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Title: OPERATING ELECTRONIC BALANCES

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Operating Electronic Balances

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Measurement Control Program

- **Terms**

- Net weight = the weight of a product without the packaging
- Tare weight = the weight of the packaging
- Gross weight = the net weight + tare weight
- Element weight = the weight of Nuclear Material (NM)

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Measurement Control Program

- **NM/SNM Measurement Control Program requirements**
 - Requires that all NM measurement techniques that are used for MC&A purposes follow a prescribed measurement control program
 - ✓ Balances
 - ✓ TNC & SAI
 - ✓ NDA Laboratory (SGS, Neutron, Shuffler, Cal/Iso, etc)

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Slide 3

Measurement Control Program

Balances

➤ *FMH Operators and FMH Supervisors use NMCA qualified accountable balances*

✓ *to take mass measurements which may be input into the LANMAS/LAMCAS System, verifying the accuracy of the accountability data and records.*

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Measurement Control Program

Balances

- *FMH Operators and FMH Supervisors use certified accountable balances*
 - ✓ *to comply with the DOE NMCA requirements.*

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Measurement Control Program

Balances

- *FMH Operators and FMH Supervisors use certified accountable balances*
 - ✓ *Where PF-4 Operations or activities call for a balance measurement as referenced on the PMFD.*
 - *Mixing, Splitting*

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Measurement Control Program

Operating Balances

➤ *FMH Operators and FMH Supervisors*

- ✓ *Must follow the CSP and confirm compliance with criticality safety in accordance with AP-522 before using a balance.*

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Measurement Control Program

Operating Balances

➤ *Confirming Compliance with the CSP *\$*

- ✓ *Verify the actual SNM holdings against the LANMAS derived inventory*
- ✓ *Verify the Administrative Requirements*
- ✓ *Review Engineering Features to maintain operator awareness*

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Measurement Control Program

Operating Balances

- *Suspect balances or improperly performing equipment requires immediate attention*
 - ✓ *Measurement System Operations (MSO) Team should be contacted*

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Measurement Control Program

Operating Balances

➤ *MSO Team*

- ✓ *Provides testing of new balances*
- ✓ *Verifies functionality and coordinates the balance on the Nuclear Material Accountability System (LANMAS/LAMCAS)*
- ✓ *Balance is good until 11:59pm*

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Measurement Control Program

Operating Balances

➤ *Performance 5.1*

- ✓ *Electronic balances are registered on the Nuclear Material Accountability System as Qualified*

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Measurement Control Program

Operating Balances

➤ *Performance 5.1*

✓ *The operator must verify the condition of the balance*

- *Daily measurement control check*
- *Balance is in service and available for use*

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Measurement Control Program

Operating Balances

➤ *Performance 5.1*

- ✓ *Tare the balance*
- ✓ *Place the item on the balance platform*
- ✓ *Obtain the mass measurement*
- ✓ *Repeat as necessary*

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Measurement Control Program

Operating Balances

➤ *Performance 5.1*

- ✓ *Enter results into the Nuclear Material Accountability System*

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Measurement Control Program

Balances

➤ *In general, balance measurements are among the most precise and accurate measurements.*

✓ *Metals*

✓ *Oxides*

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Measurement Control Program



Neutron Barrel Counter



G05 Segmented Gamma Scanner

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Measurement Control Program

Time to demonstrate what we have learned

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