

# MARTINKA COAL COMPANY

DL-012595-11

Tygart River Mine  
750 Levels Road  
Fairmont, West Virginia 26554  
(304) 388-5615

January 25, 1995

Nuclear Materials Safety Section, Region II  
101 Marietta Street, NW Suite 2900  
Atlanta, Georgia 30323-0199

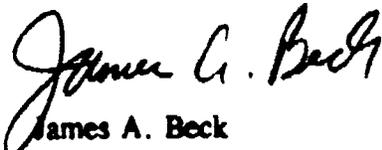
Dear Sir:

This is a request by Martinka Coal Company - Tygart River Mine for a renewal for our NRC License No. 47-23051-01 that will permit our company to install, relocate and conduct leak tests on Texas Nuclear Division gauging devices containing specified radioactive materials, as used in our plant for the purposes authorized by our license.

Installation and/or relocation of devices shall be made under the supervision of Gary Timms, who attended and successfully completed a course of instruction conducted under the auspices of Texas Nuclear Corporation, Austin, Texas. The course contents are itemized in the attached Radiation Safety Training Course agenda. Installation and relocation shall be conducted in accordance with the enclosed procedure entitled "Industrial Device Installation."

Leak tests shall be conducted by Gary Timms, who shall use a portable Survey Meter, Model 2654, manufactured by Warrington which has a demonstrated capability to measure less than 0.005 uCi of the isotope being tested, namely, Cs-137, Co-60, etc. Leak tests shall be made using the QT/IS procedure enclosed.

Very truly yours,

  
James A. Beck  
General Manager

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5. **Radioactive material**
  - A. **Element and mass number: Cs-137**
  - B. **Chemical and/or physical form: solid pellet - sealed source**
  - C. **Maximum amount which will be possessed at any time: 100 - 500 mCi per source.**
  - D. **Licensed material will be used in Texas Nuclear density meters (A) Model 5201, Serial No. B99, Source Serial No. GV0566. To control thickener under flow (B) Model 5202, Serial No. B-936. Source Serial No. GG-3556. To control heavy media sump output. The maximum total number of devices expected to be needed in the next five years is five with a maximum activity of 500 mCi.**
6. **The purpose of the gauge is to control flow of material by its density to coal cleaning machinery. As a general rule devices are not moved on a regular basis but kept in place. However on occasion, it may be necessary to relocate a device.**
7. **Individual responsible for Radiation Safety Program and their training experience - Gary Timms will be responsible for safety and has completed Texas Nuclear Radiation Safety Course. (See attached sheets on training.)**
8. **Training for individuals working in or frequenting restricted areas. Doesn't apply to this instrument less than 5 mr/hr.**
9. **Facilities and equipment: See enclosed sketches and procedures.**
10. **Radiation safety program: See attached sheets, "Leak Test Procedure" and Industrial Device Installation. No personal monitoring will be used due to source emission less than 5 mr/hr, a portable survey meter, Model 2654, manufactured by Warrington, which has demonstrated capability to measure less than 0.005 uCi of Cs-137. Will be used in leak testing and surveys. This instrument will be calibrated so that the readings are  $\pm 20\%$  of the actual values over range of the instrument.**
11. **Waste management: When the source use is terminated due to usage or malfunction it will be removed in accordance with sheet titled, "Industrial Device Installation and Removal." The source will be shipped to the original manufacturer for repair or disposal in accordance with existing shipping criteria.**

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## EMERGENCY PROCEDURES

Radiation emergencies can exist any time there is accidental exposure to hazardous fields of radiation or any time containment of an isotope is violated. The following items are some, but not necessarily all, of the points to be considered in the evaluations by radiation users of their readiness for emergencies which may either directly or indirectly involve radiation.

### A. Normal Operations

1. Radioactive isotopes are used for: Density Flow Control.
2. Description of radiation sources and their containment: (e.g., source head construction, source size, etc.). Cs-137 100 and 500 MCI, sealed source.
3. Location of sources: First and Sixth floor of Tygart River Mine Preparation Plant.
4. Source or source containers apt to be affected by fire: Both.
5. Locations if any where fire, explosion, etc. can cause a possible release of radioactive materials: First and Sixth floor Tygart River Mine Preparation Plant.
6. Type and location of radiation detection instruments: Warrington 2654 Survey Meter -Tygart River Mine Engineering Office.
7. The following individuals could advise Fire and Police Officials concerning details of an emergency involving radiation:

<u>Name</u>	<u>Location</u>	<u>Phone</u>
Gary Timms	Tygart River Mine 750 Levels Road Fairmont, Wv 26554	(304) 366-5515

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**B. Emergency Guidelines Involving Fire or Explosion and Possible Contamination**

1. Notify all other persons in the room and building at once.
2. Notify the fire department and other local plant safety personnel and the Radiation Safety Officer (RSO).
3. Attempt to put out fires by approved means if radiation hazard is not immediately hazardous.
4. Govern fire fighting or other emergency activities by the restrictions of the RSO.
5. As soon as possible, monitor the area and determine the protective steps necessary for safe re-entry.
6. Permit no person to return to the area without the approval of the RSO; maintain a list of all entries.
7. Call for any additional advice or assistance necessary.
8. If possible contamination is involved, the area of the accident should be restricted. The public should be kept as far from the scene as is practical. Local authorities should make only necessary entries and investigations in the accident area. No attempt should be made to open or examine contained material. No attempt should be made to clean up any debris or material involved in the accident prior to the arrival of properly trained and equipped individuals.
9. Any persons who have had possible contact with the radioactive material should be segregated and confined until they can be examined further. The names and addresses of those involved should be obtained.
10. The injured should be removed from the area of the accident with as little contact as possible and held at a transfer point. All life saving measures should be performed promptly, but elective first aid and surgical procedures should be delayed until advice or help can be obtained from a physician familiar with radiation medicine. Except in extreme emergencies patients should not be moved to a local hospital or doctor's office before a radiological survey has been made to assess possible contamination problems.
11. If the incident involves fire, attempts to extinguish it should be made from as great a distance as possible, avoiding smoke, fumes, or dust as much as possible. The fire should be treated as one involving toxic chemicals. Suspected material should not be handled until it has been monitored and released by monitoring personnel. Clothing and tools used at the fire should be segregated until they can be checked by emergency monitoring teams.
12. Prepare a complete history of the emergency and subsequent activity related thereto.

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## LEAK TEST PROCEDURE - QT/IS

QT/IS 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 2654, 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 (uCi). 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 uCi).
7. One should sent the wipes to a counting laboratory for additional analysis if any contamination appears on the wipes. Notify Texas Nuclear for instructions.
8. Leak test will be performed every 3 years at the installation site or upon removal and replacement of the source.
9. Calibration of the portable survey meter: The calibration of Warrington No. 2654 survey meter will be done annually by Warrington Laboratories, 2113 Wells Branch, Parkway, Suit 6700, Austin, Texas 78728.
10. Survey meter specifications: The survey meter specification sheets are enclosed with this letter.

11. Procedure for analysis of leak test samples:

- A. Method of calibrating the survey meter - the survey meter will be calibrated annually by an independent source. Before tests are conducted, a Cs-137 leak test source 0.0045 Ci  $\pm$  10% will be used to check the survey meter.
- B. The minimum detectability - 0.005 Ci.
- C. How background is detected: Background will be checked at an area away from the sources to be tested as well as away from any other outside influence.
- D. Sample calculation showing counts per minute to microcuries of removable activity:

$$C = A \times \frac{B - C}{D}$$

C = Removable contamination

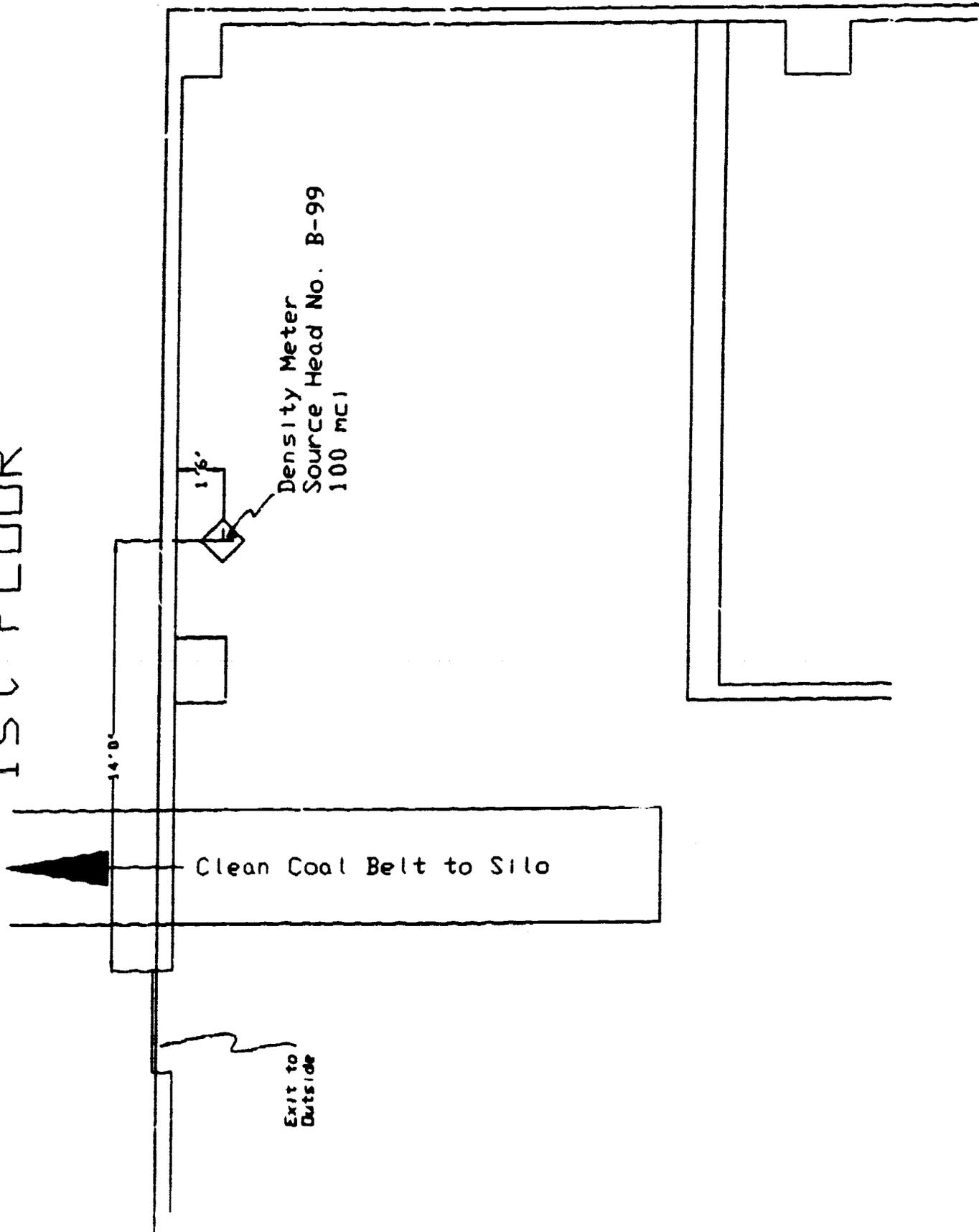
A = Calibrated standard source

B = Meter reading of SWAB

C = Background

D = Meter reading of calibrated source

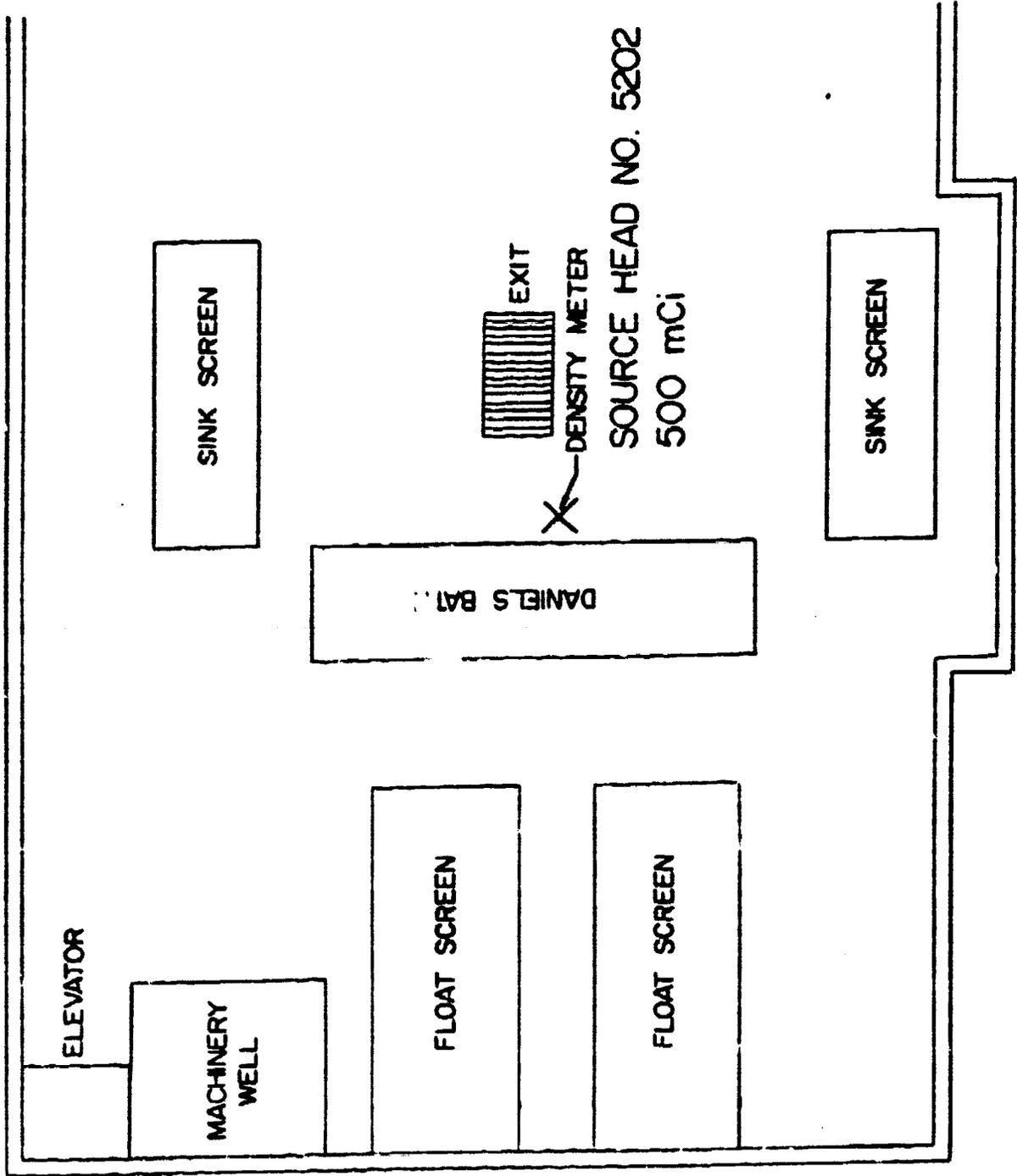
1st FLOOR



Exit to Outside

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PREPARATION PLANT  
6th FLOOR



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LETTER OF CERTIFICATION

This is to certify that

Gary Timms  
Southern Ohio Coal Company

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, appearing to read 'W. G. Hendrick', is written over the typed name.

W. G. Hendrick  
Health Physicist

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August 27, 1984

Southern Ohio Coal Company  
Post Office Box 552  
Fairmont, WV 26554

Attention: Gary Tims

This is notification that you have successfully completed the Radiation Safety Training Course offered in July 1984 by Texas Nuclear.

Enclosed are the following:

Record of Performance  
Certificate of Training  
Letter of Certification  
Guide For Specific License Amendment

This form letter suggests what may be said to your regulatory agency to obtain the license amendments necessary to conduct installation relocation, and leak testing on the listed Texas Nuclear industrial devices. Copies of procedures, survey and leak test forms from your course manual, with necessary changes to meet your specific requirements, should be sent with your license application as necessary.

Congratulations on your having completed the Radiation Safety Training Course. If we can be of further assistance to you, do not hesitate to let us know.

Sincerely,

TEXAS NUCLEAR CORPORATION

W. G. Hendrick  
Health Physicist

Enclosures

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# Certificate Of Training

This is to certify that

Gary Tims

has Successfully Completed a Radiation Safety Training Course  
presented by Texas Nuclear Corporation.

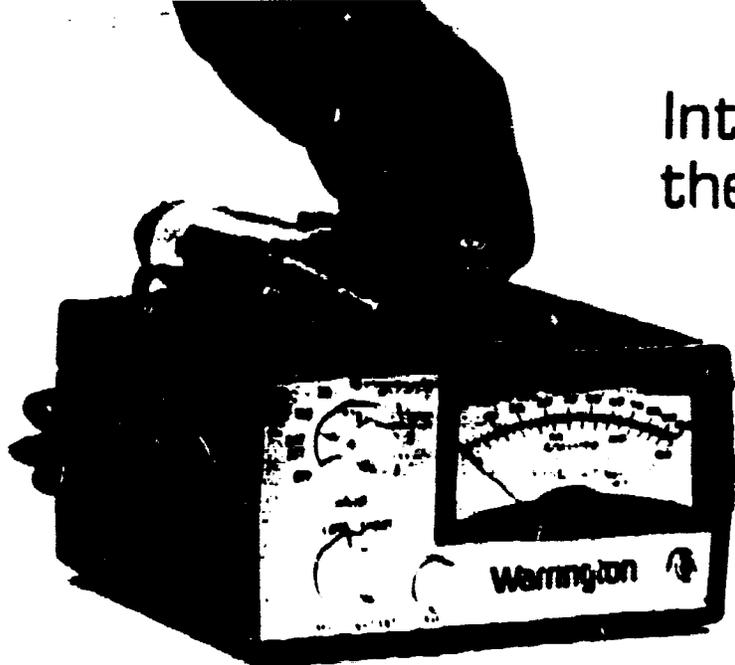
Issued 24th Day of August 1984



*[Signature]*  
Health Physicist

*[Signature]*  
President

Introducing . . .  
the VERSATILE



# MODEL 2654

## Radiation Survey Meter

### SPECIAL FEATURES:

- IC audio amplifier with on/off and volume controls provides true area monitor capability.
- 7-range presettable alarm with piezoelectric audio output warns of increasing radiation levels.
- Lightweight industrial grade ABS plastic case with low, compact styling.
- Nylon probe mount positions the probe vertically for optimum sensitivity when used as an area monitor.
- Rechargeable starved electrolyte lead-acid batteries with 8 to 10 year useful life for lower maintenance costs.
- External cable storage for fewer cable repairs.
- Shoulder Strap
- Belt Clip
- Bale for desk top use (optional)
- Carrying Case (optional)

### 2654 SPECIFICATIONS

**Electronic Circuit** Four-transistor monitoring circuit consists of an emitter-coupled monostable multivibrator triggered by an emitter follower amplifier and a buffer amplifier for the magnetic earphone. High voltage supply is a single transistor oscillator with corona regulated output. The audio amplifier speaker is driven by a single monolithic IC. The alarm circuit consists of a sensitive multivibrator, one-shot, and gate IC's driving a piezoelectric alarm. Alarm operation is independent of the meter and is powered directly by the batteries. Both amplifier and alarm circuits are on one circuit board and

are independently adjustable with back panel mounted potentiometers.

**Ranges** Milliroentgens per hour: 0.1, 0.3, 1.0, 3.0, 10, 30, and 100 full scale; Counts per minute: 150, 1500, 15000, and 150,000 full scale.

**Time constant** 0.1, 0.3, and 1.0 mR/hr ranges: selectable, 4 or 8 seconds; 3 and 10 mR/hr ranges: fixed, 4 seconds; 30 and 100 mR/hr ranges: fixed, 2 seconds.

**Accuracy**  $\pm 10\%$  of full scale on all ranges. Agreement between ranges is better than 5%.

**Zero drift** Negligible.

**Warm-up time** None.

**Calibration** Factory calibrated with gamma rays from a Cesium-137 source which is radium equivalent for this instrument.

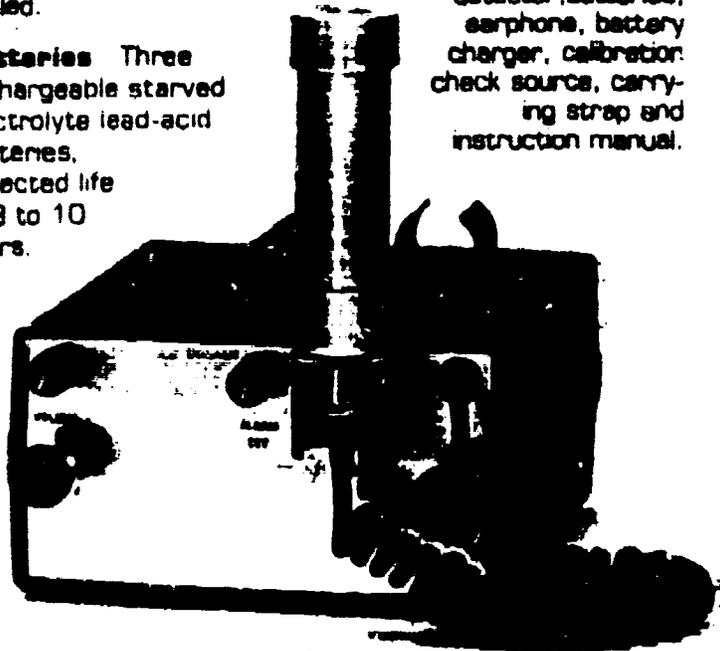
**Detector tube** Halogen quenched, hermetically sealed.

**Batteries** Three rechargeable starved electrolyte lead-acid batteries, expected life of 8 to 10 years.

**Dimensions** 4½ in. high x 6 in. wide x 8 in. long with probe in stored position.

**Weight** 4 lbs net, including probe. Shipping weight, 7½ lbs.

**Supplied with** Probe and detector, batteries, earphone, battery charger, calibration check source, carrying strap and instruction manual.



## Warrington

7801 No. Lamar, D-109-111  
Austin, TX 78752  
(512) 452-2590, 452-2838  
Telex 767141

## SPECIFICATIONS

<b>RANGES</b>	Milliroentgens per hour: 0.1, 0.3, 1, 3, 10, 30 and 100 full scale. Counts per minute: 150, 1500, 15,000, and 150,000 full scale.
<b>ACCURACY</b>	+ 10% of full scale on all ranges. Agreement between ranges is better than <u>+ 5%</u> .
<b>TIME CONSTANTS</b>	0.1, 0.3, and 1 mR/h ranges: selectable, 4 or 8 seconds. 3 and 10 mR/h ranges: 4 seconds, fixed. 30 and 100 mR/h ranges: 2 second, fixed.
<b>WARM-UP TIME</b>	None.
<b>ZERO DRIFT</b>	Negligible.
<b>OPERATING TEMPERATURE RANGE</b>	0° to +50° C.
<b>CALIBRATION</b>	Factory calibrated with gamma rays from a Cesium-137 source which is radium equivalent for this instrument.
<b>DETECTOR TUBE TYPE</b>	Model 2660 Probe: Side-window Geiger-Mueller. Model 2661 Probe: End-window Geiger-Mueller. Both models are halogen quenched and hermetically sealed.
<b>DETECTOR POTENTIAL</b>	600 volts.
<b>WINDOW MATERIAL</b>	Model 2660 Probe: Stainless Steel. Model 2661 Probe: Mica.
<b>WINDOW THICKNESS</b>	Model 2660 Probe 30mg/cm <sup>2</sup> (cathode wall). Model 2661 Probe: 1.5 to 2 mg/cm <sup>2</sup> .
<b>CATHODE MATERIAL</b>	Stainless steel for both probes.
<b>DEAD TIME</b>	Model 2660 Probe: 100 microseconds max. Model 2661 probe: 200 microseconds max.
<b>CHECK SOURCE</b>	Radium 226 check source provided with instrument.
<b>EARPHONE</b>	Single earphone provided with instrument. Both check source and earphone are stored in a pouch on the shoulder strap.

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**ELECTRONIC CIRCUIT** Four-transistor monitoring circuit consisting of an emitter-coupled monostable multivibrator triggered by an emitter follower amplifier, and a buffer amplifier for the magnetic earphone. High voltage supply is a single-transistor oscillator with corona regulated output.  
The audio amplifier speaker is driven by a single monolithic IC, #LM386 with a volume control located on the back panel. This circuit is powered by a direct connection to the batteries.  
The alarm circuit is a sensitive multivibrator, one-shot and gate IC's-#s CD4538, TLC272, CD4001 respectively. This string drives a piezoelectric alarm which may have the sensitivity adjusted by the back panel mounted potentiometer. The operation is independent of the meter and is powered directly by the batteries. Both amplifier and alarm circuits are on one board.

**BATTERIES** Power is supplied by three starved electrolyte lead acid batteries, with an expected life of eight to ten years. They are mounted internally and are recharged by a plug-in, external power supply/recharger.

**DIMENSIONS** 4 1/2 in. high x 6 in. wide x 8 in. long with probe in stored position.

**WEIGHT** 4 lbs. net including probe; shipping weight 7 lbs.

**CASE** Lightweight industrial grade ABS plastic and aluminium, with low low compact styling.

**BALE** Optional, for desktop use.

**SHOULDER STRAP** Provided standard.

**PROBE MOUNTS** Top mount provides handy probe storage or convenient placement for surveying. The back panel probe mount is convenient for area monitoring or surveying the ground while walking.

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Amendment No. 2

**MATERIALS LICENSE**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

<p>Licensee</p> <p>1. Martinka Coal Company</p> <p>2. 800 Laidley Tower Charleston, West Virginia 25332</p>		<p>In accordance with letter dated May 18, 1992</p> <p>3. License number 47-23051-01 is amended in its entirety to read as follows:</p>	
		<p>4. Expiration date March 30, 1995</p>	
		<p>5. Docket or Reference No 030-20216</p>	
<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Cesium 137</p>	<p>7. Chemical and/or physical form</p> <p>A. Any sealed source registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation and contained in a compatible device as specified in Item 9 of this license</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. See Item 9.A.</p>	
<p>9. Authorized Use:</p> <p>A. For possession and use in an Texas Nuclear gauging devices registered pursuant to 10 CFR 32.210 and authorized for distribution under a license issued by the Nuclear Regulatory Commission or an Agreement State.</p>			

**CONDITIONS**

- 10. Licensed material shall be used only at the licensee's facilities located at the Tygart River Mine, Fairmont, West Virginia.
- 11. The Radiation Safety Officer for this license is Gary Timms.
- 12. Licensed material shall be used by, or under the supervision of, Gary Timms.

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MATERIALS LICENSE  
SUPPLEMENTARY SHEET

License number 47-23051-01

Docket or Reference number 030-20216

Corrected Copy

Amendment No. 2

(cont.)

## CONDITIONS

13. A.(1) Sources contained in devices manufactured by Texas Nuclear shall be tested for leakage and/or contamination at intervals not to exceed 3 years. The test may be conducted at 3 year intervals provided the sources have been authorized by the Commission (or an Agreement State) for a three year leak test interval. Any source which is received from another person which is not accompanied by a certificate indicating that a test was performed within 6 months before the transfer shall not be put into use until tested.
- (2) Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.
- B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U. S. Nuclear Regulatory Commission, Region II, Division of Radiation Safety and Safeguards, Nuclear Material Safety Section, 101 Marietta Street, Suite 2900, Atlanta, Georgia 30323. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.
- C. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
14. Installation, initial radiation survey, relocation, or removal from service of devices containing sealed sources shall be performed by Gary Timms, in accordance with the procedures described in the licensee's application dated October 23, 1984, by the device manufacturer, or by persons specifically licensed by the Commission or an Agreement State to perform such services. Maintenance and repair of devices and installation, replacement, and disposal of sealed sources shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
15. Sealed sources containing licensed material shall not be opened or removed from their respective source holders by the licensee.
16. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under this license. Records of inventories shall be maintained for 2 years from the date of each inventory.
17. The licensee shall maintain records of information important to safe and effective decommissioning at the location specified in Item 10 pursuant to the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.
18. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.