

*Congressional Testimony
on the U.S. Mining Act
of 1872*

ISBN # 1-886306-08-7

prepared for
Nevada Policy Research Institute
by
John L. Dobra, Ph.D.
Associate Professor of Economics
Senior Research Fellow, Nevada Policy Research Institute

In April 1993, John Dobra was requested to testify before Congress to defend the Mining Act of 1872. NPRI has produced this testimony as a public service to policy makers and the mining industry

Policy Papers are published for educational purposes only, and the authors speak for themselves. Nothing written here is to be construed as necessarily representing the views of Nevada Policy Research Institute or as an attempt to influence any election or legislative action.

Nevada Policy Research Institute is a public policy center serving Nevada and the nation. Established in 1991, its mission is to marshal the best research and analysis on today's governmental, economic, educational and environmental issues, and to build consensus on strategies for resolving them consistent with the truth of the Declaration of Independence. Issue Papers and other publications covering the items mentioned can be ordered from our office.

Nevada Policy Research Institute
P.O. Box 20312
Reno, NV 89515-0312
702-786-9600

ABOUT THE AUTHOR

John Dobra, Associate Professor of Economics at the University of Nevada, Reno, received his Ph.D from Virginia Poly Technic Institute in 1980. He has written monographs for several professional journals on the subjects of public choice, public finance, industrial organization and public policy. He resides in Reno with his wife Joy, daughter Jessica and son Matt.

News

NEVADA POLICY RESEARCH INSTITUTE

P.O. BOX 20312
RENO, NEVADA 89515-0312
702-786-9600

For Immediate Release

May 20, 1993

Contact: Judy Cresanta or John
Dobra

702/786/9600

Fax/786/9604

NPRI RESEARCH FELLOW TESTIFIES BEFORE CONGRESS ON U. S. MINING ACT OF 1872

John Dobra, Ph.D., Director of the Natural Resource Industry Institute and Senior Research Fellow for Nevada Policy Research Institute recently returned from Washington, D.C. where he delivered testimony before the House Committee on Natural Resources regarding President Clinton's proposed 12.5% royalty on hard rock mining. The legislation would significantly alter the U.S. Mining Act of 1872 - a statute which has historically encouraged prospecting, development and extraction of minerals in the public domain for more than 120 years. "The proposed legislation would have both long and short term effects," said Dobra. "In the short run, the impact will be modest since many major U. S. gold and copper mines operate on land that is patented, and many operators on unpatented land can shift to higher grade ores to lower costs and maintain production. But, after 1995 the royalties will have a very severe impact." According to Dobra, it will be the American blue collar worker, most often a union member, who will be most affected. Beyond the toll on workers, an across-the-board decline in gold output is expected in the United States. This decline could go as high as 32.3% nationally and 29.5% in Nevada.

According to Dr. Dobra, the gross royalty will result in the "wasting" of a significant proportion of U.S. precious metals resources. This "wasting" will occur because in the face of higher production costs resulting from the gross royalty, producers will raise their cut off grades, leaving millions of ounces of lower grade material in the ground.

###

Executive Summary

Congressional Testimony on the U.S. Mining Act of 1872

- Possible changes made to the U.S. Mining Act of 1872--a statute that has encouraged prospecting, development and extraction of minerals in the public domain for more than 120 years--would introduce an 8% gross proceeds royalty on hard-rock minerals extracted from Federal land. The Clinton budget proposes a 12.5% royalty.
- The short term effect regarding the proposed changes would exert only a modest effect on mining companies' earnings in the 1994-95 period. With only a few exceptions, the major U.S. gold and copper mines operate on land that is patented--or otherwise non-Federal. Beyond 1995, however, the impact of a royalty and other provisions would be more severe.
- Mid-cost mines, which include 16 mines, expected to produce 38.8 million ounces, or over one-half of national production from 1992 to 2000, are put into jeopardy by this gross royalty proposal. This group's minimum required sales price is currently \$340 per ounce without gross royalty which, with the benefit of forward sales, allows them to break even or do so slightly better at current prices. With the gross royalty, this group's minimum required sales price rises \$48 to \$388 per ounce.
- Using three criteria, (production costs, reserves and land status), the list of 38 operating mines in the U.S. for which we have long run operating data was reduced to a list of 20 mines expected to still be in operation in the year 2000.
- This legislation will have its greatest impact on American working people who drive trucks, operate shovels and maintain equipment. The professional staffs of these companies will be less affected since they will be developing, designing and overseeing operations in other parts of the world. Hence, it will be the blue-collar worker, often a union member, who will bear the burden of this legislation.
- If a gross royalty is imposed, total U.S. gold output is expected to decline by 23.5 percent and a similar decline is expected in Nevada. A somewhat higher decline in production from public lands is expected: 32.3 percent nationally, and 29.5 percent in Nevada.
- The gross royalty will result in the "wasting" of a significant proportion of U.S. precious metals resources. This "wasting" will occur because in the face of higher production costs resulting from the gross royalty, producers will raise their cut-off grades, leaving millions of ounces of lower grade material in the ground.

Congressional Testimony

On the U.S. Mining Act of 1872

This testimony is primarily concerned with the impacts of section 410 of H.R. 322 which calls for a gross royalty of no less than eight percent of the gross income from the production of locatable minerals. Because recent attention has focused on a proposed 12.5 percent gross royalty, the following analysis of the gross royalty proposal uses that percentage. An 8 percent gross royalty is analyzed in a recently completed study with my co-author, Paul Thomas, Vice President of the Economics Institute at the University of Colorado, Boulder. The study, entitled *The U.S. Gold Industry, 1992*, was conducted by the Economics Institute, University of Colorado, Boulder and the University of Nevada, Reno. It should be added that although he is not here, Paul Thomas has assisted in the preparation of this testimony.

The data used in this testimony came from a 1992 survey of U.S. gold producers conducted with the cooperation of The Gold Institute and covers approximately 90 percent of primary U.S. gold production.

The major points of this testimony are covered in the three sections:

1. The first objective is to show the immediate impact of the proposed gross royalty on the U.S. precious metals industry's cost structure and financial viability.
2. The second objective is to show the longer term impact of the proposed gross royalty. This analysis used data on reserves, production costs and land status to determine which mines are likely to be operating in the year 2000.
3. Finally, the last section offers some concluding comments on tax equity and efficiency considerations and the implications of the gross royalty provisions of H.R. 322 for U.S. natural resource policy.

It should be pointed out that throughout these analyses we have used the current spot price of gold because my professors taught me, and I teach my students, that today's price is the best predictor of future prices. Any other assumed price would be speculative. In addition, we have not considered hedging gains because these gains (or losses) are not from the production of minerals which is the basis for the gross royalty described in section 410 of the Act. Hedging is a financial transaction engaged in to reduce investors' downside risks. Generally, these financial transactions are not even conducted by the same companies involved in mineral production.

1. Short Term Impacts of the Proposed 12.5 Gross Royalty

In the analysis of short term impacts, we have included all mines for which we have data regardless of whether or not they operate on patented or unpatented mining claims. There are several reasons for this decision: First, although most analysts that we have talked to believe that the gross royalty proposed in pending legislation would only affect mines on unpatented claims, there are contrary views. In addition, the problem of determining how much production comes from patented and unpatented claims is fairly complex. Although some mines are 100 percent patented or unpatented, many have a mix of claims. Consequently, as a first approximation of the impacts of the gross royalty, we are looking at how a cost increase of the magnitude of the proposed gross royalty would affect the economic viability of the industry. In later sections we look at differentials in impacts related to land status.

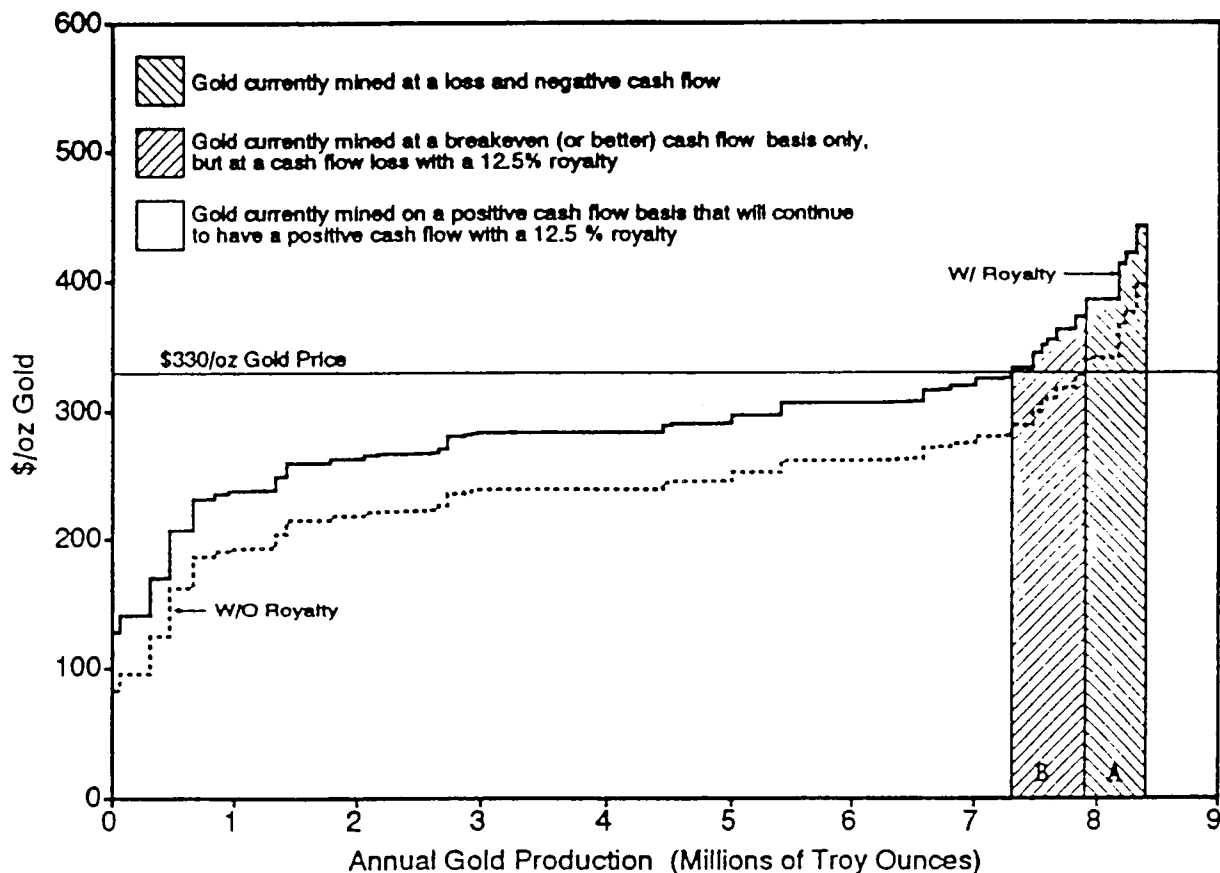
To show the impacts of the proposed 12.5 percent gross royalty, the first thing to consider is the short term impact on operators' cash costs. Cash costs do not reflect profitability because they do not include the cost of recovering capital investments. Cash costs simply reflect current obligations like labor, materials, energy, etc.

The U.S. precious metals industry cash cost curve is shown on Graph 1 titled, *Effect of 12.5 Percent Gross Royalty on 1992 Cash Costs*. The curve is a step function in which the width of each horizontal segment represents the planned 1992 production of one mine. The height of each segment represents the level of cash costs for that mine. The lower, dashed curve represents these producers' cash costs with a 12.5 percent gross royalty.

At the current price of \$330 per ounce, represented by the horizontal line drawn onto the graph, mines to the right of point A are currently operating with a negative cash flow and, according to some analysts, should already be closed. The increased losses resulting from the gross royalty are likely to hasten that decision.

Mines on the curve between points A and B are currently operating on a breakeven (or better) cash flow basis, **although it is important to recognize that none of the mines in this range of the curve are profitable in the sense of generating even a modest return on investment in the long run at current prices.** With the proposed 12.5 percent gross royalty, these mines will be pushed into a negative cash flow situation like those to the right of point A and are in imminent danger of closure.

**GRAPH 1:
EFFECT OF 12.5 PERCENT GROSS ROYALTY ON 1992 CASH COSTS**

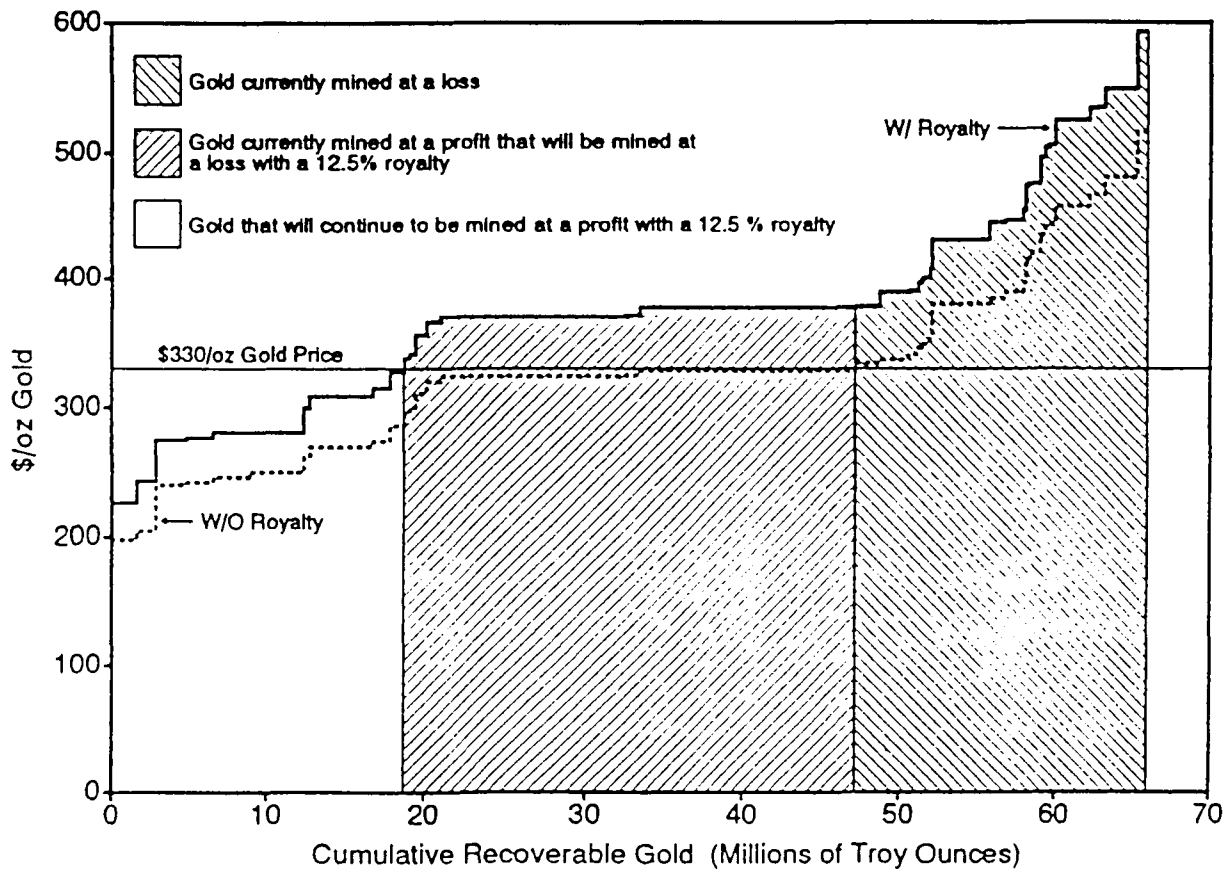


Graph 2, titled *U.S. Gold Reserves Recoverable at a Profit: Base Case and With a 12.5 Percent Gross Royalty*, shows the impacts of the proposed gross royalty on industry profitability. Like the cash cost curve, the width of each segment of the step function represents the production of one mine, and the height reflects that mine's costs.

There are, however, two important differences between the cash cost curve and Graph 2. First, the cost levels on Graph 2 are long run average total costs and include recovery of capital investment in the mine and a modest, 9 percent rate of return on investment to reflect the opportunity cost of capital. For this reason, the curve represents the minimum price required for each mine to break even on a long term basis. The second important difference between the two curves is that the cash cost curve represents 8.3 million ounces of gold produced in 1992 while the total cost curve represents 65.3 million ounces of cumulative production from 1992 to 2000 by the 38 mines included in the analysis. Hence, Graph 2 represents future production from proven U.S. reserves.

At a gold price of \$330 per ounce and without a gross royalty, the graph shows that approximately 47 million ounces of gold, worth over \$15.5 billion can be produced at a profit. When the cost curve shifts up as a result of the gross royalty, however, the quantity of gold that can be produced at a profit falls to approximately 19 million ounces.

**GRAPH 2:
U.S. GOLD RESERVES RECOVERABLE AT A PROFIT:
BASE CASE AND WITH A 12.5 PERCENT GROSS ROYALTY**



These results are reinforced by an analysis of Table 1, which breaks the industry into three cost groups: High-cost producers with long run average total costs (LRATC) over \$400 per ounce; mid-cost producers with LRATCs between \$301 and \$400; and low-cost producers with LRATCs of \$300 or less. The table shows the increases in the LRATC of these groups with royalties of 2, 4, 6, 8, 10 and 12.5 percent. Again, the LRATC represents the minimum required sales price of gold for the operation to break even.

**TABLE 1:
INCREASE IN WEIGHTED AVERAGE LONG RUN AVERAGE TOTAL COSTS (LRATC)
FOR THE U.S. GOLD INDUSTRY FROM A GROSS PROCEEDS ROYALTY
DISAGGREGATED BY COST CATEGORY**

	No. of Mines	Cumulative Production 1992 - 2000 (Mil. Ozs.)	LRATC (\$/Oz.)	Increase in LRATC (\$/Oz.)	Marginal Increase in LRATC (\$/Oz.)
INDUSTRY TOTAL	38	65.3	331		
LOW-COST MINES					
LRATC < \$300/oz.	12	19.1			
<i>Gross Proceeds Royalty (%)</i>					
Without Royalty			257		
2			262	+5	
4			267	+10	+5
6			273	+16	+6
8			279	+22	+6
10			285	+28	+6
12.5			294	+37	+9
MID-COST MINES					
LRATC \$301-\$400/oz.	16	38.6			
<i>Gross Proceeds Royalty (%)</i>					
Without Royalty			340		
2			347	+7	+7
4			354	+14	+7
6			361	+21	+7
8			369	+29	+8
10			377	+37	+8
12.5			388	+48	+11
HIGH-COST MINES					
LRATC > \$400/oz.	10	7.4			
<i>Gross Proceeds Royalty (%)</i>					
Without Royalty			479		
2			483	+10	+10
4			498	+20	+10
6			504	+27	+11
8			516	+42	+11
10			527	+54	+12
12.5			542	+69	+15

In the high-cost category are 10 mines accounting for 7.5 million ounces of cumulative production between 1992 and 2000. These are also the same mines that find themselves in a negative cash flow situation described above. While we cannot predict what the operators of these mines will do in the face of a 12.5 percent gross royalty, it is hard to believe that they will stay open. Their group average minimum required sales prices will rise from \$473 per ounce to \$542, making the chances of recovering their capital investments fairly remote.

At the other extreme, the 12 low-cost mines, accounting for 19.1 million ounces of cumulative production, will see their minimum required sales prices rise from \$257 to \$294 per ounce. While these mines will continue to make a profit with the proposed gross royalty, they are getting close to a notoriously volatile gold price.

Perhaps the key point, however, is that the mid-cost mines, which include 16 mines, expected to produce 38.8 million ounces, or over one-half of national production from 1992 to 2000, are put into jeopardy by this gross royalty proposal. This group's minimum required sales price is currently \$340 per ounce without gross royalty which, with the benefit of forward sales, allows them to break even or do so slightly better at current prices. With the gross royalty, this group's minimum required sales price rises \$48 to \$388 per ounce.

It is important to note that this does not imply that there will be immediate mass closures of mines if this proposal is adopted. Clearly, however, mines which are currently experiencing negative cash flow at current prices are likely to read this as a death notice. While only five or six of the mines in our database are currently in that situation, the proposed 12.5 percent gross royalty will, at a minimum, triple that number.

More significantly, however, the proposed 12.5 percent gross royalty will have a significant adverse impact on the major base properties of the U.S. gold industry.

2. Long Term Impacts of the Proposed Gross Royalty

The objectives of this section are to focus on the long term impacts of the gross royalty proposal on production, employment, and payrolls nationwide and in Nevada.

In projecting the impact of the proposed gross royalty, we have focused on what the U.S. gold industry will look like in the year 2000 if this gross royalty is passed. To determine which mines are likely to still be operating in 2000 a three step filtering process was employed. The criteria used were:

a. Production Costs

Mines with production costs over \$450 after the imposition of the gross royalty were assumed to close unless continued operations appear likely based on the two following criteria, i.e., unless they have large reserves and are on private land.

b. Reserves

Mines without sufficient reserves to maintain current levels of production through 2000 were assumed to close. Experience has shown that reported reserves can be misleading since many mines operating today report as many or more reserves than when they opened. However, the assumption employed is that unless the mine has extremely low production costs or is on private land, the gross royalty will make it unlikely that new reserves will be developed because higher returns will generally be available from developing reserves on private lands or in foreign countries. The combination of low gold prices, the unsecured nature of property

rights in mineral resources on public lands resulting from mining law reform, and finally, the inequitable gross royalty proposed by H.R. 322, will make development of new reserves on U.S. public lands impractical.

c. *Land Status*

In general, if mines are known to be operating on private land it was assumed that they would continue operating through 2000 unless they gave reported insufficient reserves or extremely high costs. In cases where the land status of a mine was unknown, it was assumed that the mine would pay a gross royalty. As it turned out, no mines were projected to close purely on the basis of land status, however land status combined with high costs and low reserves did lead us to project the closure of numerous properties.

Using these criteria, the list of 38 operating mines in the U.S. for which we have long run operating data was reduced to a list of 20 mines expected to still be in operation in 2000. Table 2, below, provides summary data for these mines in 1992 and projected data for 2000. Note that in making these projections we have assumed that these mines will not cut back on their rates of production, employment and payrolls. This assumption is almost certainly incorrect, making this an "optimistic" projection.

Table 2 shows precious metals production, employment and payrolls (for mine and mill workers only) broken down four ways: Total U.S.; Public Lands; Total Nevada; and Nevada Public Lands. We point out that we have only included mine and mill workers employment and payrolls to make an important point about the impact of the proposed gross royalty: This legislation will have its greatest impact on American working people who drive trucks, operate shovels and maintain equipment. The professional staffs of these companies will be less affected since they will be developing, designing and overseeing operations in other parts of the world. Hence, it will be the blue-collar worker, often a union member, who will bear the burden of this legislation.

As would be expected, the impacts on mines on public lands is greater than the total. Total U.S. gold output is expected to decline by 23.5 percent and a similar decline is expected in Nevada. A somewhat higher decline in production from public lands is expected: 32.3 percent nationally, and 29.5 percent in Nevada.

Differentials in the impact on private versus public lands for employment and payrolls are significantly greater because of the expected closure of numerous small, high cost, low reserve properties on public lands. U.S. public land mine and mill employment and payrolls are expected to decline by approximately 47 percent. Expected declines in Nevada public land employment and payrolls are expected to be around 44 percent.

The large impact on U.S. silver production in all categories results from the fact that all silver production accounted for here is by-product production and, by coincidence, happens to be produced by the higher costs mines with lower levels of reserves. Low prices, combined with low cost foreign production, have closed U.S. primary silver producers.

3. Concluding Comments

Generally accepted principles of taxation hold that taxes, or in this case a gross royalty, should promote allocative efficiency and achieve horizontal and vertical tax equity. The promotion of allocative efficiency involves not distorting producers' decisions which, in many cases refers to reductions in output and employment that result from taxation. Principles of horizontal and vertical tax equity are related to ability to pay: Those with equal ability to pay should pay the same and those

with greater ability to pay should pay more.

**TABLE 2:
U.S. PRECIOUS METALS INDUSTRY, 1992 AND 2000
WITH A 12.5 PERCENT GROSS ROYALTY**

	1992	2000	Percent Change
U.S. TOTALS			
Gold Production (1,000 ozs.)	7,686	5,882	-23.5
Silver Production (1,000 ozs.)	13,917	1,688	-87.9
Employment	11,679	8,611	-26.3
Payrolls (\$1,000)	\$519,040	\$384,380	-25.9
U.S. PUBLIC LAND TOTALS			
Gold Production (1,000 ozs.)	5,391	3,650	-32.3
Silver Production (1,000 ozs.)	13,570	1,341	-90.1
Employment	6,224	3,287	-47.2
Payrolls (\$1,000)	\$268,059	\$140,459	-47.6
NEVADA TOTALS			
Gold Production (1,000 ozs.)	5,738	4,461	-22.3
Silver Production (1,000 ozs.)	12,527	426	-96.6
Employment	7,845	5,995	-23.6
Payrolls (\$1,000)	\$365,800	\$283,807	-22.4
NEVADA PUBLIC LANDS TOTAL			
Gold Production (1,000 ozs.)	4,337	3,059	-29.5
Silver Production (1,000 ozs.)	12,508	408	-96.7
Employment	4,562	2,550	-44.1
Payrolls (\$1,000)	\$199,479	\$112,028	-43.8

Holding the proposed gross royalty up to these standards yields fairly disappointing results. From an equity standpoint, equally profitable mines producing different levels of production will pay different royalties. Hence, the proposal is not horizontally equitable. In addition, larger unprofitable mines will pay higher royalties than small, highly profitable mines. Hence, the proposal is also vertically inequitable, and fails both tests of tax equity.

With respect to the implications of the gross royalty for allocative efficiency, the analysis of the long term impacts in section 2, suggests that the proposed gross royalty will generate significant inefficiencies. Job losses and payroll reductions between 40 and 50 percent at operations on public

lands by the turn of the century is a very significant burden for the economies of producing states like Nevada to bear. Also recall that this is a optimistic projection because we have assumed that operations on public lands will continue their current levels of staffing and production with the gross royalty. It is not unlikely that with this gross royalty and current prices, U.S. production from public lands could fall to one third of its current level by the end of this decade, eliminating a similar proportion of the jobs now created.

It should also be pointed out that a modest royalty or net income would not have the serious tax equity and allocative efficiency problems associated with the proposed gross royalty.

As a result of the large cutback in gold production from public lands that we foresee as a consequence of the proposed gross royalty, estimates of the revenue that the gross royalty would raise are highly suspect. For example, estimates by the National Wildlife Federation (NWF) which estimate close to \$400 million (*The Last Free Lunch on the Old Frontier: Hardrock Mining and the Reform of the 1872 Mining Law*) is a case in point. We suspect that the NWF has over estimated gross royalty revenues from gold by a factor of 2 and revenues from silver by a factor of 36.

In the case of copper production, the NWF estimates assume that 25.5 percent of U.S. copper production comes from public lands, and estimate that differs substantially from what we have been told by copper producers. Copper producers and industry analysts that we have contacted have consistently maintained that the percentage of copper from public lands is small. We believe that the NWF has over stated revenues from copper royalties by at least a factor of 5, and probably more. Since copper and gold are the two biggest revenue producers (silver is the fourth largest) we think that the NWF estimate is grossly overstated. Even more modest revenue estimates, like the \$277 million administration estimate, are difficult to substantiate. One Wall Street analyst (Leanne Baker, Salomon Brothers, *U.S mining Law of 1872 - (Costly) Change Coming*, March 8, 1993) projects revenues of "no more than \$100 million," an estimate which we would give more credence.

From the standpoint of natural resource policy, which is both the purview of this Committee and the interest of the scholars associated with the Natural Resource Industry Institute at the University of Nevada, Reno, the gross royalty provisions in section 410 of H.R. 322 represent a serious threat to U.S. mineral production capabilities. The gross royalty will result in the "wasting of a significant proportion of U.S. precious metals resources. This "wasting" will occur because in the face of higher production costs resulting from the gross royalty, producers will raise their cut-off grades, leaving millions of ounces of lower grade material in the ground. Hence, jobs are lost, and the wealth of the American people is reduced.