207
Item 10

4190 0010

	Percent
Sodium sulphate	97.33
Sodium chloride	1.07
Calcium sulphate	.28
Insoluble	1.24
Moisture	.08
Total	100.00

Power for the treatment plant is furnished by a 120-horsepower Fairbanks-Morse Diesel engine.

Water is available from shallow wells near the plant. Two artesian wells were drilled by the company at the south end of the marsh in 1930. One well is 450 feet and the other 420 feet deep; both wells have 16-inch casing near the surface and 10-inch casing near the bottom. In sinking the wells, three fresh-water-bearing strata were encountered. The combined flow from the two wells is in excess of 200 gallons per minute.

SANTA FE DISTRICT

The Santa Fe, also known as the Luning district, is in the northern part of the Pilot Mountains 4 miles east of Luning, a small town on the Mina-Hazen branch of the Southern Pacific R. R. The district is separated from the Gabbs Valley Range on the north by the Santa Fe Pass, which transects the range from east to west.

According to Burchard[20/], the Santa Fe mine was discovered in 1879 and was in operation in 1883. The Sunrise mine also was active at that time; a little later the Wall Street mine was worked for copper. The ores from the Santa Fe and Sunrise mines are said to have carried rich silver values.

Up to 1894 mining in this area was confined mainly to the silver deposits; the copper-lead deposits, carrying some silver, have been worked intermittently, principally by lessees, from 1900 to 1929. The greatest period of activity occurred during the World War, when the high price of copper enabled lessees to work the deposits at a profit. Several small companies were organized to work properties in the district, but for the most part they were short-lived.

By selective mining and hand sorting, lessees were able to produce ore containing from 5 to 12 percent copper. The copper ore produced was shipped either to smelters in Salt Lake Valley, Utah, or to the Thompson smelter at Wabuska, Nev. The Thompson smelter was blown in during 1912 and closed down in 1928.

In 1936 mining activity in the Santa Fe district was confined to several gold deposits about 5 miles northeast of Luning.

20/ Burchard, H. C., Report of the Director of the Mint for 1882, p. 41.

The geology of the district has been described by Hill[21] and Clark[22]. Production of the district from 1906 to 1935 is shown in table 7.

New Year Group

The New Year group comprises four unpatented claims on the west slope of Pilot Range 5 miles northeast of Luning, owned by H. A. Peterson and Joe Cardwell of Mina, Nev.

These claims formerly were part of the property owned by the Luning Consolidated Silver Mines Co. of Nevada. In 1936, lessees shipped several hundred tons of ore from this property to a Salt Lake City smelter.

Development work consists of a shaft 40 feet deep, another 175 feet deep, and several tunnels, comprising in all several thousand feet of underground workings. Mining is done by hand methods.

The gold occurs in a vein in limestone. The dip of the vein averages 50 degrees and the width about 5 feet. Commercial ore is present in lenses associated with pyrite in a quartz gangue. Near the surface the oxidation of the sulphide has resulted in the concentration of gold in a limonitic quartz gangue.

A shipment of ore made by E. S. Perry to the American Smelting & Refining Co. on April 3, 1936, afforded the following data:

Metal quotations:	Au .... $34.9125 per oz.		
	Ag ..... .77 per oz.		
Settlement assay:	Au ..... .42 oz.		
	Ag ..... 4.6 oz.		
	Cu ..... .18 percent		
Metal payment:	Au at $31.81825	$13.36	
	Ag less 0.5 oz. at $0.77 .	3.16	
	Gross value	16.52	
	Less treatment	3.50	
		13.02	
	Pounds		
Wet weight	102,960		
Less 7.4% moisture	7,620		
Net weight	95,340 or 47.67 tons at $13.02		$620.66
Deductions:	Freight 3.60 per ton...	$185.33	
	Emergency freight 7% ..	12.97	
	Hauling at $1.25 per ton	64.35	262.65
	Net proceeds		358.01

21/ Hill, J. M., Some Mining Districts in Northeastern California and Northwestern Nevada: U. S. Geol. Survey Bull. 594, 1915, pp. 157-171.

22/ Clark, C. W., Geology and Ore Deposits of the Santa Fe District, Mineral County, Nevada: Univ. of California Bull. Dept. Geol. Sci., vol. 14, no. 1, 1922, 74 pp.

TABLE 7. - Gold, silver, copper, and lead production from Santa Fe district, Mineral County, Nev., 1906-35

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

	Placer						Lode					
		Gold		Silver					Gold		Silver	
Year	No. of Mines	Fine oz.	Value	Fine oz.	Value	Total Value	No. of Mines	Ore, short tons	Fine oz.	Value	Fine oz.	Value
1906	--	--	--	--	--	--	--	7,000	1,685.24	$34,837	2,857	$1,943
1907	--	--	--	--	--	--	4	9,489	2,023.53	41,830	8,056	5,317
1908	--	--	--	--	--	--	8	2,143	713.10	14,741	3,102	1,644
1909	--	--	--	--	--	--	7	409	261.42	5,404	19,088	9,926
1910	--	--	--	--	--	--	8	1,120	151.08	3,123	10,022	5,412
1911	--	--	--	--	--	--	4	158	57.63	1,191	2,902	1,538
1912	--	--	--	--	--	--	34	3,080	352.14	7,279	17,415	10,710
1913	--	--	--	--	--	--	29	9,087	76.22	1,576	14,358	8,672
1914	1	11.56	$239	2	$1	$240	19	1,426	20.51	424	4,313	2,385
1915	--	--	--	--	--	--	20	2,726	144.47	2,987	6,802	3,449
1916	--	--	--	--	--	--	19	17,665	59.09	1,222	46,755	30,765
1917	--	--	--	--	--	--	49	19,932	97.17	2,009	50,007	41,206
1918	--	--	--	--	--	--	25	12,897	46.09	953	42,012	42,012
1919	--	--	--	--	--	--	4	534	.14	3	2,008	2,249
1920	--	--	--	--	--	--	5	157	8.50	176	1,717	1,871
1921	--	--	--	--	--	--	4	206	249.17	5,151	1,600	1,600
1922	--	--	--	--	--	--	4	204	159.96	3,307	2,079	2,079
1923	--	--	--	--	--	--	1	37	1.31	27	527	432
1924	--	--	--	--	--	--	2	13	1.22	25	319	214
1925	--	--	--	--	--	--	3	50	4.71	97	2,469	1,714
1926	--	--	--	--	--	--	--	--	--	--	--	--
1927	--	--	--	--	--	--	7	175	35.44	732	1,736	984
1928	--	--	--	--	--	--	5	350	188.58	3,898	1,809	1,058
1929	--	--	--	--	--	--	5	317	28.15	582	1,358	724
1930	--	--	--	--	--	--	1	7	18.37	380	23	9
1931	--	--	--	--	--	--	--	--	--	--	--	--
1932	--	--	--	--	--	--	--	--	--	--	--	--
1933	--	--	--	--	--	--	--	--	--	--	--	--
1934	--	--	--	--	--	--	2	145	49.53	1,731	518	335
1935	--	--	--	--	--	--	3	219	90.18	3,156	170	122
Totals	1	11.56	$239	2	$1	$240		89,546	6,522.95	$136,841	244,022	$178,370

Continued ----------

Dolly Group

The Dolly Group of four unpatented claims is owned by W. van Schoick, of Luning, Nev., and associates. This property is south of the New Year group and was formerly called the Luning Consolidated Gold Mining Co.

The property is developed by shafts and tunnels. The deepest shaft is 250 feet deep and the longest tunnel is 900 feet long. Underground workings total about 2,500 feet. Ore is mined by hand methods.

In 1935 the present owners erected a small amalgamation concentration mill at Luning, and up to June 1936 about 400 tons of ore, averaging $15 per ton, had been treated.

Mill equipment includes a jaw crusher 6 by 9 inches, a Sacramento mill23/, an amalgamation plate 4 1/2 feet wide and 5 feet long, and a concentrating table. By grinding to 50-mesh a recovery of 75 to 80 percent is obtained by amalgamation and table concentration.

Power for milling is furnished by a 50-horsepower Waukesha engine. Water for milling is pumped from a well near the millsite.

According to van Schoick, the formations on the Dolly group are granite and diorite. Gold ore is present in several fissure veins that range in width from 18 inches to 4 feet and dip 35 to 50°.

American Copper Co.

The most productive copper properties in the Santa Fe district were the Wall Street and Turk mines in New York Canyon 7 miles east of Luning. About 1929 these two mines and other properties in the locality were incorporated as the American Copper Co. Holdings of this company comprise 12 unpatented and 2 patented claims.

Development comprises several shafts, tunnels, and lateral workings that total about 2 miles. The deepest shaft is 428 feet. According to Hill24/, the country rocks consist mainly of crystalline limestones, probably of Triassic age, that have been intruded by granitoid rocks that range from quartz monzonite to quartz diorite and probably are Cretaceous.

At the Wall Street mine copper carbonate ore is present in an eastward striking brecciated zone 30 feet wide in westward-dipping limestones. The principal ore minerals are malachite, chrysocolla, azurite, and cuprite, which occur in thin irregular masses in reddish jasperoidal limestone.

23/ A Sacramento mill is similar in design to an Ellis mill. Grinding is done with four iron balls, each weighing 145 pounds, rolled in a circular iron pan.

24/ Work cited.

TABLE 7. - Gold, silver, copper, and lead production from Santa Fe district, Mineral County, Nev., 1906-35 (Continued)

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Year	Lode (Continued)						Total value, lode and placer
	Copper		Lead		Total value	Average recoverable value of ore per ton1/	
	Pounds	Value	Pounds	Value			
1906	--	--	--	--	$36,780	$5.25	$36,780
1907	105,199	$21,040	64,000	$3,392	71,579	7.54	71,579
1908	24,334	3,212	19,237	808	20,405	9.52	20,405
1909	34,877	4,534	20,000	860	20,724	50.67	20,724
1910	3,521	447	23,288	1,025	10,007	8.93	10,007
1911	1,256	157	26,393	1,188	4,074	25.78	4,074
1912	311,559	51,407	13,749	619	70,015	22.73	70,015
1913	646,812	100,256	6,933	305	110,809	12.19	110,809
1914	190,193	25,296	1,240	48	28,153	19.74	28,393
1915	384,258	67,245	3,468	163	73,844	27.09	73,844
1916	2,547,058	626,576	--	--	658,563	37.28	658,563
1917	2,590,756	707,276	35,799	3,079	753,570	37.81	753,570
1918	1,923,259	475,045	18,011	1,279	519,289	40.26	519,289
1919	85,470	15,897	--	--	18,149	33.99	18,149
1920	1,018	187	19,966	1,597	3,831	24.40	3,831
1921	27	4	905	41	6,796	32.99	6,796
1922	372	50	3,948	217	5,653	27.71	5,653
1923	--	--	--	--	459	12.41	459
1924	48	6	5,971	478	723	55.62	723
1925	--	--	600	52	1,863	37.26	1,863
1926	--	--	--	--	--	--	--
1927	22,310	2,923	4,657	293	4,932	28.18	4,932
1928	6,251	900	--	--	5,856	16.73	5,856
1929	29,130	5,127	--	--	6,433	20.29	6,433
1930	--	--	--	--	389	55.57	389
1931	--	--	--	--	--	--	--
1932	--	--	--	--	--	--	--
1933	--	--	--	--	--	--	--
1934	--	--	--	--	2,066	14.25	2,066
1935	51	4	--	--	3,282	14.99	3,282
Totals	8,907,759	$2,107,589	268,165	$15,444	$2,438,244	$27.23	$2,438,484

1/ Not to be confused with average assay value of ore.

Other Mines and Prospects

A number of other properties in the vicinity of New York Canyon produced small quantities of ore in former years, including the Champion, Mayflower, Mastodon, Silver Guardian, Vacation, Neversweat, Wedge, Copper Queen, Ideal, Giroux, and Calvada. These properties have been prospected and worked through tunnels and shafts ranging from 150 to 800 feet in depth.

The commercial copper ore is composed of copper carbonates and oxides in limestone, occurring in masses of irregular size and shape. All these properties have been idle for many years, and most of the mine equipment has been removed. The opportunities for mining additional copper ore from these properties are promising if the price of copper ever attains a figure comparable to the World War price. With the present price of copper the outlook for producing ore of shipping grade is not encouraging.

SILVER STAR DISTRICT

The Silver Star, also known as the Gold Range, Mina, or Douglas district, is in Excelsior Mountains in southern Mineral County. The nearest shipping point is Mina on the Mina-Hazen branch of the Southern Pacific R. R., 6 miles northeast of Camp Douglas. The Douglas portion of the district covers a mineralized area roughly 2 miles long and 1 mile wide.

Veins carrying gold and silver were discovered at Camp Douglas by Pepper, Grassi, and Robb in 1893. From 1893 to 1903 considerable activity prevailed at Camp Douglas, and during this period lessees are reported to have produced about $500,000. During the panic of 1893, Camp Douglas was known as the "Dinner Pail", because of the opportunity afforded lessees to make a good living. The discovery of bonanza ore at Tonopah in 1900 drew many of the leasers away from the camp, so that production declined.

In former years, several small mills were erected in the Douglas area, but the bulk of the ore has been shipped to smelters for treatment. Most of the ore has been mined from shallow depths; the deepest working is the Bounce shaft, 425 feet deep.

The metal production of the Silver Star district from 1902 to 1935 is shown in table 8.

The tungsten deposits in the Excelsior Mountains were discovered in 1916 by Charles W. Noble on claims that he originally located for silver. Shortly after the discovery of tungsten the Noble property was sold to Atkins-Kroll Co., who operated it until 1918, when the mine was sold to other interests.