TRC

16000 Commerce Parkway
Suite B
Mount Laurel, NJ 08054

856.273.1224 PHONE
856.273.9244 FAX

www.TRCsolutions.com

Br.3

June 25, 2009

Mr. Sattar Lodhi, PH. D. – Health Physicist
U.S. Nuclear Regulatory Commission – Region I
475 Allendale Rd.
King of Prussia, PA 19406

Re: Amendment to NRC License
License No. 29-27857-01
Docket No. 030-29302
Expiration Date: January 31, 2011

Dear Mr. Lodhi,

As per your request, we are providing the additional information for approval to amend our referenced license. The amendment proposed will grant permission to increase the maximum amount of radioactive material specified within our license.

As discussed with you during our phone conversation today, wish to add 3 (three) portable CPN (Campbell Pacific Nuclear) gauges to our current inventory. Each gauge is a Model MC-1 which contain: 10 mCi (370Mbq) Cesium-137 and 50 mCi (1.85 GBq) Americium -241/Be. For your convenience we have attached a copy of the CPN informational brochure for the specific gauge.

Therefore we request an increase from: 178 millicuries to 208 mCi Cesium-137
890 millicuries to 1040 mCi Americium -241/Be.

Thank you in advance for your cooperation regarding this matter. If you require additional information please feel free to call.

Sincerely,

TRC Engineers, Inc.

Mario R. Mara, RSO
Director of Development,
Geotechnical and Construction Services

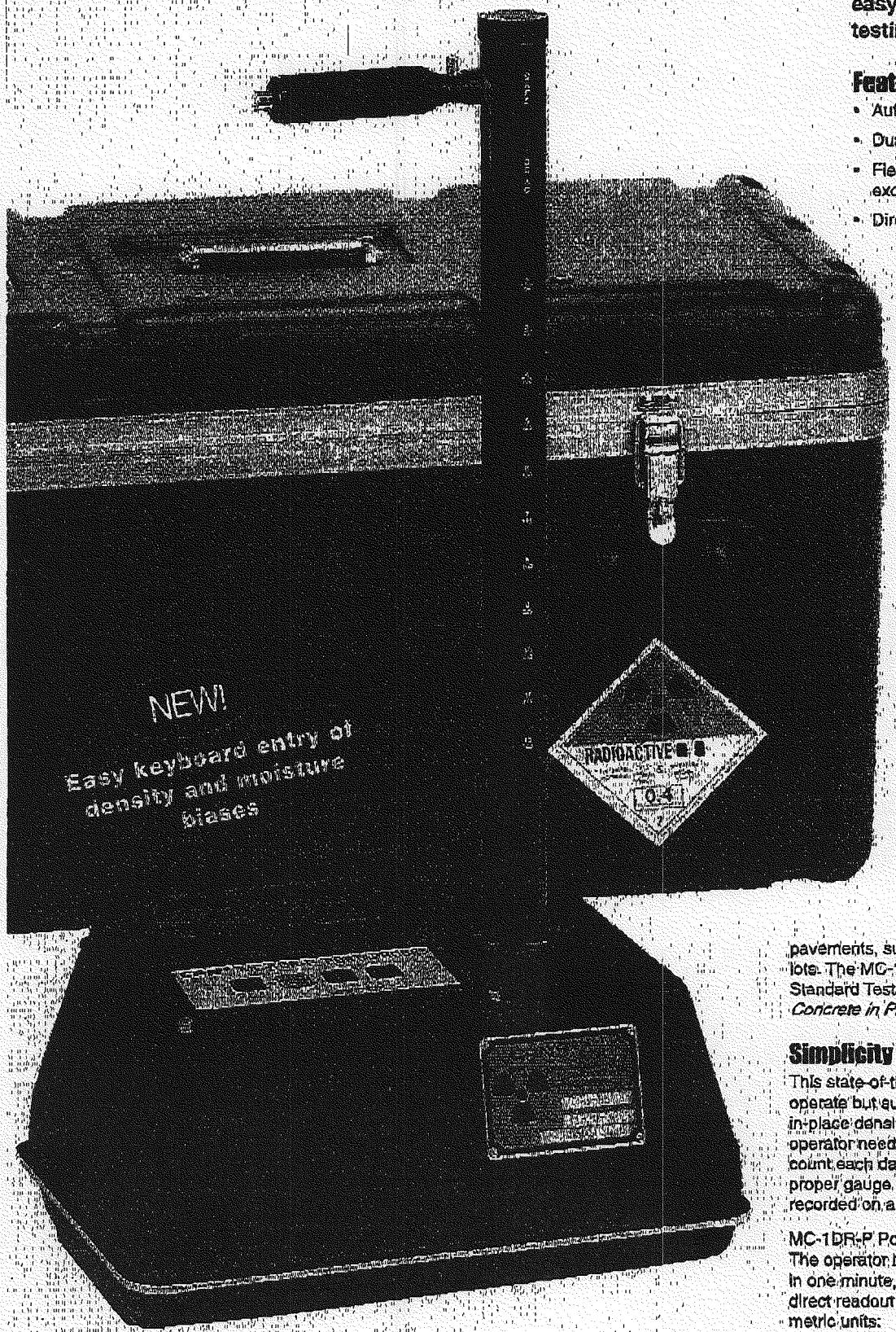
Charles E. Malson
Principal

Attach: CPN Brochure
NRC License No. 29-27857-01

143830

NMSS/RGN1 MATERIALS-002

# CPN® MC-1DR-P Portaprobe®




**The MC-1DR-P Portaprobe® is the most accurate, rugged, and easy to use density/moisture testing instrument available.**

## Features

- Automatic depth sensing.
- Dual-depth backscatter positions.
- Field service and component exchange with a screwdriver.
- Direct readout of total density, total moisture, dry density and % water after one-minute test.
- Easy to learn operation - only four keys - START, STEP, STANDARD, and MAXIMUM.
- Operator entry of laboratory maximum values - calculation and display of relative or % compaction.
- Operator entry of density and moisture biases.
- Automatic statistical check of standard count assures proper operation.
- No battery charging – alkaline cells last more than 1 year.

## Applications

EARTH CONSTRUCTION

For compaction control of highways, airports, railway embankments, trench backfills and other earthworks such as dams and foundations. This precision instrument complies with ASTM Standard Test Methods D2922 & D3017, *Density and Moisture Content of Soil and Soil-Aggregates in Place by Nuclear Methods.*

ASPHALT PAVING

For rapid, accurate density and percent air void tests on asphalt pavements, such as highways, airports and parking lots. The MC-1DR-P Portaprobe® complies with ASTM Standard Test Method D2950, *Density of Bituminous Concrete in Place by Nuclear Methods.*

## Simplicity of Operation

This state-of-the-art instrument offers a simple to operate but superior alternative to other methods of in-place density and moisture testing. The MC-1DR-P operator needs minimal instruction. The standard count each day includes a statistical check to insure proper gauge performance. Displayed test results are recorded on a field inspection report.

MC-1DR-P Portaprobe® operation is nearly foolproof. The operator begins the test by pressing START . . . in one minute, the 32 character display provides a direct readout of the following data in English or metric units:

- Wet Density
- Dry Density
- Moisture Content
- Percent Moisture

# MC-1DR-P Portaprobe®

## Ordering Information

**No. 114482 CPN® MC-1DR-P-82 Portaprobe® Density Moisture Surface Gauge,** 8" depth of measurement in 2" increments, for the on-site measurement of density and moisture content of construction materials including soils, aggregates, concrete and asphalt pavements. Direct reading of wet density, moisture, dry density, and percent moisture upon completion of a one minute test. Complete with molded, plastic shipping and storage case, lock and two keys, standard block, guideplate/scraper, drill pin, lubricant, sign kit, wipe test kit and certificate, and battery pack of welded alkaline cells. Operating manual (also available in Spanish).

**No. 114481 CPN® MC-1DR-P-81 Portaprobe®,** same as above except 8" depth of measurement in 1" increments.

**No. 114122 CPN® MC-1DR-P-122 Portaprobe®,** same as above except 12" depth of measure in 2" increments.

**No. 114121 CPN® MC-1DR-P-121 Portaprobe®,** same as above except 12" depth of measurement in 1" increments.

*Optional backlight display available upon request. Dual English and metric depth markings and display units. English or Spanish language display.*

**No. 101050 Campbell Hammer,** Impact type.
**No. 700496 Survey Meter,** Monitor 4, All purpose Gamma Meter.

## Performance

**Function**
In-place density/moisture measurements for compaction control of construction materials.

**Range**
Density..... 70 to 170 pcf (1.120 to 2.73 gcc)
Moisture..... 0 to 40 pcf (0 to 0.64 gcc).

**Precision:**
One Minute Test:
Backscatter..... ±1.00 pcf (±0.016 gcc) (at 125 pcf).
Transmission..... ±0.25 pcf (±0.004 gcc) (at 125 pcf).
Moisture..... ±0.25 pcf (±0.004 gcc) (at 10 pcf).

**Chemical Error:**
Backscatter..... ±1.00 pcf (±0.016 gcc).
Transmission..... ±0.75 pcf (±0.012 gcc).

**Roughness Error:**
(0.05 in. 100% void)
Backscatter..... -4.00 pcf (-0.064 gcc).
Transmission..... -0.50 pcf (-0.008 gcc).

**Counting Time**
1 minute or 15 seconds.

**Operating Temp**
32° to 167°F (0° to 75°C).

**Power**
Battery pack of 6 D size alkaline cells.

**Battery Life**
Over 1 year of operation (more than 25,000 1 minute tests).

**Display**
32 character liquid crystal display (2 lines by 16 characters). Easily readable in direct sunlight from a standing position.

**Units**
Internal selection: pcf, gcc, or cpm.

**Calibration**
Factory calibration.

RADIOLOGICAL

**Gamma Source**
10 mCi (370 MBq) Cesium-137.

**Neutron Source**
50 mCi (1.85 GBq) Americium-241/Be.

**Encapsulation**
Double-sealed capsule, CPN-131.

**Dose Rate At Handle**
Less than .5 mrem/hr (5 µSv/hr).

**Shipping**
Radioactive Material, Special Form, 7
UN3332, R.Q., Transport Index 0.4, Yellow II Label,
USA DOT 7A, Type A Package.

**Special Form Approval**
USA/0634/S, USA/0627/S. *An NRC or Agreement State license is required for domestic use. Contact CPN for assistance in obtaining the operator training required for a license.*

## Service

The modular design of the MC-1DR-P allows repairs by simple component exchange. Replacement parts can be shipped within one working day.

## Training

CPN offers required certification training on the use of CPN instruments, either at your facility or ours. Topics include safety, equipment operation, applications and field maintenance.

## Warranty

18 months materials and workmanship.

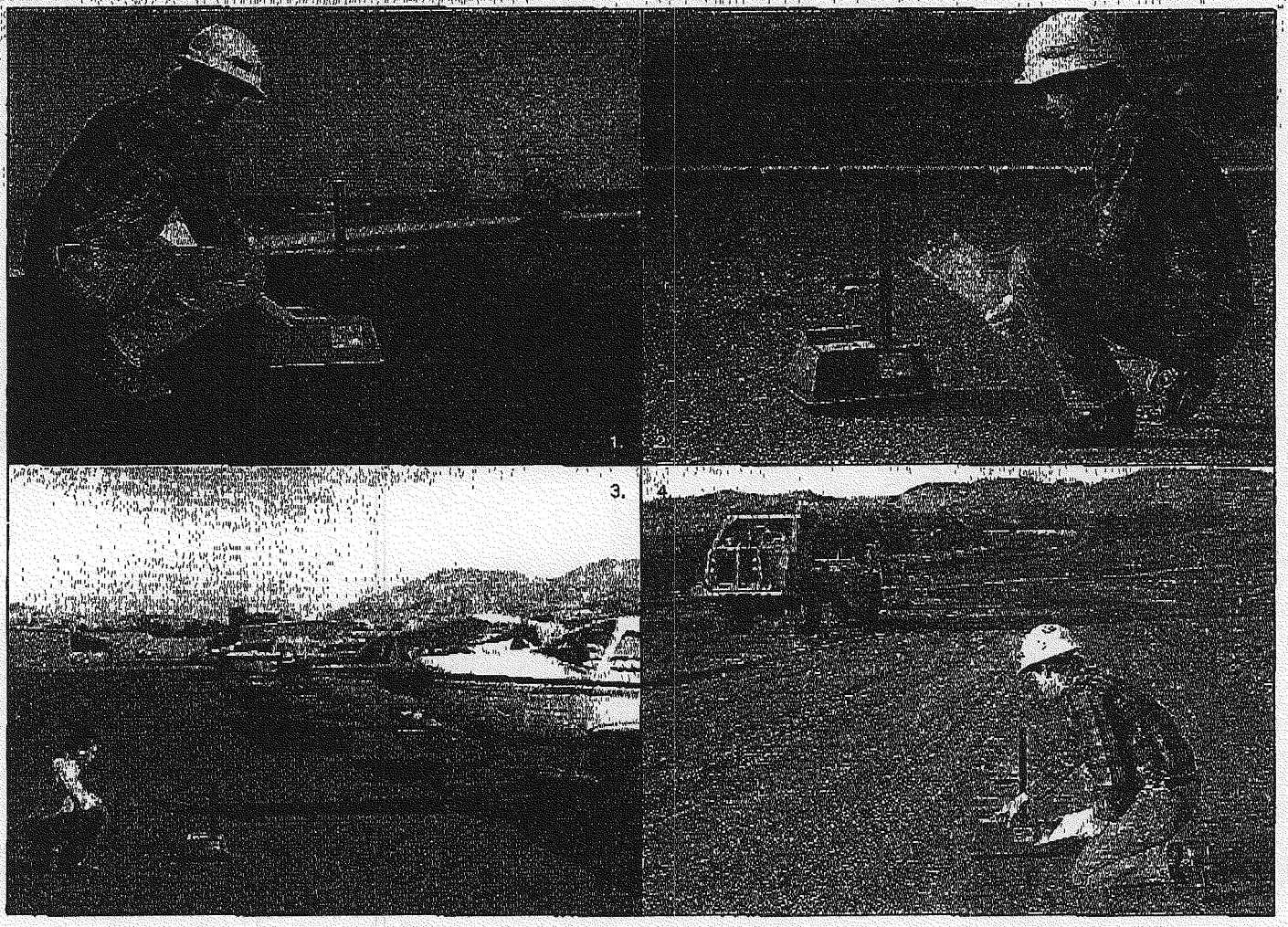
## Dimensions/Shipping Weights

| Model Number | Width | Depth | Height | Weight |
|---|---|---|---|---|
| MC-1DR-P All Models | 14.1" (358 mm) | 9.4" (240 mm) | 22.8" (579 mm) | 31.0 lbs (14.1 kg) |
| Instrument in Case MC-1DR-P All Models | 30.0" (762 mm) | 16.0" (406 mm) | 16.5" (419 mm) | 92.0 lbs (41.7 kg) |

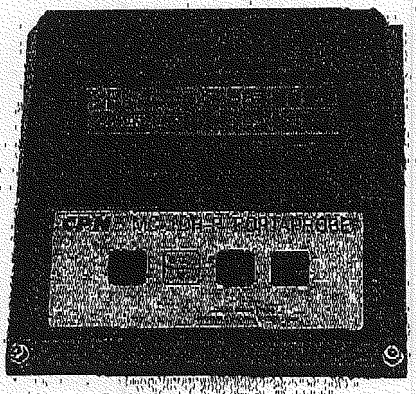
**All features and specifications are subject to change without notice.**

**CPN International, Inc.**
2830 Howe Road
Martinez, CA 94553 USA

Telephone: 925-228-9770
Fax: 925-228-3189
E-mail: *cpn@cpn-intl.com*




*Field Applications: (1) asphalt pavement testing on a roadway; (2) foundation testing at an industrial site; (3) asphalt pavement testing at an airport; (4) transmission testing of earth embankments.*



*MC-1DR-P Keyboard/Display*

The operator may enter target maximum values determined by standard laboratory tests (ASTM or comparable) before or after a test is taken. Options are: Proctor value, Marshall value, or Theoretical Maximum Density. The MC-1DR-P will calculate and display the following relative or % compactions:

- % Proctor
- % Air Voids
- % Marshall

Test results are displayed in English or Spanish language.

**To measure density of pavements,** the Portaprobe® is simply positioned on a surface that is relatively smooth and free of voids. Accurate density measurements are made to depths of 2.0 or 3.0" (50 or 75 mm), using the dual backscatter positions.

**To measure compaction of soils,** a test hole is prepared in the soil with a drill pin or slide hammer. The source rod is extended into the hole and density measurements are taken in 1 or 2" (25 or 50 mm) increments to a depth of 8 or 12" (200 to 300 mm).

**Moisture measurements** are made from the surface. The depth of measurement averages 6 in (150 mm). The moisture test is taken simultaneously with density.

## Battery Pack

The welded battery pack of six D size cells normally lasts for over a year of operation (100 readings per day, 5 days per week, and 50 weeks per year). The percent remaining battery capacity is displayed at the start of each test. When depleted, the battery pack is replaced. As a back-up, the gauge may be operated from a 9V transistor radio battery for 500 readings.

## Rugged and Reliable

There are fewer connections for greater reliability. Integrated circuits are soldered; even the battery pack is a welded assembly.

All electronic circuits are sealed in dust-resistant compartments. All circuit boards are coated to reduce the effects of severe environmental conditions. The MC-1DR-P, constructed of cast aluminum, is lightweight and extremely resistant to shock.

## Precision

Instrument precision, for a one minute test at 125 pcf (2.0 gcc) wet density and 10 pcf (0.16 gcc) moisture.

| | |
|---|---|
| Backscatter test: | ±1.00 pcf (0.016 gcc) |
| Transmission test: 8.0 in (200 mm) depth. | ±0.25 pcf (0.004 gcc) |
| Moisture test: | ±0.25 pcf (0.004 gcc) |

This is to acknowledge the receipt of your letter/application dated

6/25/09, and to inform you that the initial processing which includes an administrative review has been performed.

Amendment (29-27857-01)

☒ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

_____.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 143830.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader