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OFFICE MEMORANDUM

TO: Dan Wilson, H-12 Group Leader
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DATE: April 12, 1978

FROM: Willy Abeele, H-12 WA

SUBJECT: MONTHLY MOISTURE MONITORING

SYMBOL: H12-78-87

MAIL STOP: 490

0880 General

Final rewriting of a paper concerning "The Influence of Access Hole Parameters on Neutron Moisture Probe Readings," was completed and prepared for publication. Based on the calibration results obtained in this study, an extensive inspection of the data gathered from the existing monitoring holes occurred.

From these results, it was concluded that monitoring of several access holes should be dropped. This decision was based on similar moisture characteristics that seemed to prevail in adjacent monitoring holes. Monitoring of the following access holes has been decided, based partly on a visual inspection of obtained results and a consensus reached in a meeting held on Thrusday the 6th of April and attended by several members of the Waste Management Study Section. This concerned the S50, P1, and P2 monitoring holes. The decision concerning the P7 monitoring holes was a little bit more arduous to make due to the fact that the part of the holes that goes through the pit is cased with PVC,while the part beneath the pit is uncased so that two different calibration curves had to be applied. An Analysis of Variance applied to the layer of soil backfilled in the pit around the monitoring hole showed a significant difference on moisture readings between monitoring holes. This could be due to the presence of materials other than inorganic soils or interference from the surrounding waste that could create preferential pathways for moisture into the soil surrounding the monitoring holes due to successive layers of extremely permeable and impermeable waste material. The resulting fluctuating moisture readings were therefore judged to be quite unreliable. The Analysis of Variance showed that there was no significant difference in moisture between monitoring holes below the pit, but an inescapable visual difference on moisture distribution between P7-1 and P7-2 on the one hand and P7-3 on the other prevailed.

As a consequence of the reasons mentioned above and the fact that the shallow hole P2-1 will soon be covered, I propose to retain the monitoring of holes S50-1, S50-3, S50-5, P1-1, and P1-2. The monitoring of P7-1 and P7-3 should also continue from a depth of 9 m on down. P7-1 was chosen over P7-2 because of its greater depth.

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