

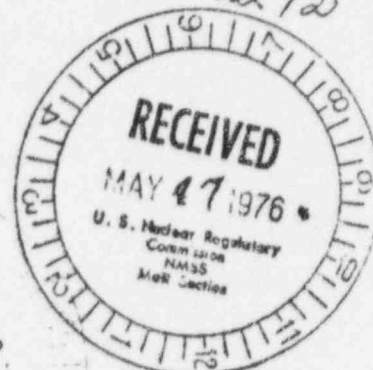
PEABODY COAL COMPANY

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

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NORTH MEMORIAL DRIVE • ST. LOUIS, MISSOURI 63102
TELEPHONE (314) ~~342-3472~~ 342-3472

April 28, 1976



Nuclear Regulatory Commission
Materials Branch
Washington, D. C. 20555
Attention: Ms. Kitty S. Dragonette

Dear Ms. Dragonette:

We have ordered a nuclear device to monitor the percentage of ash in whole coal. This device is manufactured in England and has been accepted by the U. S. Nuclear Regulatory Commission for licensing purposes.

This device has a total of 8.2 mg (52 millicuries) of plutonium contained in sealed sources. ✓

A copy of the Nuclear Regulatory Commission's letter accepting the device is attached along with the Radiation Safety Section for removing and replacing the radioactive isotope. We also have on hand a complete manual specific to all phases of this device.

For calibration purposes, we will have to remove the isotope in order to change filtering sections (thin aluminum sheet filters of varying thicknesses).

✓ We would like to secure licensing privileges so that the writer, Mr. Jack J. Ellis and/or Mr. Joe Johnson can legally perform this exercise and also install this equipment at our company's Black Mesa Mine near Kayenta, Arizona.

We expect delivery of this instrument at Kayenta, Arizona, within the next month or two.

Applicant Pete Bacchetti
Check No. _____
Amount \$50.00
Date of Check 5-14-76
Date Check Rec'd 5-17-76
PB/dg By CW:SS

Sincerely,

Pete Bacchetti
Pete Bacchetti

enc.

cc: Mr. Jack J. Ellis

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RADIATION SAFETY SECTION

WARNINGS

Radiation is emitted from the circular apertures in the two isotope capsule holders of the isotope carrier frame. Whenever the frame is visible avoid direct exposure of your body to the emitted radiation.

Do not put your hand or fingers in the radiation path inside the monitor presentation unit.

If servicing requires the removal of the isotope carrier, cover the isotope holders with the lead caps provided.

Do not touch the beryllium window of the isotope with sharp instruments which may puncture it.

If the isotope capsule is accidentally fractured, or in any way opened, switch off the equipment, isolate the area around the machine to prevent access by other personnel and call your licensed disposal organisation to deal with the emergency. Their name is at the bottom of this sheet.

Find out how the castell key interlock system works and don't cheat it. It is there for your safety. The master keys must be held by a responsible person.

Don't dis-assemble any part of the presentation unit until the isotope carrier has been turned to the safe position facing the steel shield.

Don't dis-assemble any part of the radiation shield assembly until the isotope carrier has been removed from the unit. Store the isotope carrier in a steel pipe with screwed on end caps and mark this container for radiation hazard.

Refit every screw and bolt when assembling.

Inserting Isotope Capsules into Carrier :

1. Cover the radiation apertures with lead caps.
2. Place on bench - with radiation apertures facing the bench.
3. Remove six screws holding the capsule retaining plates in position.
4. Open isotope containing lead pot and look inside it with a mirror.

5. Pick up one isotope with long tweezers and recognise active face. This can be done with :
 - a. radiation monitor, or
 - b. looking for welded seal around capsule.
(the weld is on the inert side).
6. Drop capsule into holder with active face downwards.
7. Replace retaining plate and insert holding screws.
8. Leave the lead caps in position until carrier has been attached to proportional counter.

Removing Isotope Capsules from Carrier :

This is the reverse of the above. After removing the capsule retaining plates the isotopes will fall out when the carrier is inverted.

Installing the Isotope Carrier :

1. Insert the castell master keys into the proportional counter lock and turn it to expose the beryllium window.
2. Remove isotope carrier from safe and cover the radiation apertures with lead caps.
3. Attach the carrier frame to the proportional counter with the four screws provided.
4. Remove lead caps from radiation apertures.
5. Turn proportional counter to face the shield in the safe position.
6. Remove the castell keys.

Removing the Isotope Carrier :

This is the reverse of the above process.

Action if Lost Source Alarm is Raised :

If the blue light on control unit is illuminated indicating the loss of a radioactive source, the person responsible for the health physics of the installation should be informed immediately. Withdraw the box containing the proportional counter and isotopes from the framework of the ash monitor presentation system in his presence to ascertain the loss of isotopes.

1. Withdraw two castell keys, which are captive in the double lock on the proportional counter box, after rotating the proportional counter and radioactive isotopes through 180° into its SAFE POSITION.

2. Unlock the proportional counter box from the ash monitor framework with the two keys released. These keys now become captive in two separate locks. Lift off the proportional counter box from the machine.
3. The person responsible for the health physics of the installation can now use his two master keys to unlock the proportional counter by inserting the keys into the double lock.
- ✓ 4. Turn the proportional counter from its SAFE POSITION to the WORKING POSITION and establish whether or not the isotopes are in place :
 - a. If the isotopes are in place check the proportional counter window for damage.
 - b. If the window is undamaged the fault is in the electronic equipment. (If the window is damaged then a new proportional counter is required.)
5. If one or both isotopes is found to be missing turn the table of the presentation unit by hand and use a radiation monitor to examine the coal bed on the table.
 - a. If the radiation monitor locates the isotopes use a piece of wood $\frac{1}{2}$ " x 1" x 12" to disturb the coal bed and visually expose the isotope capsule. Remove the isotope capsule using long tweezers and store it in its container.
 - ✓ b. If radiation monitor fails to detect the isotope, carefully break up the coal bed after fitting a container to collect any discharged coal from the table or to the discharge scraper. The isotope will be found to be either on the table or in the discharge chute or in the container. If the isotope capsule is still not exposed, sieve the coal through a $\frac{1}{4}$ " screen. The isotope capsule is 0.425 in diameter and will be retained on the screen.

→ Wipe Testing :

This test should be carried out by licensed personnel at intervals stated by statutory regulations. Wipe the following surfaces :

- (1) Isotope capsule window.
- (2) Isotope capsule holders
- (3) Isotope carrier frame

NOTE :

The beryllium window of the proportional counter is fragile and toxic - DO NOT TOUCH IT.

To Expose the Isotope Carrier for Wipe Testing :

1. Carry out steps 1, 2 and 3 of section "Action if Lost Source alarm is raised".
2. Turn proportional counter to expose isotope carrier.
3. After wiping capsule holders and capsule windows cover the apertures with the lead caps provided.
4. Now wipe the isotope carrier frame.
5. Remove lead caps and turn proportional counter to safe position.
6. Remove master keys.
7. Return proportional counter box to the monitor.

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LICENSED RADIATION EMERGENCY CONTACT :

Name :

Address :

Tel. No. :

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