



# Air Resources Board



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## TECHNICAL BULLETIN 801-1

**RMESI Model 924 Sampler  
August 2008**

### Issue

Total Metal Filters collected using some RMESI Model 924 (924) Samplers have been displaying irregular sample patterns as observed by MLD's Northern Laboratory Branch (NLB) staff. Analytical discrepancies have been observed with these filters and some filters can not be analyzed by NLB.

### Symptoms

The Xontech Model 920 Sampler historically has been operated at a nominal flowrate of 12 LPM. However, AQSB SOP 803 (Appendix R) states that "For stations, which experience severe fog in the winter, it is advisable that the Cr<sup>+6</sup> and the Total Metals channels be set at flows of 10 LPM." This 10 LPM flow rate recommendation was included in AQSB SOP 801 upon deployment of the RMESI Model 924 Sampler.

Irregular sample patterns have been observed on some filters collected using RMESI Model 924 Samplers operating at flowrates of 10 LPM. Additionally, in-house testing of a 924 Sampler operated at 10 LPM with both older style filter holders (clear filter holders) and the new filter holders (blue filter holders) resulted in samples with analytical discrepancies. Additionally, improperly installed filter support screens (flipped screens) will result in irregular deposition patterns (see figure 3). See figures 1-2 for examples of **VALID** filter sample patterns. See figures 3-6 for examples of **INVALID** filter sample patterns.

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California Environmental Protection Agency



**VALID**

Figure 1. Normal "Clear" filter holder pattern.



**VALID**

Figure 2. Normal "blue" filter holder pattern.



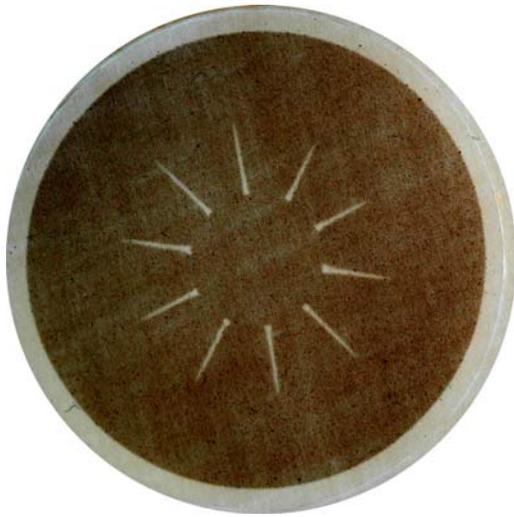
**INVALID**

Figure 3. Flipped "clear" filter screen pattern.



**INVALID**

Figure 4. Wide border pattern.



**INVALID**

Figure 5. star filter pattern.



**INVALID**

Figure 6. Solid filter pattern.

### **Solution**

Effective immediately, all RMESI Model 924 samplers should be operated at 12 LPM throughout the year. Additionally, operators should ensure that filter holder screens are properly oriented. If irregular sample patterns are observed the sample should be invalidated and a make-up sample scheduled on the "AQSB RMESI 924 Toxics Data Sheet". The operator should also write "Invalid" on the petri dish containing the invalid filter. The site operator should ensure both the sampler and the filter screens are properly configured before continuing sampling.

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