

LA-UR-24-24515

Approved for public release; distribution is unlimited.

Title: NMV Deployable Equipment Management at LANL

Author(s): Canfield, Ian Russell

Intended for: Report

Issued: 2024-05-08



Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by Triad National Security, LLC for the National Nuclear Security Administration of U.S. Department of Energy under contract 89233218CNA000001. By approving this article, the publisher recognizes that the U.S. Government retains nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.



NMV Deployable Equipment Management at LANL

Ian Canfield

May 20th, 2024

Where is NMV Equipment Stored?

LANL

- PVT/UVT deployment toolkit (formerly “Go-Bags”)
- Spent fuel instruments
- TSVT equipment*

Elsewhere

- **LLNL:** HST equipment
- **Y-12:** CST kits
- **ORNL:** UF6 Gas Sampler, Tomahawk
- **PNNL:** Pixie Dust, WTXS, WATS, etc.
- Etc.

NMV Deployable Equipment Maintenance

- Inventory management
 - Equipment readiness checks
 - Repairs
 - Replenish consumables
- Measurement control
- Calibrations
- Field guide development

Inventory Management Website

- **ncv.lanl.gov***
 - Also accessible through the Sharepoint site
- Track inventory
- Browse and reserve equipment
- Track shipments
- Encrypted
 - OUO/CUI Basic are permitted
- Maintenance tracking features are in development



Jaws of Life

● *Shipped Out*

Teams: PVT, UVT, TSVT

ADD TO CART



ESD Simulator

● *Available*

Teams: PVT, UVT, TSVT

ADD TO CART



Electric Heat Gun

● *4 of 4 Available*

Teams: PVT, UVT, TSVT

ADD TO CART



Dexpan 3 Expansive Demolition Grout (23°F - 50°F)

● *2 of 2 Available*

Teams: PVT, UVT

ADD TO CART



Structural Epoxy

● *5 of 5 Available*

Teams: PVT, UVT, TSVT

ADD TO CART

Field Instrument Deployments and Operations (FIDO) Team

- Expertise in building and deploying custom infrastructure for remote deployments
- NMV responsibilities:
 - International shipping logistics
 - Procurements
 - Assist with equipment maintenance
 - Manage TSVT inventory*
- Thursday lunch meeting



FIDO Shipping Timelines and Requirements

Domestic

30 days prior to delivery

- Receiving address
- Point of contact at destination
- Final packing list

15 days prior to delivery

- All items are at LANL TA-51 and packed for shipment

International*

90 days prior to delivery

- FIDO is made aware of the destination country

60 days prior to delivery

- Receiving address
- Point of contact at destination
- Final packing list

30 days prior to delivery

- All items are at LANL TA-51 and packed for shipment

87 Countries Support the ATA Carnet

- Albania
- Algeria
- Andorra
- Antarctica
- Aruba
- Australia
- Austria*
- Azores (Portugal)
- Bahrain, Kingdom of
- Balearic Islands* (see Spain)
- Belarus
- Belgium*
- Bosnia & Herzegovina
- Botswana
- Bulgaria*
- Canada
- Canary Islands
- Ceuta
- Chile
- China
- Corsica (France)
- Cote d'Ivoire
- Croatia*
- Curacao
- Cyprus*
- Czech Republic*
- Denmark*
- Estonia*
- European Union
- Faroe Islands (Denmark)
- Finland*
- France*
- French Guiana
- French Polynesia - Tahiti
- Germany*
- Gibraltar
- Greece*
- Greenland (Denmark)
- Guadeloupe (France)
- Guam
- Guernsey (United Kingdom)
- Hong Kong
- Hungary*
- Iceland
- India
- Indonesia
- Ireland*
- Isle of Man (United Kingdom)
- Israel
- Italy*
- Ivory Coast see Cote d'Ivoire
- Japan
- Jersey (United Kingdom)
- Kazakhstan
- Latvia*
- Lebanon
- Lesotho (SACU)
- Liechtenstein (Admin by Switz.)
- Lithuania*
- Luxembourg*
- Macao, China
- Macedonia
- Madagascar
- Madeira (Portugal)
- Malaysia
- Malta*
- Martinique
- Mauritius
- Mayotte (France)
- Melilla (Spain)
- Mexico
- Miquelon (France)
- Moldova
- Monaco (Admin by France)
- Mongolia
- Montenegro
- Morocco
- Namibia (SACU)
- Netherlands*
- New Caledonia (France)
- New Zealand
- Norway
- Pakistan
- Peru
- Poland*
- Portugal*
- Puerto Rico (USA)
- Qatar
- Reunion Island (France)
- Romania*
- Russia
- Senegal
- Serbia
- Singapore
- Slovakia*
- Slovenia*
- South Africa
- South Korea
- Spain*
- Sri Lanka
- St. Barthelemy (France)
- St. Martin/Sint Maarten
- St. Pierre (France)
- Swaziland (SACU)
- Sweden*
- Switzerland
- Tahiti (France)
- Taiwan
- Tasmania (Australia)
- Thailand
- Tunisia
- Türkiye (formerly Turkey)
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- Vietnam
- Wallis & Futuna (France)

Equipment at LANL

1. NDA Instruments
2. Other Measurement Instruments
3. Facility Inspection Equipment
4. Electrical Equipment
5. Disablement/Dismantlement Equipment
6. Hand Tools
7. Power Tools
8. Office Supplies

Gamma-Ray Detectors

NaI

- FLIR R400 HM5

LaBr₃

- FLIR R400

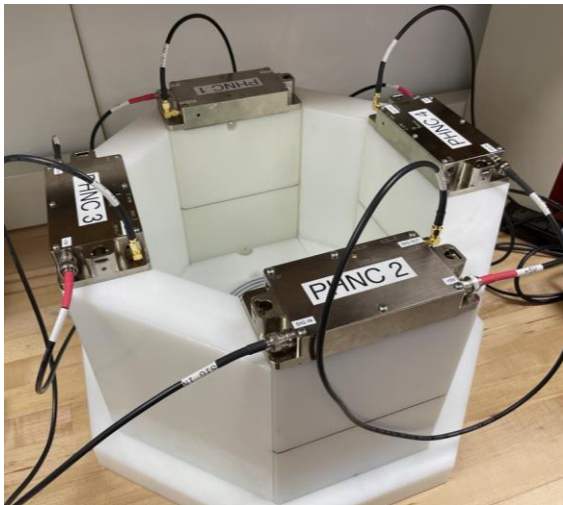
CZT

- FLIR R300
- H3D A401
- H3D H420
- H3D M400

HPGe

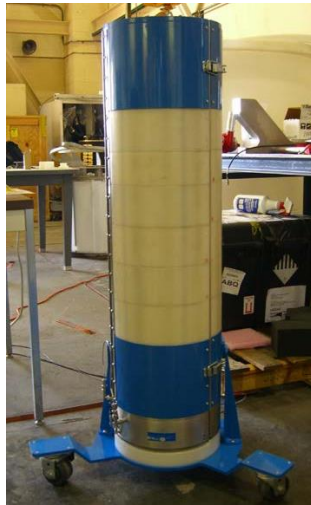
- ORTEC Detective X
- ORTEC trans-SPEC-UF6
- Canberra Falcon

Thermal Neutron Counters



PHNC

Portable Handheld Neutron Counter



UFCC

UF₆ Coincidence Counter



miniENMC

Miniature Epithermal Neutron
Coincidence Counter

Spent Fuel Instruments



AEFC

Advanced Experimental Fuel Counter



PBC

Plutonium Basket Counter



iSFRC

Integrated Spent Fuel Rod Counter

NMV Laptops

- Used for field data acquisition
- Ruggedized
- Reimaged before/after shipments
 - NMV disk image with measurement software preinstalled
- Never connect to the internet
- OUO only (CUI basic only)
- Removable boot drive
- Available accessories:
 - Mice
 - Read-only optical drive



Handheld XRF and LIBS



Bruker Tracer 5i

Handheld XRF Analyzer



SciAps Z-300

Handheld LIBS Analyzer

Other Measurement Instruments

- IR thermometers
- Vibrometers
- Thickness gauges
- Tachometers
- Ultrasonic flow meters



Mass Balances

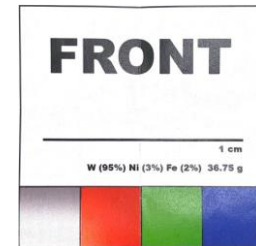
Qty	Model	Range	Resolution	Notes
3	Elitech LMC-200	100 kg	5 g	Ruggedized, portable (marketed for HVAC)
2	Adam HCB 3001aM	3 kg	0.5 g	Compact bench scale with shield
1	Sartorius EB150FEG-I	150 kg	5 g	Very heavy
1	MyWeigh HD-150	60 kg	20 g	Shipping scale with remote display
2	Adam TCW 65a	30 kg	1 g	Large bench scale
1	Dillon EDjunior	5,000 kg	0.2%	Crane dynamometer

- Check weights: 100 g and 500 g



Cameras

- Point and shoot cameras (10x)
- Thermal cameras (3x)
- GoPro (2x)
- 360 cameras (2x)
- Photo fiducial



Containment and Surveillance

- C&S Kits (Y-12)
- Padlocks
- Fireproof lockboxes
- Bank bags
- Tins



Dimensional Measuring Instruments

- Digital calipers
- Dial calipers
- Laser distance meters
- Laser rangefinders
- Large tape measures
- Small tape measures
- Open reel tape measures



Inspection Equipment

- Magnifying glasses
- Telescoping inspection mirrors
- Flashlights and headlamps
- Blacklights



Demolition Grout

- Demolition grout
 - (23°F - 50°F)
 - (50°F - 77°F)
 - (77°F - 104°F)
- Mixer
- SDS hammer drill
 - Drill bits
 - Chisels
- Shop vac
 - Shop vac attachment



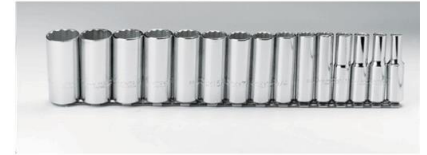
Disablement/Dismantlement Equipment

- Jaws of life
- ESD simulator
- Structural epoxy
- Syringe epoxy
- Neodymium magnets
- Iron filings
- Tungsten carbide powder
- Gallium



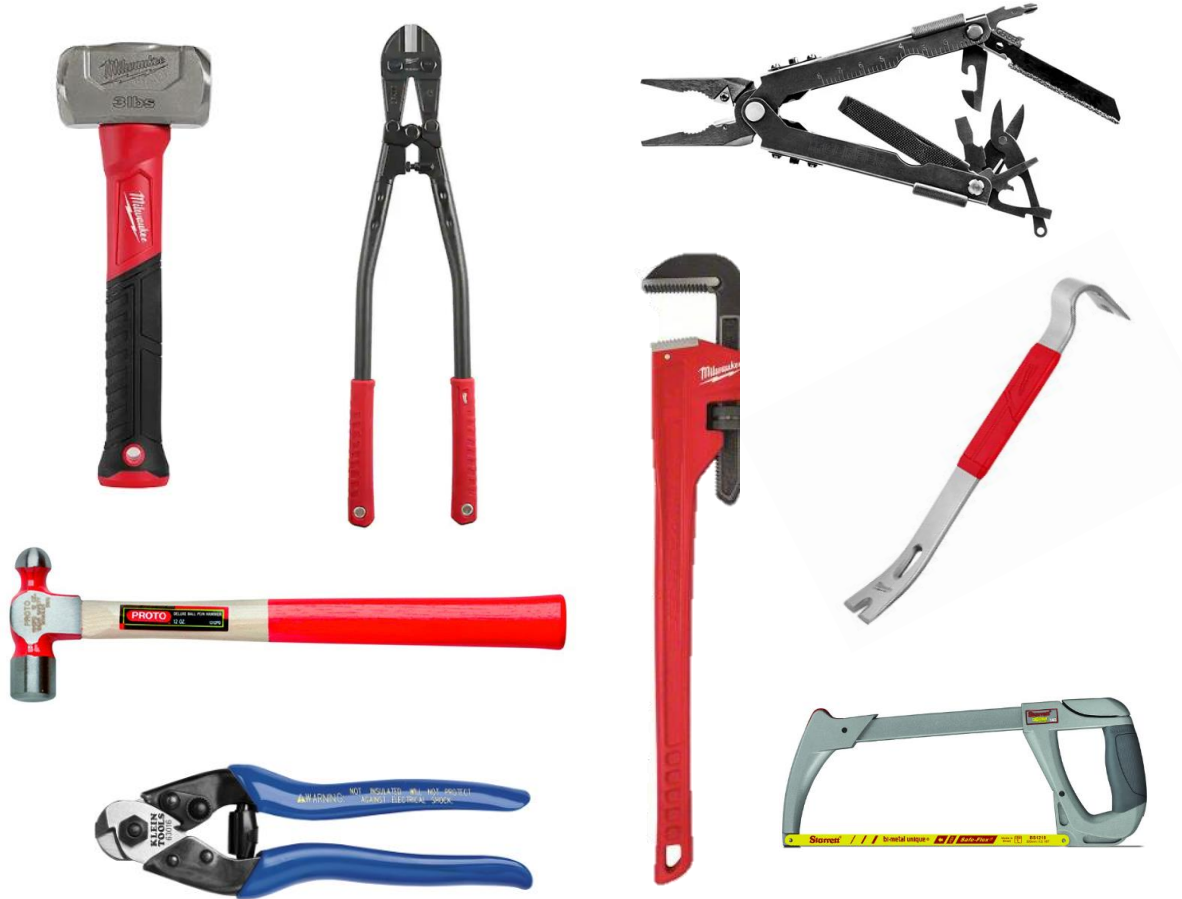
Hand Tools

- Generic tool kit
- Ratchet and Microbits set
- iFixit kit
- Torque wrench and deep socket set



Hand Tools (cont'd)

- Multitools
- Pipe wrench
- Bolt cutters
- Drilling hammer
- Ball peen hammer
- Pry bar
- Sanding kit
- Chisel/punch set
- Cable cutters
- Hacksaws



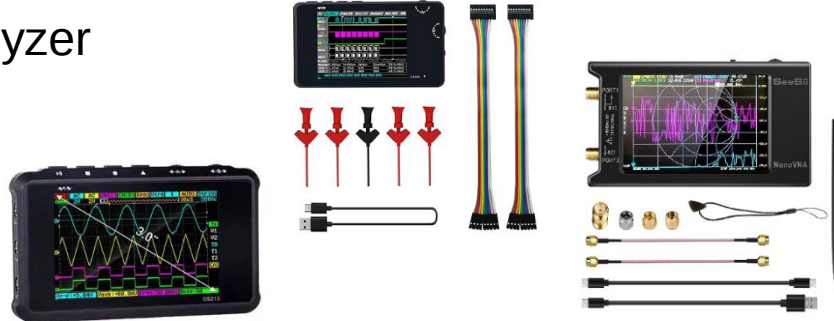
Hand Tools (Electrical)

- Wire strippers
- ESD safe shears
- ESD safe needle nose pliers
- ESD safe tweezers
- Insulated screwdriver set
- Crimp tools for making cables
- Utility hooks



Electrical Equipment

- Soldering kit: iron, solder, flux, helping hands, etc.
- Multimeters, high voltage probe, leads
- 400 amp clamp meter
- Non-contact voltage tester
- Portable oscilloscope
- DC power supply
- Vector network analyzer
- Mini oscilloscope
- Mini logic analyzer



Cordless Power Tools

- Hammer drills (2x)
- Reciprocating saw (1x)
- Angle grinder (1x)
- Bandsaw (2x)



Material Handling

- Bottle jack (50 tons)
- Large cable hoist/puller (6,000 lbs)
- Small cable puller (8,000 lbs)
- Lever hoist (6 tons)
- Furniture lifting straps
- Tool belts
- Tool aprons



Office Supplies

- Pens, pencils, sharpies, highlighters
- Notebooks, notepads, clipboards
- Label makers
- Calculators
- Spare batteries
- Travel adapters
- USB data blockers



Printer/Scanner

- Printer* – Canon - imageCLASS MF3010VP
 - Black-and white
 - Laserjet
 - USB connectivity (no Bluetooth/WiFi)
 - 600 dpi
 - 19 pages per minute
- Scanner – Epson DS-410
 - USB connectivity (no Bluetooth/WiFi)
 - 600 dpi
 - 26 pages per minute
 - OCR software installed on NMV laptops



TSVT Equipment

- 4x FLIR NaI R425s
- Cordless work site lighting

