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James Doyle Sell Mining Collection

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J.H.C.
OCT 2-1967

September 29, 1967

Mr. Dennis Hall, Geologist
American Smelting and Refining Co.
Box 111
Sahuarita, Arizona 85629

Mission
Infrared Imagery

Dear Dennis:

Infrared imagery recorded over the Pima district last February and recently received shows some puzzling features that you can probably help me to interpret.

The Mission tailings ponds and others in the district show marked contrast in thermal expression with time of day and with active versus inactive portions. In addition to effects attributable to degree of wetness and solar energy received, I suspect some expression of heat generated by oxidation of contained pyrite. Does ASARCO have any information on the temperature and particularly the temperature gradient within these ponds?

The large dump of alluvium north of the Pima Mine Road shows reversed thermal expression compared with natural surfaces on alluvium, and its north slope is surprisingly bright (warm) at dawn. Is the top of the dump fine textured compared with more bouldery bounding slopes? What is the inclination (angle of repose) of the bounding surfaces?

I am puzzled by the slight and unexpected thermal expression of the overflow sump near the Pima Mine Road several thousand feet east of the Mission thickeners. Does the sump contain water at all times? If not, did it contain water February 7-10, 1967?

If you don't mind answering the above questions, it is perfectly OK with me if you jot down the answers on the enclosed carbon copy of this letter and return it. Another carbon is going to Harold Courtright because of his interest in developing and testing new tools of possible use in geology and exploration. Unfortunately the imagery that I now have is classified but I am at liberty to talk about it in detail. Hence if either of you have questions, please feel free to ask them.

I expect to be in the Tucson area next April and hope to see you at that time.

With best regards,
Sincerely,

Harold:

This is for your info.
Hope all is well
with you
John

John R. Cooper, Geologist
Base and Ferrous Metals Branch

Rm 1213

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