8.0 GLOSSARY

Accident—an unplanned event or sequence of events that results in undesirable consequences.

African Swine Fever—a highly contagious disease transmitted by the soft tick, *Ornithodoros sonrai*, that infects pigs in Africa.

Air Quality Control Regions (AQCR)—the Environmental Protection Agency (EPA) Administrator has designated AQCRs in the United States. Important factors in setting the boundaries of an air quality control region include climate and meteorology, topography, vegetation, land use patterns, population characteristics, and growth projections.

Anadromous—anadromous fishes are those that spend all or part of their adult life in salt water and return to freshwater streams and rivers to spawn.

Analgesics—a pain killer such as acetaminophen or aspirin.

Animal Biosafety Level (ABSL)—ABSL represent the application of biosafety levels to research involving animals and organisms requiring a particular level of biosafety level containment. There are guidelines in place to ensure safe work sites through a combination of engineering controls, management policies, work practices, and procedures. Increasing levels of personnel and environmental protection are provided for by the different biosafety levels. The higher the level, the more stringent the level of protection. ABSL-1 is suitable for work on animals involving well-characterized agents that are not known to cause disease in healthy adult humans and that are of minimal potential hazard to laboratory personnel and the environment. ABSL-2 builds upon the practices, procedures, containment equipment, and facility requirements of ABSL-1. ABSL-3, building upon the ABSL-2 requirements, is suitable for work with biological agents that present the potential of aerosol transmission and that cause serious or potentially lethal disease. ABSL-4 builds upon the standard practices, procedures, containment equipment, and facility requirements of ABSL-3. ABL-4 involves practices suitable for addressing dangerous or exotic agents that pose high risk of life-threatening disease, aerosol transmission, or related agents with unknown risk of transmission.

Antisepsis—the reduction or prevention of infection by the elimination or reduction of the growth of microorganisms that cause disease or decay.

Antiviral Therapies—a technique that uses antiviral medication to fight viral infections. However, rather than destroying the virus, this technique aims at preventing the virus from replicating so that it cannot continue to reproduce.

Aseptic—free of pathogenic microorganisms; sterile.

Attainment Area—geographic area that meets the primary National Ambient Air Quality Standards (NAAQS) established by the EPA to protect health and the environment. An area may meet the established NAAQS for one criteria pollutant but have unacceptable levels for another. Thus, an area could be in attainment for one criteria pollutant and in non-attainment for another.

Autoclave—an apparatus that uses steam under pressure to sterilize materials. Typically, steam is heated between 121 Celsius (°C) to 134°C and takes 3 to 15 min to achieve sterility.

Benthic—the benthic zone is the ecological region at the lowest level of a body of water such as an ocean or a lake, including the sediment surface and some sub-surface layers.

Best Management Practice (BMP)—are actions people can take to reduce their impact on the environment. BMPs have been described for agriculture, forest management, and construction.

Bioagent—organisms or the product of organisms that present a health risk to humans. These can be bacterial, fungal, parasitic, rickettsial, or viral agents.

Biocontainment—the containment of extremely pathogenic organisms (as viruses) usually by isolation in secure facilities to prevent their accidental release, especially during scientific research.

Biodefense—procedures involved in taking defensive measures against attacks using biological agents.

Biological Safety Cabinets (BSCs)—primary containment devices in laboratories working with infectious agents. There are three general types available (Class I, II, and III). Properly maintained Class I and II BSCs, when used in conjunction with good microbiological techniques, provide an effective containment system for safe manipulation of moderate and high-risk microorganisms. Class II BSCs also protect the research material itself through high-efficiency particulate air filtration of the air flow down across the work surface. Class III BSCs offer the maximum protection to laboratory personnel because all infectious agents and hazardous materials are contained in a totally enclosed cabinet. Class III BSCs are designed for work with microbiological agents assigned to BSL-4 and provide maximum protection to the environment and the worker.

Biosafety Level (BSL)—the Centers for Disease Control and Prevention and the National Institutes of Heath have defined four levels to designate and regulate laboratory work with biological materials, such as microorganisms. The higher the level, the more stringent the level of protection. The range is BSL-1, in which the microorganisms are not known to cause disease in healthy adult human beings, to BSL-4, in which the microorganisms pose a risk of life-threatening disease and for which there is no known vaccine or therapy. BSL-3Ag refers to research involving large agricultural animals. BSL-3E refers to enhancements made to strengthen the physical containment features of the laboratory or facility; however, the improvements do not meet the criteria of the next BSL. There are guidelines in place to ensure safe work sites through a combination of engineering controls, management policies, work practices, and procedures. Increasing levels of personnel and environmental protection are provided for by the different BSLs used in microbiological/biomedical laboratories.

Biosafety Level 1—facilities appropriate for handing standard microbiological practices. Infectious agents worked with in BSL-1 facilities are not known to consistently cause disease in healthy adults.

Biosafety Level 2—facilities appropriate for handling indigenous agents of moderate risk to personnel and the environment. Pathogens worked with in BSL-2 facilities are transmitted through ingestion or introduction via punctures or mucous membrane exposure.

Biosafety Level 3—facilities appropriate for handling pathogens of indigenous or exotic origin with a known potential for aerosol transmission. Agents worked with in BSL-3 facilities may cause serious and potentially lethal infections. More emphasis is placed on primary and secondary barriers to protect personnel and the community.

Biosafety Level 3 Enhanced (BSL-3E)—refers to the protective enhancements commensurate with the risk assessment of the pathogens and requirements for BSL-3.

Biosafety Level 3 Agriculture (BSL-3-Ag)—includes the containment features of a BSL-3 facility and is specifically designed to protect the environment by also including almost all of the features used for BSL-4 facilities as enhancements. This level refers to research involving large agricultural animals and foreign and emerging pathogens that may cause serious consequences in livestock but are not harmful to humans because

protective measures are available. All BSL-3Ag containment spaces must be designed, constructed, and certified by the United States Department of Agriculture (USDA) as primary containment barriers.

Biosafety Level 4—facilities appropriate for handling exotic pathogens that pose a high risk of life-threatening disease in animals and humans through the aerosol route and for which there is no known vaccine or therapy. BSL-4 facilities have complex, specialized ventilation requirements and waste management systems to prevent release of viable agents to the environment.

Bovine Spongiform Encephalopathy (BSE)—more commonly known as mad cow disease, BSE is a progressive neurological disorder of cattle that results from infection by an unusual transmissible agent called a prion.

Carbon Monoxide (CO)—carbon monoxide, with the chemical formula CO, is a colorless, odorless, and tasteless gas. It consists of one carbon atom covalently bonded to one oxygen atom. Carbon monoxide is produced from the partial combustion of carbon-containing compounds, notably in internal combustion engines.

Chain of Custody (COC)—documentation that records the movement of samples from the selection, to the laboratory receipt, to the final disposal; documentation shows traceability of movement of each sample through a laboratory process from collection to disposal.

Chemical Sterilization—a process by which chemicals are applied to destroy all living microorganisms, rendering the material non-infectious or sterile.

Classical Swine Fever—a highly contagious viral disease of swine that occurs worldwide in acute, sub-acute, chronic, and a persistent forms. Symptoms vary from high fever, severe depression, multiple superficial and internal hemorrhages, anorexia, and death. Recovery is occasionally seen in mature animals.

Clean Air Act **(CAA)**—is the primary federal law in the United States governing air pollution. Like other laws enacted by Congress, it was incorporated into the United States (U.S.) Code. The House of Representatives maintains a current version of the U.S. Code, which includes amendments of the CAA enacted since 1990.

Clean Air Act **Conformity**—the CAA requires that federal actions conform to a State's Implementation Plan. Specifically, the act requires the action/activity will not cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or any other milestones in any area. To implement this requirement, the CAA directed the EPA to issue rules that governed how conformity determinations would be conducted for two categories of actions/activities: 1) those dealing with transportation plans, programs, and projects and 2) all other actions, e.g., projects requiring federal permits.

Clean Water Act **(CWA)**—is the primary federal law in the United States governing water pollution. The CWA established the symbolic goals of eliminating releases to water of high amounts of toxic substances, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. The principal body of law currently in effect is based on the Federal Water Pollution Control Amendments of 1972, which significantly expanded and strengthened earlier legislation.

Code of Federal Regulations (CFR)—is the codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the federal government. It is divided into 50 titles that represent broad areas subject to federal regulation. Each volume of the CFR is updated once each calendar year and is issued on a quarterly basis.

Construction Staging Area—a staging area is a designated area where vehicles, supplies, and construction equipment are positioned for access and use to a construction site.

Contagious Bovine Pleuropneumonia—a highly infectious acute, sub-acute, or chronic disease, primary to cattle, that affects the lungs and occasionally the joints.

Critical Habitat—as habitat loss is the primary threat to most imperiled species, the original *Endangered Species Act* (ESA) of 1973 allowed the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries to designate specific areas as protected "critical habitat" zones. In 1978, Congress amended the ESA to require designation for all threatened and endangered species except those that might be harmed by the publication of such maps. Congress indicated that the exception should rarely be invoked. Critical habitats are required to contain "all areas essential to the conservation" of the target species. Such lands may be private or public. The FWS and NOAA Fisheries may exclude essential areas if they determine that economic or other costs exceed the benefit.

Cumulative Impacts—"Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Effluent—the out-flowing of water from a natural or man-made body of water. The out-flowing can be, but is not limited to, sewage, pollution, or other liquid waste flowing from a sewage treatment facility or other body.

Egress—a means or place of going out; an exit.

Environmental Impact Statement—a document required of federal agencies by the *National Environmental Policy Act* for major federal actions that may significantly affect the quality of the environment. A tool for decision making, it describes, analyzes, and compares the potential environmental impacts of the alternatives to accomplish the purpose and need to which the agency is responding.

Ephemeral Streams—streams that regularly exist for short periods of time, usually during a rainy period, and may have defined channels even when they are dry.

Epidemiology—the study of the incidence, prevalence, detection of source, and cause of infectious diseases in large populations.

Executive Order (EO)—is a directive issued by the President. U.S. Presidents have issued EOs to help direct the operation of executive officers. Some orders do have the force of law when made in pursuance of certain Acts of Congress, when those acts give the President discretionary powers.

Farmland Protection Policy Act (FPPA)—Congress passed the *Agriculture and Food Act* of 1981 containing the FPPA—Subtitle I of Title XV, Section 1539-1549. The final rules and regulations were published in the *Federal Register* on June 17, 1994. The FPPA is intended to minimize the impact that federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that—to the extent possible—federal programs are administered to be compatible with state and local units of government and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every 2 years.

Fledge—the stage in a young bird's life when the feathers and wing muscles are sufficiently developed for flight. It also describes the act of raising chicks to a fully grown state by the chick's parents.

Foot and Mouth Disease (FMD)—a severe, highly communicable viral disease that effects cloven-hoofed animals, such as cattle, swine, sheep, and goats, and occasionally found in wild ruminants, such as deer and bison. FMD symptoms include fever, malaise, vesicular lesions, and possible death in young animals. Humans are accidental hosts of the disease but are very rarely infected with it.

Gamma Irradiaton—the process of using radiation waves of high frequency and high energy and also the shortest wavelength for sterilization of products.

Hazardous Air Pollutants (HAPs)—identified hazardous air pollutants (including volatile organic chemicals used as pesticides and herbicides, inorganic chemicals, metals, and radionuclides) specified in the *Clean Air Act* Amendments of 1990.

Foreign Animal Disease (FAD)—a disease that is not present in the United States and that is capable of rapidly spreading and causing high numbers of deaths and/or devastating economic consequences.

Hydric Soils—are those soils formed under conditions of saturation, flooding, or ponding, which are sufficiently wet in the upper part to develop anaerobic conditions (not dependent on oxygen) during the growing season.

Incineration—the process in which a substance is reduced to ashes by burning.

Ingress—a means or place of entering; entryway.

Intermittent Stream—an intermittent stream is one that only flows for part of the year and is marked on topographic maps with a line of blue dashes and dots.

Lead (Pb)—see Pb definition.

Lyophilization—a laboratory process more commonly known as freeze-drying, where biological material is frozen to preserve the substance or suspend a reaction whereby the process itself preserves the structure of the biological material.

National Ambient Air Quality Standards (NAAQS)—are uniform air quality goals established by the EPA. The EPA designated primary NAAQS to protect public health and secondary NAAQS to protect public welfare and the environment.

National Environmental Policy Act (NEPA)—requires the preparation of an EIS for major federal actions that may significantly affect the quality of the environment. In NEPA, the term "environment" encompasses the natural and physical environment (i.e., air, water, geography, and geology), as well as the relationship of people with that environment (i.e., health and safety, socioeconomic conditions, cultural resources, noise, and aesthetics).

Necropsy—examination of a dead animal to determine cause of death.

Nitrogen Oxides (NO_x)—is a generic term for mono-nitrogen oxides (NO and NO_2). These oxides are produced during combustion, especially combustion at high temperatures. At ambient temperatures, the oxygen and nitrogen gases in air will not react with each other. In areas of high motor vehicle traffic, such as in large cities, the amount of nitrogen oxides emitted into the atmosphere can be quite significant.

Non-attainment Area—geographic area that does not meet the primary NAAQS limits established by the EPA to protect public health and the environment.

Normal operations—all normal (incident-free) conditions and those abnormal conditions that frequency estimation techniques indicate occur with a frequency greater than 0.1 events per year.

Notice of Intent—a public notice or notice of intent is information directed to citizens of a governmental entity regarding government-related activities. Public notices have traditionally been published in specified governmental publications and in local newspapers, a common source for community information.

Ozone (O_3)—ground-level ozone (the primary constituent of smog) is the most complex, difficult to control, and pervasive of the six principal air pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on NO_x and volatile organic compounds (VOC) in the air. There are thousands of types of sources of these gases. Some of the common sources include gasoline vapors, chemical solvents, combustion products of fuels, and consumer products. Emissions of NO_x and VOC from motor vehicles and stationary sources can be carried hundreds of miles from their origins and result in high ozone concentrations over very large regions.

Particulate Matter (PM)—also known as particle pollution, PM is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles.

Pathogens—a biological agent that causes disease or illness to its host.

Pb (Lead)—lead is a very toxic element, causing a variety of effects at low-dose levels. Lead is used in the manufacture of batteries, metal products, paints, and ceramic glazes. Exposure to lead can occur from breathing contaminated workplace air or house dust or eating lead-based paint chips or contaminated dirt.

PCBs (polychlorinated biphenyls)—are a group of chemicals consisting of 209 individual compounds. PCBs were widely used as a fire preventive and insulator in the manufacture of transformers and capacitors because of their ability to withstand exceptionally high temperatures. PCBs were banned by the EPA in 1979 and are classified as a probable human carcinogen by numerous national and international health-protective organizations.

Pelagic—of, relating to, or living in open oceans or seas rather than waters adjacent to land or inland waters.

Perennial Streams—streams are those that flow year-round.

Plum Island Animal Disease Center (PIADC)—the laboratory for the diagnosis, research, and training for foreign animal diseases. The USDA Animal and Plant Health Inspection Service (APHIS) Foreign Animal Disease Diagnostic Laboratory is located at PIADC. This laboratory has the capability of diagnosing over 30 foreign animal diseases and is responsible for educating veterinarians in the recognition and diagnosis of these diseases. The USDA Agricultural Research Service operates a program focused on basic discovery and research of foreign animal diseases. The Department of Homeland Security scientific program focuses primarily on the advanced development of vaccines and other countermeasures.

Potable—describes the condition of water as suitable for human consumption; water quality complies with the U.S. EPA standards for drinking water, which regulates various chemical, microbiological, radiological and physical contaminants.

Prion—infectious particle of protein that, unlike a virus, contains no nucleic acid, does not trigger an immune response, and is not destroyed by extreme heat or cold. Prion diseases are usually rapidly progressive and always fatal. These particles are considered responsible for such diseases as scrapie, bovine spongiform encephalopathy, kuru, and Creutzfeldt-Jakob disease.

Pyrophoric—a material that is capable of spontaneous combustion when exposed to air.

Reagent—a substance used in a chemical reaction to detect, measure, examine, or produce other substances.

Sulphur Oxide Gases (SO_x)—these gases dissolve easily in water. Sulfur is prevalent in all raw materials, including crude oil, coal, and ore, that contain common metals like aluminum, copper, zinc, lead, and iron. SO_x gases are formed when fuel containing sulfur, such as coal and oil, is burned: when gasoline is extracted from oil: or metals are extracted from ore.

Teratogen—an agent that causes a structural abnormality following fetal exposure during pregnancy.

Total Maximum Daily Loads (TMDLs)—is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, as well as an allocation of that amount to the pollutant's sources.

Virulence—the degree of pathogenicity of a microorganism as indicated by the severity of disease produced and the ability to invade the tissues of the host; by extension, the competence of any infectious agent to produce pathologic effects.

Virus—an infectious agent composed of biological material that requires a host to provide materials necessary to replicate and grow; a virus can not replicate without the support of living hosts, such as bacteria, plants, and animals.

Vivarium—a place, such as a laboratory, where live animals or plants are kept under conditions simulating their natural environment.

Volatile Organic Compounds (VOCs)—are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to 10 times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands. Examples include paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions.

Zoonotic—a term for diseases transmitted by animals to humans.