

As Sales

SECTION 3

EXISTING CONDITIONS

3.1 FIELD INVESTIGATIONS

At the start of the study it was recognized that there were only limited data available concerning the quantity and characteristics of the storage basin contents. Accordingly, a field investigation program was carried out in the last week of April, 1977. The objectives of the field investigations were to survey the surfaces of the two areas of stored material, measure the sludge depths on a grid system, and collect representative samples of the sludge at various depths for chemical analysis.

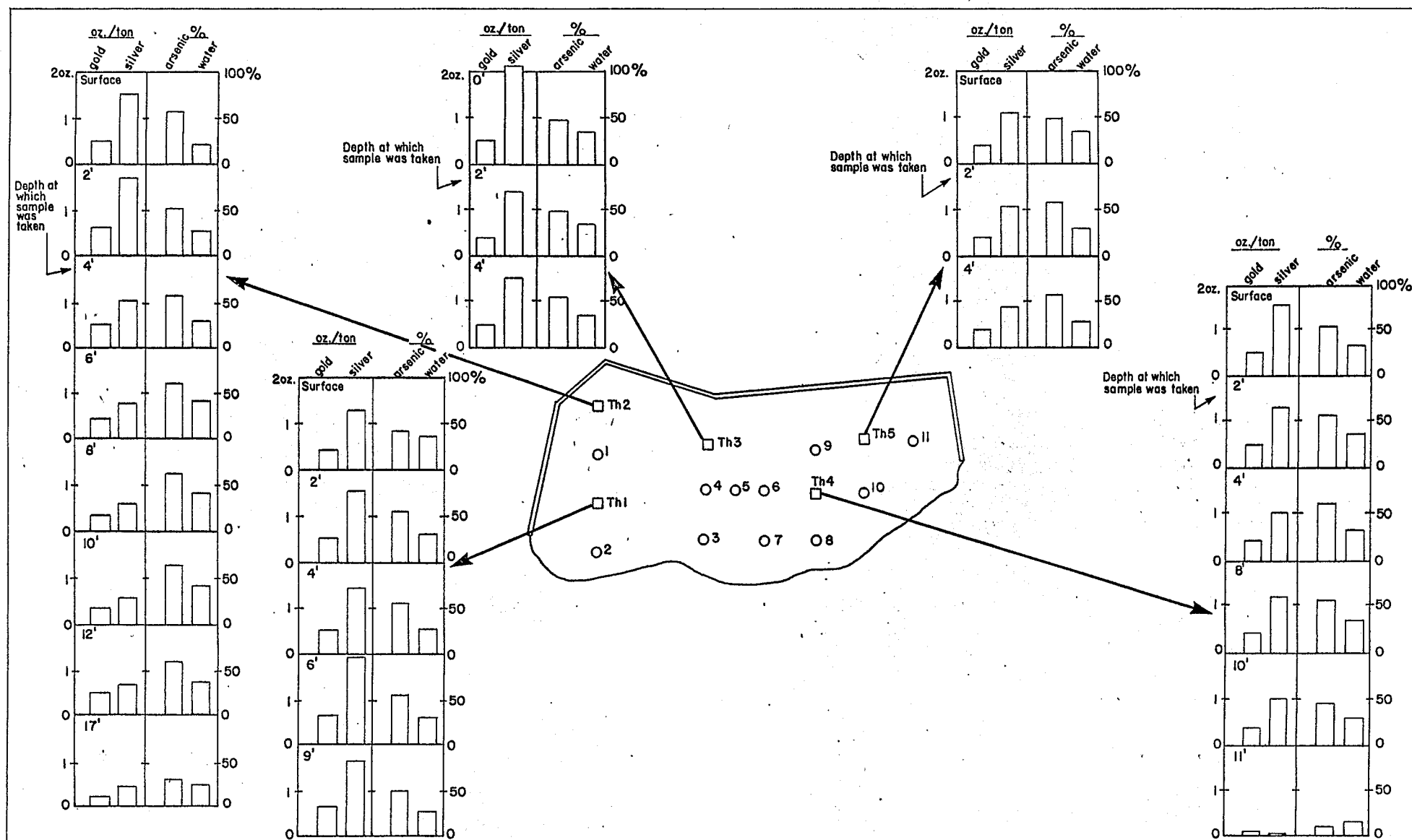
During the field program it was possible to operate a Gardner-Denver air track unit on the frozen surface of the stored material. A 2½ inch button bit was used for drilling depth holes, and 3 inch auger was used for sample collection at selected depth holds. For each sample hole, the auger was withdrawn after every two foot penetration and a sample was pared from the bit and double bagged. Due to the variation of frozen and thawed material in some of the sample holes it was impossible to retrieve samples at two foot intervals for every sample hole.

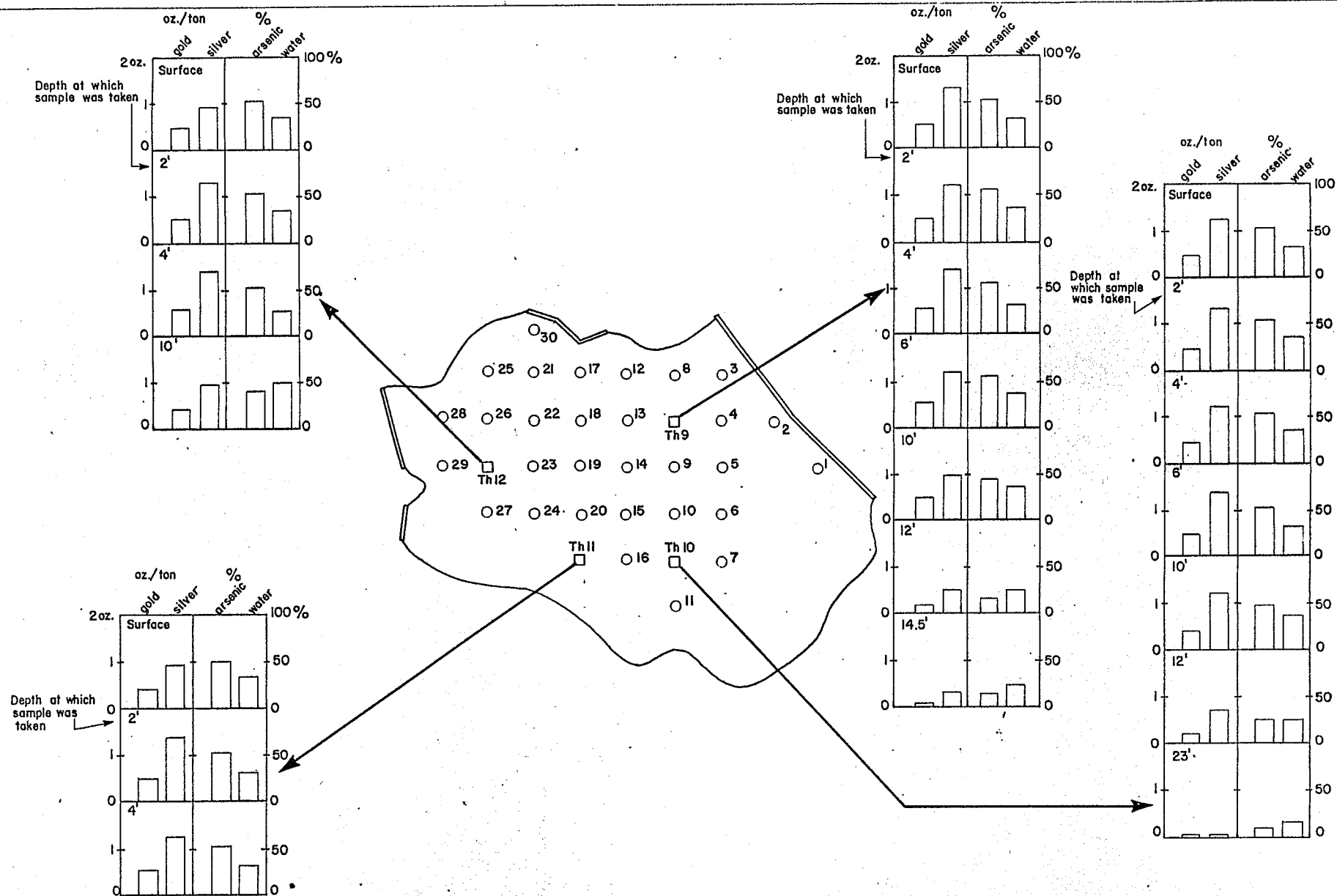
In general, the surface of the sludge was thawed to a depth of approximately 4 inches with the exception of the low areas where there was a much greater accumulation of thawed material. These areas were considered too hazardous to sample. The depth of the top frozen layer was approximately 5 to 6 feet, followed by a thawed layer of approximately 4 feet. The remaining bottom layer was found to be completely frozen.

Following the completion of the field investigations, data were available on the surface elevations of the material and depths were measured at 53 locations. In addition, 60 separate samples were collected for physical and chemical analysis.

3.2 ANALYTICAL RESULTS

The physical and chemical analysis results are presented on figure 3-1 and 3-2 and we summarized on table 3-1.





NEGUS BASIN CHEMICAL ANALYSIS FIG. 3-2

T A B L E 3 - 1

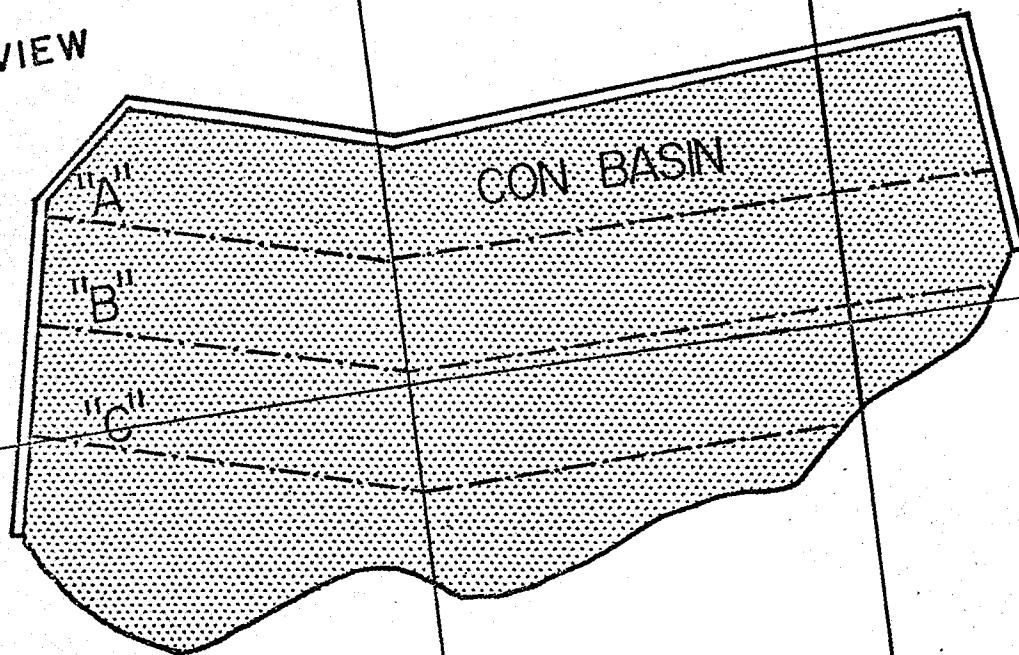
ANALYTICAL RESULTS

	CON BASIN			NEGUS BASIN		
	<u>Min.</u>	<u>Mean</u>	<u>Max.</u>	<u>Min.</u>	<u>Mean</u>	<u>Max.</u>
Gold	0.30	0.41	0.66	0.38	0.41	0.58
Silver oz/ton	.48	1.21	2.16	.92	1.18	1.44
Arsenic %	39.58	53.60	61.53	40.86	50.7	55.95
Sulphate as S %	0.58	*	0.72	0.46	*	0.68
Sulfide as S %	1.54	*	1.76	1.75	*	1.87
Antimony %	0.58	*	0.67	0.80	*	0.80
pH	2.80	*	3.80	3.50	*	3.90

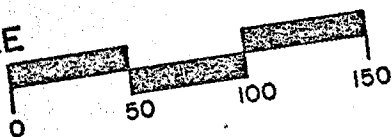
*Insufficient data to calculate mean.

All results except pH are expressed on a dry weight basis.

PLAN VIEW

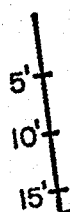


SCALE

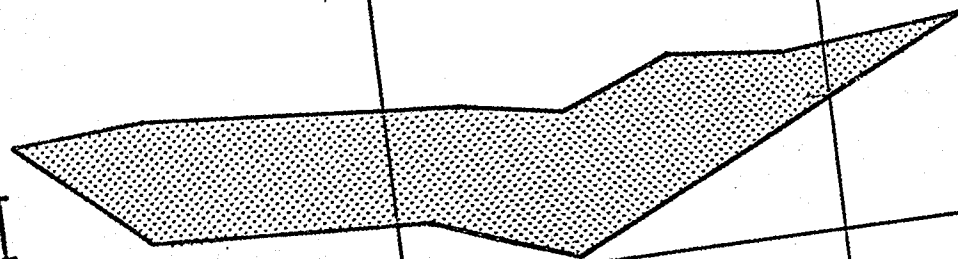
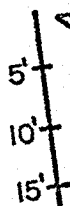


CROSS SECTIONS

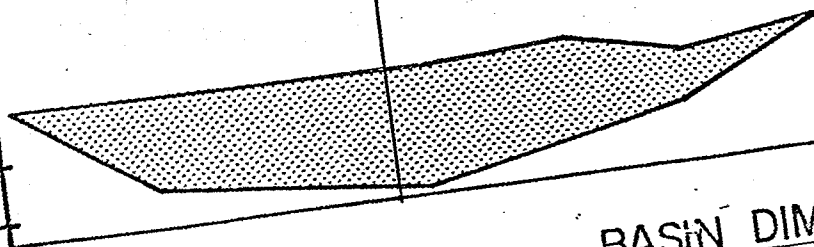
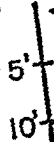
"A"



"B"



"C"



BASIN DIMENSIONS FIG. 3-3

3.4 ARSENIC SLUDGE CHARACTERISTICS

The average percentage compositions of the major constituents of the arsenic sludge are given in Table 3-2.

T A B L E 3 - 2

SLUDGE CHARACTERISTICS

	<u>% Water</u>	<u>% As Dry Wt.</u>	<u>% As₂O₃ Dry Wt.</u>	<u>% Gangue Dry Wt.</u>
Con Basin	31.5	53.6	70.8	29.2
Negus Basin	34.2	50.7	66.9	33.1

The above values can be converted to material weights. The calculated weights are summarized in Table 3-3.

T A B L E 3 - 3

MATERIAL WEIGHTS

	<u>Vol CF</u>	<u>As₂O₃</u>	<u>Gangue Tons</u>	<u>Water</u>	<u>Total</u>
Con	351,000	9,800	4,000	6,400	20,200
Negus	891,000	22,500	11,200	17,500	51,200
TOTAL	1,242,000	32,300	15,200	23,900	71,400