

102 PDR-1 LPDR-WM-11 (2)

✓ AU SYMPOSIUM

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MAY 8 1987

MEMORANDUM FOR: Ron Ballard, Branch Chief
 Technical Review Branch
 Division of High-Level Waste Management

THROUGH: Philip Justus, Section Leader
 Geology/Geophysics Section
 Technical Review Branch
 Division of High-Level Waste Management

FROM: Charlotte Abrams
 Geology/Geophysics Section
 Technical Review Branch
 Division of High-Level Waste Management

SUBJECT: Bulk Mineable Gold Deposits Symposium, April 1987

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On April 2-8, 1987, The Nevada Geological Society sponsored a symposium with field trips on the topic of Bulk Mineable Gold Deposits in Nevada. The meeting was attended by international representatives of industry, academia, and governmental agencies. Representatives of the State of Nevada Bureau of Mines and Geology and DOE contractors were included in the group of attendees. Interest in gold in Nevada has recently intensified due to large and/or high grade gold discoveries such as Sleeper, Paradise Peak, and Hog Ranch. An example of the degree of interest in Nevada gold was demonstrated by the number of persons in attendance at this meeting (1200 present with 800 preregistrants turned away due to lack of space).

NTS lands have been closed for exploration for approximately 30 years. Due to the development of new exploration, mining, and extraction techniques areas within the NTS are now attractive to industry. At the meeting several industry representatives expressed a desire to be able to explore within the closed areas of the NTS and Nellis AFB.

Field trips in conjunction with the meeting visited gold mines throughout Nevada and into adjacent areas of California, Arizona, and Utah. The field trip selected by myself and DOE contractors was lead by Garside and Bonham (Nevada Bureau of Mines and Geology) and visited mines in Nevada (Nye, Clark, and Esmeralda Counties) and adjacent California. Mines visited were Eldorado District, Hasbrouck Peak, Manhattan, Colosseum, Sterling, Montgomery-Shoshone, Goldfield District, Tonopah District, and Round Mountain. Of particular interest were the Eldorado District, Hasbrouck Peak, and Round Mountain. In the Eldorado District field trip participants observed listric faults which soled into a low angle fault (detachment). Ores are associated with these faults and with quartz/calcite stinger veins and quartz/calcite filling in brecciated wall rock. At the Montgomery-Shoshone Mine, located in the Bullfrog Hills (approximately 22 miles from Yucca Mountain) and where lithologic units

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are correlative with units at Yucca Mountain (NRC NNWSI FEA comment 5), ores are associated with altered and veined rhyolitic tuffs.

Hasbrouck Peak was particularly notable as the peak represents an erosional remnant of a hot spring geothermal system which was associated with an early Miocene caldera. Comments by DOE in the FEA (Yucca Mountain Volume III, p. c.5-50) indicated that a caldera association is rare for Nevada economic deposits. It is important to note that of those deposits viewed on the field trip, Manhattan, Round Mountain, Hasbrouck Peak, Colosseum, Goldfield District, and possibly Sterling are interpreted to be caldera related. In addition, the recent gold discovery at Hog Ranch (northwest Nevada, not on field trip) is also associated with a resurgent caldera.

Presentations given as part of the symposium discussed both currently active mines and mines soon to be put into production. The following is a list of important points common to most presentations and field trips.

1. The majority of gold recently discovered and put into production in Nevada is fine grained and disseminated (exception, Sleeper deposit, northwest Nevada).
2. Most deposits are associated with some sort of fracture, breccia, or fault zone or an intersection between high angle and low angle faults.
3. Many deposits are concentrated in veins in limestone, bedded tuff, or permeable host rock.
4. Many deposits had no surface geochemical anomaly associated with them.
5. All deposits appear to have some volcanic or hydrothermal association.
6. Many deposits are caldera associated.
7. Out of 225 working gold mines in the U.S., 60 are located in Nevada, 37 are located in adjacent California. Nevada mines produce nearly 50% of U.S. gold.

The meeting was informative and well-organized. Information was applicable to natural resource concerns for the Yucca Mountain proposed HLW repository site. Copies of the meeting abstracts and field trip guidebook are available for examination.

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SUBJECT: BULK MINEABLE GOLD DEPOSITS SYMPOSIUM. APRIL 1987

DATE: MAY 8 1987

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