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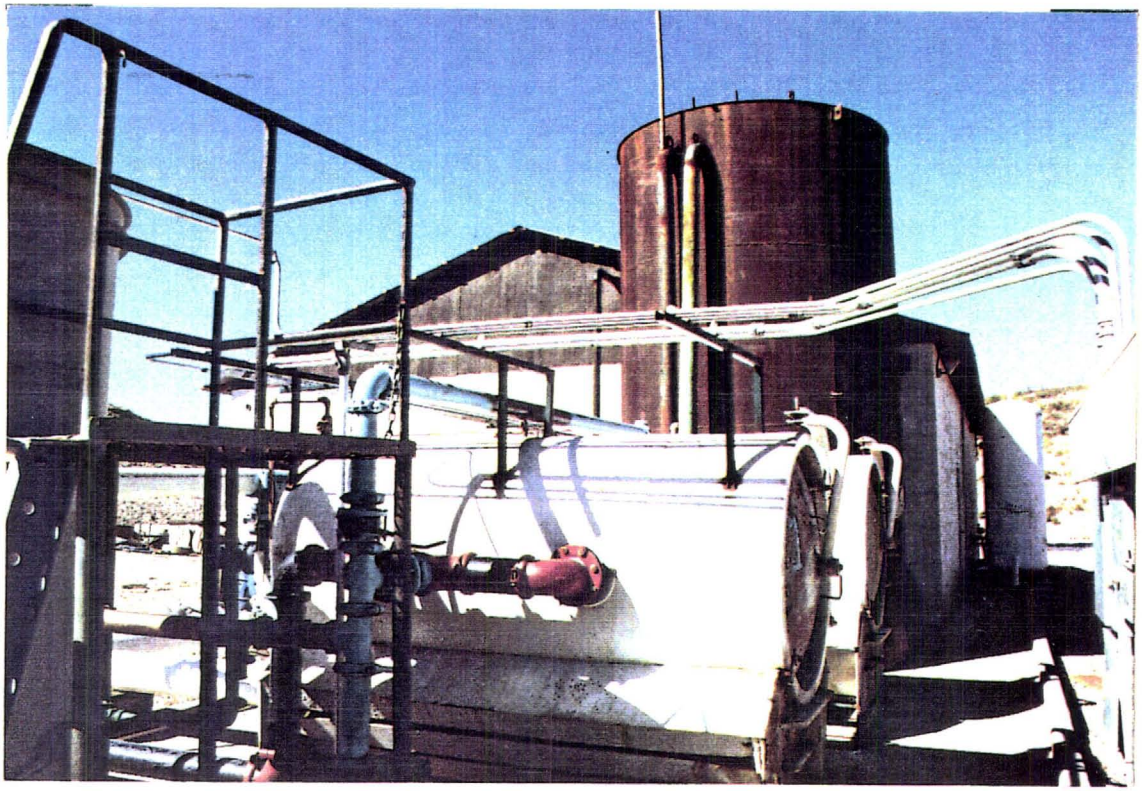
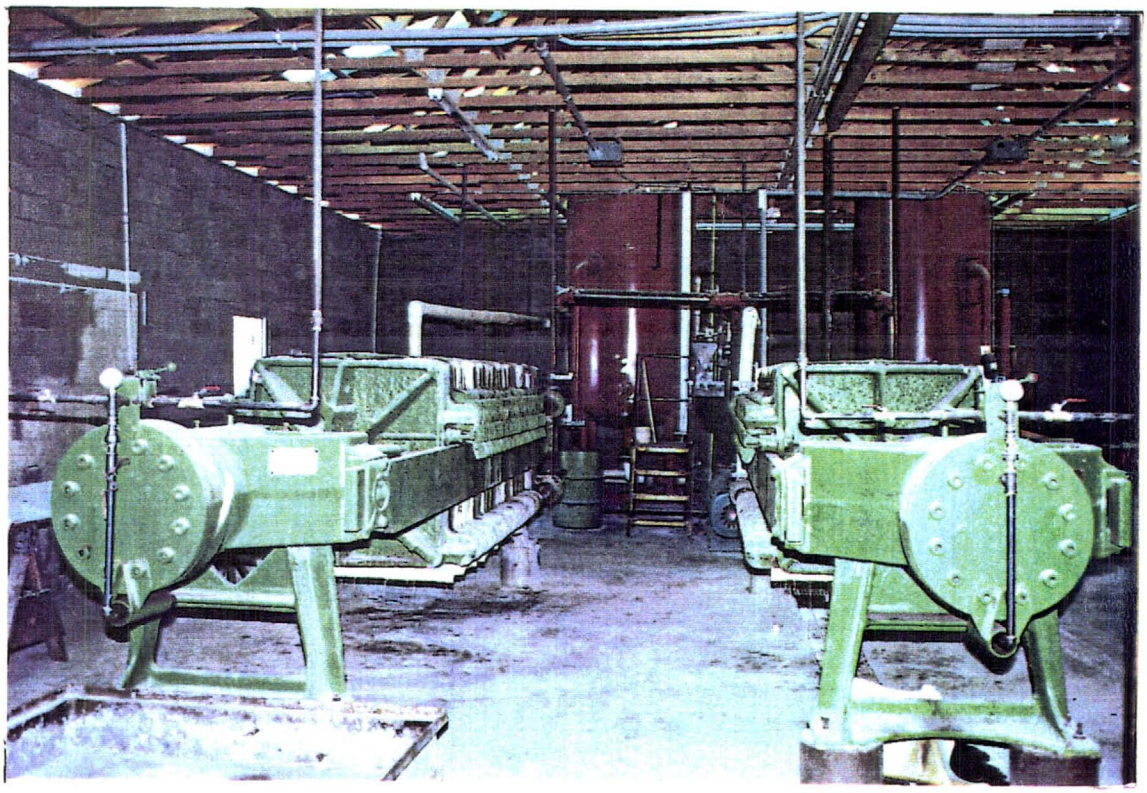
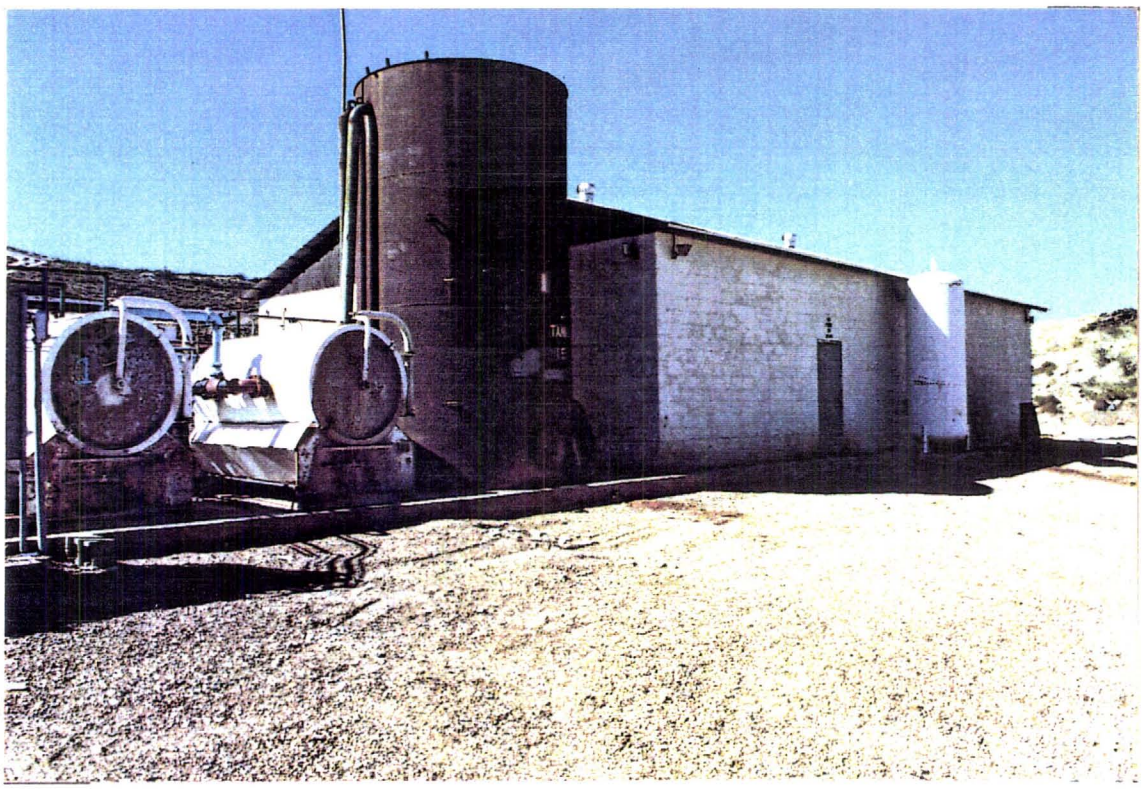


U.S. Filter Clarification Filters

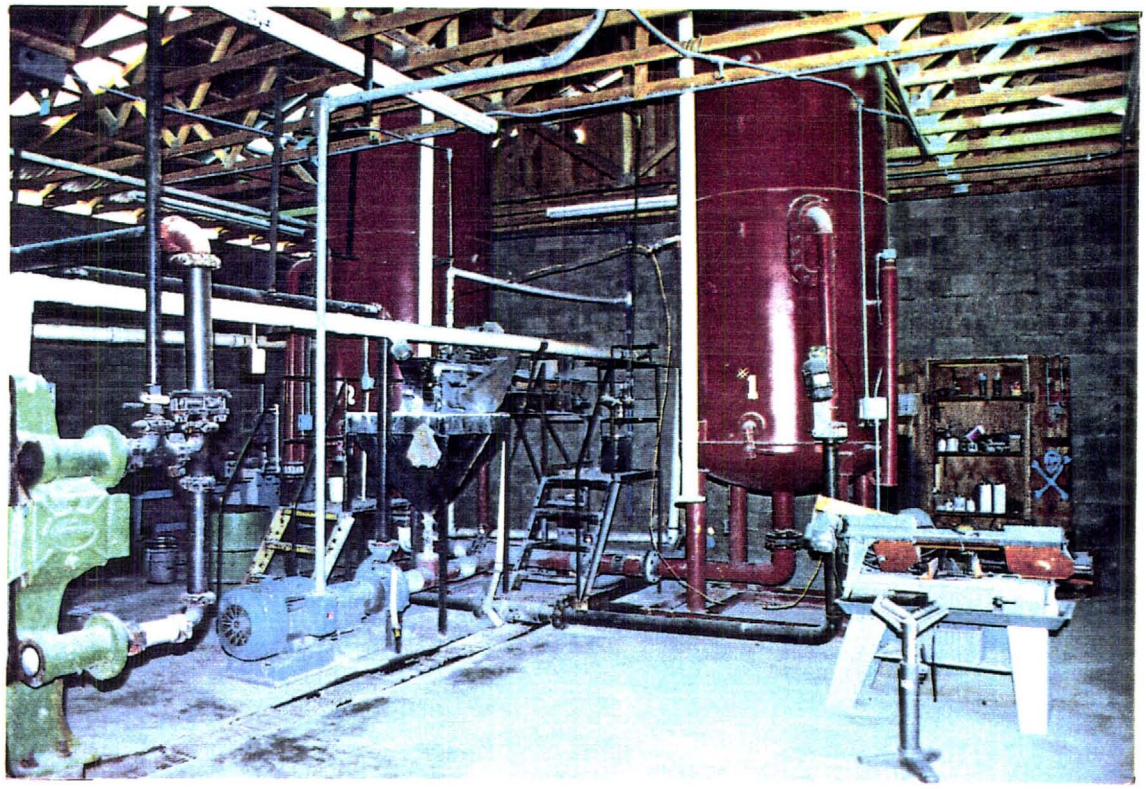


Shriver 42" Filter Presses

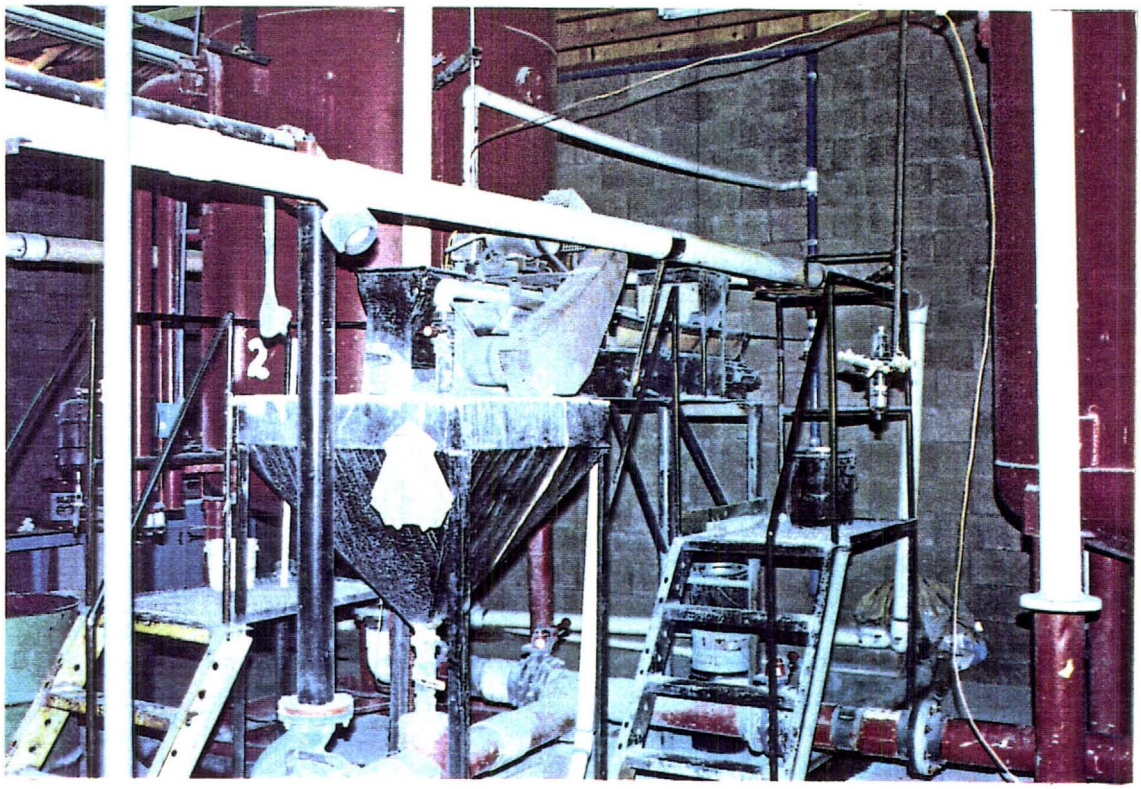
Leach Pads and Processing Ponds



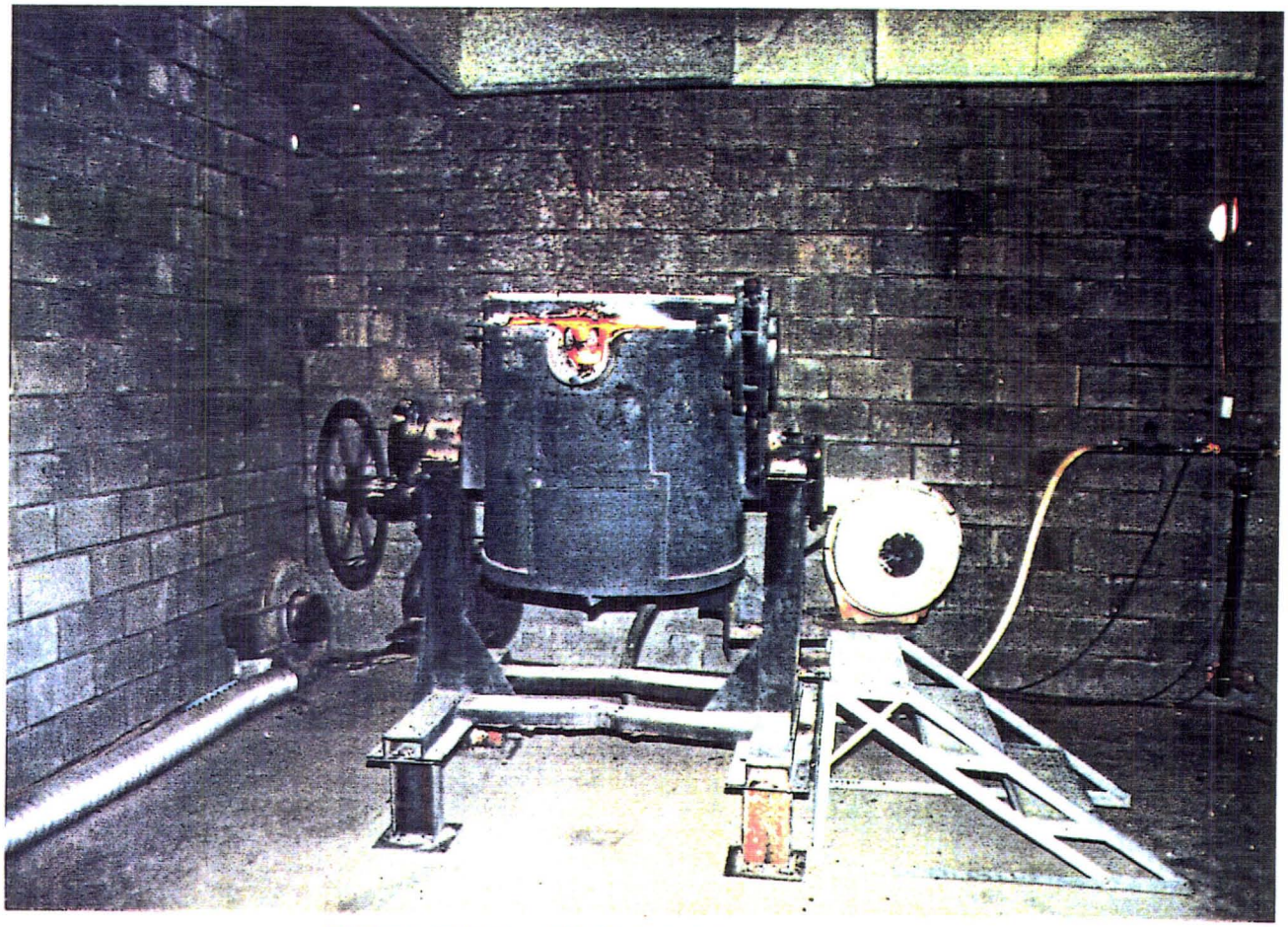
Merrill-Crowe Zinc Precipitation Plant



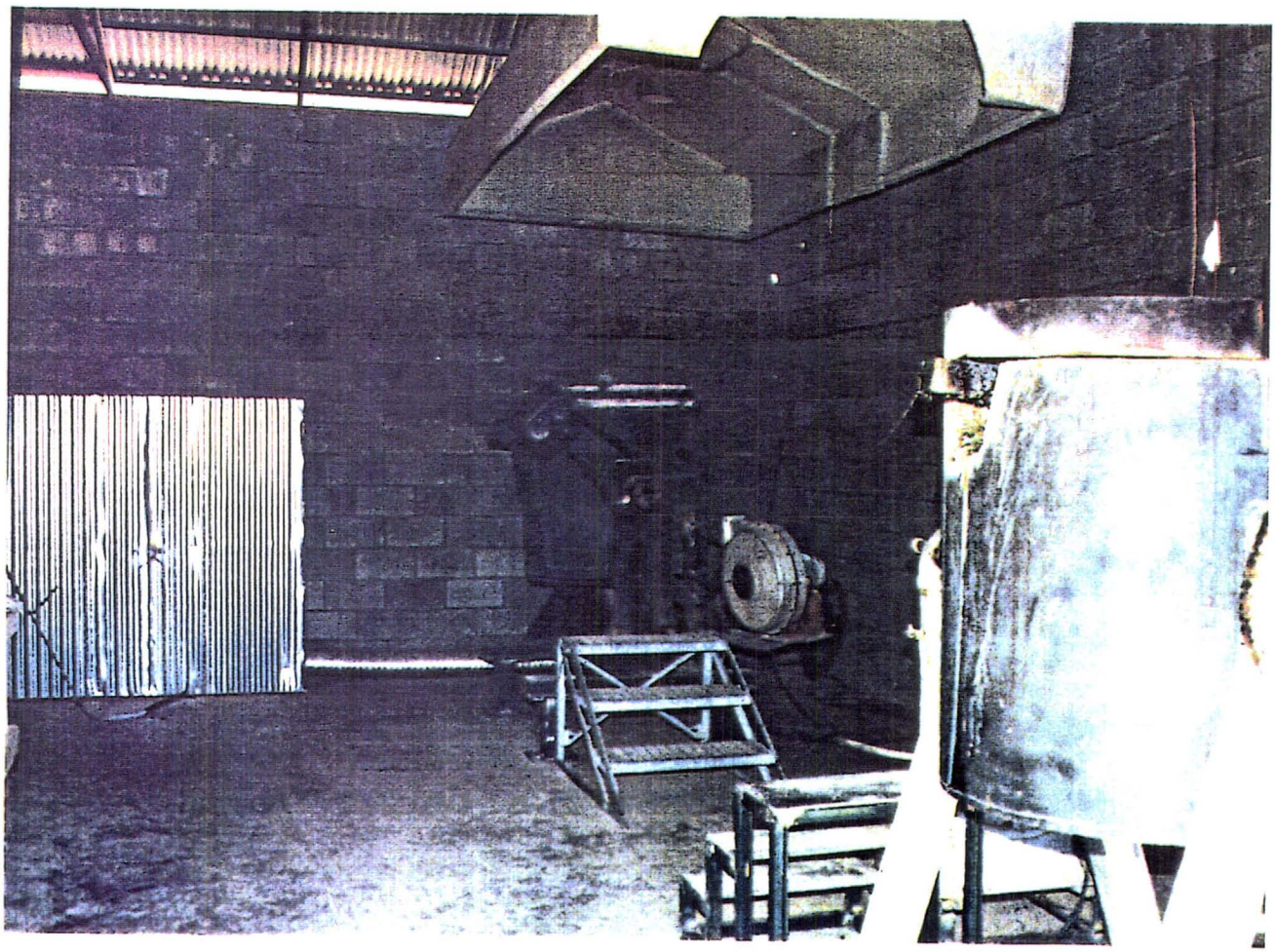
Deaeration Towers



Belt Driven Zinc Feeder



SMELTER FURNACE NO. 1



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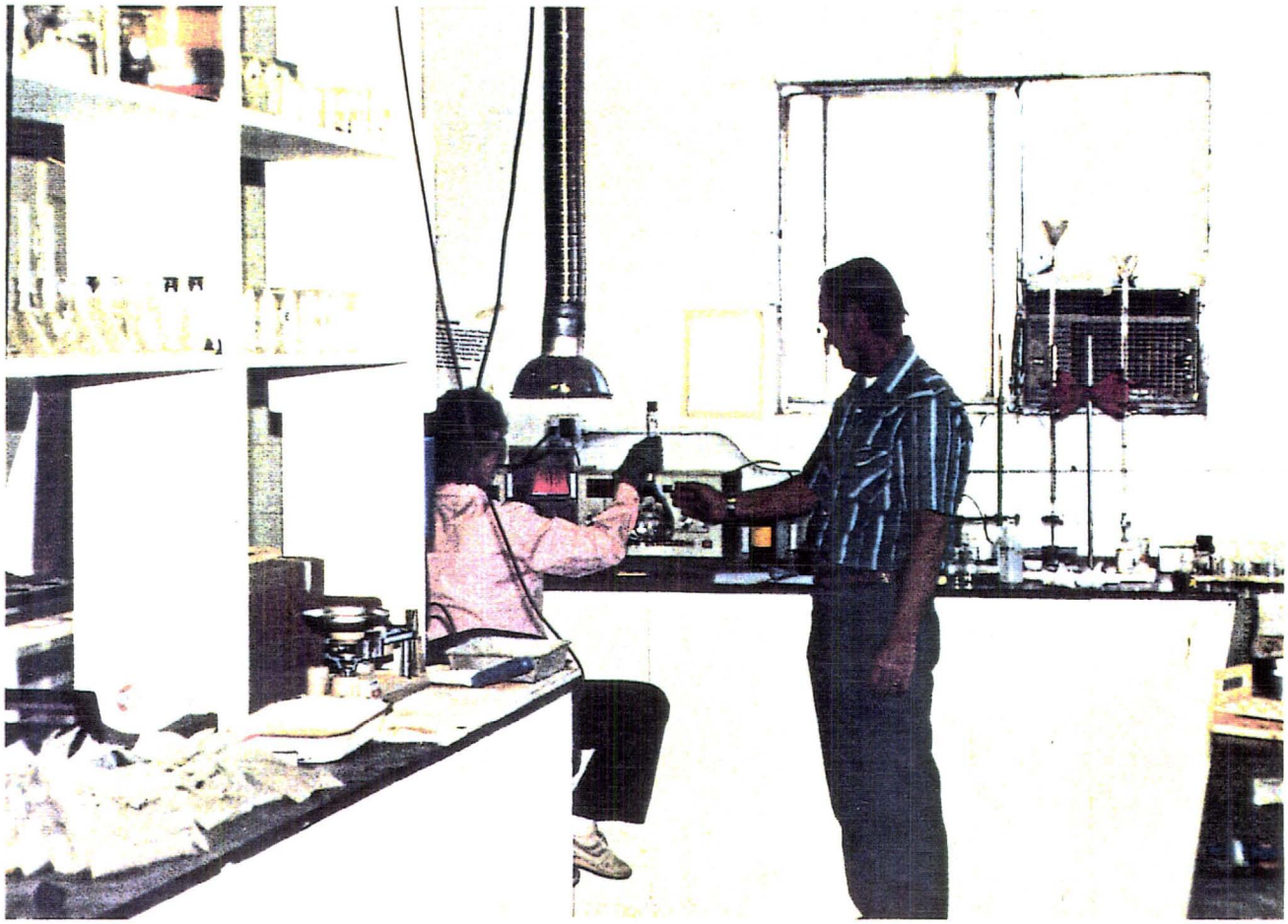
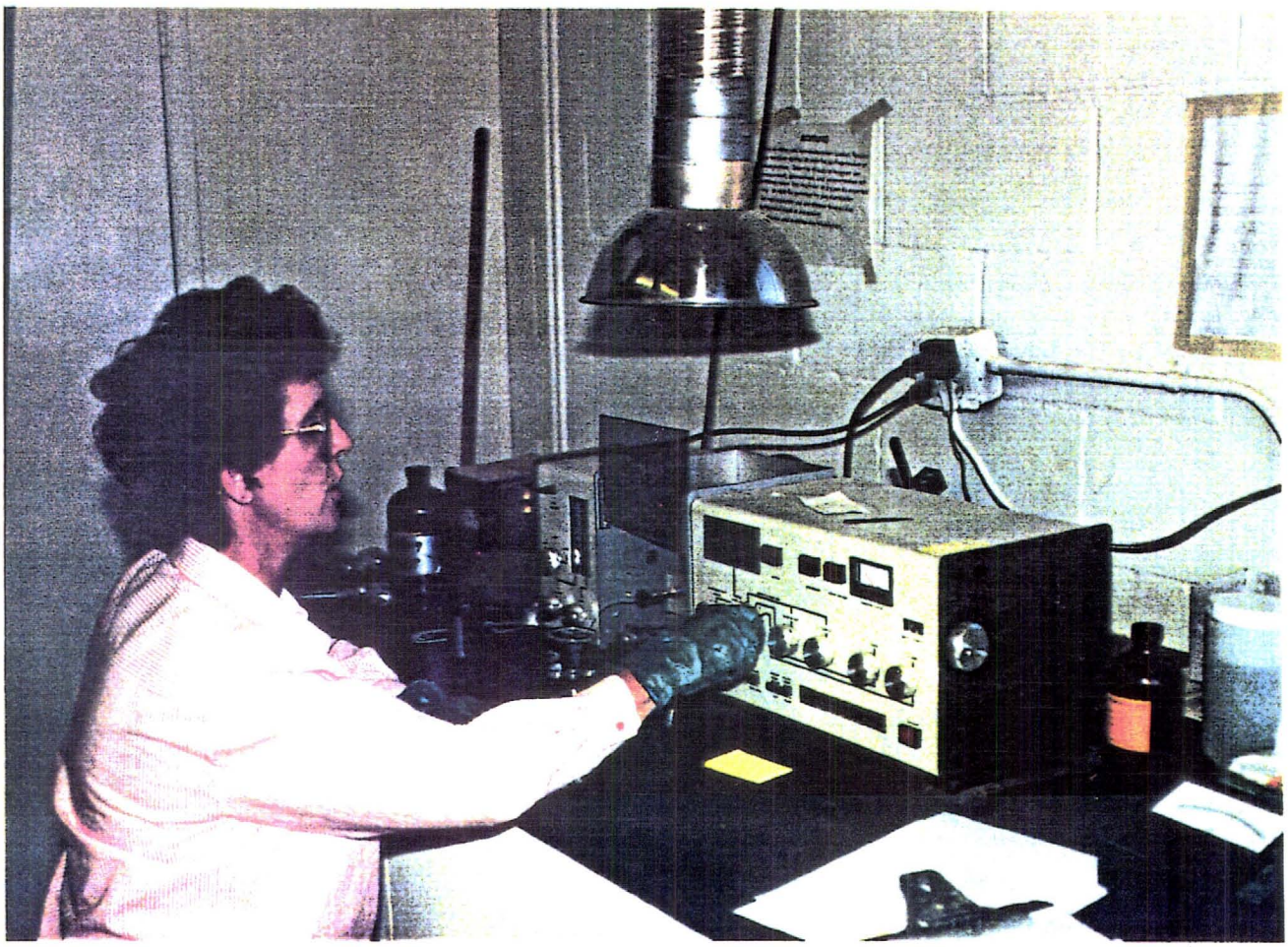


LABORATORY



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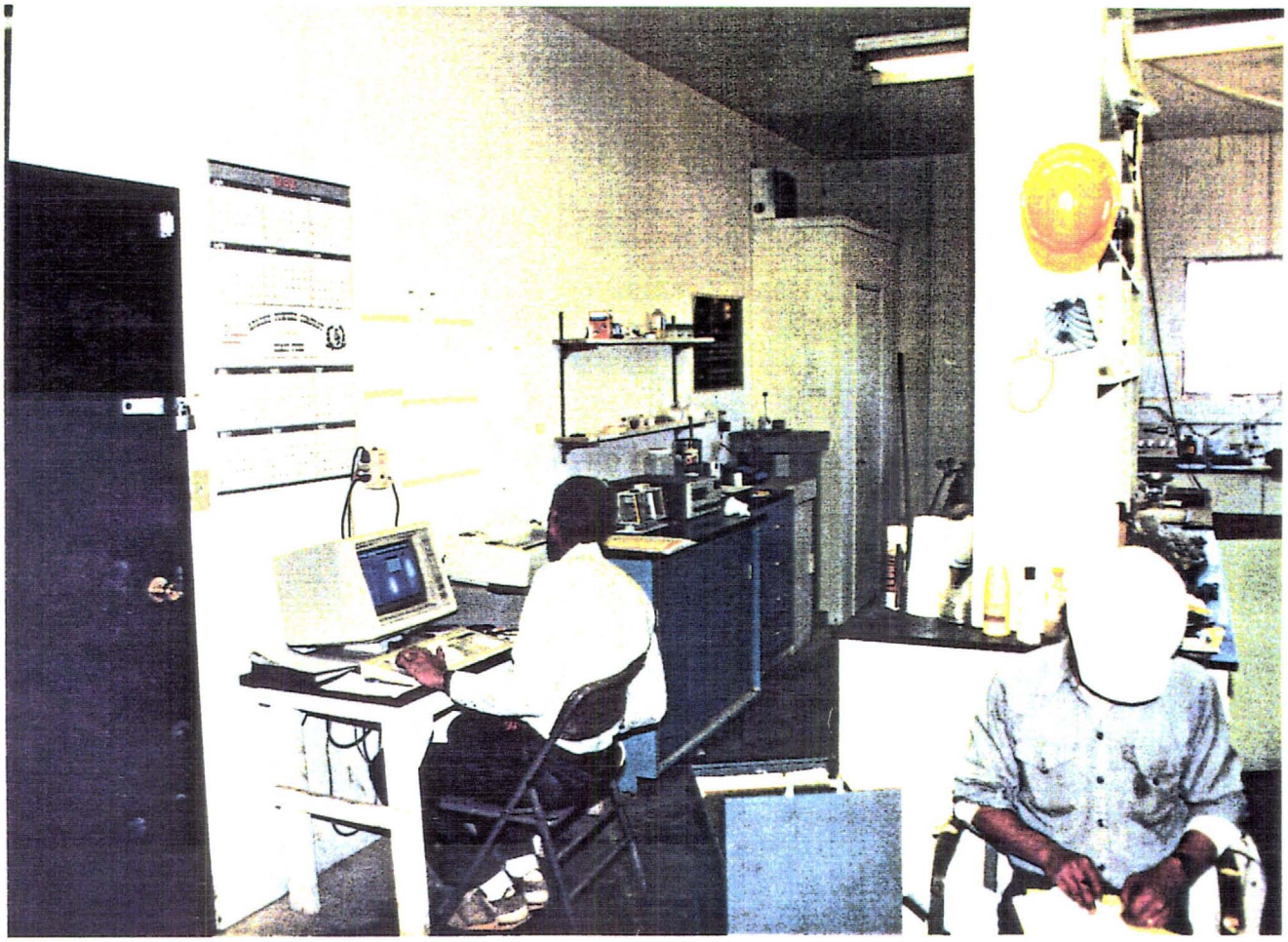

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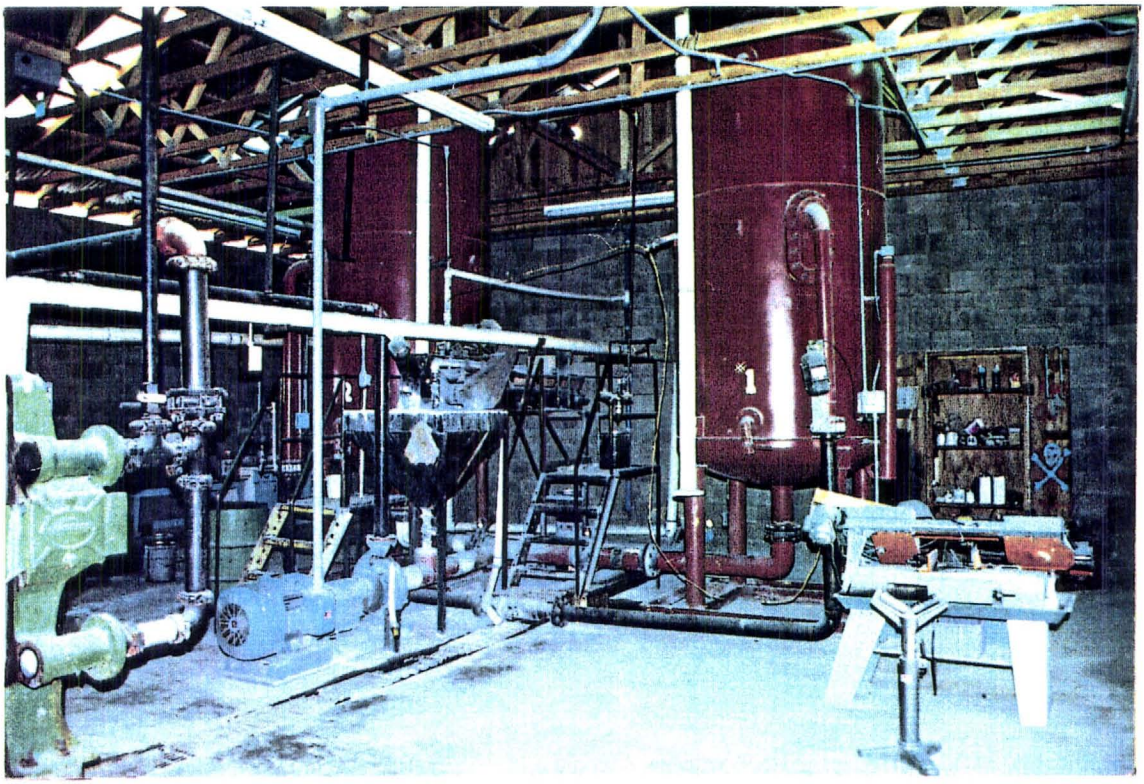
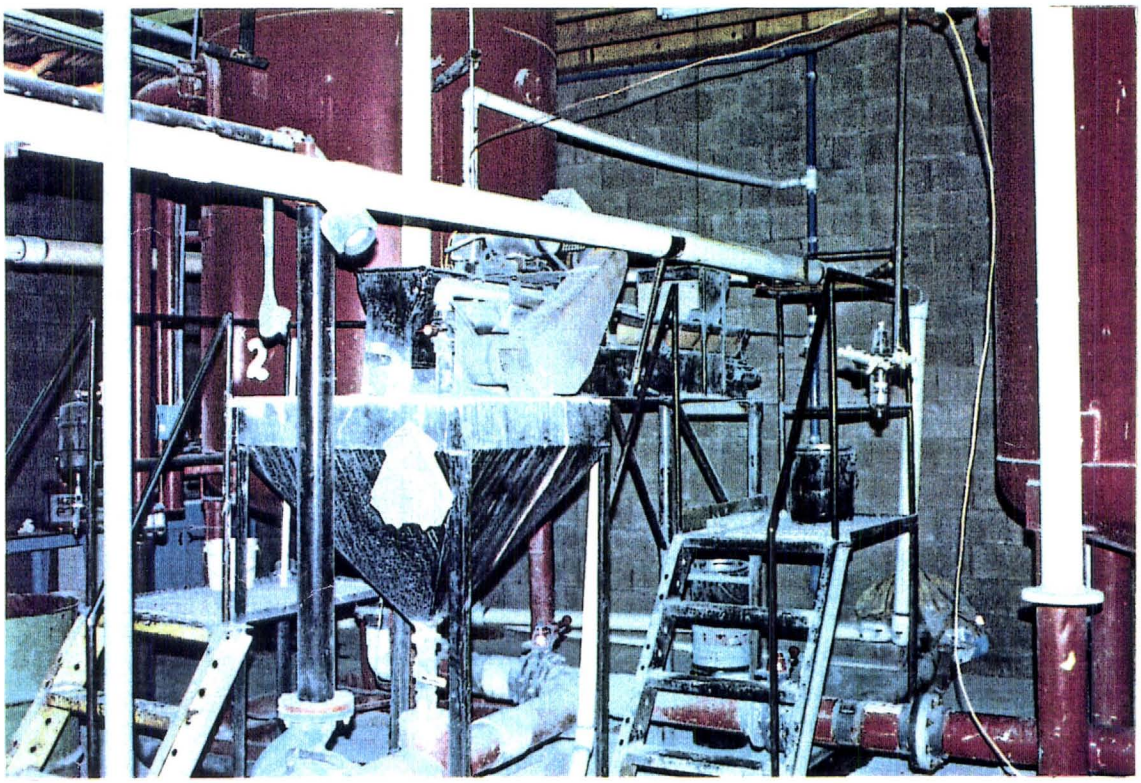


Deaeration Towers



Belt Driven Zinc Feeder

00859

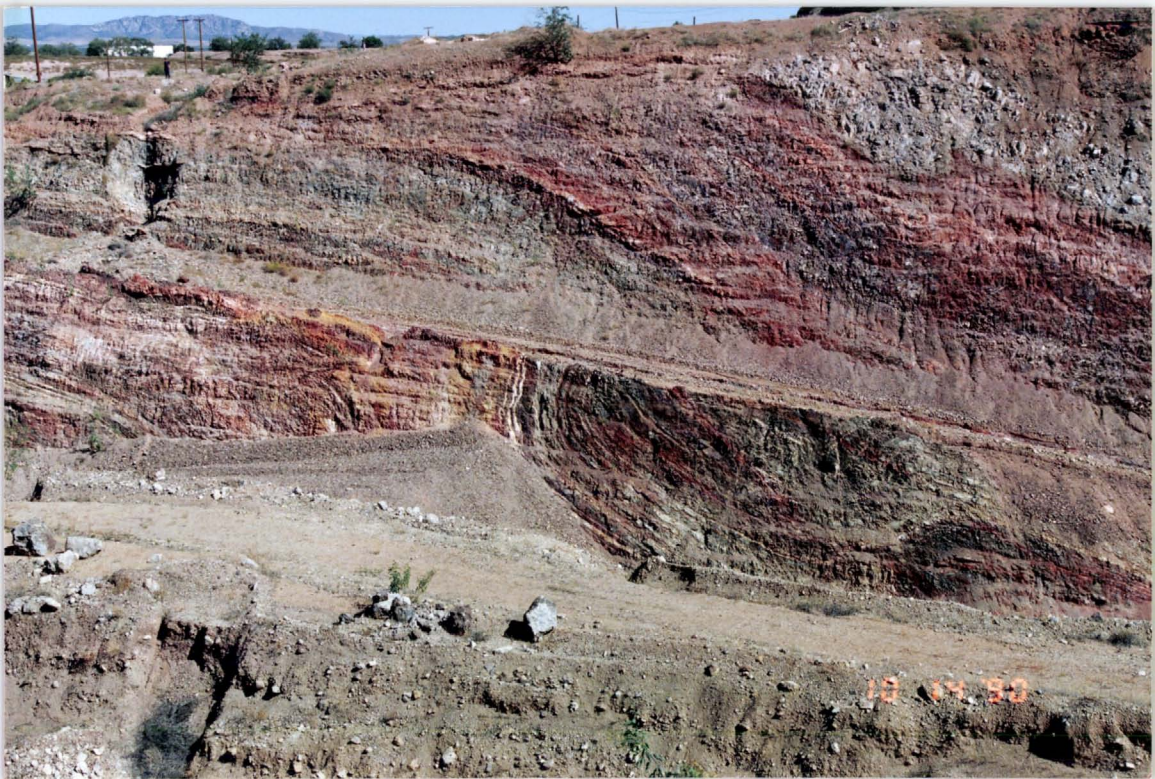

10 14 '98

60859


10 14 90

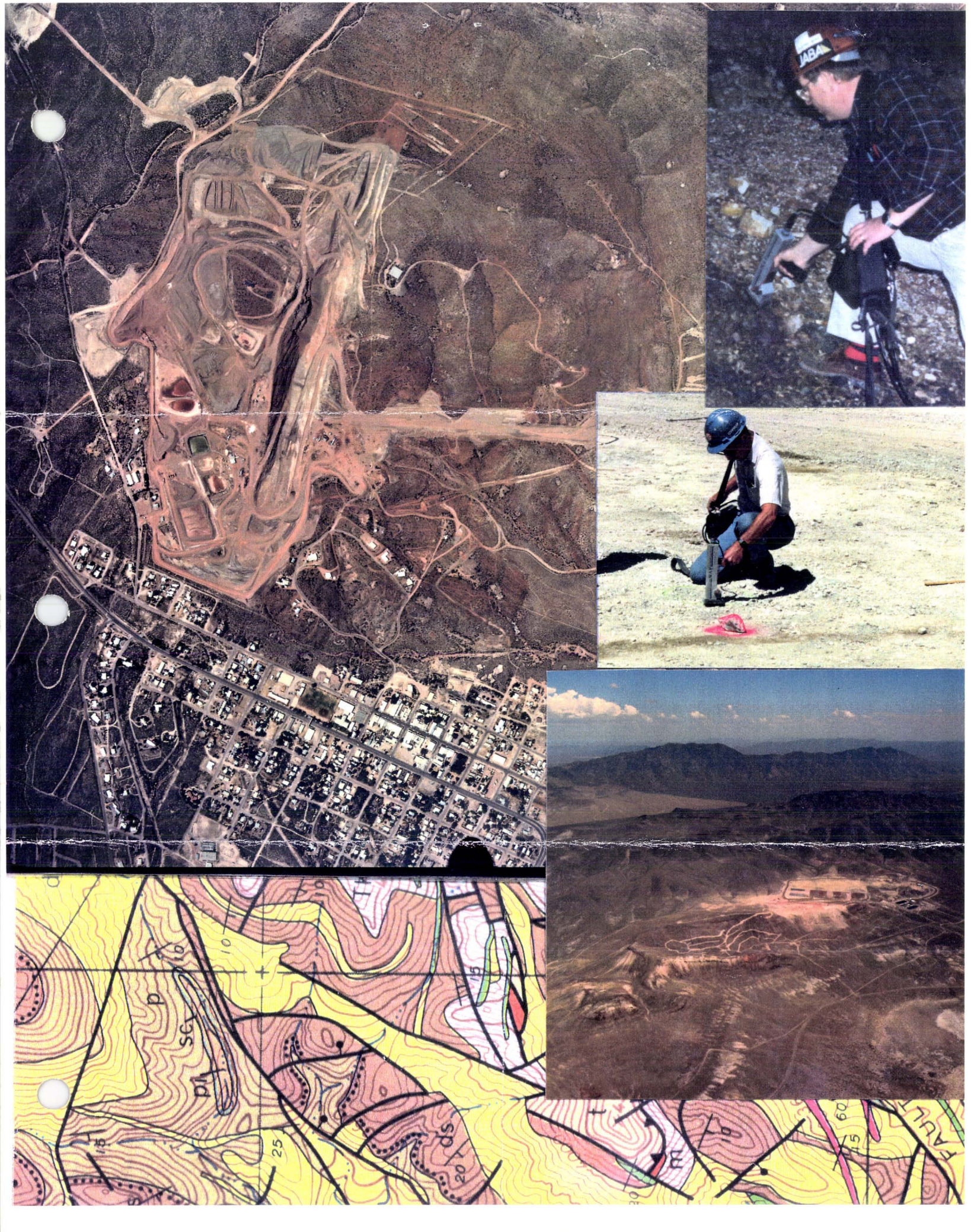
00859

00859


10 14 90


10 14 '90

OOK


JABA
FAULT

Explanation

Geology

QTgu — OLDER OR UNDIFFERENTIATED SURFICAL DEPOSITS (HOLOCENE TO OLIGOCENE):—Gravel, sand, and silt (Pleistocene and Pliocene—Mainly alluvium of basins; includes some colluvium and landslide deposits. Generally light-pinkish gray, weakly indurated, and with poorly rounded clasts; locally well indurated. Thickness several meters to hundreds of meters.

QTb — Basalt (Pleistocene to Pliocene)—Lava flows, pyroclastic rocks, and some intercalated gravel. Thickness several meters to a few hundred meters in most places. Radiometrically dated at 0.25, 1.0, and 3.2 m.y. old

Tva — Extensive andesite and dacite (Miocene and Upper Oligocene)—Lava flows, pyroclastic rocks, some intercalated epiclastic rocks, and dikes. Mostly gray, fine-grained, porphyritic rocks, includes some very coarse feldspar porphyry andesite (Turkey track porphyry, an informal term of Cooper, 1961). Thickness mostly several meters to several tens of meters. Dated at 24, 25, 27, 33, and 39 m.y.

Tv — Extrusive rhyolite and rhyodacite (Miocene and Upper Oligocene—Lava flows, welded tuff, pyroclastic rocks, and some intercalated epiclastic rocks. Light-gray to grayish-pink, vitric to fine-grained, porphyritic. Commonly a few tens to a few thousand of meters thick. Dated at 23, 24, 25, 26, 26, 26, and 27 m.y. An additional date of 47 m.y., if substantiated, may indicate the presence of Eocene rocks in the lower member of the S O Volcanics of Cochise Co.

Tlc — Lower conglomerate, gravel, and sand (Oligocene and Eocene?)—Alluvium; commonly grayish-red deposits of small, well rounded, nonvolcanic clasts. Mostly several meters to a few tens of meters thick.

Tlv — UPPER CORDILLERAN (LARAMIDE) IGNEOUS ROCKS (LOWER PALEOCENE):—Lower volcanic rocks—Rhyolite to andesite lava flows, pyroclastic rocks, and some intercalated epiclastic rocks. Dated at 57 m.y. Possibly younger age to east.

Tli — MAIN CORDILLERAN (LARAMIDE) IGNEOUS ROCKS:—Porphyritic and aplitic intrusive rocks (Paleocene and Upper Cretaceous)—Mostly latitic porphyry to dacitic porphyry in small stocks and plugs and aplitic bodies not associated with other granitoid stocks. Dated at 61, 63, 63, 64, and 65 m.y.

Kib — Fluidized intrusive breccia—exact age unknown, but penetrates, and thus younger than Uncle Sam porphyry.

Kr — Rhyodacite tuff and welded tuff. —Includes parts of Salero Formation, Sugarloaf Quartz Latite, and Bronco Volcanics, and all of Red Bay Rhyolite, Cat Mountain Rhyolite of Brown (1939) and Uncle Sam Prophyry. Includes local intrusive bodies and locally contains fragments of exotic rocks. Thickness commonly several tens of meters to several hundreds of meters. Dated at 66(?), 70, 72, 73, and 73 m.y. The Uncle Sam, in the Tombstone area, is dated 72 m.y.

Ka — Andesitic to dacitic volcanic breccia —Includes parts of Salero Formation, Sugarloaf Quartz Latite, and Bronco Volcanics, and all of Demetrie Volcanics and Silverbell Formation of Courtright (1958). Commonly contains large blocks of exotic rocks and locally includes some sedimentary rocks and intrusive rocks. Several tens of meters to several hundreds of meters thick in most places.

Klq — Lower quartz monzonite and granodorite—Includes some quartz diorite; appears in small stocks. Locally associated with mineralization. Dated at 70, 71, 72, 73, 74, 74, 74, and 76 m.y. The Schiefflin granodorite at Tombstone is 72 m.y.

Kb — BISBEE FORMATION OR GROUP, UNDIFFERENTIATED (LOWER CRETACEOUS)—Upper part of Bisbee Formation or Group, undifferentiated, and related rocks.—Includes upper part of Bisbee Formation, Mural Limestone, Morita, Cintura, Willow Canyon, Apache Canyon, Shellenberger Canyon and Turney Ranch Formations (not listed in stratigraphic sequence) of the Bisbee Group, Amole Arkose of Bryant and Kinnison (1964), and Angelic Arkose. Consists of brownish- to reddish-arkose, gray siltstone, sandstone, conglomerate, and some fossiliferous gray limestone. Commonly several hundred meters thick

Jg — GRANITE AND QUARTZ MONZONITE (JURASSIC)—Stocks of pinkish-gray coarse-grained rock. Locally associated with mineralization. Dated at 140, 148, 149, 149, 150, 153, 160, 161, 167, 178, 185 m.y.

PIPs — Sedimentary rocks (Lower Permian and Upper Pennsylvanian)—consists of Epitaph Dolomite (Lower Permian), Colina Limestone (Lower Permian), and Earp Formation (Lower Permian and Upper Pennsylvanian), undifferentiated. Epitaph Dolomite is a dark- to light-gray slightly cherty dolomite, limestone, marl, siltstone, and gypsum, 120-280 meters thick. Colina Limestone is a medium gray, thick-bedded, sparsely cherty, and sparsely fossiliferous limestone 120-280 meters thick. Earp Formation is a pale-red siltstone, mudstone, shale, and limestone, 120-240 meters thick.

IPh — Horquilla Limestone (Upper and Middle Pennsylvanian)—Light-pinkish-gray, thick- to thin-bedded, cherty, fossiliferous limestone and intercalated pale-brown to pale-reddish-gray siltstone that increases in abundance upward. Typically 300-490 meters thick.

MDs — SEDIMENTARY ROCKS (MISSISSIPPIAN AND DEVONIAN)—Consists mainly of Escabrosa Limestone (Mississippian)—locally (Armstrong and Silberman, 1974) called Escabrosa Group—and Martin Formation (Upper Devonian), undifferentiated. In part of the Chiricahua Mountains also includes Paradise Formation (Upper Mississippian) and Portal Formation of Sabins, 1957a (Upper Devonian). In the Little Dragoon Mountains and some adjacent hills also includes Black Prince Limestone, whose fauna and correlation show strongest affinities with Mississippian rocks but which may include some Pennsylvanian rocks. Escabrosa Limestone is a medium-gray, massive to thick-bedded, commonly crinoidal, cherty, fossiliferous limestone 90-310 meters thick. Martin Formation is thick- to thin-bedded, gray to brown dolomite, gray sparsely fossiliferous, and some siltstone and sandstone, 90-120 meters thick. Paradise Formation is a brown, fossiliferous, shaly limestone. Portal Formation is a black shale and limestone 6-105 meters thick. Black Prince Limestone is pinkish-gray limestone with a basal shale and chert conglomerate, as much as 52 meters thick.

OCs — SEDIMENTARY ROCKS (LOWER ORDOVICIAN TO MIDDLE CAMBRIAN):—El Paso Limestone (Lower Ordovician and Upper Cambrian), Abrigo Formation (Upper and Middle Cambrian), and Bolsa Quartz (Middle Cambrian), undifferentiated.—El Paso Limestone is a gray, thin-bedded cherty limestone and dolomite 90 meters to about 220 meters thick. Abrigo Formation is a brown, thin-bedded fossiliferous limestone, sandstone, quartzite, and shale, 210-240 meters thick. Bolsa Quartzite is a brown to white or purplish-gray, thick-bedded, coarse-grained quartzite and sandstone with a basal conglomerate, 90-180 meters thick. To the east, equivalents of part of the Abrigo Formation and Bolsa Quartzite are known as the Coronado Sandstone.

Cs — Sedimentary rocks (Upper and Middle Cambrian)—Abrigo Formation (Upper and Middle Cambrian), and Bolsa Quartzite (Middle Cambrian), undifferentiated.

Yg — GRANITOID ROCKS (PRECAMBRIAN Y):—Mainly granodiorite and quartz monzonite, unfoliated to foliated, in part metamorphosed. Generally in stocks, which alwe been little studied.

Xs — PINAL SCHIST (PRECAMBRIAN X)—Chlorite schist, phyllite, and some metavolcanic rocks, metavolcanic rocks, metaquartzite, metaquartzite conglomerate, and gneiss. One metavolcanic rock dated at 1715 m.y.

CONTACT—Dotted where concealed.

MARKER HORIZON—Dotted where concealed.

DIKES—Showing dip.

FAULTS—Showing dip. Dotted where concealed or intruded; ball and bar on downthrown side.

70 — Normal

45 — Reverse

Strike-slip—Arrow couple shows relative displacement. Single arrow shows movement of active block.

Major thrust fault—Sawteeth on upper plate.

Thrust fault—Sawteeth on upper plate.

Anticline.

Syncline.

30 — Inclined strike and dip of beds.

EXOTIC-BLOCK BRECCIA—Rock contains chip or block inclusions of rock different from those of host or other blocks nearby. Typically of volcanic-tectonic or sedimentary-tectonic origin; excludes Tertiary megabreccia deposits.

(QTgu) 157 — Site of well or generalized site of several wells, showing unit penetrated, if known, and depth of well, in feet. 100 feet equals 30.5 meters.

72x — COLLECTION SITE—Radiogenically dated rock showing age in millions of years. Query before symbol where precise location uncertain.

Roads and Highways

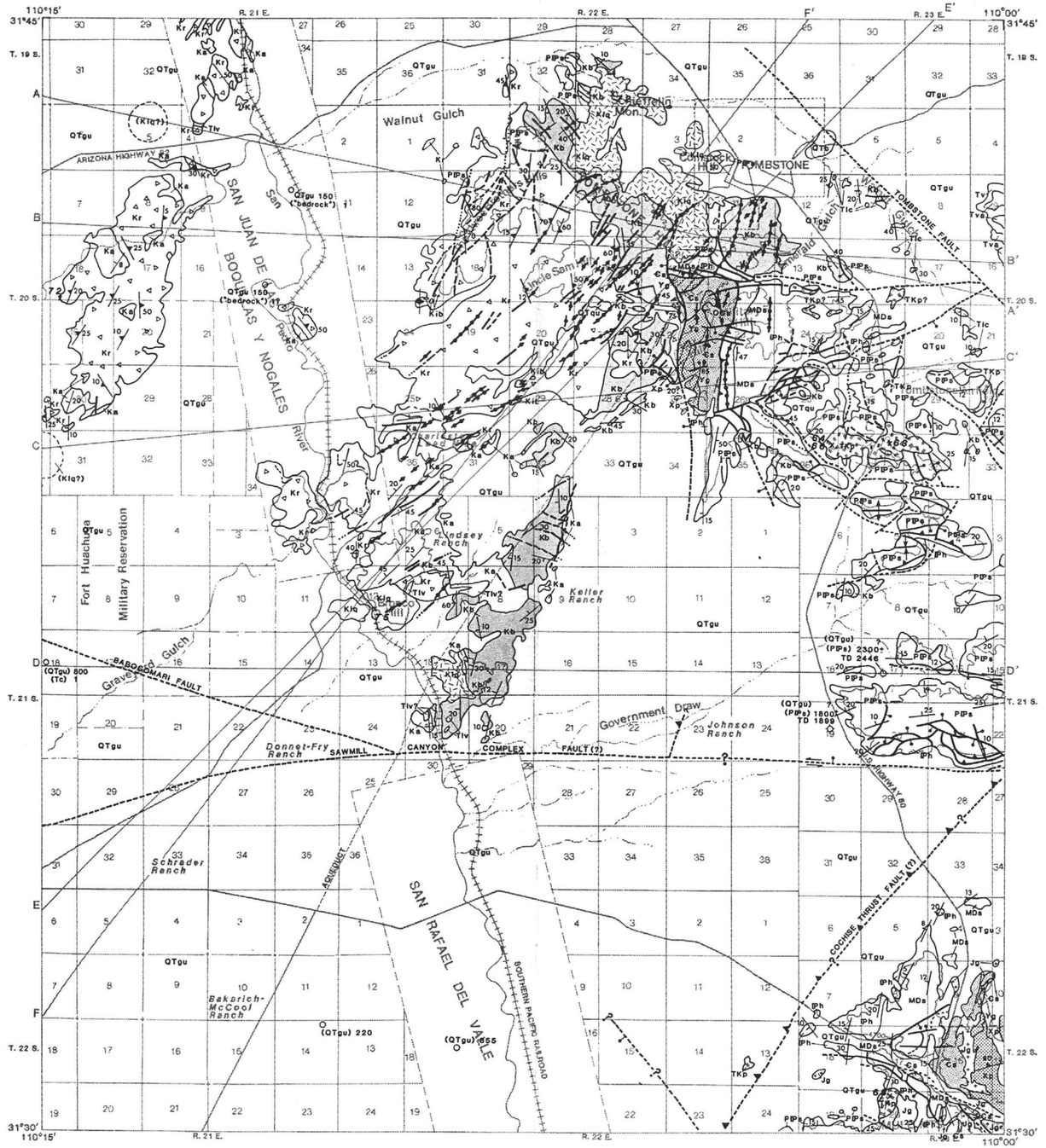
Dry wash

Southern Pacific Railroad

Government Reservation Boundary

Aqueduct

A—A' Cross section line



Tombstone Development Company, Inc.
Tombstone, Arizona

Geology adopted from Drewes, Harold, 1980, and Newell, R.A., 1973.

Figure 3. Generalized geological and structural map on screened topographic base.

By James A. Briscoe
James A. Briscoe and Associates
Tucson, Arizona

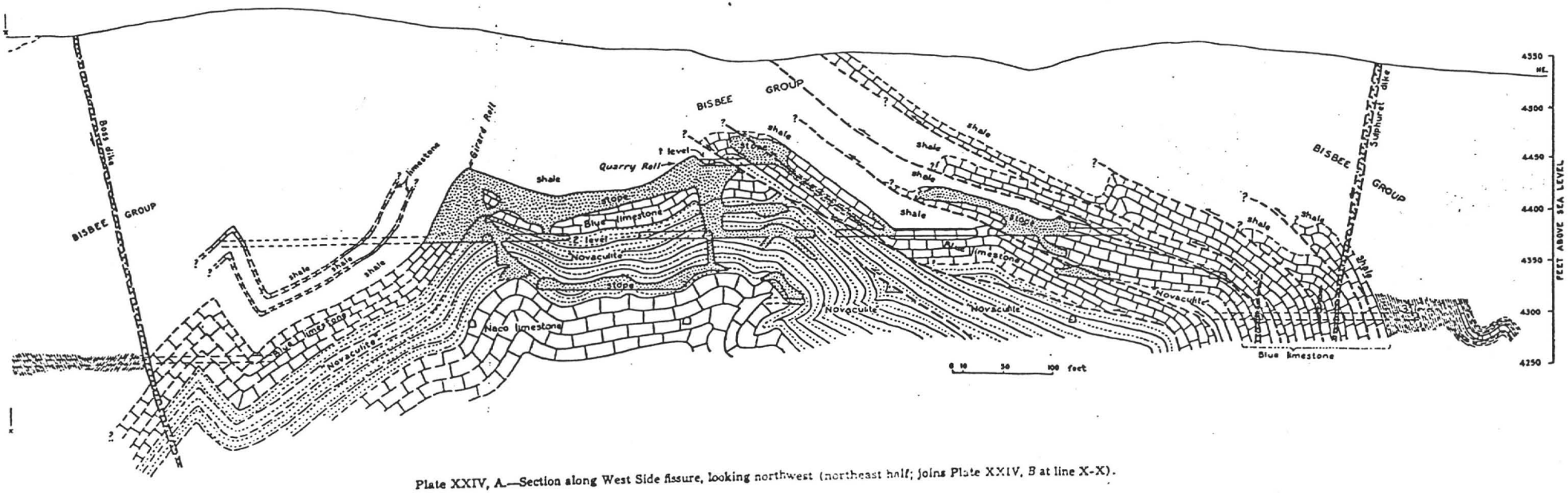


Plate XXIV, A.—Section along West Side fissure, looking northwest (northeast half; joins Plate XXIV, B at line X-X).

Figure 38
Page 107

SUMMARY OF TOTAL RECORDED PRODUCTION AT TOMBSTONE
1879 TO 1937
CALCULATED TO CURRENT VALUES - $400 GOLD, $10 SILVER, $1.00 COPPER, $.50 LEAD, $.40 ZINC

SOURCE & YEAR	TOTAL VALUE OF PRODUCTION IN YEAR PRODUCED	CALCULATED OUNCES OF GOLD PRODUCED	VALUE AT $400/OZ.	CALCULATED OUNCES OF SILVER PRODUCED	VALUE AT $10/OZ.	CALCULATED POUNDS OF LEAD PRODUCED	VALUE AT $.50/LB.	CALCULATED POUNDS OF COPPER PRODUCED	VALUE AT $1.00/LB.	CALCULATED POUNDS OF ZINC PRODUCED	VALUE AT $.40/LB.	TOTAL CURRENT VALUE OF PRODUCTION
J. B. TENNEY												
1879 TO 1907	28400000	192356	76942400	24338159	243381590	31805070	15902535	NRP*	NRP	NRP	NRP	336226525
MINERAL RESOURCES OF THE UNITED STATES												
1908 TO 1934	8138571	57971	23188400	6659692	66596920	23767829	11883915	2358495	2358495	1058234	423294	104451023
TOMBSTONE DEVELOPMENT TOMBSTONE MINING CO'S.												
1935 TO 1936	564437	6375	2550000	390305	3903050	3197305	1598653	157536	157536	NRP	NRP	8209239
TOMBSTONE EXTENSION												
1930 TO 1937	374972	1083	433056	1080491	10804907	6335734	3167867	NRP	NRP	NRP	NRP	14405829
TOTAL	37477980	257785	103113856	32468647	324686467	65105938	32552969	2516031	2516031	1058234	423294	463292616
AVERAGE/TON**		0.21	82.22	25.89	258.90	51.91	25.96	2.01	2.01	0.84	0.34	369.42

*NO RECORDED PRODUCTION

**TOTAL TONNAGE ASSUMED TO BE - 1254097

Figure 21
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