Nuclear Density Gauges

Safety, Calibration, Transportation and Maintenance
Overview

- Radiation Safety
- Standards
- Gauge Transportation
- Upkeep & Maintenance
- Gauge Calibration
- Record Keeping
- Xplorerer 2®
- NoNUKE
Radiation Safety Certifications

- Radiation safety gauge operator training recommended for each nuclear gauge operator.
- CFR 49 Subpart H covered to provide understanding of correct labels, documents, and markings needed for nuclear gauge transportation.
- Radiation Fundamentals
- Radiation Health Aspects
- Transportation Shipping Regulations
- Nuclear Gauge Operator Training
- Radiation Safety Officer Training
- ALARA

www.nuketrain.com
National Standards

AASHTO T310 - In Place Density and Moisture Content of Soil and Soil Aggregate by Nuclear Methods (shallow depth)

ASTM C1040 - Standard Test Methods for In-Place Density of Unhardened and Hardened Concrete, Including Roller Compacted Concrete, By Nuclear Methods

ASTM D2950 - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods

ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)


Nuclear Gauge Transportation

- Ensure that your gauge is properly labeled and secured in a type A shipping case.
- Gauge must be secured in vehicle by two independent controls
- Gauge must be accompanied by company radioactive materials license, current leak test, and emergency response form.
- *Recommendation* NUX truck boxes are available for ease of use in nuclear gauge transportation
Block and Brace Transportation

- Easy to install gauge bracing safety system
- Reduce gauge case handle replacement with secure system to eliminate gauge sliding in transit
- Fits all makes and models of gauges
- Requires additional two independent control systems
- Low cost option for gauge transit security
Upkeep & Maintenance

- Keep your density gauges dry!
- The number one issue seen in our service and maintenance facilities is moisture and corrosion damage.
- Make sure to always dry out your shipping/storage case before gauge transportation and storage.
- Keep density gauge base clean of debris and wear after each use on the jobsite if needed.
- Small preventative steps can prolong the life and improve the performance of your density gauges.
- Utilize professional gauge service facilities for yearly service and maintenance.
Nuclear Gauge Calibration

- Application and Calibration of gauges are separated into 2 standards
  - Application – D6938
  - Calibration – D7759
- Yearly calibration and service of your gauges is vital for accurate and repeatable results in the field.
Record Keeping

- Checking in and out of your nuclear density gauges.
- Up to date leak tests on file at all times
- Calibration reports up to date- 6 month and yearly (license dependent)
- Nuclear license up to date for current gauges based on manufacturer specifications.
### Record Keeping

<table>
<thead>
<tr>
<th>ID</th>
<th>ID</th>
<th>Calibration Due Date</th>
<th>Leak Test Due Date</th>
<th>Last Read</th>
<th>Check Out By</th>
<th>Vehicle</th>
<th>Checked Out Time</th>
<th>Curfew Disable</th>
<th>Alarm</th>
<th>Last Alarm Time</th>
<th>Notes</th>
</tr>
</thead>
</table>
Xplorerer 2®

- Large backlit LCD and keypad makes reading test results easy at night or in direct sunlight.
- Displays GPS geographic coordinates and altitude information.
- Bluetooth® enabled for easy data transfer to any Android® smartphone or tablet.
- Reporting software built into the new X2 Mobile Application can send all test results via email with just a few clicks.
- USB Port for quick download of all test data.
SmartPanel 2

- Extra-large backlit LCD screen and illuminated keypad for night-time work
- Plug and play installation for older legacy 3440 gauges
- Multiple project storage capability
- 9V alkaline battery backup
- USB port for fast and easy download of stored data
- Mobile app captures and reports test results
- Email test data from any WiFi enabled smartphone or tablet
- Charging port for tracking devices used to track nuclear gauges
NoNUKE
NoNUKE Advantages

- Light weight & durable
- Cheaper than thin-lift nuclear density gauges
- No licensing required
- Fast and accurate readings
- Good correlation with nuclear gauge results
- Easy transportation
Gauge Specifications

• Unit weight: 20 lbs
• ASTM: D7113
• AASHTO: T343
• GPS
• USB/Bluetooth (Remote Update)
• 2 GB internal storage
• Power: 6 AA Rechargeable NiMetal Hydride
• Battery life: 20-40 Hours
• LCD Display: 4x20 Large character LCD with backlight

Measurement Modes:
- Single Mode
- Averaging Mode
Gauge Specifications

Electrical Capacitance Tomography:

- Surface Roughness Correction
- Surface temperature and gauge temperature correction
- Multi level readings to provide deep density measurements
- Moisture presence warning
- Contact issue warning

≤ 5 inch

13 inch
Questions?