



AFG Industries Inc.

JERRY RUN PLANT - P.O. BOX 890, BRIDGEPORT, WEST VIRGINIA 26330, (304) 739-4355

RS

September 1, 1988

U. S. Nuclear Regulatory Commission
Region II
101 Marietta St., NW
Atlanta, GA 30323

RECEIVED
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10:59

This is a request by AFG Industries, Inc., Fourco Glass Co. for an amendment to our U.S. NRC Materials license number 47-16753-01 (reference: 030-11580) as follows:

- (1) Include Bryan K. McMullen as an authorized user and/or supervisor of licensed material (item 12). Bryan K. McMullen has attended and successfully completed a course of instruction conducted under the auspices of Texas Nuclear Corporation, Austin, Texas. Included are the following:
 - a. Agenda of the four-day radiation safety training course.
 - b. Certificate showing successful completion.
- (2) Permit the sealed source leak test to be conducted at 3 year intervals instead of the present 6 month intervals (item 14.A.1).
- (3) Permit the following individuals of our company to install, relocate, and/or conduct leak tests on Texas Nuclear Corporation gauging devices containing radioactive materials used on our plant site as previously authorized by our license. Installation and/or relocation of devices shall be made under the direct supervision of William B. Reeves (current authorized user and radiation safety officer) or Bryan K. McMullen.

Log *Sept 3-1*

Permitter *016261*

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Fee Category *31*

Type of Fee *And*

Fee Check Rec'd. *10/12/88 by RM*

Date Completed *10/13/88*

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REG2 LIC30
47-1675301 PDR

Installation and relocation shall be conducted in accordance with the enclosed procedure entitled "Industrial Device Installation."

Leak tests shall be conducted by William B. Reeves or Bryan K. McMullen, using a portable survey meter, model 420, manufactured by Baird-Atomic which has a demonstrated capability to measure less than 0.005 uCi of the isotope being tested. Leak tests shall be made using the QT/IS procedure enclosed.

The portable survey meter has a supplied check source with which we will verify the calibration of the instrument by using the enclosed Instrument Calibration Verification Procedure. If at any time the readings deviate by more than plus or minus 20 percent, the instrument will be repaired and recalibrated. The portable survey meter has the following specifications:

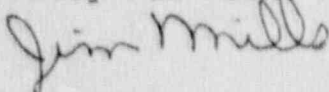
Manufacturer: Baird-Atomic
Model Number: 420
Ranges:

End Window: 0 - 0.125 mR/h
 0 - 1.25 mR/h
 0 - 12.5 mR/h

Side Window: 0 - 1.0 mR/h
 0 - 10.0 mR/h
 0 - 100.0 mR/h

Sincerely,

AFG INDUSTRIES, INC.
Jerry Run Plant



Jim Mills
Engineering Manager

JM:djp

Enclosures

TEXAS NUCLEAR CORPORATION
RADIATION SAFETY TRAINING COURSE AGENDA

DAY ONE

INTRODUCTION
ATOMIC STRUCTURE
READING ASSIGNMENT

DAY TWO

RADIOACTIVE MATERIALS
TYPES OF RADIATION
RADIATION INTERACTION WITH MATTER
RADIATION DOSIMETRY
REVIEW

DAY THREE

RADIATION DOSIMETRY
DISTANCE, TIME, SHIELDING
BIOLOGICAL EFFECTS
RADIATION DETECTION

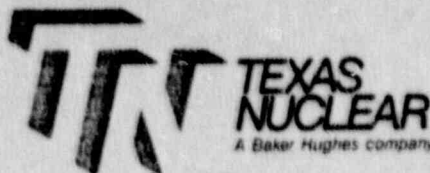
DAY FOUR

PERSONNEL MONITORING
WORKING DEFINITIONS
LABORATORY PREPARATION
LABORATORY WORK
REGULATORY CONTROL
SHIPPING RADIOACTIVE MATERIAL
OCCUPATIONAL SAFETY & HEALTH ACT
EMERGENCY PROCEDURES

DAY FIVE

QUESTION AND ANSWER SESSIONS
WRITTEN TEST ON LECTURES AND HOMEWORK ASSIGNMENTS
CLASS DISCUSSION ON REMAINING QUESTIONS

HOMEWORK ASSIGNMENTS ARE MADE EACH EVENING DURING THIS COURSE



LETTER OF CERTIFICATION

This is to certify that

Bryan K. McMullen
AFG Industries, Inc.

has attended and successfully completed a course of instruction, conducted under the auspices of Texas Nuclear Corporation and described in the attached Course Agenda. The course covers fundamentals of radiation, units of dose and quality of radiation fields, hazards of radiation exposure, detection devices, regulatory controls, industrial devices and specific training on installation and leak testing of Texas Nuclear density, level and weigh gauges.

The said course of instruction, together with prior experience, is structured to qualify persons who complete it to understand and safely perform various operations involving nuclear devices including the installation, relocation and leak testing of such equipment. The operations are to be done in accordance with the rules and regulations of the United States Nuclear Regulatory Commission and/or "Agreement States", and are in all respects subject to such rules and regulations.

This letter cannot be used in lieu of a specific license from or other sanction by an appropriate regulatory agency.

TEXAS NUCLEAR CORPORATION

A handwritten signature in cursive script that reads 'W. G. Hendrick'.

W. G. Hendrick
Health Physicist

INDUSTRIAL DEVICE INSTALLATION

"Installation" means the placement of, or supervising the placement of, the source containing components of a measurement system in an operable use condition. Installation of industrial devices may be conducted only by those persons specifically licensed to perform this work. The installer must be equipped with an appropriate survey meter for the type of source utilized, a source to verify the meter operability and accuracy, calibrated leak test standard, and must be physically present at the site during the entire operation.

1. Survey the shipping box or crate at the storage location to insure that the radiation levels are the same as indicated by shipping labels. If you find significant differences (e.g., +50%), remove any personnel from the immediate area and suspect shipping damage. If any equipment is needed to move the head for examination, make sure it is available before proceeding. If it is going to be necessary to work in areas with radiation levels in excess of 100 mrem/h, control the area physically and call Texas Nuclear before proceeding.
2. Remove the outer cover of the box or shipping crate but do not remove the unit from the base skid. Visibly inspect the unit for transportation damage to the shutter assembly, locking mechanism and correctness of labeling. Verify by radiation survey that the shutter is fully closed.
3. If visible damage is evident, the unit should be leak tested for contamination. Damage or any degree of contamination precludes installation and Texas Nuclear Health Physics should be notified immediately. Following this inspection, the device may be transported to job location and mounted.
4. A radiation survey will be made by the installer in accordance with the appropriate survey pattern sheet and the original furnished as a permanent record. Generally, all radiation levels measured around an installed device must be less than 5 mR/h one foot from any accessible surface. If this is not the case, evaluate the installation for additional shielding needs and posting requirements.
5. The installer will conduct a leak test and complete the appropriate leak test certificate. The original will be furnished as a permanent record.
6. The installer will insure that individual users are furnished the applicable training, paperwork and information called for by U.S. NRC regulations.

LEAK TEST PROCEDURE - QT/1S

QT/1S is designed for use by service people in the field and individuals who have received specific hands-on-training in its application. The gauge should not be dismantled or disassembled in order to leak test. Testing of the external seams, flanges and end plate is adequate.

1. If the gauge has a movable shutter, position the shutter actuator to the closed position. In the event that the shutter actuator is frozen, or appears damaged, notify Texas Nuclear Division, Health Physics Department (512/836-0801, Ext. 310).
 2. Refer to "Calculations for Leak Testing" before proceeding. Remove the end cap from the end window of the G.M. Survey Meter, Model 2652, or its equivalent, and with the use of the appropriate certified standard source, calibrate the unit on the proper scale. Insure that the most active side of the source faces the meter (the labeled side).
 3. Obtain as many cotton-tipped applicators as indicated on the applicable drawing and slightly moisten. (Use water, alcohol or other solvent.)
 4. With the shutter closed, wipe the areas of the source housing assembly at the locations designated on the appropriate drawings (care should be taken not to touch the Q-tips with the fingers following wiping operation).
 5. Carefully place the swab end of each Q-tip in exactly the same position as the standard source and read the results. The degree of removable contamination may be readily evaluated by the method referenced above. The highest reading obtained should be used in making the calculation.
 6. A leak test certificate should be completed and filed as a permanent record of your leak test. Amounts of radioactivity found should be recorded in microcuries (μCi). However, if no radioactivity is detected it is preferable to record the results as < (less than) the minimum detectable amount as opposed to zero. (e.g., $<0.003 \mu\text{Ci}$).*
 7. One should send the wipes to a counting laboratory for additional analysis if any contamination appears on the wipes. Notify Texas Nuclear for instructions.
 8. Note: Generally it is advisable to use a certified standard source containing the same isotope as that being tested. However, this is not always necessary where the isotope is an energetic gamma emitter, e.g., Cs-137 standard will work for Co-60, Ir-192, Ra-226, etc., because these isotopes have higher exposure rates/ μCi than Cs-137.
- * Leak Test Certificates furnished customers should include background reading and the meter reading of the certified standard source on the certificate.

CALCULATIONS FOR LEAK TESTING (QT/1S)

The following technique can be used to assess the presence of small amounts of radioactive material necessary during leak testing of gauging devices, using a Texas Nuclear Model 2652 Portable Survey Meter or equivalent that has the necessary sensitivity to detect 0.005 μCi or less of almost all gamma emitting isotopes and beta emitting isotopes with E_{max} greater than 80 KeV.

1. Turn on unit; check battery, verify unit operation and calibration using the supplied check source.
2. Place the appropriate certified standard source (Cs-137, Ra-226, etc.) disk on a clean flat surface and position the open end of the G. M. Tube over it and as close as possible without damaging the thin window. No fixture is necessary if the source is simply centered under the window. Set the range selector to give an approximate mid-scale reading. Note and record the observed readings; M_1 (in either c/m or mR/h).
3. Remove the standard source away a few feet. With the G. M. probe in the same position, note and record the background (Bkg.) radiation in the same units as M_1 .
4. Each swab end of the cotton-tipped applicators used in wiping the gauge is in turn placed in the same geometrical position as the above-noted standard. Note and record the observed meter reading, M_2 . M_1 and M_2 must be taken in the same units.
5. To determine the degree of contamination in microcuries, a simple expression of proportionality is used:

$$\frac{A}{M_1} = \frac{C}{M_2} \quad \text{or} \quad C = A(\mu\text{Ci}) \times \frac{M_2 \text{ (mR/h)}}{M_1 \text{ (mR/h)}} \quad \text{where}$$

A = activity of certified standard source in microcuries (μCi);

C = amount of removable contamination in microcuries (μCi); to be calculated

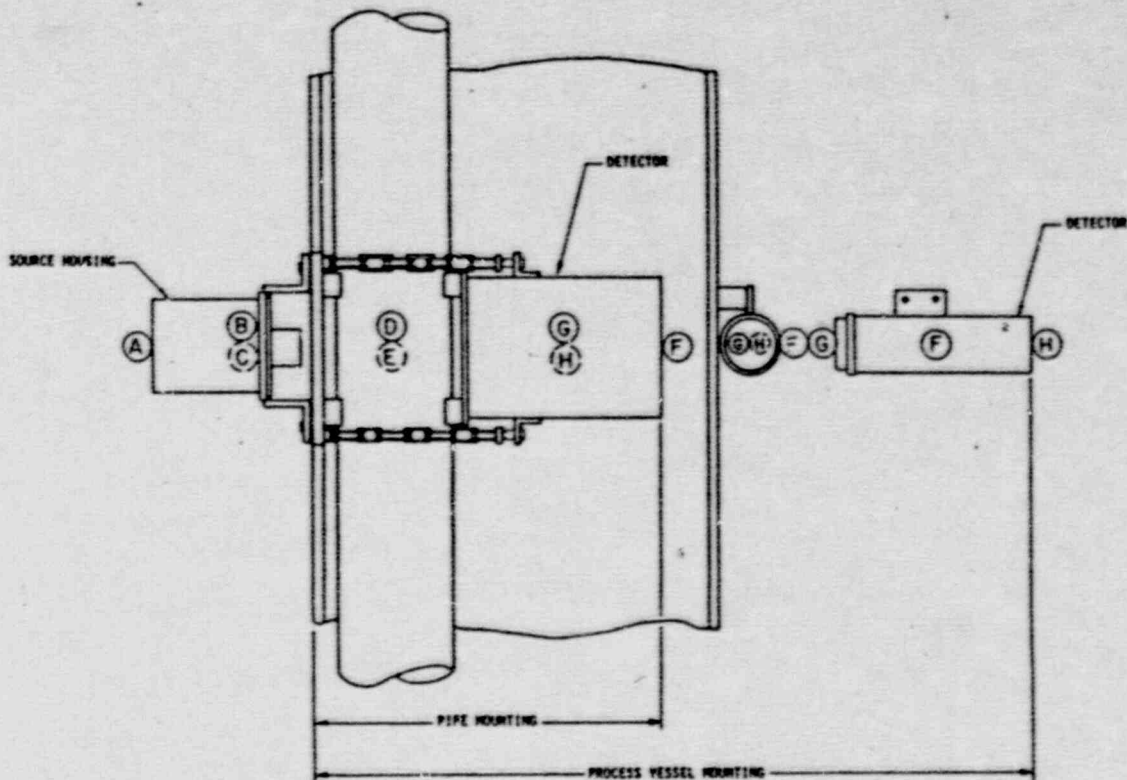
M_1 = survey meter reading with calibrated source in place in either milliroentgens per hour (mR/h) or counts per minute (cpm); minus background

M_2 = survey meter reading with swab in place in either mR/h or cpm minus background

Bkg. = survey meter reading with neither source nor swab near the G.M. probe in either mR/h or counts cpm. This should be subtracted as stated, however, the result can't be zero. Background will determine the lowest detectable level (conservatively taken as 2 times Bkg.).

DENSITY OR POINT LEVEL RADIATION SURVEY CERTIFICATE
 MODELS 5200,5201,5202,5203,5204 SOURCE HOUSINGS

- NOTES:
- 1) SURVEY LETTERED POINTS AT ONE FOOT FROM THE SURFACE AND/OR AT THE SURFACE.
 - 2) SOME GEIGER TUBE TYPE SURVEY METERS MAY NOT HAVE SUFFICIENT RANGE TO TAKE SURFACE READINGS ON SOME APPLICATIONS. IN SUCH CASES, USE ION CHAMBER TYPE SURVEY METER OR TAKE READINGS AT ONE FOOT.
 - 3) ONCE COMPLETED, DATED AND SIGNED, THIS CERTIFICATE SHOULD BE MAINTAINED AS A PERMANENT RECORD.



DATE 4/20/88
 USER AFG INDUSTRIES
 GAUGE LOCATION BRIDGESPORT, WV
BK AND = .035 MR/hr
 SOURCE HEAD MOD. NO. 5204
 TAG NO AX-8456
 SOURCE HEAD SER. NO. B148
 ACTIVITY 8000 -C: X CS137, Co60
 MEASURING INSTRUMENT TN2651
T. SWEAZEA #1323

VESSEL: IS INLET OF
 GLASS FURNACE

READINGS TAKEN: AX AT SURFACE, AT ONE FOOT
 SIGNATURE (ONLY AFTER RESULTS RECORDED) T. Sweazea DATE 4/20/88

COMPANY NAME Texas Nuclear
 COMPANY ADDRESS 9101 Research Blvd
Austin TX 78766

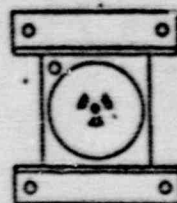
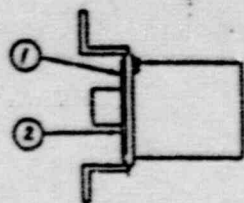
	mR/h								
SHUTTER	A	B	C	D	E	F	G	H	
OPEN	2.8	1.80	2.0			.28	.15	.18	
CLOSED	2.8	1.30	1.35			.03	.03	.03	

PIPE OR VESSEL } EMPTY FULL

ASSAY DATE = 9/87

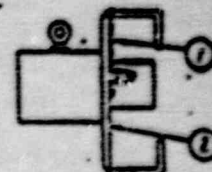
DENSITY AND LEVEL GAUGE LEAK TEST CERTIFICATE

- NOTES:
- 1) NUMBERED POINTS INDICATE AREAS TO BE WIPE FOR LEAK TEST.
 - 2) ONCE COMPLETED, DATED AND SIGNED, THIS CERTIFICATE SHOULD BE MAINTAINED AS A PERMANENT RECORD.
 - 3) CHECK OPERATION OF SHUTTER WHEN LEAK TEST IS PERFORMED.



WIPE SOURCE HOUSING BASE PLATE AROUND SHUTTER.

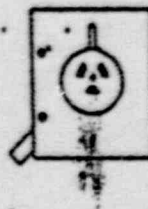
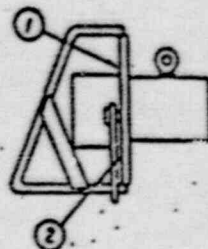
MODEL 5200



WIPE SOURCE HOUSING BASE PLATE AROUND SHUTTER.

MODEL 5201, 5202, 5203, 5204

ASSAY DATE = 9/87



WIPE SOURCE HOUSING BASE PLATE AROUND SHUTTER.

MODEL 5205, 5206, 5207, 5208

USER AFG INDUSTRIES

GAUGE LOCATION BRIDGEMONT, W. V.

BK GND = 0.35 MR/HR

SOURCE HEAD MOD. NO. 5204

TAG NO. LX-8456

SOURCE HEAD SER. NO. B148

ACTIVITY 8000 -CI Cs137, Co60

MEASURING INSTRUMENT TN 2651

T. SWEAZER #1323

LEAK TEST DATE 15/87

RESULTS

SHUTTER OPERATION - A OR

NEGATIVE, POSITIVE, 0.005 -CI

T. Sweazer 4/20/88

Texas Nuclear

9101 Research Blvd

Austin TX 78766

WITH MAILING LEAK TEST KIT, MAIL TO:
TEXAS NUCLEAR
5121 MCWAY BLVD, AUSTIN TEXAS 78758
PHONE (512) 426-6251; TELEFAX (512) 426-6252

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