



Risk Reduction & Environmental Stewardship Division
Meteorology & Air Quality Group

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RESPONSES TO OBSERVATIONS RAISED BY RAC AND IEER DURING THE 2002 RAD-NESHAP AUDIT

The attached table lists the observations made by the Risk Assessment Corporation and the Institute for Energy and Environmental Research following the 2002 audit of the LANL Rad-NESHAP program. LANL responses and associated tracking numbers from the RRES-MAQ deficiency tracking system are also included.

IEER was observing the RAC audit, acting as consultants to the Concerned Citizens for Nuclear Safety, a citizen's group from Santa Fe.

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Rad-NESHAP Records, 2002 RAC Requests
Rad-NESHAP Records, Position Papers
RRES-MAQ File

This table is a summary of RAC observations listed in Appendix A of the 2002 RAC report, with responses and corrective actions identified. The corresponding deficiency report from MAQ's DR system is also listed.

In this table, the term "RMUS" refers to the **R**adioactive **M**aterials **U**sage **S**urvey, the annual report on activities in non-monitored stacks.

RAC Observation & Response	MAQ DR#
<p>1. Quality of usage data in RMUS. Institute program, get EPA guidance, and involve CCNS in process</p> <p>MAQ already has in place a very detailed quality assurance project plan, with QA requirements detailed within. MAQ has had discussions with EPA Region 6 regarding the program, and EPA has expressed no dissatisfaction with the methods or documentation. EPA guidance is found in the FFCA and in the 1995 DOE/EPA Memorandum of Understanding for Rad-NESHAP.</p> <p>CCNS has been involved with the RAC audit process over three audits, and has provided comments and suggestions throughout their involvement. CCNS has also provided comment on previous revisions of the Rad-NESHAP Quality Assurance Project Plan.</p> <p>For 2002 and beyond, MAQ is requiring facility QA and peer review for all Tier III sources. If the facility cannot provide this, MAQ will conduct the review if it is within our realm of expertise. Exceptions to this peer review requirement is sources or processes for which Tier III emissions levels are solely from historical emissions measurements, which have already been reviewed.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • Corrections to RMUS already implemented for 2002 • Procedure 126 will be modified to reflect these changes • QAPP will be revised reflecting these changes (as appropriate) • The Rad-NESHAP Open House series will be implemented to obtain public input and review on the program, as well as the changes implemented from these observations. <p>Target Date: August 1, 2003</p>	<p>451</p>

RAC Observation & Response	MAQ DR#
<p>2. Focus RMUS facility spot checks on facilities w/ highest potential. Also, if a PEDE significantly changes (increase/decrease), perform spot check</p> <p>MAQ is focusing the spot checks for the 2002 survey on high-profile sources; not necessarily highest PEDE, but the sources which could benefit with the most attention.</p> <p>MAQ is researching using such a “PEDE change” trigger for initiating spot-checks. If feasible, we will develop & test this in the summer of 2003, for use in the 2003 RMUS.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • For 2002, the spot checks have already been implemented • Changing the database will be investigated in Summer 2003, for implementation for the 2003 RMUS. <p>Target Date: August 30, 2003</p>	<p>452</p>
<p>3. Lab-wide system of tracking radioactive material usage is again recommended.</p> <p>This is not a feasible option at this time. The existing setup identifies a single organization responsible for data collection, calculations, and review. This approach ensures a reliability of performance, a consistency of approach, a Lab-wide inclusiveness, and a more thorough review than would be obtained by a distributed model suggested by the audit team.</p> <p>The current approach meets the needs and wishes of our LANL customers, who appreciate the interaction and the hands-on approach.</p> <p>However, great strides have been made in database usage, calculations, and electronic data management, which considerably streamline the performance of the RMUS.</p> <p>Corrective Actions: None needed.</p>	<p>453</p>
<p>4. Work with facility reps to recognize that usage data is for legal compliance, and that data quality is paramount.</p> <p>For the 2002 RMUS, this requirement was communicated to facility contacts at the start of the RMUS process. It will be part of the standard communication with facility contacts.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • Modify procedure 126 to describe communication of this legal requirement. 	<p>454</p>
<p>5. Met data: verify that a multiyear average is sufficient to characterize current/future operations</p> <p>A comparison between single-year and multiple-year data was conducted, and reported on in memo MAQ:03-051 (March 11, 2003). The variation between single-year and multi-year analyses was acceptable.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • Reference this memo in the QAPP revision 	<p>455</p>

RAC Observation & Response	MAQ DR#
<p>6. Assumptions on physical states should relate directly to individual operations, and not be based on other operations</p> <p>The specific cases to which this refers have all been reviewed for accuracy of physical state assumptions. One file where a physical state was mistakenly applied has been corrected for the next year's survey. The mistake did not significantly affect that source's potential dose for 2001. [For TA-54-36-99, the dose went from 0.0790 mrem to 0.0807 mrem with the corrections, a 2% increase.]</p> <p>This comment folds in with the next observation (#7, DR456) and the stacks discussed in observation #11 (DR460). The physical state assumptions used for these analyses will depend on completion of the stack emissions data & usage survey data comparison.</p> <p>This suggestion has been implemented. Physical state assumptions are made on a case-by-case basis, and this requirement is an existing part of the RN QAPP.</p> <p>Corrective Actions: None needed.</p>	<p>469</p>
<p>7. Compare measured stack emissions data with usage survey information</p> <p>This is an ongoing activity. MAQ compared emissions for one stack in 2001; this will continue after 2002 data is available.</p> <p>Corrective Actions: Continue comparison study</p> <p>Target Date: July 31, 2003</p>	<p>456</p>
<p>8. Consistent procedure for deriving activity estimates, based on usage of a mass of material (plutonium-239/240)</p> <p>This is a valid point. Due to the different specific activities of Pu-239 and Pu-240, emissions estimates from usage data based on mass alone may not be accurate unless the accurate isotopic breakdown is known.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • For the 2002 RMUS, MAQ requested all plutonium usage data from facilities to be in the form of an activity instead of a mass. • MAQ also asked the facilities if the Pu-239 was "pure" or if it was one of the typical mixtures, e.g., "material-type 52." These mixtures are already corrected for isotopic breakdown. • Procedure MAQ-126 will be modified to reflect these requirements <p>Target Date: July 31, 2003</p>	<p>457</p>

RAC Observation & Response	MAQ DR#
<p>9. Ensure that releases from accidents or “off-normal” events are included into annual emissions summaries.</p> <p>This activity is ongoing in the group. However, formalization of processes needs to occur.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • Procedure MAQ-126 will be modified to require facility users if there were any off-normal or accidental releases in the previous year that were not captured in the existing usage data • Procedure MAQ-507 will be modified to include a requirement to include all accidental or off-normal releases in the annual Rad-NESHAP report to the EPA. <p>Target Date: July 31, 2003</p>	<p>458</p>
<p>10. Get critical review of engineering judgement calculations from internal & external reviewers</p> <p>This activity is ongoing in the group. However, formalization of processes needs to occur.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • The QAPP will be revised to reflect the need to obtain qualified peer review, even if this expertise resides outside of MAQ. <p>Target Date: April 30, 2003</p>	<p>459</p>
<p>11. TA-54 monitoring requirements; verify calcs, monitor for one year</p> <p>A combination of this suggestion and the analysis of stack emissions discussed in item #7 above (DR#456) resulted in the decision to monitor the TA-54 waste repackaging stacks. This decision was communicated formally to the operations team on January 15, 2003 (informally in December 2002).</p> <p>Corrective Actions: No further actions. This decision will be implemented when construction on the repack units commences.</p>	<p>460</p>
<p>12. Verify charcoal cartridge efficiency at non-LANSCE sites</p> <p>At the present time, no facility outside of LANSCE has the routine level of emissions that would make such a test feasible or significant. If this changes, such a test will be undertaken as time and equipment allows.</p> <p>Note that the existing collection efficiency used at all stacks is shown to be very conservative based on the experiments at LANSCE.</p> <p>Corrective Actions: None needed.</p>	<p>461</p>
<p>13. One hard-copy data package did not include all required data; electronic data package did.</p> <p>The analysis laboratory was notified, and the problem was immediately resolved.</p> <p>The data review process was expanded to include all required fields.</p> <p>Corrective Actions: None needed.</p>	<p>462</p>

RAC Observation & Response	MAQ DR#
<p>14. Perform quarterly leak-checks on tritium cartridges</p> <p>MAQ already implemented this process prior to January 1, 2003.</p> <p>Corrective Actions: No further actions needed.</p>	<p>468</p>
<p>15. Automatically generate ambient air concentration tables, directly from database</p> <p>MAQ already implemented this process prior to January 1, 2003.</p> <p>Corrective Actions: No further actions needed.</p>	<p>463</p>
<p>16. Re-evaluate Airnet siting criteria for North Mesa residences, using wind-speed data to simulate times of elevated resuspension.</p> <p>The existing network of air samplers meets all requirements. No active source term exists which would result in concentrations at a North Mesa residence which would be higher than existing monitored locations. However, for scientific completeness, this study will be undertaken as time allows.</p> <p>Target Date: December 24, 2003</p>	<p>464</p>
<p>17. CAP-88 transcription & typographical errors; need to improve QA processes</p> <p>The identified errors were due to transcription errors and insufficient level of review during the QA process.</p> <p>The design of the existing CAP88 review process is sufficient, but needs more thorough implementation.</p> <p>One identified error was the inconsistent reporting of the diameter of TA-53 exhaust stacks. Both stacks have the same exhaust area (0.914 meters) but variations in reporting significant digits resulted in the diameter being reported as 0.9 or 0.91 meters. This issue was clarified in early 2003.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> • Properly implement existing processes. • TA-53 stack diameters were properly documented as 0.914 meters for CAP88 calculations on March 3, 2003 (via e-mail). 	<p>465</p>

Items brought up in the IEER final report (December 2002) are included on the next page.

While the IEER report did not have a summary of observations, the following list paraphrases the issues raised.

IEER Observation & Response

1. Deficiencies on how MAQ evaluates emissions from non-monitored stacks.

The issues were identical to the RAC comments, with a couple additions:

- Inadequate technical expertise in MAQ to evaluate emissions from facility operations.
MAQ has facility subject matter experts review all summaries of operations to ensure quality. Also, as suggested in RAC Comment #10 (DR#459), assumptions and calculations will be reviewed by an appropriately qualified individual.
- FFCA “exemption” to use RMUS for periodic confirmatory measurements has “expired”
The methods approved in the FFCA are not subject to expiration. Also, approval for this method of PCM is provided in the 1995 DOE-EPA Memorandum of Understanding regarding Rad-NESHAP (See RAC item #1, DR#451 above).

2. Continuously monitor TA-54 repackaging facility

This comment is addressed in RAC comment #11 (DR#460), above. The duration of monitoring shall be dependent on the level of measured releases with respect to the quantity of waste being handled.

3. Possibility of not detecting Pu-238 in some cases

- Stack sampling
- Ambient air sampling (Airnet)

The RAC final report addressed these issues. The issue lies in the fact that only half of the filters are analyzed in the radiochemical composites used for emissions determination. This radiochemical analysis is a destructive process. However, saving half of the filters allows later analysis in case aberrations are detected in the first analysis, or if other types of analyses are required. Additionally, the entire filter is analyzed for gross alpha & gross beta activity before any compositing is performed. Any significant radioactivity will be detected in this step. IEER’s suggestion to routinely analyze the entire sample filter is simply not a good idea from an operational perspective.

For stacks, the air stream is also filtered before emission in most cases, so there is only an extremely small likelihood of significant particle sizes being encountered that would result in significant activity being “missed” on a half-filter analysis.

The second half of a random stack filters are also submitted for duplicate composite analysis; there has never been a significant disagreement between the two analyses.

4. Airnet coverage at North Mesa

RAC Comment #16 (DR464) addresses this issue.