

THE MINING SITUATION IN  
DEATH VALLEY NATIONAL MONUMENT

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National Park Service

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ABSTRACT

Surface mining and other activities on mining claims are rapidly and irreversibly destroying the unique and fragile natural desert features of Death Valley National Monument.

The only minerals being produced and the only minerals occurring in the Monument with production potential are borates and talc. Production of these minerals are not, and cannot be predicted to be, critical to the Nation's mineral needs during most of the next 100 years.

Speculation on even higher mineral price increases is leading to location of nearly 400 new mining claims each year and mineral development, such as road work and surface cuts, to accomplish assessment work, to provide access and attract someone to explore the ground. In most cases this activity is not warranted by the mineral potential of the areas involved, especially the poor potential for the metallic minerals often sought.

Legislation has been introduced in Congress to prohibit further location of mining claims in Death Valley National Monument and other National Park areas, extinguish invalid mining claims and regulate mining on existing valid claims. The Department of the Interior, of which the National Park Service is a part, strongly endorses the legislation.

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## MINING SITUATION IN DEATH VALLEY NATIONAL MONUMENT

### Introduction

Prospecting and mining activity in Death Valley National Monument, California and Nevada, has significantly expanded. As a result, the natural, scenic, scientific and educational features which the Monument was established to protect are being irreparably destroyed at an ever increasing rate.

The greatest impact on the Monument is from employment of open pit or strip mining methods used in mining borate and talc deposits in the Monument beginning in 1971.

Open pit and strip mines with associated dumps are permanently destroying well over 100 acres of the Monument's lands each year. Prospecting, exploration, work on mine access roads and minimum work which must be done to retain legal right to mining claims (assessment work) is marrying many hundreds of acres of additional lands, widespread through the Monument. Impact on park values or other resources, of course extends far beyond the acreage disturbed.

Surface disturbance accelerates both water and wind erosion, affects wildlife habitat for several rare species, including the Desert Bighorn Sheep and fragile Death Valley plant life which includes 36 species which exist no place else.

Some of this land could be partially restored at a high cost if funds were available, but restoration of pristine features in the arid environment of Death Valley, in most cases, will not take place by natural forces and cannot be accomplished by artificial means. Vanished species cannot be replaced.

Existing regulations make no requirement that mining interest protect or attempt to reclaim the natural features on their mining claims.

### Mineral Production

Borates. Open pit mining of borates by Tenneco Mining, Inc., a subsidiary of Tenneco Oil Co., is the first large scale production of borates from the area of Death Valley National Monument. The prior history of borate

mining in the Monument, with all of its "20-mule team" fame, is pale by comparison. U. S. Borax & Chemical Corp., with its long history of mining borates at Ryan outside of the Monument, where reserves of colemanite (calcium borate) still remain that are double current reserves within the Monument (California Division of Mines and Geology, Special Report 125, pages 28 and 29), also retains borate reserves and resources in the Monument, although it is not currently mining in the Death Valley area. U. S. Borax is a subsidiary of Rio Tinto Zinc Corp., Ltd (RTZ).

Total borate production from the salt flats, 1883 to 1888, is estimated to have been 12,500 tons and total production from the area that now comprises Death Valley National Monument from 1888 until 1971 was 8,260 tons (Bureau of Mines, in House Subcommittee on Appropriations hearing on 9/30/75). Grand total of borates, then, produced from within the area of the Monument during the 88 years prior to initiation of production by Tenneco in 1971 is estimated at 20,760 tons.

By contrast, the grand total of pre-1971 production of borates (contained boric oxide,  $B_2O_3$ ) from the area now comprising the Monument today is matched every 3 days by U. S. Borax from its Boron, California deposits; matched every 20 days by Kerr-McGee from its Searles Lake deposits and matched every 42 days by Tenneco from its deposits in the Monument. The role of borate production from the Monument to United States borate production is shown on Attachment A.

Borate minerals mined by Tenneco include colemanite and ulexite (sodium-calcium borate). The borates are mainly used in production of structural glass fiber and insulation. Colemanite, because of its desired ratio of calcium to boron, is advantageous in manufacturing of heat-resistant glass and glass fiber. Other borate minerals and compounds are also used for the same purpose. In the United States colemanite and ulexite represent an estimated 6% of boron minerals and compounds used.

Tenneco produces from two open pit operations in the Monument in the upper Furnace Creek area near Ryan, the Boraxo Mine, now 3000 feet by 600 feet and 280 feet deep, and the Sigma Mine, 500 feet by 400 feet and 75 feet deep. The Boraxo Mine pit, stockpile and waste dumps will occupy an area of over 300 acres when mining is completed at a depth of over 400 feet during 1977. Total mine life will be  $6\frac{1}{2}$  years.

The Boraxo Mine spoil or waste dumps are highly visible from State Highway 190 and from the scenic highway to the Dantes View overlook. Other Tenneco deposits in the same general area have reserves or resources but have not been developed for production. Development of the largest of these deposits, the Billie, would threaten a portion of the highway to Dantes View. Mineral rights to a large portion of the Billie deposit were in dispute, but may be resolved. Tenneco is studying the feasibility of underground methods for mining its deposits in the upper Furnace Creek area.

Tenneco intends to explore all of the potential borate areas in the Monument and during June 1975 located claims in the Gower Gulch area, a scenic canyon immediately to the southwest of famed Zabriskie Point. The company earlier this year applied for a permit to use the scenic trail that leads from Zabriskie Point to Gower Gulch for trucks to move mining supplies to the claims. The permit was denied. About the same time Tenneco also located claims one mile northeast and in full view of the Monument's Visitor Center and main campground at Furnace Creek, but the claims were contested and were declared null and void on April 30, 1976.

Tenneco's production from borate mines in the Monument is currently estimated at 200,000 tons per year (25%  $B_2O_3$ ).

Talc mining in the Monument began about the time the Monument was founded. It became securely established in the Monument during World War II. Since then, demand for talc, for paint, ceramics and other uses, mainly in the Los Angeles area, has resulted in a steady growth in talc production from the Monument. Production has averaged over 100,000 tons per year during recent years. Since 1973, virtually all underground mining of talc in the Monument ceased and production has since been from strip or open pit mines, which recovers only upper portions of deposits and therefore accelerates rate of surface destruction. Production from the Monument since 1973 has increased near 145,000 tons even though California production dropped by 7%.

The impact on the environment in the talc mining areas of Warm Spring and Galena Canyons has been devastating. Surface mining has, since 1973, destroyed all park values on areas totaling 200 acres, more than doubling the area previously disrupted by talc mining. Talc pits and talcose dumps, because of the vivid white contrast in an area of dark rocks, are highly visible.

Johns-Manville Corp. started an open pit operation in Warm Spring Canyon that reached its economic depth (100 feet) after two years of operation. The pit is now being enlarged and could threaten the Park Service road. The huge dump created threatens to block the road and the canyon drainage. The pit and its dumps and two other strip mines nearby now dominate the scene in Warm Spring Canyon. More natural surface features have been obliterated during the three years than the corporation's underground mining accomplished in the canyon during 35 years of operation.

Pfizer, Inc.'s mines in Galena Canyon, which are high on the south side of the canyon, are visible from a distance of 35 miles. The shallow and thin deposits are now engulfing the surface at the unprecedented rate of 6 acres for each 10,000 tons of mineral mined--by comparison Tenneco's rate of surface destruction is near one acre for each 10,000 tons.

Cyprus Industrial Minerals Corp., since October 1972, doubled the surface area disrupted at its Samson-Ibex Mine in the Ibex Hills, which is on a mountain ridge and visible from a large area in the southern part of the Monument, Cyprus since that time has also doubled the mining area of its Panamint Mine high on the ridge between Galena and Warm Spring Canyons where the talc deposit is being stripped by benching off the mountain top although not as visible because the waste rock is a dark color.

Borates and Talc represent the total of current mineral production from Death Valley National Monument. Their production in the Monument has a gross market value estimated at twelve million dollars annually, a seven-fold increase over the average annual mineral production for the period 1940-1970. Although there is a current slump in both borate and talc markets, production is expected to increase by more than 50% within four years.

#### Activity Related to Metallic Minerals

Within the Monument a century of intense prospecting, development and re-development during periods of high metal prices--with very little mineral production--proves that the area has low potential for metallic minerals.

Not a single deposit or occurrence of metallic minerals is in production. There is no record that there has been any metallic production from the Monument, except for a few test lots that proved not to be of ore grade, since 1969 in spite of the increasing in metal prices. Total metallic mineral production during the 43 years since the Monument was founded has been only \$3.2 million at prices prevailing (from Bureau of Mines in testimony before the House Subcommittee on Appropriations on 9/30/75 and other shipping records). A tabulation of this production is shown on Attachment B.

Sampling of metallic occurrences accomplished in company of claimants by National Park Service mining engineers (government mineral examiners) during the past 3½ years on 60 claimant groups involving 573 unpatented mining claims have failed to indicate a single valid mining claim.

For all the popular literature on Death Valley concerning borax mines, gold mines and other mines and mineral occurrences, the total value of mineral production from the area included in the Monument for the entire 1882-1940 period is estimated at only five million dollars. Death Valley National Monument contributed only 2% of the mineral production of Inyo County for the period.

### Open Pit and Strip Mining

It is doubtful if anyone envisioned the massive open pit or strip mines in Death Valley National Monument at the time it was opened to mining on June 13, 1933 by an Act of Congress, four months after its establishment by Presidential Proclamation on February 11, 1933. In fact, based on the small mineral production of the previous period, Secretary Ickes stated to Congress that opening Death Valley to mining "would in no way interfere with the preservation of the characteristic of the area sought to be preserved". There was very little if any mining in the Monument at the time. The Depression and the Gold Act brought a resurgence of gold mining that continued until World War II shortages brought a halt to it.

At present, there are nine open pit mines in the Monument, which include the two borate mines operated by Tenneco, and seven talc mines, operated by Johns-Manville, Pfizer and Cyprus. Johns-Manville and Cyprus, each in addition, operate an underground mine.

With the massive material-moving equipment available today, open pit mining is the most economical method. However only that small part of the deposits of borates and talc near the surface in the Monument can be removed by this method because the deposits plunge to depths that are not economic to mine by this method. For borate and talc deposits in Death Valley, when the amount of waste rock removed reaches over ten to fifteen times the amount of mineral mined, mining, if it is to continue, will have to revert to underground methods at depths beyond 50 to 400 feet depending on the size and position of the deposit.

Waste dumps and stockpile areas adjacent to open pits occupy more land area than the pits. The stacked material has a greater visual impact than the pits, especially at the talc mines because of contrast to the dark colored rock of the area.

### Mining Claims

The current inventory of claims in which an active interest is maintained totals 1,995. Of these, 137 claims are patented and 1,858 claims are unpatented. Currently ten of the unpatented claims are being considered for patent. An estimated 77% of the unpatented claims are held by claimants performing the minimum work required by law to hold a claim, speculating that even higher mineral values will make mineral occurrences economical to explore or mine.

A total of 580 claims are located in the borate and talc areas and held by the producing companies and U. S. Borax; 67 of these are patented. Total area covered by the unpatented claims throughout the Monument is about 52,000 acres. Patented and other private mineral interests is held on an additional 10,288 acres.

The aggregate damage to the natural features in performance of the annual labor required to hold unpatented claims can be equated to open pit mining. Although disturbance is small on any one claim or claim group, it is annual and the claims are scattered throughout the Monument.

New mining claims are being located at a rate of near 400 per year. Some claims are being abandoned, but at a rate less than new claim location.

### Mineral Resources

Borates and talc represent the only mineral reserves and predictable mineral production potential in Death Valley National Monument.

Borate reserves, resources and potential are limited to the Furnace Creek area consisting of about 20,000 acres.

Best talc reserves, resources and potential are in Warm Spring Canyon-Galena Canyon area consisting of about 10,000 acres where all three talc producing companies operate. Good talc reserves and resources are in the Ibex Hills in the south area of the Monument and some reserves and resources remain in the Cottonwood Mountains in the northwest area of the Monument.

Tenneco, after five years of operation, has captured 5% of the domestic market for borate minerals and compounds used in glass. Its production represents near 80% of the United States market for colemanite. Colemanite is advantageous in increasing fluidity in forming finer glass fibers; however, larger reserves are held by U. S. Borax outside of the Monument. Other boron minerals and compounds can be substituted for colemanite, but at a higher cost.

About one-half of all domestic production of borates is exported. Expansion planned at U. S. Borax's Boron, California mine and by Kerr-McGee at Searles Lake and expanding exports from Turkey are offsetting factors. United States reserves and resources are adequate to supply domestic needs for boron at current rates for nearly 100 years without production from the Monument.

Talc mines in the Monument normally are intermittent operations. Two of the talc producers, Cyprus and Pfizer, hold mines outside of the Monument in California to the northwest near Talc City and immediately southeast near Tecopa, and reserves and resources exist at these locations and nearby in Nevada. Most talc produced in the Monument is marketed in the Los Angeles area. Geographically, in the United States there are adequate talc deposits near the areas where it is consumed. No import is necessary. Talc occurs widely in 30 or more countries and resources are enormous (Bureau of Mines, Talc, Soapstone and Pyrophyllite, reprint from Bulletin 650, page 1278).

### Proposed Legislation Impact

Current impact of proposed legislation, which may close the Monument to further mining claim location and restrict mining, has resulted in an effort by some mining companies to accelerate schedules for stripping waste rock away from the mineral deposits and increase shipping rates. Stockpiles at some of the mills and receiving points have grown sizeably.

The most notable impact of the increased effort is in Galena Canyon where Pfizer started one new stripping operation (White Eagle) in August and plans two new ones (Mammoth and White Chief). At the new rates area of the mining scar in Galena Canyon has more than doubled since September.

Testing planned at a number of prospects are now being hurriedly implemented and there is an influx of prospectors who want to "take a look" now before a moratorium or closure on mining is enacted by Congress.

Feasibility of new underground development and mining is being studied by two of the four producing mining companies. A return to underground mining in the Monument might be an interim trade-off. To imply, however, that even underground mining is compatible with preservation of natural features is to ignore some large areas within the Monument with a history of several decades of underground mining that for this reason can no longer be classified as natural or wilderness areas. Prime example is the Ibex Hills in the southern part of the Monument.

Market demand for both talc and borates has been falling off since 1973 due, in part, at least, to a world-wide economic turndown ("Mining Engineering", March 1976, pages 30, 31, 49 and 50). Exports of talc exceed imports and exports of borates exceed imports by twenty times. No critical necessity for importing either commodity is predictable for at least the better part of a century.

Leaving Death Valley National Monument open to further decades of virtually unfruitful prospecting, exploration and failing attempts to develop and mine metallic minerals seems unwarranted.

The Department of the Interior's and the National Park Service's position favors the proposed legislation with stringent, enforceable regulations. Note Attachment C.

"...to conserve the scenery and the natural and the historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." (National Park Service Act of August 25, 1916.)

"...that the mining laws of the United States be... extended to the area included within the Death Valley National Monument...subject, however, to the surface use of locations, entries, or patents under general regulations to be prescribed by the Secretary of the Interior." (Act of June 13, 1933.)

Current U.S. Borate Production

(Contained Boric oxide, B<sub>2</sub>O<sub>3</sub>).

	<u>B<sub>2</sub>O<sub>3</sub></u>	<u>% of U.S. Production</u>
<u>U.S. Borax, Boron, California</u>		
10,000 TPD of Tincal @ 75% borax Borax (36% B <sub>2</sub> O <sub>3</sub> ) . . . . .	2700 TPD	83.5%
<u>Kerr-McGee, Searles Lake</u>		
130,000 TPY/360 days . . . . .	360 TPD	11.1%
<u>Tenneco, Death Valley National Monument</u>		
(From California Division of Mines Report 125, p. 27)		
Colemanite:           77,778 TPY		
Ulexite: <u>94,286 TPY</u>		
172,064 TPY		
Estimated recoverable grade 25% B <sub>2</sub> O <sub>3</sub> /360 days . . . . .	174 TPD	5.4%
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TOTAL . . . . .	3234 TPD	100%
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For Comparison

Imports from Turkey (colemanite)

30,000 TPY @ 45% B<sub>2</sub>O<sub>3</sub>/360 days . . . . . 38 TPD 1.2%

Early (pre-1971) from Death Valley National Monument Production

20,760 tons @ 35% B<sub>2</sub>O<sub>3</sub>

Total -- 7266 tons B<sub>2</sub>O<sub>3</sub> during 88 year period

Death Valley National Monument

Metallic Mineral Production Since 1933

<sup>1/</sup>From House Appropriation Subcommittee hearing 9/30/75

<u>Mineral</u>	<u>Probable Production Period</u>	<u><sup>1/</sup>Amount</u>	<u>Est. Price</u>	<u>Gross Value</u>
Gold <sup>1/</sup>	1935-1942	25,780 oz.	\$35/oz.	\$902,300
Silver <sup>1/</sup>	1935-1942	125,540 oz.	90¢/oz.	112,986
Copper <sup>1/</sup>	1935-1942	42,600 lb.	20¢/lb.	8,520
Lead <sup>1/</sup>	1942-1969	5,032,300 lb.	14¢/lb.	704,522
Zinc <sup>1/</sup>	1942-1969	605,000 lb.	13¢/lb.	78,650
Antimony <sup>1/</sup>	1935-1945	60,000 lb.	40¢/lb.	24,000
Hematite <sup>1/</sup>	1935-1945	300 T.	\$50/T.	15,000
Tungsten <sup>1/</sup>	1952-1960	2,040 units	\$63/unit	128,520
Manganese <sup>1/</sup>	1954-1960	200 T.	\$43/T.	<u>690</u>
				\$1,975,188
Lead-silver (Jubilee Mine - unreported)	1963-1969			<u>1,224,882</u>
		GRAND TOTAL		<u>\$3,200,070</u>

For Comparison

Gross value of all mineral production prior to 1933, excluding talc and borates, from the area that became Death Valley National Monument is estimated at less than \$2-million. (Deduction from statement by Larry Walters, Bureau of Mines, oral communication).

## PLEDGE OF HELP IN THE FIGHT TO PRESERVE DEATH VALLEY

by Thomas Kleppe

Conservationists were justifiably alarmed some months ago when they learned of a sharp increase in open-pit mining in parts of Death Valley National Monument.

It soon became apparent that though that remarkable segment of California desert has been part of the National Park System since 1933, some of its most important scenic resources are still in real danger. Happily, however, it now looks as if Congress will act this year to prevent the staking of new mining claims in those parts of the park system where such activity has been lawful.

The imperative behind the national park concept--one of America's unique contributions to world culture--is that the natural environment ought to be preserved to the greatest possible extent so that future generations may enjoy it. Thus, unlike the national forests or public-domain lands administered by the Bureau of Land Management, national parks are not subject to "multiple use". Under the multiple-use system, recreational activity; logging, grazing and mining might all be allowed to take place on the same tract of land simultaneously.

Yet there remain a few national parks in which owing to special circumstances, Congress has allowed the continued staking of mining claims. Death Valley is one of these, perhaps because Congress wished to preserve the colorful tradition of the small prospector who challenged the heat and vast distances with little more than a burro, pick and shovel.

Over the years, however, sophisticated technology has made the lone prospector and his historic outfit obsolete. Since 1970, dramatic increases have been recorded not only in the staking of new claims but also in mining activity on existing sites. Today, conglomerate corporations are throwing a growing amount of heavy equipment into their attempt to extract from Death Valley ever-larger quantities of valuable borates and talc.

And it is all quite legal.

Moreover, several other portions of the National Park System are legally open to mining claims. These are Organ Pipe Cactus National Monument and Coronado National Memorial, both in Arizona; Crater Lake National Park in Oregon, and Mt. McKinley National Park and Glacier Bay National Monument, both in Alaska. Unlike Death Valley, these areas have not yet been subjected to intense mining activity, but the potential is there.

Thus, last October, the Department of the Interior, of which the National Park System is a part, strongly endorsed legislation to prohibit the staking of additional mining claims on any national park land with the exception of Glacier Bay (its mineral resources are still being assessed by Interior Department scientists). The Department also urged that any new law give it the authority to regulate stringently any mining on claims already recognized as valid.

Subsequent to the department's endorsement, two developments—one negative and one positive—have occurred:

-- Alerted to the possibility of a federal ban, prospectors have staked many new claims in Death Valley. How the department will deal with these claims, which are obviously intended to subvert any new restrictive law, is as yet undetermined.

-- The Senate passed a bill to prohibit any new mining claims in the National Park System. The bill would also give the Interior Department the authority to impose strong environmental restrictions on existing claims anywhere in the park system. This includes land on which mining operations were begun before inclusion in a national park.

As the federal agency entrusted with the care of a precious national resource, Interior welcomes the Senate's action. Now the House of Representatives must act quickly so that valuable time will not be lost. Our irreplaceable national parks must not remain prey to destructive mining operations.

Los Angeles Times, Wednesday, March 31, 1976.