<table>
<thead>
<tr>
<th><strong>DISTRICT</strong></th>
<th>Manhattan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIST_NO</strong></td>
<td>2960</td>
</tr>
<tr>
<td><strong>COUNTY</strong></td>
<td>Nye</td>
</tr>
<tr>
<td><strong>TITLE</strong></td>
<td>Hughes Series Administrative Records - Mill Planning Paper</td>
</tr>
<tr>
<td><strong>AUTHOR</strong></td>
<td>Bunker, L.; Hull, G.; Anderson, A.</td>
</tr>
<tr>
<td><strong>DATE OF DOC(S)</strong></td>
<td>1970</td>
</tr>
<tr>
<td><strong>MULTI_DIST</strong></td>
<td>Y / M7</td>
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<tr>
<td><strong>QUAD_NAME</strong></td>
<td>Manhattan 7½</td>
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<tr>
<td><strong>P_M_C_NAME</strong></td>
<td>Virginia, Skoakum, Little Gray, Crescent; St. George, Squirrel, Stray Dog, Union No. 9, Gold Wedge, Big Four, Hazel Fraction, Jumping Jack; Joker Fraction, Last Chance, Big Pimp, Mayflower, Reilly Fraction, Carson, Pine Nut, Jackson</td>
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<tr>
<td><strong>COMMODITY</strong></td>
<td>Gold, silver</td>
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<td><strong>NOTES</strong></td>
<td>Correspondence, handwritten notes, claim map, property summary, geology, production, placer, flow sketch</td>
</tr>
</tbody>
</table>

24 p.
MEMORANDUM

TO: Mr. A. J. Anderson  
Mining Division

FROM: L. Bunker

DATE: September 4, 1970

SUBJECT: Manhattan Mining District

Report:

Gold, Placer Gold, Silver, Arsenic, Rhyolite Pebbles.

Location: The Manhattan District is at Manhattan in the S. part of the Toquima Range. Manhattan is 45 miles by road North of Tonopah. It is situated in Manhattan Canyon the the West side of the range at an altitude of 6,905 ft.; while Bald Mt. to the North reaches a height of 9,275 ft. The old Belmont District adjoins the Manhattan District on the Northeast.

History: Manhattan was discovered by John C. Humphrey in 1905 and a rush of prospectors into the district occurred that summer and again the following winter. Placer mining was inaugurated the following year, and was of particular importance from 1909 to 1915. In 1916, rich ore was found upon the lower levels of the Hite Caps Mine and led to another boom. In 1912, the Associated Mfg. Co. treated the ore of the White Caps Mine in a 75-ton mill which it had erected; shutting down the mine and mill when the oxidized ore was exhausted. In 1915, the White Caps M. Co., took over the White Caps mine and the Associated Mill; and in 1917, reconstructed the mill, adding a roasting furnace. Considerable difficulty has been experienced in devising a milling system adapted to the base arsenical ores of the White Caps Mine.

Production: From 1906 to 1921, the Manhattan District produced 375,292 tons of ore containing $4,112,607. in gold and 76,855 ozs. silver, valued in all at $4,160,921, according to Mineral Resources of the U.S. Geol. Survey.

Geology: The country rocks of the Manhattan District consist of Paleozoic sediments cut by Cretaceous granodiorite on the South and capped by Tertiary eruptives on the North. The Paleozoic rocks are mainly schists with included lenses of quartzite and beds of limestone. They have been compressed into close folds in part overturned toward the North, according to Feguson, and the principal anticline has been cut off obliquely by a reverse fault. The beds are further disturbed by a large number of small normal faults belonging to two series. The Tertiary eruptives consist mainly of rhyolite breccias but include lake bed deposits and andesite.
Placers: Placer gold has been mined from patches of old gravel on the sides of the gulch, from deep gulch gravels, and from the surface wash and shallow stream gravels near the lode outcrops. The gold is usually arborescent and but slightly abraded while the larger pieces contain quartz. The particles decrease in size and increase in fineness down in the gulch. The gold is accompanied by barite and magnetite and by minor amounts of psilomelane, cinnabar, limonite, pyrite, and fluorite.

The above description of the Manhattan Mining District is an excerpt from the book: Mining District and Mineral Resources of Nevada by Francis Church Lincoln.

Respectfully,

[Signature]

Lorin Bunker

LB/sst

P.S. Attached is a map of Group 26 of the Hughes Tool Company claims in the Manhattan Mining District.
MEMORANDUM

TO: Mr. A. J. Anderson  
Mining Division

FROM: George Hall

DATE: August 6, 1970

SUBJECT: Pilot Plant Electrolytic Cell

Report: In accord with your instructions, the pilot plant electrolytic cell is comprised of five identical cells each having six anode and five cathode compartments.

As required, the cells are designed to operate individually or in banks of two, three, four or five.

Anode cells contain 12" x 12" x 1/8" thick stainless steel #312 plates. Cathode cells contain 12" x 14" x 1/8" thick lead and antimony plates. 10 micron membranes, spaced 1 1/4" inches on center, separate the cell compartments.

Watertight integrity between cell compartments has been achieved by placing membranes in plastic frames, the edges of which are mechanically sealed against a medium grade of compressible rubber. The seal between the plastic frame and the rubber is controlled across the bottom by pressure from a lead weight on top of the frame. On the sides pressure is applied by a spline, manually inserted between the side of the membrane holder and the rubber seal. By varying the thickness of the pressure spline any desired pressure closing of the joint between the membrane holder and the compressible rubber seal can be made.

The design of the membrane holder provides a positive locking action by forcing the plastic membrane frame against the inner side (closest to the tanks center) of the plastic extrusion which acts as the membrane guide. When the pressure spline is in place this provides a watertight lock. The guides for both the membrane and the anode and cathode plates are designed so that pressure from the pressure spline cannot force open the end of the extrusion.

Aeration tubes descend to the cell bottom in spaces next to the tank walls. These are then carried across the cell bottom where pressurized air is released thru tube perforations so as to agitate the electrolytic fluid on both sides of the respective plates. The tube then ascends to the top of the tank where it rejoins the air circulation system, first passing thru a regulatory valve by which the rate of flow of air up the sides of each plate is controlled.
The circulation of electrolytic fluid is under complete control and can be directed to each cell in series or to any anode or cathode compartment of each cell. To place any cell or compartment in or out of service, requires only valve action and does not involve the moving or dismantling of any part of the plant.

Anode and cathode plates are hung by copper holders on cross members supported by positive and negative bus bars on both sides of the cells. Bus bars are insulated and cross bars and plate holders can be similarly insulated if desirable. Splash in the flow of electrolytic fluid between cells and compartments has been controlled by tubes and these have been designed so that they do not interfere with placing or removing a cell from the series.

In general, all parts have been designed to be identical to speed manufacture and all materials and extrusions are standard.

After you have instructed the shop foreman for the manufacturer as to how you want the cells made, it might save time to let me work with him until he clearly understands the drawing.

Respectfully,

George Hall

GH/sst
Mining Conts
- Geo.-Sampling & Estimation
- Nonmetallic Minerals
- Mining Machinery
- Mining Industry Practice
- Mining Geology
- Mining Engineering

Ge 8
Ge 96
Kaplan, Stuart R
- A guide to information sources
  in mining minerals and geoscience.
  New York: International Publisher, 1965

TN 24
N 35 B
Stoddard, Carl Kerby
- Mineral resources of
  Story and Lyon County, N.Y.
  Ithaca, University of

TN 47 45
Lehmann, M. C
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TN 145
L 45
1964
Lewis, Robert Strong
- Elements of Mining
  New York: J. Wiley, 1964

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L 58
Mine Plant Design
Staley, Wm. W

G 5 E 5
N 44
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  Civil Engineering 1967
Surveying

- Cartography
- Hydrographic surveying
- Photographic surveying
- Route surveying
- Trigonometry

Metallurgy

- Alloys
- Refining (Metallurgy)
- Chemical engineering
- Electrochemistry
- Metallurgy of steels
- Metallography

Mining

- Mine survey
- Mine ventilation
- Prospecting
- Mine examination

Mineralogy

- Elements of mineralogy 1968

Books:

- "System Analysis" T57 Eng 6 A13
- "Bouchard, N.A. Rev by Francis M. Meeker International 1967"
- "Elementary Plane Surveying Davis Raymond Earl" Comprehensive Textbook 1967
- "Elementary Metallurgy" Fuer, Wun T
- "Mining" T5 57 S7 Stanley W. Mickey 1968
- "A Dictionary of Mining" Schuck Paul W 1968
- "Elements of Mineralogy" Mason, Sterling C. 1968 SF
Chas Bruning 753 Industrial St SF 824 4300

New component - will mail complete C675

Dietrich Post 599 2nd St 444 2912

New component - will mail cat

Kuffel Eric 2677 Folsom St SF 282 8309

Have Catalog

Lady Co 330 Corey Way 815 871 84011

Will send Catalog

Reproduction Equity 2037 Edison St 569 1450

New sent cat
Dataprint Corp
1411 Minnesota St
648 2006

Delreyen Eugene Co
870 Miller Rd
Cuddegon
697 0608

2676 Folsom
282 8309

Delreyen Post
142 Minnesota
364 3108
Free
564 2429

Graphic Reproduction
465 Maloma
981 3705

Blau Ray
2037 Edmondson
569 4520
For Purchase

Elemental Plane Surveying 4th ed. 1967
Raymond E. Davis
Joe W. Kelly
McGraw Hill Book Co
San Francisco

An Outline of Metallurgical Practice 1952
Sponsored by Am. Smelting & Refining Co.
Carl R. Hayward
Van Nostrand Co. Inc.
Toronto - New York - London

Elements of Mining 1964
Robert S. Lewis
John Wiley & Sons Inc.
New York

Mine Plant Design 1944 2nd ed.
W. W. Staley
McGraw Hill Book Co. Inc.
Standard Drafting Symbols
Isometric Projection
Block Diagrams
Isometric Perspective
Million Flo Charts

Environmnetal
Deegrz
Ubanity
1967
CLAIMS

- ALPHABETICAL LISTING - ROLLODEX
- GROUP LISTING MANUAL
- MAP FILING - GROUP NUMBERED DRAWERS
- MINERAL SURVEY MAP BOOK
- LEGAL & RECORDED DOCUMENT FILE CARD SYSTEM
- CLAIMS INFORMATION MASTER RECORD BOOK
- PATENTED CLAIMS LEDGER & REP CARD FILE

CLAIM = OWNED  
GROUP + CLAIMS NUMBER  
UNPATENTED

PROPOSED - NEW
ESCROWED GROUP + CLAIMS NUMBER
4 Flow Diagrams

Sheet 1: Pilot Plant
Sheet 2: Flashing the DSM screen repetitively then as an example for Electrolytic cells on Pilot Plant

Special Design Electrolytic Cell
Gold, Placer, Gold, Silver, Arsenic, Rhyolite Pebbles

Location. The Manhattan District is at Manhattan in the S. part of the
together Range. Manhattan is 45 m. by road N. of Tonopah which
is on the T. & G. N. R. It is situated in Manhattan Canyon on the W.
side of the range at an altitude of 6,565 ft.; while Bald Mts. to the N.
reach a height of 9,275 ft. The old Belmont District adjoins the
Manhattan District on the N. E.

History. Manhattan was discovered by John C. Humphreys in 1903 and a
rush of prospectors into the district occurred that summer and again
the following winter. Placer mining was inaugurated the following year,
and was of particular importance from 1909 to 1915. In 1916, a rich ore was found upon the lower levels of the White Caps Mine and
led to another boom. In 1912, the Associated Mfg. Co. treated the
ore of the White Caps Mine in a 72-ton mill which has been erected;
shutting down the mine and mill when the oxidized ore was exhausted.
In 1915, the White Caps M. Co. took over the White Caps mine and
the Associated Mill; and in 1917, reconstructed the mill, adding a roasting
furnace. Litigation with the Manhattan Glory was settled in 1918; but
considerable difficulty has been experienced in devising a milling system
adapted to the base arsensical ore of the White Caps Mine. Since
1914, artificial penalties for base mills have been manufactured in the
admission of valuable minerals.

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obliquely by a reverse fault. The beds are further disturbed by a large
number of small normal faults belonging to several series. The Tertiary
eruptives consist mainly of rhyolite breccias but include tuff, ash deposits
and andesite.

Veins. The ore deposits of the Manhattan District include veins in the
Tertiary eruptives, veins in the Paleozoic sediments, stockworks in the