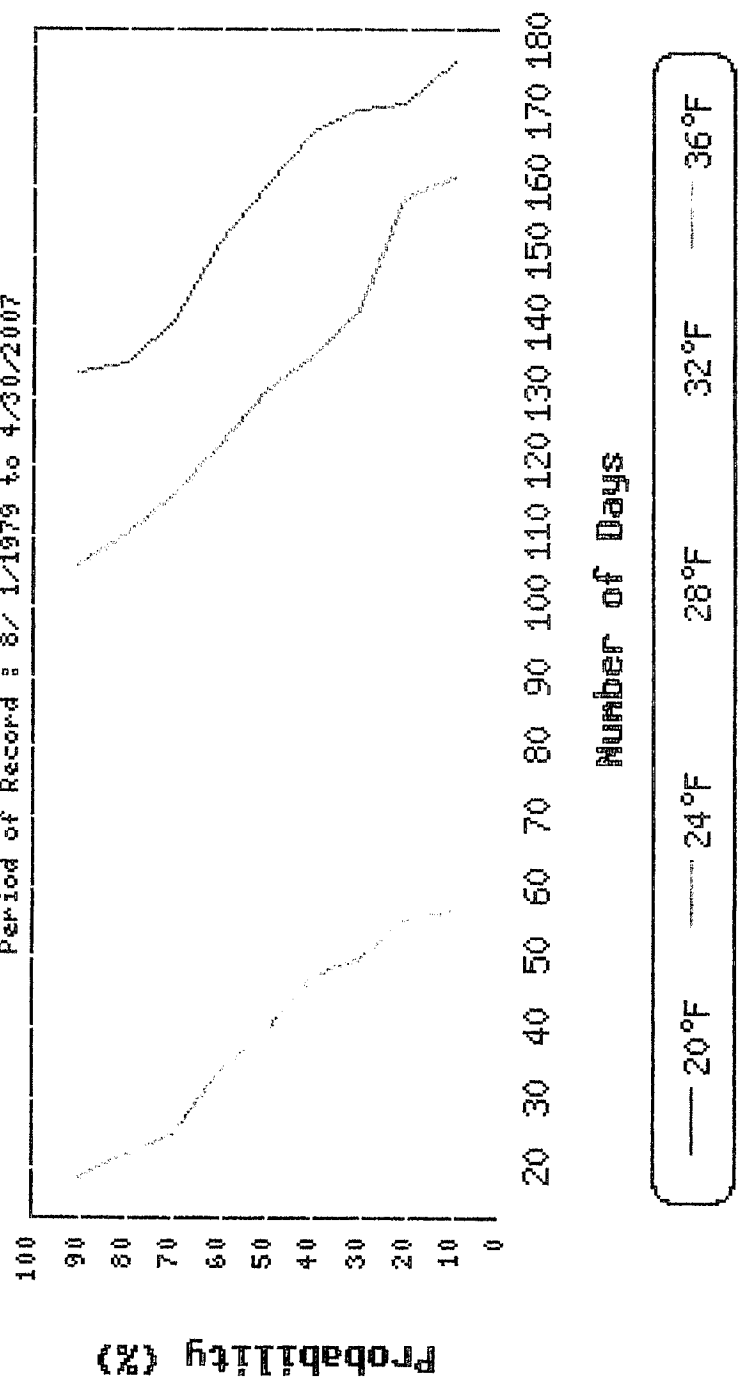
Western  
Regional  
Climate  
Center

# Estimated Growing Season

DIAMOND VALLEY USDA, NEVADA (262296)

Probability for # of days between last spring and first fall occurrences of given temperature

Period of Record : 8/ 1/1979 to 4/30/2007



Hestern  
Regional  
Climate  
Center

# Length of 'Freeze Free' Season Probabilities

## DIAMOND VALLEY USDA, NEVADA (262296)

Temp F	Shortest	90%	80%	70%	60%	50%	40%	30%	20%	10%	Longest
36.5	1	18	21	24	33	38	47	49	54	56	59
32.5	35	41	59	64	70	79	82	84	90	93	95
28.5	74	76	83	86	91	96	97	109	115	129	136
24.5	96	105	110	115	122	130	135	141	158	160	164
20.5	113	133	134	140	151	159	167	170	171	177	188

### Graphic Output

Shortest - Least number of consecutive days recorded with minimum temperature above threshold.

\*\*\* means minimum temperature below threshold has not occurred.

xx% - Percent probability that a consecutive number of days will occur with the minimum temperature not below the threshold.

\*\*\* means non-occurrence of the threshold

Longest - Greatest number of consecutive days recorded with minimum temperature above threshold.

\*\*\* means that at least one year occurred when minimum temperature below threshold was not recorded.

Note: All periods include August 1.

Western Regional Climate Center, [wrccl@dri.edu](mailto:wrccl@dri.edu)

# Estimating Pumpage in Diamond Valley

- So, if we choose the 50 percentile value between 24 and 28 degrees as our frost free growing season of 115 days, and we assume about 21 days when pumps are off for cutting and bailing hay, gives an average of 94 days of round the clock pumpage.
- 94 days at 4.0 acre-feet per day = 376 acre-feet per well.
- 376 acre-feet per 125 acre pivot = 3.01 acre-feet per acre.

...OR...

# Estimating Pumpage in Diamond Valley

- Using the number of active wells recorded for the inventoried years 1975-1994
- Dividing the total pumpage each year by the number of active wells yields an average of about 386 acre-feet per well
- $386 \text{ acre-feet per well} / 125 \text{ acre pivots} = 3.1 \text{ acre-feet per acre}$

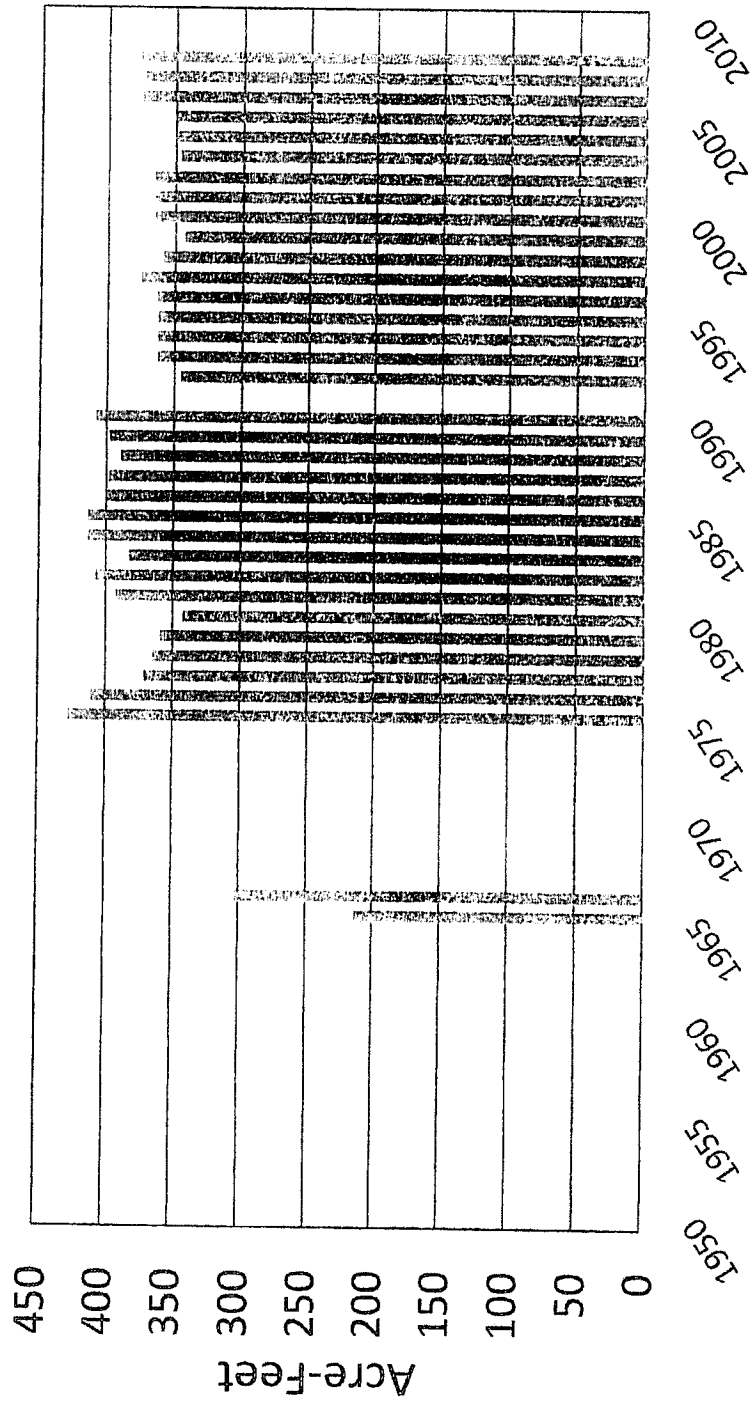
3/19/2009

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# Diamond Valley, Nevada

■ Estimated pumpage per well per season - acre-feet



# Estimating Pumpage in Diamond Valley

- The pumpage estimate reported by the USGS (Arteaga, et al., 1995, p.5) for the year 1990, confirming Landsat imagery with field checking, was 64,400 acre-feet on 22,200 acres for an overall duty of 2.90 acre-feet per acre.

# Average Pumpage in Diamond Valley

- Inventoried acreage in 2008 was 24,220 acres, 193 active wells
- $24,220 \text{ acres} / 125 \text{ acres per pivot} = 193.76$  equivalent pivots
- 193 wells at 4.0 acre-feet per day = 772 acre-feet per day
- $772 \text{ acre-feet per day} * 94 \text{ pumping days} = 72,568$  acre-feet per season

# Average Pumpage in Diamond Valley

- $72,568 \text{ acre-feet} / 24,220 \text{ acres} = 3.00 \text{ acre-feet per acre}$
- Even if we use  $772 \text{ acre-feet per day} * 100 \text{ pumping days}$   
maximum =  $77,200 \text{ acre-feet per season}$
- $77,200 \text{ acre-feet} / 24,220 \text{ acres} = 3.19 \text{ acre-feet per acre}$

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# Historical Perspective: Orders of the State Engineer in Diamond Valley

- 277 – Designation August 5, 1964
- 280 – Amended Designation August 28, 1964
  - Removed Town of Eureka
- 541 – Curtailment December 22, 1975
  - Irrigation Denied unless Previously Forfeited
- 717 - Curtailment July 10, 1978
  - All Irrigation Denied after December 31, 1978

# Orders of the State Engineer in Diamond Valley

- 809 Totalizing Meter                      December 1, 1982
- 813 Amending Order 809              February 7, 1983
  - Totalizing Meter or Authorized Measuring Device
- 815 – Amended Designation              April 4, 1983
  - Entire Basin – No Exceptions

## Previous Meetings in Diamond Valley

- 1982 Curtailment Hearing – Concern was that the valley's irrigators were going to reach a point where economic survival was going to be a factor because pumping would not be economical and decreased spring flow was a problem that was not going to go away.



# Formation of Diamond Valley Ground-Water Board (NRS 534.035)

February 6, 1992

- State Engineer Mike Turnipseed offered the following suggestions to control ground-water pumping.
  1. Forfeit those water rights that have not been used in a long time;
  2. Everyone should take a cut across the board. This could be accomplished by Order of the State;
  3. The State Engineer could reduce duties to an appropriate level; or
  4. Water rights could be cut by priority as set forth in NRS 534.

\* Mr. Turnipseed's recollection is that the formation of the board failed due to funding issues.

# State Engineer Options

- Regulate by Priority
- Forfeit water rights
- Change irrigation rights for consumptive use only
- Cancel water rights for failure to show due diligence
- Deny all extension of time requests and call for PBU's
- Impose fines and penalties for over pumping, pumping outside the permitted place of use or any other violation of the water law, permits, certificates, statutes or regulations

# GROUND-WATER RIGHTS BY PRIORITY

AppStatus	Duty_balanceUnits	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
V03033 VST	0.00NULL		0.00STK			
6369 CER	6.23 AFS		6.23 STK			1/6/1921
6584 CER	12.03 AFS		18.26 STK			11/7/1921
V02959 VST			18.26 STK			1/1/1929
10824 CER	67.21 AFA		85.47 STK			5/8/1942
10827 CER	67.30 AFA		152.77 STK			5/19/1942
11004 CER	68.33 AFA		221.10 STK			9/23/1943
11008 CER	67.21 AFA		288.31 STK			9/23/1943
11359 CER	144.79 AFA		433.10 MM			8/17/1945
13198 CER	25.41 AFA		458.51 STK			12/19/1949
13200 CER	25.41 AFA		483.92 STK			12/19/1949
13580 CER	25.35 AFA		509.27 STK			12/26/1950
30927 CER	69.12 AFA		578.39 IRR	17.28	17.28	3/2/1951
44606 CER	12.64 AFA		591.03 IRR	3.16	20.44	3/2/1951
44609 CER	158.44 AFA		749.47 IRR	39.61	60.05	3/2/1951
13726 CER	6.51 AFA		755.97 STK		60.05	5/18/1951
13727 CER	8.68 AFA		764.66 STK		60.05	5/18/1951
48871 CER	525.60 AFA		1290.26 IRR	131.4	191.45	9/17/1951
70588 PER	0.00 AFA		1290.26 IRR		191.45	9/17/1951
44451 CER	576.58 AFA		1866.84 IRR	144.15	335.60	3/30/1953
53872 CER	617.20 AFA		2484.04 IRR		335.60	3/30/1953
14948 CER	617.20 AFA		3101.24 IRR	308.6	644.20	3/30/1953
71748 PER	630.24 AFA		3731.48 IRR	157.56	801.76	5/9/1955
17226 CER	52.40 AFA		3783.88 IRR	13.1	814.86	3/29/1957
22450 CER	267.60 AFA		4051.48 IRR	66.9	881.76	3/29/1957
18242 CER	1280.00 AFA		5331.48 IRR	320	1201.76	8/13/1959
72370 PER	AFA		5331.48 IRR		1201.76	8/13/1959
18621 CER	825.16 AFA		6156.64 IRR	206.29	1408.05	3/7/1960
18622 CER	AFA		6156.64 IRR		1408.05	3/7/1960
18623 CER	1112.88 AFA		7269.52 IRR	278.23	1686.27	3/7/1960
22551 CER	AFA		7269.52 IRR		1686.27	3/7/1960

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# GROUND WATER RIGHTS BY PRIORITY

AppStatus	Duty_balanceUnits	Cumulative total		Acres	Cumulative Acres	Priority_date
		duties	Use			
22194CER	537.04 AFA	7806.56 IRR		134	1820.27	3/7/1960
22195CER	622.00 AFA	8428.56 IRR		155.5	1975.77	3/7/1960
22648CER	1186.88 AFA	9615.44 IRR		296.72	2272.49	3/7/1960
22921CER	AFS	9615.44 IRR			2272.49	3/7/1960
22922CER	646.36 AFS	10261.80 IRR		161.59	2434.08	3/7/1960
27976CER	504.48 AFA	10766.28 IRR		126.12	2560.20	3/7/1960
55727CER	20.56 AFA	10786.84 IRR		5.139	2565.34	3/7/1960
64630CER	288.67 AFA	11075.51 IRR		72.71	2638.05	3/7/1960
64631CER	AFA	11075.51 IRR			2638.05	3/7/1960
64632CER	AFA	11075.51 IRR			2638.05	3/7/1960
36321CER	AFS	11075.51 IRR			2638.05	3/7/1960
36322CER	AFS	11075.51 IRR			2638.05	3/7/1960
42891CER	141.77 AFA	11217.28 IRR		35.44	2673.49	3/7/1960
22982CER	1260.80 AFA	12478.08 IRR		315.2	2988.69	3/9/1960
24609CER	1108.14 AFA	13586.22 IRR		280.8	3269.49	3/14/1960
22352CER	129.28 AFA	13715.50 IRR		32.32	3301.81	3/21/1960
70940CER	502.72 AFA	14218.22 IRR		125.68	3427.49	3/21/1960
22353CER	632.00 AFS	14850.22 IRR		158	3585.49	3/21/1960
23803CER	684.80 AFA	15535.02 IRR		171.2	3756.69	4/11/1960
18714CER	836.00 AFA	16371.02 IRR		209	3965.69	4/11/1960
24574CER	680.68 AFA	17051.70 IRR		170.17	4135.86	4/22/1960
23271CER	1270.80 AFA	18322.50 IRR		317.7	4453.56	4/22/1960
23272CER	640.00 AFA	18962.50 IRR		160	4613.56	4/22/1960
22566CER	468.00 AFA	19430.50 IRR		117	4730.56	4/22/1960
22567CER	468.00 AFA	19898.50 IRR			4730.56	4/22/1960
28641CER	640.00 AFA	20538.50 IRR		160	4890.56	4/22/1960
29405CER	591.32 AFS	21129.82 IRR		147.83	5038.39	4/22/1960
57838CER	172.00 AFA	21301.82 IRR		43	5081.39	4/22/1960
50963CER	172.00 AFA	21473.82 IRR		43	5124.39	4/22/1960
77328T	PER	21473.82 IRR			5124.39	4/22/1960
18786CER	AFA	22753.82 IRR		320	5444.39	5/2/1960
18787CER	AFA	22753.82 IRR			5444.39	5/2/1960

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# GROUND WATER RIGHTS BY PRIORITY

App Status	Duty_balance Units	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
18788 CER	1280.00 AFA	24033.82 IRR			5444.39	5/2/1960
18789 CER	AFA	24033.82 IRR			5444.39	5/2/1960
18794 CER	480.00 AFA	24513.82 IRR		120	5564.39	5/2/1960
18796 CER	640.00 AFA	25153.82 IRR		160	5724.39	5/2/1960
18797 CER	640.00 AFA	25793.82 IRR		160	5884.39	5/2/1960
48948 CER	478.56 AFA	26272.38 IRR		119.64	6004.03	5/3/1960
28036 CER	277.00 AFA	26549.38 IRR		69.25	6073.28	5/3/1960
18802 CER	640.00 AFA	27189.38 IRR		160	6233.28	5/4/1960
18834 CER	1276.23 AFA	28465.61 IRR		319.06	6552.34	5/12/1960
18835 CER	1277.80 AFA	29743.41 IRR		319.45	6871.79	5/12/1960
23808 CER	544.00 AFA	30803.85 IRR		136	7136.90	5/16/1960
70587 PER	AFA	30803.85 IRR			7136.90	5/16/1960
24127 CER	1280.00 AFA	32083.85 IRR		320	7456.90	5/18/1960
24128 CER	AFA	32083.85 IRR			7456.90	5/18/1960
24129 CER	1240.80 AFA	33324.65 IRR		310.2	7767.10	5/18/1960
24130 CER	AFA	33324.65 IRR			7767.10	5/18/1960
24264 CER	928.92 AFA	34253.57 IRR		232.23	7999.33	6/3/1960
24265 CER	944.00 AFA	35197.57 IRR		236	8235.33	6/3/1960
57839 PER	164.00 AFA	35361.57 IRR		41	8276.33	6/3/1960
57840 PER	148.92 AFA	35510.49 IRR		37.23	8313.56	6/3/1960
66062 PER	303.08 AFA	35813.57 IRR		75.77	8389.33	6/3/1960
73431 PER	346.61 AFA	36160.18 MM			8389.33	6/6/1960
75105 PER	39.20 AFA	36199.38 MM			8389.33	6/6/1960
42019 CER	AFA	36199.38 IRR			8389.33	6/6/1960
18908 CER	447.57 AFS	36646.95 IRR		111.89	8501.22	6/6/1960
18978 CER	1023.36 AFA	37670.31 IRR		255.84	8757.06	6/6/1960
18911 CER	1176.00 AFA	38846.31 IRR		294	9051.06	6/8/1960
18927 CER	1280.00 AFA	40126.31 IRR		320	9371.06	6/14/1960
18928 CER	AFA	40126.31 IRR			9371.06	6/14/1960
18975 CER	727.28 AFA	40853.59 IRR		181.82	9552.88	7/1/1960
34950 CER	502.72 AFA	41356.31 IRR		125.68	9678.56	7/1/1960

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# GROUND WATER RIGHTS BY PRIORITY

App Status	Duty_balance Units	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
39552 CER	552.12 AFA	41908.43 IRR		138.03	9816.59	7/6/1960
39553 CER	543.24 AFA	42451.67 IRR		135.81	9952.40	7/6/1960
18981 CER	80.76 AFA	42532.43 IRR		20.19	9972.59	7/6/1960
18988 CER	640.00 AFA	43172.43 IRR		160	10132.59	7/8/1960
18989 CER	640.00 AFA	43812.43 IRR		160	10292.59	7/8/1960
72936 PER	15.00 AFA	43827.43 QM			10292.59	7/8/1960
66207 PER	10.00 AFA	43837.43 QM			10292.59	7/8/1960
66208 PER	215.01 AFA	44052.45 QM			10292.59	7/8/1960
18999 CER	91.20 AFA	44143.65 IRR		22.8	10315.39	7/11/1960
21426 CER	640.00 AFA	44783.65 IRR		160	10475.39	7/11/1960
21839 CER	632.00 AFA	45415.65 IRR		158	10633.39	7/11/1960
21841 CER	632.00 AFA	46047.65 IRR		158	10791.39	7/11/1960
21843 CER	624.00 AFA	46671.65 IRR		156	10947.39	7/11/1960
21844 CER	632.00 AFA	47303.65 IRR		158	11105.39	7/11/1960
42021 CER	548.80 AFA	47852.45 IRR		137.2	11242.59	7/11/1960
19014 CER	640.00 AFA	48492.45 IRR		160	11402.59	7/13/1960
19015 CER	189.36 AFA	48681.81 IRR		47.34	11449.93	7/13/1960
77145 PER	442.64 AFA	49124.45 IRR		110.66	11560.59	7/13/1960
19052 CER	AFA	49124.45 IRR			11560.59	7/21/1960
19053 CER	AFA	49124.45 IRR			11560.59	7/21/1960
19110 CER	640.00 AFA	49764.45 IRR		160	11720.59	8/10/1960
19111 CER	622.00 AFA	50386.45 IRR		155.5	11876.09	8/10/1960
43268 CER	782.10 AFA	51168.55 IRR		195.52	12071.61	8/12/1960
21427 CER	632.00 AFA	51800.55 IRR		158	12229.61	8/22/1960
21428 CER	624.00 AFA	52424.55 IRR		156	12385.61	8/22/1960
19145 CER	640.00 AFA	53064.55 IRR		160	12545.61	8/24/1960
24606 CER	1232.00 AFA	54296.55 IRR		308	12853.61	9/7/1960
19191 CER	524.30 AFA	54820.85 IRR		131.08	12984.69	9/9/1960
19192 CER	596.60 AFA	55417.45 IRR		149.15	13133.84	9/9/1960
19218 CER	735.68 AFA	56153.13 IRR		183.92	13317.76	9/23/1960
24607 CER	1232.00 AFA	57385.13 IRR		308	13625.76	9/29/1960
21929 CER	630.40 AFA	58015.53 IRR		157.6	13783.36	10/6/1960

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# GROUND WATER RIGHTS BY PRIORITY

AppStatus	Duty_balance Units	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
21930CER	635.20 AFA	58650.73 IRR		158.8	13942.16	10/6/1960
22315CER	584.40 AFA	59235.13 IRR		146.1	14088.26	10/6/1960
22316CER	628.80 AFA	59863.93 IRR		157.5	14245.76	10/6/1960
21399CER	1013.16 AFS	60877.09 IRR		253.29	14499.05	10/10/1960
19279CER	332.00 AFA	61209.09 IRR		83	14582.05	10/17/1960
64633CER	AFA	61209.09 IRR			14582.05	10/17/1960
48226CER	300.00 AFS	61509.09 IRR		75	14657.05	10/17/1960
44621CER	AFA	61509.09 IRR			14657.05	10/17/1960
23739CER	902.76 AFA	62411.85 IRR		225.69	14882.74	10/24/1960
19292CER	559.20 AFA	62971.05 IRR		139.8	15022.54	10/24/1960
19293CER	529.60 AFA	63500.65 IRR		132.4	15154.94	10/24/1960
35418CER	4.00 AFA	63504.65 IRR		1	15155.94	11/2/1960
47521CER	168.24 AFS	63672.89 IRR		42.06	15198.00	11/2/1960
54409CER	4.00 AFA	63676.89 QM			15198.00	11/2/1960
55660PER	16.00 AFA	63692.89 QM			15198.00	11/2/1960
73573PER	240.00 AFA	63932.89 IRR		305.92	15503.92	11/2/1960
19324CER	632.00 AFA	64564.89 IRD		158	15661.92	11/9/1960
22937CER	632.00 AFA	65196.89 IRR		158	15819.92	11/9/1960
19360CER	620.00 AFS	65816.89 IRD		155	15974.92	11/25/1960
19361CER	620.00 AFA	66436.89 IRD		155	16129.92	11/25/1960
19371CER	362.40 AFA	66799.29 IRR		90.6	16220.52	12/5/1960
64315PER	52.00 AFA	66851.29 IRR		13	16233.52	12/5/1960
19378CER	979.20 AFA	67830.49 IRR		244.8	16478.32	12/9/1960
19379CER	632.00 AFA	68462.49 IRD		158	16636.32	12/9/1960
19381CER	960.00 AFA	69422.49 IRR		240	16876.32	12/9/1960
24605CER	276.80 AFA	69699.29 IRR		40	16916.32	12/9/1960
19411CER	384.00 AFA	70083.29 IRR		96	17012.32	12/19/1960
72918PER	226.00 AFA	70309.29 NIM			17012.32	12/19/1960
73204PER	16.00 AFA	70325.29 NIM			17012.32	12/19/1960
19490CER	692.28 AFA	71017.57 IRD		173.07	17185.39	1/25/1961
19492CER	1256.00 AFA	72273.57 IRD		314	17499.39	1/27/1961
19500CER	664.40 AFA	72937.97 IRR		166.1	17665.49	1/27/1961

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# GROUND WATER RIGHTS BY PRIORITY

App Status	Duty_balance Units	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
19501 CER	657.92 AFA	73595.89	IRD	164.48	17829.97	1/27/1961
19502 CER	609.08 AFA	74204.97	IRR	152.27	17982.24	1/27/1961
22217 CER	654.28 AFA	74859.25	IRR	163.57	18145.81	1/27/1961
19526 CER	1204.00 AFA	76063.25	IRR	301	18446.81	2/3/1961
19541 CER	565.20 AFS	76628.45	IRR	141.3	18588.11	2/8/1961
19542 CER	468.00 AFA	77096.45	IRR	117	18705.11	2/8/1961
19563 CER	1279.48 AFA	78375.93	IRR	319.87	19024.98	2/13/1961
19760 CER	1276.00 AFA	79651.93	IRR	319	19343.98	4/18/1961
24272 CER	640.00 AFA	80291.93	IRR	160	19503.98	4/18/1961
46505 CER	510.40 AFA	80802.33	IRR	127.6	19631.58	4/18/1961
19904 CER	16.00 AFA	80818.33	IRR	4	19635.58	6/6/1961
19965 CER	632.00 AFA	81450.33	IRD	158	19793.58	7/3/1961
19966 CER	624.00 AFA	82074.33	IRR	156	19949.58	7/3/1961
19971 CER	AFA	82074.33	IRD		19949.58	7/3/1961
19972 CER	756.20 AFA	82830.53	IRR	189.05	20138.63	7/3/1961
19973 CER	525.12 AFA	83355.65	IRR	131.28	20269.91	7/3/1961
46348 CER	AFA	83355.65	IRR		20269.91	7/3/1961
34948 CER	AFA	83355.65	IRR		20269.91	7/3/1961
28160 CER	AFA	83355.65	IRR		20269.91	7/3/1961
20000 CER	AFA	83355.65	IRD		20269.91	7/3/1961
20001 CER	128.00 AFA	83483.65	IRR	32	20301.91	7/24/1961
20015 CER	AFA	83483.65	IRD		20301.91	7/24/1961
20046 CER	640.00 AFA	84123.65	IRR	160	20461.91	7/28/1961
20087 CER	8.00 AFA	84131.65	IRD	2	20463.91	8/23/1961
20088 CER	16.00 AFA	84147.65	IRD	4	20467.91	9/19/1961
24262 CER	15.08 AFA	84162.73	IRR	3.77	20471.68	9/19/1961
24263 CER	AFA	84162.73	IRR		20471.68	9/19/1961
57835 PER	AFA	84162.73	IRR		20471.68	9/19/1961
57836 PER	AFA	84162.73	IRR		20471.68	9/19/1961
20366 CER	638.31 AFS	84801.04	IRR	159.58	20631.26	3/14/1962
20376 CER	136.80 AFA	84937.84	IRR	34.2	20665.46	3/21/1962
21561 CER	AFA	84937.84	IRR		20665.46	3/21/1962

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# GROUND WATER RIGHTS BY PRIORITY

App Status	Duty_balance Units	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
63247PER	46.00 AFA	84983.84 QM			20665.46	3/21/1962
62929PER	639.99 AFA	85623.82 MUN			20665.46	5/23/1962
57856PER	200.00 AFA	85823.82 MUN			20665.46	5/23/1962
57857PER	180.00 AFA	86003.82 MUN			20665.46	5/23/1962
20478CER	AFA	86003.82 IRR			20665.46	5/23/1962
20479CER	AFA	86003.82 IRR			20665.46	5/23/1962
76526PER	20.00 AFA	86023.82 MUN			20665.46	5/23/1962
20487CER	510.80 AFA	86534.62 IRR		127.7	20793.16	5/25/1962
50962CER	129.20 AFA	86663.82 IRR		32.3	20825.46	5/25/1962
20495CER	33.60 AFS	86697.43 DOM			20825.46	5/31/1962
20565CER	292.00 AFA	86989.43 IRR		73	20898.46	7/12/1962
20694CER	AFA	86989.43 IRR			20898.46	9/6/1962
48872CER	327.10 AFA	87316.53 IRR		81.775	20980.23	12/10/1962
67172PER	495.07 AFA	87811.60 IRR		123.77	21104.00	12/10/1962
67173PER	327.80 AFA	88139.40 IRR		81.95	21185.95	12/10/1962
21085CER	625.60 AFA	88765.00 IRD		156.4	21342.35	2/18/1963
43270CER	217.90 AFA	88982.90 IRR		54.475	21396.83	8/7/1963
25757CER	402.00 AFA	89384.90 IRR		100.5	21497.33	8/16/1963
23738CER	AFA	89384.90 IRR			21497.33	10/30/1963
44452CER	637.02 AFS	90021.92 IRR		159.26	21656.58	3/4/1964
40010CER	458.64 AFA	90480.56 IRR		114.65	21771.23	8/6/1964
40011CER	108.59 AFA	90589.15 IRR		27.4	21798.63	8/6/1964
68448PER	87.28 AFA	90676.43 IRR		21.82	21820.45	8/6/1964
68449PER	249.52 AFA	90925.95 IRR		62.38	21882.83	8/6/1964
49731CER	8.96 AFA	90934.91 STK			21882.83	8/19/1964
49732CER	8.96 AFA	90943.87 STK			21882.83	8/19/1964
68923PER	242.00 AFA	91185.87 IRR		60.5	21943.33	10/19/1964
71234PER	55.20 AFA	91241.07 MM			21943.33	10/19/1964
72917PER	42.00 AFA	91283.07 MM			21943.33	10/19/1964
74679PER	144.80 AFA	91427.87 MM			21943.33	10/19/1964
22449CER	282.80 AFA	91710.67 IRR		70.7	22014.03	2/22/1965
50581CER	249.66 AFS	91960.33 IRR		62.415	22076.45	12/13/1965
77083PER	204.74 AFA	92165.07 IRR		51.185	22127.63	12/13/1965

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# GROUND WATER RIGHTS BY PRIORITY

23462 CER	AFA	92165.07 IRR	22127.63	10/28/1966
23479 CER	89.61 AFA	92254.68 STK	22127.63	11/7/1966
23480 CER	26.79 AFA	92281.47 STK	22127.63	11/7/1966
23481 CER	40.54 AFA	92322.01 STK	22127.63	11/7/1966
23711 CER	AFA	92322.01 IRR	22127.63	2/23/1967
23807 CER	547.88 AFA	92869.89 IRR	22292.63	4/17/1967
50650 CER	640.00 AFA	93509.89 IRR	22452.63	4/17/1967
29765 CER	656.20 AFA	94166.09 IRR	22616.68	5/15/1967
23893 CER	AFA	94166.09 IRR	22616.68	5/25/1967
23918 CER	271.20 AFA	94437.29 IRR	22684.48	6/5/1967
49924 CER	5.86 AFA	94443.15 QM	22684.48	6/5/1967
77315 TPER	24.55 AFA	94467.70 QM	22684.48	6/5/1967
71843 PER	9.85 AFA	94477.55 QM	22684.48	6/5/1967
64117 PER	5.16 AFA	94482.71 QM	22684.48	6/5/1967
47520 CER	638.72 AFS	95121.43 IRR	22844.16	7/13/1967
24012 CER	5.59 AFA	95127.01 STK	22844.16	7/19/1967
24202 CER	27.50 AFA	95154.51 STK	22844.16	11/6/1967
24203 CER	36.92 AFA	95191.43 STK	22844.16	11/6/1967
24204 CER	44.19 AFA	95235.62 STK	22844.16	11/6/1967
24205 CER	43.42 AFA	95279.04 STK	22844.16	11/6/1967
71963 PER	45.18 AFA	95324.22 STK	22844.16	11/6/1967
67902 PER	6.72 AFA	95330.94 QM	22844.16	11/13/1967
24214 CER	593.59 AFS	95924.53 IRR	22992.56	11/13/1967
28061 CER	AFA	95924.53 IRR	22992.56	12/11/1967
63052 PER	44.73 AFA	95969.26 QM	22992.56	2/22/1968
24378 CER	154.00 AFA	96123.26 IRR	23031.06	2/22/1968
24608 CER	AFA	96123.26 IRR	23031.06	7/25/1968
24610 CER	44.81 AFA	96168.07 STK	23031.06	7/25/1968
24827 CER	AFA	96168.07 IRR	23031.06	12/30/1968
75107 PER	32.80 AFA	96200.87 MM	23031.06	12/30/1968
73629 PER	1.88 AFA	96202.74 STK	23031.06	12/30/1968
73432 PER	162.84 AFA	96365.58 MM	23031.06	12/30/1968
30102 CER	640.00 AFA	97005.58 IRR	23191.06	8/27/1969

# GROUND WATER RIGHTS BY PRIORITY

App Status	Duty_balance Units	Cumulative total		Acres	Cumulative Acres	Priority_date
		duties	Use			
51647 CER	578.80 AFA	97584.38 IRR		144.7	23335.76	9/14/1970
46287 CER	632.00 AFA	98216.38 IRR		158	23493.76	9/14/1970
25820 CER	36.83 AFA	98253.21 MM			23493.76	10/5/1970
47591 CER	508.80 AFA	98762.01 IRR		127.2	23620.96	12/14/1971
26542 CER	101.34 AFA	98863.34 MUN			23620.96	2/9/1972
26543 CER	36.18 AFA	98899.53 MUN			23620.96	2/9/1972
26544 CER	50.67 AFA	98950.19 MUN			23620.96	2/9/1972
26664 CER	160.00 AFA	99110.19 IRR		40	23660.96	4/12/1972
56652 CER	160.00 AFA	99270.19 IRR		40	23700.96	4/12/1972
29278 CER	AFA	99270.19 IRR			23700.96	4/9/1973
28035 CER	201.56 AFA	99471.75 IRR		50.39	23751.35	1/23/1974
28561 CER	520.00 AFA	99991.75 IRR		130	23881.35	8/1/1974
28751 CER	480.00 AFA	100471.75 IRR		120	24001.35	9/26/1974
29121 CER	0.37 AFA	100472.12 MM			24001.35	1/6/1975
43271 CER	525.61 AFA	100997.73 IRR		131.41	24132.76	3/17/1975
43272 CER	525.61 AFA	101523.34 IRR		131.41	24264.17	3/17/1975
43273 CER	514.38 AFA	102037.72 IRR		128.6	24392.77	3/17/1975
43274 CER	514.38 AFA	102552.10 IRR		128.6	24521.36	3/17/1975
43837 CER	111.98 AFA	102664.08 IRR		27.995	24549.36	3/17/1975
43838 CER	111.98 AFA	102776.06 IRR		27.995	24577.35	3/17/1975
43839 CER	109.61 AFA	102885.67 IRR		27.4	24604.75	3/17/1975
43840 CER	109.61 AFA	102995.28 IRR		27.4	24632.15	3/17/1975
43397 CER	640.00 AFA	103635.28 IRR		160	24792.15	7/29/1975
29557 CER	487.36 AFS	104122.64 IRR		121.84	24913.99	7/29/1975
39156 CER	1250.24 AFA	105372.88 IRR		312.56	25226.55	8/8/1975
55535 CER	AFA	105372.88 IRR			25226.55	8/8/1975
29603 CER	64.51 AFA	105437.39 MUN			25226.55	8/25/1975
29873 CER	640.00 AFA	106077.39 IRR		160	25386.55	12/24/1975
29895 CER	502.64 AFA	106580.03 IRR		125.66	25512.21	1/7/1976
30928 CER	433.52 AFA	107013.55 IRR		108.38	25620.59	1/7/1976
44604 CER	91.68 AFA	107105.23 IRR		22.92	25643.51	1/7/1976
44605 CER	79.36 AFA	107184.59 IRR		19.82	25663.33	1/7/1976

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# GROUND WATER RIGHTS BY PRIORITY

AppStatus	Duty_balanceUnits	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
49185 CER	502.72 AFA	107687.31 IRR		125.68	25789.01	6/1/1976
65769 PER	34.31 AFA	107721.62 QM			25789.01	6/1/1976
65770 PER	28.23 AFA	107749.85 QM			25789.01	6/1/1976
40402 CER	508.80 AFA	108258.65 IRR		127.2	25916.21	6/10/1976
30913 CER	477.80 AFA	108736.45 IRR		119.45	26035.66	12/10/1976
65768 PER	32.44 AFA	108768.89 QM			26035.66	12/10/1976
77082 PER	697.34 AFA	109466.23 IRR		174.34	26210.00	12/22/1976
50582 CER	850.74 AFA	110316.97 IRR		212.69	26422.68	12/22/1976
31062 CER	553.68 AFS	110870.65 IRR		138.42	26561.10	2/2/1977
31063 CER	523.20 AFA	111393.85 IRR		130.8	26691.90	2/2/1977
31107 CER	628.00 AFA	112021.85 IRR		157	26848.90	2/17/1977
31108 CER	541.44 AFA	112563.29 IRR		135.36	26984.26	2/17/1977
31110 CER	541.44 AFA	113104.73 IRR		135.36	27119.62	2/17/1977
31111 CER	158.00 AFA	113262.73 IRR		39.5	27159.12	2/17/1977
31113 CER	533.60 AFA	113796.33 IRR		133.4	27292.52	2/17/1977
31114 CER	537.60 AFA	114333.93 IRR		134.4	27426.92	2/17/1977
76358 PER	545.44 AFA	114879.37 IRR		136.36	27563.28	2/17/1977
77570T PER	533.60 AFA	115412.97 IRR		133.4	27696.68	2/17/1977
31249 CER	17.92 AFA	115430.90 STK			27696.68	3/28/1977
31389 CER	17.92 AFA	115448.82 STK			27696.68	4/27/1977
31454 CER	520.00 AFA	115968.82 IRR		130	27826.68	5/3/1977
31455 CER	563.20 AFA	116532.02 IRR		140.8	27967.48	5/3/1977
31563 CER	2.24 AFA	116534.26 QM			27967.48	5/9/1977
32890 CER	174.04 AFA	116708.30 IRR		43.51	28010.99	7/21/1977
43836 CER	AFA	116708.30 IRR			28010.99	7/21/1977
43269 CER	76.80 AFA	116785.10 IRR		19.2	28030.19	7/21/1977
42367 CER	40.00 AFA	116825.10 IRR		10	28040.19	8/3/1977
42368 CER	40.00 AFA	116865.10 IRR		10	28050.19	8/3/1977
42369 CER	120.00 AFA	116985.10 IRR		30	28080.19	8/3/1977
42370 CER	120.00 AFA	117105.10 IRR		30	28110.19	8/3/1977
33018 CER	480.00 AFA	117585.10 IRR		120	28230.19	8/3/1977
33019 CER	480.00 AFA	118065.10 IRR		120	28350.19	8/3/1977

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# GROUND WATER RIGHTS BY PRIORITY

AppStatus	Duty_balance Units	Cumulative total		Acres	Cumulative Acres	Priority_date
		duties	Use			
33668 CER	1223.74 AFA	119288.84 IRR		305.94	28656.13	9/19/1977
33669 CER	AFA	119288.84 IRR			28656.13	9/19/1977
33670 CER	1264.70 AFA	120553.54 IRR		316.18	28972.30	9/19/1977
33671 CER	AFA	120553.54 IRR			28972.30	9/19/1977
33817 CER	511.60 AFA	121065.14 IRR		127.9	29100.20	9/27/1977
33818 CER	510.80 AFA	121575.94 IRR		127.7	29227.90	9/27/1977
73570 PER	33.20 AFA	121609.14 IRR			29227.90	9/27/1977
73571 PER	128.40 AFA	121737.54 IRR			29227.90	9/27/1977
34561 CER	516.01 AFA	122253.55 IRR		129	29356.90	11/3/1977
34562 CER	499.48 AFA	122753.03 IRR		124.87	29481.77	11/3/1977
34596 CER	501.82 AFA	123254.85 IRR		125.45	29607.23	11/10/1977
48225 CER	146.30 AFS	123401.15 IRR		36.575	29643.80	11/10/1977
73899 PER	631.18 AFA	124032.32 IRR		157.79	29801.60	11/21/1977
44610 CER	80.04 AFA	124112.36 IRR		20.01	29821.61	2/3/1978
34939 CER	520.00 AFA	124632.36 IRR		120	29941.61	2/3/1978
35009 CER	640.00 AFA	125272.36 IRR		160	30101.61	2/16/1978
35012 CER	511.60 AFA	125783.96 IRR		127.9	30229.51	2/16/1978
35013 CER	546.64 AFA	126330.60 IRR		136.66	30366.17	2/16/1978
42020 CER	88.00 AFS	126418.60 IRR		22	30388.17	2/16/1978
39554 CER	AFA	126418.60 IRR			30388.17	2/16/1978
73572 PER	128.40 AFA	126547.00 IRR			30388.17	2/16/1978
65877 CER	4.48 AFA	126551.48 STK			30388.17	3/17/1978
46461 CER	576.00 AFA	127127.48 IRR		144	30532.17	3/17/1978
49188 CER	502.72 AFA	127630.20 IRR		125.68	30657.85	3/17/1978
50095 CER	508.80 AFA	128139.00 IRR		127.2	30785.05	3/17/1978
49853 CER	118.52 AFA	128257.52 IRR		29.63	30814.68	5/2/1978
49854 CER	AFA	128257.52 IRR			30814.68	5/2/1978
35374 CER	108.44 AFA	128365.96 IRR		27.11	30841.79	5/2/1978
35375 CER	387.04 AFA	128753.00 IRR		96.76	30938.55	5/2/1978
47518 CER	336.00 AFA	129089.00 IRR		84	31022.55	5/12/1978
35708 CER	398.40 AFA	129487.40 IRR		99.6	31122.15	8/7/1978
64317 PER	88.00 AFA	129575.40 IRR		22	31144.15	8/7/1978

# GROUND WATER RIGHTS BY PRIORITY

AppStatus	Duty_balance Units	Cumulative total duties	Use	Acres	Cumulative Acres	Priority_date
47519 CER	127.20 AFS	129702.60 IRR		31.8	31175.95	9/13/1978
41883 CER	156.80 AFS	129859.40 IRR		39.2	31215.15	9/20/1978
41884 CER	AFS	129859.40 IRR			31215.15	9/20/1978
40013 CER	44.00 AFA	129903.40 IRR		11	31226.15	10/20/1978
40014 CER	393.04 AFA	130296.44 IRR		98.26	31324.41	10/20/1978
36070 CER	AFS	130296.44 IRR			31324.41	10/20/1978
65200 PER	430.72 AFA	130727.16 IRR		107.68	31432.09	10/20/1978
65201 PER	374.00 AFA	131101.16 IRR		93.5	31525.59	10/20/1978
68446 PER	136.00 AFA	131237.16 IRR		34	31559.59	10/20/1978
68447 PER	44.00 AFA	131281.16 IRR		11	31570.59	10/20/1978
48437 CER	AFS	131281.16 IRR			31570.59	12/29/1978
44607 CER	80.04 AFA	131361.20 IRR		20.01	31590.60	12/29/1978
37933 CER	5.74 AFA	131366.94 STK			31590.60	4/17/1979
44743 CER	2.88 AFA	131369.83 STK			31590.60	10/29/1981
44783 CER	1.44 AFA	131371.27 STK			31590.60	10/29/1981
44784 CER	1.10 AFA	131372.38 STK			31590.60	10/29/1981
45534 CER	8.26 AFA	131380.63 MUN			31590.60	4/14/1982
47304 CER	2.79 AFA	131383.42 COM			31590.60	10/5/1983
47907 CER	5.06 AFA	131388.49 STK			31590.60	3/15/1984
62928 PER	361.98 AFA	131750.46 MUN			31590.60	3/1/1991
57777 CER	11.20 AFA	131761.67 STK			31590.60	6/23/1992
63497 CER	408.30 AFA	132169.97 IRR		120.71	31711.31	10/10/1997
65481 CER	11.20 AFA	132181.17 STK				9/7/1999
65483 CER	11.20 AFA	132192.37 STK				9/9/1999
66439 CER	6.72 AFA	132199.09 STK				6/8/2000
66440 CER	19.24 AFA	132218.33 STK				6/8/2000
66441 CER	19.24 AFA	132237.57 STK				6/8/2000
67144 CER	9.05 AFA	132246.62 STK				1/17/2001
68122 CER	8.96 AFA	132255.58 STK				10/19/2001
70073 PER	13.57 AFA	132269.15 STK				6/2/2003
70305 PER	4.48 AFA	132273.63 STK				8/6/2003
67450 CER	5.66 AFA	132279.29 STK				1/12/2004
73118 PER	5.79 AFA	132285.08 STK				8/3/2005

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# State Engineer Options

- Regulate by Priority
- Forfeit water rights.
- Change irrigation rights for consumptive use only.
- Cancel water rights for failure to show due diligence.
- Deny all extension of time requests & call for PBU's.
- Impose fines and penalties for over pumping, pumping outside the permitted place of use or any other violation of the water law, permits, certificates, statutes or regulations.

# Extensions of Time and Possible Forfeitures

- POC's with extensions 1,378.44 AF
  - PBU's with extensions 6,600.57 AF
  - Subject to Forfeiture 8,145.24 AF
- Total 16,124.25 AF



# Other Options

- Withdraw water rights covering pivot corners.  
Doesn't prevent the lowering of the water table now but prevents future transfers from making the problem worse.
- Spread out pumping.
- Become more efficient.
- Grow crops that have a lower water consumption.

# Other Options

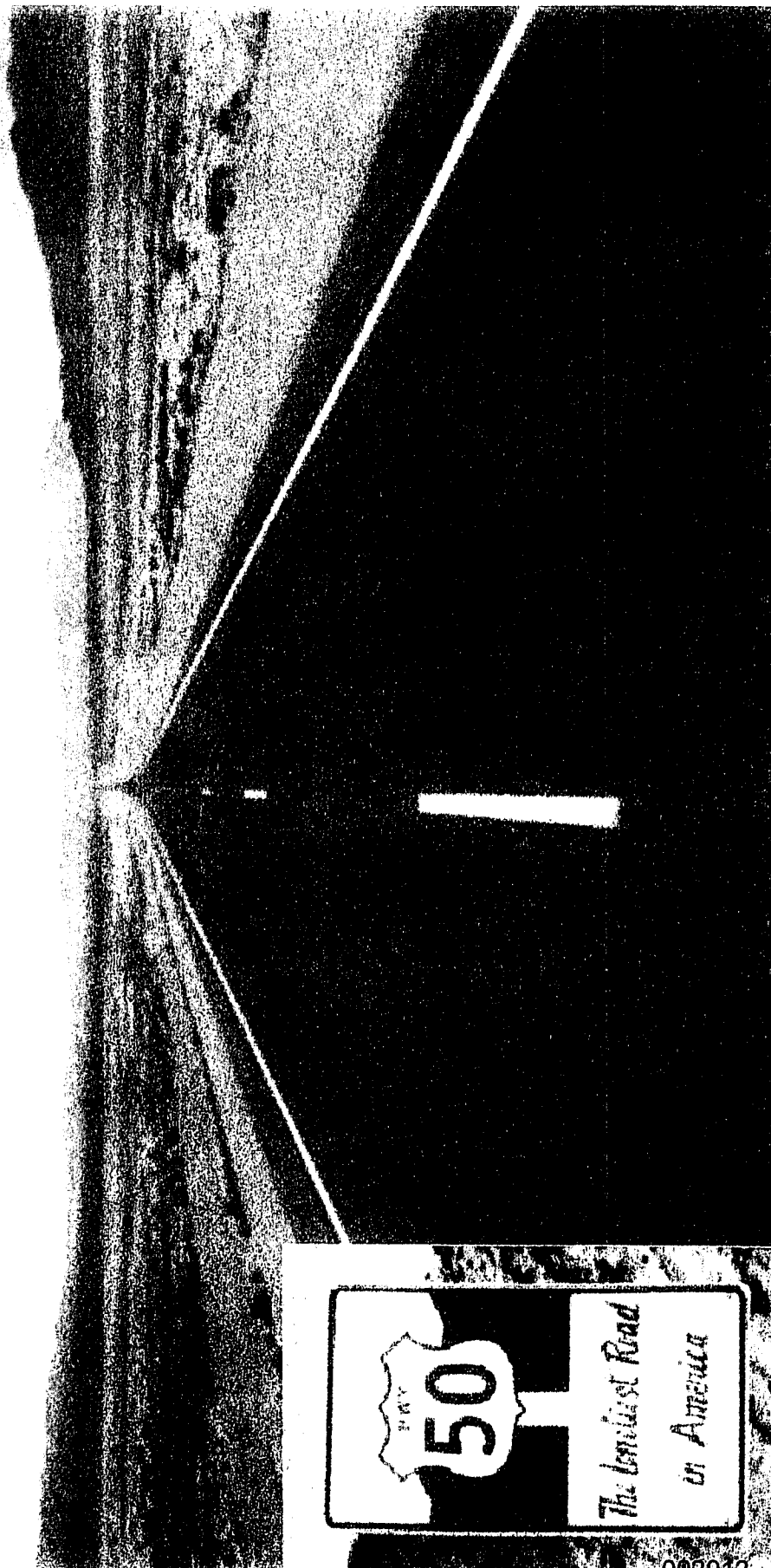
- Interbasin transfer of water to replace or recharge existing water sources
- Cloud seeding
- New Technology
  - Rotary Subsoiler  
(to increase water infiltration)



# Other Options

- Form a local groundwater management task force to:
  - Set goals to systematically reduce pumping
    - Certain % reductions over a given number of years
  - Explore ideas for retiring water rights
- Necessity is the mother of invention!!!

# Open Discussion



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## SIGN IN SHEET

## NEVADA DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002, Carson City, Nevada 89701

Hearing: Diamond Valley Workshop

Date: March 19, 2009

Do you plan on giving public  
testimony? (Yes or No)

NAME	ADDRESS (optional)	Do you plan on giving public testimony? (Yes or No)
Pale Bugeng	10381 Double R Blvd Reno	
JAKE TROBITTS	PO BOX 682 EUREKA 89316	
Mary Tumbusch	2730 N. Deer Run Rd CC 89701	
Brie Aislett	421 Court Eiko	
Ronald Damele	Box 734 Eureka 89316	
LARIE DUBBAY	1001 STR 278 Eureka 89316	NO
Mary McManis	PO Box 613 Eureka NV 89316	no
JIM EVANS	POB 149 EUREKA NV 89316	NO
JIM GALLAGHER	MC 62 BOX 12143 EUREKA	
PAT ROGERS	2215 N. 5th Eiko, NV	NO
Travis Gallagher	HC 62 Box 62144 Eureka	
Don Palmer	PO Box 92	

## SIGN IN SHEET

## NEVADA DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002, Carson City, Nevada 89701

Hearing: Diamond Valley Workshop

Date: March 19, 2009

NAME	ADDRESS (optional)	Do you plan on giving public testimony? (Yes or No)
Mark Moxley	PO Box 842 Fallon NV 89402	Yes
Greg Evans	10 Box 258 Eureka NDOT	No
John Creech	P.O. Box 81 Eureka	
Adrienne J. J. J.	Box 571 Eureka	No
Bill Norton	HC 62 Box 62150 Eureka	
Dan Norton	" " " "	
Kent Path Benson	PO Box 158 Eureka	
Allen M. Dand	HC 62 Box 140 Eureka	
Leese Betschart	HC 62 Box 141 Eureka	No
Kent Path Benson	Box 58 Eureka	
Bob Buchanan	HC 62 Box 62153 Eureka	Yes
Christine Smith	Box 283 Eureka, NV 89316	No

# SIGN IN SHEET

## NEVADA DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002, Carson City, Nevada 89701

Hearing: Diamond Valley Workshop

Date: March 19, 2009

Do you plan on giving public testimony? (Yes or No)

NAME	ADDRESS (optional)	Do you plan on giving public testimony? (Yes or No)
JAMES MOYLE	PO Box 128 E-89316	Yes
DENISE MOYLE	" " " "	
Bob Dinnidie	PO Box 636 Eureka 89316	NO
MICHAEL PAGE	<del>PO</del> HC 66 T-4) Beowawe NV.	NO

## SIGN IN SHEET

## NEVADA DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002, Carson City, Nevada 89701

Hearing: Diamond Valley WorkshopDate: March 19, 2009Do you plan on giving public  
testimony? (Yes or No)

NAME	ADDRESS (optional)	Do you plan on giving public testimony? (Yes or No)
Hollen	Mo II Po Box 821 Eureka	
Abby Johnson	Eureka County	NO
Jin Halpin	Eureka Co.	NO
Jin Thompson	" "	NO
Tim Bailey	HC 62 Box 62127 Eureka NV	
Leonard Fiorerzi	Box 193 Eureka NV	
Jin & Vera Baumann	PO Box 308 Eureka, 770	
KEVIN KINSELA	2215 N. 5th St. Eureka, NV	No
Jessica Lynn	1755 E Plumb #120 Reno NV 89502	No
Lyndon Miller	HC 62 Box 62155 Eureka	No
Jay Dixon, Converse Consultants,	731 Pilot Rd., STE H, 89119	No



## SIGN IN SHEET

## NEVADA DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002, Carson City, Nevada 89701

Hearing: Diamond Valley Workshop

Date: March 19, 2009

Do you plan on giving public  
testimony? (Yes or No)

NAME	ADDRESS (optional)	Do you plan on giving public testimony? (Yes or No)
Andrew Marshall	HC 62 Box 62197 Eureka NV	NO
Adam Buffington	Box 243 - W 10th Diamond Va	NO
Bruno Bowles	Box NV / SNWA	NO
Loren Orman	Eureka NV	
Rogier Allen	P.O. Box 211, Eureka NV	NO
Alan Chandler	5110 2nd St	YES
Cathy Little	P.O. Box 1156 Zephyrus Cove	NO

## **CERTIFICATE OF SERVICE**

Pursuant to NRAP Rule 25(1)(c), I hereby certify that I am an employee of ALLISON, MacKENZIE, PAVLAKIS, WRIGHT & FAGAN, LTD., Attorneys at Law, and that on this date, I caused a CD-ROM version of same to be served to all parties to this action by:

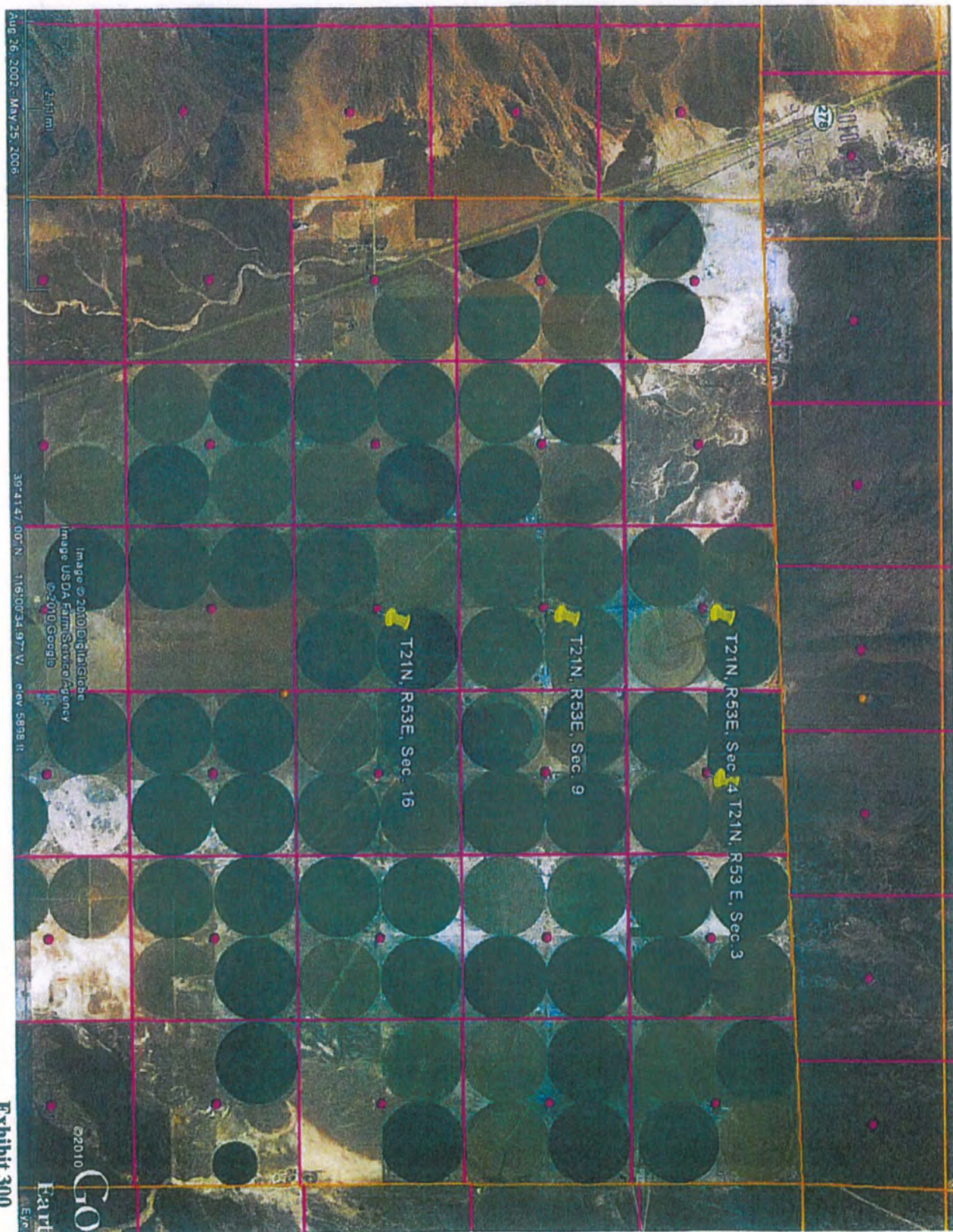
_____	Placing a true copy thereof in a sealed postage prepaid envelope in the United States Mail in Carson City, Nevada
_____	Hand-delivery - via Reno/Carson Messenger Service
_____	Facsimile
_____	Federal Express, UPS, or other overnight delivery
<u>  X  </u>	E-filing pursuant to Section IV of District of Nevada Electronic Filing Procedures

fully addressed as follows:

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Laura A. Schroeder	<a href="mailto:schoeder@water-law.com">schoeder@water-law.com</a>
Schoeder Law Offices, P.C.	
400 Marsh Avenue	
Reno, NV 89509	



002789

1 Mr. Ken Benson.

2 HEARING OFFICER WILSON: Mr. Benson, please come  
3 forward and be sworn.

4  
5 KENNETH F. BENSON

6 called as a witness on behalf of  
7 himself, having been first duly sworn,  
8 was examined and testified as follows:

9  
10 DIRECT EXAMINATION

11 BY MR. BENESCH:

12 Q. Would you give your full name for the record,  
13 please?

14 A. For the record, my name is Kenneth F. Benson,  
15 B-E-N-S-O-N. This morning I am going to speak --

16 Q. Excuse me. Can I interrupt you? Are you a  
17 rancher in Diamond Valley as well?

18 A. I am a farmer in Diamond Valley, pursue ranching  
19 pursuits there as well, involved with the Producers as  
20 secretary/treasurer and I am an original incorporator of that  
21 corporate entity in July of 1974.

22 Q. Do you have some comments or concerns you'd like  
23 to offer?

24 A. Yes. These are a parenthetical. They're not  
25 statements of fact. It's not expert testimony.

1           As we can well appreciate, this isn't a skirmish  
2 between a couple of farmers on a ditch bank someplace. We  
3 have a full room of people here addressing very important,  
4 serious issues relating to the general welfare of the  
5 agricultural community in Eureka County.

6           Perhaps more telling are some people who aren't  
7 here. Let me just draw a path, if you will. I exist here as  
8 a farmer because somebody buys my product, which is alfalfa  
9 hay. General Moly will exist as a mining company because  
10 somebody intends to buy their product, which is essentially  
11 consumers of moly in the worldwide arena of steel production.

12           They are well-healed with respect to their  
13 financial participants. Mr. De Lipkau has made reference to  
14 a relationship with POSCO which is a Korean steel maker.  
15 Recently went out in the Asian markets and were successful in  
16 placing \$992 million U.S. in a bond offering, and I have no  
17 idea what they're going to do with that money, but I suspect  
18 some of it might show up in Eureka County in assistance with  
19 developing this mine.

20           I'm sure that at some point in time the name of  
21 Mr. Lakshmi Mittal, principal in the international mining  
22 firm of ArcelorMittal, will become part of the conversation.  
23 Today's date, October 13th, 2008, Forbes magazine, editorial  
24 comment talking about who the movers and shakers are in the  
25 world scene.

Capitol Reporters 39 (775) 882-5322

Exhibit 301  
2 of 4

002791

JA4203

1           Page 27, ArcelorMittal chief, Lakshmi Mittal, is  
2 a tall commanding figure. He's 58, looks ten years younger.  
3 Prediction: This Indian steel magnate will become the  
4 richest person in the world and the first to make  
5 \$100 billion.

6           So that's who I became aware of as the principal  
7 financier in this when I was serving as a Eureka County  
8 Commissioner up until June of this year, and quite frankly, I  
9 participated in an aggressive investigation and evaluation,  
10 if you will, of where we stand vis-à-vis farmers in Diamond  
11 Valley versus these international conglomerates, and I came  
12 to the conclusion that it was a waste of my time to continue  
13 as a Eureka County Commissioner.

14           I think that the deck is somewhat stacked against  
15 us. We don't have the ability to develop models to refute  
16 General Moly's contention that essentially the Kobeh Valley  
17 basin is autonomous from any interconnectivity with the  
18 Diamond basin.

19           Intuitively my experience as a farmer, somebody  
20 who is educated in the same educational processes that many  
21 of you are here today, I think that theory simply does not  
22 hold water, pardon the pun, because any rational  
23 investigation of the interconnectivity and indeed there have  
24 been numerous professional studies, would indicate otherwise.

25           That's my statement.



1 Q. Do you have anything further to offer?

2 A. No, I do not.

3 MR. BENESCH: No further questions.

4 HEARING OFFICER WILSON: Thank you, sir.

5 Mr. De Lipkau?

6 MR. De LIPKAU: No questions.

7 HEARING OFFICER WILSON: Thank you. Any  
8 questions of staff? Hearing none, you may step down. Thank  
9 you, sir. Let's take a little break and we'll be off the  
10 record.

11 (A short recess was taken.)

12 HEARING OFFICER WILSON: Let's be back on the  
13 record. Mr. Benesch, was that your final witness?

14 MR. BENESCH: That was my final witness. We have  
15 nothing further to offer.

16 HEARING OFFICER WILSON: Thank you, sir.  
17 Mr. Miller?

18 MR. MILLER: Good morning. I have first an  
19 introduction and it sets up my first witness, so I will go  
20 through this briefly.

21 Again, my name is Jarrad Miller. I'm appearing  
22 on behalf of protestants Tim Halpin and Lloyd Morrison who  
23 have protested new water applications that are set forth on  
24 our power point presentation. I'm also representing Cedar  
25 Ranches, LLC, which has protested change applications that

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, W. H. Settelmeyer, Agent has presented to the State Engineer  
of the State of Nevada Proof of Application of Water to Beneficial Use, from  
an underground source  
through drilled well, pump and sprinklers for  
irrigation and domestic  
purposes. The point of diversion of water from the source is as follows: SE $\frac{1}{4}$  NW $\frac{1}{4}$  Sec. 3, T. 21N., R. 53E.,  
MD.B.&M., or at a point from which the NW $\frac{1}{4}$  corner of said Sec. 3  
bears N. 3° 10' W. a distance of 1,260.0 feet  
situated in Eureka County, State of Nevada.

Now Know Ye, That the State Engineer, under the provisions of NRS 533.425, has determined the date,  
source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator George G. Knowles  
Post-office address Elko, Nevada  
Amount of appropriation 3.12 c.f.s. but not to exceed 1,186.88  
acre feet annually  
Period of use, from January 1st to December 31st of each year  
\* Date of priority of appropriation March 7, 1960

Description of land to which the water is appurtenant:

36.02 acres in Lot 5 of Sec. 3, T. 21 N., R. 53 E., MD.B.&M.  
34.80 " " " " " " " " " " " "  
33.56 " " " " " " " " " " " "  
32.34 " " " " " " " " " " " "  
40.00 " the SW $\frac{1}{4}$  NW $\frac{1}{4}$  of Sec. 3, T. 21N., R. 53E., MD.B.&M.  
40.00 acres in the SE $\frac{1}{4}$  NW $\frac{1}{4}$  of Sec. 3, T. 21N., R. 53E., MD.B.&M.  
40.00 acres in the SW $\frac{1}{4}$  NW $\frac{1}{4}$  of Sec. 3, T. 21N., R. 53E., MD.B.&M.  
40.00 acres in the SE $\frac{1}{4}$  NW $\frac{1}{4}$  of Sec. 3, T. 21N., R. 53E., MD.B.&M.  
296.72 acres total

\*This Certificate changes the point of diversion of a portion of  
Permit 18625, hence the priority of appropriation of this Certificate  
is the same as Permit 18625 and this Certificate is issued subject  
to the terms of the Permit. The total duty of water for the land  
under this Certificate shall not exceed 4.0 acre feet per acre  
annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the  
amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, ROLAND D. WESTERGARD, State Engineer

Compared JW/JS of Nevada, have hereunto set my hand and the seal of my office, this

Recorded 11-9-67 21 Page 064 25th day of October, A.D. 1967

Eureka County Recorder

1923

Charles Westergard  
State Engineer



THE STATE OF NEVADA  
 CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, W. H. Settlemyer, Agent has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use from:  
 an underground source  
 through well, pump and sprinkler system for  
 irrigation & domestic  
 purposes. The point of diversion of water from the source is as follows: SW $\frac{1}{4}$  NW $\frac{1}{4}$  Sec. 3, T. 21 N., R. 53 E., M.D.B.&M., or at a point from which the W $\frac{1}{2}$  corner of said Sec. 3 bears S. 47°00' W., a distance of 1,762 feet,  
 situated in Eureka County, State of Nevada

Now Know YE That the State Engineer, under the provisions of NRS 533-425 has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant as follows:

Name of appropriator George G. Knowles  
 Post office address Elko, Nevada  
 Amount of appropriation 1.93 cfs, but not to exceed 1186.98 ac.ft. per season  
 Period of use, from May 1st to October 15th of each year

\* Date of priority of appropriation March 7, 1960

Description of land to which water is appurtenant:

36.02	acres in Lot 5, Sec. 3, T. 21 N., R. 53 E., M.D.B.&M.
34.80	" Lot 6, " " " "
33.56	" Lot 7 " " " "
32.34	" Lot 8 " " " "
160.00	" SW $\frac{1}{4}$ " " " "
296.72	Acres total

This certificate is issued subject to the terms of the permit and with the understanding that the total duty of water shall not exceed 4.0 ac.ft. per acre per year from any and/or all sources.

\* This certificate changes the point of diversion of a portion of the waters heretofore appropriated under Permit 18625, hence the date of priority of appropriation is the same as that of Permit 18625.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein

IN TESTIMONY WHEREOF, I ROLAND D. WESTERGARD, State Engineer

Compared dp/jw

of Nevada, have hereunto set my hand and the seal of my office, this

Recorded 8-22-72 at 42 Page 656

11th day of August, A.D. 1972

Eureka

County Records

*Roland D. Westergard*  
 State Engineer

1972

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, William A. Nisbet, Agent, has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an underground source through a drilled well, pump and distribution system for irrigation purposes. The point of diversion of water from the source is as follows: SW $\frac{1}{4}$  NW $\frac{1}{4}$  Section 16, T.21N., R.53E., M.D.B.&M., or at a point from which the NW corner of said Section 16 bears N. 43° 22' W., a distance of 1891 feet situated in Eureka County, State of Nevada.

Now KNOW YE, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator: Kenneth F. and Patti E. Benson

Post-office address: Eureka, Nevada

Amount of appropriation: 3.39 c.f.s., but not to exceed 640.0 acre-feet per season

Period of use, from March 1st to October 30th of each year

Date of priority of appropriation February 16, 1978

Description of land to which the water is appurtenant:

40 acres in the NW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 16, T.21N., R.53E., M.D.B.&M.

40 acres in the NE $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 16, T.21N., R.53E., M.D.B.&M.

40 acres in the SW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 16, T.21N., R.53E., M.D.B.&M.

40 acres in the SE $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 16, T.21N., R.53E., M.D.B.&M.

160.0 acres total.

This certificate is issued subject to the terms of the permit.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, PETER G. MORROS, State Engineer

do hereby certify that the foregoing is true and correct, and I have hereunto set my hand and the seal of my office, this

Recorded 31st day of AUGUST, A.D. 1982

County Records

State Engineer

1923

Application No. 18978Certificate Record No. 6517 Book 20 Page 6517THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, John V. Caselli-Agent has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an underground source through well, pump, and ditches for irrigation and domestic purposes. The point of diversion of water from the source is as follows: SE 1/4 NE 1/4 Section 4, T. 21N., R. 53E., M.D.B. & M. or at a point from which the E 1/2 corner of said Section 4 bears S. 45° 00' E., a distance of 70.7 feet, situated in Eureka County, State of Nevada.

Now Know Ye, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator Charles C. CooperPost-office address Canyon, Texas\* Amount of appropriation 5.4 c.f.s. but not to exceed 1,111.36 ac. ft. per annumPeriod of use, from January 1st to December 31st of each yearDate of priority of appropriation July 6, 1960

Description of land to which the water is appurtenant:

<u>31.67</u>	<u>acres</u>	<u>in</u>	<u>Lot 5</u>	<u>of</u>	<u>Section 4, T. 21N., R. 53E., M.D.B. &amp; M.</u>
<u>30.36</u>	<u>"</u>	<u>"</u>	<u>6</u>	<u>"</u>	<u>"</u>
<u>29.06</u>	<u>"</u>	<u>"</u>	<u>7</u>	<u>"</u>	<u>"</u>
<u>27.75</u>	<u>"</u>	<u>"</u>	<u>8</u>	<u>"</u>	<u>"</u>
<u>80.00</u>	<u>"</u>	<u>"</u>	<u>S 1/4 NE 1/4</u>	<u>"</u>	<u>"</u>
<u>40.00</u>	<u>"</u>	<u>"</u>	<u>SE 1/4 NW 1/4</u>	<u>"</u>	<u>"</u>
<u>39.00</u>	<u>"</u>	<u>"</u>	<u>SW 1/4 NW 1/4</u>	<u>"</u>	<u>"</u>
<u>277.84</u>	<u>acres</u>	<u>total</u>			

\*This certificate is issued subject to the terms of the permit, with the understanding that the total annual duty of water from all sources shall not exceed 4.0 ac. ft. per acre irrigated.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, ROLAND D. WESTERGARD, State EngineerCompared jh/jw of Nevada, have hereunto set my hand and the seal of my office, thisRecorded 2-19-68 Bk 22 Page 374 9th day of February A.D. 1968Eureka County Records.Roland D. Westergard  
State Engineer.

1923

Exhibit 305

1 of 2

002797

JA4209

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS J. V. Caselli-Agent has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an underground source through well, pump, & irrigation system for irrigation and domestic purposes. The point of diversion of water from the source is as follows: SE 1/4 NW 1/4 Section 4, T. 21N., R. 53E., M.D.B. & M. or at a point from which the S 1/4 corner of said Section 4 bears S. 1° 04' E. a distance of 2,690.5 feet, situated in Eureka County, State of Nevada.

Now KNOW YE, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator Charles C. Cooper

Post-office address CANYON, TEXAS

\* Amount of appropriation 1.75 c.f.s. but not to exceed 543.24 ac. ft.

Period of use, from January 1st to December 31st per annum of each year

Date of priority of appropriation July 6, 1960

Description of land to which the water is appurtenant:  
27.75 acres in Lot 8 of Section 4, T. 21N., R. 53E., M.D.B. & M.  
29.06 " " 7 " " " " "  
40.00 " " SE 1/4 NW 1/4 " " " " "  
39.00 " " SW 1/4 NW 1/4 " " " " "  
135.81 Acres Total

\*This certificate is issued subject to the terms of the permit, with the understanding that the total annual duty of water from all sources shall not exceed 4.0 ac. ft. per acre irrigated.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, ROLAND D. WESTERGARD, State Engineer

Compared jb/ JW of Nevada, have hereunto set my hand and the seal of my office, this

Recorded 2-19-68 Hk 22 Page 375 9th day of February, A.D. 19 68

Eureka County Records.

1923

Roland D. Westergard  
State Engineer.

## CORRECTED CERTIFICATE

ASSIGNED

Application No. 24262

Certificate Record No. 6959

Book 21

Page 6959

THE STATE OF NEVADA  
 CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an Underground Source through a well, pump and irrigation system for Irrigation purposes. The point of diversion of water from the source is as follows: SW $\frac{1}{4}$  NW $\frac{1}{4}$  Section 9, T.21N., R.53E., M.D.B.&M., or at a point from which the NW $\frac{1}{4}$  corner of said Section 9 bears S. 45° W., a distance of 1,830.0 feet situated in Eureka County, State of Nevada.

Now KNOW YE, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator DV CorporationPost-office address Eureka, NevadaAmount of appropriation 2.7 c.f.s., but not to exceed 632.0 acre-feet annuallyPeriod of use, from January 1st to December 31st of each year\* Date of priority of appropriation September 19, 1961

Description of land to which the water is appurtenant:

39.0 Acres in the NW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 39.0 Acres in the NE $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 80.0 Acres in the S $\frac{1}{2}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 39.0 Acres in the NW $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 38.5 Acres in the NE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 38.5 Acres in the SW $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 34.0 Acres in the SE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 160.0 Acres in the SW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 80.0 Acres in the W $\frac{1}{2}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 39.0 Acres in the NE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 39.0 Acres in the SE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
 626.0 Acres Total

\*This certificate changes the manner and place of use of Permit 20090, hence the priority of appropriation of this certificate is the same as Permit 20090.

This certificate is issued subject to the terms of the permit and with the understanding that the total duty of water shall not exceed 4.0 acre-feet per acre annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, PETER G. MORROS, State Engineer

Compared bc/bk of Nevada, have hereunto set my hand and the seal of my office, this

Recorded. Bk. Page. 2151 day of JULY, A.D. 1968

County Records. State Engineer

Exhibit 306  
 1 of 8

002799

JA4211



CORRECTED CERTIFICATE

ASSIGNED

Application No. 24263

Certificate Record No. 6960 Book 21 Page 6960

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an Underground Source through a well, pump and irrigation system for Irrigation purposes. The point of diversion of water from the source is as follows: NW $\frac{1}{4}$  NE $\frac{1}{4}$  Section 9, T.21N., R.53E., M.D.B.&M., or at a point from which the E $\frac{1}{4}$  corner of said Section 9 bears S. 44 $^{\circ}$  50' E., a distance of 1,907.0 feet situated in Eureka County, State of Nevada.

Now Know YE, that the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator D. V. Corporation  
Post-office address Eureka, Nevada  
Amount of appropriation 2.7 c.f.s., but not to exceed 600 acre-feet annually  
Period of use, from January 1st to December 31st of each year  
\* Date of priority of appropriation September 19, 1961

Description of land to which the water is appurtenant:

39.0 Acres in the NW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the NE $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
80.0 Acres in the S $\frac{1}{2}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the NW $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
38.5 Acres in the NE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
38.5 Acres in the SW $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
34.0 Acres in the SE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
160.0 Acres in the SW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
80.0 Acres in the W $\frac{1}{2}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the NE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the SE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
626.0 Acres Total

\*This certificate changes the place of use of Permit 20089, hence the priority of appropriation of this certificate is the same as Permit 20089.

This certificate is issued subject to the terms of the permit and with the understanding that the total duty of water shall not exceed 4.0 acre-feet per acre annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, PETER G. MORROS, State Engineer

Compared, bc/bk

of Nevada, have hereunto set my hand and the seal of my office, this

Recorded, Bk. Page

21st day of JULY A.D. 1988

County Records

1923

State Engineer

Exhibit 306  
3 of 8

002801

JA4213

Application No. 24263

Certificate Record No. 6960 Book 21 Page 6960

# THE STATE OF NEVADA CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an underground source through well, pump, and irrigation system for Irrigation purposes. The point of diversion of water from the source is as follows: NW $\frac{1}{4}$ NE $\frac{1}{4}$  Sec. 9, T.21N., R.53E., M.D.B.&M., or at a point from which the E $\frac{1}{2}$  corner of said Sec. 9, bears S. 44° 50' E., a distance of 1907.0 feet situated in Eureka County, State of Nevada.

Now KNOW YE, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator: D. V. Corporation  
Post-office address: Eureka, Nevada  
Amount of appropriation: 2.7 c.f.s. but not to exceed 2,504.0 acre-feet annually  
Period of use, from: JANUARY 1st to December 31st of each year

\* Date of priority of appropriation: September 19, 1961

Description of Land to which water is appurtenant:  

39.0	acres in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 9, T.21N., R.53E., M.D.B.&M.
39.0	acres in the NE $\frac{1}{4}$ of " " " "
80.0	acres in the SE $\frac{1}{4}$ of " " " "
39.0	" " " " " "
38.5	" " " " " "
38.5	" " " " " "
34.0	" " " " " "
160.0	" " " " " "
80.0	" " " " " "
39.0	" " " " " "
39.0	" " " " " "
39.0	" " " " " "
626.0	acres total

\* This certificate changes the place of use of Permit No. 20089, hence the priority of appropriation of this certificate is the same as Permit No. 20089.

This certificate is issued subject to the terms of the permit and with the understanding that the total duty of water shall not exceed 4.0 acre-feet per acre annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, ROLAND D. WESTERGARD State Engineer

Compared 3w/11s of Nevada, have hereunto set my hand and the seal of my office, this  
Recorded 4-9-69 Bk. 28 Page 398 3rd day of April A.D. 1969  
Eureka County Records *[Signature]* State Engineer

1973



CORRECTED CERTIFICATE

ASSIGNED

Application No. 24264

Certificate Record No. 6961

Book 21

Page 6961

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an Underground Source through a well, pump and irrigation system for Irrigation purposes. The point of diversion of water from the source is as follows: SW $\frac{1}{4}$  SE $\frac{1}{4}$  Section 9, T.21N., R.53E., M.D.B.&M., or at a point from which the E $\frac{1}{4}$  corner of said Section 9 bears N. 44° 58' E., a distance of 1,941.0 feet situated in Eureka County, State of Nevada.

Now Know Ye, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator D. V. Corporation

Post-office address Eureka, Nevada

Amount of appropriation 4.162 c.f.s., but not to exceed 1,232 acre-feet annually

Period of use, from January 1st to December 31st of each year

\* Date of priority of appropriation June 3, 1960

Description of land to which the water is appurtenant:

39.0 Acres in the NW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the NE $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
80.0 Acres in the S $\frac{1}{2}$  NW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the NW $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
38.5 Acres in the NE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
38.5 Acres in the SW $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
34.0 Acres in the SE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
160.0 Acres in the SW $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
80.0 Acres in the W $\frac{1}{2}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the NE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
39.0 Acres in the SE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 9, T.21N., R.53E., M.D.B.&M.  
626.0 Acres Total

\*This certificate changes the point of diversion, manner and place of use of

Permit 18899, hence the priority of appropriation of this certificate is the same as Permit 18899.

This certificate is issued subject to the terms of the permit and with the understanding that the duty of water shall not exceed 4.0 acre-feet per acre annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, PETER G. MORROS, State Engineer

Compared bc/bk

of Nevada, have hereunto set my hand and the seal of my office, this

Recorded Bk Page

21st

day of

JUL

A.D. 1988

County Records

1921

State Engineer

Exhibit 306  
5 of 8

002803

JA4215

**THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER**

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from An Underground Source through well, pump, and irrigation system for irrigation purposes. The point of diversion of water from the source is as follows: SW $\frac{1}{4}$  Sec. 9, T.21N., R.53E., M.D.B.&M., or at a point from which the E $\frac{1}{2}$  corner of said Sec. 9 bears N. 44° 58' E., a distance of 1,941.0 feet situated in Eureka County, State of Nevada.

Now Know Ye, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator: D.V. Corporation  
Post-office address: Eureka, Nevada  
Amount of appropriation: 4,162 c.f.s., but not to exceed 2,504 acre-feet annually  
Period of use, from January 1st to December 31st of each year

\* Date of priority of appropriation: June 1, 1960

Description of land to which water is appurtenant:

39.0	acres in the NW $\frac{1}{4}$ of Sec. 9, T.21N., R.53E., M.D.B.&M.
39.0	" " " NE $\frac{1}{4}$ " " " " " "
80.0	" " " SE $\frac{1}{4}$ " " " " " "
39.0	" " " NW $\frac{1}{4}$ " " " " " "
38.5	" " " NE $\frac{1}{4}$ " " " " " "
38.5	" " " SW $\frac{1}{4}$ " " " " " "
34.0	" " " SE $\frac{1}{4}$ " " " " " "
160.0	" " " SW $\frac{1}{4}$ " " " " " "
80.0	" " " NW $\frac{1}{4}$ " " " " " "
39.0	" " " NE $\frac{1}{4}$ " " " " " "
39.0	" " " SE $\frac{1}{4}$ " " " " " "

626.0 acres total

\* This certificate changes the point of diversion, manner and place of use of Permit No. 18899, hence the priority of appropriation of this certificate is the same as Permit No. 18899.

This certificate is issued subject to the terms of the permit and with the understanding that the duty of water shall not exceed 4.0 acre-feet per acre annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, ROLAND D. WESTERGARD, State Engineer

Compared: jw/jls of Nevada, have hereto set my hand and the seal of my office, this

Recorded: 4-9-69 Bk. 28 Page 399 3rd day of April A.D. 19 69

Eureka County Records.

1921

*Roland D. Westergard*  
State Engineer

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an underground source through well, pump, and irrigation system for irrigation purposes. The point of diversion of water from the source is as follows: SW 1/4 Sec. 9, T.21N., R.53E., M.D.B. & M., or at a point from which the SW corner of said Sec. 9 bears S. 44° 54' W., a distance of 1,738.0 feet situated in Eureka County, State of Nevada.

Now Know Ye, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator, D.V. Corporation

Post-office address, Eureka, Nevada

Amount of appropriation, 3.373 c.f.s. but not to exceed 1,272.0 acre-feet annually

Period of use, from January 1st to December 31st of each year

\* Date of priority of appropriation June 3, 1960

Description of land to which water is appurtenant:

39.0	acres in the NW 1/4 of Sec. 9, T.21N., R.53E., M.D.B. & M.
39.0	" " " NE 1/4 " " " "
80.0	" " " SW 1/4 " " " "
160.0	" " " SW 1/4 " " " "

318.0 acres total

\* This certificate changes the point of diversion and place of use of Permit No. 18900, hence the priority of appropriation of this certificate is the same as Permit No. 18900.

This certificate is issued subject to the terms of the permit and with the understanding that the total duty of water shall not exceed 4.0 acre-feet per acre annually from all sources.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, ROLAND D. WESTERGARD State Engineer

Compared, 10/11/62

of Nevada, have hereto set my hand and the seal of my office, this

Recorded, 4-9-62 at 9 Page 400

3rd

day of April

A. D. 1962

Eureka

County Records.

1923

State Engineer

THE STATE OF NEVADA  
CERTIFICATE OF APPROPRIATION OF WATER

WHEREAS, Mark Chilton (Agent) has presented to the State Engineer of the State of Nevada Proof of Application of Water to Beneficial Use, from an underground source (Well No. 3B) through drilled well, pump and stock tanks for stock water and domestic purposes. The point of diversion of water from the source is as follows: SE 1/4 NE 1/4 Sec. 9, T. 21 N., R. 53 E., M.D.B. & M., or at a point from which the E. corner of said Section 9 bears S. 76 degrees 45' E., a distance of 280 feet situated in Eureka County, State of Nevada.

Now KNOW YE, That the State Engineer, under the provisions of NRS 533.425, has determined the date, source, purpose, amount of appropriation, and the place where such water is appurtenant, as follows:

Name of appropriator, D. V. Corporation

Post-office address, Eureka, Nevada

\* Amount of appropriation, 0.061 c.f.s., or sufficient to water 2000 head of cattle

Period of use, from January 1 to December 31 of each year

Date of priority of appropriation, November 6, 1967

Description of works of diversion, manner and place of use:

Water is developed by means of a drilled well and conveyed to three portable stock tanks where it is used to water approximately 2000 head of cattle. The water is also conveyed to a shower room where it is used for domestic purposes. All use is within Section 9, T. 21 N., R. 53 E., M.D.B. & M.

\* This certificate is issued subject to the terms of the permit.

The right to water hereby determined is limited to the amount which can be beneficially used, not to exceed the amount above specified, and the use is restricted to the place and for the purpose as set forth herein.

IN TESTIMONY WHEREOF, I, Roland D. Westergard, State Engineer

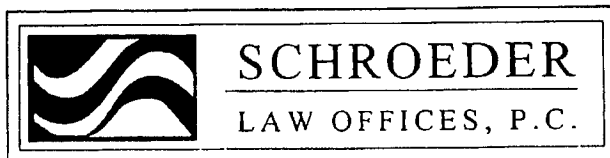
do/ iw of Nevada, have hereunto set my hand and the seal of my office, this

Recorded 1-11-71 Eureka, Nevada 4th day of January A.D. 1971

Eureka County Recorder, Roland D. Westergard, State Engineer.

1971

Laura A. Schroeder  
Licensed in Oregon, Idaho,  
Nevada and Washington  
V. Scott Borison, Ph.D.  
Certified Legal Manager  
Daryl N. Cole  
Office Manager



Licensed in Oregon and Nevada  
Cortney D. Duke  
Wyatt E. Rolfe  
Therese A. Ure

October 21, 2010

**VIA ELECTRONIC MAIL**

U.S.G.S. FOIA Officer  
Mail Stop 807  
National Center  
Reston, VA 20192  
foia@usgs.gov

**RE: Freedom of Information Act (FOIA) Request**

Dear FOIA Officer:

Our office makes the following request for public records under The Freedom of Information Act, 5 U.S.C. Section 552, as amended by Public Law No. 104-231, 110 Stat. 3048. This request falls under the "all others" fee category as the information is sought for personal, not commercial use.

The requestor is willing to pay up to a maximum of \$100 in fees/costs for the requested materials; however please advise if the cost may exceed that amount. Otherwise, if there are any fees/costs incurred during duplication of these materials please enclose an invoice and our bookkeeper will pay upon receipt.

Please provide our office with a copy of any studies, reports, data, or materials relating to the Diamond Valley Flow System Project-Phase Two Water Resources Investigation and/or any USGS studies on or relating to the Diamond Valley Flow System or Kobeh Valley dated after 2006, including all categories of records being: category 1 records (public information), category 2 records (on-line/public information) and category 3 records (non-public records).

The Diamond Valley Flow System Project-Phase Two Water Resources Investigation was the subject of multiple Joint Funding Agreements for Water Resources Investigations between Eureka County, Nevada and the USGS. The following information was listed on the Joint Funding Agreements:

- Project #: 9705-BTQ02 (see also 9705-BTQ01)

1915 NE Cesar E Chavez Boulevard Portland, Oregon 97212 (503) 281-4100

440 Marsh Avenue, Reno, Nevada 89509 (775) 786-8800  
www.water-law.com counsel@water-law.com

(P0185605: 0500 00 KAW)

ref 2309  
**Exhibit 309**  
1 of 20

002807

JA4219

USGS FOIA Officer  
October 21, 2010  
Page 2 of 2

- Customer #: NV077
- Agreement #: 07W4NV02600
- TIN #: 88-6000080
- Project Managers: Mary Tumbusch, Russ Plume, David L. Berger

If these materials are available in electronic format, then we would like electronic copies of the documents on a compact disc. Otherwise, please provide the materials in paper format.

Please contact me if anything further is needed to complete our request.

Very truly yours,

SCHROEDER LAW OFFICES, P.C.



Therese A. Ure

TAU:kaw

cc: Client  
Russ Plume  
David L. Berger

(P0183803, UNK000 KAW 1

Exhibit 309  
2 of 20

002808

JA4220



## United States Department of the Interior

U.S. GEOLOGICAL SURVEY  
WATER RESOURCES  
Nevada District  
333 West Nye Lane, Room 203  
Carson City, Nevada 89706

January 7, 2005

Jon Hutchings, Natural Resources Manager  
Eureka County  
Box 682  
Eureka, NV 89316

Dear Mr. Hutchings,

Enclosed are two signed originals of a Joint Funding Agreement between Eureka County and the U.S. Geological Survey (USGS) for the first year of the study to document "Ground-Water Conditions in Stevens Basin, Monitor, Antelope, Kobeh and Diamond Valleys." The total cost of the project in Federal fiscal year 2005 (FY05 = October 1, 2004 through September 30, 2005) is \$150,000. Pending availability of Federal Matching Funds from the Cooperative Water Program, the USGS will contribute half the cost of the project. Eureka County's share of the funding in FY05 is \$50,000. The table below shows the funding summary by agency for this work in FY05.

Eureka County	\$50,000
Lander County	\$10,000
Nye County	\$10,000
Nevada Div. of Water Resources	\$ 5,000
<b>Total cooperator funds</b>	<b>\$75,000</b>

USGS Federal Matching Funds      \$75,000

**Total project funds for FY05**      **\$150,000**

To execute this agreement, please sign both Joint Funding Agreement forms (JFA); return one signed JFA to the attention of our Administrative Officer, Vickie Kieffer. Funds are not required at this time; a signed agreement is not a bill, only an agreement to pay for the work that will be done. Billing to your agency will be semi-annually, beginning in April 2005, unless a written request for a different billing cycle is received with the JFA. If you have questions regarding the billing, please call our Administrative Officer, Vickie Kieffer at (775) 887-7610. Work performed with funds from this agreement will be conducted on a fixed-price basis. The results of all work under this agreement will be available for publication by the USGS.

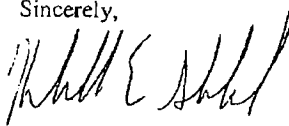
Exhibit 309  
3 of 20

002809

JA4221

We look forward to developing a long-term cooperative relationship with Eureka County during the coming year. If you have any questions regarding work on the project, please call one of the co-project chiefs: Mary Tumbusch at (775) 887-7637 or Russ Plume at (775) 887-7612.

Sincerely,



Kimball E. Goddard  
Nevada District Chief

Enclosures

cc: M. Tumbusch, WRD, Carson City, NV  
D.L. Berger, USGS, WRD, Carson City, NV

RWP:laf



Form 9-1366  
(Nov. 1998)U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding AgreementCustomer # NV077  
Agreement # 05W4NV02900  
Project # 9705-BTQ01  
TIN # 886000080  
Fixed Cost Agreement YesFOR  
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 7th day of January, 2005, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the Eureka County, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation a study to document ground-water conditions in Stevens Basin, Monitor, Antelope, Kobeh and Diamond Valleys herein called the program.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program.

- (a) \$50,000 by the party of the first part during the period January 7, 2005 to September 30, 2005
- (b) \$50,000 by the party of the second part during the period January 7, 2005 to September 30, 2005

- (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.
8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. Billing for this agreement will be rendered semi-annually. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. GEOLOGICAL SURVEY  
UNITED STATES  
DEPARTMENT OF THE INTERIOR

EUREKA COUNTY

By: [Signature] Date: 1/17/2005 By: [Signature] Date: 1/14/05Title: Kimball E. Goddard  
Nevada District Chief

By: \_\_\_\_\_ Date: \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

(USE REVERSE SIDE IF ADDITIONAL SIGNATURES ARE REQUIRED)

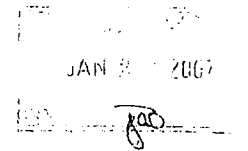
<https://gsvaresa01.cr.usgs.gov/WebForms/9-1366.nsf/fcd819ce662629d385256f1e003e5fe8...> 1/7/2005Exhibit 309  
5 of 20

002811

JA4223



United States Department of the Interior  
U. S. GEOLOGICAL SURVEY  
NEVADA WATER SCIENCE CENTER  
2730 North Deer Run Road  
Carson City, Nevada 89701



January 19, 2007

Donna Bailey, Chairman  
Board of Eureka County Commissioners  
P.O. Box 677  
Eureka, NV 89316

Dear Ms. Bailey,

This letter is in regards to the ongoing program work being conducted cooperatively between Eureka County and the U.S. Geological Survey (USGS) for the period of October 1, 2006 thru September 30, 2007 for federal fiscal year 2007 (FY07). This letter is in regards to the Diamond Valley Flow System Project-Phase Two.

The total cost of program work for this study for FY07 is \$280,875. Pending availability of Federal Matching Funds from our Cooperative Water Program, the USGS will provide \$104,625 toward this work with Eureka County contributing \$116,250 and the SB62 grant money of \$60,000. The USGS contribution has been limited to 45% because of anticipated shortfalls to fully match cooperative programs in FY07. The cost breakdown for the program study for FY07 is provided in the table below:

Agency Cooperators	Agency Funds	USGS Federal Matching Funds
Eureka County	\$116,250	*\$104,625
SB62 Grant Money	\$60,000	---
<b>Total</b>	<b>\$176,250</b>	<b>*\$104,625</b>
<b>Total Project Funds for FY07</b>	<b>\$280,875</b>	

\*USGS contributions are subject to availability of Federal Matching Funds

Enclosed are two copies of Joint Funding Agreement # 07W4NV02600. To execute this agreement, please sign both originals; return one signed copy to Jennifer George (See Enclosure 1), and retain the second copy for your records. To complete the processing of the JFA in our office, we are asking for receipt of the signed JFA by January 31, 2007.

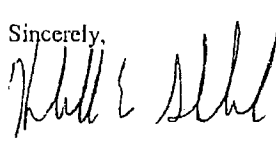
Exhibit 309  
6 of 20

002812

JA4224

We look forward to working with Eureka County on this cooperative effort. Should you have any questions regarding this work or the agreement, please refer to the contact list on Enclosure 1.

Sincerely,



Kimball E. Goddard  
Director, USGS Nevada Water Science Center

Enclosures

cc: Jon Hutchinson, Natural Resource Manager, Eureka County, P.O. Box 682, Eureka, NV 89316  
Mary Tumbusch, USGS, NV WSC, Carson City, NV  
Russ Plumb, USGS, NV WSC, Carson City, NV  
David Berger, USGS, NV WSC, Carson City, NV  
Kimball Goddard, USGS, NV WSC, Carson City, NV  
Jennifer George, USGS, NV WSC, Carson City, NV

KEG:jdg

Enclosure 1

**POINTS of CONTACT:**

USGS Nevada Water Science Center	Eureka County
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541	P.O. Box 682, Fedex Address: 701 S. Main St. Eureka, NV 89316 Phone #: 775-237-6010 FAX #: 775-237-6012 TID: 88-6000080
<u>Technical Contact/Project Manager:</u> Mary Tumbusch, Russ Plume Phone #: 775-887-7637, -7612 <a href="mailto:mtumbusch@usgs.gov">mtumbusch@usgs.gov</a> , <a href="mailto:rwplume@usgs.gov">rwplume@usgs.gov</a>	<u>Technical Contact/Project Manager:</u> Jon Hutchings, Natural Resource Manager Phone #: 775-237-6010
<u>Executive Contact:</u> Kimball E. Goddard, Director 775-887-7635	<u>Executive Contact:</u> <del>Donna Bailey</del> , Chairman <i>Ken Benson</i> Phone #: 775-237-6010
<u>Billing Contact:</u> Jennifer George, Budget Analyst 2730 North Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751 FAX #: 775-887-7629 <a href="mailto:jgeorge@usgs.gov">jgeorge@usgs.gov</a>	<u>Billing Contact:</u> Michael Rebaleati P.O. Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX #:

\*

Form 9-1366  
(Oct. 2005)

**U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding Agreement**

Customer #: NV077  
Agreement #: 07W4NV02600  
Project #: 9705-BTQ02  
TIN #: 88-6000080  
Fixed Cost Agreement ☒ Yes ☐ No

Page 1 of 2

**FOR  
WATER RESOURCES INVESTIGATIONS**

THIS AGREEMENT is entered into as of the 1st day of October, 2006, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation of the Diamond Valley Flow System Project - Phase Two, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$.

(a) \$104,625 by the party of the first part during the period  
October 1, 2006 to September 30, 2007

(b) \$176,250 by the party of the second part during the period  
October 1, 2006 to September 30, 2007

\*SB62 Grant Money \$60,000

- (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

<https://gsvaresa01.cr.usgs.gov/Webforms/9-1366R.nsf/c2b886045170c623852571330054c...> 1/19/2007

**Exhibit 309  
9 of 20**

002815

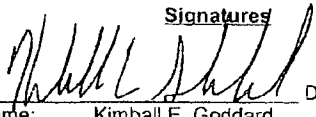
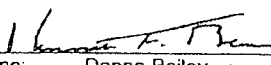
JA4227

Form 9-1366  
continuedU.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding AgreementCustomer #: NV077  
Agreement #: 07W4NV02600  
Project #: 9705-BTQ02  
TIN #: 88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered Quarterly. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

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

County of Eureka

USGS Point of ContactName: Mary Tumbusch  
Address: 2370 N Deer Run Rd  
Carson City, NV 89701  
Telephone: 775-887-7637  
Email: mtumbusch@usgs.govCustomer Point of ContactName: ~~Donna Bailey~~ Ken Benson  
Address: 701 S Main St  
Eureka, NV 89136  
Telephone: 775-237-6010  
Email:SignaturesBy  Date 1/19/2007  
Name: Kimball E. Goddard  
Title: DirectorSignaturesBy  Date 2/06/07  
Name: ~~Donna Bailey~~ Ken Benson  
Title: ChairmanBy \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_<https://gsvaresa01.er.usgs.gov/Webforms/9-1366R.nsf/c2b886045170c623852571330054c...> 1/19/2007Exhibit 309  
10 of 20

002816

JA4228



## United States Department of the Interior

U. S. GEOLOGICAL SURVEY  
NEVADA WATER SCIENCE CENTER  
2730 N. Deer Run Road  
Carson City, Nevada 89701  
Phone: 775-887-7600; Fax: 775-887-7629  
Website: <http://www.usgs.gov/>

July 25, 2007

Ken Benson, Chairman  
Eureka County  
P.O. Box 682  
Eureka, NV 89316

Dear Mr. Benson:

This purpose of this letter is to modify the Joint Funding Agreement (JFA#07W4NV02600, copy included) between Eureka County and the U.S. Geological Survey (USGS) for FY07 (October 1, 2006 – September 30, 2007) for work on the on-going Diamond Valley Flow System Project-Phase Two investigation.

The total cost of the project in FY07 is now \$380,875, of which \$276,250 will come from Eureka County; \$60,000 of this amount is SB62 Grant money. U.S. Geological Survey will contribute \$104,625 toward this work. This modification is an increase of \$100,000 for drilling additional monitoring wells in the project area and has been added to this agreement. A breakdown of FY 2007 funding for the Diamond Valley Flow System Project Phase Two is shown below:

<i>Modification #1 To JFA# 07W4NV02600</i>		
	<b>Funds</b>	<b>Total Funding</b>
Eureka County	<sup>1</sup> \$276,250	\$276,250
USGS	<u>\$104,625</u>	<u>\$104,625</u>
<b>Total FY07 Funding</b>	<b>\$380,875</b>	<b>\$380,875</b>

<sup>1</sup>This amount includes \$60,000 in SB62 Grant Monies.

<sup>2</sup>Includes an increase of \$100,000

**FILE COPY**

Sent to USGS - 8/8/07

Exhibit 309  
11 of 20

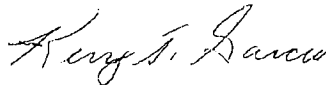
002817

JA4229

If you agree with this modification, please sign the two enclosed originals of this modification letter in the designated space below and return one signed letter to this office.

We still look forward to our continuing cooperative relationship with Eureka County. Should you have questions regarding this work, agreement, or billing, again please refer to the contact list at Enclosure 2.

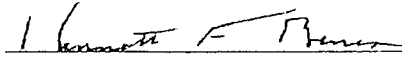
Sincerely,



Kerry T. Garcia  
Acting Director, USGS, Nevada Water Science Center

Modification of Joint Funding Agreement (JFA # 07W4NV02600) between the U.S. Geological Survey and the County of Eureka for work on the on-going Diamond Valley Flow System Project-Phase Two investigation.

ACCEPTANCE:

  
Signature

DATE: 08/06/07

Enclosures

cc: D.L. Berger, USGS, NWSC, Carson City  
Admin (2)/Chron/File Cys

MT:lmk



**Enclosure 1**

**Modification #1 to JFA#: 07W4NV02600**

**POINTS of CONTACT:**

<b>USGS Nevada Water Science Center</b>	<b>Eureka County</b>
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541	PO Box 682 FedEx Address: 701 S. Main St. Eureka, NV 89316 Phone #: 775-237-6010 FAX # 775-237-6012 TID: 88-6000080
<u>Technical Contact / Project Manager:</u> Mary Tumbusch, David L. Berger Phone #: 775-887-7637, -7658 <a href="mailto:mtumbusch@usgs.gov">mtumbusch@usgs.gov</a> , <a href="mailto:dlberger@usgs.gov">dlberger@usgs.gov</a>	<u>Technical Contact / Project Manager:</u> Jon Hutchings, Natural Resource Manager Phone #: 775-237-6010
<u>Executive Contact:</u> Kimball E. Goddard, Director Phone #: 775-887-7635	<u>Executive Contact:</u> Ken Benson, Chairman Phone #: 775-237-6010
<u>Billing Contacts:</u> Jennifer Kirkpatrick, Budget Analyst; Kerry Garcia, Acting Administrative Officer 2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751, -7659 FAX #: 775-887-7629 <a href="mailto:jkirkpat@usgs.gov">jkirkpat@usgs.gov</a> <a href="mailto:ktgarcia@usgs.gov">ktgarcia@usgs.gov</a>	<u>Billing Contact:</u>  Michael Rebaleati PO Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX #

Form 9-1366  
(Oct. 2005)

U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding Agreement

Customer #: 6V077  
Agreement #: 07W4NV02500  
Project #: 8765-BIC02  
TIN #: 88-6000086  
Fixed Cost Agreement: ☒ Yes ☐ No

Page 1 of 2

FOR  
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 1st day of October, 2006, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka, party of the second part.

1. The parties hereto agree that, subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation of the Diamond Valley Flow System Project - Phase Two, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$.

(a) \$104,625 by the party of the first part during the period  
October 1, 2006 to September 30, 2007

(b) \$176,250 by the party of the second part during the period  
October 1, 2006 to September 30, 2007

\*SB52 Grant Money \$60,000

- (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

<https://gsvaresa01.er.usgs.gov/Webforms/9-1366R.nsf/c2b886045170c623852571330054c..> 1/19/2007

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002820

JA4232

Form 9-1368  
continuedU.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding AgreementCustomer #: NV077  
Agreement #: 07W4NV02600  
Project #: 9705-BTQ02  
TIN #: 83-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered Quarterly. Payments of bills are due within 90 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

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

County of Eureka

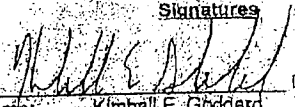

USGS Point of ContactName: Mary Tumbusch  
Address: 2370 N Deer Run Rd  
Carson City, NV 89701  
Telephone: 775-887-7537  
Email: mtumbusch@usgs.govCustomer Point of ContactName: Ken Benson  
Donna Bailey  
Address: 701 S Main St  
Eureka, NV 89136  
Telephone: 775-237-6010  
Email:SignaturesBy:  Date: 1/14/2007  
Name: Kimball E. Gboddard  
Title: DirectorSignaturesBy:  Date: 2/26/07  
Name: Donna Bailey  
Title: ChairmanBy: \_\_\_\_\_ Date: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_<https://gsvaressa01.er.usgs.gov/Webforms/9-1366R.nsf/c2b886045170c623852571330054c...> 1/19/2007

Exhibit 309

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002821

JA4233



## United States Department of the Interior

U. S. GEOLOGICAL SURVEY  
NEVADA WATER SCIENCE CENTER  
2730 N. Deer Run Road  
Carson City, Nevada 89701  
Phone: 775-887-7600; Fax: 775-887-7629  
Website: <http://www.usgs.gov/>

September 6, 2007

Ken Benson, Chairman  
Eureka County  
P.O. Box 682  
Eureka, NV 89316

Dear Mr. Benson:

This purpose of this letter is to modify the Joint Funding Agreement (JFA#07W4NV02600, copy included) between Eureka County and the U.S. Geological Survey (USGS) for FY07 (October 1, 2006 – September 30, 2007) for work on the on-going Diamond Valley Flow System Project-Phase Two investigation. This is modification number two.

The total cost of the project in FY07 is now \$485,875 of which \$276,250 will come from Eureka County; \$60,000 of this amount is SB62 Grant money. U.S. Geological Survey's original contribution to this program was \$104,625. Modification #2 is an increase in funding provided by the USGS in the amount of \$105,000 and thereby increases our total contribution to \$209,625 for this agreement. There are no additional costs for Eureka County for this modification. A breakdown of FY 2007 funding for the Diamond Valley Flow System Project Phase Two is shown below:

<i>Modification #2 To JFA# 07W4NV02600</i>		
	<b>Funds</b>	<b>Total Funding</b>
Eureka County	<sup>1</sup> \$276,250	\$276,250
USGS	<u>\$209,625</u>	<u>\$209,625</u>
<b>Total FY07 Funding</b>	<b>\$485,875</b>	<b>\$485,875</b>

<sup>1</sup>This amount includes \$60,000 in SB62 Grant Monies.

<sup>2</sup>Includes an increase of \$100,000

If you agree with this modification, please sign the two enclosed originals of this modification letter in the

Exhibit 309  
16 of 20

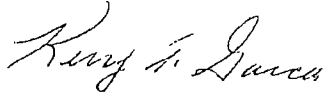
002822

JA4234

If you agree with this modification, please sign the two enclosed originals of this modification letter in the designated space below and return one signed letter to this office.

We look forward to our continuing cooperative relationship with Eureka County. Should you have questions regarding this work, agreement, or billing, again please refer to the contact list at Enclosure 2.

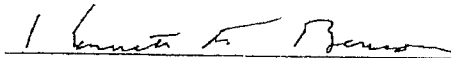
Sincerely,



Kerry T. Garcia  
Acting Director, USGS, Nevada Water Science Center

Modification #2 of Joint Funding Agreement (JFA # 07W4NV02600) between the U.S. Geological Survey and the County of Eureka for work on the on-going Diamond Valley Flow System Project-Phase Two investigation.

ACCEPTANCE:

  
Signature

DATE:

9/10/07

Enclosures

cc: D.L. Berger, USGS, NWSC, Carson City  
Admin (2)/Chron/File Cys

MT:lnk

NV077.07W4NV02600.BTQ02.jfaltr.Mod2.doc

2

Exhibit 309  
17 of 20

002823

JA4235

**Enclosure 1**

Modification #2 to JFA#: 07W4NV02600

**POINTS of CONTACT:**

<b>USGS Nevada Water Science Center</b>	<b>Eureka County</b>
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541	PO Box 682 FedEx Address: 701 S. Main St. Eureka, NV 89316 Phone #: 775-237-6010 FAX # 775-237-6012 TID: 88-6000080
<u>Technical Contact / Project Manager:</u> Mary Tumbusch, David L. Berger Phone #: 775-887-7637, -7658 <a href="mailto:mtumbusch@usgs.gov">mtumbusch@usgs.gov</a> , <a href="mailto:dlberger@usgs.gov">dlberger@usgs.gov</a>	<u>Technical Contact / Project Manager:</u> Jon Hutchings, Natural Resource Manager Phone #: 775-237-6010
<u>Executive Contact:</u> Kimball E. Goddard, Director Phone #: 775-887-7635	<u>Executive Contact:</u> Ken Benson, Chairman Phone #: 775-237-6010
<u>Billing Contacts:</u> Jennifer Kirkpatrick, Budget Analyst; Kerry Garcia, Acting Administrative Officer 2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751, -7659 FAX #: 775-887-7629 <a href="mailto:jkirkpat@usgs.gov">jkirkpat@usgs.gov</a> <a href="mailto:ktgarcia@usgs.gov">ktgarcia@usgs.gov</a>	<u>Billing Contact:</u>  Michael Rebalcati PO Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX #

Form 9-1366  
(Oct. 2005)

U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding Agreement

Customer #: NV077  
Agreement #: 07W4NV02600  
Project #: 9705-BTQ02  
TIN #: 88-6000080  
Fixed Cost Agreement ☒ Yes ☐ No

Page 1 of 2

FOR  
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 1st day of October, 2006, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation of the Diamond Valley Flow System Project - Phase Two, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$.

(a) \$104,625 by the party of the first part during the period  
October 1, 2006 to September 30, 2007

(b) \$176,250 by the party of the second part during the period  
October 1, 2006 to September 30, 2007

\*SB62 Grant Money \$60,000

- (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

<https://gsvaresa01.er.usgs.gov/Webforms/9-1366R.nsf/c2b886045170c623852571330054c...> 1/19/2007

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19 of 20

002825

JA4237

Form 9-1366  
continued

U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding Agreement

Customer #: NV077  
Agreement #: 07W4NV02600  
Project #: 9705-BTQ02  
TIN #: 68-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered Quarterly. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

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

County of Eureka

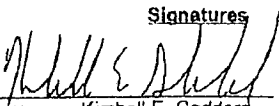
USGS Point of Contact

Name: Mary Tumbusch  
Address: 2370 N Deer Run Rd  
Carson City, NV 89701  
Telephone: 775-887-7637  
Email: mtumbusch@usgs.gov

Customer Point of Contact

Name: ~~Donna Bailey~~  
Address: 701 S Main St  
Eureka, NV 89136  
Telephone: 775-237-6010  
Email:

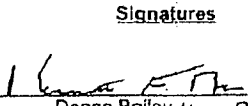
Signatures

By  Date 1/19/2007  
Name: Kimball E. Goddard  
Title: Director

By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

Signatures

By  Date 2/06/07  
Name: ~~Donna Bailey~~ Ken Benson  
Title: Chairman

By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By \_\_\_\_\_ Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

<https://gsvaresa01.er.usgs.gov/Webforms/9-1366R.nsf/c2b886045170c623852571330054c...> 1/19/2007

Exhibit 309  
20 of 20

002826

JA4238



1 **CERTIFICATE OF SERVICE**

2 I hereby certify that on the 22nd day of October, 2010, I caused a copy of the foregoing:  
3 *PROTESTANT KENNETH F. BENSON'S WITNESS LIST AND SUMMARY OF TESTIMONY* to  
be served as follows:

4 Via Email<sup>1</sup> and First Class Mail:

5 Baxter Glenn Tackett  
6 1929 D Street #1  
Bakersfield, CA 93301  
7 [Baxter.Tackett@conservation.ca.gov](mailto:Baxter.Tackett@conservation.ca.gov)  
8 [bgtackett@gmail.com](mailto:bgtackett@gmail.com)

Conley Land & Livestock, LLC  
Beverly Conley  
(successor to protestant David Stine)  
HC 62 - Box 62646  
Eureka, NV 89316  
[bkconley@gmail.com](mailto:bkconley@gmail.com)

9 Gene P. Etcheverry  
10 Lander County  
315 South Humboldt Street  
11 Battle Mountain, NV 89820  
12 [getcheverry@landercountynv.org](mailto:getcheverry@landercountynv.org)

Alan K. Chamberlain  
Cedar Ranches, LLC  
948 Temple View Dr.  
Las Vegas, NV 89110  
[alan@cedarstrat.com](mailto:alan@cedarstrat.com)

13 Karen A. Peterson  
Allision, Mackenzie, Pavlakis, Wright & Fagan Ltd.  
14 P.O. Box 646  
Carson City, NV 89701  
15 [KPeterson@allisonmackenzie.com](mailto:KPeterson@allisonmackenzie.com)

D. Lloyd Morrison  
P.O. Box 52  
Eureka, NV 89316  
[llloyd@mwpower.net](mailto:llloyd@mwpower.net)

16 Via Hand-Delivery to:

17  
18 Ross E. de Lipkau, Esq.  
Parsons, Behle & Latimer  
19 50 West Liberty Street, Suite 750  
20 Reno, NV 89501

21 Dated this 22nd day of October 2010.

22   
Kendall A. Woodcock, Paralegal

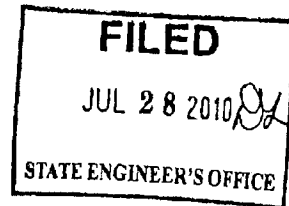
23  
24  
25  
26 <sup>1</sup> Permission to serve via email was provided pursuant Ms. Peterson.



IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 79936  
FILED BY KOBEH VALLEY RANCH LLC  
ON JUNE 15, 20 10, TO APPROPRIATE THE  
WATERS OF UNDERGROUND (EUREKA COUNTY)

PROTEST



Comes now KENNETH F. BENSON

Printed or typed name of protestant

whose post office address is PO BOX 158, EUREKA, NEVADA 89316

Street No. or PO Box, City, State and ZIP Code

whose occupation is FARMER/RANCHER

and protests the granting

of Application Number 79936, filed on JUNE 15, 20 10

by KOBEH VALLEY RANCH LLC

to appropriate the

waters of UNDERGROUND

situated in EUREKA

Underground or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:

Published reports appearing in "The Eureka Sentinel" make reference to forthcoming U.S.G.S. studies which could indicate greater contribution from the Kobe Valley ground water basin in the Diamond Valley water basin than has been previously acknowledged or referenced by the State Engineer in all previous definitions of the Diamond Valley Flow System. The July 1, 2010 publication of said newspaper suggested a possible/probable flow through of 10,000 to 12,000 acre-feet annually which fact, if substantiated, would diminish the water balance within the Kobe Valley designated water basin to the point that the acknowledged perennial yield of the Kobe Valley basin would not support the annual acre-feet withdrawal of consumptive use water cumulatively advertised for proposed changes to the point of diversion advertised in 32 separate change applications affecting the Kobe Valley water basin and submitted by Kobe Valley Ranch LLC on the same date.

THEREFORE the Protestant requests that the application be

DENIED

Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed

*Kenneth F. Benson*

Agent or protestant

KENNETH F. BENSON

Printed or typed name, if agent

Address

PO BOX 158

Street No. or PO Box

EUREKA, NEVADA 89316

City, State and ZIP Code

775-237-5437

Phone Number

Subscribed and sworn to before me this 27<sup>th</sup> day of

JULY

20 10

*Doni M. Wright*

Notary Public



State of NEVADA

County of EUREKA

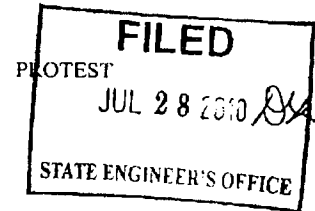
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ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.**

002828

JA4240

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 79935  
FILED BY KOBEH VALLEY RANCH LLC  
ON JUNE 15, 20 10, TO APPROPRIATE THE  
WATERS OF UNDERGROUND (EUREKA COUNTY)



Comes now KENNETH F. BENSON

Printed or typed name of protestant

whose post office address is PO BOX 158, EUREKA, NEVADA 89316

Street No. or PO Box, City, State and ZIP Code

whose occupation is FARMER/RANCHER

and protests the granting

of Application Number 79935

, filed on JUNE 15

, 20 10

by KOBEH VALLEY RANCH LLC

to appropriate the

waters of UNDERGROUND

situated in EUREKA

Underground or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:

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THEREFORE the Protestant requests that the application be

DENIED

Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed

KENNETH F. BENSON

Agent or protestant

Address

PO BOX 158

Printed or typed name, if agent

EUREKA, NEVADA 89316

Street No. or PO Box

775-237-5437

City, State and ZIP Code

Phone Number

Subscribed and sworn to before me this 27th day of

JULY

, 20 10



State of NEVADA

County of EUREKA

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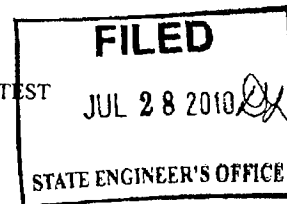
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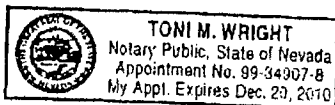
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State of NEVADA

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Notary Public

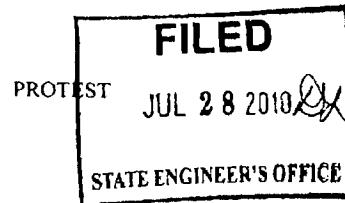
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002830

JA4242

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Toni M. Wright

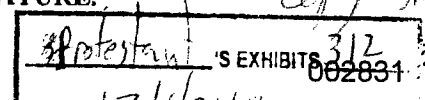
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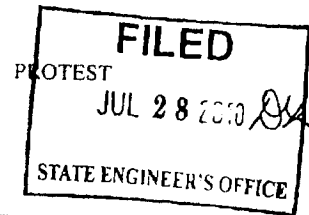
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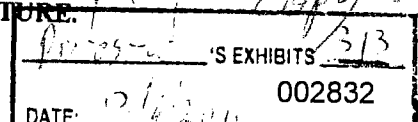


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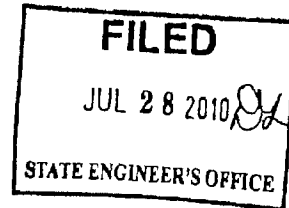
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IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 79936  
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ON JUNE 15, 2010, TO APPROPRIATE THE  
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PROTEST



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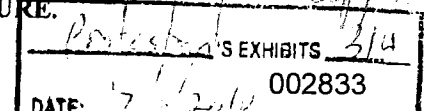
*Toni M. Wright*

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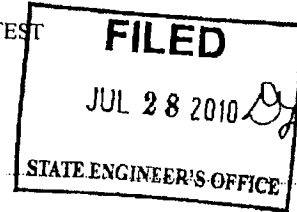
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IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 79937  
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ON JUNE 15, 2010, TO APPROPRIATE THE  
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PROTEST



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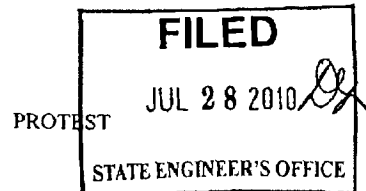
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002834



IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 79938  
FILED BY KOBEH VALLEY RANCH LLC  
ON JUNE 15, 2010, TO APPROPRIATE THE  
WATERS OF UNDERGROUND (EUREKA COUNTY)



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27<sup>th</sup>

day of

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2010 JUL 28 AM 8:17



*Toni M. Wright*

Notary Public

State of NEVADA

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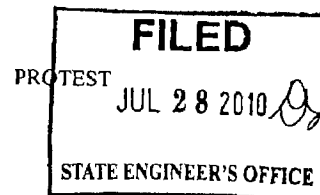
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002835

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 79939  
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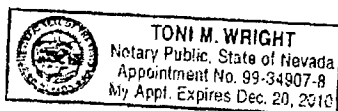
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00283617

**IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA**

In the Matter of Application No.  
72695 et seq.

**SUBMISSION OF WITNESSES, A  
SUMMARY OF THEIR TESTIMONY, AND  
ACCOMPANYING REBUTTAL EXHIBITS**

Pursuant to the State Engineer's Notice of Hearing dated September 21, 2010, the applicant Kobreh Valley Ranch LLC (hereinafter KVR) offers the following documents and list of witnesses.

**LIST OF WITNESSES AND REBUTTAL EVIDENTIARY MATERIAL**

KVR may call any or all of the following witnesses:

1. **James J. Moore, P.E.** Mr. Moore is currently self employed, and has had many years experience in the design of mills. He will describe the water cycle and water balance to be utilized at the KVR Mill. Mr. Moore has spent a career in water balance and mining issues. Mr. Moore testified at the Administrative Hearing held before the State Engineer in October 2008.
2. **James O. Rumbaugh, III, P.G.** Mr. Rumbaugh is the President and Principal Hydrogeologist with Environmental Simulations, Inc. Mr. Rumbaugh will be presented to provide expert testimony. Mr. Rumbaugh, as is readily apparent from reviewing his resume, is a leader in the field of groundwater modeling. He co-authored and assisted with development and calibration of the numeric Flow Model. Mr. Rumbaugh may appear personally, or via telephone.
3. **Tim Arnold.** Mr. Arnold is employed by General Moly, Inc. and is the General Manager of the Mt. Hope Project, Eureka County, Nevada. Mr. Arnold may be called to offer testimony regarding the mining operation, mill operation and other matters relating to the above-referred to applications.

2010 NOV 29 PM 2:07

4. **Hale Barter**. Mr. Barter is employed by Montgomery Engineers, and may be called upon to testify regarding the 2010 numerical computer model, previously submitted as Exhibit 39 in the initial exchange.

5. **Robert Pennington**. Robert Pennington is Vice President-Engineering and Construction for General Moly, Inc., the parent of KVR. Mr. Pennington has enjoyed a career in the mineral industry, and will testify regarding water use, water rights, and other matters related to placing the sought after water permits to a beneficial use.

6. **Jack Childress**. Mr. Childress, a hydrologist-geologist is employed by InterFlow Hydrology, Inc., and may testify at the upcoming hearing.

7. **Derek Blazer**. Mr. Blazer, an employee with E.L. Montgomery & Associates, Tucson, Arizona, may testify as to the modeling efforts here involved.

The following documents are offered as rebuttal evidence:

401. Legal Memorandum.
402. Memorandum of May 28, 2010 written by Dale Bugenig and Carol Oberholtzer to the Eureka County Board of Commissioners.
403. Series of documents wherein State Engineer traveled to Eureka and met with the Diamond Valley Growers in March 2009. A list of attendees is affixed thereto.
404. Ruling 2798, dated January 31, 1983.
405. State Engineer publication of January 10, 2010 indicating that Kobeh Valley consumptive use for alfalfa is 2.7 acre feet per acre and Diamond Valley is 2.5 acre feet per acre.
406. Ruling 4848.
407. Deed wherein KVR acquired Heard Ranch.
408. Dwight Smith report utilizing the 2008 points of diversion with or inserted into the updated or 2010 model.
409. Letter dated October 1, 2010 addressed to the Eureka County Commissioners signed by nine members of the Diamond Natural Resource Protection and Conservation Association.

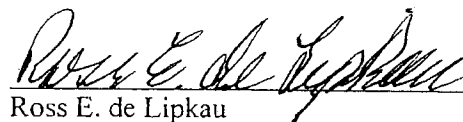
410. Exxon permits 44431 and 44436. These permits were granted on May 23, 1983 for mining, milling and domestic purposes. Copy of Transcript of March 10, 1983 administrative hearing held before the Nevada State Engineer attached hereto.
411. Resume of Jack M. Childress.
412. Resume of Derek J. Blazer.
413. Corporate Charter and Articles of Incorporation.
414. Protest to Application 78271, filed by Eureka County on July 10, 2009.
415. Low, Dennis James, 1982, Geology of Whistler Mountain, Eureka County, Nevada [M.S.]: Univ. Nebraska, Lincoln, 127 p.

In addition to the above documents, KVR expressly relies and incorporates all files and records in the Office of the Nevada State Engineer. KVR further incorporates all testimony and exhibits introduced at the State Engineer Hearing during the period October 13-17, 2008 inclusive; Ruling 5966; together with all testimony and documentary evidence presented to the Seventh Judicial District Court, Case Nos. CV0904-122; CV0904-123; and CV0908-127.

The applicant reserves the right to call or not call any or all proposed witnesses listed herein, and those listed on the initial LIST OF WITNESSES AND EVIDENTARY MATERIAL filed herein on October 19, 2010.

Dated: November 17, 2010

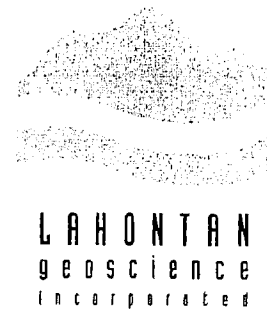
Respectfully submitted,



Ross E. de Lipkau  
Parsons Behle & Latimer  
50 W. Liberty St., Ste. 750  
Reno, NV 89501  
Telephone: 775-323-1601  
Facsimile: 775-348-7250

**INDEX  
OF  
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- EXHIBIT 406: Ruling 4848.
- EXHIBIT 407: Deed wherein KVR acquired Heard Ranch.
- EXHIBIT 408: Dwight Smith report utilizing the 2008 points of diversion with or inserted into the updated or 2010 model.
- EXHIBIT 409: Letter dated October 1, 2010 addressed to the Eureka County Commissioners signed by nine members of the Diamond Natural Resource Protection and Conservation Association.
- EXHIBIT 410: Exxon permits 44431 and 44436. These permits were granted on May 23, 1983 for mining, milling and domestic purposes. Copy of Transcript of March 10, 1983 administrative hearing held before the Nevada State Engineer attached hereto.
- EXHIBIT 411: Resume of Jack M. Childress.
- EXHIBIT 412: Resume of Derek J. Blazer.
- EXHIBIT 413: Corporate Charter and Articles of Incorporation.
- EXHIBIT 414: Protest to Application 78271, filed by Eureka County on July 10, 2009.
- EXHIBIT 415: Low, Dennis James, 1982, Geology of Whistler Mountain, Eureka County, Nevada [M.S.]: Univ. Nebraska, Lincoln, 127 p.



# Memorandum

## ***Review of April 2010 Revised Report of the Hydrogeology and Numerical Modeling for the Mount Hope Project***

Prepared For: Eureka County Board of Commissioners

Prepared By: Carol Oberholtzer (Lahontan GeoScience, Inc.) and Dale C. Bugenig (ECO:LOGIC)

Date: May 28, 2010

The Eureka County Board of Commissioners engaged ECO:LOGIC Engineering and Lahontan GeoScience, Inc. to review the April 2010 Revised Report of the *Hydrogeology and Numerical Modeling, Mount Hope Project Eureka County, Nevada, Volumes 1 and 2*. The report, compiled by Montgomery and Associates, Interflow Hydrology, Inc. and Barranca Group LLC., represents the latest version of the report that describes the hydrogeology of the groundwater flow system and the groundwater models employed to assess potential impacts to the system such as drawdown and reduction in spring discharge that might arise as a result of the mine's groundwater extractions. The groundwater model and the associated report have improved with each iteration since the versions introduced into evidence at the 2008 administrative hearing before the Nevada State Engineer. This latest effort addresses and incorporates most, but not all, of the suggestions provided by the cooperating agencies involved in reviewing the hydrogeologic investigations and modeling undertaken as part of the EIS process. There continues to be differences of opinion between the County's and the mine's consultant teams, but we have not identified fatal flaws in the characterization of the groundwater flow system or the numerical groundwater models.

As with any groundwater-flow model there is a degree of uncertainty inherent in the simplification of a complex natural system in order to analyze it by numerical methods

ECO:LOGIC  
Lahontan GeoScience, Inc.

002841

JA4253

**IN THE SUPREME COURT OF THE STATE OF NEVADA**

EUREKA COUNTY, A POLITICAL  
SUBDIVISION OF THE STATE OF  
NEVADA; KENNETH F. BENSON,  
INDIVIDUALLY; DIAMOND CATTLE  
COMPANY, LLC, A NEVADA LIMITED  
LIABILITY COMPANY; AND MICHEL  
AND MARGARET ANN ETCHEVERRY  
FAMILY, LP, A NEVADA REGISTERED  
FOREIGN LIMITED PARTNERSHIP,

Appellants,

vs.

THE STATE OF NEVADA STATE  
ENGINEER; THE STATE OF NEVADA  
DIVISION OF WATER RESOURCES;  
AND KOBEH VALLEY RANCH, LLC, A  
NEVADA LIMITED LIABILITY  
COMPANY,

Respondents.

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Case No. 61324

District Court Case No.

CV 1108-15; CV 1108-156;  
CV 1108-157; CV 1112-164;  
CV 1112-165; CV 1202-170

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Tracie K. Lindeman  
Clerk of Supreme Court

**JOINT APPENDIX**  
**Volume 22**

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**CHRONOLOGICAL APPENDIX TO  
APPEAL FROM JUDGMENT**

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Summons and Proof of Service, Kobeh Valley Ranch, LLC	08/11/2011	1	60-62
Summons and Proof of Service, Jason King	08/11/2011	1	63-65
Affidavit of Service by Certified Mail	08/11/2011	1	66-68
Notice of Petition for Judicial Review	08/11/2011	1	69-117
Summons and Proof of Service, Kobeh Valley Ranch, LLC	08/15/2011	1	118-120
Summons and Proof of Service, Jason King	08/15/2011	1	121-123
Summons and Proof of Service, The State of Nevada	08/17/2011	1	124-128
First Additional Summons and Proof of Service, State Engineer, Division of Water Resources	08/17/2011	1	129-133
Order Allowing Intervention of Kobeh Valley Ranch, LLC, to Intervene as a Respondent	09/14/2011	1	134-135

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First Additional Summons and Proof of Service, State Engineer, Division of Water Resources	01/11/2012	27	5101-5103
First Amended Petition for Judicial Review	01/12/2012	27	5104-5111
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Corrected Answering Brief	04/05/2012	35	6780-6822
Findings of Fact, Conclusions of Law, and Order Denying Petitions for Judicial Review	06/13/2012	36	6823-6881
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Excerpts from Transcript of Proceedings	10/13/2008	36	6952-6964

**ALPHABETICAL APPENDIX TO  
APPEAL FROM JUDGMENT**

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Verified Petition for Writ of Prohibition, Complaint and Petition for Judicial Review	08/10/2011	1	09-59

CERTIFICATE OF APPENDIX (NRAP 30(g)(1))

In compliance with NRAP 30(g)(1) I hereby certify that this Appendix consists of true and correct copies of the papers in the District Court file.

DATED: December 21, 2012.

/s/ KAREN A. PETERSON

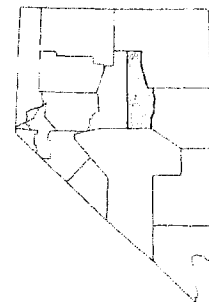
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---

**TECHNICAL REPORT  
UCED 2005/06-14**

**UPDATED ECONOMIC LINKAGES IN THE ECONOMY OF  
EUREKA COUNTY**



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**UNIVERSITY OF NEVADA, RENO**

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002712

JA4124

Updated Economic Linkages in the Economy of  
Eureka County

Study Conducted by

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July 2005

UNIVERSITY  
OF NEVADA  
RENO

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This publication, *Updated Economic Linkages in the Economy of Eureka County*, was published by the University of Nevada Economic Development Center. Funds for the publication were provided by the United States Department of Commerce Economic Development Administration under University Centers Program contract #07-66-0567. Also funds for research for this project were provided by the Eureka County Commissioners. This publication's statements, findings, conclusions, recommendations, and/or data represent solely the findings and views of the authors and do not necessarily represent the views of the United States Department of Commerce, the Economic Development Administration, Eureka County Commissioners, the State of Nevada Commission on Economic Development, University of Nevada, or any reference sources used or quoted by this study. Reference to research projects, programs, books, magazines, or newspaper articles does not imply an endorsement or recommendation by the authors unless otherwise stated. Correspondence regarding this document should be sent to:

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UCED  
University of Nevada, Reno  
Nevada Cooperative Extension  
Department of Applied Economics and Statistics

# **UPDATED ECONOMIC LINKAGES IN THE ECONOMY OF EUREKA COUNTY**

## **EXECUTIVE SUMMARY**

### **Introduction**

During the 1990's and 2000's Eureka County has realized rapid economic expansion and instability. The primary impetus for this expansion has been the creation and expansion of local gold mining industries. However, most of these gold mining firms are located in northern Eureka County and the employees of these firms live in Elko County, Nevada. Therefore, the impacts to the local economy from increased household expenditures are lost to Eureka County.

Understanding the interrelationships of the local economy and impacts of external factors on Eureka County requires knowledge of socioeconomic trends, economic base and economic linkages within the county. Additional knowledge pertaining to the use of economic linkages to estimate impacts on economic activity, employment and income is also helpful. This report provides that information.

### **Major Findings**

- Eureka County's average of annual population growth rates from 1969 to 2004 was fourteenth among the seventeen counties in Nevada. During this thirty-five year period, Eureka County's average of annual percentage growth rates was 1.69 percent. However, for the last two years of this period, 2002 to 2004, Eureka County's population growth rate was the fifth highest of Nevada's seventeen counties, at 3.55 percent. During the thirty-five year period, Eureka County was the third highest in population growth instability.
- Per capita personal income in 2003 for Eureka County was \$25,830, approximately 24 percent less than the state's \$31,910 and approximately 22 percent less than the national average of \$31,472.
- Approximately 65 percent of Eureka County's total income was received from net earnings while approximately 35 percent was in the form of dividends, interest and rents and transfer payments.



- Total personal income in Eureka County realized an average annual growth rate of 1.9 percent ranking Eureka County fifteenth among Nevada's seventeen counties for the thirty-four year period from 1969 to 2004.
- Approximately 79 percent of the land in Eureka County is federally owned with the Bureau of Land Management managing approximately 73 percent of total Eureka County acreage. Local government and private lands make up only 20 percent of Eureka County's land area.
- In 2000, Eureka County's median age of population is 38.3 years, which is older than the state's median age of 35 years and the U.S. median age of 35.3 years.
- In 1999, Eureka County's percentage of the population living below the federal poverty level was 12.6 percent. This was the fourth highest value of all of Nevada's seventeen counties.
- Using location quotient procedures, Eureka County's major export sectors are the agricultural and mining sectors.
- Using shift-share analysis for 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004, analysis of total county and sectoral employment change in Eureka County was completed.
- Using shift-share analysis, the gold mining industry was a major contributor to employment decreases in Eureka County. However, given that the gold mining industry throughout the nation lost employment from 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004, the decrease in mining industry employment for Eureka County was less than it was nationally and signifies a competitive advantage Eureka County experienced for this sector.
- A hybrid input-output model for Eureka County was developed to incorporate the agricultural sector for Eureka County and validation by Eureka County business people.
- Using the Eureka County input-output model, it was estimated that a \$1,000,000 increase in export sales by the local Alfalfa Hay Sector would yield increased total county economic activity of \$1,659,100, employment increase of 8.7 jobs, and Eureka County household income increase of \$471,700.
- Using the Eureka County input-output model, it was estimated that a \$1,000,000 increase in export sales by the local Gold Sector would yield increased total county economic activity of \$1,708,600, employment increase of 5.4 jobs, and Eureka County household income increase of \$609,800.

### **Interpretation and Implications**

Eureka County, unlike many counties in Nevada, has experienced some population increases and declines and economic growth and decline during the 1990's and 2000's.

Population growth in Eureka County during this time period has been below the state average but close to the national average. Also population and economic growth in Eureka County has been somewhat unstable.

The Eureka County economy is dependent upon the activities of its local mining industry. However, mining operations are impacted by gold prices which are determined by international markets. Any changes in activity by the local mining firms will greatly impact the economy of Eureka County.

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## Introduction

From 1999 to 2003, Eureka County experienced a decrease in population and an increase in real per capita income. County real per capita income increased by 6.1 percent while county population decreased from 1,726 in 1999 to 1,420 in 2003 or a decrease of 17.7 percent. The Eureka County economy, however, is based on a single industry, mining. In 1999 the mining sector was 85.5 percent of total Eureka County employment which has declined to 82.3 percent of total Eureka County employment in 2003. Any changes in mining activity will greatly impact the economy of Eureka County. Providing information to help local decision makers understand how external factors could impact the Eureka County economy is the primary objective of this study.

The general objective of this study is to perform an interindustry analysis and develop an input-output model for the Eureka County economy. This input-output model calculates the economic interrelationships, more commonly called linkages, between economic sectors in the county economy. These linkages are then used to estimate economic impacts on economic activity, employment, and income in Eureka County from a selected sectoral change in economic activity. Specific objectives are to:

- 1) Review the basic concept of community economics;
- 2) Investigate the socioeconomic trends in Eureka County;
- 3) Analyze the economic base of Eureka County;
- 4) Determine the economic linkages within Eureka County; and
- 5) Perform an impact analysis estimating economic impacts on Eureka County from increased export sales in the local Alfalfa Hay and Gold Mining Sectors.

The organization of this report follows the sequence of these specific objectives.



## Basic Concepts of Community Economics

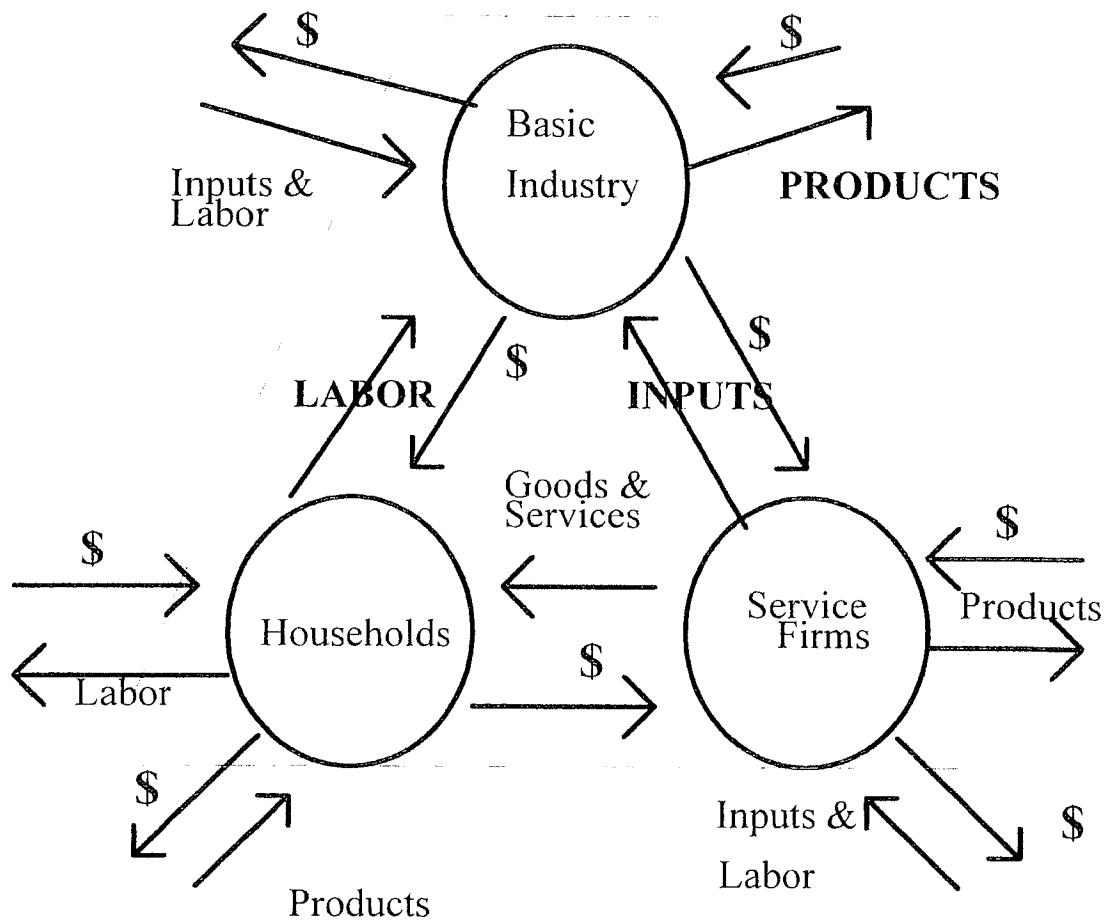
Community economics is an applied field of economics that investigates the interrelationships, more commonly called linkages that exist among economic sectors within a local economy. An overview of a community economic system is presented in Figure 1. Economic sectors shown are basic industries, households and service firms. The linkages that exist among these sectors are depicted by Figure 1.

Basic industries are those industries which produce goods and services primarily for sale outside the economy. These industries are usually involved in agriculture, mining, manufacturing, or casino gaming. Household and service firms support basic industries. Labor is purchased from households and inputs are purchased from service firms. Service firms also provide goods and services to households (consumers). Of course, each of these three sectors purchase products, inputs and labor from outside the community borders. Local transactions determine the relationship that exists among the various types of firms in an economy. These three sectors are also linked with the rest of the economy through inflow and outflow of income, inputs and labor, goods and services and finished products.

The total impact of any basic industry on an economy consists of direct, indirect and induced impacts. Direct impacts are the activities or changes in production level of the impacted industry. Indirect impacts occur in the local business sector as a result of providing inputs to the impacted industry. For example, the increased output of local firms providing inputs for a local mining operation represent the indirect impacts of a basic industry. Induced impacts consist of the economic activity caused by household consumption in a local economy from the direct and indirect effects.

The relationships discussed above indicate how basic industries serve as the foundation of an economy and how households and service firms are necessary to make the economy function. Service industries account for a substantial part of the output of most economies, but, as shown in Figure 1, much of service industry's output goes to support local basic industries and households. Mathematical techniques, such as input-output analysis, can be used to measure the relationships between basic industries, households and service firms.

**Figure 1: Overview of Community Economic System**

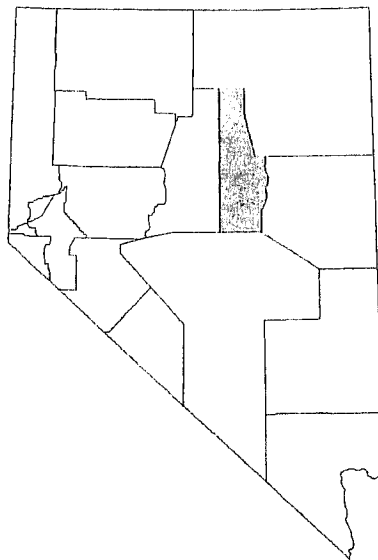


## **Socioeconomic Trends in Eureka County**

Socioeconomic trends within Eureka County are provided to give a socioeconomic perspective of Eureka County in comparison to other Nevada counties, as well as state and national trends. Population, personal income, land ownership, demographics and per capita income trends are identified in this section.

### **Population**

Eureka County is located in Northeast Nevada approximately 115 miles southwest of Elko and 240 miles east of Reno. The county is bordered to the west by Lander County, to the north and east by Elko County, to the east by White Pine County and the south by Nye County. This location is shown in figure 2. Eureka is the county seat and the primary population center for the county. Population was estimated to be 1,484 in 2004 which ranks Eureka County sixteenth of seventeen counties in Nevada. In 2000, Eureka was also ranked sixteenth of seventeen Nevada counties. (Nevada State Demographer, 2005)



**Figure 2. State of Nevada, Eureka County**

**Table 1. Population and Rank by Population of Nevada Counties in 2000 and 2004.**

County	2004		2000	
	Population	Rank	Population	Rank
Clark	1,715,337	1	1,394,440	1
Washoe	383,453	2	341,935	2
Carson	56,146	3	53,208	3
Douglas	47,803	4	41,674	5
Elko	46,499	5	45,633	4
Lyon	44,646	6	35,685	6
Nye	38,181	7	32,978	7
Churchill	26,106	8	24,157	8
Humboldt	16,692	9	16,197	9
White Pine	8,966	10	9,181	10
Pershing	6,631	11	7,057	11
Lander	5,357	12	5,794	12
Mineral	4,673	13	5,071	13
Lincoln	3,822	14	4,165	14
Storey	3,797	15	3,491	15
Eureka	1,484	16	1,651	16
Esmeralda	1,176	17	1,061	17

Source: Nevada State Demographer's Office. "Population of Nevada's Counties and Incorporated Cities." College of Business Administration, University of Nevada, Reno, June 2005.

To investigate trends, population growth was estimated from 1969 to 2004 (a thirty-five year period), 1994 to 2004 (a ten year period), 1999 to 2004 (a five year period) and 2002 to 2004 (a two year period). The year 1969 was chosen because it aligns with the historical data series provided by the Regional Economic Information System population, employment, and income data (U.S. Department of Commerce, 2005). The most recent data available from the demographer's office was for the year 2004. Also different periods of analysis were analyzed to discern if any changes in trends have occurred.

From Table 2, Eureka County ranked fourteenth among Nevada's seventeen counties in the average of annual percentage growth rates. However, Eureka County ranked second highest in instability of population growth during the thirty-five year study period.

For the ten year period from 1994 to 2004, Eureka County ranked thirteenth among Nevada's seventeen counties in average of annual growth rates (Table 3). However, during this ten year period, Eureka County ranked third highest in instability of growth rates.

For the five year time period from 1999 to 2005, the average of annual growth rates for Eureka County was negative and ranked sixteenth among Nevada's seventeen counties (Table 4). During this five year study period; Eureka County had the fifth highest rank in instability of annual growth rates.

From 2002 to 2004, Eureka County experienced a positive average annual population growth rate again. The county's average of annual growth rates was 3.55 percent (Table 5). The instability index for annual growth rates ranked Eureka County as tenth highest of Nevada's seventeen counties during this two year study period.

**Table 2. County Patterns of Population Growth, Average Annual Percentage Growth and Instability Index, Thirty-five Year Period (1969-2004).**

County	1969-2004		Instability	
	Average of Annual Growth Rates	Rank	Index	Rank
Nye	6.07	1	1.06	10
Douglas	5.85	2	0.64	14
Clark	5.52	3	0.26	17
Storey	5.26	4	1.06	11
Lyon	5.05	5	0.51	15
Carson City	3.80	6	0.85	12
Elko	3.68	7	1.09	8
Washoe	3.42	8	0.32	16
Humboldt	2.91	9	1.07	9
Pershing	2.80	10	1.37	7
Churchill	2.69	11	0.79	13
Esmeralda	2.46	12	4.78	3
Lander	2.30	13	2.97	5
<b>Eureka</b>	<b>1.69</b>	<b>14</b>	<b>4.94</b>	<b>2</b>
Lincoln	1.30	15	2.99	4
White Pine	-0.28	16	14.05	1
Mineral	-1.13	17	2.40	6
Nevada	4.77		0.22	
United States	1.06		0.37	

Source: Nevada State Demographer's Office. "Population of Nevada's Counties and Incorporated Cities." College of Business Administration, University of Nevada, Reno, Various Issues.

**Table 3. County Patterns of Population Growth, Average Annual Percentage Growth and Instability Index, Ten Year Period (1994 - 2004)**

County	Average Annual % Change	County Rank	Instability Index	County Rank
Lyon	5.91	1	0.25	16
Nye	5.71	2	0.43	14
Clark	5.65	3	0.15	17
Douglas	3.11	4	0.44	12
Washoe	2.72	5	0.25	15
Churchill	2.36	6	0.71	11
Pershing	2.12	7	2.31	7
Carson City	1.78	8	0.44	13
Storey	1.77	9	2.00	8
Esmeralda	1.36	10	3.79	4
Elko	1.29	11	1.95	9
Humboldt	1.28	12	2.58	6
<b>Eureka</b>	<b>1.23</b>	<b>13</b>	<b>7.93</b>	<b>3</b>
White Pine	0.17	14	24.20	1
Lincoln	-0.25	15	11.36	2
Lander	-1.63	16	2.70	5
Mineral	-2.43	17	0.95	10
Nevada	4.68		0.16	
United States	1.22		0.58	

Source: Nevada State Demographer's Office. "Population of Nevada's Counties and Incorporated Cities." College of Business Administration, University of Nevada, Reno, Various Issues.

**Table 4. County Patterns of Population Growth, Average Annual Percentage Growth and Instability Index, Five Year Period (1999 - 2004).**

County	Average Annual % Change	County Rank	Instability Index	County Rank
Lyon	5.66	1	0.30	15
Clark	5.27	2	0.18	17
Nye	3.96	3	0.30	16
Douglas	3.20	4	0.42	12
Washoe	2.77	5	0.30	14
Esmeralda	2.64	6	1.64	8
Churchill	1.59	7	0.83	11
Carson City	1.30	8	0.35	13
Storey	1.23	9	2.99	3
Elko	0.35	10	4.51	2
Humboldt	-0.45	11	6.11	1
Pershing	-1.15	12	2.15	6
Lincoln	-1.50	13	2.54	4
White Pine	-1.65	14	2.01	7
Mineral	-2.59	15	1.13	10
<b>Eureka</b>	<b>-2.82</b>	<b>16</b>	<b>2.16</b>	<b>5</b>
Lander	-2.83	17	1.15	9
Nevada	4.37		0.18	
United States	1.50		0.64	

Source: Nevada State Demographer's Office. "Population of Nevada's Counties and Incorporated Cities." College of Business Administration, University of Nevada, Reno, Various Issues.



**Table 5. County Patterns of Population Growth, Average Annual Percentage Growth and Instability Index, Two Year Period (2002 – 2004)**

County	Average Annual % Change	County Rank	Instability Index	County Rank
Lyon	7.31	1	0.18	15
Clark	5.21	2	0.17	16
Nye	4.39	3	0.07	17
Douglas	3.99	4	0.30	13
<b>Eureka</b>	<b>3.55</b>	<b>5</b>	<b>0.38</b>	<b>10</b>
Washoe	3.29	6	0.24	14
Esmeralda	2.29	7	1.91	5
Storey	2.15	8	0.34	11
Churchill	1.95	9	0.58	8
Carson City	1.18	10	0.59	7
Humboldt	1.17	11	0.31	12
White Pine	0.58	12	1.99	4
Elko	-0.07	13	31.52	1
Mineral	-0.23	14	0.39	9
Lincoln	-0.70	15	5.34	2
Lander	-1.68	16	2.69	3
Pershing	-2.20	17	1.69	6
Nevada	4.54		0.14	
United States	0.99		0.00	

Source: Nevada State Demographer's Office. "Population of Nevada's Counties and Incorporated Cities." College of Business Administration, University of Nevada, Reno, Various Issues.

## Personal Income

In 2003, Eureka County residents received approximately \$38.4 million in personal income. Approximately \$289.7 million was total earnings in the form of wages and salaries, other labor income, and proprietor's income. This number is adjusted to net earnings of approximately \$24.9 million by taking into account social security contributions and commuting adjustments. Approximately \$8.6 million was in the form of unearned income from dividends, interest and rent; and approximately \$5.0 million from transfer payments such as social security, food stamps, unemployment payments, and veteran benefits. These income figures are shown in Table 6.

**Table 6. Personal Income of Eureka County Residents, 2003**

<b>Income Category</b>	<b>(\$1,000)</b>	<b>(\$1,000)</b>
Wages and Salaries	\$232,287	
Supplements to wages and salaries	\$55,185	
Proprietor's Income	\$2,262	
<b>Total Earnings in Eureka County</b>		\$289,734
Personal Social Security Contributions	-\$33,176	
Residence/Commuting Adjustments	-\$231,689	
<b>Net Earnings of Eureka County Residents</b>		\$24,869
Dividends, Interest, and Rent	\$8,559	
Transfer Payments	\$4,981	
<b>Total Personal Income, Eureka County Residents</b>		\$38,409
<b>Per Capita Personal Income (dollars)</b>		\$25,830

Source: U.S. Department of Commerce. *Regional Economic Information System*. Bureau of Economic Analysis, Washington, D.C., April 2005.

To more accurately measure income available to Eureka County residents before income taxes (a concept called personal income by economists), approximately \$33.2 million of personal contributions to social insurance programs such as Social Security, Medicare, Unemployment, etc. paid by workers of Eureka County must be subtracted. Subtracting personal insurance contributions and resident adjustments leaves net earnings of Eureka County residents of over \$24.9 million, or approximately 65 percent of total personal income.

A commuting adjustment is made to total earnings since some people who earn income in Eureka County are not county residents. These people commute into the county to work and take their paycheck back home. Some Eureka County residents also work outside the county and bring income back to the county. The difference between what is earned outside Eureka County and injected back into the county and what is earned in Eureka County and leaves the county is over \$231.7 million. The large negative net residence adjustment factor for Eureka County is due to the Mining Sector workers who work in northern Eureka County but live in Elko.

Table 7 gives the percentage breakdown of Eureka County's income by source and presents similar data for the state of Nevada and the nation. Eureka County's breakdown differs from the state of Nevada and nation. Net earnings by residents for Eureka County are approximately 65% of total personal income as opposed to approximately 69% and 69% for the state of Nevada and the United States, respectively. Dividends, interest and rents account for a larger percentage of total Eureka County income. The proportional share of total personal income from transfer payments is lower for Eureka County when compared to the nation but higher when compared to the state share.

Eureka County's per capita income is lower than that of the state or nation. At \$25,830 Eureka County's 2003 income per capita was approximately 24% less than the state's \$31,910 and approximately 22% less than the national average of \$31,472.

**Table 7. Comparison of Personal Income Sources between Eureka County, State of Nevada, and United States, 2003.**

Personal Income Source	Eureka County (%)	Nevada (%)	United States (%)
Wages and Salaries	604.77	56.78	55.71
Other Labor Income	143.68	12.15	12.87
Proprietor's Income	5.89	8.28	9.15
Less Personal Social Insurance Contributions	-86.38	-7.79	-8.43
Plus Residence/Commuting Adjustments	-603.22	-0.54	-0.01
Net Earnings of Residents	64.75	68.88	69.29
Dividends, Interest and Rents	22.28	19.78	16.12
Transfer Payments	12.97	11.33	14.59
Total Personal Income	100.0	100.0	100.0
Per Capita Personal Income	\$25,830	\$31,910	\$31,472

Source: U.S. Department of Commerce. *Regional Economic Information System*. Bureau of Economic Analysis, Washington, D.C., April 2005.

The thirty-four year pattern of real personal income growth is provided in Table 8. Total personal income for Eureka County had an average of annual growth rates of 1.87 percent for the period of 1969 to 2003.<sup>1</sup> This ranks the county fifteenth among Nevada's seventeen counties. This average of annual growth rates was lower than the average for the state of Nevada and the national average. Eureka County also ranks second highest of the seventeen Nevada counties according to the instability index. This high instability statistic signifies that Eureka County has had a somewhat unstable economy when compared to other Nevada counties. Being so dependent upon one economic sector contributes to this instability.

**Table 8. County Real Personal Income Average of Annual Changes and Instability Index, Thirty-four Year Period (1969 to 2003).<sup>a</sup>**

County	Average of Annual	County Rank	Instability Index	County Rank
Douglas	7.23	1	0.68	15
Clark	6.95	2	0.38	17
Storey	6.52	3	0.84	12
Nye	6.41	4	0.86	11
Lyon	5.85	5	0.68	14
Carson City	5.68	6	0.76	13
Washoe	5.43	7	0.60	16
Churchill	5.05	8	1.00	10
Elko	4.83	9	1.18	9
Humboldt	4.21	10	1.63	8
Lander	3.77	11	2.34	6
Esmeralda	3.53	12	3.85	4
Lincoln	3.06	13	1.99	7
Pershing	2.66	14	3.61	5
<b>Eureka</b>	<b>1.87</b>	<b>15</b>	<b>5.28</b>	<b>2</b>
White Pine	1.47	16	4.39	3
Mineral	0.32	17	16.79	1
Nevada	6.30		0.41	
United States	3.13		0.59	

<sup>a</sup> Real incomes determined using the Implicit Price Deflator for Personal Consumption Expenditures, 2000 = 100. Source: U.S. Department of Commerce. *Regional Economic Information System*. Bureau of Economic Analysis, Washington, D.C. April 2005.

<sup>1</sup> The average is calculated with the following formula: 
$$\frac{\sum_{t=1969}^{2003} \left( \frac{\text{population}_{t+1} - \text{population}_t}{\text{population}_t} \right)}{2003 - 1969}$$
 This incorporates information from the

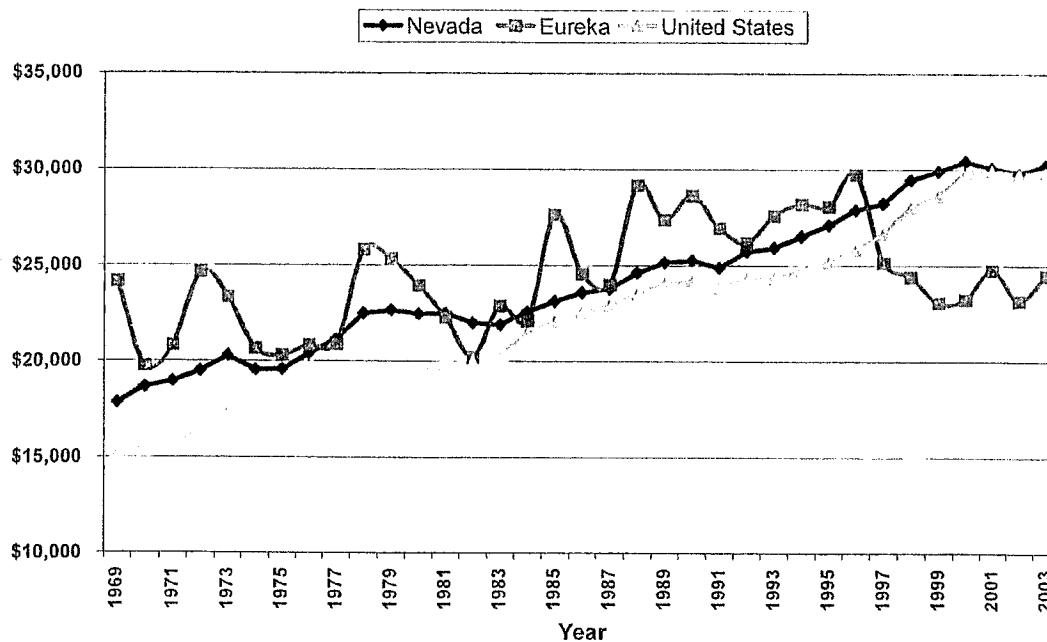
entire 34 year series of changes in personal income. It will not be the same as the compound growth rate over the period. For example, the compound growth rate for Eureka County personal income from 1969 to 2003 is 1.42 percent

### **Real Per Capita Personal Income**

Figure 2 illustrates the 35 year pattern of real per capita personal income in Eureka County in comparison to the state of Nevada and the nation. Since per capita statistics give the amount of personal income divided by the population, the statistics net out the effects of population growth. The real per capita personal income statistic represents the amount of income available to each person in the region. Since a large share of Eureka County's workforce commutes from Elko County, Eureka personal income estimates may be particularly sensitive to how the Census Bureau journey-to-work data is used to make residence adjustments.

The peaks and troughs in Figure 2 show the dramatic instability of real per capita income in Eureka County when compared to the state and the nation. Eureka County has often experienced real per capita income above the national and Nevada state average previous to the period beginning in 1997. Since 1997 Eureka County has had a real per capita personal income below the state and national averages. Steady gains for the state and the nation mean that 2003 real per capita income had increased by 69 percent and 96 percent, respectively, since 1969. Eureka County real per capita income increased by approximately one percent over the same period.

### Real Per Capita Personal Income



Real incomes determined using the Implicit Price Deflator for Personal Consumption Expenditures, 2000 = 100.

Source: U.S. Department of Commerce. *Regional Economic Information System*. Bureau of Economic Analysis, Washington, D.C., April 2005.

### Land Ownership

In terms of land area, Eureka County ranks eleventh largest in the state with 2,676,480 acres. Approximately 79 percent of the land in Eureka County is administered by the federal government with the Bureau of Land Management managing approximately 73 percent of total Eureka County acreage. Table 10 shows the proportionate share of total Eureka County acreage by ownership: federal and state government, local government and private ownership. It is of interest that only approximately 20 percent of Eureka County acreage is owned by local government and private individuals.

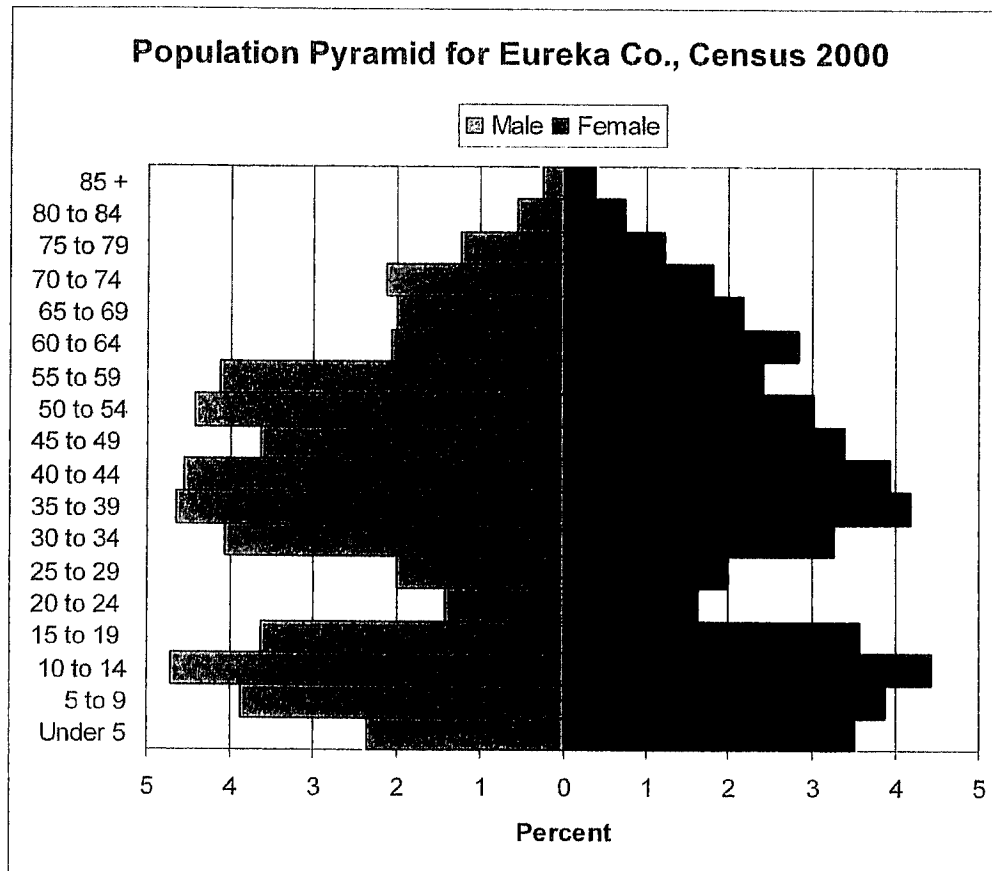
**Table 10. Federal and State Lands, Eureka County, 1994.**

Categories	Acreage	Share of Total (%)
Federal Agency		
Bureau of Land Management	21,958,380	73.17
Forest Service	147,742	5.52
Other Federal Agencies	<u>20,341</u>	<u>0.76</u>
Total Federal Lands	2,126,463	79.45
State Government	6,423	0.24
Local Government and Private Lands	543,593	20.31
<b>TOTAL ACREAGE</b>	<b>2,676,480</b>	<b>100.00</b>

Source: Zimmerman, J. and T. Harris. *An Update of Federal and State Land-Based Payments in Nevada*. University of Nevada, Reno: Reno, Nevada, University Center for Economic Development Technical Report UCED 2000/01-06, 2000.



## Demographics



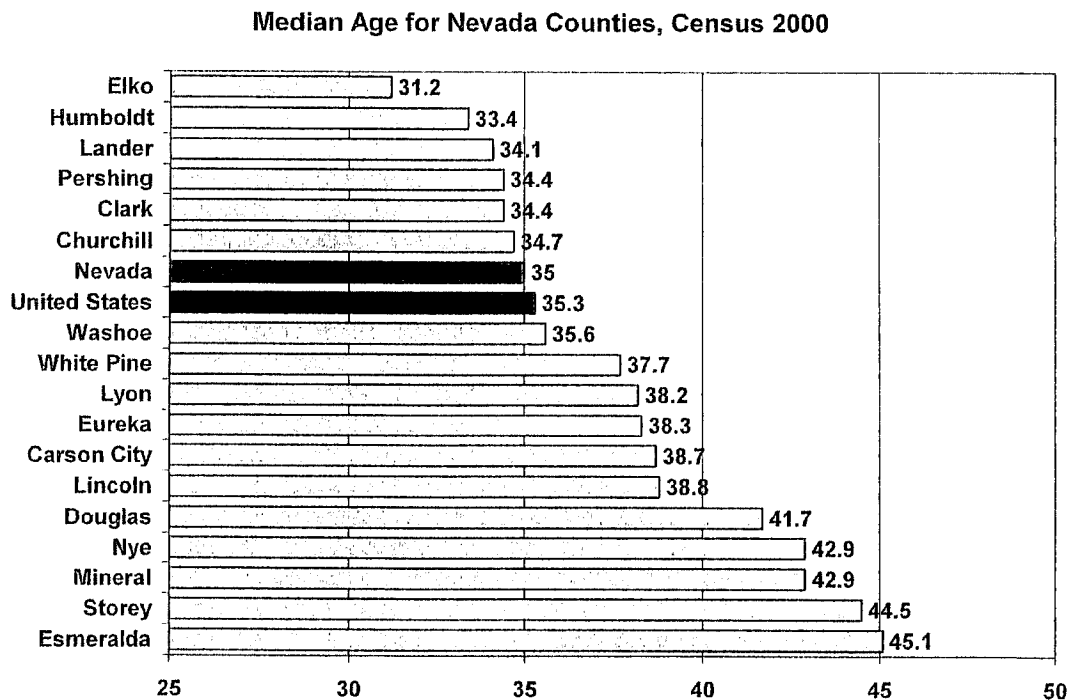
**Figure 3. Demographic Pyramid for Eureka County**

Demographic characteristics of a county refer to the age and gender composition of its residents. Demographic composition changes slowly over time as new residents are added through birth and immigration, and as previous residents are lost through death and outmigration. The demographic composition of an area is important because it determines the makeup of the labor force, the demands for private goods and services and public services, and the ratio of dependents to employed residents. The demographic composition of an area is usually pictured as a pyramid with the number or percent of males on one side and females on the other, and with the youngest age groups at the bottom and oldest at the top.

Figure 3 shows the demographic pyramid for Eureka County in 2000. There is a bulge in the middle for age groups from 35 to 44 years of age, part of the baby boom generation. The largest 5 year cohort is the group from 10 to 14 years of age who are likely a part of the baby boom "echo", that is, the children of the large baby boom generation. The small fraction of the

population in the age groups from 20 to 29 is likely because of the national “baby bust” generation of those years as well as outmigration of this age group because of lack of opportunity.

Another aspect of demographics for Eureka County is the median age of population. In Figure 4, the median age for Eureka County is 38.3 years, which is older than the state’s median age of 35 years.

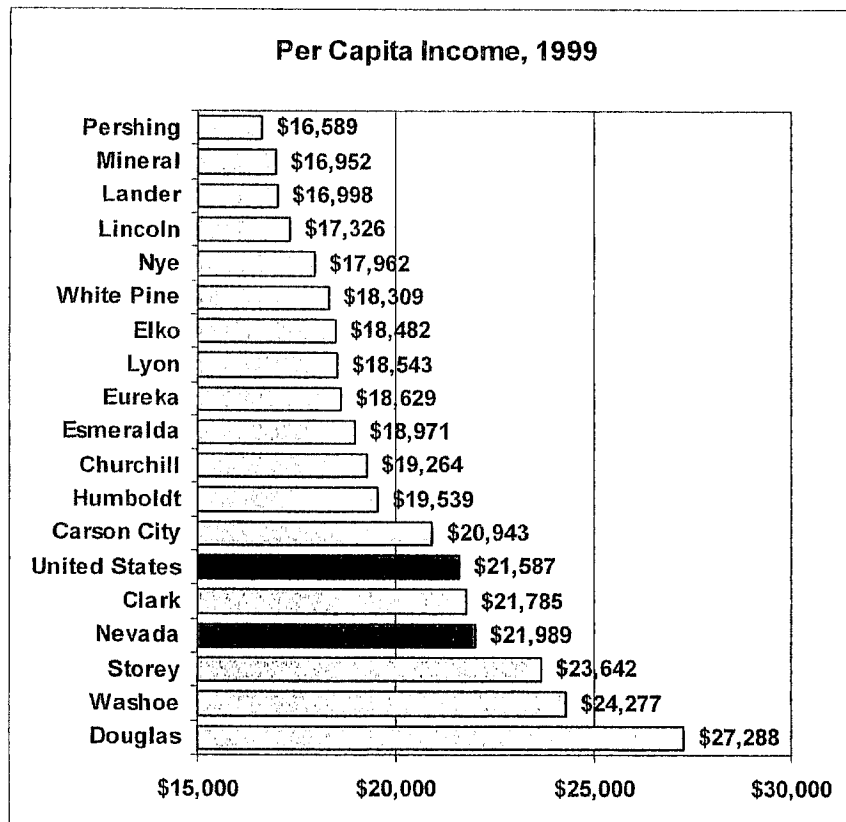


**Figure 4. Median Age for All Nevada Counties, Census 2000**

The demographic characteristics of Eureka County are somewhat similar to many rural counties in the nation. Often rural counties have higher median age values because the young people with the best education and health, and the most marketable skills and abilities, leave the rural area to realize their potential. With them go some of the area’s future leaders, innovators, and entrepreneurs. Taxes collected in the county, to invest in their education, are now earning dividends for people and economies in other counties and states.

## Income

Economic quality of life is difficult to measure because of differences in cost of living and non-monetary income between locations. However, per capita income is still an important basis for comparing economic quality of life, especially among geographically similar areas. On this basis, the economic quality of life in Eureka County was relatively low in 1999. In Figure 5, the per capita income of each county is shown. Eureka County had a per capita income of \$18,629 which was 32 percent lower than the highest per capita income of \$27,288 in Douglas County.



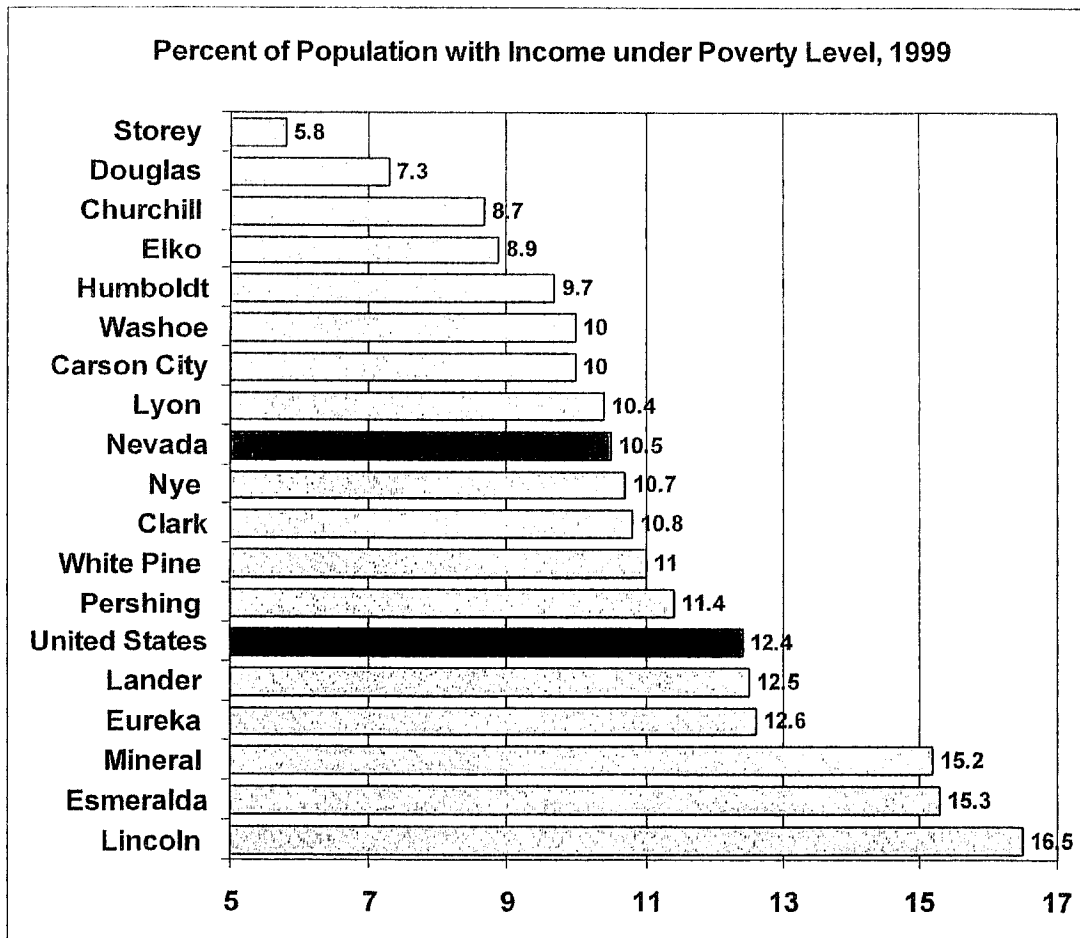
**Figure 5. Per Capita Income All Counties, 1999 (in 1999 dollars)**

Source for underlying data: U.S. Census Bureau, Census 2000 Summary File 4. GCT-P14. Income and Poverty in 1999, Washington, D.C., 2000.

Another useful measure of economic quality of life is the percent of households below the poverty line. The Census Bureau uses a set of poverty thresholds to classify families as under the poverty level depending on the number of people and children under 18 in the

household. No adjustments are made in the thresholds to account for regional differences in the cost of living.

From Figure 6, Eureka County in 1999 had shown a level of poverty that was higher than many of Nevada's other counties. The percentage of the population living below the poverty line in Eureka County in 1999 was 12.6 percent. This ranked Eureka County as the fourth highest county in percent of population below the poverty line. As a comparison, the percentage of the population living below the poverty line was 10.5 percent for the state, while the nation's percentage of the population living below the poverty line was 12.4 percent in 1999. If the cost of living in Eureka County is much lower than the national average, the poverty level statistic may somewhat exaggerate conditions in Eureka County.



**Figure 6. Percent of Population below Poverty Line, 1999**

Source for underlying data: U.S. Census Bureau, Census 2000 Summary File 4. GCT-P14. *Income and Poverty in 1999*, Washington, D.C., 2000.

## **The Economic Base of Eureka County**

The economic base of a county refers to the relative size of its industries. A county is said to have a diversified economic base if several industries are relatively large. Conversely, if one or a few industries dominate a local economy, the economy is said to have a concentrated economic base. There are two techniques used to measure economic base and changes in economic base. These are location quotient analysis and shift-share analysis.

### **Location Quotient Analysis**

The degree of concentration of Eureka County industries is determined by calculating location quotients for individual economic sectors. Location quotients indicate the economic importance of each regional industry relative to the same industry at the national level. Location quotients usually use employment as an indicator of an industry's size and importance. The primary focus of location quotients is to identify the industries which are either more important or less important locally than nationally. A broad economic base is indicated by high location quotients in several sectors. The more sectors with high location quotients an economy has, the more stable the economy of a community is likely to be. On the other hand, very low location quotients represent industries that are largely underdeveloped and may offer an opportunity for future development.

An industry's location quotient is the ratio of the industry's share of employment in the county to the industry's share of employment in the nation. It is calculated as follows:

$$LQ_i = \frac{e_i / E}{n_i / N}$$

where:

$i$  = Economic Sector

$LQ_i$  = Location quotient for economic sector  $i$

$e_i$  = County employment in economic sector  $i$

$E$  = Total county employment

$n_i$  = National employment in economic sector  $i$

$N$  = Total national employment

The interpretation of location quotients are as follows:

1. Every industry's output can be divided into two uses: export and local consumption (use).

2. The amount consumed (used) by a community is proportionate to the amount consumed nationally.
3. If the location quotient for an economic sector is less than one, goods and services must be imported to satisfy local demands.
4. If the location quotient for an economic sector is equal to one, then the economy is approximately fulfilling the requirements of the local household and firms.
5. Finally, if the location quotient is greater than one, for that particular economic sector, the community is producing more than it consumes and is capable of exporting excess goods for the purposes of bringing income into the community.

### **Results of Location Quotient Analysis**

Location quotients shown in Table 11 were derived from employment levels in each economic sector at county and national levels using data on covered employment from the Department of Training, Employment and Rehabilitation for 2<sup>nd</sup> quarters 2002 and 2004<sup>2</sup>.

Given the interpretation of location quotients, economic sectors in Eureka County can be classified as export sectors (that is, they market much of their output outside the county in which they are located) or import industries (that is, a large portion of the demand for goods and services is satisfied by producers outside the county).

The location quotient analysis for Eureka County's economic base for 2<sup>nd</sup> quarters 2002 and 2004 indicates that the county is highly dependent on the Gold Ore Mining, and Hay Farming Sectors<sup>3</sup>. The Gold Ore Mining Sector had the highest location quotient value of 14,065 in 2<sup>nd</sup> quarter 2004 showing the importance of the Gold Ore Mining Sector to the local economy. Also of interest is that despite the decrease in employment in the Gold Ore Mining sector during the period, the location quotient increased because national activity in gold mining decreased more elsewhere. Note that because of disclosure problems, not all sectors can be included in the analysis below.

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<sup>2</sup> Covered employment includes all workers covered by state or federal unemployment insurance.

<sup>3</sup> Confidentiality requirements did not permit data on the cattle ranching sector to be displayed. Therefore, no location quotient for this agricultural sub-sector can be calculated.

**Table 11. Location Quotient Analysis Results for Eureka County, 1990 and 1995.**

Economic Sector	Location Quotient 2 <sup>nd</sup> quarter 2002	Location Quotient 2 <sup>nd</sup> quarter 2004
Agriculture, Forestry, Fishing & Hunting	0.89	0.63
Hay Farming	55.12	45.20
Mining	229.52	224.26
Gold Ore Mining	13,143.57	14,065.43
Trade, Transportation and Utilities	0.06	0.07
Retail Trade	0.08	0.08
Transportation and Warehousing	0.03	0.01
Financial Activities	0.03	0.05
Accommodation and Food Services	0.10	0.14
Food Services and Drinking Places	0.11	0.09

Source: Nevada Department of Training, Employment and Rehabilitation. *Quarterly Employment and Wages Series*, Carson City, Nevada, 2005.

Indentation denotes that the indented sector is a sub-sector of the sector above it.

From Table 11, Eureka County imports most of its goods and services. The location quotient analysis can be used to target new industries or businesses for the county and to develop economic strategies for the future. One strategy, for example, might be to encourage the location of input suppliers for the mining and/or agricultural sectors. Also, strategies to strengthen the local retail sector in order to reduce retail sales leakages may be another appropriate economic development strategy.

### **The Changing Economic Base of Eureka County**

The location quotient results indicate the nature of the area's economy for a specific time period. Of additional interest is the change occurring in the county's economic base. Shift-share analysis is performed to measure these changes.

Shift-share analysis, like location quotients, is a measure of a county's economic condition relative to other communities and to the nation as a whole. The data used in this analysis are the same as that used for the location quotient analysis. For this study, the shift in economic base was studied from 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004.

The purpose of shift-share analysis is to determine the county's competitiveness and changing employment patterns in the industrial market place. Shift-share analysis assumes that there are three components to changes in employment: national growth, industrial mix and competitive share.

### **National Growth Component**

The sum of employment in all industries in all communities makes up national employment. One would expect that if a community's economy was maintaining its relative competitiveness, changes in the level of national employment would be reflected in proportionately equal changes in the local employment. The calculation of the national growth component, therefore, measures how much of the local employment change is due to the national growth trend. The calculation is as follows:

National Growth Component = (rate of change in N \* e<sub>i</sub>)

where:

$$\text{rate of change in N} = \frac{N_{2qtr2004} - N_{2qtr2002}}{N_{qtr2002}}$$

e<sub>i</sub> = county employment in economic sector i

### **Industrial Mix Component**

On a national level, each industry grows or declines at some rate, at least partially independent of the rate of growth in the national economy. A local economy's performance will depend, on its mix of industries, that is, on whether its economic base is concentrated in faster or slower growing industries. The industrial mix calculation indicates the expected growth in local



industries if they grow at the same rate as their national counterparts. The expected local share of the particular industry is determined using the following equation:

$$\text{Industrial Mix Component} = (\text{rate of change in } n_i - \text{rate of change in } N) * e_i$$

$n_i$  = national employment in economic sector i

$N$  = total national employment

$e_i$  = county employment in economic sector i

$$\text{rate of change in } n_i = \frac{n_{i2qtr2004} - n_{i2qtr2002}}{n_{i2qtr2002}}$$

### Competitive Share Component

A local industry's employment grows or declines for a number of reasons, including changes in the national employment level, changes in employment by the same industry at the national level, and changes in local conditions. After the first two components have been calculated, the residual change, if any, is attributed to changes in the competitiveness of the local industry. The competitive share component measures this latter factor in employment change.

The competitive share component is measured as follows:

$$\text{Competitive Share} = (\text{rate of change in } e_i - \text{rate of change in } n_i) * e_i$$

where:

$e_i$  = county employment in economic sector i

$$\text{rate of change in } e_i = \frac{e_{i2qtr2004} - e_{i2qtr2002}}{e_{i2qtr2002}}$$

$$\text{rate of change in } n_i = \frac{n_{i2qtr2004} - n_{i2qtr2002}}{n_{i2qtr2002}}$$

### Results of Shift-Share Analysis

A local industry's employment grows or declines for a number of reasons, including changes in the national employment level, changes in employment by the same industry at the national level, and changes in local conditions. After the national component and industrial mix component have been calculated, the residual change, if any, is attributed to changes in the competitiveness of the local industry. Tables 12 shows the results of the shift-share analysis for Eureka County for the period from 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004.

From Table 12, Eureka County overall covered employment decreased by 200 jobs (net) from 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004. The Gold Ore Mining Sector accounted for 194 lost jobs. Nationally, the Gold Ore Mining Sector also lost employment over the period, decreasing from 8,835 to 8,271 or about 6.4 percent. It is this industrial mix component that accounts for the loss of jobs in this sector, indicating that Eureka County lost these jobs because nationally all Gold Ore Mining Sector employment was decreasing.

For the agricultural sector, changes in the competitiveness of local sectors led to job losses. An economic development strategy would be to investigate the causes for this negative competitive component and, if possible, correct the non-competitiveness of this sector.

Overall, Eureka County realized a decrease in employment over the period from 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004. National growth component impacted Eureka County employment positively for this study period. The Mining Sector was a major contributor to the decrease in county employment. Analyzing results of both the location quotients and shift-share analysis, Eureka County is highly dependent on the Mining Sector. By diversifying the economic base of Eureka County, it may be possible to lower cyclical swings in the local economy. However, in pursuing the goal of economic diversification, the goal of economic growth must also be addressed.

**Table 12. Shift-Share Analysis Results for Eureka County, 2<sup>nd</sup> quarter 2002 to 2<sup>nd</sup> quarter 2004.**

Economic Sector	(jobs)			
	National Component	Industrial Mix	Competitive Share	Total
Agriculture, Forestry, Fishing & Hunting	0	0	-11	-10
Hay Farming	0	2	-3	-1
Mining	21	47	-278	-210
Gold Ore Mining	21	-232	17	-194
Trade, Transportation and Utilities	0	0	4	4
Retail Trade	0	0	-1	-1
Transportation and Warehousing	0	1	-2	-1
Financial Activities	0	0	3	3
Accommodation and Food Services	0	1	10	11
Food Services and Drinking Places	0	1	-5	-4
<b>Total, All Industries</b>	<b>23</b>	<b>0</b>	<b>-223</b>	<b>-200</b>

Source: Nevada Department of Training, Employment and Rehabilitation. *Quarterly Employment and Wages Series*. Carson City, Nevada, 2005.

Indentation denotes that the indented sector is a sub-sector of the sector above it.

## **Interindustry Analysis**

Within a regional economy, there are numerous economic sectors performing different tasks. All sectors are dependent on each other to some degree. A change in activities will directly or indirectly affect the response or level of production of the other regional sectors. The amount of economic activity among economic sectors shows the degree of interrelationships or linkages between sectors. That is, an increase in production by the regional Cattle Sector would directly increase purchases of alfalfa hay. With increased alfalfa hay purchases, farm workers will have greater incomes which would increase their purchases from the Trade Sector. The Trade Sector would experience increased economic activity because of its indirect relationship with the Cattle and Alfalfa Hay Sectors. These interdependencies among regional economic sectors can be estimated through interindustry analysis.

### **Transaction Table**

An interindustry analysis is based on the transactions of the sectors in an economy, i.e., purchases of inputs and sales of outputs. A transaction table present in Figure 7 shows the monetary flows of goods and services through a regional economy. Transactions can be delineated into four major classifications. One classification (Quadrant I) is the processing section which produces goods and services. Processing sectors in Quadrant I produce and buy products and/or services from other processing sectors to be used in their production process. Goods and services used in the processing section are intermediate goods which are used in the production of goods and services which are ultimately sold to final consumers.

Another classification (Quadrant II) includes sales to final demand of goods and services. The Final Demand Section includes net inventory change, exports, government purchases, capital formation and purchases by households. The third classification (Quadrant III) is the Final Payment Section. The Final Payments Section includes the non-processing supply sectors such as imports, depreciation, and households. Quadrant IV represents direct inputs of final demand which are not produced by industries in the processing sector.



### Direct Requirements

The logic of interindustry analysis is to establish the structural relationships among the processing sectors of the model. These relationships can be seen throughout the direct requirements table. A direct requirement coefficient is computed from the processing section (Quadrant I) of the transaction table by dividing the value in a column cell by total output of the column. This can be expressed as:

$$a_{ij} = \frac{x_{ij}}{X_j} \quad i, j = 1, 2, \dots, n$$

where  $a_{ij}$  is the purchase by sector  $j$  from sector  $i$  to produce one dollar of output by sector  $j$ ,

$x_{ij}$  is the dollar value of transactions between sector  $i$  and sector  $j$ , and  $X_j$  is the value of total output for sector  $j$ .

The  $a_{ij}$  is a direct requirement coefficient which shows how much a given sector purchases from another sector within the same regional economy in order to produce one dollar's worth of output. Direct requirement coefficients are only calculated for the processing sectors.

The column sum of the direct requirements coefficients of a given sector show the direct effects of changes in the volume of output of a given sector upon other sectors of the economy. The direct effect or "first round" effects show how much a given sector has to increase its purchases of output from other processing sectors when there is an increase in demand for the output of the given sector.

### Final Demand Interindustry Coefficients

Due to the direct effect of additional output for a given industry, other processing sectors must supply additional inputs. To supply these additional outputs, the directly affected sectors must increase their output levels which means increased purchases from their input supply sectors. This expansion of output by sectors directly and indirectly related to the principal sector that increased its output to meet final demand sales is referred to as a final demand interindustry coefficient. The column sum of final demand interindustry coefficients derives the final demand multiplier for a given economic sector. The final demand multiplier estimates the increase in regional economic activity required for a particular economic sector to increase sales to final demand by one dollar.

Final demand multipliers are calculated for both "open" and "closed" input-output models. An "open" model does not contain a non-processing sector in the processing section of

the transaction table. The final demand multiplier of an "open" model derives both direct and indirect effects of a one dollar increase in sales to final demand for a given sector. Indirect effects are those increases in levels of output for the regional economy that meet the output levels of the directly related industries.

A "closed" input-output model contains at least one non-processing sector in the processing section of the transactions model. Usually the Household Sector is incorporated into the processing section of the transactions table to produce a closed model. The final demand multiplier from a "closed" model derives direct, indirect, and induced effects from a one dollar increase in sales to final demand for a given sector. Induced effects are the effects of new incomes to households upon the individual sectors of the economy from increased sales to final demand by a given sector.

### **Output Interindustry Coefficients**

Final demand interindustry coefficients derive the effects to the regional economy from sales to final demand for a given sector. In order to meet these final demand sales, the given sector must increase production by purchases from itself. This intrasectoral purchasing increases output response by a factor greater than one. In order to estimate economic effects from total production rather than from deliveries outside the processing sectors, output interindustry coefficients are required.

Output interindustry coefficients are calculated by dividing each column entry in the final demand interindustry coefficient matrix by the given sector's intrasectoral interindustry coefficient. This will derive intrasectoral coefficients equal to one. The other entries in the final demand interindustry coefficients matrix are adjusted similarly to refer to production rather than external end product deliveries by dividing all entries in each row by the entry at the intersection with the corresponding column or the intrasectoral coefficient.

Direct and indirect output multiplier coefficients are derived from an "open" model. Indirect effects are the increased purchases in the regional economy created by the purchases of the directly affected sectors from a given sector's increase in production. Direct, indirect, and induced output interindustry coefficients are derived from a "closed" model. Induced effects are the increase in regional economic activity from increases in household incomes created by production increases for a given sector.

## Employment Effects

Interindustry analysis is used to determine the effects on the regional economy from changes in a given sector's level of output or sales to final demand. Interindustry analysis also can be used to derive the effects on regional employment from changes in a given sector's sales to final demand or output level. Studies by Elrod and Laferney (1972) and Osborn et al. (1973) have derived procedures to determine regional employment impacts from input-output models.

To determine employment effects, it is first required that the direct labor effects for each of the  $n$  processing sectors be derived, or:

$$L_j = \frac{E_j}{X_j} \quad j = 1, 2, \dots, n$$

where  $L_j$  is the number of employees required per dollar of output by sector  $j$ ;  $E_j$  is the number of workers employed by sector  $j$ ; and  $X_j$  is the dollar value of production by sector  $j$ .

From the direct employment requirements vector for each processing sector in the region, direct and indirect labor requirements from a one dollar sale to final demand by a given sector can be derived by premultiplying the direct labor coefficients matrix by the "open" final demand interindustry coefficient matrix. Indirect labor effects are the number of workers employed elsewhere in the regional economy to produce the direct and indirect inputs used by each sector.

Premultiplying the direct labor requirements matrix by the "closed" interindustry coefficients matrix derives the direct, indirect, and induced employment effects in the region from a given sector's change in sales to final demand interindustry coefficients matrix. Direct and indirect employment effects and direct, indirect, and induced employment effects from changes in a given sector's level of output can be derived from the "open" or "closed" output interindustry coefficients matrix.



### **Household Income Effects**

The effects on regional household incomes from changes in sectoral sales to final demand and levels of output can be derived through interindustry analysis. If households are exogenous to the model, that is, the model is “open”; the derivation of direct and indirect household income effects requires the determination of a direct household income vector. The direct household income vector is the division of the Household Sector row value for each processing sector by the total output of that sector. Direct and indirect household income effects from changes in sales to final demand by a given sector are derived by multiplying the direct household income requirements by the “open” final demand interindustry coefficient matrix. The indirect income effects are those increases in regional income created by increased production activities from those sectors indirectly related to the direct resources supply sectors.

When the Household Sector is made endogenous to the processing section or what is referred to as a “closed” model, direct, indirect, and induced household income effects are derived. Induced income effects are the changes in regional incomes created by the additional purchases of regional households created by the change in a given sector’s sale to final demand. Direct, indirect, and induced household income effects can be read directly off the “closed” final demand interindustry coefficients matrix. The coefficients are the values from the household row in the interindustry coefficients matrix for each given processing sector. Using the output interindustry coefficients matrix, the effects on household income from changes in a given sector’s level of production can be derived.

### **Eureka County Input-Output Model Development**

An input-output model for Eureka County was developed using the microcomputer IMPLAN model and supplemented by primary data at the local level. The Micro IMPLAN model was originally developed by the U.S. Forest Service to estimate sectoral and regional impacts of alternative forest management scenarios (Alward et al. 1989). The update and further development of the Micro IMPLAN have been conducted by the Minnesota IMPLAN Group, Inc. (1999).

County input-output models can be developed from either primary or secondary data. County input-output models derived through primary data sources are time consuming and very costly. Secondary data procedures use publicly available data sources to estimate county level

interindustry models from the national input-output model. IMPLAN uses regional purchase coefficients to estimate regional or county level input-output models. Numerous studies have examined differences between primary and secondary data input-output models (Round, 1983; Schaffer and Chu, 1969; Stevens et al., 1983). Studies have shown differences between these models when compared to primary models, and it has been found that hybrid models provide the best compromise between accuracy and affordability (Miller and Blair, 1985).

The input-output model developed for Eureka County is a hybrid model. An IMPLAN model for Eureka County was first developed. The IMPLAN model was then modified to reflect the agricultural economy of Eureka County through the use of University of Nevada Cooperative Extension budgets (Curtis, et al. 2005a; Curtis, et al., 2005b). Procedures developed by Coupal and Holland (1998) were used.

Procedures outlined by Lahr (1993) were employed to validate IMPLAN data and values for the other sectors in the Eureka County model. Business owners were interviewed to ascertain proportion of total value of sales that were export and the proportion of total input costs that were imports. If necessary the original Eureka County input-output model was modified to incorporate the values elicited from Eureka County firms.

From the modified IMPLAN Eureka County input-output model proper Eureka County economic linkages were developed. From this model sectoral economic, employment, and household income multipliers were estimated.

### **Final Demand, Employment and Household Income Multipliers**

The total of interindustry (direct, indirect and induced) effects per one dollar change in sales to final demand for forty sectors in Eureka County is shown in Table 13 (column 1). These are called final demand multipliers. The final demand multiplier for the Cattle Sector is 2.0283. The multiplier indicates that if sales of the Cattle Sector to final demand increase by one dollar, total Eureka County economy would increase by \$2.0283. Using the final demand coefficient matrix, the individual sectoral impacts can be derived from changes in sales to final demand. Final demand multipliers values range from 1.1671 for the Manufacturing Sector to 2.1477 for the Local Government Sector. The large multiplier for the Cattle Sector is indicative of this sector's economic linkages with other sectors in the Eureka County economy. As for sectors with lower multipliers, these results may indicate a need for local economic development initiatives to strengthen economic linkages of these sectors with others in the local economy.

Table 13 also shows employment and household income multipliers. Employment multipliers indicate the total number of jobs added in Eureka County when a given sector increases employment by one employee. Therefore, for the Cattle Sector, the employment multiplier is 1.4439. This means that when the Cattle Sector increases employment by one employee, total employment in Eureka County increases by 1.4439 employees. Employment multipliers range from 1.0409 for the Leisure and Hospitality Sector to 1.6170 for the Timothy Hay Sector.

Income multipliers indicate the amount that household income in Eureka County increases when a given sector increases income by \$1. For example, household income in Eureka County will increase by \$1.6812 when the Cattle Sector increases household income by \$1.00. Household income multipliers range from 1.1017 for the Utilities Sector to 1.6812 for the Cattle Ranching Sector.

**Table 13. Final Demand, Employment, and Income Multipliers for Eureka County, 2002.**

SECTOR	FINAL DEMAND MULTIPLIER	EMPLOYMENT MULTIPLIER	HOUSEHOLD INCOME MULTIPLIER
Timothy Hay	1.6951	1.6170	1.2793
Alfalfa Hay	1.6591	1.3844	1.2854
Cattle Ranching	2.0283	1.4439	1.6812
All Other Agriculture	1.7953	1.0606	1.1963
Gold, Silver, and Other			
Metal Ore Mining	1.7086	1.1350	1.1128
All Other Mining	1.6758	1.0670	1.1171
Utilities	1.7406	1.3134	1.1017
Construction	1.6217	1.1099	1.1523
Manufacturing	1.1671	1.1467	1.3538
Transportation	1.5392	1.1468	1.1967
Wholesale and Retail			
Trade	1.7780	1.0480	1.1362
Communications	1.8804	1.2777	1.1998
Financial Services	1.8593	1.1565	1.1616
Other Education and			
Health	1.9582	1.0726	1.1394
Leisure and Hospitality	1.6318	1.0409	1.2235
All Other Services	1.5698	1.1562	1.2722
Local Government	2.1477	1.0711	1.1102

## **Impact Analysis**

What will be the economic impact of a proposed project or development? What will be the total regional impact on income and employment resulting from the establishment of a new plant? What type of industry, if established, will create the most economic activity? These are questions which are difficult to answer, but leaders in business and government require such information for purposes of evaluating how various projects and program will affect the economic activity in a region.

Community leaders are asking for information on the different abilities of various industries to generate new jobs. Decision makers need to know how the available resources in a region can best be used for further development and economic growth.

There are similar types of questions constantly facing Nevada businessmen and government leaders. Before expanding their facilities, businessmen attempt to evaluate the demand for increased production of goods and services. Others in the region are interested in the impact that new or expanded industries will have on businesses. Those who finance a new plant in an area want to know the impact the new facility will have on the economic activity of the state.

Information is also needed to measure declines in economic activity as well as increases. For example, what will be the effect on the economy if a plant or department of defense base closes its doors? What will be the total regional impact on income and employment resulting from lower levels of production activities by the agricultural or mining sector from changes in public land management policies? Employment and income would directly decline by the size of the employed labor force or payroll or payroll of the closed plant or affected industry. Other businesses in the region however would also feel the effects as lesser amounts of their goods and services would be demanded. Impact analysis can be used to estimate the regional impacts of increased or decreased economic activity in a regional economy. (Key items to be considered when a county anticipates economic change are shown in Appendix C).

Impact analysis is a technique which uses the economic linkages between and among local economic sectors for household income, employment and industry output. This technique requires an input-output model of the local economic sectors to be developed showing the

relationship between inputs and output of various sectors. The model numerically calculates the linkages between various economic sectors. The model solution shows impacts on local economic activity, employment, and income from a given sector's change in sales or level of production. From these impact estimates, the community gains an understanding of potential overall impacts to a local economy from alternative economic development and governmental policies.

A Eureka County input-output model was developed with nineteen economic sectors. The model is used to estimate the economic linkages within Eureka County and to derive impacts to the Eureka County economy from various policies. Input-output multipliers that calculate sectoral linkages are also derived from the model solution.

### **Impact Analysis Example**

The following example illustrates how impact analysis is used for estimating economic impacts. For illustrative purposes, assume that export sales for the Gold Mining Sector and the Alfalfa Hay Sector in Eureka County increased by \$1,000,000, respectively. Assume that these increased levels of export are the result of local economic development efforts. Economic impacts are estimated for economic activity, employment, and household income using the input-output model. These impacts are discussed with regard to total impacts, sectoral impacts, and distributional impacts. Table 14 shows the estimated total impacts on economic activity, employment and income that would occur in Eureka County.

**Table 14. Total Impacts from a \$1,000,000 Increase in Export Sales by the Alfalfa Hay Sector and the Gold Mining Sector, Respectively, in Eureka County.**

Economic Sector	Economic Activity Impact (\$1,000)	Employment Impact (Jobs)	Income Impact (\$1,000)
Alfalfa Hay Sector	1,659.1	8.7	471.7
Gold Mining Sector	1,708.6	5.4	609.8

Eureka County is estimated to realize an increase in economic activity of approximately \$1,659,100 with corresponding increase in employment and income of 9 jobs and \$471,700, respectively, from a \$1,000,000 increase in export sales by the Alfalfa Hay Sector. Also the county realizes an increase in export sales by the Gold Mining Sector of a \$1,000,000 which increases economic activity by approximately \$1,708,600 with corresponding increases in employment and income of 5.4 jobs and \$609,800, respectively.

In addition, input-output models can derive distributional impacts by sectors. Results of the distributional impacts can derive the linkages of Eureka County economic sectors and assist in estimation county fiscal impacts.

### Summary

During the 1990's and early 2000's, Eureka County experienced periods of rapid economic growth with some instability and downturns in the economy as well. The rapid growth of the local Gold Mining Sector has been the primary impetus for economic growth. However, most of these gold mining operations are located in northern Eureka County with substantial numbers of workers living in Elko County. Therefore, the economic impacts of expanded household consumption are lost somewhat to Eureka County. Gold prices decreased from 1996 to 2002 with the consequence of reduced income to the gold mining industry and potential decreases in gold mining production.

To help local decision makers understand economic linkages in the local economy and provide analysis regarding alternative economic diversification strategies, an input-output model for Eureka County was developed. This model shows the economic linkages among county economic sectors and can be used to estimate regional activity, employment and income impacts to Eureka County from alternative changes in the local economy.

Final demand, employment, and income multipliers are estimated for each sector in Eureka County. The individual sectoral multipliers are presented in this report. Both public and private sector decision makers can readily use these multipliers to estimate economic impacts of changes in final demand sales or changes in production caused by changes in product market export sales, natural resource supplies, or government policy. The model can also be expanded to estimate potential impacts of a new economic sector locating in Eureka County.



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**APPENDIX A:**  
**LISTING OF ECONOMIC**  
**SECTORS**

**Table A.1. Sectors and Sector Definitions for the Eureka County Interindustry Model.**

	<b>Eureka Industries IMPLAN #</b>	<b>IMPLAN Description</b>
Timothy	9*	Timothy Hay
Alfalfa	10*	Alfalfa Hay
Cattle Ranching	11	Cattle ranching and farming
	2	Grain farming
All Other Agriculture	13	Animal production, except cattle and poultry
	18	Agriculture and forestry support activities
Gold Mining	23	Gold, silver, and other metal ore mining
Other Mining	26	Other nonmetallic mineral mining
	29	Support activities for other mining
Utilities	30	Power generation and supply
	33	New residential 1-unit structures, nonfarm
	34	New multifamily housing structures, nonfarm
	35	New residential additions and alterations, nonfarm
Construction	38	Commercial and institutional buildings
	39	Highway, street, bridge, and tunnel construction
	40	Water, sewer, and pipeline construction
	41	Other new construction
	43	Maintenance and repair of nonresidential buildings
Manufacturing	47	Other animal food manufacturing
	207	Steel wire drawing
	394	Truck transportation
Transportation	396	Pipeline transportation
	398	Postal service
	390	Wholesale trade
	401	Motor vehicle and parts dealers
Trade	404	Building material and garden supply stores
	405	Food and beverage stores
	407	Gasoline stations
	412	Nonstore retailers
Communications	422	Telecommunications
Financial Services	430	Monetary authorities and depository credit intermediation
	431	Real estate
Other Education/Health	463	Other educational services
	465	Offices of physicians, dentists, and other health practitioners
Leisure and Hospitality	479	Hotels and motels, including casino hotels
	481	Food services and drinking places
	434	Machinery and equipment rental and leasing
Other Services	485	Commercial machinery repair and maintenance
	492	Grantmaking and giving and social advocacy organizations
	499	Other State and Local government enterprises
Local Government	503	State & Local Education
	504	State & Local Non-Education

\* Sectors 9 and 10 were modified from original IMPLAN sectors.

**APPENDIX B:**  
**SOURCES OF DATA FOR EUREKA COUNTY**  
**INPUT-OUTPUT MODEL**

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**APPENDIX C:**  
**PRIVATE SECTOR, LOCAL GOVERNMENT, AND NON-MARKET**  
**IMPACTS FROM ECONOMIC CHANGES**

Table C.1. Impacts of Economic Change on the Private Sector - Important Consideration

1. How many workers will be hired by the new business activity? What is the dollar value of the anticipated payroll? What will be the value of production or sales from the new business activity?
2. What is the "multiplier" effect and how can it be appraised in a community?
3. When will the new workers be hired? When will the payroll be generated? And when will the new purchases and sales be made in the local economy?
4. Is the new economy activity associated with construction or operation of the business?
5. Will the new economic activity stimulate construction in related businesses, housing, and service and trade sectors of the economy?
6. Do the changes in employment, income, and sales represent net or gross additions to the community's economic base?
7. How does the new economic activity compliment the local economic situation?
8. What will be the incidence of the impacts? More specifically which people and businesses are likely to benefit, and which people and businesses are likely to bear the costs of the economic development.

Source: Gordon, John. "Considering Economic Change in the Community's Private Sector", in How Extension Can Help Communities Conduct Impact Analysis, University of Wisconsin Extension, 1982.



Table C. 2. Impacts of Economic Change on the Local Government Sector-Important Considerations.

- 
1. Within what governmental jurisdictions will new families live?
  2. How many in-migrant families are expected, and what is their anticipated income level?
  3. How many school-age children are expected?
  4. Do the public services and schools have excess capacity, or would expansions be required to maintain the quality of service at predevelopment levels?
  5. Are there migration fees to cover additional public service costs?
  6. Will state and federal aid increase as population grows?
  7. When will the project be completed?
  8. Does the expenditure estimation procedure used include only the additional costs associated with the new growth?
  9. Will new revenues be divided among more than one governmental unit, such as city, county, and school district? If so, how much additional revenue will each receive?
  10. When will the public Expenditures for the project begin and when will the community begin receiving project-generated revenues? How will these change over time?
  11. Will projected demands for service require a change in tax rates or a change in the level of service?
  12. Who benefits and who loses from the development?
  13. Will tax abatements or other publicly supported inducements be used to encourage this growth?
  14. Is the project capital-or labor-intensive?
  15. What is the probability that the firm will remain in the area and operate successfully over a five, 10, or 20 year period?
  16. What are the income and employment multiplier effects of the new industry?
  17. How will this development and associated population growth affect state aid to education and local property tax revenues in your state?
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Source: Morse, George and George McDowell, "Estimating the Impacts of Growth on Local Governments", in How Extension Can Help Communities Conduct Impact Analysis, University of Wisconsin-Extension, 1982.

Table C.3. Nonmarket Impacts of Economic Change-Important Considerations

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- I. Distribution: Who Will Be Affected?
    - A. Will effects vary among geographic sectors of the community?
    - B. What income groups will be affected and in what ways?
    - C. Will all or just certain economic sectors of the community have to make adjustments?
    - D. Will the impacts vary over time?
  - II. Employment-Related Impacts.
    - A. Will the new jobs be satisfying to workers?
    - B. Effects on commuting time and distance. How far must local residents travel to their new jobs?
    - C. Will the jobs be permanent or will they be highly sensitive to managerial decision and economic trends?
    - D. Will the workers perceive the new jobs as an improvement over previous conditions?
  - III. Population-Related Impacts.
    - A. Demographic.
      1. How much in-migration will occur?
      2. Will the newcomers and their families match or be different from the prevalent age and family structure of the community?
      3. What value changes might occur?
      4. Can the newcomers easily be integrated into the community social structure or will adjustments be needed?
    - B. Housing.
      1. How will the value of housing change?
      2. How will the quality of housing change?
      3. What changes in housing ownership will occur?
      4. What type of new housing will be needed?
  - IV. Community Ecology.
    - A. How will communication networks be affected?
    - B. How will religious organizations be affected?
    - C. How will participation in community affairs be affected?
    - D. What different internal-external linkages will appear?
    - E. Will satisfaction with the community change?
  - V. Political and Local Government.
    - A. Political
      1. What leadership changes will occur?
      2. Will voter participation change?
    - B. How will public recreation facilities and use be altered?
    - C. Will physical safety of workers and residents change?
    - D. What short-and long-term health effect could occur?
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Source: Shaffer, Ron. "Nonmarket Impacts from Economic Development", in How Extension Can Help Communities Conduct Impact Analysis, University of Wisconsin-Extension, 1982.99

### Eureka County Agricultural Statistics

Prepared by Jake Tibbitts, Eureka County Natural Resources Manager.

	1987	1992	1997	2002	2007	Average
Number of Farms and Ranches	85	79	84	73	86	81
Land in Farms (acres)	202,363	235,826	214,966	266,427	783,440	340,604
Average Size (acres)	2,985	2,381	2,559	3,650	9,110	4,137
Cropland (acres)	(D)	(D)	41,125	52,512	50,875	48,171
Irrigated Farm Land (acres)	23,917	28,602	48,530	42,034	46,241	37,865
Agriculture Commodity Sales (\$)	8,198,000	8,603,000	13,133,000	12,659,000	25,015,000	13,521,600
Crops (\$)	4,099,000	4,869,000	6,932,000	8,945,000	(D)	6,211,250
Livestock (\$)	4,504,000	3,329,000	6,201,000	3,714,000	(D)	4,437,000
Cattle and Calves	14,940	15,337	23,908	17,207	24,384	19,155

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## 1992 CENSUS OF AGRICULTURE

HIGHLIGHTS OF AGRICULTURE: 1992 AND 1987  
EUREKA COUNTY, NEVADA

Item	ALL FARMS 1992	1987
Farms .....number..	79	85
Land in farms .....acres..	235 826	202 363
Average size of farm .....acres..	2 985	2 381
Value of land and buildings@1:		
Average per farm .....dollars..	694 213	455 800
Average per acre .....dollars..	233	191
Estimated market value of all machinery and equipment@1		
Average per farm .....dollars..	92 671	81 250
Farms by size:		
1 to 9 acres .....	4	3
10 to 49 acres .....	1	2
50 to 179 acres .....	10	5
180 to 499 acres .....	25	38
500 to 999 acres .....	16	15
1,000 acres or more .....	23	22
Total cropland .....farms..	66	78
.....acres..	(D)	(D)
Harvested cropland .....farms..	59	73
.....acres..	21 410	27 566
Irrigated land .....farms..	62	74
.....acres..	23 917	28 606
Market value of agricultural products sold.....\$1,000..	8 198	8 603
Average per farm .....dollars..	103 774	101 210
Crops, including nursery and greenhouse crops.....\$1,000..	4 869	4 099
Livestock, poultry, and their products.....\$1,000..	3 329	4 504
Farms by value of sales:		
Less than \$2,500 .....	10	6
\$2,500 to \$4,999 .....	3	3
\$5,000 to \$9,999 .....	3	5
\$10,000 to \$24,999 .....	5	8
\$25,000 to \$49,999 .....	10	9
\$50,000 to \$99,999 .....	21	28
\$100,000 or more .....	27	26
Total farm production expenses.\$1,000..	6 656	6 967
Average per farm .....dollars..	84 251	81 971
Net cash return from agricultural sales for the farm unit.....farms..	79	85
.....\$1,000..	1 542	1 635
Average per farm.....dollars..	19 522	19 239
Operators by principal occupation:		
Farming .....	66	70
Other .....	13	15
Operators by days worked off farm:		
Any .....	37	40
200 days or more .....	8	8

1992COA.txt

Livestock and poultry:

Cattle and calves inventory...farms..	42	55
number..	14 940	15 337
Beef cows .....farms..	37	50
number..	8 738	9 146
Milk cows .....farms..	5	11
number..	10	26
Cattle and calves sold .....farms..	38	56
number..	6 812	8 436
Hogs and pigs inventory .....farms..	2	0
number..	(D)	0
Hogs and pigs sold .....farms..	2	0
number..	(D)	0
Sheep and lambs inventory ....farms..	10	14
number..	(D)	(D)
Chickens 3 months old or older inventory.....farms..	7	13
number..	95	314
Broilers and other meat-type chickens sold.....farms..	0	0
number..	0	0
Selected crops harvested:		
Wheat for grain .....farms..	6	1
acres..	1 015	(D)
bushels..	66 695	(D)
Barley for grain.....farms..	3	1
acres..	90	(D)
bushels..	(D)	(D)
Irish potatoes.....farms..	1	0
acres..	(D)	0
cwt..	(D)	0
Hay-alf, other, wild, silage..farms..	58	70
acres..	20 542	26 136
tons, dry..	74 054	75 326

@1Data are based on a sample of farms.

Legend:

- Represents zero
- (D) withheld to avoid disclosing data for individual farms
- (X) Not applicable
- (Z) Less than half the unit shown
- (NA) Not available

Source: 1992 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1992." This electronic series presents summary statistics for each county and state together with comparable data from the 1987 census. The items included are the same for all states and counties, except selected crops harvested, which vary by state. Data for 1992 and 1987 are directly comparable for acreage and inventories. Dollar values have not been adjusted for changes in price levels.

You can obtain the Volume 1 Geographic Area Series from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. If you have any questions concerning the data in this report or need additional information or order forms for agriculture publications, please call Agriculture Division, Bureau of the Census, at 1-800-523-3215.

1992COA.txt

Table 1. County Summary Highlights: 1997

[For meaning of abbreviations and symbols, see introductory text]

Item	Nevada	Churchill	Clark	Douglas	Elko	Esmeralda
Farms..... number..	2 829	511	209	156	402	20
Land in farms..... acres..	6 409 288	129 058	70 741	90 372	2 855 472	27 454
Average size of farm..... acres..	2 266	253	338	579	7 103	1 373
Median size of farm..... acres..	100	49	17	40	480	400
Estimated market value of land and buildings <sup>1</sup> :						
Average per farm..... dollars..	876 417	463 196	814 483	1 199 659	933 456	1 263 823
Average per acre..... dollars..	388	2 203	1 610	1 993	132	921
Estimated market value of all machinery and equipment <sup>1</sup> :						
Average per farm..... dollars..	69 532	53 897	47 175	46 817	56 822	163 766
Farms by size:						
1 to 9 acres.....	425	52	91	27	38	2
10 to 49 acres.....	694	204	56	56	63	—
50 to 179 acres.....	543	134	41	28	40	5
180 to 499 acres.....	430	71	13	23	62	6
500 to 999 acres.....	242	33	5	8	47	2
1,000 acres or more.....	495	17	2	14	152	5
Total cropland..... farms..	2 188	444	134	113	289	17
Harvested cropland..... acres..	846 752	53 933	9 108	25 835	237 443	12 219
Irrigated land..... farms..	1 765	377	89	87	229	16
Market value of agricultural products sold..... \$1,000..	356 565	38 058	18 926	8 796	49 228	4 016
Average per farm..... dollars..	126 039	74 478	90 557	56 382	122 458	200 822
Crops, including nursery and greenhouse crops..... \$1,000..	151 717	11 320	6 324	2 148	4 233	3 367
Livestock, poultry, and their products..... \$1,000..	204 848	26 738	12 602	6 648	44 995	649
Farms by value of sales:						
Less than \$2,500.....	695	120	93	37	81	1
\$2,500 to \$4,999.....	310	59	32	23	40	—
\$5,000 to \$9,999.....	358	85	24	21	38	—
\$10,000 to \$24,999.....	444	98	28	28	62	3
\$25,000 to \$49,999.....	259	59	11	16	39	1
\$50,000 to \$99,999.....	253	33	7	7	53	5
\$100,000 or more.....	510	57	15	24	89	9
Total farm production expenses <sup>1</sup> ..... \$1,000..	276 040	30 978	14 683	8 835	35 781	3 862
Average per farm..... dollars..	97 782	60 741	70 252	57 367	89 231	193 108
Net cash return from agricultural sales for the farm unit (see text) <sup>1</sup> ..... farms..	2 823	510	209	154	401	20
Average per farm..... \$1,000..	77 433	6 312	2 742	-298	13 163	154
..... dollars..	27 429	12 376	13 119	-1 934	32 824	7 714
Operators by principal occupation:						
Farming.....	1 558	287	84	75	239	17
Other.....	1 271	224	125	81	163	3
Operators by days worked off farm:						
Any.....	1 515	256	120	90	207	7
200 days or more.....	939	163	88	57	120	4
Livestock and poultry:						
Cattle and calves inventory..... farms..	1 694	330	85	91	292	6
Beef cows..... number..	518 115	36 567	9 971	17 686	165 277	(D)
Milk cows..... farms..	1 371	244	62	74	258	6
Cattle and calves sold..... number..	275 801	12 062	(D)	9 193	95 518	(D)
Hogs and pigs inventory..... farms..	138	38	6	7	25	—
Hogs and pigs sold..... number..	24 902	7 535	(D)	807	135	—
Sheep and lambs inventory..... farms..	1 587	293	75	92	293	6
Layers and pullets 13 weeks old and older inventory (see text)..... farms..	295 007	17 005	4 932	8 789	93 688	932
Broilers and other meat-type chickens sold..... number..	113	26	12	6	9	—
..... farms..	7 419	255	(D)	190	81	—
..... number..	74	15	8	5	8	—
..... farms..	7 414	587	(D)	459	170	—
..... number..	272	38	11	21	54	1
..... farms..	96 409	570	225	602	35 487	(D)
..... number..	203	33	23	3	35	1
..... farms..	4 503	604	585	(D)	830	(D)
..... number..	6	—	1	1	—	—
..... farms..	(D)	—	(D)	(D)	—	—
..... number..	—	—	—	—	—	—
Selected crops harvested:						
Wheat for grain..... farms..	73	16	2	3	1	1
Barley for grain..... acres..	19 034	875	(D)	387	(D)	(D)
Potatoes, excluding sweetpotatoes..... bushels..	1 903 995	76 973	(D)	32 672	(D)	(D)
..... farms..	49	13	6	1	2	—
..... acres..	4 642	467	120	(D)	(D)	(D)
..... bushels..	422 623	36 356	10 090	(D)	(D)	(D)
..... farms..	10	1	—	—	—	—
..... acres..	6 999	(D)	—	—	—	—
..... cwt..	2 962 254	(D)	—	—	—	—
Hay—alfalfa, other tame, small grain, wild grass silage, green chop, etc. (see text)..... farms..	1 640	363	69	81	226	16
..... acres..	478 358	36 234	3 145	14 937	146 938	7 687
..... tons, dry..	1 458 687	153 036	15 961	37 772	225 759	38 413

See footnotes at end of table.

Table 1. County Summary Highlights: 1997—Con.

[For meaning of abbreviations and symbols, see introductory text]

Item	Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
Farms..... number..	84	218	76	121	305	37
Land in farms..... acres..	214 966	733 418	486 017	48 887	174 448	(D)
Average size of farm..... acres..	2 559	3 364	6 395	404	572	(D)
Median size of farm..... acres..	435	468	350	100	60	40
Estimated market value of land and buildings <sup>1</sup> :						
Average per farm..... dollars..	881 263	887 001	1 477 005	367 760	909 063	3 171 488
Average per acre..... dollars..	344	267	231	953	1 738	(D)
Estimated market value of all machinery and equipment <sup>1</sup> :						
Average per farm..... dollars..	117 875	140 985	108 583	48 457	85 899	88 149
Farms by size:						
1 to 9 acres.....	3	20	11	8	46	—
10 to 49 acres.....	1	24	5	29	84	20
50 to 179 acres.....	11	37	10	37	67	7
180 to 499 acres.....	31	30	15	23	41	2
500 to 999 acres.....	16	27	13	14	24	2
1,000 acres or more.....	22	80	22	10	43	6
Total cropland..... farms..	67	179	57	98	259	30
acres..	41 125	172 000	31 536	17 385	79 374	10 720
Harvested cropland..... farms..	56	147	49	79	224	26
acres..	26 807	110 716	24 215	10 289	53 606	4 405
Irrigated land..... farms..	61	176	56	95	268	29
acres..	48 530	156 708	25 546	15 527	74 000	9 618
Market value of agricultural products sold..... \$1,000..	13 133	57 315	12 794	7 317	53 656	1 809
Average per farm..... dollars..	156 344	262 912	168 342	60 469	175 922	48 881
Crops, including nursery and greenhouse crops..... \$1,000..	6 932	38 850	5 389	3 980	29 447	733
Livestock, poultry, and their products..... \$1,000..	6 201	18 465	7 405	3 337	24 210	1 076
Farms by value of sales:						
Less than \$2,500.....	11	37	12	29	52	10
\$2,500 to \$4,999.....	7	17	6	11	32	4
\$5,000 to \$9,999.....	3	16	3	31	41	6
\$10,000 to \$24,999.....	7	22	12	20	53	7
\$25,000 to \$49,999.....	9	16	8	9	25	3
\$50,000 to \$99,999.....	11	32	4	8	35	2
\$100,000 or more.....	36	78	31	13	67	5
Total farm production expenses <sup>1</sup> ..... \$1,000..	8 590	44 126	10 202	5 153	40 525	1 554
Average per farm..... dollars..	102 263	202 412	134 234	42 587	133 306	41 990
Net cash return from agricultural sales for the farm unit (see text) <sup>1</sup> ..... farms..	84	218	76	121	304	37
Average per farm..... \$1,000..	4 543	12 872	2 592	2 541	13 250	255
dollars..	54 080	59 046	34 108	20 998	43 585	6 892
Operators by principal occupation:						
Farming.....	56	143	55	60	182	14
Other.....	28	75	21	61	123	23
Operators by days worked off farm:						
Any.....	35	101	27	68	159	25
200 days or more.....	21	62	17	37	89	17
Livestock and poultry:						
Cattle and calves inventory..... farms..	48	137	48	102	150	17
number..	23 908	69 920	20 496	14 784	39 695	5 113
Beef cows..... farms..	43	119	37	93	114	15
number..	14 749	(D)	12 557	(D)	13 819	(D)
Milk cows..... farms..	3	16	6	4	12	2
number..	11	(D)	11	(D)	3 439	(D)
Cattle and calves sold..... farms..	48	132	44	102	133	14
number..	13 905	36 329	12 898	7 621	26 016	2 738
Hogs and pigs inventory..... farms..	—	4	4	1	14	2
number..	—	85	19	(D)	260	(D)
Hogs and pigs sold..... farms..	—	3	2	—	13	1
number..	—	(D)	(D)	—	823	(D)
Sheep and lambs inventory..... farms..	3	23	9	4	33	1
number..	(D)	6 676	9 245	66	11 206	(D)
Layers and pullets 13 weeks old and older inventory (see text)..... farms..	1	13	9	6	27	2
number..	(D)	(D)	(D)	71	505	(D)
Broilers and other meat-type chickens sold..... farms..	—	1	—	—	2	—
number..	—	(D)	—	—	(D)	—
Selected crops harvested:						
Wheat for grain..... farms..	—	15	2	—	10	—
acres..	—	8 421	(D)	—	611	—
bushels..	—	801 058	(D)	—	50 779	—
Barley for grain..... farms..	1	9	—	1	6	—
acres..	(D)	1 869	—	(D)	194	—
bushels..	(D)	196 212	—	(D)	10 789	—
Potatoes, excluding sweetpotatoes..... farms..	—	5	—	—	2	—
acres..	—	(D)	—	—	(D)	—
cwt..	—	(D)	—	—	(D)	—
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text)..... farms..	56	137	48	78	210	24
acres..	26 917	83 976	23 835	10 069	49 929	4 410
tons, dry..	99 604	281 033	81 371	44 209	212 818	13 837

See footnotes at end of table.



Table 1. County Summary Highlights: 1997—Con.

[For meaning of abbreviations and symbols, see introductory text]

Item	Nye	Pershing	Storey	Washoe	White Pine	Carson City (IC)
Farms . . . . . number..	144	120	8	285	115	18
Land in farms . . . . . acres..	85 534	119 435	(D)	772 115	247 446	7 224
Average size of farm . . . . . acres..	594	995	(D)	2 709	2 152	401
Median size of farm . . . . . acres..	80	239	22	40	315	60
Estimated market value of land and buildings <sup>1</sup> :						
Average per farm . . . . . dollars..	558 105	794 241	331 905	1 326 479	891 772	437 819
Average per acre . . . . . dollars..	956	711	(D)	498	437	1 091
Estimated market value of all machinery and equipment <sup>1</sup> :						
Average per farm . . . . . dollars..	68 608	113 658	33 438	32 421	68 034	40 444
Farms by size:						
1 to 9 acres . . . . .	28	5	3	77	9	5
10 to 49 acres . . . . .	33	14	2	83	19	1
50 to 179 acres . . . . .	27	25	2	50	17	5
180 to 499 acres . . . . .	22	34	1	25	29	2
500 to 999 acres . . . . .	15	12	—	14	7	2
1,000 acres or more . . . . .	19	30	—	36	34	3
Total cropland . . . . . farms..	123	95	4	163	106	10
Harvested cropland . . . . . acres..	27 613	49 813	475	42 453	34 181	1 339
Irrigated land . . . . . farms..	97	81	2	109	90	7
Irrigated land . . . . . acres..	10 221	36 037	(D)	20 528	17 876	(D)
Market value of agricultural products sold . . . . . \$1,000..	27 792	32 679	93	22 518	8 236	198
Average per farm . . . . . dollars..	193 003	272 326	11 626	79 012	71 617	11 021
Crops, including nursery and greenhouse crops . . . . . \$1,000..	7 398	14 541	(D)	15 167	1 805	(D)
Livestock, poultry, and their products . . . . . \$1,000..	20 395	18 138	(D)	7 352	6 430	(D)
Farms by value of sales:						
Less than \$2,500 . . . . .	54	20	2	107	24	5
\$2,500 to \$4,999 . . . . .	8	8	1	45	14	2
\$5,000 to \$9,999 . . . . .	25	12	1	35	10	7
\$10,000 to \$24,999 . . . . .	23	16	3	39	22	1
\$25,000 to \$49,999 . . . . .	9	14	—	27	10	3
\$50,000 to \$99,999 . . . . .	10	20	1	12	14	—
\$100,000 or more . . . . .	15	30	—	20	21	—
Total farm production expenses <sup>1</sup> . . . . . \$1,000..	20 053	27 539	114	17 315	6 393	336
Average per farm . . . . . dollars..	139 257	229 493	14 224	60 970	55 595	18 689
Net cash return from agricultural sales for the farm unit (see text) <sup>1</sup> . . . . . farms..	144	120	8	284	115	18
Average per farm . . . . . \$1,000..	7 625	5 960	-21	4 439	1 442	-138
Average per farm . . . . . dollars..	52 951	49 668	-2 598	15 630	12 540	7 668
Operators by principal occupation:						
Farming . . . . .	81	75	4	105	71	10
Other . . . . .	63	45	4	180	44	8
Operators by days worked off farm:						
Any . . . . .	85	69	4	187	66	9
200 days or more . . . . .	44	43	4	127	42	4
Livestock and poultry:						
Cattle and calves inventory . . . . . farms..	73	81	5	146	71	12
Beef cows . . . . . number..	27 334	30 594	(D)	23 836	25 469	711
Milk cows . . . . . farms..	59	66	3	106	62	10
Cattle and calves sold . . . . . number..	(D)	17 075	(D)	(D)	15 251	429
Hogs and pigs inventory . . . . . farms..	8	7	—	2	4	—
Hogs and pigs sold . . . . . number..	(D)	5	—	(D)	11	—
Sheep and lambs inventory . . . . . farms..	65	70	5	136	70	6
Layers and pullets 13 weeks old and older inventory (see text) . . . . . number..	12 255	31 743	103	13 558	12 241	254
Broilers and other meat-type chickens sold . . . . . farms..	12	4	—	18	1	—
Broilers and other meat-type chickens sold . . . . . number..	101	26	—	210	(D)	—
Sheep and lambs sold . . . . . farms..	5	2	—	12	—	—
Layers and pullets 13 weeks old and older inventory (see text) . . . . . farms..	(D)	(D)	—	560	—	—
Broilers and other meat-type chickens sold . . . . . farms..	16	13	—	30	12	3
Broilers and other meat-type chickens sold . . . . . number..	1 101	(D)	—	7 807	16 722	105
Layers and pullets 13 weeks old and older inventory (see text) . . . . . farms..	12	9	—	20	9	—
Broilers and other meat-type chickens sold . . . . . number..	344	(D)	—	527	114	—
Broilers and other meat-type chickens sold . . . . . farms..	—	—	—	1	—	—
Broilers and other meat-type chickens sold . . . . . number..	—	—	—	(D)	—	—
Selected crops harvested:						
Wheat for grain . . . . . farms..	—	21	—	1	1	—
Wheat for grain . . . . . acres..	—	7 529	—	(D)	(D)	—
Barley for grain . . . . . farms..	—	837 479	—	(D)	(D)	—
Barley for grain . . . . . acres..	—	6	—	—	3	—
Potatoes, excluding sweetpotatoes . . . . . farms..	—	336	—	—	(D)	—
Potatoes, excluding sweetpotatoes . . . . . bushels..	—	33 129	—	—	(D)	—
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text) . . . . . farms..	67	76	2	97	86	4
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text) . . . . . acres..	9 080	25 387	(D)	17 371	18 136	(D)
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text) . . . . . tons, dry..	28 549	112 654	(D)	55 646	57 138	(D)

<sup>1</sup>Data are based on a sample of farms.

Table 1. County Summary Highlights: 2002

[For meaning of abbreviations and symbols, see introductory text]

Item		Nevada	Churchill	Clark	Douglas	Elko	Esmeralda
Farms	number	2,989	498	253	178	397	18
Land in farms	acres	6,330,622	149,487	68,925	210,952	2,472,143	(D)
Average size of farm	acres	2,118	300	272	1,185	6,227	(D)
Median size of farm	acres	110	50	14	42	460	(D)
Estimated market value of land and buildings <sup>1</sup>							
Average per farm	dollars	953,619	409,362	962,798	1,087,216	1,001,634	1,528,598
Average per acre	dollars	446	1,563	3,567	840	164	1,042
Estimated market value of all machinery and equipment <sup>1</sup>							
Average per farm	dollars	110,619	81,819	54,791	82,400	71,802	164,176
Farms by size:							
1 to 9 acres		579	51	120	36	50	5
10 to 49 acres		817	216	82	69	75	-
50 to 179 acres		511	111	33	31	54	-
180 to 499 acres		359	72	10	12	52	2
500 to 999 acres		214	30	2	14	33	5
1,000 acres or more		509	18	6	16	133	6
Total cropland	farms	2,001	417	133	119	235	14
Harvested cropland	acres	940,295	54,125	10,219	79,161	203,262	17,532
	farms	1,521	340	78	70	185	12
	acres	549,076	38,939	(D)	16,068	130,361	11,441
Irrigated land	farms	1,981	422	117	133	219	14
	acres	746,653	49,955	(D)	30,894	183,498	16,450
Market value of agricultural products sold (see text)	\$1,000	446,989	50,615	17,003	9,132	45,311	(D)
Average per farm	dollars	149,545	101,637	67,207	51,306	114,133	(D)
Crops	\$1,000	157,730	11,261	6,626	4,233	1,680	(D)
Livestock, poultry, and their products	\$1,000	289,259	39,354	10,378	4,900	43,631	(D)
Farms by value of sales:							
Less than \$2,500		1,108	153	145	84	141	-
\$2,500 to \$4,999		256	45	38	17	33	-
\$5,000 to \$9,999		291	71	21	21	35	3
\$10,000 to \$24,999		312	67	24	14	36	2
\$25,000 to \$49,999		214	41	4	12	30	-
\$50,000 to \$99,999		227	43	5	15	35	-
\$100,000 or more		581	78	16	15	87	13
Government payments	farms	439	71	13	17	87	3
	\$1,000	4,322	455	34	138	1,561	(D)
Total income from farm-related sources, gross before taxes and expenses (see text)	farms	597	111	34	33	73	3
	\$1,000	10,204	1,462	185	856	930	6
Total farm production expenses <sup>1</sup>	\$1,000	335,437	46,610	17,364	14,183	39,753	3,630
Average per farm	dollars	112,261	93,971	67,826	80,588	100,386	213,505
Net cash farm income of operation (see text) <sup>1</sup>	farms	2,988	496	256	176	396	17
	\$1,000	128,806	6,448	-270	-4,142	7,880	(D)
Average per farm	dollars	43,108	13,000	-1,054	-23,536	19,900	(D)
Principal operator by primary occupation:							
Farming	number	1,754	296	108	95	263	15
Other	number	1,235	202	145	83	134	3
Principal operator by days worked off farm:							
Any	number	1,644	273	143	90	216	7
200 days or more	number	1,074	173	103	66	139	2
Livestock and poultry:							
Cattle and calves inventory	farms	1,583	269	82	71	274	5
	number	460,263	47,136	(D)	14,173	135,554	(D)
Beef cows	farms	1,218	209	43	50	235	3
	number	245,025	14,099	(D)	(D)	80,179	(D)
Milk cows	farms	128	36	5	5	16	-
	number	29,358	13,008	(D)	(D)	28	-
Cattle and calves sold	farms	1,283	218	54	59	261	-
	number	407,085	26,492	3,627	5,202	81,627	(D)
Hogs and pigs inventory	farms	110	16	12	6	9	-
	number	(D)	157	(D)	(D)	55	-
Hogs and pigs sold	farms	102	13	10	3	9	-
	number	11,829	(D)	(D)	(D)	69	-
Sheep and lambs inventory	farms	327	41	23	26	55	-
	number	77,913	810	631	697	19,627	-
Layers 20 weeks old and older inventory	farms	281	40	39	12	36	-
	number	5,164	657	822	181	558	-
Broilers and other meat-type chickens sold	farms	18	-	1	-	3	-
	number	3,383	-	(D)	-	30	-
Selected crops harvested:							
Corn for grain	farms	6	4	-	-	-	-
	acres	241	(D)	-	-	-	-
	bushels	34,447	(D)	-	-	-	-
Corn for silage or greenchop	farms	53	42	-	-	-	-
	acres	4,407	3,055	-	-	-	-
	tons	94,399	62,720	-	-	-	-
Wheat for grain, All	farms	34	12	-	1	-	-
	acres	4,687	391	-	(D)	-	-
	bushels	383,563	33,515	-	(D)	-	-
Winter wheat for grain	farms	26	11	-	1	-	-
	acres	3,109	(D)	-	(D)	-	-
	bushels	268,529	(D)	-	(D)	-	-
Spring wheat for grain	farms	10	1	-	1	-	-
	acres	1,578	(D)	-	(D)	-	-
	bushels	115,034	(D)	-	(D)	-	-

See footnote(s) at end of table.

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Table 1. County Summary Highlights: 2002 - Con.

[For meaning of abbreviations and symbols, see introductory text]

Item		Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
Farms	number	73	233	116	109	330	17
Land in farms	acres	266,427	761,109	620,292	(D)	226,449	(D)
Average size of farm	acres	3,650	3,267	5,347	(D)	686	(D)
Median size of farm	acres	651	656	320	(D)	80	(D)
Estimated market value of land and buildings <sup>1</sup>							
Average per farm	dollars	815,230	1,212,650	1,273,980	517,501	913,744	2,894,659
Average per acre	dollars	230	380	247	1,058	1,405	193
Estimated market value of all machinery and equipment <sup>1</sup>							
Average per farm	dollars	152,656	202,630	144,158	126,743	126,925	223,412
Farms by size:							
1 to 9 acres		1	24	14	15	72	-
10 to 49 acres		3	43	30	23	85	7
50 to 179 acres		10	28	13	30	68	4
180 to 499 acres		16	28	20	19	43	1
500 to 999 acres		19	24	10	9	18	-
1,000 acres or more		24	86	29	13	44	5
Total cropland	farms	63	167	76	86	227	9
Harvested cropland	acres	52,512	174,045	60,008	25,719	72,025	8,674
	farms	52	135	59	63	182	6
	acres	29,115	111,905	41,941	(D)	45,846	(D)
Irrigated land	farms	60	164	67	82	235	7
	acres	42,034	137,562	44,751	21,304	56,563	10,231
Market value of agricultural products sold (see text)	\$1,000	12,659	54,949	20,615	11,451	74,471	3,075
Average per farm	dollars	173,412	235,832	177,715	105,051	225,668	180,668
Crops	\$1,000	8,945	37,599	10,263	7,096	36,723	(D)
Livestock, poultry, and their products	\$1,000	3,714	17,350	10,352	4,355	37,748	(D)
Farms by value of sales:							
Less than \$2,500		6	60	39	37	108	8
\$2,500 to \$4,999		5	9	6	10	27	1
\$5,000 to \$9,999		2	17	3	9	31	2
\$10,000 to \$24,999		5	21	7	14	42	1
\$25,000 to \$49,999		4	14	9	15	33	-
\$50,000 to \$99,999		13	17	17	5	27	1
\$100,000 or more		38	95	35	19	62	4
Government payments	farms	17	68	20	10	36	-
	\$1,000	120	707	123	31	316	-
Total income from farm-related sources, gross before taxes and expenses (see text)	farms	26	44	20	18	72	1
	\$1,000	484	2,610	161	55	1,149	(D)
Total farm production expenses <sup>1</sup>	\$1,000	9,646	48,573	15,831	7,276	53,474	1,537
Average per farm	dollars	128,613	209,367	135,310	67,366	161,553	96,053
Net cash farm income of operation (see text) <sup>1</sup>	farms	75	232	117	108	331	16
	\$1,000	(D)	9,165	5,273	3,945	25,591	1,492
Average per farm	dollars	(D)	39,505	45,066	36,528	77,315	93,244
Principal operator by primary occupation:							
Farming	number	58	164	73	67	212	13
Other	number	15	69	43	42	118	4
Principal operator by days worked off farm:							
Any	number	26	112	58	66	172	12
200 days or more	number	12	65	41	40	110	12
Livestock and poultry:							
Cattle and calves inventory	farms	46	138	63	89	172	11
	number	17,207	54,327	30,161	13,703	36,273	1,422
Beef cows	farms	40	119	36	81	113	9
	number	(D)	38,646	18,021	7,702	(D)	1,071
Milk cows	farms	2	20	5	3	9	-
	number	(D)	52	8	5	(D)	-
Cattle and calves sold	farms	43	117	53	76	115	3
	number	7,881	40,146	21,635	8,730	34,692	(D)
Hogs and pigs inventory	farms	1	10	10	1	24	-
	number	(D)	86	178	(D)	(D)	-
Hogs and pigs sold	farms	-	12	12	-	21	-
	number	-	93	349	-	(D)	-
Sheep and lambs inventory	farms	7	31	22	7	33	3
	number	(D)	8,792	2,686	99	13,050	57
Layers 20 weeks old and older inventory	farms	2	23	11	9	38	-
	number	(D)	514	141	95	1,044	-
Broilers and other meat-type chickens sold	farms	-	3	-	-	9	-
	number	-	(D)	-	-	(D)	-
Selected crops harvested:							
Corn for grain	farms	-	1	-	-	1	-
	acres	-	(D)	-	-	(D)	-
	bushels	-	(D)	-	-	(D)	-
Corn for silage or greenchop	farms	-	-	-	2	5	-
	acres	-	-	-	(D)	269	-
	tons	-	-	-	(D)	7,850	-
Wheat for grain, All	farms	2	6	1	-	9	-
	acres	(D)	(D)	(D)	-	564	-
	bushels	(D)	(D)	(D)	-	52,011	-
Winter wheat for grain	farms	-	3	-	-	8	-
	acres	-	(D)	-	-	(D)	-
	bushels	-	(D)	-	-	(D)	-
Spring wheat for grain	farms	2	4	1	-	1	-
	acres	(D)	(D)	(D)	-	(D)	-
	bushels	(D)	(D)	(D)	-	(D)	-

See footnote(s) at end of table.

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Table 1. County Summary Highlights: 2002 - Con.

[For meaning of abbreviations and symbols, see introductory text]

Item		Nye	Pershing	Storey	Washoe	White Pine	Carson City
Farms	number	172	115	6	332	121	21
Land in farms	acres	97,601	131,103	90	802,042	203,106	4,382
Average size of farm	acres	567	1,140	15	2,416	1,679	209
Median size of farm	acres	92	360	15	40	320	58
Estimated market value of land and buildings							
Average per farm	dollars	528,199	805,471	600,000	1,748,915	867,634	651,109
Average per acre	dollars	1,044	680	32,143	595	544	3,235
Estimated market value of all machinery and equipment							
Average per farm	dollars	104,129	138,432	13,933	113,293	154,253	75,258
Farms by size:							
1 to 9 acres		56	8	2	108	15	2
10 to 49 acres		39	12	4	105	15	9
50 to 179 acres		23	22	-	53	25	6
180 to 499 acres		16	25	-	19	24	-
500 to 999 acres		17	14	-	6	12	1
1,000 acres or more		21	34	-	41	30	3
Total cropland	farms	112	83	4	147	96	13
Harvested cropland	acres	41,208	52,941	72	50,396	36,744	1,667
	farms	89	72	-	84	82	10
	acres	22,561	29,436	-	20,235	19,985	924
Irrigated land	farms	109	80	2	160	96	14
	acres	35,632	28,978	(D)	44,950	33,592	2,286
Market value of agricultural products sold (see text)	\$1,000	22,420	25,708	(D)	17,780	76,025	928
Average per farm	dollars	130,346	223,544	(D)	53,556	628,302	44,199
Crops	\$1,000	4,370	8,609	-	9,900	3,938	202
Livestock, poultry, and their products	\$1,000	18,049	17,099	(D)	7,880	72,087	726
Farms by value of sales:							
Less than \$2,500		73	22	6	188	35	3
\$2,500 to \$4,999		8	10	-	34	4	6
\$5,000 to \$9,999		24	3	-	35	13	2
\$10,000 to \$24,999		16	19	-	24	18	4
\$25,000 to \$49,999		15	15	-	11	11	-
\$50,000 to \$99,999		15	10	-	13	6	5
\$100,000 or more		21	36	-	27	34	1
Government payments	farms	20	29	-	20	25	3
	\$1,000	78	218	-	222	242	(D)
Total income from farm-related sources, gross before taxes and expenses (see text)	farms	31	23	2	64	33	9
	\$1,000	70	714	(D)	937	330	147
Total farm production expenses	\$1,000	19,362	23,344	90	20,923	12,609	1,233
Average per farm	dollars	113,227	201,242	15,067	63,020	104,209	56,030
Net cash farm income of operation (see text)	farms	171	116	6	332	121	22
Average per farm	\$1,000	2,658	4,247	(D)	-1,072	(D)	(D)
	dollars	15,545	36,608	(D)	-3,228	(D)	(D)
Principal operator by primary occupation:							
Farming	number	96	74	2	138	67	13
Other	number	76	41	4	194	54	8
Principal operator by days worked off farm:							
Any	number	113	57	6	209	71	13
200 days or more	number	66	37	2	151	48	7
Livestock and poultry:							
Cattle and calves inventory	farms	79	76	4	121	76	7
Beef cows	number	27,657	19,161	176	23,004	24,940	757
Milk cows	farms	56	63	2	95	57	7
Cattle and calves sold	number	(D)	9,325	(D)	12,165	16,109	(D)
	farms	(D)	14	-	-	5	1
	number	(D)	15	-	-	12	(D)
Hogs and pigs inventory	farms	13,864	25,801	-	10,588	123,094	598
Hogs and pigs sold	number	4	6	-	12	-	-
	farms	11	88	-	176	-	-
	number	1	6	-	14	1	-
Sheep and lambs inventory	farms	(D)	(D)	-	(D)	(D)	-
	number	26	8	-	23	22	-
Layers 20 weeks old and older inventory	farms	1,010	(D)	-	(D)	19,302	-
	number	14	20	-	28	8	1
Broilers and other meat-type chickens sold	number	294	259	-	431	131	(D)
	farms	2	-	-	-	-	-
	number	(D)	-	-	-	-	-
Selected crops harvested:							
Corn for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-
Corn for silage or greenchop	farms	1	1	-	1	1	-
	acres	(D)	(D)	-	(D)	(D)	-
	tons	(D)	(D)	-	(D)	(D)	-
Wheat for grain, All	farms	1	2	-	-	-	-
	acres	(D)	(D)	-	-	-	-
	bushels	(D)	(D)	-	-	-	-
Winter wheat for grain	farms	1	2	-	-	-	-
	acres	(D)	(D)	-	-	-	-
	bushels	(D)	(D)	-	-	-	-
Spring wheat for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-

See footnote(s) at end of table.

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Table 1. County Summary Highlights: 2002 - Con.

[For meaning of abbreviations and symbols, see introductory text]

Item		Nevada	Churchill	Clark	Douglas	Elko	Esmeralda
Selected crops harvested - Con.							
Oats for grain	farms	36	8	1	-	2	-
	acres	4,682	344	(D)	-	(D)	-
	bushels	485,280	39,490	(D)	-	(D)	-
Barley for grain	farms	20	1	1	1	-	2
	acres	2,375	(D)	(D)	(D)	-	(D)
	bushels	207,188	(D)	(D)	(D)	-	(D)
Sorghum for grain	farms	1	1	-	-	-	-
	acres	(D)	(D)	-	-	-	-
	bushels	(D)	(D)	-	-	-	-
Sorghum for silage or greenchop	farms	5	1	2	-	-	-
	acres	438	(D)	(D)	-	-	-
	tons	9,289	(D)	(D)	-	-	-
Potatoes	farms	14	-	-	-	-	-
	acres	7,607	-	-	-	-	-
	cwt	2,651,960	-	-	-	-	-
Forage - land used for all hay and all haylage, grass silage, and greenchop (see text)	farms	1,390	327	48	66	182	12
	acres	510,223	34,756	5,227	15,716	130,323	10,875
	tons, dry	1,581,117	166,357	31,298	61,572	176,434	47,466
Vegetables harvested for sale (see text)	farms	51	9	7	1	-	-
	acres	4,752	(D)	62	(D)	-	-
Land in orchards	farms	73	7	16	4	1	-
	acres	420	10	107	31	(D)	-
Item		Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
Selected crops harvested - Con.							
Oats for grain	farms	-	7	1	2	8	-
	acres	-	755	(D)	(D)	1,406	-
	bushels	-	70,189	(D)	(D)	145,000	-
Barley for grain	farms	-	8	-	-	5	-
	acres	-	1,395	-	-	316	-
	bushels	-	121,354	-	-	28,095	-
Sorghum for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-
Sorghum for silage or greenchop	farms	-	-	-	-	1	-
	acres	-	-	-	-	(D)	-
	tons	-	-	-	-	(D)	-
Potatoes	farms	-	4	-	-	5	-
	acres	-	(D)	-	-	(D)	-
	cwt	-	(D)	-	-	(D)	-
Forage - land used for all hay and all haylage, grass silage, and greenchop (see text)	farms	52	125	59	60	169	6
	acres	29,070	91,784	41,581	16,076	40,127	8,219
	tons, dry	105,788	287,051	136,761	76,873	178,451	31,009
Vegetables harvested for sale (see text)	farms	-	4	-	-	15	1
	acres	-	289	-	-	2,803	(D)
Land in orchards	farms	-	4	-	4	8	-
	acres	-	5	-	(D)	8	-
Item		Nye	Pershing	Storey	Washoe	White Pine	Carson City
Selected crops harvested - Con.							
Oats for grain	farms	4	2	-	1	-	-
	acres	1,520	(D)	-	(D)	-	-
	bushels	178,000	(D)	-	(D)	-	-
Barley for grain	farms	1	1	-	-	-	-
	acres	(D)	(D)	-	-	-	-
	bushels	(D)	(D)	-	-	-	-
Sorghum for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-
Sorghum for silage or greenchop	farms	1	-	-	-	-	-
	acres	(D)	-	-	-	-	-
	tons	(D)	-	-	-	-	-
Potatoes	farms	1	-	-	1	2	1
	acres	(D)	-	-	(D)	(D)	(D)
	cwt	(D)	-	-	(D)	(D)	(D)
Forage - land used for all hay and all haylage, grass silage, and greenchop (see text)	farms	61	70	-	68	79	6
	acres	20,676	26,400	-	18,515	19,958	920
	tons, dry	62,711	88,410	-	63,761	64,953	2,212
Vegetables harvested for sale (see text)	farms	4	-	-	7	2	1
	acres	5	-	-	(D)	(D)	(D)
Land in orchards	farms	17	1	-	7	4	-
	acres	124	(D)	-	33	12	-

¹ Data are based on a sample of farms.

**Table 1. County Summary Highlights: 2007**

(For meaning of abbreviations and symbols, see introductory text)

Item		Nevada	Churchill	Clark	Douglas	Elko	Esmeralda
Farms	number	3,131	529	193	179	456	19
Land in farms	acres	5,865,392	131,448	88,381	91,046	2,085,135	24,843
Average size of farm	acres	1,873	248	458	509	4,573	1,313
Median size of farm	acres	51	40	7	30	168	440
Estimated market value of land and buildings							
Average per farm	dollars	1,148,693	496,430	1,391,798	1,234,191	1,407,787	1,769,708
Average per acre	dollars	613	1,998	3,039	2,426	308	1,348
Estimated market value of all machinery and equipment							
Average per farm	dollars	111,799	73,720	64,840	73,444	97,535	284,228
Farms by size							
1 to 9 acres		631	96	102	43	44	1
10 to 49 acres		898	205	42	65	102	4
50 to 179 acres		571	118	24	26	84	1
180 to 499 acres		367	67	15	21	61	5
500 to 999 acres		217	24	3	11	39	3
1,000 acres or more		447	19	7	13	126	5
Total cropland	farms	2,060	395	92	107	297	15
Harvested cropland	acres	753,718	36,379	6,220	20,931	190,934	12,769
	farms	1,572	345	54	88	234	15
	acres	504,311	32,543	2,733	(D)	(D)	12,544
Irrigated land	farms	2,054	430	84	133	279	15
	acres	691,030	40,346	6,511	31,242	182,233	13,739
Market value of agricultural products sold (see text)							
Average per farm	\$1,000	513,269	66,921	10,241	(D)	53,599	7,713
	dollars	163,931	126,504	53,060	(D)	117,541	405,921
Crops, including nursery and greenhouse crops	\$1,000	219,341	13,496	4,723	(D)	2,422	(D)
Livestock, poultry, and their products	\$1,000	293,928	53,425	5,517	6,076	51,177	(D)
Farms by value of sales							
Less than \$2,500		1,184	176	107	78	163	2
\$2,500 to \$4,999		269	55	18	13	38	1
\$5,000 to \$9,999		333	64	27	26	31	-
\$10,000 to \$24,999		334	65	14	18	51	1
\$25,000 to \$49,999		217	66	12	9	37	-
\$50,000 to \$99,999		179	37	1	17	33	2
\$100,000 or more		615	66	14	18	103	13
Government payments	farms	331	72	13	4	38	2
	\$1,000	4,007	494	91	(D)	460	(D)
Total income from farm-related sources, gross before taxes and expenses (see text)	farms	551	122	25	48	61	2
	\$1,000	10,383	1,550	616	1,849	1,118	(D)
Total farm production expenses	\$1,000	401,986	54,641	9,328	14,884	43,300	5,759
Average per farm	dollars	128,389	103,291	48,331	83,149	94,957	303,080
Net cash farm income of operation (see text)	farms	3,131	529	193	179	456	19
	\$1,000	125,672	14,324	1,619	-1,449	11,877	2,000
Average per farm	dollars	40,138	27,078	8,388	-8,095	26,046	105,263
Principal operator by primary occupation:							
Farming	number	1,650	264	78	88	272	15
Other	number	1,481	265	115	91	184	4
Principal operator by days worked off farm:							
Any	number	1,997	336	122	120	283	12
200 days or more	number	1,167	230	66	75	146	7
Livestock and poultry:							
Cattle and calves inventory	farms	1,513	244	67	69	294	7
	number	441,629	36,834	5,018	14,156	129,276	1,447
Beef cows	farms	1,275	183	42	52	265	7
	number	238,662	8,905	2,112	(D)	80,610	1,196
Milk cows	farms	56	23	-	1	-	-
	number	27,660	11,687	-	(D)	-	-
Cattle and calves sold	farms	1,260	198	37	61	-	-
	number	280,998	13,961	3,281	9,220	79,184	877
Hogs and pigs inventory	farms	91	20	9	3	4	-
	number	2,949	432	(D)	6	28	-
Hogs and pigs sold	farms	70	13	4	1	9	-
	number	(D)	250	(D)	(D)	92	-
Sheep and lambs inventory	farms	250	22	16	20	45	-
	number	68,581	2,946	236	416	15,217	-
Layers inventory (see text)	farms	312	50	20	14	26	-
	number	5,852	884	399	139	795	-
Broilers and other meat-type chickens sold	farms	4	-	-	-	-	-
	number	(D)	-	-	-	-	-
Selected crops harvested:							
Corn for grain	farms	10	9	-	-	-	-
	acres	473	(D)	-	-	-	-
Corn for silage or greenchop	bushels	73,176	(D)	-	-	-	-
	farms	36	22	-	-	1	2
	acres	5,451	2,073	-	-	(D)	(D)
	tons	134,522	51,392	-	-	(D)	(D)
Wheat for grain, all	farms	42	7	-	1	-	-
	acres	12,826	320	-	(D)	-	-
	bushels	1,279,268	35,217	-	(D)	-	-
Winter wheat for grain	farms	37	7	-	1	-	-
	acres	11,838	320	-	(D)	-	-
	bushels	1,190,936	35,217	-	(D)	-	-
Spring wheat for grain	farms	8	-	-	-	-	-
	acres	988	-	-	-	-	-
	bushels	88,332	-	-	-	-	-
Oats for grain	farms	2	-	-	-	-	-
	acres	(D)	-	-	-	-	-
	bushels	(D)	-	-	-	-	-

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Table 1. County Summary Highlights: 2007 - Con.

[For meaning of abbreviations and symbols, see introductory text]

Item		Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
Farms	number	86	254	84	98	325	84
Land in farms	acres	783,440	756,313	339,091	46,271	260,660	(D)
Average size of farm	acres	9,110	2,978	4,037	472	802	(D)
Median size of farm	acres	444	160	443	(D)	40	(D)
Estimated market value of land and buildings							
Average per farm	dollars	1,305,630	1,718,038	1,647,807	698,218	1,016,512	2,781,061
Average per acre	dollars	143	577	408	1,479	1,267	982
Estimated market value of all machinery and equipment							
Average per farm	dollars	218,521	187,751	196,558	129,086	154,740	30,927
Farms by size:							
1 to 9 acres		-	38	13	5	87	4
10 to 49 acres		11	56	10	30	94	54
50 to 179 acres		13	38	9	30	52	24
180 to 499 acres		20	21	10	16	36	-
500 to 999 acres		19	24	17	7	10	-
1,000 acres or more		23	77	25	10	46	2
Total cropland	farms	69	169	58	77	219	74
Harvested cropland	acres	50,875	153,261	37,951	17,903	78,910	6,383
	farms	57	135	47	67	170	5
	acres	34,940	102,764	27,420	15,454	55,307	(D)
Irrigated land	farms	63	167	56	85	232	5
	acres	46,241	116,270	31,443	18,320	81,500	(D)
Market value of agricultural products sold (see text)	\$1,000	25,015	74,355	19,098	15,339	91,108	2,843
Average per farm	dollars	290,877	292,736	227,357	156,518	280,331	35,035
Crops, including nursery and greenhouse crops	\$1,000	(D)	46,545	10,444	7,690	62,158	(D)
Livestock, poultry, and their products	\$1,000	(D)	27,810	8,654	7,649	28,950	(D)
Farms by value of sales:							
Less than \$2,500		17	69	15	24	123	56
\$2,500 to \$4,999		2	24	14	6	29	8
\$5,000 to \$9,999		1	23	2	15	37	3
\$10,000 to \$24,999		3	18	4	22	39	7
\$25,000 to \$49,999		2	11	4	6	23	3
\$50,000 to \$99,999		11	16	5	8	8	3
\$100,000 or more		50	93	40	17	66	4
Government payments	farms	7	55	14	2	11	60
Total income from farm-related sources, gross before taxes and expenses (see text)	\$1,000	113	682	179	(D)	59	938
	farms	21	48	20	15	56	1
	\$1,000	416	791	327	177	1,118	(D)
Total farm production expenses	\$1,000	17,847	56,228	13,192	13,537	76,073	874
Average per farm	dollars	207,523	221,371	157,042	138,133	234,071	10,406
Net cash farm income of operation (see text)	farms	86	254	84	98	325	84
Average per farm	\$1,000	7,697	19,600	6,412	2,064	16,212	3,008
	dollars	89,497	77,164	76,332	21,063	49,882	35,805
Principal operator by primary occupation:							
Farming	number	65	145	46	61	174	56
Other	number	21	109	38	37	151	28
Principal operator by days worked off farm:							
Any	number	41	169	47	66	189	43
200 days or more	number	26	86	28	32	116	31
Livestock and poultry:							
Cattle and calves inventory	farms	48	163	45	74	126	30
Beef cows	number	24,384	61,977	22,674	16,243	36,579	2,816
Milk cows	number	43	144	38	73	99	24
	farms	15,674	42,018	15,803	9,519	(D)	(D)
	number	3	11	3	-	5	2
Cattle and calves sold	number	9	19	4	-	(D)	(D)
	farms	37	149	36	67	93	30
Hogs and pigs inventory	number	15,904	45,279	11,319	13,241	30,845	1,322
	farms	-	10	3	2	12	1
Hogs and pigs sold	number	-	(D)	8	(D)	(D)	(D)
	farms	-	13	1	11	11	1
Sheep and lambs inventory	number	-	365	-	(D)	298	(D)
	farms	11	20	9	2	35	2
Layers inventory (see text)	number	(D)	1,740	4,838	(D)	(D)	(D)
	farms	3	27	8	8	41	4
Broilers and other meat-type chickens sold	number	(D)	377	247	126	1,140	51
	farms	-	-	-	-	1	-
	number	-	-	-	-	(D)	-
Selected crops harvested							
Corn for grain	farms	-	-	-	1	-	-
	acres	-	-	-	(D)	-	-
Corn for silage or greenchop	bushels	-	-	-	(D)	-	-
	farms	-	1	-	3	4	-
	acres	-	(D)	-	265	1,748	-
Wheat for grain, all	tons	-	4	-	5,486	46,368	-
	farms	-	(D)	-	-	14	-
	acres	-	(D)	-	-	(D)	-
Winter wheat for grain	bushels	-	(D)	-	-	(D)	-
	farms	-	1	-	-	14	-
	acres	-	(D)	-	-	(D)	-
Spring wheat for grain	bushels	-	(D)	-	-	(D)	-
	farms	-	4	-	-	-	-
	acres	-	(D)	-	-	-	-
Oats for grain	bushels	-	-	-	-	-	-
	farms	-	-	-	1	1	-
	acres	-	-	-	(D)	(D)	-
	bushels	-	-	-	(D)	(D)	-

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**Table 1. County Summary Highlights: 2007 - Con.**

[For meaning of abbreviations and symbols, see introductory text]

Item		Nye	Pershing	Storey	Washoe	White Pine	Carson City
Farms	number	173	135	5	393	97	21
Land in farms	acres	90,858	244,249	(D)	485,893	(D)	2,756
Average size of farm	acres	525	1,809	(D)	1,236	(D)	131
Median size of farm	acres	45	345	(D)	16	(D)	8
Estimated market value of land and buildings:							
Average per farm	dollars	674,881	1,288,595	206,200	980,996	1,685,545	408,435
Average per acre	dollars	1,285	712	14,123	793	830	3,112
Estimated market value of all machinery and equipment:							
Average per farm	dollars	109,264	165,140	47,212	56,268	185,911	67,740
Farms by size:							
1 to 9 acres		54	10	3	110	10	11
10 to 49 acres		34	16	1	155	16	3
50 to 179 acres		29	23	1	75	20	4
180 to 499 acres		23	26	-	29	16	1
500 to 999 acres		12	31	-	7	10	1
1,000 acres or more		21	29	-	17	25	2
Total cropland	farms	102	98	5	201	72	10
Harvested cropland	acres	28,080	69,187	36	18,973	23,756	1,170
	farms	71	76	1	142	58	7
	acres	(D)	(D)	(D)	9,308	(D)	(D)
Irrigated land	farms	97	89	1	221	79	18
	acres	21,510	48,447	(D)	18,659	30,877	(D)
Market value of agricultural products sold (see text)	\$1,000	58,238	42,403	(D)	18,381	15,172	1,137
Average per farm	dollars	336,638	314,097	(D)	46,771	156,412	54,131
Crops, including nursery and greenhouse crops	\$1,000	3,267	23,017	(D)	10,167	4,336	(D)
Livestock, poultry, and their products	\$1,000	54,972	19,387	-	8,214	10,836	(D)
Farms by value of sales:							
Less than \$2,500		71	35	4	205	28	11
\$2,500 to \$4,999		13	5	-	40	2	1
\$5,000 to \$9,999		20	9	-	63	8	4
\$10,000 to \$24,999		29	5	-	42	14	2
\$25,000 to \$49,999		4	15	1	17	7	-
\$50,000 to \$99,999		11	10	-	8	9	-
\$100,000 or more		25	56	-	18	29	3
Government payments	farms	5	36	-	8	4	-
	\$1,000	115	344	-	284	131	-
Total income from farm-related sources, gross before taxes and expenses (see text)	farms	21	35	-	54	18	3
	\$1,000	285	633	-	1,122	348	(D)
Total farm production expenses	\$1,000	34,867	31,812	24	15,693	12,535	1,193
Average per farm	dollars	201,544	235,645	4,802	40,440	129,222	56,818
Net cash farm income of operation (see text)	farms	173	135	5	393	97	21
	\$1,000	23,771	11,568	(D)	3,894	3,117	(D)
Average per farm	dollars	137,403	85,687	(D)	9,908	32,131	(D)
Principal operator by primary occupation:							
Farming	number	85	93	-	150	49	9
Other	number	88	42	5	243	48	12
Principal operator by days worked off farm:							
Any	number	119	79	5	296	54	16
200 days or more	number	65	47	4	144	36	6
Livestock and poultry:							
Cattle and calves inventory	farms	80	81	-	127	52	6
Beef cows	number	29,422	23,264	-	14,752	22,027	760
	farms	71	69	-	109	50	6
Milk cows	number	(D)	(D)	-	(D)	(D)	(D)
	farms	3	2	-	1	1	1
Cattle and calves sold	number	(D)	(D)	-	(D)	(D)	(D)
	farms	66	61	-	92	48	6
Hogs and pigs inventory	number	14,205	19,077	-	9,558	13,454	272
	farms	16	-	-	8	3	-
Hogs and pigs sold	number	58	-	-	120	22	-
	farms	7	-	-	7	3	-
Sheep and lambs inventory	number	31	-	-	-	-	-
	farms	21	11	-	111	18	-
Layers inventory (see text)	number	551	272	-	21	14	1
	farms	28	13	3	(D)	11,182	(D)
Broilers and other meat-type chickens sold	number	468	194	(D)	57	5	5
	farms	-	1	-	829	34	58
	number	-	(D)	-	2	-	-
Selected crops harvested							
Corn for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-
Corn for silage or greenchop	farms	1	1	-	-	-	-
	acres	(D)	(D)	-	-	1	-
Wheat for grain, all	tons	(D)	(D)	-	-	(D)	-
	farms	-	15	-	-	-	-
	acres	-	4,459	-	-	-	-
Winter wheat for grain	bushels	-	422,927	-	-	(D)	-
	farms	-	14	-	-	(D)	-
	acres	-	4,243	-	-	-	-
Spring wheat for grain	bushels	-	401,518	-	-	-	-
	farms	-	3	-	-	1	-
	acres	-	216	-	-	(D)	-
Oats for grain	bushels	-	21,409	-	-	-	-
	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-

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Table 1. County Summary Highlights: 2007 - Con.

[For meaning of abbreviations and symbols, see introductory text]

Item		Nevada	Churchill	Clark	Douglas	Elko	Esmeralda
Selected crops harvested - Con.							
Barley for grain	farms	9	-	-	-	1	-
	acres	1,062	-	-	-	(D)	-
	bushels	93,177	-	-	-	(D)	-
Sorghum for grain	farms	1	-	-	-	-	-
	acres	(D)	-	-	-	-	-
	bushels	(D)	-	-	-	-	-
Forage - land used for all hay and all haylage, grass silage, and greenchop (see text)	farms	1,436	325	36	80	232	13
	acres	464,598	29,976	2,587	15,208	119,735	12,434
	tons, dry	1,582,983	141,960	(D)	49,745	201,527	59,050
Vegetables harvested for sale (see text)	farms	50	6	5	2	1	2
	acres	11,217	69	40	(D)	(D)	(D)
	potatoes	24	3	1	1	1	2
Land in orchards	acres	7,491	2	(D)	(D)	(D)	(D)
	farms	79	15	6	4	1	1
	acres	460	39	81	17	(D)	(D)
Item		Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
Selected crops harvested - Con.							
Barley for grain	farms	-	5	-	-	3	-
	acres	-	940	-	-	(D)	-
	bushels	-	82,708	-	-	(D)	-
Sorghum for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-
Forage - land used for all hay and all haylage, grass silage, and greenchop (see text)	farms	57	124	44	66	154	4
	acres	34,940	82,358	27,416	14,254	49,232	(D)
	tons, dry	144,135	266,105	103,657	61,284	237,265	(D)
Vegetables harvested for sale (see text)	farms	-	6	4	1	10	-
	acres	-	(D)	3	(D)	(D)	-
	potatoes	-	5	-	1	2	-
Land in orchards	acres	-	(D)	-	(D)	8	-
	farms	-	5	-	5	21	-
	acres	-	3	-	(D)	-	-
Item		Nye	Pershing	Storey	Washoe	White Pine	Carson City
Selected crops harvested - Con.							
Barley for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
	bushels	-	-	-	-	-	-
Sorghum for grain	farms	-	-	-	1	-	-
	acres	-	-	-	(D)	-	-
	bushels	-	-	-	(D)	-	-
Forage - land used for all hay and all haylage, grass silage, and greenchop (see text)	farms	46	76	1	116	58	4
	acres	13,009	36,928	(D)	8,049	15,543	(D)
	tons, dry	53,452	165,483	(D)	24,626	51,282	(D)
Vegetables harvested for sale (see text)	farms	-	-	1	11	-	1
	acres	-	-	(D)	(D)	-	(D)
	potatoes	-	-	-	4	-	1
Land in orchards	acres	-	-	-	3	-	(D)
	farms	20	-	-	14	-	-
	acres	190	-	-	16	-	-