APHC
U.S.ARMY
ARMY PUBLIC HEALTH CENTER
(Provisional)

REDUCTION OF THE OZONE NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS)

TECHNICAL INFORMATION PAPER NO. 43-049-0116

1. PURPOSE. To summarize potential impacts to Army resulting from the revision of the ozone NAAQS from 75 parts per billion (ppb) to 70 ppb.[1]

2. BACKGROUND.

a. Exposure to ozone can harm the respiratory system, aggravate asthma and other lung diseases, and is linked to premature death from respiratory causes. Evidence indicates ozone also is likely to be one of the many causes of asthma. People most at risk from ozone exposure include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. In addition, people with certain genetic characteristics, and people with reduced intake of vitamins C and E, are at greater risk from ozone.

b. The Clean Air Act requires NAAQS to be reviewed every 5 years to ensure standards remain protective of human health and welfare, with an adequate margin of safety for at-risk populations.[2] The last ozone standard was published in 2008. In 2014, the U.S. Environmental Protection Agency (USEPA) was sued for failure to complete the ozone NAAQS review by 2013. By court order, the USEPA was directed to complete the review of the ozone NAAQS by 1 October 2015.

c. The Clean Air Scientific Advisory Committee (CASAC) is charged with evaluating scientific and medical research on health impacts of air pollution, and making recommendations to the USEPA on the appropriate level for air quality standards. In June 2014, the CASAC recommended that the ozone NAAQS be revised to a concentration in the range of 60–70 ppb.

d. On 1 October 2015, the USEPA promulgated a new NAAQS for ground level ozone of 70 ppb, measured as an 8-hour average. This standard is lower than the 2008 ozone NAAQS of 75 ppb, and consequently more restrictive to sources that contribute to ozone pollution. Currently, 224 counties are designated as nonattainment areas for failure to meet the 2008 ozone NAAQS. Based on ozone levels measured during 2012–2014, 241 counties would be designated nonattainment for failure to meet the 2015 ozone standard.

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[1] The NAAQS are air quality standards promulgated by the USEPA for the purpose of protecting public health and welfare. NAAQS have been published for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter with aerodynamic diameter ≤ 10μ meters (PM_{10}), particulate matter with aerodynamic diameter ≤ 2.5μ meters ($PM_{2.5}$), and lead.

[2] Title 42 of the US Code, Chapter 85 – Air Pollution Prevention and Control

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e. Nonattainment designations for the new ozone standard will be finalized by 1 October 2017. If designated as a nonattainment area, a state must modify its State Implementation Plan (SIP) to implement controls to comply with the new standard. SIP revisions are to be completed by 2020–2021. Nonattainment areas will have from 2020 to 2037 to meet the new standard, depending on the severity of nonattainment.

f. By Congressional direction, the NAAQS must be based solely on the protective value to human health and welfare. Cost may not be considered when setting the air quality standard, although it may be considered when selecting measures to achieve the standard. The USEPA estimates the cost of achieving the new ozone standard will be approximately $1.4 billion/year but will yield public health benefits of $2.9 to $5.9 billion/year by 2025 based on reduced sick days, medical and emergent care, hospital admissions and premature death.

3. IMPACTS.

a. Currently, 15 Army installations are located in areas that have been designated a nonattainment area for the 2008 ozone NAAQS. An additional 15 installations are projected to be in ozone nonattainment areas based upon designations resulting from the new ozone NAAQS

b. Despite air pollution controls imposed over the last 40 years, one-fifth of the US population lives in a location where the ozone NAAQS is contravened. To remedy the persistent nonattainment, as well as achieve the new lower standard, it is likely regulatory controls will be imposed on previously unregulated emission sources, and new growth will be restricted.

c. Ground-level ozone is not emitted directly from smokestacks or tailpipes, it forms in an atmospheric chemical reaction involving nitrogen oxides (NOx) and volatile organic compounds (VOCs). Consequently, controls must be placed on equipment and activities that emit NOx and VOCs, in order to control the formation of ozone.

d. Regulatory obligations at Army installations could include the following:

(1) Title V Operating Permits.[3] Lower permit thresholds associated with the severity of ozone nonattainment status make it likely that more Army installations could become a “major source” of NOx or VOCs.[4] As a major source of NOx or VOC, an installation will have to obtain a federal air permit known as a Title V operating permit.

[3] Title 40, Code of Federal Regulations, Part 70 – State Operating Permit Programs

[4] Ground level ozone is not emitted directly as an air pollutant; it is formed in an atmospheric reaction involving sunlight, oxygen, NOx and VOCs. Accordingly, in order to mitigate ozone levels, NOx and VOC emissions must be controlled.

(2) NOx Controls. At most military installations, NOx is the air pollutant produced in the greatest abundance. NOx results from fossil fuel combustion (e.g., boilers, heaters, emergency generators, motor vehicles); waste combustion; and firing of weapons and munitions. Emission controls could include limits on fuel use or operating hours; modified burner technology for boilers and incinerators; fuel switching; acquisition of zero-emission or alternative-fueled vehicle; retirement of older, high-emission equipment; and prohibition on new growth that creates NOx emissions.

(3) VOC Controls. VOCs result from evaporation of organic chemicals like fossil fuels, solvents, and coatings; combustion of fossil fuels and waste material; decomposition of organic material in landfills, land farms and sludge beds; and remediation of organic chemical contamination in soil and groundwater. Emission controls could include product bans or formulation restrictions on paints and solvents; new control technology for the storage and dispensing of fossil fuels; limits or bans on certain types of waste management; more rigorous emission controls on remediation projects; and prohibition on new growth that creates VOC emissions.

(4) General Conformity Reviews.[5] Federal facilities in NAAQS nonattainment or maintenance areas must evaluate all new actions to ensure that resulting air pollution emissions do not interfere with efforts to comply with the NAAQS. Installations in newly designated ozone nonattainment areas will have to quantitatively evaluate whether VOC and NOx emissions associated with new actions exceed General Conformity thresholds, and mitigate emissions, if warranted.

4. AFFECTED ARMY INSTALLATIONS. Army installations located in areas currently designated as ozone nonattainment areas, and those in areas likely to be designated nonattainment areas due to the 2015 ozone NAAQS, are listed in the Appendix.

5. POINT OF CONTACT. The APHC (Prov) point of contact is the Air Quality Surveillance Program, commercial: 410-436-2509, or DSN: 584-2509.

Dated: January 2016

[5] Title 40 Code of Federal Regulations, Part 93 – Determining Conformity of Federal Actions to State and Federal Implementation Plans

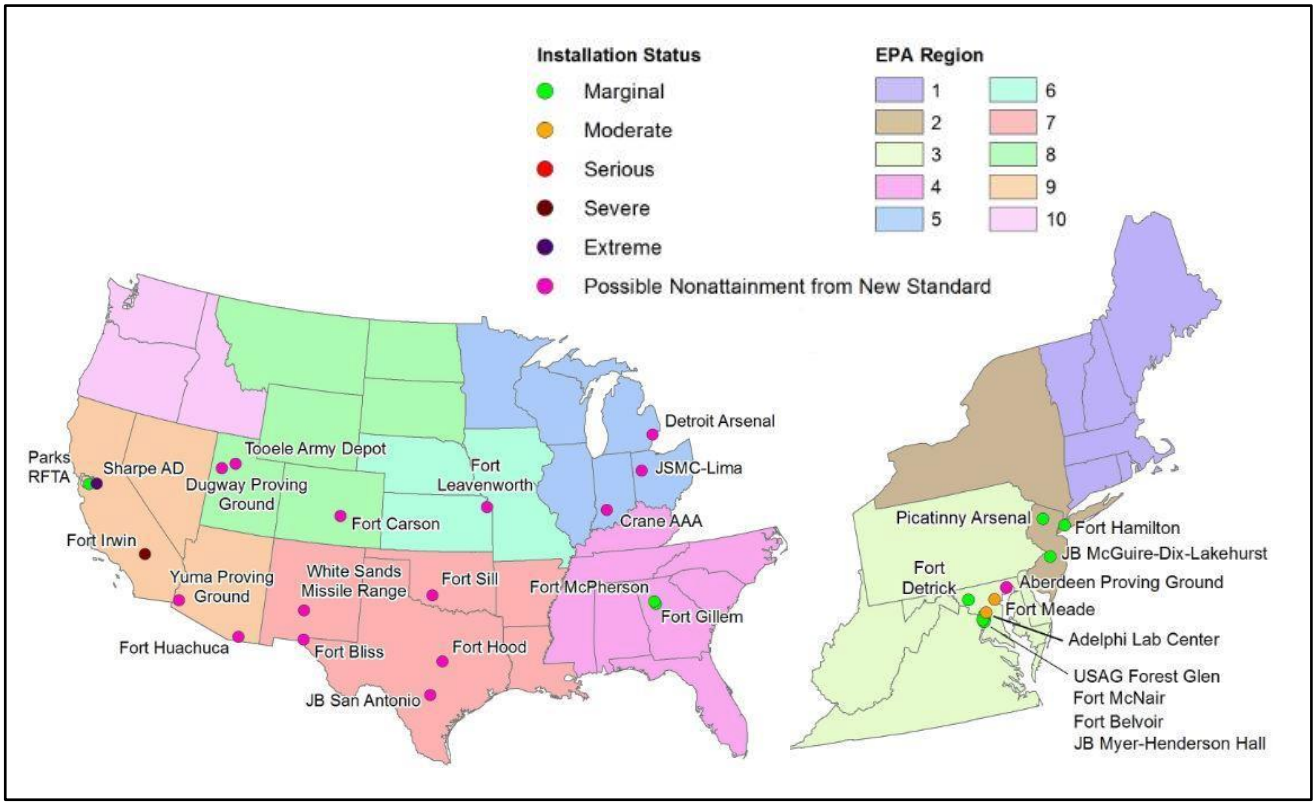
APPENDIX A
ARMY INSTALLATIONS IN OZONE NONATTAINMENT AREAS

Installations in Existing Nonattainment Areas (Based on the 2008 NAAQS)[6]:

Fort Irwin, CA
Parks Reserve Forces Training Area, CA
Sharpe Army Depot, CA
Fort McNair, Washington DC
Fort Gillem, GA
Fort McPherson, GA
Adelphi Lab Center, MD
Fort Detrick, MD
Fort Meade, MD
Forest Glen Annex, MD
Joint Base McGuire-Dix-Lakehurst, NJ
Picatinny Arsenal, NJ
Fort Hamilton, NY
Fort Belvoir, VA
Joint Base Myer-Henderson Hall, VA

Installations in Projected Nonattainment Areas (Based on the 2015 NAAQS):

Fort Huachuca, AZ
Yuma Proving Ground, AZ
Fort Carson, CO
Crane Army Ammunition Activity, IN
Fort Leavenworth, KS
Aberdeen Proving Ground, MD
Detroit Arsenal, MI
White Sands Missile Range, NM
Joint Systems Manufacturing Center-Lima, OH
Fort Sill, OK
Fort Bliss, TX
Fort Hood, TX
Joint Base San Antonio, TX
Dugway Proving Ground, UT
Tooele Army Depot, UT



[6] Areas designated nonattainment due to the 2008 ozone NAAQS will continue to be nonattainment areas, in addition to new nonattainment area designations resulting from the 2015 ozone NAAQS