

# Boraxo Mine

USA / California / Furnace Creek /

valley, mine



From Mines and Mineral Deposits in Death Valley National Monument, California, 1976:

The Boraxo Mine is about 2 1/2 miles west and 1 miles southwest of the mining camp of Ryan. It is at an elevation of about 2400 feet just east of a small hill which rises above alluvial fan deposits shed off the northern flank of the Black Mountains.

History of the Boraxo mine begins in about 1915 when the Pacific Coast Borax Company filed the Clara lode claim. A discovery shaft sunk by Mr. Thompson led to the name -- Thompson mine. A mineral patent was applied for but, for an undetermined reason, was not granted. On the assumption the claim was patented, Pacific Coast Borax Company ceased annual assessment work. Two new mining claims were filed over the area in 1921 by Mssrs Russell, Monahagan, Barlow, and Hill. Subsequently these claims were patented as the Boraxo No. 1 and No. 2. A court battle over the issue was settled in favor of the new claimants, and Pacific Coast Borax Company bought the mine back in 1935. Kern County Land Company purchased the mine in 1960 for \$200,000. Some underground development work was done, and a thousand or so tons of colemanite was produced during the early 1960s from the deposit, which later became known as the Boraxo deposit.

Kern County Land Company was purchased in 1967 by Tenneco Inc., with their mineral activities assigned to Tenneco Oil Company. The mine was reopened from the surface in January 1970. Excavation was from west to east in a sequence of three adjoining pits -- No. 1, No. 2, and No. 3. After extensive drilling, it was decided to develop the deposit by mining from a new pit--the Boraxo at No. 3 extension. In early 1974 overburden removal for the new pit was begun by Tenneco Mining (incorporated from the minerals department of the Tenneco Oil Company). Removal was complete in late 1975. Drilling to insure that substrata beneath the mine dumps for the new pits was barren led to the discovery of a new deposit--the Inyo.

The Inyo mine had a problem. The salts found there existed near their eutectic or maximum solubility point. If water was used to control dust perhaps 10 tons of salts would dissolve for each ton of water used causing severe problems. I left the MSHA Tech Support group before a "solution" was found.

**Nearby cities:** Las Vegas, Nevada, Henderson, Nevada, Boulder City, Nevada

**Coordinates:** 36°20'31"N 116°42'47"W

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**Boraxo Mine (Kern Borate Mine; Boraxo deposit; Boraxo No. 1 and No. 2; Clara claim; Thompson Mine; Tenneco Mine), Ryan, Furnace Creek District (Furnace Creek Borate District; Death Valley Area Borate Deposits; Ryan area), Inyo Co., California, USA**

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Boraxo open pit mine, Death Valley California 1974

[Boraxo Mine, Ryan, Furnace Creek District, Inyo Co., California, USA](#)



Boraxo Mine open pit, Death Valley, California 1974

[Boraxo Mine, Ryan, Furnace Creek District, Inyo Co., California, USA](#)



Boraxo open pit mine field trip for the Mineralogical Society of Southern California 1974

[Boraxo Mine, Ryan, Furnace Creek District, Inyo Co., California, USA](#)

A former borate mine located in the NE¼NE¼ sec. 36, T26N, R2E, SBM, 2 miles 3.6 km (2.2 miles) WNW of Ryan (S of hill 2562), on National Park Service land (Death Valley National Park). Discovered in 1915. Operated by Tenneco Mining Inc. (1976). Owned by the Pacific Coast Borax Co.; Russell, Monaghan, Barlow, and Hill; Pacific Coast Borax Co. (1915). The mine was purchased in 1960 by the Kern County Land Company for \$200,000. Operated in the 1960's and during the period 1970 to 1977 (?). Closed in 1977. MRDS database stated accuracy for this location is 100 meters.

Mineralization is a lacustrine borate deposit (Deposit model: 260: Lacustrine borates; USGS model code 35b.3), hosted in rocks of the Miocene Furnace Creek Formation (limestone, clay, mud, mudstone, sandstone, shale). The ore body is lenticular, strikes E-W and dips 5-60S (40S average), at a thickness of 39.62M, width of 853.44 meters, and a length of 213.36 meters.

The rocks of the Furnace Creek Formation weather to a yellow or green. Grayish basaltic flows and/or intrusions occur locally in a zone from 400 to 900 feet above the base of the formation. In the mine area, the formation is a maximum of 1,200 feet thick. Local rocks include Quaternary alluvium and marine deposits.

The deposit occurs on the S limb of the anticline within a few tens of feet to 200 feet of the base of the Furnace Creek Formation. It is cut near ground surface on the N by the pit fault and pinches out on the S

at a depth of about 800 feet below then ground surface. The body is deformed locally by minor folds and ranges in thickness up to 130 feet (average 40 to 45 feet). The deposit is 2,800 feet wide along strike and 300 to 700 feet long down dip. The deposit is largely parallel to the dip of the enclosing beds. The Boraxo deposit is composed of 2 zones of borate minerals with interstitial clay and interlayered limy shale, mudstone, siltstone, and sandstone beds that are commonly 1 to 5 feet thick. The outer zone of the deposit is colemanite and the core is a mixture of ulexite and probertite.

Local structures include a W-trending E-plunging anticline, the Death Valley graben, Pit fault and minor folding.

Workings include surface openings comprised of an open pit with a length of 670.56 meters. In 1976, the pit was 2,200 feet long, 300 feet wide at surface on the W to about 1,000 feet wide on the E and 225 feet deep. The maximum pit depth will be 450 feet on the E, but the length and width were already at the maximum of the pit design. On completion of open pit operations, a substantial tonnage of ore will remain beneath the floor that would require underground mining. The stripping ratio of overburden to ore was 26:1 in 1976, but was expected to decrease with further mining.

Production data are found in: Evans and Others (1976).

Analytical data results: Assays of drill cores indicate an average grade of 20% B2O3 for colemanite ore. Assays of mill-run material indicate an average grade of 28% B2O3 for ulexite ore. This indicates a mineral content of about 40% colemanite and 70% ulexite-probertite.

Reserve-Resource data are found in: An estimate by G. Orris from published data (1990).

## Mineral List

Mineral list contains entries from the region specified including sub-localities

<a href="#">Calcite</a>	<a href="#">Priceite</a>
 <a href="#">Celestine</a>	 <a href="#">Probertite</a>
<a href="#">'Clay'</a>	 <a href="#">Tunellite</a>
 <a href="#">Colemanite</a>	<a href="#">Ulexite</a>
 <a href="#">Hydroboracite</a>	

11 entries listed. 8 valid minerals.

## Localities in this Region

### USA

#### California

##### Inyo Co.

Furnace Creek District (Furnace Creek Borate District; Death Valley Area Borate Deposits; Ryan area)

##### Ryan

Boraxo Mine (Kern Borate Mine; Boraxo deposit; Boraxo No. 1 and No. 2; Clara claim; Thompson Mine; Tenneco Mine)

[Thompson Mine](#)

The above list contains all mineral locality references listed on mindat.org. This does not claim to be a complete list. If you know of more minerals from this site, please [register](#) so you can add to our database. This locality information is for reference purposes only. You should never attempt to visit any sites listed in mindat.org without first ensuring that you have the permission of the land and/or mineral rights holders for access and that

you are aware of all safety precautions necessary.

## References

Erd, R.C., V. Morgan & J.R. Clark (1961), Tunellite, a new hydrous strontium borate from the Kramer borate district, California: USGS PP 424-C, article No. 255: C294-C297.

Anonymous (1963), California Division of Mines and Geology, Mineral Information Service: California Mineral Production 1962: 16(1): 9.

Murdoch, Joseph & Robert W. Webb (1966), Minerals of California, Centennial Volume (1866-1966): California Division Mines & Geology Bulletin 189: 154, 295, 377.

McAllister, James Franklin (1970) Geology of the Furnace Creek borate area, Death Valley, Inyo County, California. California Division of Mines and Geology Map Sheet 14, 9 pp.: 8.

Minette, J.W. and Wilber, D.P. (1973) Hydroboracite from the Thompson mine, Deathe Valley. Mineralogical Record: 4: 21-23.

Nevada Bureau of Mines and Geology Report 26 (1976), "Guidebook: Las Vegas to Death Valley and Return," Mackay School of Mines, University of Nevada - Reno, 1976.

Evans, James R., G.C. Taylor, and J.S. Rapp (1976) Mines and mineral deposits in Death Valley National Monument. California Division Mines and Geology Special Report 125: 23-26.

Guidebook: Las Vegas to Death Valley and Return (1976), Nevada Bureau of Mines and Geology Report 26, Mackay School of Mines, University of Nevada - Reno.

Countryman, R.I. (1977), Hydroboracite from the Amargosa Desert, eastern California: Mineralogical Record: 8: 503-504.

Pemberton, H. Earl (1978) Hydroboracite from the Furnace Creek formation. Mineralogical Record: 9: 379-381.

Pemberton, H. Earl (1983), Minerals of California; Van Nostrand Reinholt Press: 238 (map 7-1), 240, 246, 255, 256, 288.

Orris, G. (1990) estimate of reserves from published data (NFI).

USGS (2005), Mineral Resources Data System (MRDS): U.S. Geological Survey, Reston, Virginia, loc. file ID #10023438 & 10115311.

U.S. Bureau of Mines, Minerals Availability System (MAS) file ID #0060271259.

Mineral	and/or Locality
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