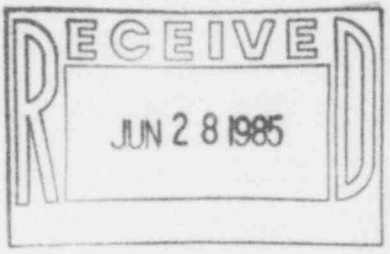
MS-16

T1



June 24, 1985

US Nuclear Regulatory Commission
Region IV
Parkway Central Plaza Building
611 Ryan Plaza Drive - Suite 1000
Arlington, Texas 76011

Attention: Mr. Jack E. Whitten
Nuclear Materials Safety Section

REFERENCE: MAIL CONTROL NO. 460630

Dear Mr. Whitten:

Enclosed please find the additional information which your check list indicated was necessary in support of our application. I hope this material proves to be sufficient.

If there are any further questions, please contact us at your convenience.

Very truly yours,

ALPHA-OMEGA GEOTECH, INC.

Patricia E. Teeter

Patricia E. Teeter,
Engineering Geologist
Radiation Safety Officer

PET/dlb

Enclosures

Alpha-Omega Geotech, Inc.
25 Fairbanks Road • P.O. Box 6347
Kansas City, Kansas 66106
913/371-0000

460630

Additional Information Needed for NRC By Product Material License

Means of Preventing Unauthorized Use:

Authorized users must keep the gauges in their possession at all times, never leaving gauges unattended unless sercurely locked in storage/trunk space in transporting vehicles.

Operating and Emergency Procedures:

Operating Procedures: Photocopy of manufacturer's operating instructions enclosed.

Emergency Procedures: Emergency procedures to be followed in case of accidents involving damage or loss of the device include first a telephone notification of the following authorities, then a written notification.

In Kansas: Kansas Department of Health and Environment
Bureau of Radiation Control
Forbes Field - Building 321
Topeka, Kansas 66620
(day phone) (913) 862-9360
(off duty hours) (913) 296-3102

In Missouri: Region III, USNRC
Office of Inspection and Enforcement
799 Roosevelt Road
Glen Ellyn, Illinois 60137
(day phone) (312) 858-2660
(nights/holidays) (312) 858-2660

and: Troxler Elctronic Laboratories, Inc.
Rocky Mountain Office
900 Clarkson Court
Denver, Colorado 80229
Attention: Mr. Don Lorentzen
(phone) (303) 288-3196

Local Police (depending on temporary job location)

Maintenance on Gauges Involving Removal of Source Holder, etc.

Any maintenance involving dismantling, removal of source holders, etc., is not performed by the users; rather, this is done when the gauges are shipped back to the manufacturer for periodic maintenance.

Means of Preventing Unauthorized Removal From Storage:

The gauges are packed in their transport cases and placed in a locking storage cabinet (described on next page).

The storage container is an open front steel cabinet 7' high, 3' wide and 2' deep, with 5 shelves on which the DOT approved fiberglass transport cases containing the devices are stored. There is a reinforced steel shaft running vertically down the open front, which is padlocked to prevent unauthorized removal of devices.

The storage container is located near the underside of a staircase in an area of the laboratory which is used for storage of less-frequently used equipment and supplies, away from the main work areas of the lab.

Now that you are familiar with the controls on the 3411-B, proceed as below to use the gauge.

b. Place the gauge on the reference standard, adhering to the precautions outlined in section II-A. Remove the lock from the trigger and make certain the handle is indexed at the standard or safe position. This position of the source rod will always be used to obtain the standard counts, i.e. MS (Moisture Standard) and DS (Density Standard).

c. Turn the PWR/TIME switch to SLOW. The standard counts will always be taken in the SLOW position. The notation BAT will appear of the

The notation BAT will appear on the left side of the display if the instrument batteries are in need of a recharge.

d. Allow at least 10 minutes to elapse after powering the instrument before taking the standard counts.

e. A set of standard counts can be accumulated as follows:
   1) depress and hold the key labeled SHIFT,
   2) depress the STANDARD key and release it,
   3) release the SHIFT key.

Use your finger tip, NOT the point of a pencil or other sharp object. The SHIFT and STANDARD/MEASURE keys are interlocked to prevent accidental initiation of a standard count. Observe that the notation ERR appears in the upper left corner of the display.

f. Depress MS or DS. Assuming that the ERR notation still appears, one can watch the accumulation of the standard counts. This accumulation will also be seen in the MC and DC registers. At the end of the SLOW time period (4 minutes) the standard counts will be retained in memory until another set is taken or the instrument is turned off.

g. When ERR disappears, depress DS. The number which appears is the density standard count and should be within 2% of the density standard count as noted on the factory calibration data sheet. This assumes that the background radiation levels are the same as the factory area. This count will decrease at a rate of 2% per year from the date of calibration, due to decay of cesium-137.

Depress MS. The displayed number is the moisture standard count and should be within 4% of the moisture standard count as noted on the factory calibration data sheet. Since the half-life of americium-241 is very long, this count should not normally decrease with time.

Both standard counts may change with time due to aging of the detectors, which affects their efficiency, and long term changes in the high voltage and counting threshold. Since all calibration and measurements are made as ratios to the Reference Standard, these changes will not affect the calibration. A log should be kept of the gauge with a record of the standard counts. Any sudden change in either of the numbers may indicate a defect in the instrument.

h. Remove the gauge from the Reference Standard and place it on a smooth surface (concrete, asphalt or compacted soil). Depress the trigger and move the handle to the backscatter position. Be certain that the trigger is indexed into the slot in the index rod and not pushed below the slot with the tip of the source rod resting on or in the material being tested. This is easily determined by pulling up and down on the handle without depressing the trigger or by noting that the padlock hole in the trigger is fully outside of the handle body.

i. Set PWR/TIME on NORM and depress MEASURE. Note that ERR appears in the display. At the end of the NORM time period (1 minute), ERR will disappear and the moisture and density measurement counts can be displayed by depressing MC and DC respectively. Note that MS and DS are still contained in memory and may be displayed at any time by depressing MS and DS. They will remain until the instrument is switched OFF or until another set of standard counts is accumulated.

j. You have now completed a moisture measurement and a backscatter density measurement. If on soil, a moisture and direct transmission density measurement could have been performed by punching a hole using the drill rod, guide, and a hammer. The source rod is then inserted into the prepared hole to the proper depth. The hole for the source rod should always be at least 50 mm (2 inches) deeper that the depth for measurement.

* * * CAUTION * * *

WHEN DRIVING THE ROD INTO SOIL, BASE MATERIAL OR HOT ASPHALT, REMEMBER THAT YOU ARE DRIVING A STEEL PIN WITH CONSIDERABLE FORCE. THIS PIN WILL WORK HARDEN OVER A PERIOD OF TIME AND PRODUCE METAL CHIPS WHICH COULD CAUSE INJURY TO THE OPERATOR OR BYSTANDERS. THE USE OF SAFETY GLASSES IS STRONGLY ADVISED.