Multifunction Powered Air Purifying Respirators

* Report Summary *

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Future Studies

- Identify the leak flow path when inhalation flow > PAPR blower
  - Human testing with incense
  - Breathing machine simulation

- Determine the tidal volume of contaminated air while wearing the PAPR
Current KRUG Steady State

Vacuum flow rate > PAPR blower

• When PAPR was maxed, flow pathway was too quick to capture.

• But, if the PAPR Blower is slowed, easier to see the flow pathways.
KRUG Breathing

- Net max inhalation rate is about 200 LPM.
- Most of the leak points are between the scarf and lower jaw and around the ears.
Future Studies

- CO$_2$ build up and re-breathed.
- Are the leak flow pathway found during inhalation similar to the pathway of exhaled air?
- If so, the blower intake location may be too close to the exhalation pathway.
- A method to determine the tidal volume of contaminated air while wearing the PAPR.