

Rational for Air Management Procedures

Coon Rapids Fire Department



Breathing Air Management
Policy and Training

Rational for Air Management Procedures

What did we lose?



Our new Scott Air-Paks are about two (2) pounds lighter than our old Drager units, and are a whole lot lighter than the Scott 2.2 and II.A units we used to wear – way back when.

**The Short Answer ...
Nothing Was Lost!**



Scott 2.2 NFPA

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Rational for Air Management Procedures

Working time?

Let's do the Math



Rational for Air Management Procedures

Old Draeger 30 Minute Air Pak

30 minutes of air

÷ 4

7.5 minutes of air per quarter cylinder

3/4 of cylinder available before alarm sounds

= 22.5 minutes of working time

7.5 minutes of air available for exiting

(1/4 Cylinder).

Rational for Air Management Procedures

Scott Next Generation 45 Minute Air Pak

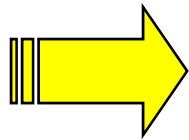
45 minutes of air

÷ 4

11.25 minutes of air per quarter cylinder

1/2 of cylinder available before alarm sounds

= 22.5 minutes of working time



22.5 minutes of air available for exiting
(1/2 Cylinder).

Rational for Air Management Procedures

Analysis

Working time not affected!

22.5 minutes of working time

Exiting time safety factor triples!

22.5 minutes of air available for exiting
Versus

7.5 minutes of air available for exiting



Rational for Air Management Procedures

What did we gain?

- **Safety increases by a factor of three** (7.5 minutes versus 22.5 minutes).
- Improved situational awareness by crews, incident commander (status reports), and others on the emergency scene.
- A trigger for sending PARs (approximately 11 minute intervals).
- A much better chance of extracting firefighters in trouble, or a much improved opportunity to provide them with a RIT-PAK air supply.
- Greater time available to activate a RIT, and much longer survival time for impaired crew.
- A greater chance impaired firefighter will be able to assist in their rescue due to available air supply.

Rational for Air Management Procedures

Cost to Implement?

- No financial resources are needed.
- A strong desire by our personnel to significantly improve their chances to go home after the emergency.
- A belief that safety is our top priority – and firefighter's lives are very important.



Air Management - Suggested Operating Guideline



Lights built-in to Regulator

Firefighter's View



Air Management - Suggested Operating Guideline

Green Light Glowing

Notify Command

#1 – Air

3/4 Full

#2 - Team Has PAR

Personnel Accountability Report

#3 - Status Report

Team Progress or Lack Of



Air Management - Suggested Operating Guideline

Yellow Light Flashing

Notify Command

#1 – Air

1/2 Full

#2 - Team Has PAR

Personnel Accountability Report

#3 - Status Report

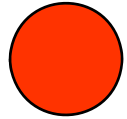
Team Progress or Lack Of

#4 – Push the “Withdraw Button” on the SEMS unit and Exit the Atmosphere



Air Management - Suggested Operating Guideline

Red Light Flashing



Notify Command

#1 – Air

1/4 Full

#2 - Team Has PAR

Personnel Accountability Report

#3 - Status Report

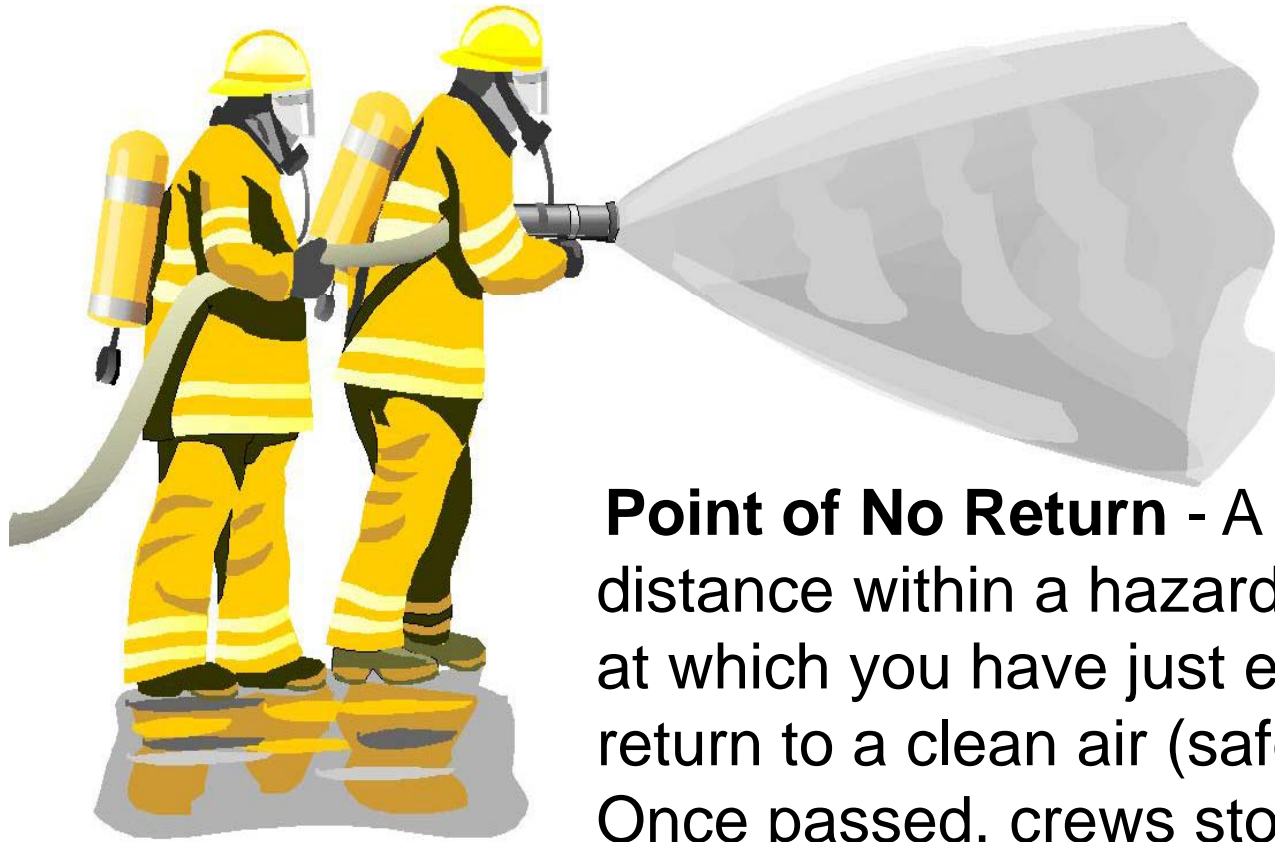
Team Progress Toward Exit



Incident Commander will ensure that the members of this team are accounted for and will ensure the Rapid Intervention Team (RIT) is alerted to the situation

Air Management - Suggested Operating Guideline

Exceptions – Point of No Return



Point of No Return - A position or distance within a hazardous environment at which you have just enough air to return to a clean air (safe) atmosphere. Once passed, crews stop becoming part of the solution and start becoming part of the problem

Air Management - Suggested Operating Guideline

Mutual Aid Considerations

When mutual aid departments are operating at a scene under the command of the CRFD, the Incident Commander shall determine the designed duration of their breathing apparatus and reduce this working time by 1/2 to ensure an exit safety factor. (i.e. firefighters using 30 minute air paks will be required to exit after 15 minutes of use). It is suggested that an accountability officer or the SEMS officer track these personnel to ensure compliance.

Air Supply in Minutes
Divided by Two

= Allowed Working Time



i.e. 30 Minutes ÷ 2 = 15 Minutes of Working Time

Air Management - Suggested Operating Guideline Exceptions – Extended Use

The Incident Commander may allow the team members to continue working until the 1/4 full cylinder indicator light activates under the following conditions:

1. The fire is declared under control.
2. A structural evaluation is made by Incident Commander to determine that there no structural collapse or entanglement hazard, the crew's visibility is not impaired, and a personnel accountability report indicates that the crew is intact and able to continue. (It is intended that this would only occur when light overhaul, fire investigation, or difficult ventilation operations require the use of SCBA to complete).
3. Upon activation of the 1/4 full cylinder (set at 1,000 psi.) indicator light and Vibralert all members of the team will push the "Withdraw Button" on their SEMS pressure gauge unit and will immediately exit the hazardous atmosphere.

The Incident Commander will verbalize his/her permission to continue to the crew via radio, and will also verbalize that the crew is to exit upon activation of the 1/4 full cylinder indicator light and Vibralert.

Air Management - Suggested Operating Guideline Monitoring Crews

When in use, the Scott Electronic Management System (SEMS) will be used to monitor compliance with this SOG, and also to enhance safety for all team members. The SEMS Officer will monitor for compliance by the team, and will immediately advise the Incident Commander or Operations Chief of any infractions and/or emergency conditions which threaten the health and/or safety of our personnel and/or mutual aid personnel.

CHRLTTE	R010	01
SCBA 4250 PSI	TIME 2m	
OK	Range	

LOCON: Firefighter's Status

CHRLTTE	R010	01
SCBA 1000 PSI	TIME 14m	
LOW AIR	Range	

ALARM STATUS: Low Air

CHRLTTE	R010	01
SCBA 4250 PSI	TIME 15m	
RESET	Range	

ALARM STATUS: New Cylinder

CHRLTTE	R010	01
SCBA 3500 PSI	TIME 20m	
PASS	Range	

ALARM STATUS: Firefighter Activates PASS

CHRLTTE	R010	01
SCBA 4250 PSI	TIME 22m	
W/DRAIN	Range	

ALARM STATUS: Firefighter Evacuating

CHRLTTE	R010	01
SCBA 4250 PSI	TIME 24m	
CLEARED	Range	

ALARM STATUS: Firefighter Out of Range



Air Management - Suggested Operating Guideline

Purpose of New SOG



Change the Sounding of an Low Air Alarm from a “Routine” Operation – to a Condition Requiring Special Consideration

A background image showing several firefighters in full gear, including helmets and reflective stripes, standing in a line. They are positioned in front of a large, bright fire that fills the right side of the frame. The scene is dimly lit, with the primary light source being the fire, which creates a hazy, orange glow. The firefighters are silhouetted against the lighter background.

Air Management - Suggested Operating Guideline Purpose of New SOG

A strong desire to significantly improve by our personnel's chances to go home after the emergency.

A belief that safety is our top priority – and firefighter's lives are very important.

54 Years of Service to Our Community