



U.S. Army Public Health Command

# USAPHC

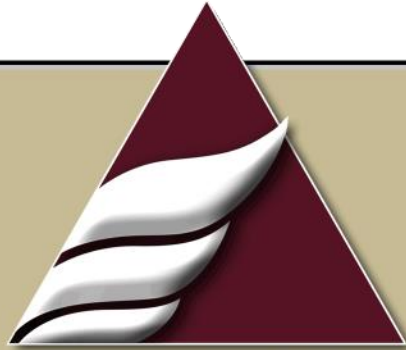


# TRI-SERVICE **VISION** CONSERVATION AND READINESS

## VCE Ocular Trauma Call

## 15 June 2015





**USAPHC**

# MCEP and APEL – What does it mean?

**UNITED STATES ARMY PUBLIC HEALTH COMMAND**

**Tri-Service Vision  
Conservation and  
Readiness Course**

**Michael D. Pattison, OD,  
MS, FAAO  
CAPT, MSC, USN Retired  
DA Civilian**

Course content updated:  
June 2015

**SECURITY CLASSIFICATION**



U.S. Army Public Health Command

# USAPHC

## OUTLINE

- Background / History of the Military Combat Eye Protection (MCEP)
- Background/History of the Authorized Protective Eyewear List (APEL)
- The APEL
- MCEP – does it help?
- MCEP/BPE Updates/Future





U.S. Army Public Health Command

# USAPHC

**Goggles and other combat eyewear have been with soldiers as long as we have had Armies.**



RT photo | Tina Berezhnaya

**Before the mechanization of transport and armaments, speeds were slow and the main hazards were weapons, explosions and natural events.**



U.S. Army Public Health Command

# USAPHC



**During WWII, goggles were commonly issued to soldiers in combat roles where there were eye hazards. For example:**

- Drivers of open vehicles
- Artillery and anti-aircraft gunners
- Tankers
- Air spray shields with gas masks
- Red Lenses for machine gunners
  - To assist in following the trajectory of machine gun tracer bullets.



*Goggles, M-1944 with metal reinforced, cardboard box. Original M-1944 goggle sets were developed by Polaroid and delivered with three lenses (clear, dark polarizing, red) for dust, wind, and sun protection. "Goggle, M1944" is stamped into the one-piece rubber frame. The M-1944 pattern of goggles remained in use until the 1990s under several different names and part numbers (e.g. "Goggles, Sun/Wind/Dust" FSN 8465-161-4068 or NSN 8465-00-161-4068).*

*Tank crewman, Fort Belvoir, VA, August 1941, wearing [M-1938 Resistal tanker goggles](#).*

## The Military Combat Eye Protection Background

- In the 1970s eye injuries were recognized as a growing problem based on the experience in the Arab-Israeli wars of 1967 and 1973.
- Combat in Iraq in the 1990s found the US military facing desert conditions of heat and dust.
- Also, modern weapons had characteristics of blast, heat, and ballistic fragments that generated higher proportions of eye injuries.
- As a result, the Army researched and fielded spectacles and goggles, adopted in 1994 and issued in 1998
  - First fundamental redesign since WWII.

## The Military Combat Eye Protection Background

- Initial products included:
  - SWDG – Sun, Wind, Dust Goggle
    - Circa WWII
    - Polycarbonate lens Type Classified in 1983 (replacing acetate lens)
    - Laser protective lenses Type Classified in 1990
  - BLPS – Ballistic Laser Protective System
    - Type Classified Limited Procurement Urgent in 1989
    - Type Classified Standard in 1995
  - SPECS – Special Protective Eyewear Cylindrical System
    - Type Classified Standard in 1995
    - Designed to provide ballistic, solar and laser protection to soldiers with normal vision.
  - Program proved to be unsuccessful because the eye protection
    - Did not look good.
    - Did not feel good.
    - Combination of lenses and frame types were too complex with too many combinations.

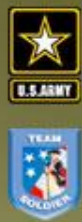


## Military Eye Protection System (MEPS)

- Developed at U.S. Army Soldier Systems Center in Natick, MA under an R&D program with fielding in 2002.
- Joint Army and Marine Corps Program for all ground combat and security personnel.
- Goggles or spectacles with interchangeable lenses.
  - Fit, comfort and logistical efficiency all improved.







PROGRAM  
EXECUTIVE  
OFFICE  
SOLDIER



Knowing the Soldier's challenge is success of purpose.  
Delivering solutions is the strength of our mission.

## The Military Combat Eye Protection Program

- Currently, MCEP is under the direction of the Project Manager Soldier Protective and Individual Equipment (PM SPIE) of the Program Executive Office (PEO) Soldier.
- PM SPIE is responsible for:
  - Creating/publishing the Authorize Protective Eyewear List (APEL)
  - Establishing/enforcing product requirements
  - Validating and recertifying all existing products
  - Testing all new product submissions
  - Establishing the Integrated Product Team (IPT)

## Integrated Product Team (IPT)

- An Integrated Product Team (IPT) is a multidisciplinary group of people who are collectively responsible for delivering a defined product or process.
- Responsible for coming up with a Qualified Product List
  - A list of manufacturers who have had their products examined and tested and who have satisfied all applicable qualification requirements for that product.
  - The QPL for eyewear protection is the Approved Protective Eyewear List (APEL)
- Members of the IPT for APEL include:
  - Members of staff of Product Manager Soldier Protective Equipment
  - AIPH TSVCRP
  - Rep for the Marines
  - Service Optometry Consultants for Navy and Army
  - Representatives for DoD Optical Fabrication Advisory Board

# Program Overview

The Military Combat Eye Protection (MCEP) program is an umbrella program geared toward:

Protects eyes from external threats/hazards

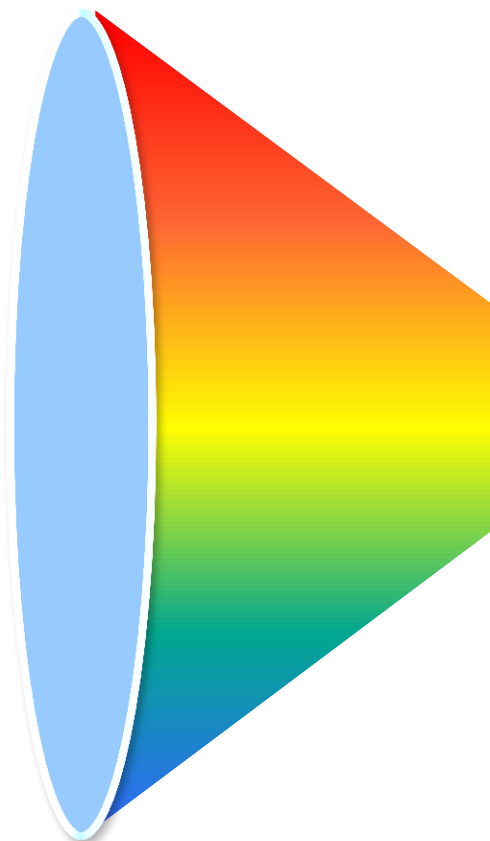
- Fragmentation
- Electromagnetic Radiation
- Wind/Sand/Dust

Providing vision correction

- Accommodate corrective lenses
- Key role played by MEDCOM

Encouraging use and feedback

- Promote User awareness
- Army and MEDCOM channels
- Leverage soldiers feedback to improve designs



# What is the APEL?

## AUTHORIZED PROTECTIVE EYEWEAR LIST

- Listing of all COTS Products approved for military use
- New List released March 2015 by PEO Soldier (PM SPIE)
- Note that poster has the date listed at the bottom.



**Qualified Product List**

**SPECTACLES**

<b>3M MAJOK</b> NPN 4240-01-430-8338	<b>ESS CROSSBOW</b> NPN 4240-01-430-8227 UPLC COMPATIBLE	<b>ESS CROSSBAR</b> NPN 4240-01-430-8332 UPLC COMPATIBLE	<b>ESS ROLLBAR</b> NPN 4240-01-430-8349	<b>HONEYWELL (EVEK) GENESIS</b> NPN 4240-01-522-4131	<b>HONEYWELL (EVEK) JC</b> NPN 4240-01-522-5261
<b>OAKLEY SI BALLISTIC II FRAME 2.0</b> NPN 4240-01-525-3095	<b>OAKLEY SI BALLISTIC II FRAME 1.0</b> NPN 4240-01-525-4094	<b>OAKLEY RACING JACKET</b> NPN 4240-01-438-8168	<b>REVISION EXOSHIELD</b> NPN 4240-01-430-9007	<b>REVISION SHIRTLY</b> NPN 4240-01-527-7923 (SM) NPN 4240-01-527-4851 (PG) NPN 4240-01-527-4016 (G) UPLC COMPATIBLE	
<b>REVISION STINGERMARK</b> NPN 4240-01-430-5053	<b>SMITH OPTICS AEGIS</b> NPN 4240-01-430-7803 (SM) NPN 4240-01-430-7802 (PG) UPLC COMPATIBLE	<b>WILEY X VALOR</b> NPN 4240-01-430-7802	<b>WILEY X VAPOR</b> NPN 4240-01-430-7463 UPLC COMPATIBLE	<b>WILEY X TALON</b> NPN 4240-01-583-5158 UPLC COMPATIBLE	

**GOGGLES**

<b>ARENA FLAKAK</b> NPN 4240-01-527-4016	<b>ESS INFLUX</b> NPN 4240-01-430-8343 UPLC COMPATIBLE	<b>ESS LAND OPS</b> NPN 4240-01-540-5880	<b>ESS PROFILE NVG</b> NPN 4240-01-430-7259 UPLC COMPATIBLE	<b>HONEYWELL (EVEK) XMF</b> NPN 4240-01-430-8758 UPLC COMPATIBLE	<b>OAKLEY SI BALLISTIC 1.0</b> NPN 4240-01-430-8910 UPLC COMPATIBLE	<b>OAKLEY SI BALLISTIC 2.0</b> NPN 4240-01-430-8999 UPLC COMPATIBLE
<b>REVISION BULLET ANT</b> NPN 4240-01-430-8201 UPLC COMPATIBLE	<b>REVISION WOLFSPIRDER</b> NPN 4240-01-430-8206 UPLC COMPATIBLE	<b>REVISION DESERT LOCUST</b> NPN 4240-01-520-8619 UPLC COMPATIBLE	<b>SMITH OPTICS LOW PRO</b> NPN 4240-01-441-6162	<b>SMITH OPTICS BOOGIE</b> NPN 4240-01-440-9002 UPLC COMPATIBLE	<b>SMITH OPTICS (GTW)</b> NPN 4240-01-441-6159 UPLC COMPATIBLE	<b>WILEY X BEEVE</b> NPN 4240-01-430-8910 UPLC COMPATIBLE
<b>WILEY X SPEAR</b> NPN 4240-01-430-8712 UPLC COMPATIBLE						

**Authorized Protective Eyewear List (APEL) APPROVED**

The Authorized Protective Eyewear List (APEL) allows PEO Soldier to offer more choices in protective eyewear, which improves Soldier protection and use of protective eyewear. The APEL is a Selection Protection Enabler and is found at <https://peosoldier.army.mil/equipment/eyewear/>.

Disclaimer: Any use of the APEL for public advertising, or sales shall state or imply that the product or the process(es) is the only one of that type qualified, or that the U.S. Army in any way recommends or endorses the manufacturer's product in preference to other qualified products on the APEL.

**Program Executive Office Soldier**  
**SFAE-SDR**  
 5901 Putnam Road, Bldg. 328  
 Fort Belvoir, VA 22060-5422  
 phone: 703-704-2802  
<http://www.peosoldier.army.mil>

Aug 12, March 2015

**Program Executive Office Soldier**  
**SFAE-SDR**

**5901 Putnam Road, Bldg. 328**  
**Fort Belvoir, VA 22060-5422**

phone: 703-704-2802

<http://www.peosoldier.army.mil>

As of 31 March 2015 ← **Most current**

AUTHORIZED  
PROTECTIVE  
EYEWEAR  
LIST (APEL)  
APPROVED

# APEL Logo

AUTHORIZED  
PROTECTIVE  
EYEWEAR  
LIST (APEL)  
APPROVED

- All products being provided to the US military under the APEL must bear the APEL logo
  - **Only APEL approved eyewear** using the materials/processes qualified through the Army APEL program **are authorized to use the APEL logo**
  - Only product sold for US military use (Government contract, AAFES, etc) may bear the “APEL” logo
  - Licensing agreement needed for eyewear sold to US military if not part of a US Government contract
- Products removed from the APEL must promptly remove the logo from the affected products



AUTHORIZED  
PROTECTIVE  
EYEWEAR  
LIST (APEL)  
APPROVED

# APEL Logo Cont

AUTHORIZED  
PROTECTIVE  
EYEWEAR  
LIST (APEL)  
APPROVED

- “APEL” Logo shall be located on the left side of the frame
  - Letters may be embossed, debossed, pad printed, etc.
  - Letters must last for the life of the item (~ 6 months) and not be easily removed.



**APEL**

- APEL Logo implemented August 2011 so MCEP purchased prior to then do not have it
  - Awaiting washout of existing inventory without logo prior to enforcement on use of eyewear only with APEL
  - **Memo dtd 18MAR15 states that “as of January 1, 2016 all eyewear not bearing the APEL logo will be considered unserviceable.”**

# Current APEL – as of 18MAR15

- 16 Spectacle Devices
  - 6 Options for Warfighters Requiring Rx (UPLC)
  - 10 Options for Warfighters Not Requiring Rx
  
- 15 Goggle Devices
  - 10 Options for Warfighters Requiring Rx (UPCL)
  - 6 Options for Warfighters Not Requiring Rx
  
- Only lenses available are clear, sun & laser (for some) and must be standard lenses (not “vented,” polarized, or transitions)

## **Current APEL Processes and Procedures**

- Current APEL processes and procedures will remain in place while the APEL is being re-established
- Current products will remain on the APEL during the re-establishment process unless removed in accordance with current policy
  - New candidates are not currently being accepted
  - Engineering Change Proposals (ECPs) may still be submitted on current APEL items



# How do products get on the APEL?

- APEL Approval is a three-step process
  - First must meet ballistic fragmentation, ANSI Z87.1 and other MCEP requirements
  - Undergo and pass user field testing
    - Must be convenient to carry
    - Must be durable during transport and individual use.
  - Receive approval from the APEL Eyewear Review Board
  
- So, can you get your favorite MCEP on the list?

**YES!!!**

# What are the MCEP requirements?

- For placement on the APEL, all MCEP/BPE must meet performance requirements that include:
  - ANSI Z87.1 compliance
  - Military Ballistic Fragmentation Standards
  - System Configuration
  - System Weight
  - System Interfaces
  - Environmental Factors
  - Optical Characteristics
  - Flammability
  - Durability
  - Chemical/Abrasion/Fog Resistance



# Performance Specification Changes

- Key Changes with new release:
  - Implementation of UPLC
  - Implementation of ANSI Z87.1-2010
  - Introduction of sized EN head forms
  - Accommodation for drag when determining ballistic fragmentation velocity calculations
  - Camouflage face paint with DEET to be used for chemical resistance
    - Paint on test method removed.
  - Goggle carrying case color shall match the frame/sleeve color
  - UPLC nosepiece and goggle adapter shall come as part of the respective spectacle goggle kit
    - Nosepiece shall be placed on the spare lens (for eyewear with removable nosepieces)
- Additional changes may be made to the specification for clarification purposes only

***All requirements of the specification will be enforced***

# MCEP Use Requirements

- AR 670-1, page 16, 3-10 a.(4)
  - “Soldiers are authorized to wear ballistic spectacle eye protection issued by the Army, including lens colors or logos that do not comply with paragraph 3–10a(3), above, in garrison or field environments unless otherwise directed by their chain of command. See the Army Combat Readiness Center for a list of currently approved protective eyewear”
- AR 385-10 Part Two
  - Discusses "functions that are appropriate to sustaining the Soldier during training, mobilization, and tactical and field operations in the garrison or during contingency and wartime conditions." It discusses the use of RM to identify and control hazards and includes identifying requirements for PPE such as MCEP. So, it appears to be at the local level of leadership.

**So, if you see a rash of eye injuries from Soldiers –  
consider holding leadership accountable!**

# APEL Spectacles – still available

Note new NSN numbers for most products.

## ESS CROSSBOW

NSN: 4240-01-630-8327

UPLC COMPATIBLE



## REVISION SAWFLY

NSN: 4240-01-527-4051 (Regular)

AVAILABLE IN THREE SIZES

UPLC COMPATIBLE



## OAKLEY M FRAME 2.0

NSN: 4240-01-525-3095

NOT UPLC COMPATIBLE



## SMITH OPTICS AEGIS

NSN: 4240-01-630-7992

UPLC COMPATIBLE



## HONEYWELL (UVEX) GENESIS

NSN: 4240-01-552-4131

NOT UPLC COMPATIBLE



## UVEX XC

NSN: 4240-01-516-5361

NOT UPLC COMPATIBLE



## WILEY X PT-1

NSN: 4240-01-510-7853



**CANCELLED!!**

## WILEY X SG-1

NSN: 4240-01-504-0994



**CANCELLED!!**

## WILEY X TALON

NSN 4240-01-583-5158

UPLC COMPATIBLE



# APEL Spectacles – New

## 3M MAXIM

NSN: 4240-01-630-8338

**NOT RX OR UPLC COMPATIBLE**



## ESS CROSSHAIR

NSN 4240-01-630-6352

**UPLC COMPATIBLE**



## ESS ROLLBAR

NSN: 4240-01-630-8249

**NOT RX OR UPLC COMPATIBLE**



## OAKLEY M FRAME 3.0

NSN: 4240-01-630-6064

**NOT UPLC COMPATIBLE**



## OAKLEY RACING JACKET SPECTACLE

NSN: 4240-01-630-6168

**NOT RX OR UPLC COMPATIBLE**



## REVISION EXOSHIELD

NSN: 4240-01-633-9521

**NOT RX OR UPLC COMPATIBLE**



## REVISION STINGERHAWK SPECTACLE

NSN: 4240-01-630-6503

**NOT UPLC COMPATIBLE**



## WILEY X VALOR

NSN: 4240-01-630-7802

**NOT UPLC COMPATIBLE**



## WILEY X VAPOR

NSN: 4240-01-630-7493

**UPLC COMPATIBLE**



# APEL Items being phased out

No new contracts will be awarded for these products; DSCP has limited supply of these products.  
The intent is to draw-down and discontinue use of these products.

## **BALLISTIC LASER PROTECTIVE SPECTACLES (BLPS)**

NSN: 8465-010416-4636 (BPLS, Clear)

RX CAPABLE with M-40 Protective Mask Insert



## **SPECIAL PROTECTIVE EYEWEAR CYLINDRICAL SYSTEM (SPECS)**

NSN: 8465-010416-4636

NOT RX CAPABLE



## **SUN, WIND, AND DUST GOGGLE (SWDG)**

NSN: 8465-01-328-8268

WORN OVER EYEGLASSES



**ALSO BEING PHASED OUR ARE THE WILEY X SG-1 AND PT-1 SPECTACLES.**

ANY DATE STAMPED 03-2015 OR EARLIER CAN STILL BE USED WHILE AVAILABLE.

# APEL GOGGLES

**NOTE: All Goggles now only available in Tan.**

## WILEY X SPEAR

NSN 4240-01-630-6712 TAN

UPLC COMPATIBLE



## REVISION DESERT LOCUST

NSN: 4240-01-592-9524 Tan

UPLC COMPATIBLE



## SMITH OPTICS

**OUTSIDE THE WIRE**

NSN: 4240-01-641-0158 Tan

UPLC COMPATIBLE



## ESS PROFILE NVG

NSN: 4240-01-630-7259 Tan

UPLC COMPATIBLE

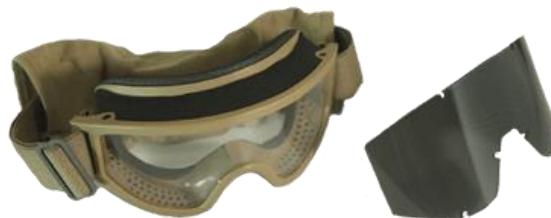


## ESS LAND OPS

NSN: 4240-01-540-5580 Tan

WORN OVER GLASSES

NOT UPLC COMPATIBLE



## ARENA FLAKJAK

NSN: 4240-01-527-4076 Tan

NOT UPLC COMPATIBLE





# APEL GOGGLES - NEW

## SMITH OPTICS BOOGIE

NSN 4240-01-640-9052 Tan  
**NOT UPLC COMPATIBLE**



## SMITH OPTICS LOPRO

NSN: 4240-01-641-0162 Tan  
**NOT UPLC COMPATIBLE**



## WILEY X NERVE

NSN: 4240-01-630-6743 Tan  
**NOT UPLC COMPATIBLE**



## ESS INFLUX

NSN: 4240-01-630-6343 Tan  
**UPLC COMPATIBLE**



## HONEYWELL (UVEX) XMF

NSN: 4240-01-630-8058 Tan  
**UPLC COMPATIBLE**



## OAKLEY 1.0

NSN: 4240-01-630-6910 Tan  
**UPLC COMPATIBLE**



## OAKLEY 2.0

NSN: 4240-01-630-5999 Tan  
**UPLC COMPATIBLE**



## REVISION BULLET ANT

NSN: 4240-01-630-6281 Tan  
**UPLC COMPATIBLE**



## REVISION WOLFSPIDER

NSN: 4240-01-630-6906 Tan  
**UPLC COMPATIBLE**



# Laser Protective Devices Available

No new contracts will be awarded for these products; DSCP has limited supply of these products.  
The intent is to draw-down and discontinue use of these products.

## REVISION SAWFLY 2-LINE AND 3-LINE LASER PROTECTIVE SPECTACLE KIT

- Replaces BLPS and SPECS

MCN: 4240-01-C12-6545 (Regular)

4240-01-C12-6546 (Large)

UPLC CAPABLE



## REVISION DESERT LOCUST 2-LINE AND 3-LINE LASER PROTECTIVE GOGGLE KIT – FOLIAGE GREEN

- Replaces SWDG

MCN: 4240-010F00-8555

UPLC CAPABLE

Have a version with a built in fan to reduce fogging.



## SUN, WIND, AND DUST GOGGLE (SWDG)

NSN: 8465-01-328-8268

WORN OVER EYEGLASSES



# Why are there so many APEL items ?

- More Choice

- Increase likelihood that they find a product that meets their needs in terms or style and wearability.
- CDI or GDI Factor
  - If they like it, they will wear it
- MCEP/BPE only works when it is worn!

- More Product

- System failure could be overcome
  - Increases from other vendors can replace lost product

- More Competition

- Vendors competition brings improved quality and cost

# Marine Corps Eye Protection System

- Marines utilize ESS products
  - Sole source supplier
  - Spectacle - ESS Crossbow
  - Goggle - ESS Profile NVG
- Issued to every Marine
  - Current ballistic spectacle kits include:
    - Clear and sun lenses
    - Two spectacles, one goggle

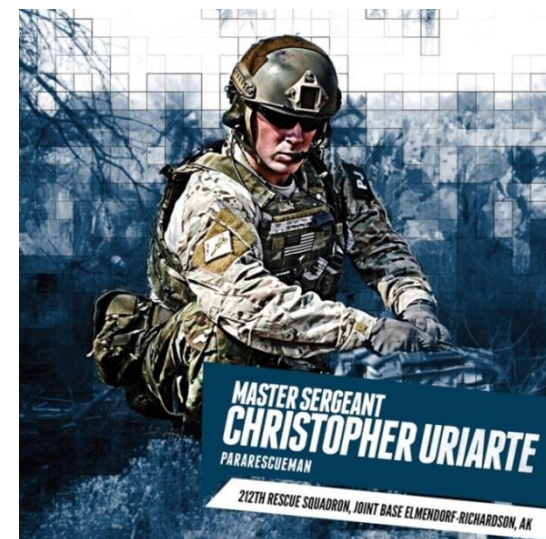


# USAF Ballistic Protective Eyewear Program

- Currently covers only deploying Airmen
- USAF currently utilizes same products as the Army
  - **AFPEL = APEL**

## Flight Protective Eyewear List (FPEL)

- First Authorized Eye Protection for Aircrew
- Approved by AF only.



# Flight Protective Eyewear List



ESS Suppressor  
Prescription Inserts Authorized



Revision Sawfly  
Prescription Inserts Authorized



Oakley SI M Frame 2.0  
Prescription Inserts Authorized



Wiley-X Talon  
Prescription Inserts Authorized



Revision Bullet Ant (goggles)  
Prescription Inserts Authorized



Revision Exoshield (goggles)  
Authorized without Prescription Inserts

## Navy Ballistic Protective Eyewear Program

- Medical personnel deploying with Marines are authorized APEL items
- Used on flight decks (Also by Australian Navy)
- Deploying Sailors may get MCEP
  - Area of Operations determines requirement
    - CENTCOM requires MCEP
  - Verified during the annual PHA according to SECNAV INSTRUCTION 6120.3

<http://www.youtube.com/watch?v=D55sbyrhShU>

Flight Deck Launch Operations On Board USS George H W Bush



# GAS MASKS

- Note that Gas Masks are not listed in the APEL.
- Most have not been ballistic tested and do not meet all of the requirements for the current APEL.
- The M50 Joint General Purpose Mask is the US Armed Forces current Field Protective mask.
  - Developed by Joint PEO for Chemical and Biological Defense.
  - Has been ballistic tested using outsert.
  - Rx insert is not UPLC.





## PRESCRIPTION LENS CARRIERS (PLCs)

Warfighters who require prescription lenses for their MCEP will need to possess the appropriate Prescription Lens Carrier (PLC) for their Spectacle or Goggle. This can be obtained through a military Optometry Clinic.



Revision Rx Carrier -- Iterative Design



Eventually all of inserts above will be replaced by the Universal Prescription Lens Carrier (UPLC) currently manufactured by Revision. All manufacturers will need to modify their product to support this insert.

# Universal Prescription Lens Carriers (UPLC)

- Categorized as Medical Item
- Possess Unique Challenges for APEL Vendors
- First eyewear where vendor mandated fabrication requirements
- Installation
  - Polycarbonate prescription lenses; non-lenticular
  - Prescription lens circumference shall be:  $124.1\text{mm} \pm .2$
  - 44/40 Bevel
  - Hot Air Mount (optical pliers may be used to assist), mounted from the front to rear
    - Begin installing Rx lens from the front starting with upper nasal, followed by lower temporal, upper temporal and finishing with lower nasal corner



# Polycarbonate Inserts

- ALL MCEP/BPE Insert are required to be made with Polycarbonate Inserts
- Increase protection by 20-34%
- Decrease Lens Thickness and Weight
- Adaptation Issues?
- Scratch Resistance?



# What are the Ballistic Standards?

- Spectacle Systems
  - MIL-PRF-31013 and GL-PD 10-12
  - 5.8 Grain, .15 Cal. T-37 Projectile @ 650 ft/sec
  - One shot to critical optical area of lens; alternated between right & left side
  - 6 times the industrial impact standard
- Goggle Systems
  - MIL-G-43914/MIL-V-43511 and GL-PD 10-12
  - 17 Grain, .22 Cal. T-37 Projectile @ 560 ft/sec
  - Three shots: One shot to center of goggle, and one to left and right sides (in the critical optical area)
  - 5 times the industrial impact standard

## So why can't you use any ballistic tested products?

Standard	Test
ANSI Z80.1	5/8 inch ball dropped from 50 inches
ANSI Z87.1 – non impact	1 inch ball dropped from 50 inches
ANSI Z87.1 – high impact	¼ inch ball projected at 150 ft/sec
APEL - Spectacle	5.8 Grain, .15 Cal. T-37 Projectile @ 650 ft/sec (3.8 mm at 196-201 m/s)
APEL - Goggle	17 Grain, .22 Cal. T-37 Projectile @ 560 ft/sec
European EN 166 - S	22 mm steel ball from 15 inches
European EN 166 - F	6 mm ball traveling at 45 m/sec
European EN 166 - B	6 mm ball at 120 m/sec
European EN 166 - A	6 mm ball at 190 m/sec

**So, trust the requirements that products are tested to in order to get on the APEL. Use only items on the APEL.**

## Eye Protection S&T Efforts Cont

- **Variable Optical Transmission Lens for Integrated Eyewear Protection – Kent Optronics, Hopewell Junction, NY/Eclipse Energy Systems, St. Petersburg, FL**

- Develop protective eyewear lenses that can rapidly adjust to varying light conditions while still meeting the MCEP requirements
- Status: Complete; OCT 12
- Results: Prototype samples showed inconsistent optics, susceptibility to environmental conditions and low transition range. Technology is not at an acceptable technology readiness level (TRL) for additional PM investment at this time



- **Colored Lens Study - US Army NSRDEC, Natick, MA**

- Assess operational impact on use of colored lenses
- Status: Complete; JUL 12
- Results: Neutral colored lenses best for all operational environments. Commercial colored lenses varied in operational impact. Some colored lenses performed similar to neutral colored lenses while others degraded performance. Users wearing colored lenses were more detectable at shorter distances (50 meters or less) but not any more detectable at ranges greater than 100 meters.

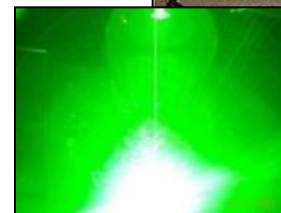


- **Laser Eye Protection – US Army NSRDEC, Natick, MA**

- Investigate new materials/solutions to mitigate the effects of lasers during day/night operations while minimizing transmission loss, effects on color perception and provide additional levels of protection
- Status: Ongoing; Transition 2QFY16

- **Improved Impact Protection Material - US Army NSRDEC, Natick, MA**

- Characterizes the impact resistance of transparent nylon material which has the potential for increased impact protection at lighter weight
- Status: Ongoing



## Eye Protection S&T Efforts Cont

- **Anti-Fog Test Methodology Development - US Army NSRDEC, Natick, MA**
  - Develop and implement laboratory method for evaluation of eyewears ability to prevent fogging
  - Status: Ongoing



- **Blown Sand Abrasion Resistance Test Methodology Development – US Army NSRDEC, Natick, MA**
  - Develop and implement laboratory method for evaluation of eyewears resistance to scratching when exposed to sand based environments.
  - Status: Ongoing



# Requirements Development

- User Feedback
  - Surveys
  - Direct Contact
- Threat Assessments
  - National Ground Intelligence Center (NGIC)
- Injury Analysis
  - Joint Trauma Analysis and Prevention of Injury in Combat (JTAPIC)
  - **Please send back devices with Wounded Warriors whenever possible so that we can examine them.**





# Are products ever removed?

## ■ Yes

- All products are routinely sampled for compliance
- APEL Items which change the design or fabrication process require immediate retesting
- Three spectacle and one goggle systems have been removed from the APEL to date
- Items can be placed on suspension and need recertification to get back on the list

# Is there a preferred product?

- No, there isn't a preferred product
- All items meet the same APEL requirements
- No single product performs best on all tests
- Some items perform better on certain tests
  - Fogging, Scratch Resistance, etc.
- Users need to weigh pros/cons of each system with respect to the mission at hand.



# How do Warfighters get MCEP/BPE?

- Issued at Individual Entry Training (IET)
- Soldier Protective Individual Equipment (SPIE)  
/Rapid Fielding Initiative (RFI)
- Supplied by command, unit or UDM
  - May be ordered through logistics using NSN
- Self Purchase
  - All items stocked at Military Clothing and Sales Stores and Post Exchanges
  - Ensure items are marked with APEL before purchase
  - **What about other sources?**



# ALARACT 209/2009

## SUBJ: ALARACT 209/2009 - UNAUTHORIZED PROCUREMENT OF BALLISTIC PROTECTION, BODY ARMOR AND OTHER SAFETY ITEMS

IT HAS BEEN REPORTED THAT SOLDIERS AND UNITS ARE PURCHASING INDIVIDUAL SOLDIER BALLISTIC PROTECTION ITEMS, BODY ARMOR, AND ADVANCED COMBAT HELMET (ACH) PADS THROUGH A VARIETY OF SOURCES.

2. THE PURPOSE OF THIS MESSAGE IS TO REITERATE THAT THE **ONLY AUTHORIZED SUPPLY SOURCES** FOR BALLISTIC PROTECTION ITEMS, BODY ARMOR, AND ARMY ISSUED SAFETY ITEMS **ARE THE DEPARTMENT OF DEFENSE (DOD) SUPPLY SYSTEM AND APPROVED PRODUCT LIST ITEMS SOLD AT THE AAFES MILITARY CLOTHING SALES STORES (AMCSS).** ORDERING

THROUGH THE ARMY SUPPLY SYSTEM OR PURCHASING ITEMS THROUGH AMCSS IS THE ONLY WAY TO ENSURE THE PURCHASE OF SOLDIER PROTECTION AND SAFETY ITEMS THAT MEET ARMY TESTING REQUIREMENTS AND STANDARDS. FAILURE TO PROCURE SOLDIER BALLISTIC PROTECTION ITEMS THROUGH AUTHORIZED SOURCES PUTS OUR SOLDIERS AT RISK.

Amazon.com: apel eye protection: Industrial & Scientific Page 1 of 3

Try Prime Michael's Amazon.com Today's Deals Gift Cards Sell Help

Shop by Department - Search Industrial & Scientific - apel eye protection Go Hello, Michael Your Account - Try Prime - Wish List - Cart -

Industrial & Scientific Lab Test & Measurement Safety Janitorial & Facilities Food Service Education Material Handling Fabrication

4 results for Industrial & Scientific: "apel eye protection"

Show results for

Any Category  
**Industrial & Scientific**  
 Personal Protective Equipment  
 • See more

Refine by

Eligible for Free Shipping  
 Free Shipping by Amazon

Avg. Customer Review

& Up  
 & Up  
 & Up

International Shipping

AmazonGlobal Eligible

Discount

10% Off or More  
 25% Off or More  
 50% Off or More  
 70% Off or More

Seller

Amazon.com  
 EarthFan  
 J2VCommerce  
 Living well  
 MTMMAINTP  
 QoozPlanet, Inc  
 SuperdealsMB

Availability

Include Out of Stock

**Revision Military Sawfly Military Kit**  
 by Revision Military  
~~\$60.49~~ - ~~\$79.99~~ \$66.99 22  
 FREE Shipping on orders over \$35  
 Some sizes/colors are Prime eligible  
 More Buying Choices  
**\$45.74** new (9 offers)  
**\$45.99** used (2 offers)

**Oakley SI Ballistic Frame 2.0 Replacement Lens STRIKE**  
 by Oakley  
 Currently unavailable 3  
 Product Features  
 APFEL Approved protection

**Wiley X - TALON Tactical Sunglasses**  
 by Wiley X  
~~\$76.99~~ - ~~\$125.20~~  
 Some colors are Prime eligible 6  
 FREE Shipping on orders over \$35 and 1 more promotion  
 More Buying Choices  
**\$104.40** new (2 offers)

**Wiley X PT-1S PT-1, Matte Black Frame, Smoke Gray Lens**  
 by Wiley X  
~~\$55.00~~ ~~\$52.20~~ + \$6.74 shipping 3  
 Product Features  
 ... AND NORWEGIAN MILITARY MEETS ANSI Z87.1-2003 HIGH VELOCITY PROTECTION...

Sponsored

**Rugged Blue Military Safety Glasses (A...**  
~~\$3.99~~ **\$1.95**  
 (86)

**HDE Laser Eye Protection Safety Glass...**  
~~\$12.99~~ **\$8.95**  
 (62)

**Eblue XTS Safety Glasses - Clear with...**  
**\$199.99**

**Colorful Paws Mask (Child Size) Breath...**  
**\$16.00**  
 (2)

Results for "apel eye protection" in All Departments (See all 7 results)

[http://www.amazon.com/s/ref=nb\\_sb\\_ss\\_c\\_0\\_6?url=search-alias%3Dindustrial&field-keyw...](http://www.amazon.com/s/ref=nb_sb_ss_c_0_6?url=search-alias%3Dindustrial&field-keyw...) 3/4/2015

# Where do warfighter's get their inserts?

- Inserts ordered via SRTS
  - Ensure that you are using the most current version
- Currently, must know brand/type of MCEP and whether it is old APEL or new APEL
  - Contact SPIE/RFI, UDM or purchasing unit
  - Remember, you will be able to order current inserts until inventories are depleted do feel free to ask.
- Optometry Clinics provide only authorized inserts
  - Some manufacturers have inserts that are NOT APEL Approved

# Where do I find the APEL?

The APEL is published on the following websites:

<https://peosoldier.army.mil/pmseq/eyewear.asp>

Also through AKO, AF Portal or NKO

<https://www.us.army.mil/suite/page/407>

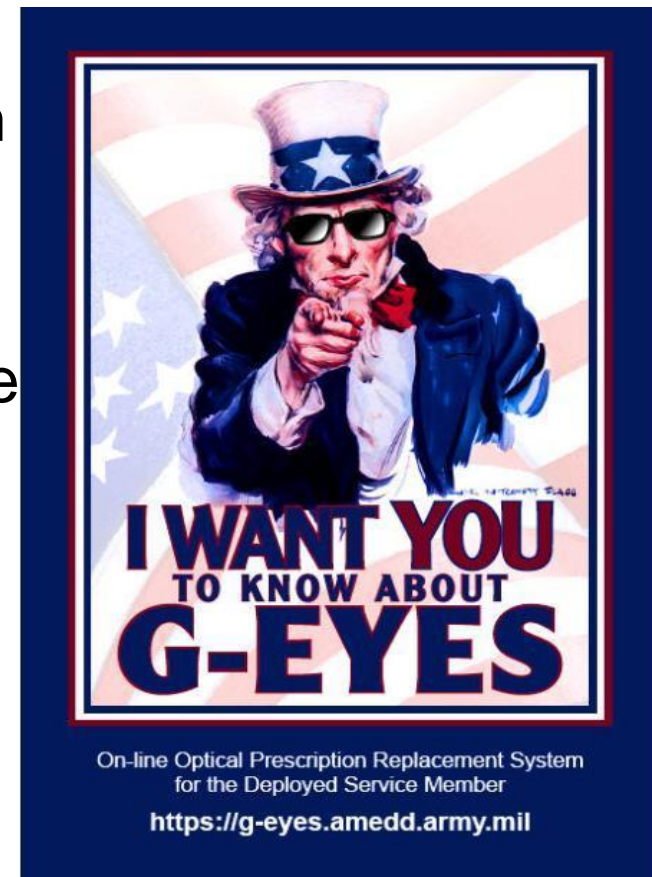
<https://kx.afms.mil/optometry>

<https://nko.navy.mil/optometry>



# Where can deployed members get inserts?

- Government Eyewear System (G-Eyes)
- Allows deployed service members to reorder eyewear from their computer
- Requires a previous eyewear order from a military clinic
- Can order 2 items per visit
- Orders fabricated and sent to the service member's APO/FPO
- Spectacle frames may be substituted
- Service member may change type of by entering required type in comments section



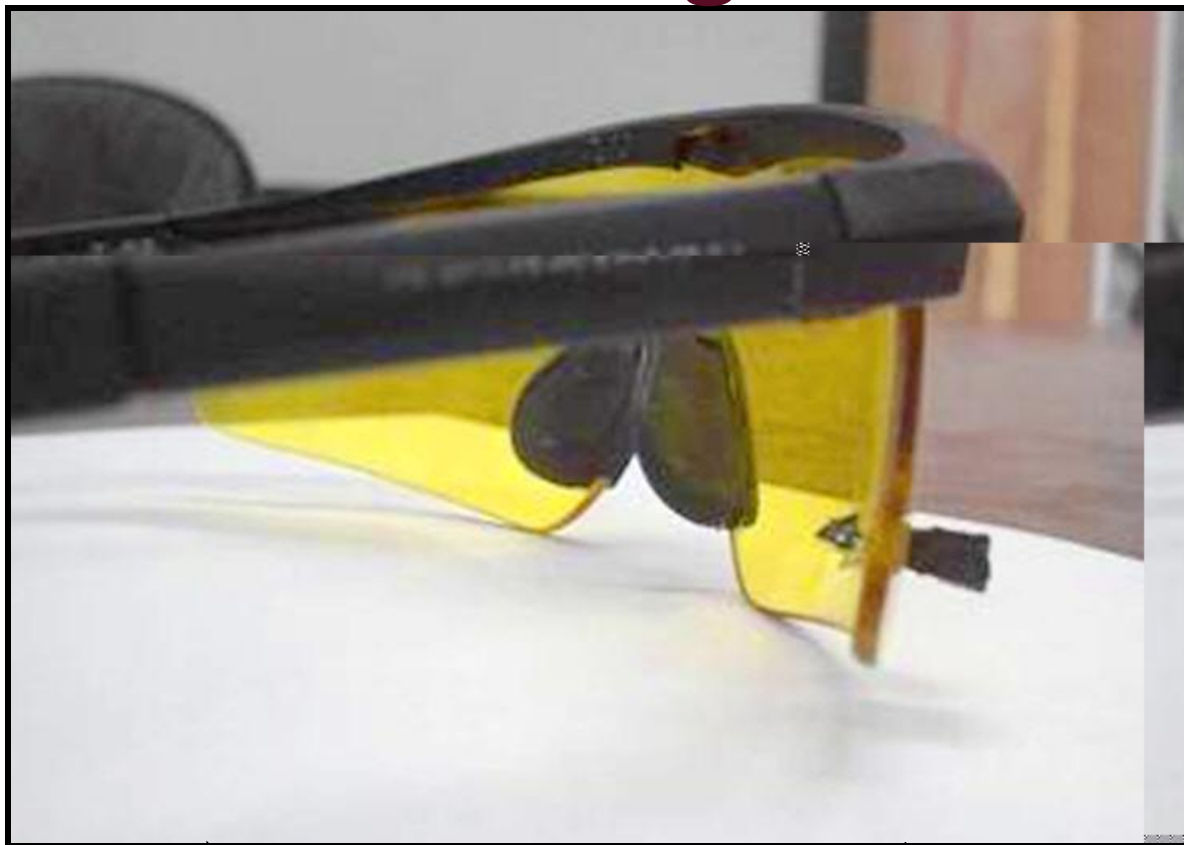
# Is MCEP Being Used?

## 2008/9 MCEP survey comparisons

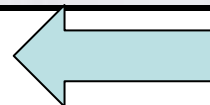
- MCEP use by Soldiers:
  - Use of MCEP on convoys and missions outside the Forward Operating Base (FOB)
    - 2008 84%                      2009 94%
  - OIF/OEF use of MCEP routinely anytime outdoors
    - 2008 54%                      2009 58%
  - Use of MCEP at home
    - 2008 30%                      2009 63%
  - \* 6% Both years rarely or never used



# Is MCEP/BPE Working??



<http://bcove.me/da29b3ve>



# Future Efforts

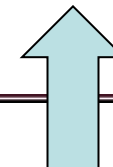
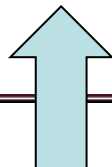
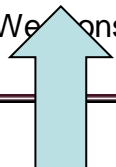
- Soldier Protection System (SPS)
  - New PM SPE program of record
  - Improved ballistic fragmentation protection
    - Spectacles - 10% increase over current requirement (T) 15% (O)
    - Goggles - 5% increase over current requirement (T) 10% (O)
  - Variable Transmission Lens
    - Transition from 18%-68% (T) 18%-89% (O)
    - Transition in less than one (1) second
  - Be capable of interfacing with a maxillofacial protection and face shield
  - Other MCEP Specification requirements apply



---

<http://dsc.discovery.com/tv-shows/other-shows/videos/future-weapons-land-warrior.htm>

Future Weapons - Land Warrior



# Questions?

For more Information on MCEP  
and Current APEL

[Michael.d.pattison.civ@mail.mil](mailto:Michael.d.pattison.civ@mail.mil)

DSN: 584-3735/ Com: 410-417-3735

For more on Flight Deck Danger click on the  
following link:

<http://www.youtube.com/watch?v=dnCuvs-ACKQ>

For more on carrier landings from a pilots  
perspective:

Part 1:

<http://www.youtube.com/watch?v=4gGMI8d3vLs>

Part 2:

<http://www.youtube.com/watch?v=S0yj70QbBzg>

From the PBS Documentary Series "Carrier"

[http://www.pbs.org/weta/carrier/full\\_episodes.htm](http://www.pbs.org/weta/carrier/full_episodes.htm)

