MINIMUM REQUIREMENTS DOCUMENT (MRD)

Title: Inductively Coupled Plasma Mass Spectrometer (ICP-MS)

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Background: The Industrial Hygiene Laboratory (IHL) relies on Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for the essential analysis of OSHA-regulated heavy metals, such as arsenic, cadmium, and lead, in industrial hygiene samples. The adoption of new, more stringent respirable standards requires analytical detection limits significantly lower than what is achievable with legacy ICP-OES instrumentation. This makes the high-sensitivity capability of the ICP-MS critical to mission success. While the IHL currently operates a single ICP-MS unit, it is insufficient to meet the required sample throughput and ensure mission continuity.

Scope: USAFSAM/OEA requires two (2) Inductively Coupled Plasma Mass Spectrometer (ICP-MS) units. This will give the Industrial Hygiene Laboratory (IHL) the capability to analyze concentrations in Air Force industrial hygiene samples as required by DAFMAN 48-146.

Requirement/Salient Characteristics: The Inductively Coupled Plasma-Mass Spectrometer shall possess the following salient characteristics:

- Shall come with a dedicated computer that runs on Windows 10.
- Shall be capable of achieving ultra-low-level quantification of arsenic, cadmium and lead.
- Shall operate with Mass Hunter software with Advanced Acquisition data analysis option.
- Shall export data in custom comma delimited text for import into Laboratory Information System, EDD report format must be editable to integrate to current LIMS.
- Shall operate on 200-240 Vac 50/60 Hz 24 amps (3 prong grounded plug).
- Shall provide chiller that shall operate on 208-230 Vac 60 Hz 12.2 amps.
- Shall provide for the complete installation of the ICP-MS systems at the designated facility
- Shall provide comprehensive online training and technical support.