ECONOMIC IMPACTS OF MINING AND MINE DEWATERING IN EUREKA COUNTY, NEVADA
Economic Impacts of Mining and Mine Dewatering

in Eureka County, Nevada

Study Conducted by

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Nevada Cooperative Extension  
Department of Applied Economics and Statistics
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EXECUTIVE SUMMARY

Mining has been a very important export-base sector for the Eureka County economy. In 1997, approximately 88 percent of total Eureka County employment was attributed to the mining sector. Also other counties that are within the Humboldt River Basin such as Elko, Eureka, Lander, Humboldt, and Pershing counties have large percentage shares of total county employment in their local mining sector. However in the Humboldt River Basin, most mining occurs in deep open pit mines excavated up to 1,000 feet below the groundwater table. As mines extend below the water table, water will flow into the shaft or open pit rendering mining operations inoperable. To avoid this problem, the mining companies have pumped the aquifer surrounding the mine. The purpose of this pumping is to lower the water table below the bottom of the pit.

However with this groundwater pumping there have been fears of developing cones of depression, which may take years to refill. Also as the areas of dewatering are refilling, there will be a decrease in Humboldt River in stream flows. The question is what are the economic impacts of present mining operations and how do impacts change when mining operations have decreased or stopped and what effects does this have on irrigated agricultural operations and the rest of the economy.

In order to derive these Eureka County impacts, an input-output model of Eureka County was developed. This model was derived from the IMPLAN software program but was validated with the use of employment data supplied from the Regional Economic Information System and the State of Nevada Department of Employment, Training, and
Rehabilitation. The model was also augmented to detail local agricultural sectors through use of University of Nevada, Reno Cooperation Extension crop and livestock budgets.

The mining industry plays a vital role in the economy of Eureka County and the surrounding counties with respect to jobs and income. The county also receives Net Proceeds of Mines taxes as well as property taxes to fund county operations and the local school systems. However there are still questions that need to be answered pertaining to the mines and what happens when operation ceases. One scenario would put the 10,000 irrigated acres on the TS Ranch out of production for mitigation purposes. The effects of this are twofold. First, 7,000 acre feet of water would be released to account for baseflow reductions in streams such as Lower Maggie Creek and Susie Creek which Meyers (2000) predicts will run dry when the mines close. Also, the Humboldt River is predicted to drop in baseflow by up to 25% (Meyers, 2000). Second, pit lake formation at the Betze-Post (area estimated at 560 acres) and Gold Quarry (700 acres) mines would consume another 3,000 acre feet of water due to surface evaporation at the lakes (Meyers, 2000).
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INTRODUCTION

In 1997, the mining industry in the state of Nevada accounted for 14,663 jobs. The mining industry payrolls were $731,753,000 with an average salary of $49,905. The average salary for employees in the metal mining industry is $51,268 while employees in the other mining industry realize annual salaries of $38,900. In comparison, average metal mining employee salaries are approximately twice the state average of $28,671 (State of Nevada Department of Employment, Training and Rehabilitation, 1998).

Table 1 shows the distribution of mining industry employment throughout Nevada’s seventeen counties. From Table 1, only 1.82 percent of total state employment is in the mining sector. This compares to the service sector in the state, which has a 41.84 percent share of total state employment. Employment in Nevada’s casino industry is allocated to the service sector. However, when examining individual Nevada counties, the importance of the mining sector is not uniform.

In relation to total state mining industry employment, Eureka County has the highest proportionate share with 26.63 percent of the state’s total. The counties where the major mining operations occur (Elko, Eureka, Humboldt, Lander, and Pershing Counties) make up approximately 65 percent of total state mineral industry employment.

Table 1 also shows the importance of the mining industry employment to individual county economies. Approximately 88 percent of total Eureka County employment is in this sector. Nine other Nevada counties (Esmeralda, Eureka, Humboldt, Lander, Mineral, Nye, Pershing, Storey, and White Pine) have proportionate shares of total county employment above ten percent in the mining industry.
The Humboldt River Basin in Northern Nevada which includes Elko, Eureka, Lander, Humboldt, and Pershing counties account for more than half of the United States’ current gold production. Most of the mining occurs in deep, open pit mines excavated up to 1,000 feet below the groundwater table. As mines extend below the water table, water will flow into the shaft or open pit rendering mining operations inoperable. To avoid this problem, the mining companies have pumped up to 70,000 gallons per minute (gpm) from the aquifer surrounding the mine. The intent is to lower the water table below the bottom of the pit so that it will remain dry.

The potential impacts of drawing the water table down over 1,000 feet and creating huge man-made lakes drawn exclusively from groundwater throughout an arid watershed region could be quite substantial. This draw down has current impacts as to increased mining production but later reduced irrigated agricultural production. The purpose of this study is to assess the short and long-term economic impacts to Eureka County from dewatering activities by the local mining sector. Specific objectives are one, to discuss basic concepts of a community economic system; two, discuss interindustry analysis; and finally estimate impacts of dewatering on the Eureka County economy.
<table>
<thead>
<tr>
<th>County</th>
<th>Mining Employment (Number)</th>
<th>% of Total State Mining Employment (%)</th>
<th>% Mining Employment of Total County Employment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carson City</td>
<td>9</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Churchill</td>
<td>13</td>
<td>0.09</td>
<td>0.18</td>
</tr>
<tr>
<td>Clark</td>
<td>522</td>
<td>3.56</td>
<td>0.10</td>
</tr>
<tr>
<td>Douglas</td>
<td>1,444</td>
<td>9.85</td>
<td>8.07</td>
</tr>
<tr>
<td>Elko</td>
<td>1,305</td>
<td>8.90</td>
<td>7.07</td>
</tr>
<tr>
<td>Esmeralda</td>
<td>137</td>
<td>0.94</td>
<td>45.87</td>
</tr>
<tr>
<td>Eureka</td>
<td>3,905</td>
<td>26.63</td>
<td>87.97</td>
</tr>
<tr>
<td>Humboldt</td>
<td>2,242</td>
<td>15.29</td>
<td>28.65</td>
</tr>
<tr>
<td>Lander</td>
<td>1,180</td>
<td>8.05</td>
<td>47.64</td>
</tr>
<tr>
<td>Lincoln</td>
<td>12</td>
<td>0.08</td>
<td>0.89</td>
</tr>
<tr>
<td>Lyon</td>
<td>174</td>
<td>1.19</td>
<td>2.48</td>
</tr>
<tr>
<td>Mineral</td>
<td>289</td>
<td>1.97</td>
<td>13.41</td>
</tr>
<tr>
<td>Nye</td>
<td>1,247</td>
<td>8.50</td>
<td>15.76</td>
</tr>
<tr>
<td>Pershing</td>
<td>787</td>
<td>5.37</td>
<td>37.83</td>
</tr>
<tr>
<td>Storey</td>
<td>96</td>
<td>0.65</td>
<td>10.86</td>
</tr>
<tr>
<td>Washoe</td>
<td>600</td>
<td>4.09</td>
<td>0.38</td>
</tr>
<tr>
<td>White Pine</td>
<td>701</td>
<td>4.78</td>
<td>19.48</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14,663</td>
<td>100.00</td>
<td>1.82</td>
</tr>
</tbody>
</table>

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. Figure 1 depicts the linkages that exist among these sectors.

Basic industries are those industries, which produce goods and services primarily for sale outside the local economy. These basic 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 purchases 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 represents 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 in the previous paragraph 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
INTERINDUSTRY ANALYSIS

Within a regional economy, there are numerous economic sectors performing different tasks. All sectors are dependent upon each other to some degree. A change in activities will directly or indirectly affect the response or level of production of the regional economic 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 Gold Mining Sector would directly effect increased labor purchases. With increased employment, local employees may purchase additional goods and services from the local Trade Sector. This increased economic activity by the Trade Sector is indirect economic relationships. To show these interdependencies, interindustry analysis is used.

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, presented in Figure 2, 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.

![Figure 2. A Classification of Transactions](image-url)
Transactions include costs and revenues of an economic sector. First, reading down the column of the transaction table, the inputs (cost) required by a specific sector from other specific sectors to produce its output are shown. Second, reading across the row of the transactions table, the distribution of sales by a specific sector to other sectors are depicted.

In Figure 2, a total of n industries are listed across the top and on the left-hand side of Quadrant I. For a given industry i, reading across the row gives the sales of that sector to all other sectors in the regional economy. For example, the values in the cell where row i intersects with column j \( (x_{ij}) \) represents the sales of sector i to sector j. The sales of sector i to j are also purchase by sector j from sector i.

**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:

\[
a_{ij} = \frac{x_{ij}}{X_j} \quad i, j = 1, 2, ..., n
\]

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 shows 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 being those increases in levels of output for the regional economy to 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.

**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:

\[ L_j = \frac{E_j}{X_j} \quad j = 1, 2, \ldots, n \]
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. 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 an “open” model, 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. Direct and multiplying the direct household income requirements
by the “open” final demand interindustry coefficient matrix derives indirect household income effects from changes in sales to final demand by a given sector. 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.

ECONOMIC LINKAGES IN EUREKA COUNTY

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 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 has been conducted by the Minnesota IMPLAN Group, Inc. (1997). However, before using the IMPLAN software and models, data and matrices should be tested for validity and consistency. In a publication by Holland et al. (1997) several steps are provided that can be used to
validate the model. Also using employment data from the State of Nevada Department of Employment, Training, and Rehabilitation (1997), county and economic sectoral employment can be derived for further validation. Lastly, specific agricultural sectors such as alfalfa hay are not detailed in the IMPLAN model. Using University of Nevada Cooperative extension crop fact sheets and procedures developed by Darden et al. (1999), agricultural budgets are bridged into input-output sectors for this analysis.

Model Data

The basic components that make up the input-output model are the employment, output and income generated from each economic sector in the economy. The total employment figures are based on Regional Economic Information System (REIS) data (U.S. Department of Commerce, 1998) and are full or part-time employees of a given sector. The employment values are for jobs not full time equivalents. Sectoral income is derived by the summation of wages and salaries paid to employees plus the proprietors’ income, which is also based upon the REIS data. Output is simply the gross sales for non-agricultural industries and gross value of production for agricultural products. The agricultural values of production are based upon a 5-year (1992-1996) average for Eureka County from the Nevada Agricultural Statistics (NASS, 1993-1997). All output values for non-agricultural sectors are based upon IMPLAN data adjusted using methods described previously. Table 2 lists each economic sector of the Eureka County input-output model and the corresponding employment, output, and income values. The final demand response coefficients for Eureka County are shown in Appendix A.
Table 2. Eureka County Input-Output Model Control Totals by Sector, 1996.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Output</th>
<th>Employment</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$7,137,500</td>
<td>68</td>
<td>$133,116</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$3,239,400</td>
<td>15</td>
<td>$62,471</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$163,262</td>
<td>4</td>
<td>$9,383</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$1,271,340</td>
<td>26</td>
<td>$24,327</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$851,800</td>
<td>42</td>
<td>$75,663</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$24,233,004</td>
<td>180</td>
<td>$1,814,602</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$1,045,648,971</td>
<td>4,017</td>
<td>$37,810,367</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$33,213,696</td>
<td>305</td>
<td>$1,764,989</td>
</tr>
<tr>
<td>433 TCPU</td>
<td>$1,991,900</td>
<td>10</td>
<td>$72,744</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$5,174,100</td>
<td>147</td>
<td>$311,856</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$2,344,500</td>
<td>5</td>
<td>$20,587</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$468,100</td>
<td>11</td>
<td>$21,018</td>
</tr>
<tr>
<td>464 Services</td>
<td>$7,108,500</td>
<td>81</td>
<td>$348,777</td>
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<tr>
<td>490 Healthcare</td>
<td>$1,023,200</td>
<td>17</td>
<td>$69,297</td>
</tr>
<tr>
<td>Totals</td>
<td>$1,133,869,273</td>
<td>4,928</td>
<td>$42,539,200</td>
</tr>
</tbody>
</table>
DEWATERING ANALYSIS ASSUMPTIONS

Numerous assumptions were required to complete the analysis on the impacts of mine dewatering. Estimation of the future impacts of the gold and silver mining industries on the economy of Eureka County as well as the impacts of lost agricultural outputs, specifically alfalfa hay grown on the TS Ranch required assumptions pertaining to the future. These assumptions are necessary as there are many unknown pieces to the puzzle such as future commodity prices and the actual commodity output for a given year. However, estimates of gold reserves and current production of gold and silver along with average per acre production of alfalfa hay are known. The following will explain the assumptions used for each different aspect of this analysis.

Gold Mining Assumptions

The gold production sector of Eureka County’s economy had an output value of just over $1.05 billion and employment of 4,017 in 1996. In order to calculate the economic impacts of future gold production, estimates of future gold sector production were required. Table 3 shows the estimated annual gold production for the three Eureka County mines currently dewatering for purposes of gold and silver ore extraction. There are two mines currently engaged in the mine dewatering process, Gold Quarry owned by Newmont and Betze-Post owned by Barrick Goldstrike. One other mine, the Leeville Project, is currently going through the NEPA process (Meyers, 2000). The annual gold production for 1998 is an actual value obtained from the Nevada Division of Minerals. However, production was estimated for the years 2000 through 2050 based upon the
<table>
<thead>
<tr>
<th>Year</th>
<th>Gold Quarry</th>
<th>Leeville</th>
<th>Betze-Post</th>
<th>Total Production</th>
<th>Value of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>1,575,391</td>
<td>---NA---</td>
<td>1,498,683</td>
<td>3,074,074</td>
<td>$907,282,200</td>
</tr>
<tr>
<td>2000</td>
<td>1,143,000</td>
<td>---NA---</td>
<td>1,178,000</td>
<td>2,321,000</td>
<td>$685,019,940</td>
</tr>
<tr>
<td>2005</td>
<td>1,143,000</td>
<td>100,000</td>
<td>1,178,000</td>
<td>2,421,000</td>
<td>$714,533,940</td>
</tr>
<tr>
<td>2010</td>
<td>1,143,000</td>
<td>100,000</td>
<td>1,178,000</td>
<td>2,421,000</td>
<td>$714,533,940</td>
</tr>
<tr>
<td>2012</td>
<td>1,143,000</td>
<td>100,000</td>
<td>1,178,000</td>
<td>2,421,000</td>
<td>$714,533,940</td>
</tr>
<tr>
<td>2015</td>
<td>0</td>
<td>100,000</td>
<td>1,178,000</td>
<td>1,278,000</td>
<td>$377,188,920</td>
</tr>
<tr>
<td>2017</td>
<td>0</td>
<td>100,000</td>
<td>1,178,000</td>
<td>1,278,000</td>
<td>$377,188,920</td>
</tr>
<tr>
<td>2018</td>
<td>0</td>
<td>100,000</td>
<td>0</td>
<td>100,000</td>
<td>$29,514,000</td>
</tr>
<tr>
<td>2020</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>2030</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>2050</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
</tbody>
</table>
estimated gold reserves for each mine as discussed in the referenced study by Meyers (2000). To calculate value of production, the total ounces of gold were multiplied by the 1998 average price per ounce of $295.14 as published by the United States Geological Survey (Amey, 1998).

**Silver Mining Assumptions**

Future silver production, which appears most commonly in association with other metal mining industries (Hilliard, 1998), must also be estimated to give a complete picture of the gold mining industry. The USGS estimates that nearly 75%-80% of all silver mined today is produced as a byproduct of gold, copper, lead, or zinc mining (Hilliard, 1998). It is assumed based on prior production that silver will continue to be mined as a byproduct of the Gold Quarry and Betze Post operations until mine closure.

Silver production estimates (Table 4) used in this analysis were based upon ratios of 1998 actual gold and silver production in the Gold Quarry and Betze-Post mines. The 1998 gold and silver production for Newmont mining was 1,575,391 ounces and 150,400 ounces respectively (Nevada Division of Minerals, 1998). Using the aforementioned values (150,400/1,575,391) estimated silver production is 0.095468 ounces of silver per ounce of gold produced for Newmont mining operations. The Betze-Post mine produced 1,498,683 ounces of gold and 58,000 ounces of silver in 1998 (Nevada Division of Minerals, 1998) resulting in estimated silver production of .0387 ounces per ounce of gold. The value of the silver production estimates was calculated using a 1998 average price of $5.10 per ounce (Hilliard, 1998).
Table 4. Actual and estimated silver production from Eureka County mining operations engaged in mine dewatering activities.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (all mines)</th>
<th>Value of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>208,398</td>
<td>$1,062,832</td>
</tr>
<tr>
<td>2000</td>
<td>154,709</td>
<td>$789,013</td>
</tr>
<tr>
<td>2005</td>
<td>154,709</td>
<td>$789,013</td>
</tr>
<tr>
<td>2010</td>
<td>154,709</td>
<td>$789,013</td>
</tr>
<tr>
<td>2012</td>
<td>154,709</td>
<td>$789,013</td>
</tr>
<tr>
<td>2015</td>
<td>45,589</td>
<td>$232,502</td>
</tr>
<tr>
<td>2017</td>
<td>45,589</td>
<td>$232,502</td>
</tr>
<tr>
<td>2018</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>2020</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>2030</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>2050</td>
<td>0</td>
<td>$0</td>
</tr>
</tbody>
</table>
Alfalfa Hay Production Assumptions

Newmont Mining Corporation owns and operates the TS Ranch in where approximately 10,000 acres of alfalfa hay is grown annually (Myers, 2000). However, originally only 3,000 acres of alfalfa hay were irrigated before Barrick Goldstrike began dewatering and reached agreement with Newmont to use the water for irrigation in the summer months and to pump water into the TS Ranch Reservoir during the off season (Harding, August 1999). Approximately 72 center pivots distribute water to the alfalfa hay from the months of May through July. Since Barrick started dewatering the Betze-Post mine 174,000 acre-feet of water has gone to irrigation use according to Rich Haddock of Barrick (Harding, December 1999). Using 1998 Nevada Agricultural Statistics, the average production of alfalfa hay in Eureka County is a little over 4 tons per acre (NASS, 1999). The season average price of alfalfa hay in 1998 was $108.00 per ton (NASS, 1999). However due to the unknown quality of the hay being grown on the TS Ranch, a more conservative value of $81 per ton was used. The value of the 7,000-acre (28,700 tons) increase in alfalfa hay output that will be used for this analysis is $2,324,700. Also, the assumption was made that the additional 7,000 acres of alfalfa production will only occur until the mine dewatering operations at Barrick’s Betze-Post mine ceases operation.

ECONOMIC IMPACTS OF GOLD MINING AND TS RANCH ALFALFA PRODUCTION

Using the assumptions laid out above, a regional economic impact analysis was completed which derived the present and future impacts that mining, alfalfa hay production, closed mines, and lost alfalfa hay production will have on Eureka County. Impacts will be
discussed in gains or losses of output, employment, and income. The model is based upon 1996 data so all production values were converted to 1996 prices using the GDP Price deflator. The analysis projects the impacts in Eureka County up to year 2050. Since any values over 50 years discounted to present values become negligible, events that are of importance such as closing of the Gold Quarry mine in 2012, the possible opening of the Leeville mine in 2005 with closure coming in 2018, and the closing of the Betze-Post mine in 2017 are discussed in a referenced study by Myers (2000).

Gold Production Impacts 1998

Table 4 shows the distributional impacts that the Gold Quarry and Betze Post mines had on the Eureka County economy in 1998. In 1998 gold and silver production output values for the Betze-Post and Gold Quarry mines totaled $908,345,033 (in 1998 values). Using the GDP Price deflator the output value for total mine production for the two mines was $1,011,257,922\(^1\) (1996 dollars). Table 5 shows the enormous impact that gold mining had in the Eureka County economy. Over 3,892 jobs are supplied directly by mining activities at Gold Quarry and the Betze-Post mines as well as another 207 jobs indirectly. There also is $37,443,381 in direct, indirect, and induced household income generated from the mining activities. Appendix A shows the analysis by year of the impacts that the mines have had in 1998 and a projection of what impacts they will have through the year 2050.

\(^{1}\) The values are changed to constant 1996 values in order to compare the impacts across the different years.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$0</td>
<td>$12,919</td>
<td>$12,919</td>
<td>0.1231</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0</td>
<td>$5,774</td>
<td>$5,774</td>
<td>0.0267</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$1,070</td>
<td>$1,070</td>
<td>0.0262</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0</td>
<td>$3,719</td>
<td>$3,719</td>
<td>0.0761</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
<td>$268,890</td>
<td>$268,890</td>
<td>13.2583</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0</td>
<td>$1,613,933</td>
<td>$1,613,933</td>
<td>11.9881</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$1,011,257,922</td>
<td>$2,031,301</td>
<td>$1,013,289,222</td>
<td>3,892.6857</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0</td>
<td>$5,602,000</td>
<td>$5,602,000</td>
<td>51.4429</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0</td>
<td>$1,815,076</td>
<td>$1,815,076</td>
<td>9.1123</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0</td>
<td>$3,432,761</td>
<td>$3,432,761</td>
<td>97.5273</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0</td>
<td>$1,641,070</td>
<td>$1,641,070</td>
<td>3.4998</td>
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<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0</td>
<td>$136,797</td>
<td>$136,797</td>
<td>3.2146</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0</td>
<td>$864,491</td>
<td>$864,491</td>
<td>9.8507</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0</td>
<td>$355,255</td>
<td>$355,255</td>
<td>5.9024</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0</td>
<td>$37,443,381</td>
<td>$37,443,381</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$1,011,257,922</td>
<td>$17,785,056</td>
<td>$1,029,042,977</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$37,443,381</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>$1,066,486,358</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>4,099</td>
</tr>
</tbody>
</table>
Alfalfa Hay Production Impacts 1998

Alfalfa hay makes up almost sixty percent of the total value of agricultural output in Eureka County (NASS, 1993-1997). The TS Ranch, owned by Newmont, grows nearly 10,000 from Betze-Post mine water removal under agreement with Barrick Goldstrike but Newmont also plans on using water removed from the Leeville mine if approved (Harding, December 1999). The TS Ranch is in a unique situation due to the fact that they do not have to pump their water from a one to two hundred foot well. Under normal circumstances the irrigation of this property alone would amount to seventeen percent of the total costs per acre to produce four tons of alfalfa hay (Meyer, 1997).

The impacts of alfalfa hay production on the TS Ranch are presented in Table 6. Using the assumptions made earlier the TS Ranch produces approximately 41,000 tons of alfalfa at a value of $3,697,250. This production capacity supports 41 jobs and has a total economic impact of $4,047,085. In Appendix A the impacts of the 7,000 acre increase in TS Ranch alfalfa production will be assessed along with the impacts of the mines using dewatering as a tool to produce gold. Under the assumptions made, the alfalfa hay production will cease when the Betze-Post and Leeville mines cease operation in 2017 and 2018.
Table 6. Impacts of 10,000 Acres of Alfalfa Hay Produced by Newmont Gold Co.’s TS Ranch, 1998.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$3,697,260</td>
<td>$7,903</td>
<td>$3,705,163</td>
<td>35.2996</td>
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<tr>
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<td>$0</td>
<td>$1,222</td>
<td>$1,222</td>
<td>0.0057</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$185</td>
<td>$185</td>
<td>0.0045</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
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<td>$782</td>
<td>$782</td>
<td>0.0160</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
<td>$54,481</td>
<td>$54,481</td>
<td>2.6863</td>
</tr>
<tr>
<td>30 Other Mining</td>
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<td>$401</td>
<td>$401</td>
<td>0.0030</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$0</td>
<td>$504</td>
<td>$504</td>
<td>0.0019</td>
</tr>
<tr>
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<td>$80,457</td>
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</tr>
<tr>
<td>441 TCPU</td>
<td>$0</td>
<td>$6,128</td>
<td>$6,128</td>
<td>0.0308</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0</td>
<td>$48,517</td>
<td>$48,517</td>
<td>1.3784</td>
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<tr>
<td>456 F.I.R.E</td>
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<td>$30,912</td>
<td>$30,912</td>
<td>0.0659</td>
</tr>
<tr>
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<td>$822</td>
<td>$822</td>
<td>0.0193</td>
</tr>
<tr>
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<td>$0</td>
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<td>$22,806</td>
<td>0.2599</td>
</tr>
<tr>
<td>490 Healthcare</td>
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<td>$11,066</td>
<td>0.1839</td>
</tr>
<tr>
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<td>$83,640</td>
<td>$83,640</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$3,697,260</td>
<td>$266,185</td>
<td>$3,963,445</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$83,640</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>$4,047,085</td>
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<tr>
<td>Total Employment Impacts (jobs)</td>
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<td></td>
<td>41</td>
</tr>
</tbody>
</table>
Summary

There is no doubt that the mining industry plays a vital role in the economy of Eureka County and surrounding counties in the aspect of jobs and income. The county also receives Net Proceeds of Mines taxes as well as property taxes to fund county operations and school systems. However there are still questions that need to be answered about the mines and what happens when they cease operation. One scenario would put the 10,000 irrigated acres on the TS Ranch out of production for mitigation purposes. The effects of this are twofold. First, 7,000 acre feet of water would be released to account for baseflow reductions in streams such as Lower Maggie Creek and Susie Creek which Meyers (2000) predicts will run dry when the mines close. Also, the Humboldt River is predicted to drop in baseflow by up to 25% (Meyers, 2000). Second, pit lake formation at the Betze-Post (area estimated at 560 acres) and Gold Quarry (700 acres) mines would consume another 3,000 acre feet of water due to surface evaporation at the lakes (Meyers, 2000). Appendix B shows the impacts of the loss in TS Ranch alfalfa hay production and the resulting effects on the Eureka county economy if this type of mitigation were to come to light.

There are many other questions that arise when predicting the effects that mine dewatering will have on the Eureka County economy, environment and quality of life. Some of these concerns as discussed by Meyers (2000) include:

1. The estimated 10 to several hundred feet drop in the water table,
2. Baseflow reductions in the Humboldt River and other streams impacted by the mines,
3. Riparian area and wildlife impacted in these rivers and streams,
4. Wildlife impacts due to baseflow reductions in rivers and streams,
5. Possible water quality issues, and
6. Permanent water loss due to pit lake evaporation
As shown there are still many questions left unanswered concerned with mining and mine dewatering. Much more detailed hydrological modeling needs to be done to look at the pit lake formation time frame, alternatives to allowing pit lake formation such as back filling, and the potential impacts created farther downstream from the mines.
REFERENCES


APPENDIX A:

Final Demand Interindustry Coefficients
Table 7. Final Demand Interindustry Coefficients for Eureka County, 1996.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Final Demand Coefficient</th>
<th>Income Coefficient</th>
<th>Employment Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>1.094617</td>
<td>0.022573777</td>
<td>0.0000009527</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>1.240274</td>
<td>0.030246915</td>
<td>0.000004630</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>1.313280</td>
<td>0.073913511</td>
<td>0.000024501</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>1.072001</td>
<td>0.022222802</td>
<td>0.000020451</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>1.111677</td>
<td>0.089755052</td>
<td>0.000049307</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>1.257569</td>
<td>0.081440797</td>
<td>0.000007428</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>1.054614</td>
<td>0.036952313</td>
<td>0.000003842</td>
</tr>
<tr>
<td>48 Construction</td>
<td>1.103346</td>
<td>0.0556014</td>
<td>0.000009183</td>
</tr>
<tr>
<td>433 TCPU</td>
<td>1.102154</td>
<td>0.039671249</td>
<td>0.00005020</td>
</tr>
<tr>
<td>447 Trade</td>
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<td>0.061318958</td>
<td>0.000028411</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>1.063083</td>
<td>0.010776621</td>
<td>0.000002133</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>1.122365</td>
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<td>0.000023499</td>
</tr>
<tr>
<td>464 Services</td>
<td>1.090794</td>
<td>0.0505342</td>
<td>0.000011395</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>1.123867</td>
<td>0.069543521</td>
<td>0.000016615</td>
</tr>
</tbody>
</table>
APPENDIX B:

Impacts of Mining and TS Ranch Alfalfa Hay Operations
Table 8. Economic Impacts of TS Ranch Alfalfa Hay Production Increases and Gold Mine Production in Eureka County, 1998\(^2\).

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$2,588,082</td>
<td>$18,451</td>
<td>$2,606,533</td>
<td>24.8328</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0</td>
<td>$6,630</td>
<td>$6,630</td>
<td>0.0307</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$1,199</td>
<td>$1,199</td>
<td>0.0294</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0</td>
<td>$4,266</td>
<td>$4,266</td>
<td>0.0873</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
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<td>$307,027</td>
<td>15.1387</td>
</tr>
<tr>
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<td>$1,614,214</td>
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</tr>
<tr>
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<td>$2,031,653</td>
<td>$1,013,289,575</td>
<td>3,892.6871</td>
</tr>
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<td>48 Construction</td>
<td>$0</td>
<td>$5,658,320</td>
<td>$5,658,320</td>
<td>51.9601</td>
</tr>
<tr>
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<tr>
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<td>$3,466,723</td>
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<td>$1,662,709</td>
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<td>$880,455</td>
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</tr>
<tr>
<td>490 Healthcare</td>
<td>$0</td>
<td>$363,001</td>
<td>$363,001</td>
<td>6.0311</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0</td>
<td>$37,501,928</td>
<td>$37,501,928</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$1,013,846,004</td>
<td>$17,971,385</td>
<td>$1,031,817,389</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$37,501,928</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>$1,069,319,317</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>4,127</td>
</tr>
</tbody>
</table>

\(^2\) All prices adjusted to 1996 values for model consistency.
Table 9. Economic Impacts of TS Ranch Alfalfa Hay Production Increases and Gold Mine Production in Eureka County, 2000\(^3\).

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$2,588,082</td>
<td>$15,286</td>
<td>$2,603,368</td>
<td>24.8027</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0</td>
<td>$5,215</td>
<td>$5,215</td>
<td>0.0241</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$937</td>
<td>$937</td>
<td>0.0230</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0</td>
<td>$3,355</td>
<td>$3,355</td>
<td>0.0686</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
<td>$241,151</td>
<td>$241,151</td>
<td>11.8905</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0</td>
<td>$1,218,815</td>
<td>$1,218,815</td>
<td>9.0532</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$763,509,143</td>
<td>$1,534,004</td>
<td>$765,043,146</td>
<td>2,939.0153</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0</td>
<td>$4,285,882</td>
<td>$4,285,882</td>
<td>39.3571</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0</td>
<td>$1,374,688</td>
<td>$1,374,688</td>
<td>6.9014</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0</td>
<td>$2,625,728</td>
<td>$2,625,728</td>
<td>74.5989</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0</td>
<td>$1,260,662</td>
<td>$1,260,662</td>
<td>2.6886</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0</td>
<td>$103,858</td>
<td>$103,858</td>
<td>2.4406</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0</td>
<td>$668,663</td>
<td>$668,663</td>
<td>7.6193</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0</td>
<td>$275,967</td>
<td>$275,967</td>
<td>4.5851</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0</td>
<td>$28,328,649</td>
<td>$28,328,649</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$766,097,225</td>
<td>$13,614,212</td>
<td>$779,711,437</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td>$28,328,649</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td>$808,040,085</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>3,123</td>
</tr>
</tbody>
</table>

\(^3\) All prices adjusted to 1996 values for model consistency.
Table 10. Economic Impacts of TS Ranch Alfalfa Hay Production Increases and Gold Mine Production in Eureka County, 2005\textsuperscript{4}.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$2,588,082</td>
<td>$15,706</td>
<td>$2,603,788</td>
<td>24.8067</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0</td>
<td>$5,403</td>
<td>$5,403</td>
<td>0.0250</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$972</td>
<td>$972</td>
<td>0.0238</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0</td>
<td>$3,476</td>
<td>$3,476</td>
<td>0.0711</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
<td>$249,888</td>
<td>$249,888</td>
<td>12.3213</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0</td>
<td>$1,271,255</td>
<td>$1,271,255</td>
<td>9.4427</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$796,366,994</td>
<td>$1,600,005</td>
<td>$797,966,999</td>
<td>3,065.4967</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0</td>
<td>$4,467,903</td>
<td>$4,467,903</td>
<td>41.0286</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0</td>
<td>$1,433,664</td>
<td>$1,433,664</td>
<td>7.1975</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0</td>
<td>$2,737,266</td>
<td>$2,737,266</td>
<td>77.7677</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0</td>
<td>$1,313,984</td>
<td>$1,313,984</td>
<td>2.8023</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0</td>
<td>$108,303</td>
<td>$108,303</td>
<td>2.5450</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0</td>
<td>$696,752</td>
<td>$696,752</td>
<td>7.9394</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0</td>
<td>$287,510</td>
<td>$287,510</td>
<td>4.7768</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0</td>
<td>$29,545,261</td>
<td>$29,545,261</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impact</th>
<th>Indirect/Induced Impact</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$798,955,076</td>
<td>$14,192,085</td>
<td>$813,147,161</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$29,545,261</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>$842,692,422</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>3,256</td>
</tr>
</tbody>
</table>

\textsuperscript{4} All prices adjusted to 1996 values for model consistency. Leeville mine comes online with 100,000 oz. gold production.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct</th>
<th>Indirect/Induced</th>
<th>Total</th>
<th>Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Final Demand Impacts</td>
<td>Final Demand Impacts</td>
<td>Final Demand Impacts</td>
<td>Impacts</td>
</tr>
<tr>
<td>1 Alfalfa Hay</td>
<td>$2,588,082</td>
<td>$15,706</td>
<td>$2,603,788</td>
<td>24.8067</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0</td>
<td>$5,403</td>
<td>$5,403</td>
<td>0.0250</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$972</td>
<td>$972</td>
<td>0.0238</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0</td>
<td>$3,476</td>
<td>$3,476</td>
<td>0.0711</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
<td>$249,888</td>
<td>$249,888</td>
<td>12.3213</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0</td>
<td>$1,271,255</td>
<td>$1,271,255</td>
<td>9.4427</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$796,366,994</td>
<td>$1,600,005</td>
<td>$797,966,999</td>
<td>3,065.4967</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0</td>
<td>$4,467,903</td>
<td>$4,467,903</td>
<td>41.0286</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0</td>
<td>$1,433,664</td>
<td>$1,433,664</td>
<td>7.1975</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0</td>
<td>$2,737,266</td>
<td>$2,737,266</td>
<td>77.7677</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0</td>
<td>$1,313,984</td>
<td>$1,313,984</td>
<td>2.8023</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0</td>
<td>$108,303</td>
<td>$108,303</td>
<td>2.5450</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0</td>
<td>$696,752</td>
<td>$696,752</td>
<td>7.9394</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0</td>
<td>$287,510</td>
<td>$287,510</td>
<td>4.7768</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0</td>
<td>$29,545,261</td>
<td>$29,545,261</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

| Total Industry Impacts             | $798,955,076               | $14,192,085      | $813,147,161              |
| Total Household Income Impacts     |                            |                  | $29,545,261               |
| Total Economic Impact              |                            |                  | $842,692,422              |
| Total Employment Impacts (jobs)    |                            |                  | 3,256                     |

5 All prices adjusted to 1996 values for model consistency.
Table 12. Economic Impacts of TS Ranch Alfalfa Hay Production Increases and Gold Mine Production in Eureka County, 2012.*

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$2,588,082</td>
<td>$15,706</td>
<td>$2,603,788</td>
<td>24.8067</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0</td>
<td>$5,403</td>
<td>$5,403</td>
<td>0.0250</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0</td>
<td>$972</td>
<td>$972</td>
<td>0.0238</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0</td>
<td>$3,476</td>
<td>$3,476</td>
<td>0.0711</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0</td>
<td>$249,888</td>
<td>$249,888</td>
<td>12.3213</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0</td>
<td>$1,271,255</td>
<td>$1,271,255</td>
<td>9.4427</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$796,366,994</td>
<td>$1,600,005</td>
<td>$797,966,999</td>
<td>3,065.4967</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0</td>
<td>$4,467,903</td>
<td>$4,467,903</td>
<td>41.0286</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0</td>
<td>$1,433,664</td>
<td>$1,433,664</td>
<td>7.1975</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0</td>
<td>$2,737,266</td>
<td>$2,737,266</td>
<td>77.7677</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0</td>
<td>$1,313,984</td>
<td>$1,313,984</td>
<td>2.8023</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0</td>
<td>$108,303</td>
<td>$108,303</td>
<td>2.5450</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0</td>
<td>$696,752</td>
<td>$696,752</td>
<td>7.9394</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0</td>
<td>$287,510</td>
<td>$287,510</td>
<td>4.7768</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0</td>
<td>$29,545,261</td>
<td>$29,545,261</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$798,955,076</td>
<td>$14,192,085</td>
<td>$813,147,161</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td>$29,545,261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td>$842,692,422</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td>3,256</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*All prices adjusted to 1996 values for model consistency. Gold Quarry will cease operation in 2012.
Table 13. Economic Impacts of TS Ranch Alfalfa Hay Production Decreases and Gold Mine Production in Eureka County, 2015.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>($3,697,259.78)</td>
<td>($2,535.34)</td>
<td>($3,699,795.12)</td>
<td>(35.2485)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0.00</td>
<td>$1,177.37</td>
<td>$1,177.37</td>
<td>0.0055</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0.00</td>
<td>$259.24</td>
<td>$259.24</td>
<td>0.0064</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0.00</td>
<td>$763.34</td>
<td>$763.34</td>
<td>0.0156</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0.00</td>
<td>$57,244.12</td>
<td>$57,244.12</td>
<td>2.8226</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0.00</td>
<td>$670,195.91</td>
<td>$670,195.91</td>
<td>4.9781</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$420,182,187.43</td>
<td>$843,510.81</td>
<td>$421,025,698.25</td>
<td>1.617,4264</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0.00</td>
<td>$2,247,198.81</td>
<td>$2,247,198.81</td>
<td>20.6359</td>
</tr>
<tr>
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<td>$0.00</td>
<td>$748,044.39</td>
<td>$748,044.39</td>
<td>3.7554</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0.00</td>
<td>$1,377,810.88</td>
<td>$1,377,810.88</td>
<td>39.1446</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0.00</td>
<td>$650,960.29</td>
<td>$650,960.29</td>
<td>1.3883</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0.00</td>
<td>$56,017.40</td>
<td>$56,017.40</td>
<td>1.3164</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0.00</td>
<td>$336,393.35</td>
<td>$336,393.35</td>
<td>3.8331</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0.00</td>
<td>$136,544.16</td>
<td>$136,544.16</td>
<td>2.2686</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0.00</td>
<td>$15,474,252.52</td>
<td>$15,474,252.52</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$416,484,927.65</td>
<td>$7,123,584.74</td>
<td>$423,608,512.39</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$15,474,252.52</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>$439,082,764.90</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>1,662</td>
</tr>
</tbody>
</table>

All prices adjusted to 1996 values for model consistency.
### Table 14. Economic Impacts of TS Ranch Alfalfa Hay Production Decreases and Gold Mine Production in Eureka County, 2017\(^8\).

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand</th>
<th>Indirect/Induced Final Demand</th>
<th>Total Final Demand</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>($3,697,259.78)</td>
<td>($2,535.34)</td>
<td>($3,699,795.12)</td>
<td>(35.2485)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0.00</td>
<td>$1,177.37</td>
<td>$1,177.37</td>
<td>0.0055</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0.00</td>
<td>$259.24</td>
<td>$259.24</td>
<td>0.0064</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0.00</td>
<td>$763.34</td>
<td>$763.34</td>
<td>0.0156</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0.00</td>
<td>$57,244.12</td>
<td>$57,244.12</td>
<td>2.8226</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0.00</td>
<td>$670,195.91</td>
<td>$670,195.91</td>
<td>4.9781</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$420,182,187.43</td>
<td>$843,510.81</td>
<td>$421,025,698.25</td>
<td>1,617.4264</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0.00</td>
<td>$2,247,198.81</td>
<td>$2,247,198.81</td>
<td>20.6359</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0.00</td>
<td>$748,044.39</td>
<td>$748,044.39</td>
<td>3.7554</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0.00</td>
<td>$1,377,810.88</td>
<td>$1,377,810.88</td>
<td>39.1446</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0.00</td>
<td>$650,960.29</td>
<td>$650,960.29</td>
<td>1.3883</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0.00</td>
<td>$56,017.40</td>
<td>$56,017.40</td>
<td>1.3164</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0.00</td>
<td>$336,393.35</td>
<td>$336,393.35</td>
<td>3.8331</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0.00</td>
<td>$136,544.16</td>
<td>$136,544.16</td>
<td>2.2686</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0.00</td>
<td>$15,474,252.52</td>
<td>$15,474,252.52</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>$416,484,927.65</td>
<td>$7,123,584.74</td>
<td>$423,608,512.39</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$15,474,252.52</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>$439,082,764.90</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>1,662</td>
</tr>
</tbody>
</table>

\(^8\) All prices adjusted to 1996 values for model consistency. The Betze-Post mine will cease operation at the end of 2017.
Table 15. Economic Impacts of TS Ranch Alfalfa Hay Production Decreases and Gold Mine Production in Eureka County, 2018.  

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>($3,697,259.78)</td>
<td>($7,483.46)</td>
<td>($3,704,743.24)</td>
<td>(35.2956)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0.00</td>
<td>($1,034.25)</td>
<td>($1,034.25)</td>
<td>(0.0048)</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0.00</td>
<td>($150.41)</td>
<td>($150.41)</td>
<td>(0.0037)</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0.00</td>
<td>($661.10)</td>
<td>($661.10)</td>
<td>(0.0135)</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0.00</td>
<td>($45,744.23)</td>
<td>($45,744.23)</td>
<td>(2.2555)</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0.00</td>
<td>$52,039.48</td>
<td>$52,039.48</td>
<td>0.3865</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$32,857,851.63</td>
<td>$65,497.42</td>
<td>$32,923,349.05</td>
<td>126.4794</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0.00</td>
<td>$101,563.27</td>
<td>$101,563.27</td>
<td>0.9327</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0.00</td>
<td>$52,847.90</td>
<td>$52,847.90</td>
<td>0.2653</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0.00</td>
<td>$63,020.78</td>
<td>$63,020.78</td>
<td>1.7905</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0.00</td>
<td>$22,409.92</td>
<td>$22,409.92</td>
<td>0.0478</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0.00</td>
<td>$3,622.53</td>
<td>$3,622.53</td>
<td>0.0851</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0.00</td>
<td>$5,282.66</td>
<td>$5,282.66</td>
<td>0.0602</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0.00</td>
<td>$477.17</td>
<td>$477.17</td>
<td>0.0079</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0.00</td>
<td>$1,132,972.99</td>
<td>$1,132,972.99</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Direct Impacts | Indirect/Induced Impacts | Total Impacts |
--- | --- | --- |
Total Industry Impacts | $29,160,591.84 | $311,687.70 | $29,472,279.55 |
Total Household Income Impacts | $1,132,972.99 | $30,605,252.54 |
Total Economic Impact | 92.48 | 92.48 | 92.48 |

---

9 All prices adjusted to 1996 values for model consistency. Leeville will cease operations at the end of 2018.
Table 16. Economic Impacts of TS Ranch Alfalfa Hay Production Decreases, 2020\textsuperscript{10}.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>($3,697,259.78)</td>
<td>($7,903.22)</td>
<td>($3,705,163.00)</td>
<td>(35.2996)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0.00</td>
<td>($1,221.87)</td>
<td>($1,221.87)</td>
<td>(0.0057)</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0.00</td>
<td>($185.16)</td>
<td>($185.16)</td>
<td>(0.0045)</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0.00</td>
<td>($781.93)</td>
<td>($781.93)</td>
<td>(0.0160)</td>
</tr>
<tr>
<td>26 Agriculture Services</td>
<td>$0.00</td>
<td>($54,481.04)</td>
<td>($54,481.04)</td>
<td>(2.6863)</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0.00</td>
<td>($400.53)</td>
<td>($400.53)</td>
<td>(0.0030)</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$0.00</td>
<td>($503.72)</td>
<td>($503.72)</td>
<td>(0.0019)</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0.00</td>
<td>($80,457.24)</td>
<td>($80,457.24)</td>
<td>(0.7388)</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0.00</td>
<td>($6,127.64)</td>
<td>($6,127.64)</td>
<td>(0.0308)</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0.00</td>
<td>($48,516.69)</td>
<td>($48,516.69)</td>
<td>(1.3784)</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0.00</td>
<td>($30,911.84)</td>
<td>($30,911.84)</td>
<td>(0.0659)</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0.00</td>
<td>($822.28)</td>
<td>($822.28)</td>
<td>(0.0193)</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0.00</td>
<td>($22,806.42)</td>
<td>($22,806.42)</td>
<td>(0.2599)</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0.00</td>
<td>($11,065.78)</td>
<td>($11,065.78)</td>
<td>(0.1839)</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0.00</td>
<td>($83,639.52)</td>
<td>($83,639.52)</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>($3,697,259.78)</td>
<td>($266,185.36)</td>
<td>($3,963,445.15)</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td>($83,639.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>($4,047,084.67)</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>(41)</td>
</tr>
</tbody>
</table>

\textsuperscript{10} All prices adjusted to 1996 values for model consistency.
Table 17. Economic Impacts of TS Ranch Alfalfa Hay Production Decreases, 2030\textsuperscript{11}.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand</th>
<th>Indirect/Induced Final Demand</th>
<th>Total Final Demand</th>
<th>Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>($3,697,259.78)</td>
<td>($7,903.22)</td>
<td>($3,705,163.00)</td>
<td>(35.2996)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0.00</td>
<td>($1,221.87)</td>
<td>($1,221.87)</td>
<td>(0.0057)</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0.00</td>
<td>($185.16)</td>
<td>($185.16)</td>
<td>(0.0045)</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0.00</td>
<td>($781.93)</td>
<td>($781.93)</td>
<td>(0.0160)</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0.00</td>
<td>($54,481.04)</td>
<td>($54,481.04)</td>
<td>(2.6863)</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0.00</td>
<td>($400.53)</td>
<td>($400.53)</td>
<td>(0.0030)</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$0.00</td>
<td>($503.72)</td>
<td>($503.72)</td>
<td>(0.0019)</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0.00</td>
<td>($80,457.24)</td>
<td>($80,457.24)</td>
<td>(0.7388)</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0.00</td>
<td>($6,127.64)</td>
<td>($6,127.64)</td>
<td>(0.0308)</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0.00</td>
<td>($48,516.69)</td>
<td>($48,516.69)</td>
<td>(1.3784)</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0.00</td>
<td>($30,911.84)</td>
<td>($30,911.84)</td>
<td>(0.0659)</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0.00</td>
<td>($822.28)</td>
<td>($822.28)</td>
<td>(0.0193)</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0.00</td>
<td>($22,806.42)</td>
<td>($22,806.42)</td>
<td>(0.2599)</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0.00</td>
<td>($11,065.78)</td>
<td>($11,065.78)</td>
<td>(0.1839)</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0.00</td>
<td>($83,639.52)</td>
<td>($83,639.52)</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

\[
\begin{array}{lccc}
\text{Total Industry Impacts} & ($3,697,259.78) & ($266,185.36) & ($3,963,445.15) \\
\text{Total Household Income Impacts} & \text{---} & \text{---} & ($83,639.52) \\
\text{Total Economic Impact} & \text{---} & \text{---} & ($4,047,084.67) \\
\text{Total Employment Impacts (jobs)} & \text{---} & \text{---} & (41) \\
\end{array}
\]

\textsuperscript{11} All prices adjusted to 1996 values for model consistency.
Table 18. Economic Impacts of TS Ranch Alfalfa Hay Production Increases and Gold Mine Production in Eureka County, 2050\textsuperscript{12}.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Final Demand Impacts</th>
<th>Indirect/Induced Final Demand Impacts</th>
<th>Total Final Demand Impacts</th>
<th>Total Employment Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>($3,697,259.78)</td>
<td>($7,903.22)</td>
<td>($3,705,163.00)</td>
<td>(35.2996)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$0.00</td>
<td>($1,221.87)</td>
<td>($1,221.87)</td>
<td>(0.0057)</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$0.00</td>
<td>($185.16)</td>
<td>($185.16)</td>
<td>(0.0045)</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$0.00</td>
<td>($781.93)</td>
<td>($781.93)</td>
<td>(0.0160)</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$0.00</td>
<td>($54,481.04)</td>
<td>($54,481.04)</td>
<td>(2.6863)</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$0.00</td>
<td>($400.53)</td>
<td>($400.53)</td>
<td>(0.0030)</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$0.00</td>
<td>($503.72)</td>
<td>($503.72)</td>
<td>(0.0019)</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$0.00</td>
<td>($80,457.24)</td>
<td>($80,457.24)</td>
<td>(0.7388)</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$0.00</td>
<td>($6,127.64)</td>
<td>($6,127.64)</td>
<td>(0.0308)</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$0.00</td>
<td>($48,516.69)</td>
<td>($48,516.69)</td>
<td>(1.3784)</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$0.00</td>
<td>($30,911.84)</td>
<td>($30,911.84)</td>
<td>(0.0659)</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$0.00</td>
<td>($822.28)</td>
<td>($822.28)</td>
<td>(0.0193)</td>
</tr>
<tr>
<td>464 Services</td>
<td>$0.00</td>
<td>($22,806.42)</td>
<td>($22,806.42)</td>
<td>(0.2599)</td>
</tr>
<tr>
<td>490 Healthcare</td>
<td>$0.00</td>
<td>($11,065.78)</td>
<td>($11,065.78)</td>
<td>(0.1839)</td>
</tr>
<tr>
<td>0 Households</td>
<td>$0.00</td>
<td>($83,639.52)</td>
<td>($83,639.52)</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Direct Impacts</th>
<th>Indirect/Induced Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Impacts</td>
<td>($3,697,259.78)</td>
<td>($266,185.36)</td>
<td>($3,963,445.15)</td>
</tr>
<tr>
<td>Total Household Income Impacts</td>
<td></td>
<td></td>
<td>$83,639.52</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td></td>
<td></td>
<td>($4,047,084.67)</td>
</tr>
<tr>
<td>Total Employment Impacts (jobs)</td>
<td></td>
<td></td>
<td>(41)</td>
</tr>
</tbody>
</table>

\textsuperscript{12} All prices adjusted to 1996 values for model consistency.
Table 19. Economic Impacts of TS Ranch Alfalfa Hay Production Increases/Decreases and Gold Mine Production in Eureka County, All Years \(^{13}\).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alfalfa Hay</td>
<td>$12,919</td>
<td>$2,603,368</td>
<td>$2,603,788</td>
<td>$2,603,788</td>
<td>$2,603,788</td>
<td>($3,699,795)</td>
</tr>
<tr>
<td>3 Range Cattle</td>
<td>$5,774</td>
<td>$5,215</td>
<td>$5,403</td>
<td>$5,403</td>
<td>$5,403</td>
<td>$1,177</td>
</tr>
<tr>
<td>10 Other Agricultural Production</td>
<td>$1,070</td>
<td>$937</td>
<td>$972</td>
<td>$972</td>
<td>$972</td>
<td>$259</td>
</tr>
<tr>
<td>13 Hay and Pasture</td>
<td>$3,719</td>
<td>$3,355</td>
<td>$3,476</td>
<td>$3,476</td>
<td>$3,476</td>
<td>$763</td>
</tr>
<tr>
<td>26 Agricultural Services</td>
<td>$268,890</td>
<td>$241,151</td>
<td>$249,888</td>
<td>$249,888</td>
<td>$249,888</td>
<td>$57,244</td>
</tr>
<tr>
<td>30 Other Mining</td>
<td>$1,613,933</td>
<td>$1,218,815</td>
<td>$1,271,255</td>
<td>$1,271,255</td>
<td>$1,271,255</td>
<td>$670,196</td>
</tr>
<tr>
<td>31 Gold Ores</td>
<td>$1,013,289,222</td>
<td>$765,043,146</td>
<td>$797,966,999</td>
<td>$797,966,999</td>
<td>$797,966,999</td>
<td>$421,025,698</td>
</tr>
<tr>
<td>48 Construction</td>
<td>$5,602,000</td>
<td>$4,285,882</td>
<td>$4,467,903</td>
<td>$4,467,903</td>
<td>$4,467,903</td>
<td>$2,247,199</td>
</tr>
<tr>
<td>441 TCPU</td>
<td>$1,815,076</td>
<td>$1,374,688</td>
<td>$1,433,664</td>
<td>$1,433,664</td>
<td>$1,433,664</td>
<td>$748,044</td>
</tr>
<tr>
<td>447 Trade</td>
<td>$3,432,761</td>
<td>$2,625,728</td>
<td>$2,737,266</td>
<td>$2,737,266</td>
<td>$2,737,266</td>
<td>$1,377,811</td>
</tr>
<tr>
<td>456 F.I.R.E</td>
<td>$1,641,070</td>
<td>$1,260,662</td>
<td>$1,313,984</td>
<td>$1,313,984</td>
<td>$1,313,984</td>
<td>$650,960</td>
</tr>
<tr>
<td>463 Hotels and Lodging Places</td>
<td>$136,797</td>
<td>$103,858</td>
<td>$108,303</td>
<td>$108,303</td>
<td>$108,303</td>
<td>$56,017</td>
</tr>
<tr>
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<td>$864,491</td>
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<tr>
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<td>$355,255</td>
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<td>$136,544</td>
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<tr>
<td>0 Households</td>
<td>$37,443,381</td>
<td>$28,328,649</td>
<td>$29,545,261</td>
<td>$29,545,261</td>
<td>$29,545,261</td>
<td>$15,474,253</td>
</tr>
</tbody>
</table>

Total Industry Impacts $1,029,042,977 $779,711,437 $813,147,161 $813,147,161 $813,147,161 $423,608,512

Total household Income Impacts $37,443,381 $28,328,649 $29,545,261 $29,545,261 $29,545,261 $15,474,253

Total Economic Impacts $1,066,486,358 $808,040,085 $842,692,422 $842,692,422 $842,692,422 $439,082,765

Total Employment Impacts (jobs) 4,099 3,123 3,256 3,256 3,256 1,662

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2050</th>
<th>2020</th>
<th>2030</th>
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<td>1 Alfalfa Hay</td>
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<td>($1,034)</td>
<td>($1,222)</td>
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<tr>
<td>10 Other Agricultural Production</td>
<td>$259</td>
<td>($150)</td>
<td>($185)</td>
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<tr>
<td>13 Hay and Pasture</td>
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<td>($401)</td>
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<td>31 Gold Ores</td>
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<td>$1,132,973</td>
<td>($83,640)</td>
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</tr>
</tbody>
</table>

Total Industry Impacts $423,608,512 $29,472,280 ($3,963,445) ($3,963,445) ($3,963,445)

Total household Income Impacts $15,474,253 $1,132,973 ($83,640) ($83,640) ($83,640)

Total Economic Impacts $439,082,765 $30,605,253 ($4,047,085) ($4,047,085) ($4,047,085)

Total Employment Impacts (jobs) 1,662 92 (41) (41) (41)

\(^{13}\) All prices adjusted to 1996 values for model consistency.