

1 **Section 1**

2
3 **1.0 PURPOSE, BACKGROUND, AND SCOPE**

4 **1.1 Purpose and Need**

5 This programmatic environmental impact statement (PEIS), prepared in compliance with the
6 National Environmental Policy Act (NEPA) of 1969, assesses the potential environmental
7 impacts associated with executing the Department of Defense (DoD) Chemical and Biological
8 Defense Program (CBDP). The DoD CBDP is designed to protect our soldiers, sailors, marines,
9 and airmen from the evolving chemical and biological (CB) threats they may encounter on the
10 battlefield. This vital component of the overall defense posture of the United States comprises
11 research, development, and acquisition (RDA) activities conducted by the military services and
12 DoD agencies for defensive measures and materiel required to meet potential CB warfare (CBW)
13 threats.

14
15 These threats exist and will continue through the foreseeable future, even though many nations
16 have signed and ratified the Biological Weapons Convention (BWC) of 1972 and the Chemical
17 Weapons Convention (CWC) of 1997. Several nations are not parties to one or both of these
18 treaties. Difficulties of verification and the relatively small resource base required to produce
19 CB weapons leave open the possibility that signatory nations could violate the articles of these
20 conventions or that nonsignatory nations or terrorists could ignore them completely. CB
21 weapons constitute a potential component of an offensive arsenal that could be used by hostile
22 parties, either overtly or covertly.

23
24 Generally, passive CB defense capabilities cover products that detect, decontaminate, or provide
25 protection from CB warfare agents. Some RDA activities conducted under the CBDP
26 necessarily involve use of hazardous chemicals or infectious disease agents for research,
27 development, and production purposes. The controls on—and the potential environmental
28 consequences of—such activities are a primary focus of this PEIS.

29
30 CBW threats also include chemical and/or biological terrorism, although DoD does not play the
31 lead role in countering this threat. Congress has been concerned about possible CB terrorist acts
32 against civilians since the mid-1990s, following the subway chemical weapons incident in Japan.
33 The preamble of the Defense Against Weapons of Mass Destruction Act of 1996 (Public Law
34 104-201, 1996) expresses congressional intent for the DoD CBDP to have a supporting role in
35 homeland security:

36
37 *Sharing of the expertise and capabilities of the Department of Defense, which*
38 *traditionally has provided assistance to Federal, State, and local officials in*
39 *neutralizing, dismantling, and disposing of explosive ordnance, as well as...*
40 *biological and chemical materials, can be a vital contribution to the development*
41 *and deployment of countermeasures against biological and chemical weapons of*
42 *mass destruction.*

1 In the wake of the anthrax attacks in late 2001, the Deputy Assistant to the Secretary of Defense
2 for Chemical and Biological Defense reiterated DoD’s commitment to continue coordination of
3 efforts with lead federal agents and to assist civilian agencies through technology sharing and
4 materiel support (Johnson-Winegar 2001).
5

6 **1.2 Background**

7 The proposed action consists of executing an integrated CBDP designed to protect our soldiers,
8 sailors, marines, and airmen from the evolving CB threats they may encounter on the battlefield.
9 Numerous environmental documents—environmental impact statements (EISs) and
10 environmental assessments—have been prepared by DoD components and the military services
11 to analyze and assess the potential impacts associated with different segments of the CBDP.
12 With few exceptions, these environmental documents have been site specific, focusing on the
13 potential environmental impacts of the activities at a particular location or facility. Despite this
14 rather extensive portfolio of NEPA documents analyzing the potential environmental
15 consequences of various CBDP elements, no single document analyzes the potential
16 environmental impacts of the full range of CBDP activities. In keeping with NEPA purposes,
17 DoD has now determined to prepare such a document. This EIS is programmatic because the
18 proposed action is national in scope and involves a number of separate but related activities. In
19 accordance with Council on Environmental Quality (CEQ) regulations (*40 Code of Federal*
20 *Regulations* [CFR] 1502.4(c), 1502.20, and 1508.23), a programmatic environmental analysis
21 such as this can be used to facilitate future related analyses, thereby eliminating repetitive
22 discussions of similar matters. This *Chemical and Biological Defense Program Programmatic*
23 *Environmental Impact Statement (CBDP PEIS)* will provide an overarching framework to
24 facilitate future government decision making within the program. When subsequent NEPA
25 analyses are required under the CBDP, this PEIS will enable such analyses to focus on the key
26 issues. It will also provide a single, up-to-date information resource for the public.
27

28 **1.2.1 Contents of Draft Programmatic Environmental Impact Statement**

29 This introductory section includes a brief description of the CBDP in Section 1.2.2 and a detailed
30 discussion of the scope of the environmental review in Section 1.3. The proposed action is
31 detailed in Section 2. CEQ regulations implementing NEPA require consideration of the No
32 Action and other reasonable alternatives. The No Action Alternative is discussed in Section 3
33 and compared to the proposed action. The selection of the proposed action as the Preferred
34 Alternative in Section 3 is supported by descriptions of the existing environments in Section 4
35 and by analyses of health and environmental consequences of the proposed action and the No
36 Action Alternative in Section 5. The conclusions of this PEIS are stated in Section 6.
37

38 **1.2.2 Description of the Chemical and Biological Defense Program**

39 **1.2.2.1 Mission Objectives and Program Management**

40 The mission of the DoD CBDP is to provide world-class CB defense capabilities to allow U.S.
41 military forces to survive and successfully complete their operational missions in battlespace
42 environments contaminated with CBW agents. If our military forces are not fully prepared to
43 meet this threat, the consequences could be devastating.
44

Programmatic Environmental Impact Statement

1 The Army, Navy, Air Force, Marine Corps, Program Executive Office for Chemical and
2 Biological Defense (PEO CBD), and Defense Advanced Research Projects Agency (DARPA) all
3 conduct RDA activities under the CBDP. Congress has mandated the coordination and
4 integration of all DoD CB defense programs (Public Law 103-160, 1993). A separate CBW
5 Defense Program was created under Public Law 104-201. As required by Congress, DARPA
6 coordinates its CBDP with those of the military departments and other DoD agencies to avoid
7 unnecessary duplication of activities.
8

9 The CBDP is limited to RDA of passive defensive measures and materiel, as indicated above.
10 Ratified treaty commitments of the United States, as a signatory of the BWC and CWC, prohibit
11 the development, production, acquisition, and stockpiling of CB weapons. The CBDP is
12 separate from the Chemical Demilitarization Program, which has been disabling and destroying
13 former chemical weapon stockpiles. The Chemical Demilitarization Program is covered by its
14 own EISs (Office of the Program Executive Officer, Chemical Demilitarization 1988, Project
15 Manager, Non-Stockpile Chemical Warfare Materiel 2001).
16

17 In DoD Directive 5160.5, 1 May 1985, DoD designated the Department of the Army as the
18 Executive Agent for its CBDP, an action that was subsequently required by Congress (Public
19 Law 103-160, 1993). The program is coordinated among the armed services, PEO CBD, and
20 DARPA. The CBDP is also coordinated with the Office of Homeland Security, the Department
21 of Energy CB Nonproliferation Program, the Department of Health and Human Services, and
22 other federal agencies whose primary focus is developing a defensive program to protect the U.S.
23 civilian population from the threat of exposure to CB agents.
24

25 The annual DoD budget submission to Congress specifically identifies funds requested for the
26 CBDP. DARPA's CBDP is set forth as a separate program element in that agency's budget. A
27 report on the CBDP is submitted annually to Congress. The most recent report (DoD, April 2002)
28 may be downloaded from the DoD website (<http://www.acq.osd.mil/cp/reports.html>).
29

30 **1.2.2.2 Commodity Areas**

31 The DoD CBDP,¹ which consists of RDA activities at numerous military installations and
32 contractor facilities throughout the United States, is organized into six operationally oriented
33 commodity areas. Each commodity area is managed by one of the military services and has an
34 activity focus as follows:
35

36 **1.2.2.2.a Contamination Avoidance**

37 Contamination avoidance includes CB reconnaissance, detection, identification, warning, and
38 reporting. Earliest possible warning is fundamental to avoiding CB agent contamination. RDA
39 activities under Contamination Avoidance focus on pursuit of technological advances in CB
40 standoff detection, remote/early warning detection, sensor miniaturization, and improved
41 detection sensitivity. The Army manages this commodity area.
42

¹ DARPA's CBDP, although organized in a somewhat different structure than described here, follows a general approach to addressing environmental impacts consistent with that of the DoD CBDP.

1 If early warning is not possible or units are required to occupy or traverse CB-contaminated
2 environments, collective and individual protection systems provide our warfighters with
3 life-sustaining and continued operational capabilities (see Sections 1.2.2.2.b and 1.2.2.2.c).
4

5 *1.2.2.2.b Collective Protection*

6 Collective protection equipment includes both stand-alone shelters and integrated systems that
7 provide contamination-free, environmentally controlled surroundings for warfighters to perform
8 their missions. Collective protection in the form of overpressure can be applied to mobile and
9 fixed command posts, medical facilities, rest and relief shelters, buildings, fixed sites, vehicles,
10 aircraft, and ships. RDA activities under Collective Protection concentrate on pursuing
11 technological advances that improve generic CB protective filters and fans. Advances that
12 reduce the weight, volume, cost, logistics, and manpower requirements associated with providing
13 collective protection are also objectives. The Navy manages this commodity area.
14

15 *1.2.2.2.c Individual Protection*

16 Individual protection equipment includes protective masks, suits, boots, and gloves. RDA
17 activities under Individual Protection seek technological advances that provide an individual
18 with improved vision and voice capabilities, increased protection levels, and reduced heat stress.
19 Advances that reduce the weight, volume, cost, logistics, and manpower requirements associated
20 with providing individual protection also are objectives. The Marine Corps manages this
21 commodity area.
22

23 *1.2.2.2.d Decontamination*

24 If contamination cannot be avoided, personnel and equipment must be decontaminated to reduce
25 and/or eliminate hazards after CB agent exposure. Decontamination systems provide a
26 regeneration capability for contaminated units. Modular decontamination systems are being
27 produced to provide decontamination units with the capability to tailor their equipment to
28 support specific missions. RDA activities under Decontamination focus on pursuing
29 technological advances in sorbents, coatings, and physical removal, which will reduce logistics
30 burden, manpower requirements, and lost operational capability associated with decontamination
31 operations. The Air Force manages this commodity area.
32

33 *1.2.2.2.e Medical Systems*

34 Medical systems include pharmaceuticals, biologics, and devices that preserve combat
35 effectiveness by timely provision of medical countermeasures in response to CB agent threats.
36 RDA activities under Medical Systems include development of vaccines and pharmaceuticals
37 that prevent the lethal and/or incapacitating effects of CB agents; development of therapeutic
38 drugs and other life support equipment that improve survival and lessen time for return to duty;
39 and development of rapid portable diagnostics that enable quick medical response for exposed
40 warfighters. The Army manages this commodity area.
41

1 *1.2.2.2.f Modeling and Simulation*

2 Modeling and simulation (M&S) is a tool used to track and maintain battlespace situational
3 awareness, to provide hazard warning and prediction, and for planning or modification of
4 operations. Also, M&S is intended to provide a capability for the warfighter to train in a realistic
5 manner without the use of live CB agents. RDA activities under M&S include meteorological
6 models; transport and dispersion models; hazard and casualty assessment; computational fluid
7 dynamics; hydrocodes; and constructive, live, and virtual simulation. The Navy manages this
8 commodity area.

9
10 **1.2.2.3 CBDP Research, Development, and Acquisition Activities**

11 RDA activities under the CBDP are conducted in the context of numerous operational, safety,
12 security, and regulatory controls. These controls, in essence, define “normal” conditions for
13 CBDP activities. This PEIS has evaluated CBDP activities and their associated controls via
14 detailed analyses of how controls on potential environmental impacts have worked in practice at
15 selected “example sites,” focusing particularly on programmatic concerns (see Section 1.3.3).

16
17 For purposes of this environmental impact analysis, RDA activities under the CBDP have been
18 subdivided into discrete, functional components that can be evaluated individually. These
19 components are categorized as Research, Development, Test, and Evaluation (RDT&E);
20 Operations, Maintenance, and Waste Management (OMWM); and Administration. Details of
21 each component and its underlying activities are presented in Section 2.2.1.

22
23 *1.2.2.3.a Research, Development, Test, and Evaluation*

24 RDT&E activities under the CBDP comprise the following:

- 25
26
- Prototype development of materials for various commodity area purposes
 - Testing of CBDP prototype materials
 - All other use and handling of CBDP-specific chemical surety materiel (CSM), toxic industrial chemicals, or hazardous biological materials
 - Maintenance of safety equipment required for CBDP-specific hazardous materials
 - Laboratory animal care and use
 - Use of human subjects
 - Other support work for RDT&E activities
- 31
32
33
34

35 *1.2.2.3.b Operations, Maintenance, and Waste Management*

36 OMWM activities under the CBDP comprise the following:

- 37
38
- Operation of the utility systems that serve RDT&E activities under the CBDP, including water, steam, electrical, drainage, heating, ventilating, and air conditioning
 - Routine structural repairs and maintenance of the buildings and grounds used for RDT&E activities under the CBDP
 - Handling, storage, treatment, monitoring, and disposal of waste streams resulting from RDT&E activities, including exhaust air emissions, solid waste, wastewater streams, hazardous waste, and medical waste
- 42
43
44

1 *1.2.2.3.c Administration*

2 Administrative activities under the CBDP include the following:

- 3
- 4 • Management, accountability, and projection of the CBDP budget
 - 5 • Administration of personnel, contracts, and program activities
 - 6 • Preparation of RDT&E test methods
 - 7 • Publication of CBDP accomplishments in open, referenced, scientific literature
 - 8 • Review, analysis, and planning of projects to achieve CBDP mission objectives
- 9

10 **1.3 Scope of Environmental Review**

11 **1.3.1 Public Participation**

12 On 4 June 2001, the U.S. Army announced its intention to prepare a PEIS that would assess the
13 potential environmental impacts associated with executing the DoD CBDP. To identify concerns
14 germane to this PEIS and to afford the affected public and government agencies opportunities for
15 meaningful input, the Army conducted scoping activities, including: disseminating information
16 packages to the public and government activities; publishing notices in local newspapers;
17 coordinating with public-interest groups; and establishing a public *CBDP PEIS* website
18 (<http://chembioeis.detrick.army.mil>). A copy of the Stakeholder and Public Involvement Plan
19 documenting the various outreach activities appears in Appendix A.

20

21 Subsequent to the scoping activities and data collection, the U.S. Army issued this Draft PEIS.
22 In compliance with NEPA, the Draft PEIS is being submitted to federal and state officials and
23 agencies and to interested members of the public for their review and comment.

24

25 **1.3.2 Identification of Significant Issues**

26 The CBDP and its potential impacts on the environment were analyzed in the context of past
27 occurrences, the types of activities conducted, existing control measures, and the extent of what
28 can reasonably be expected to happen under specific circumstances or can be predicted, given
29 existing knowledge and application of scientific methodology.

30

31 CBDP activities were also analyzed in relationship to similar RDA activities occurring in the
32 private sector, where many universities and research institutions routinely work with hazardous
33 CB substances outside of the CBDP. Comparisons were made to the nature of hazardous CB
34 substances used and to the impacts seen on human health and the environment.

35

36 A preliminary list of health and safety issues related to the CBDP was developed primarily from
37 existing programmatic NEPA documents (U.S. Army Medical Research and Development
38 Command [USAMRDC], April 1989, and Joint Vaccine Acquisition Program [JVAP],
39 September 1997). Subsequent site-specific NEPA documentation was also examined. No
40 additional concerns were identified, nor were any proposed during public scoping. The current
41 list includes the following concerns for RDA activities under the CBDP:

42

- 1 • High-hazard biological materials—naturally occurring infectious agents for diseases that
2 may have serious or lethal consequences (for the purposes of this document, those
3 materials requiring biosafety level-3 and -4 containment facilities and procedures)
- 4 • CSM—high-hazard substances (not including industrial chemicals, riot-control agents,
5 chemical herbicides, smoke, or flame) intended for use in military operations through their
6 physiological properties: chemical surety comprises a system of safety and control
7 measures for protection of workers, public health, and the environment
- 8 • Outdoor aerosol testing with simulants—dispersion in the air of very small liquid droplets
9 or solid particles, less than 0.01 millimeters in diameter, of biological organisms and
10 chemicals that are substituted for their more hazardous counterparts
- 11 • Genetically engineered microorganisms (GEMs)—microorganisms (e.g., bacteria) that
12 have been intentionally modified by alteration of genetic information
- 13 • Outdoor testing with lasers—devices that emit highly amplified and coherent radiation of
14 one or more discrete frequencies, with potential hazards for accidentally exposed persons
15 ranging from interference with vision to permanent retinal damage
- 16 • Vaccines and drug therapy—preparations intended to provide immunity to infectious
17 diseases and treatments for chemical exposure, respectively
- 18 • Security—intentional unauthorized removal of highly hazardous CB materials for purposes
19 of terrorism

20 21 **1.3.3 Technical Approach**

22 As noted previously, the sites for executing CBDP activities are located at numerous military
23 installations and private facilities throughout the United States and in other countries. The
24 CBDP is a dynamic program; each year, new short- and long-term RDA activities are initiated in
25 both existing and new locations while others are terminated.

26
27 It was not necessary, however, to examine all CBDP activities at all of these sites in detail for
28 this PEIS. The technical approach to gauge the environmental impact of the CBDP was to
29 demonstrate how the environmental compliance programs within the CBDP are actually
30 working, via detailed analyses for selected example sites. This approach, which was proven in
31 previous programmatic NEPA documents (USAMRDC, April 1989, and JVAP, September
32 1997), was applied to this PEIS using an iterative three-pronged process, as follows:

- 34 • The first prong entailed the identification of programmatic issues by evaluating CBDP
35 component activities for possible impacts on environmental attributes, as described in
36 Sections 1.3.3.2 and 4.1. Existing environmental attributes at the example sites are
37 discussed in Sections 4.2 through 4.7.
- 38 • The second prong involved evaluating how the environmental compliance programs of the
39 military services, PEO CBD, and DARPA deal with these possible environmental impacts.
40 This was accomplished via identification and review of benchmark guidelines and
41 regulations for animal care and use, human subjects, CSM, and special mitigation measures
42 for waste management and safety, health, and security, as discussed in Section 2.3, and
43 discussion of the example sites with respect to CBDP activities and associated mitigation
44 measures in Section 2.4.

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- 1 • In the third prong, the performance of the various compliance programs was demonstrated
2 via detailed environmental analyses for each of the selected example sites in Sections 5.2
3 through 5.12 and programmatic evaluation of the analyses in Sections 5.13 and 5.14.
4

5 To ensure that the CBDP was subjected to a thorough analysis, the program components at the
6 selected example sites were examined carefully and probed for potential adverse environmental
7 impacts using a systematic, interdisciplinary approach. In addition, information and insight were
8 sought during the public scoping process from the public and the government communities (see
9 Appendix A).

10
11 ***1.3.3.1 Example Sites***

12 Nine facilities were chosen as example sites for detailed environmental analysis of CBDP
13 activity in this PEIS (see **Figure 1-1**). These sites were deemed representative of the full breadth
14 of CBDP activities, and specifically covering the most significant activities, based on the
15 following criteria:

- 16
- 17 • Both biological defense and chemical defense activities
 - 18 • Both medical and nonmedical CBDP activities
 - 19 • RDA activities within each CBDP commodity area
 - 20 • At least one site operated by each military service
 - 21 • At least one site that may perform contracts funded in whole or in part by DARPA and
22 PEO CBD
 - 23 • Both military and nonmilitary sites
 - 24 • Sites of continuing or potential public interest
 - 25 • Recognized issues

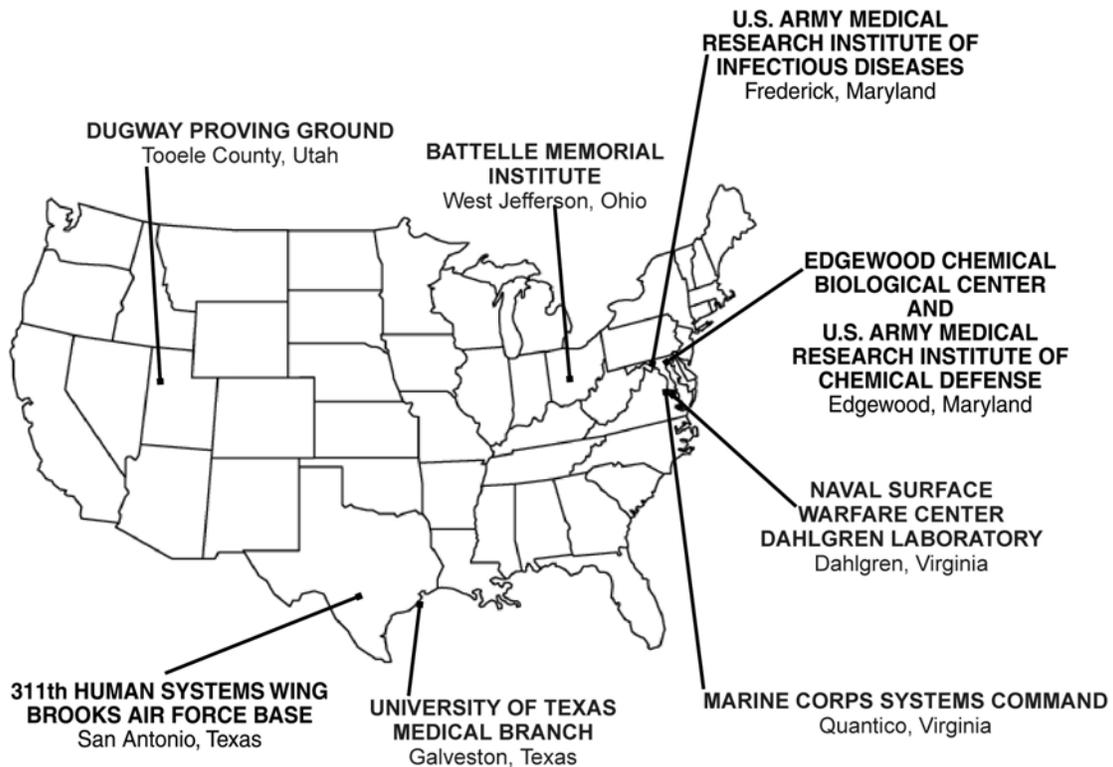


Figure 1-1. Map of the Example Site Locations

The selected example sites are as follows:

1.3.3.1.a Edgewood Chemical Biological Center

The Edgewood Chemical Biological Center (ECBC) is located at the Edgewood Area of Aberdeen Proving Ground, Maryland. The ECBC is an activity under the Soldier and Biological Chemical Command, the principal Army command for nonmedical CBDP activities. Research and development activities are conducted at—or administered from—this site, for both biological defense and chemical defense. Contamination Avoidance is the principal commodity area, but this site also serves activities under Collective Protection, Individual Protection, and Decontamination. Known issues for this site include CSM and high-hazard biological materials. A more detailed description of this site, including discussion of the existing environment, appears in Section 4.2. CBDP activities at this site are presented in Section 2.4.1 and are analyzed with respect to environmental and health consequences and mitigation measures in Sections 5.2 through 5.14.

1.3.3.1.b U.S. Army Medical Research Institute of Chemical Defense

The U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), located at the Edgewood Area of Aberdeen Proving Ground, Maryland, is the principal DoD research site for medical chemical defense. USAMRICD is under the U.S. Army Medical Research and Materiel Command (USAMRMC). Medical Systems is the principal commodity area. There is ongoing public interest in this site, and CSM is known to be of concern. A more detailed description of this site, including discussion of the existing environment, appears in Section 4.2. CBDP

1 activities at this site are presented in Section 2.4.2 and are analyzed with respect to
2 environmental and health consequences and mitigation measures in Sections 5.2 through 5.14.

3
4 *1.3.3.1.c Naval Surface Warfare Center Dahlgren Laboratory*

5 The Naval Surface Warfare Center Dahlgren Laboratory (NSWCDL), located near Dahlgren,
6 Virginia, is the principal Navy site for nonmedical activities under the CBDP. Testing activities
7 are conducted at—or administered from—this site, for both biological defense and chemical
8 defense. The principal Commodity Areas are Collective Protection and M&S. A more detailed
9 description of this site, including discussion of the existing environment, appears in Section 4.3.
10 CBDP activities at NSWCDL are presented in Section 2.4.3 and are analyzed with respect to
11 environmental and health consequences and mitigation measures in Sections 5.2 through 5.14.

12
13 *1.3.3.1.d U.S. Army Medical Research Institute of Infectious Diseases*

14 The U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), located on Fort
15 Detrick in Frederick, Maryland, is the principal DoD research site for medical biological defense.
16 USAMRIID is under the command of USAMRMC. Medical Systems is the principal
17 commodity area. Known issues for this site include aerosol testing, GEMs, and high-hazard
18 biological materials. There is also ongoing public interest in this site. A more detailed
19 description of this site, including discussion of the existing environment, appears in Section 4.4.
20 CBDP activities at this site are presented in Section 2.4.4 and are analyzed with respect to
21 environmental and health consequences and mitigation measures in Sections 5.2 through 5.14.

22
23 *1.3.3.1.e Dugway Proving Ground*

24 Dugway Proving Ground, under the U.S. Army Test and Evaluation Command, is located near
25 Tooele, Utah, and is a site for nonmedical testing activities for both biological defense and
26 chemical defense. Contamination Avoidance is the principal commodity area. There is ongoing
27 public interest in this site, which has known concerns about aerosol testing, CSM, and high-
28 hazard biological materials. A more detailed description of this site, including discussion of the
29 existing environment, appears in Section 4.5. CBDP activities at this site are presented in
30 Section 2.4.5 and are analyzed with respect to environmental and health consequences and
31 mitigation measures in Sections 5.2 through 5.14.

32
33 *1.3.3.1.f University of Texas Medical Branch*

34 The University of Texas Medical Branch (UTMB) in Galveston, Texas, a nonmilitary site for
35 medical research activities, conducts a current large-award program under the CBDP. The Space
36 and Naval Warfare Systems Command is the primary contracting agency working with UTMB
37 under the CBDP. DARPA is likely to work with UTMB in the future, although they do not have
38 a relationship at this time. The principal commodity areas are Contamination Avoidance and
39 Medical Systems. High-hazard biological materials are a known issue for this site. A more
40 detailed description of this site, including discussion of the existing environment, appears in
41 Section 4.6. CBDP activities at UTMB are presented in Section 2.4.6 and are analyzed with
42 respect to environmental and health consequences and mitigation measures in Sections 5.2
43 through 5.14.

1 *1.3.3.1.g Battelle Memorial Institute, West Jefferson*

2 The Battelle Memorial Institute operates a unique medical research and evaluation facility in
3 West Jefferson, Ohio, which is a site for research and testing activities under the CBDP, for both
4 biological defense and chemical defense. The CBDP activities at this site are mainly executed
5 under contracts with the JVAP for JPO BD and with USAMRMC for the Army. Medical
6 Systems is the principal commodity area. Known concerns for this site include aerosol testing,
7 GEMs, and high-hazard biological materials. A more detailed description of this site, including
8 discussion of the existing environment, appears in Section 4.7. CBDP activities at this site are
9 presented in Section 2.4.7 and are analyzed with respect to environmental and health
10 consequences and mitigation measures in Sections 5.2 through 5.14.

11
12 *1.3.3.1.h 311th Human Systems Wing*

13 At Brooks Air Force Base, located near San Antonio, Texas, the 311th Human Systems Wing
14 administers contracts and interagency agreements for nonmedical chemical defense development
15 and testing activities for all services. No direct RDT&E or OMWM activities under the CBDP
16 are conducted at this site. Decontamination is the principal commodity area, but this site also
17 serves activities under Contamination Avoidance, Collective Protection, and Individual
18 Protection. CBDP activities at this site are presented in Section 2.4.8 and analyzed with respect
19 to environmental and health consequences and mitigation measures in Sections 5.2 through 5.14.

20
21 *1.3.3.1.i Marine Corps System Command*

22 The Marine Corps Systems Command, located near Quantico, Virginia, is the principal Marine
23 Corps site for activities under the CBDP. Contracts and interagency agreements for nonmedical
24 development and production activities are administered from this site. No direct RDT&E or
25 OMWM activities under the CBDP are conducted. Individual Protection is the principal
26 commodity area, but this site also serves Collective Protection, Contamination Avoidance, and
27 Decontamination. CBDP activities at this site are presented in Section 2.4.9 and analyzed with
28 respect to environmental and health consequences and mitigation measures in Sections 5.2
29 through 5.14.

30
31 *1.3.3.2 Attribute Areas for Environmental Analysis*

32 The following sections (1.3.3.2.a through 1.3.3.2.k) enumerate the environmental, health, and
33 socioeconomic attributes used in analyzing impacts of CBDP component activities at the
34 example sites. The existing environments at the example sites are described in terms of these
35 attributes in Sections 4.1 through 4.7. Attribute analysis is applied to environmental and health
36 consequences of CBDP activities and mitigation measures in Sections 5.2 through 5.14.

37
38 *1.3.3.2.a Air Quality*

39 The air quality of an area is characterized by the concentrations of various atmospheric
40 pollutants. For purposes of environmental analysis in this PEIS, climate and weather were
41 considered under this attribute. Emissions of criteria pollutants (carbon monoxide, lead, nitrogen
42 oxides, ozone, particulate matter smaller than 10 microns in diameter, and sulfur dioxide) and
43 180 hazardous air pollutants are regulated under the Clean Air Act (CAA) and CAA

1 Amendments of 1990. Potential release of chemical agents or biological agents into the
2 atmosphere is an additional concern for CBDP component activities, particularly in connection
3 with aerosol testing.
4

5 *1.3.3.2.b Biological Resources*

6 Analyses of biological resources in this PEIS address several categories of plant and animal
7 species habitats including: protected biological resources (federal- and state-listed endangered
8 plant and animal species and critical habitats); regulated biological resources (game animals
9 [birds and mammals], furbearers, hawks, eagles, and waterfowl); sensitive habitats; species of
10 social importance (Bureau of Land Management-designated sensitive species, songbirds, shore
11 birds, and U.S. Fish and Wildlife Service species of special concern); and food-chain organisms.
12 Wetlands, however, are addressed under the Water Resources attribute (see Section 1.3.3.2.j).
13

14 *1.3.3.2.c Cultural Resources*

15 A cultural resource is defined as any district, site, building, structure, or object considered
16 important to a culture, subculture, or community for scientific, traditional, religious, or other
17 reasons. Cultural resources are usually classified into three major categories: prehistoric and
18 historic archaeological resources, architectural resources, and traditional cultural resources of
19 groups such as Native Americans. The environmental analyses in this PEIS considered the
20 cultural resources that are eligible or potentially eligible for the National Register of Historic
21 Places.
22

23 *1.3.3.2.d Earth Resources*

24 Earth resources are the natural features that characterize a setting, such as topography, geology,
25 and soils. However, climate and weather are considered under Air Quality in this PEIS. Earth
26 resources also include naturally occurring or human-induced hazards within or at the Earth's
27 surface, such as earthquakes, that could pose threats to public health and safety and to facilities.
28

29 *1.3.3.2.e Land Use*

30 The land use attribute includes categorization of land by activities, ownership, and jurisdiction,
31 as well as land use planning and zoning. Impacts on the land use attribute are secondary impacts
32 that result when the current, designated, or planned use of land is altered by air quality, noise,
33 utility, or waste management impacts or restricted by regulatory considerations such as wetlands
34 or critical habitat.
35

36 *1.3.3.2.f Noise*

37 Noise is defined as unwanted sound. The effects of high sound levels on humans range from
38 speech and hearing interference to permanent threshold shifts in hearing acuity. In addition, high
39 sound levels can modify the behavior of wildlife and domestic animals. Sound levels in some
40 areas are regulated by state or local laws.
41

1 *1.3.3.2.g Socioeconomics and Environmental Justice*

2 Socioeconomics and environmental justice are grouped together in view of similar data
3 requirements. The socioeconomic attribute includes the size and demographic composition of
4 population, employment, income, and housing, as well as community services. The
5 environmental justice attribute emanates from Executive Order 12898 (Federal Actions to
6 Address Environmental Justice in Minority and Low-Income Populations), which directs federal
7 agencies to identify and address, as appropriate, equitable environmental protection regardless of
8 race, ethnicity, economic status, or community so that no segment of the population bears a
9 disproportionate share of the consequences of environmental pollution attributable to a program
10 or project. Impacts on either of these attributes are considered as secondary impacts that are due
11 to impacts from another attribute area, for example, air quality impacts.
12

13 *1.3.3.2.h Transportation and Airspace*

14 Transportation and airspace are grouped together in view of similar data requirements.
15 Environmental analysis of the transportation system focused on the network of public and
16 military highways and roads and considered impacts on congestion/traffic flow and safety. This
17 attribute also includes rail service, air transport, and marine transport.
18

19 Airspace is a resource for aviation that is defined both vertically and horizontally.
20 Aviation-related airspace is managed by the Federal Aviation Administration, which has
21 established policies, designations, and flight rules designed to protect aircraft and has designated
22 “special use” airspaces specifically for military or other governmental activities.
23

24 *1.3.3.2.i Utilities*

25 The utilities attribute includes the facilities and infrastructure used for potable water pumping,
26 treatment, storage, and distribution and energy generation and distribution, including providing
27 electricity, natural gas, petroleum-based fuels, and alternative energy sources (e.g., geothermal
28 energy). For purposes of the environmental analysis in this PEIS, the utilities attribute also
29 includes remedial activities for restoration of soil and/or groundwater previously contaminated
30 by non-CBDP activities. However, collection, treatment, and disposal of wastewater are not
31 considered under this attribute; it appears under Waste Management (see Section 1.3.3.3.a).
32

33 *1.3.3.2.j Water Resources*

34 Water resources include surface waters (natural drainages and waterways) and groundwaters
35 (aquifers) viewed as sources of drinking water supply; habitat for biological resources; settings
36 for recreation; and receptors for disposal of wastewater effluent. Wetland considerations are
37 included under this attribute for purposes of environmental analysis in this PEIS.
38

39 *1.3.3.2.k Cumulative Impacts*

40 CEQ regulations implementing NEPA define cumulative impacts to the environment as those
41 effects resulting from the impact of the proposed action when combined with past, present, and
42 future actions (40 CFR 1508.7). Thus, cumulative impacts are the sum of all direct and indirect
43 impacts, both adverse and positive, that result from the incremental impacts of the proposed

1 action when added to other past, present, and predictable future actions, regardless of source.
2 Cumulative impacts may be accrued over time and/or in conjunction with preexisting effects
3 from other activities (40 CFR 1508.25).
4

5 ***1.3.3.3 Mitigation Measures***

6 Mitigation includes minimizing impacts by limiting the degree or magnitude of the action and its
7 implementation and reducing or eliminating the impact over time by preservation and
8 maintenance operations during the life of the action (40 CFR 1508.20). Mitigation measures for
9 this analysis fall in two categories and are set forth in Sections 1.3.3.3.a and 1.3.3.3.b.
10

11 ***1.3.3.3.a Waste Management***

12 Waste management includes collection, storage, and disposal of wastewater, solid waste,
13 hazardous waste, and medical waste, which are subject to regulatory requirements that have been
14 promulgated by the Environmental Protection Agency and state governments. Collection and
15 disposal of solid waste and management of underground and aboveground storage tanks and air
16 emissions are also considered under this mitigation measure category.
17

18 ***1.3.3.3.b Safety, Health, and Security***

19 Safety, health, and security measures include both worker and local populations as the proposed
20 action extends to adjoining properties. The environmental analysis in this PEIS addresses the
21 potential risks of CBDP component activities and the capability to manage that risk in both
22 normal operations and emergency situations. This includes industrial hygiene, fire and
23 emergency response, and disaster response planning.