Appendix III

Glossary of Terms

AGNPS (Agricultural Nonpoint Source Pollution Model) — an event-based, watershed-scale model developed to simulate runoff, sediment, chemical oxygen demand, and nutrient transport in surface runoff from ungauged agricultural watersheds.

Animal unit (AU) — One mature cow weighing 454 kg or the equivalent. For instance, a dairy cow is 1.4 AU because it weighs almost 1.5 times a mature beef cow. The animal units of smaller animals than beef cows is less than one: pigs = 0.4 AU and chickens = 0.033 AU.

Anadromous — Fish that return to their natal fresh water streams to spawn. Once hatched, these fish swim to the ocean and remain in salt water until sexual maturity.

Artificial redds — An artificial egg basket fabricated of extruded PVC netting and placed in a constructed egg pocket. Artificial redds are used to measure the development of fertilized fish eggs to the alevin stage (newly hatched fish).

Alachlor — Herbicide (trade name Lasso) that is used to control most annual grasses and certain broadleaf weeds and yellow nutsedge in corn, soybeans, peanuts, cotton, woody fruits, and certain ornamentals.

Atrazine — Herbicide (trade name Atrex, Gesa prim, or Primatol) that is widely used for control of broadleaf and grassy weeds in corn, sorghum, sugar cane, macadamia orchards, pineapple, and turf grass sod.

Autocorrelation — The correlation between adjacent observations in time or space.

Bedload — Sediment or other material that slides, rolls, or bounces along a stream or channel bed of flowing water.

Before-after design — A term referring to monitoring designs that require collection of data before and after BMP implementation.

Beneficial uses — Desirable uses of a water resource such as recreation (fishing, boating, swimming) and water supply.

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Best management practices (BMPs) — Management or structural practices designed to reduce the quantities of pollutants — such as sediment, nitrogen, phosphorus, bacteria, and pesticides — that are washed by rain and snow melt from farms into nearby surface waters, such as lakes, creeks, streams, rivers, and estuaries. Agricultural BMPs can include fairly simple changes in practices such as fencing cows out of streams (to keep animal waste out of streams), planting grass in gullies where water flows off a planted field (to reduce the amount of sediment that runoff water picks up as it flows to rivers and lakes), and reducing the amount of plowing in fields where row crops are planted (in order to reduce soil erosion and loss of nitrogen and phosphorus from fertilizers applied to the crop land). BMPs can also involve building structures, such as large animal waste storage tanks that allow farmers to choose when to spread manure on their fields as opposed to having to spread it based on the volume of manure accumulated.

BMP system — A combination of individual BMPs into a "system" that functions to reduce the same pollutant.

Biochemical oxygen demand (BOD) — Quantitative measure of the strength of contamination by organic carbon materials.

Chemical oxygen demand (COD) — Quantitative measure of the strength of contamination by organic and inorganic carbon materials.

Cost sharing — The practice of allocating project funds to pay a percentage of the cost of constructing or implementing a BMP. The remainder of the costs are paid by the producer.

County ASC Committee — County Agricultural Stabilization and Conservation Committee: a county-level committee, consisting of three elected members of the farming community in a particular county, responsible for prioritizing and approving practices to be cost shared and for overseeing dissemination of cost-share funds by the local USDA-Agricultural Stabilization and Conservation Service office.

Covariance — A measure of the relationship between two variables whose values are observed at the same time.

Covariate — The parameter which is related to another parameter.

Critical area — Area or source of nonpoint source pollutants identified in the project area as having the most significant impact on the impaired use of the receiving waters.

Demonstration project — A project designed to install or implement pollution control practices primarily for educational or promotional purposes. These projects often involve no (or very limited) evaluations of the effectiveness of the control practices.

Designated use — Uses specified in terms of water quality standards for each water body or segment.

Drainage area — An area of land that drains to one point.

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Ecoregion — A physical region that is defined by its ecology, which includes meteorological factors, elevation, plant and animal speciation, landscape position, and soils.

EPIC (Erosion Productivity Index Calculator) — A mechanistic computer model that calculates erosion from field-size watersheds.

Erosion — Wearing away of rock or soil by the gradual detachment of soil or rock fragments by water, wind, ice, and other mechanical or chemical forces.

Eskers **—** Glacially deposited gravel and sand that form ridges 30 to 40 feet in height.

Explanatory variables — Explanatory variables, such as climatic, hydrological, land use, or additional water quality variables, that change over time and could affect the water quality variables related to the primary pollutant(s) of concern or the use impairment being measured. Specific examples of explanatory variables are season, precipitation, streamflow, ground water table depth, salinity, pH, animal units, cropping patterns, and impervious land surface.

Fecal coliform (FC) — Colon bacteria that are released in fecal material. Specifically, this group comprises all of the aerobic and facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 degrees Celsius.

Fertilizer management — A BMP designed to minimize the contamination of surface and ground water by limiting the amount of nutrients (usually nitrogen) applied to the soil to no more than the crop is expected to use. This may involve changing fertilizer application techniques, placement, rate, and timing.

Geographic information systems (GIS) — Computer programs linking features commonly seen on maps (such as roads, town boundaries, water bodies) with related information not usually presented on maps, such as type of road surface, population, type of agriculture, type of vegetation, or water quality information. A GIS is a unique information system in which individual observations can be spatially referenced to each other.

Goal — A narrowly focused measurable or quantitative milestone used to assess progress toward attainment of an objective.

Interfluve — A flat area between streams.

Land treatment — The whole range of BMPs implemented to control or reduce NPS pollution.

Loading — The influx of pollutants to a selected water body.

Macroinvertebrate — Any non-vertebrate organism that is large enough to be seen without the aid of a microscope.

Mechanistic — Step-by-step path from cause to effect with ability to make linkages at each step.

Moraine — Glacial till (materials deposited directly by ice) which is generally irregularly deposited.

Nitrogen — An element occurring in manure and chemical fertilizer that is essential to the growth and development of plants, but which, in excess, can cause water to become polluted and threaten aquatic animals.

Nonpoint source (NPS) pollution — Pollution originating from diffuse areas (land surface or atmosphere) having no well-defined source.

Nonpoint source pollution controls — General phrase used to refer to all methods employed to control or reduce nonpoint source pollution.

NonPoint Source Management System (NPSMS) — A software system designed to facilitate information tracking and reporting for the USEPA 319 National Monitoring Program.

Objective — A focus and overall framework or purpose for a project or other endeavor, which may be further defined by one or more goals.

Paired watershed design — In this design, two watersheds with similar physical characteristics and, ideally, land use are monitored for one to two years to establish pollutant-runoff response relationships for each watershed. Following this initial calibration period, one of the watersheds receives treatment while the other (control) watershed does not. Monitoring of both watersheds continues for one to three years. This experimental design accounts for many factors that may affect the response to treatment; as a result, the treatment effect alone can be isolated.

Parameter — A quantity or constant whose value varies with the circumstances of its application.

Pesticide management — A BMP designed to minimize contamination of soil, water, air, and nontarget organisms by controlling the amount, type, placement, method, and timing of pesticide application necessary for crop production.

Phenolphthalein alkalinity — A measure of the bicarbonate content.

Phosphorus — An element occurring in animal manure and chemical fertilizer that is essential to the growth and development of plants, but which, in excess, can cause water to become polluted and threaten aquatic animals.

Post-BMP implementation — The period of use and/or adherence to the BMP.

Pre-BMP implementation — The period prior to the use of a BMP.

Runoff — The portion of rainfall or snow melt that drains off the land into ditches and streams.

Sediment — Particles and/or clumps of particles of sand, clay, silt, and plant or animal matter carried in water.

Sedimentation — Deposition of sediment.

Single-station design — A water quality monitoring design that utilizes one station at a point downstream from the area of BMP implementation to monitor changes in water quality.

Subbasins — One of several basins that form a watershed.

Substrate sampling — Sampling of streambeds to determine the percent of fine particled material and the percent of gravel.

Subwatershed — A drainage area within the project watershed. It can be as small as a single field or as large as almost the whole project area.

Tailwater management — The practice of collecting runoff, "tailwater," from irrigated fields. Tailwater is reused to irrigate crops.

Targeting — The process of prioritizing pollutant sources for treatment with BMPs or a specific BMP to maximize the water quality benefit from the implemented BMPs.

Total alkalinity — A measure of the titratable bases, primarily carbonate, bicarbonate, and hydroxide.

Total Kjeldahl nitrogen (TKN) — An oxidative procedure that converts organic nitrogen forms to ammonia by digestion with an acid, catalyst, and heat.

Total Kjeldahl phosphorus (TKP) — An oxidative procedure that converts organic phosphorus forms to phosphate by digestion with an acid, catalyst, and heat.

Tracking — Documenting/recording the location and timing of BMP implementation.

Turbidity — A unit of measurement quantifying the degree to which light traveling through a water column is scattered by the suspended organic (including algae) and inorganic particles. The scattering of light increases with a greater suspended load. Turbidity is commonly measured in Nephelometric Turbidity Units (NTU), but may also be measured in Jackson Turbidity Units (JTU).

Upstream/downstream design — A water quality monitoring design that utilizes two water quality monitoring sites. One station is placed directly upstream from the area where the implementation will occur and the second is placed directly downstream from that area.

Vadose zone — The part of the soil solum that is generally unsaturated.

Variable — A water quality constituent (for example, total phosphorus pollutant concentration) or other measured factors (such as stream flow, rainfall).

Watershed — The area of land from which rainfall (and/or snow melt) drains into a stream or other water body. Watersheds are also sometimes referred to as drainage basins. Ridges of higher ground generally form the boundaries between watersheds. At these boundaries, rain falling on one side flows toward the low point of one watershed, while rain falling on the other side of the boundary flows toward the low point of a different watershed.