



Security Force Protective Gas Mask – Application of Avon Protection NH15 (or similar) Air Purifying Escape Respirator Mask

NRC Meeting 04/09/2024

Introduction

- Constellation is evaluating a potential change from the current full-face, fitted, mask to a hood-style air purifying respiratory protective device for Security personnel at the sites.
- Purpose:
 - Discuss feasibility of using alternative respiratory protection device/mask.
 - Submit licensing action (e.g., 73.5 Exemption, 73.55(r) Alternative Measures, etc.).
- The new hooded mask:
 - Is more versatile and tactically effective
 - Could be carried or staged
 - Is better suited for all Security officers
 - Increases moral and motivation

Mask Comparisons



Avon PC50 Mask ([Avon PC50 Mask](#))



Avon NH15 Mask ([Avon NH15 CBRN Escape Mask](#))

- Constellation Security personnel currently use the Avon PC50 style full-face respirator (mask) at the sites. This style mask is a riot police mask that provides acceptable protection against incapacitating agents and meets the applicable regulatory requirements as specified in 10 CFR 73, Appendix B.
- Constellation is evaluating the use of the Avon NH15 style air purifying escape respirator (mask). This hood style mask is suitable for use by first responder, military, and prisons and corrections personnel and provides acceptable protection against certain incapacitating agents. However, existing requirements in 10 CFR 73, Appendix B, would preclude the use of this style mask.

Regulatory Requirement and Guidance

- NRC – 10 CFR 73 – Physical Protection of Plants and Materials
 - The provisions of 10 CFR 73 are intended to ensure that Security Officers are capable and equipped to implement and maintain a "stand and fight" approach to protect and defend the facility from a design basis threat and radiological sabotage.
- NRC – 10 CFR 73, Appendix B, Section VI – General Criteria for Security Personnel: Nuclear Power Reactor Training and Qualification Plan for Personnel Performing Security Program Duties.
 - G.2(a) Requires that armed response personnel “be equipped or ha[ve] ready access to all personal equipment or devices required for the effective implementation of the Commission-approved security plans, licensee protective strategy, and implementing procedures.”
 - G.2(b)(1) Requires that the licensee “shall provide armed security personnel, required for the effective implementation of the Commission-approved Safeguards Contingency Plan and implementing procedures, at a minimum, but is not limited to, the following: (1) Gas mask, full face...”
 - In the Statements of Consideration to 2009 Final Rule for Power Reactor Security Requirements the Commission clarified that required equipment listed in G.2(b) could be “pre-stage[d] ... at designated locations consistent with their protective strategy” (74 Fed. Reg. 13954) and that “The Commission does not intend that the required equipment necessarily be carried or worn but intends that it be readily available should the security officer choose to wear it during a safeguards contingency event.” (74 Fed. Reg. 13965)

Regulatory Requirements and Guidance (continued)

- Regulatory Guide 5.75 – Training and Qualification of Security Personnel
 - Licensees that issue respiratory protection equipment for the purpose of complying with Commission-approved security plans should establish a respiratory protection program consistent with 29 CFR 1910.134, “Respiratory Protection.”
- OSHA - 29 CFR 1910.134 – Respiratory Protection
 - The employer shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.
 - The employer shall select a NIOSH-certified respirator. The respirator shall be used in compliance with the conditions of its certification.
- NIOSH - 42 CFR 84 – Approval of Respiratory Protective Devices
 - NIOSH approves respirators in accordance with 42 CFR 84 and provides guidance for their use in occupational settings. Respirator standards are developed in collaboration with various government and industry partners.

Avon NH15 Air Purifying Escape Respirator Mask



- In emergency situations of heavy smoke, poor lighting, and visibility conditions the Avon NH15 style mask provides a clear range of vision. The Avon NH15 device features low-profile filters for reduced snagging and faster donning. The streamlined design offers improved visibility and mobility when used in confined areas.
- The Avon NH15 style mask will provide protection against incapacitating agents such as tear gas (CS) (o-chlorobenzylidene malononitrile), mase (CN) (chloroacetophenone), and pepper spray (OC) (oleoresin capsicum).
- With regard to the NH15 style mask, which does meet certain OSHA and NIOSH standards, Avon noted that testing on the mask filter unit has not been performed against CS or CN agents; however, similar carbon filter medium was tested providing appropriate protection against these agents and OC.

Avon NH15 Air Purifying Escape Respirator Mask

- **Want to achieve with this style respirator**

- A type of air purifying respiratory protective device that would require no annual fit test, no replaceable parts, and reduced maintenance/inspection efforts (reduced training time).
- A respirator that could meet applicable National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA) standards.
- Option of staging masks at defensive positions (DPs) since no need for fit testing.
- Can be worn over prescription glasses. This would eliminate the need for prescription inserts.
- Maintaining similar donning time.
- Better comfort, less restrictive, and increased visibility (peripheral vision) mobility than the current full-face masks.
- Maintains “sight picture” when firing shoulder-fired weapons and other required tasks such as communicating, accurately engaging targets, reloading, loading etc....
- Can be worn with facial hair or skin conditions.
- Allows for religious freedoms, reduces exemptions for new applicants, and boosts moral of current Security force.

Avon NH15 Air Purifying Escape Respirator Mask

- As with the currently used Avon PC50 mask, the Avon NH15 style mask will provide protection against certain incapacitating agents which include tear gas (CN), mase (CN), and pepper spray (OC).
 - Tear gas (CS) and mase (CN) are considered organic vapors requiring certain levels of respiratory protection (i.e., OSHA and NIOSH approvals/certifications).
 - Pepper spray (OC) is categorized as an aerosol/particulate which is less difficult to protect against than CS and CN agents
- The currently used Avon PC50 mask is considered a riot police mask and is NIOSH approved as a non-CBRN (Chemical, Biological, Radiological, Nuclear) respiratory protection device providing CS and CN agent and P100 particulate protection.
 - P100 – Filter medium will block 99.9% of particles 0.3 microns or larger. ([NIOSH P100](#))
- The Avon NH15 style mask is suitable for use by first responder, military, and prison and corrections personnel and is NIOSH approved as a NIOSH CBRN TC-14G-0302 protection device ([NIOSH CBRN TC-14G-0302](#)) providing CS/CN agent, P100 particulate, and limited CBRN protection.
- Respiratory protection for OC agents is not as stringent as those for CS and CN agents.

Submittal Strategy

- Constellation Security is evaluating potential licensing options in exploring the use of the Avon NH15 style mask (e.g., license amendment request, exemption, alternative measures).
- Current NRC requirements specify the use of full-face gas masks, and the current Avon PC50 mask meets the applicable standards of the NRC, OSHA, and NIOSH.
- The most likely licensing action being explored by Constellation is an exemption request to 10 CFR 73, Appendix B, Section VI, G.2(b)(1) to use a hooded mask (like the NH15) in lieu of the full –face gas mask for security response personnel.
- The exemption will be submitted in accordance with 10 CFR 73.5, Specific exemptions.

Summary

- Considering an appropriate pathway to obtain NRC approval for transitioning to a new style this mask option.
- Switching to a more user-friendly style protective mask, provides the same level of protection against hazardous agents such as (CS), (CN) and (OC),
- Will boost Security force morale by providing an option to remove the mask off the body and allowing to stage throughout the plant.
- Be able to wear your own prescription glasses or contact lenses and not having spectacle kit inserts.
- Provides effective conduct of all weapons related firing tasks while wearing a mask and maintains compliance with the all regulations.
- Not having to conduct fit testing and be cleaned shaved that would allow for facial hair.
- Constellation is considering the appropriate pathway for NRC approval in the transition to the new style mask with a most likely path being an exemption request to 10 CFR 73, Appendix B, Section VI, G.2(b)(1).

Questions ?