



# URS

## Washington Division

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### Washington TRU Solutions

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# Test plan for the iSolo and SabreASC

- The scope of this test plan is to determine if there is any calculational bias in TRU activity estimation for the Canberra iSolo Counter and the SabreASC Alpha Sample Counter for operational practices at the WIPP and
- To determine the sensitivity of the instruments.

# PRECAUTIONS

- Personnel will adhere to all RWPs, observe all safety rules and all postings applicable to the area.
- The activities will NOT interfere with normal Waste Handling activities.
- Personnel handling source will be qualified by having completed Job Performance Measure CFO-106JP.
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- Those handling the air samplers will be qualified by having completed CFO-119JP

# DISCUSSION

- The iSolo and the SabreASC have not been demonstrated by the vendor to have a non-zero bias in the TRU estimation when counting FAS filters.
- Specifically, the effects of allowing the filter to decay for different ranges of time has not been evaluated.
- Myriad distributions of radon progeny on a filter at any time post sampling could in theory be realized by operations.
- Testing results need to support using these as a black box.

# Primary Factors to Consider

- In order to utilize these instruments for regulatory compliance activities, the detection limits and any potential bias for all practical time delays needs to be evaluated for as many possible radon distributions as can be attained.
- Equally important, the ratio of radon to thoron needs to be considered as this ratio can vary widely throughout the year at the WIPP site and its effect on the both instruments' ability to quantify FAS activity should be known.

# Test Plan

1. Radiological Engineering (RE) will obtain from Radiological control (RC) two giraffe air samplers for creating operational radon progeny distributions on air filters for subsequent examination with the iSolo and SabreASC units.
2. The giraffes will set up in Bldg 413A. The two counting units will be set up in Station A.
3. RE will arrange with RC to have Station A samples from the secondary skid taken during the regular morning cycle to be counted by RE with the iSolo and the SabreASC. RE will independently take the air filters from the giraffes for counting.

# Testing Plan Cont.

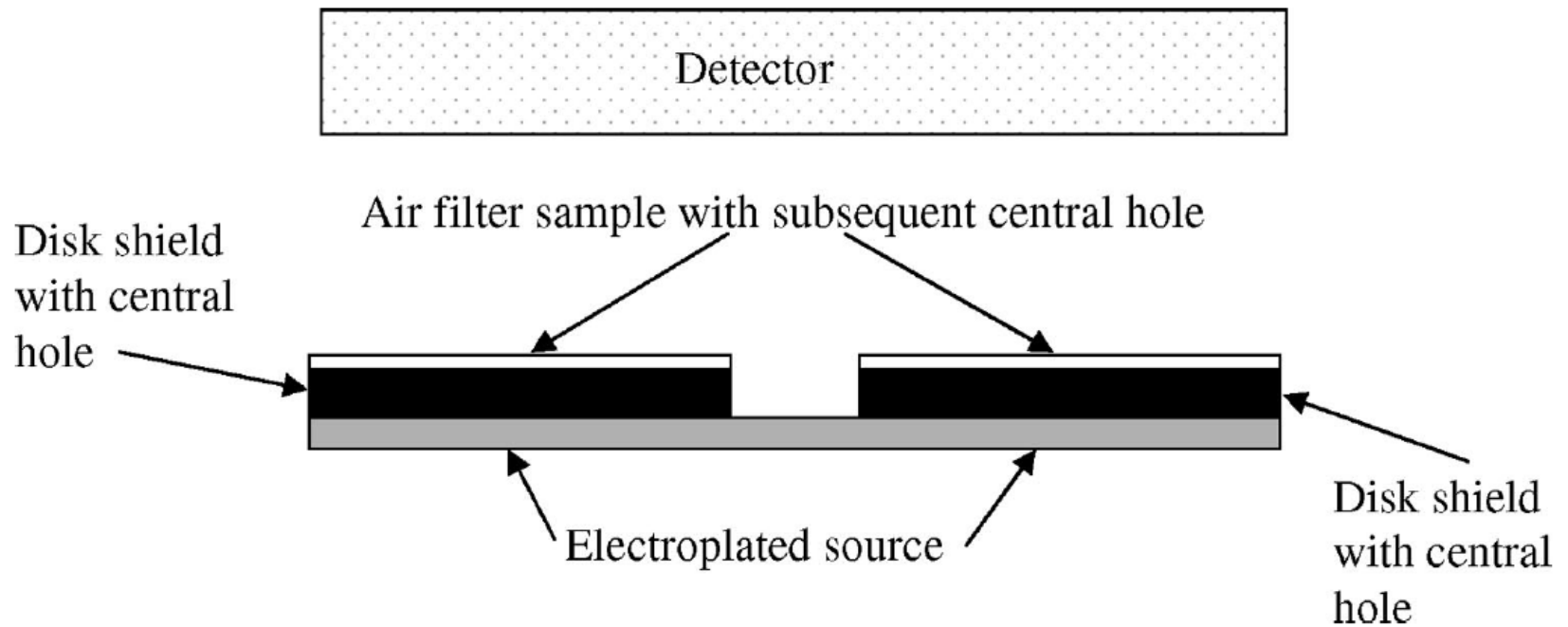
4. RE will arrange to have one or more “for indication only” RAD7 units monitoring both radon and thoron levels at the WIPP during this test.
5. After approximately 35-40 air samples have been taken and evaluated with 2 instruments, results will be considered sufficient for initial background TRU estimation bias and variability.
  - Air filters will sequentially be tracked and evaluated at increasing time intervals to eventually determine if any time limit will be required instrument evaluations of FAS filters.

# Test Plan Cont.

6. An additional sequence of filters will be obtained from the giraffes and evaluated when placed over a known fixed TRU source as a mask to that source. This will be accomplished by punching a  $\frac{1}{4}$  inch hole in the fresh FAS filter, placing it over a fixed (electroplated) TRU source so as to evaluate the instruments' ability to accurately quantify the known TRU activity on the filter/source combination.
  - Air filters will sequentially be tracked and evaluated at increasing time intervals to eventually determine if any time limit will be required on instrument evaluations of FAS filters.
  - Comparison of the instrument predictions to those values obtained from the sources masked by clean filters will be used to identify any bias or trends of concern for using the instruments in demonstrating regulatory compliance.
7. Radiological Engineers will inform Integrated Waste Handling and Radiological Control management of any findings.

# Layout of TRU measurements

Assessment of air filter samples ● R. B. HAYES



# Conclusion

- This test will be definitive for WIPP implementation (using either unit) in meeting 10CFR835
- *Caveat Emptor* – just because a vendor claims something works as marketed does not mean it is true
  - Never ask a barber if you could use a haircut