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Item 19

Sand Springs District

LOCATION

The Sand Springs mining district is located about 30 miles east of Fallon via U.S. Highway 50. The major gold-silver workings are located within a mile square area just south of the highway at Summit Pass. The principal tungsten workings are concentrated in the northeast portion of the Sand Springs Range just south of the highway and along a crest of the range. Evaporite deposits of salt and borax covering about 1,600 acres of Fourmile and Eightmile Flats in the Salt Wells Basin west of the Sand Springs Rough are historically included within the Sand Springs district. Most of the eastern and central parts of the Sand Springs district are within the proposed withdrawal area. Eastward extensions of the Summit King gold mine on the north end of the Sand Springs Range would project into the withdrawal area and the small tungsten prospects on the northeast tip of the range fall within the area.

HISTORY

Mining in the district began in 1863 with the discovery of salt deposits on Fourmile Flat, with production being almost continuous to the present. According to Vanderburg (1940), considerable quantities of salt were used on the Comstock prior to 1870 for the reduction of silver ores. Later production has gone to dairies and ranching as well as highway and table use.

The discovery of borax on Fourmile Flat in 1869 led to the construction of a plant by the American Borax Company. According to Paher (1970) the plant produced one half ton of borax per day while a second, smaller plant produced 5 tons per month. In 1872, borax mining was halted permanently.

To the east at Summit Pass, the gold-silver veins of the Dan Tucker-Summit King Mines were first prospected in 1905 by C. W. Kinney, but very little work was done until 1912 when a 100 foot shaft was sunk. The first production came in 1919 when lessors shipped three car-loads of ore to the Selby smelter. A small amalgamation mill was built in 1927 and approximately 1,000 tons of gold-silver ore were treated. Work and minor production continued until 1939 when the Bralorne Mining Company acquired a lease on the best properties and organized the Summit King Mines. Major development followed with the construction of a 50 ton per day cyanide plant at the site of the Dan Tucker Mine. Thereafter, the annual production steadily increased before operations were shut down during the war years (1942-1946). Operations resumed in 1948 and continued until 1951 when mining ceased because of a lack of ore. Total production amounted to 20,895 ounces of gold and 1,262,655 ounces of silver with the major production occurring between 1940-1941 and 1948-1951 (Willden and Speed, 1974). There has been no reported production since 1951 but the area continues to be actively prospected by small and large operators.

Several small tungsten deposits occur along the northeast side of the Sand Springs Range, just south of U.S. Highway 50. Now covered by the Shamrock claims, these are the same properties previously oprated under the names Stardust Claims, Garnet nad Sunflower Group. None of the tungsten deposits are now being actively mined but they were active during 1951-1956, and produced a reported 291 units of WO_3, (Stager and Tingley, in prep.). Similar small size, low-grade tungsten prospects are traceable along and east-west contact between

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granite and limestone that crosses the Sand Springs Range and extends into Dixie Valley. The most notable of these properties is the Red Top Mine located near the crest of the range about 3 miles south of U.S. Highway 50. The mine produced 691 units of WO_3 at an average grade of 0.05 to 1.0 % WO_3 during the same 1951-1956 period.

GEOLOGIC SETTING

The Sand Springs district includes all of the Sand Springs Range that lies south of U.S. Highway 50 and within Churchill County. Most of the area is underlain by a granitic pluton that is bounded on the north and south by metamorphic rocks of Mesozoic age. Locally both the granite and metamorphic rocks are covered by rhyolites and andesites of Tertiary age. Numerous aplite-pegmatite dikes cut the granite, and andesite and rhyolite dikes cut the entire complex. In the area of the Summit King Mines, metamorphic and intrusive rocks crop out and are locally overlain by Tertiary rhyolites and andesites which host the precious-metal vein systems. A wide west-northwest fault and braided-vein system cuts the central part of the range just south of Summit Pass. The south-dipping veins have a known strike length of five to six thousand feet that is traceable on the surface (Dobson, 1938).

ORE DEPOSITS

The ore deposits of the Summit King Mines were reported by Dobson (1938) to be associated with a complex fracture system striking west-northwest and dipping 35° to 55° to the south. The host rock was reported to be andesite with local inclusions of thin-bedded limestone, schist and basalt. In the upper levels, the ore is highly oxidized, soft, crumbly quartz in veins 2 to 8 feet wide. At depth, the veins are fine-grained to vuggy quartz and breccia with locally abundant pyrite and calcite. Gold occurred in a free state, and silver as chloride and argentite (acanthite?). The initial work by Bralorne Mining in 1939 led to development of substantial ore reserves from several new veins in the fracture system that were below the original workings. Below the 400 foot level the veins were reported to be barren of precious metals. The eastern and western ends of the vein system were reported to be faulted off and no attempts to find entensions to the veins have been made. An eastern extension of the vein into the withdrawal area seems probable.

Similarities between the vein systems of the Summit King Mines and the Wonder and Fairview camps would include: andesite host rocks; strong but shallow veins; outcrops that show poor to sparse values; vein fillings near the surface having quartz, pseudmorphic after calcite and silver-gold mineralization with low base metal values.

Contact metasomatic tungsten deposits occur in limestones at the northeast end of the range and along a contact zone that extends westward across the range. The limestone-metamorphic sequence is in contact with a granite pluton. Scheelite and minor amount of powellite occur with garnet, calcite, quartz, cordierite, diopside, and other tactite minerals, forming small, irregular replacement bodies. Small, irregular quartz veins containing scheelite cut the replacement bodies (Stager and Tingley, in prep.). Extensive prospecting and some mining has been done at these deposits, but their small size and low grade makes them difficult to mine profitably.

Some prospecting has occurred further to the south, in the central part of the Sand Springs Range near the old Shoal Project site. Here, prospecting in the Chukar Canyon area and in roadless canyons to the north is directed at rhyolite and andesite dikes and at least one quartz vein system within the central portion of the pluton. Some projects in this area have been staked and a little development work has been done. This activity appears to date from the mid-1970's and there has been no follow-up work.

GEOCHEMICAL RELATIONSHIPS

Several samples from prospects and a shaft along the Summit King vein system (fig. 27) had low values for silver and base metals and only Sample 3953 had 0.05 ppm gold. Sample 3853 from a line of prospects that may be on an eastern extension of the vein system assayed 70 ppm silver, 5,000 ppm barite, 100 ppm molybdenum, 150 ppm lead, 1,000 ppm zinc, and .30 ppm gold. Samples from the contact deposits along the northeast side of the range, had generally low, sporadic values for tungsten, and sporadic but higher base metal values. Samples from the Red Top Mine had high values fro both tungsten and base metals as well as anomalous vanadium and tin.

Sample values from the Chuckar Canyon area (fig. 28) had no detectable gold, low silver values, and sporadic base metal values.

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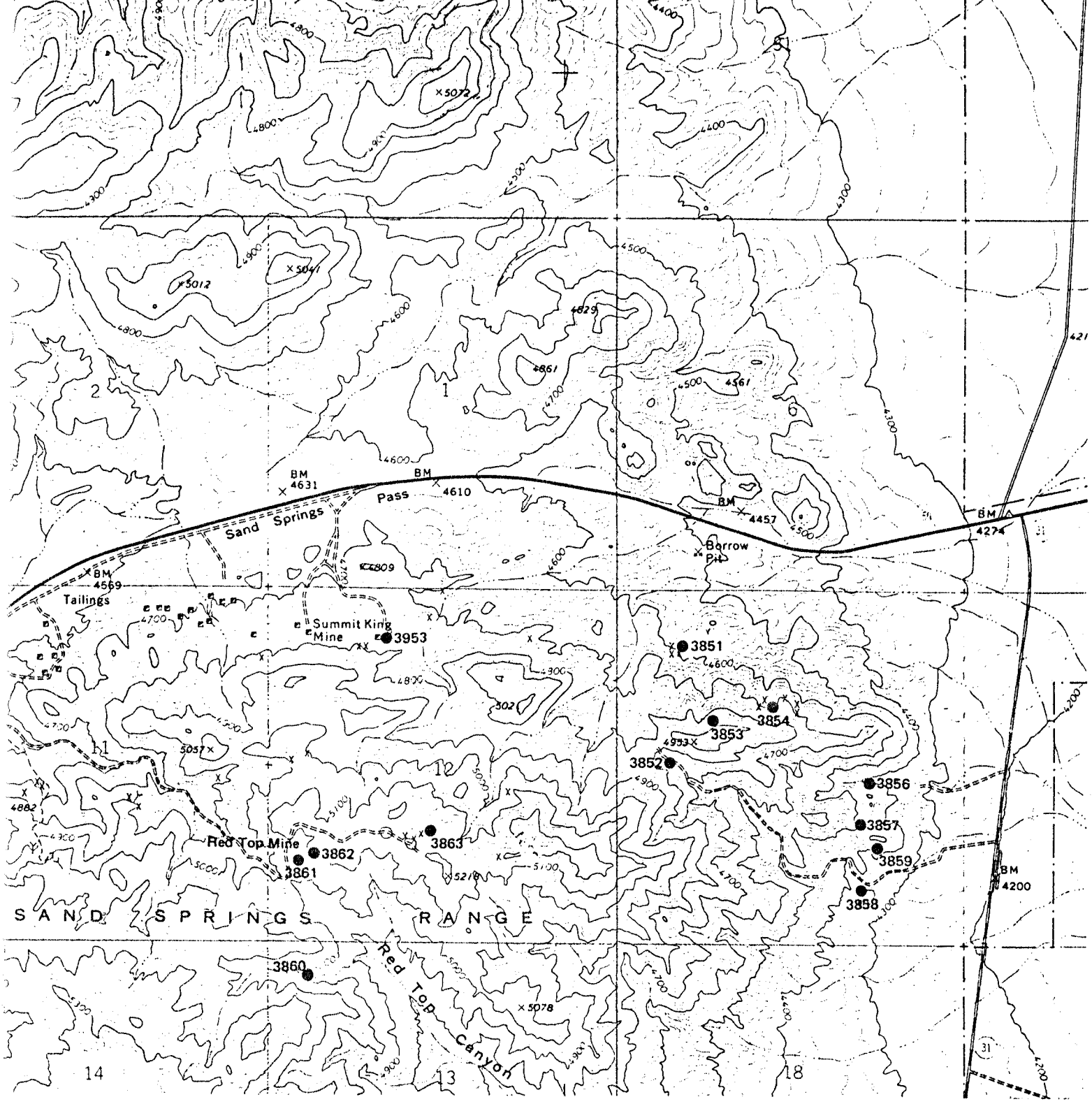
Stager, H. K., and Tingley, J. V., (in prep.) Tungsten deposits of Nevada: Nevada Bureau of Mines and Geology Bull.

Vanderburg, W. O., (1940) Reconnaissance of mining districts in Churchill County, Nevada: U.S. Bureau of Mines Information Circular 7093.

Willden, R., and Speed, R. C. (1974) Geology and mineral deposits of Churchill County, Nevada: Nevada Bureau of Mines and Geology Bull. 83.



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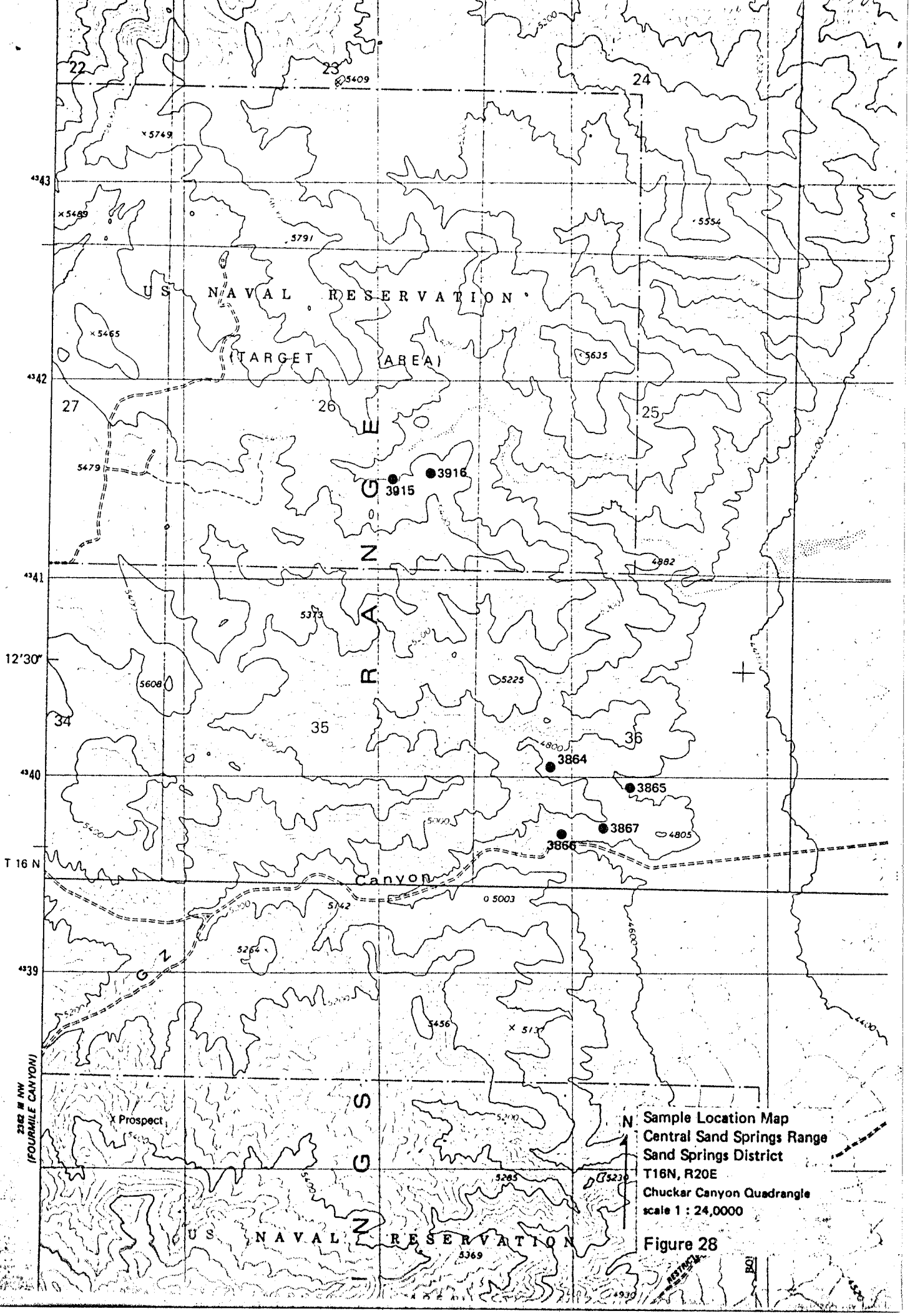
Sample Location Map
East Sand Springs District
T16N; R32,33E
Frenchman Quadrangle
scale 1 : 24,000

Figure 27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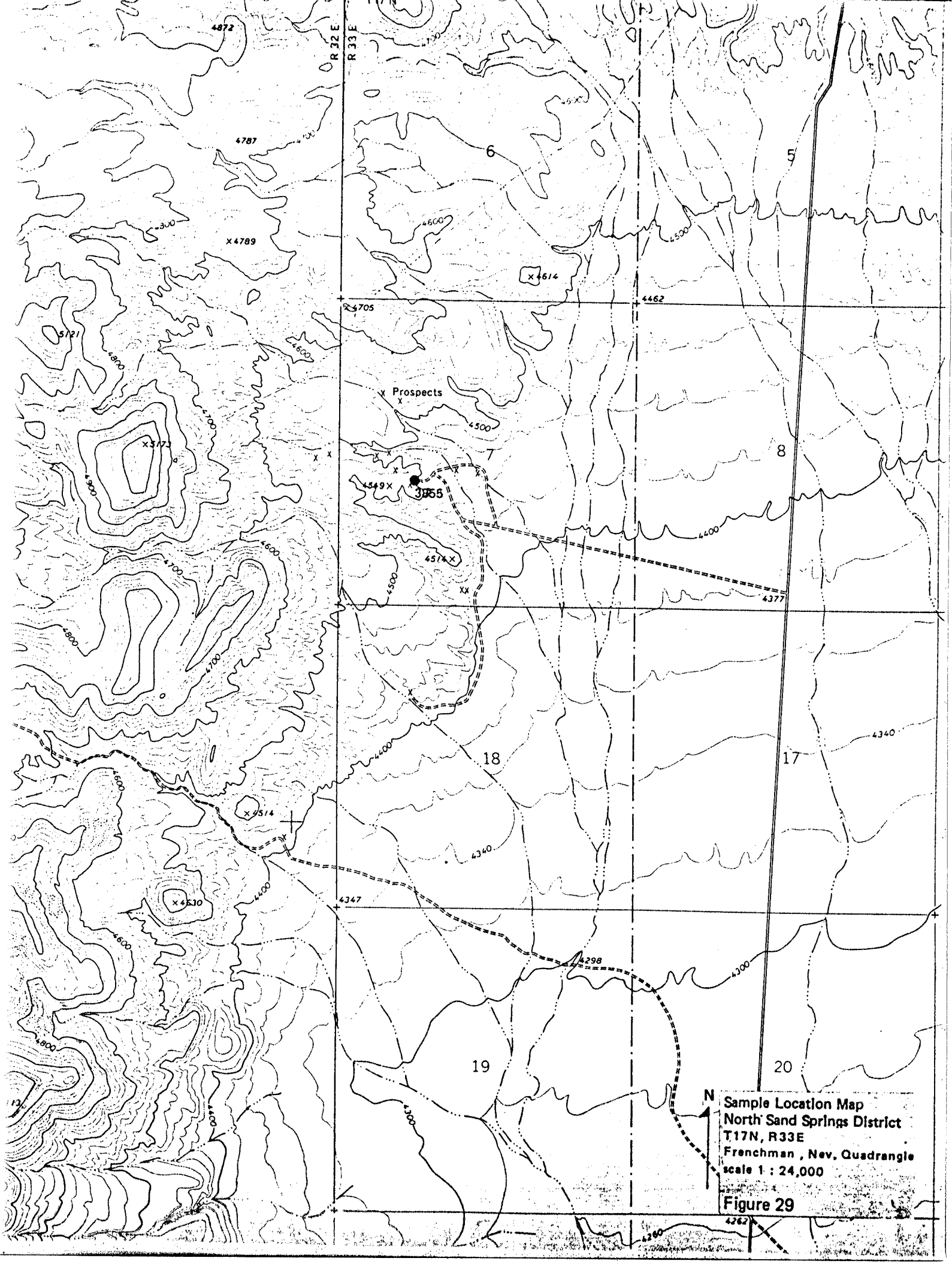
US NAVAL RESERVATION
(TARGET AREA)
SAND SPRINGS RANGE
3916
3915
3864
3865
3867
3866
Canyon
Prospect
T 16 N
12'30"
N
Sample Location Map
Central Sand Springs Range
Sand Springs District
T16N, R20E
Chuckar Canyon Quadrangle
scale 1 : 24,0000

Figure 28



Sample Location Map
North Sand Springs District
T17N, R33E
Frenchman, Nev. Quadrangle
scale 1 : 24,000

Figure 29