National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Erosion - Sheet and Rill	Detachment and transport of soil particles caused by rainfall splash and runoff degrade soil quality.	Sheet and rill erosion does not exceed the Soil Loss Tolerance "T".	Same as National	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	• Visual assessment (pedestals, rills) • Erosion-bridge method; erosion meters • Special inventory methods (e.g., Rangeland Health Evaluation Worksheet) • RUSLE2
Soil Erosion - Wind	Detachment and transport of soil particles caused by wind degrade soil quality and/or damage plants.	Wind erosion does not exceed the Soil Loss Tolerance "T" or, for plant damage, does not exceed Crop Damage Tolerances.	N/A	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	• Visual assessment (pedestals, blow-out areas) • Special inventory methods (e.g., Rangeland Health Evaluation Worksheet) • Erosion prediction tool, i.e., Wind Erosion Equation (WEQ)
Soil Erosion - Ephemeral Gully	Small channels caused by surface water runoff degrade soil quality and tend to increase in size. On cropland, they can be obscured by heavy tillage.	Surface water runoff is controlled sufficiently to stabilize the small channels and prevent reoccurrence of new channels.	Same as National	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	• Visual assessment • Volume calculation
Soil Erosion - Classic Gully	Deep, permanent channels caused by the convergence of surface runoff degrade soil quality. They enlarge progressively by headcutting and lateral widening.	Surface water runoff is controlled sufficiently to stop progression of headcutting and widening.	Same as National	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	• Visual assessment • Volume calculation • Aerial photo trend analysis

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Erosion - Streambank	Accelerated loss of streambank soils restricts land and water use and management.	Accelerated streambank soil loss does not exceed a level commensurate with upstream land use and normal geomorphological processes on site.	Same as National	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	• Visual assessment, e.g., Stream Visual Assessment Protocol, Proper Functioning Condition (PFC) • Aerial photo trend analysis • Engineering Field Handbook, Chapter 16
Soil Erosion - Shoreline	Soil is eroded along shorelines by wind and wave action, causing physical damage to vegetation, limiting land use, or creating a safety hazard.	Shoreline erosion is stabilized to a level that does not restrict the use or management of adjacent land, water or structures.	Same as National	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	• Visual assessment • Aerial photo trend analysis • Volume calculation • Erosion transects/pins
Soil Erosion – Irrigation-induced	Improper irrigation water application and equipment operation are causing soil erosion that degrades soil quality.	Irrigation-induced erosion does not exceed the Soil Loss Tolerance "T".	Irrigation-induced erosion does not exceed the Soil Loss Tolerance "T". A 50% reduction is suspended sediment for water leveling/planting in rice production.	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	• SRFR (Surface Irrigation Model) • CPED (Center Pivot Evaluation and Design) • NRCS National and State Irrigation Guides • RUSLE 2 • Suspended Sediment Test Kit
Soil Erosion - Mass Movement	Soil slippage, landslides, or slope failure, normally on hillsides, result in large volumes of soil movement	Shallow slumps, slides, or slips are prevented or minimized so that the mass movement of soil material does not exceed naturally occurring rates.	Same as National	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	• Visual assessment • Aerial photo trend analysis • Volume calculation

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Erosion – Road, road sides and Construction Sites	Soil loss occurs on areas left unprotected during or after road building and/or construction activities.	Sites are adequately protected from soil loss during and after road building and construction activities.	Sites are adequately protected from soil loss during and after road building and construction activities. Eroding areas are stabilized, sediment movement is limited and temporary or permanent vegetation has been established.	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	• Visual assessment • Volume Calculation • Water and wind erosion prediction tools (RUSLE2 and WEQ)
Soil Condition - Organic Matter Depletion	Soil organic matter has or will diminish to a level that degrades soil quality.	Soil Conditioning Index is positive.	Soil Conditioning Index is positive. Positive SCI on cropland, vegetative conditions for non-cropland, improving trend for rangeland, stand density guide on a stem/ac basis for a particular forest type for forestland.	Soil Conditioning Index improve-ment – positive improvement in index for the field or planning area/unit	• Soil Conditioning Index • Soil Quality Kit • Soil testing and analysis • Vegetative Transects • Stand Counts • Visual Observation

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Condition - Compaction	Compressed soil particles and aggregates caused by mechanical compaction adversely affect plant-soil-moisture relationships.	Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement.	Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement. Dial penetrometer reading < 300 psi, plants are well developed and vigorous.	Non-Measurable	• Assessment of plant root systems • Bulk density test-Soil Quality Kit • Dial penetrometer
Soil Condition - Subsidence	Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive drainage or extended drought.	The timing and regime of soil moisture is managed to attain acceptable subsidence rates.	Same as National	Inches/Acre/Year – average annual inches of subsidence reduced per acre for the field or planning area/unit	• Visual assessment • Inventory of volume and depth • Soil probes and witness poles

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Condition - Contaminants - Salts and Other Chemicals	Inorganic chemical elements and compounds such as salts, selenium, boron, and heavy metals restrict the desired use of the soil or exceed the soil buffering capacity	Salinity levels cause less than a 10% decrease in plant yield. Other contaminants do not exceed plant tolerances or are below toxic levels for plants or animals.	Salinity levels cause less than a 10% decrease in plant yield. Other contaminants do not exceed plant tolerances or are below toxic levels for plants or animals. Salinity is reduced to tolerable levels or kept below the root zone and heavy metals do not exceed lifetime limits.	Electrical Conductivity (EC) – average reduction in EC for the field or planning area/unit	• Soil test • Soil Quality Kit- EC meter • Farm*A*Syst assessment

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Condition - Contaminants - Animal Waste and Other Organics - N	Nitrogen nutrient levels from applied animal waste and other organics restrict desired use of the land.	Nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	Nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results. Nutrients are applied according to either nitrogen or phosphorus standards depending on PI value. Wastes are applied according to Louisiana's Agricultural Waste Land Application Guidelines.	Pounds/Acre/ Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit	• Soil test • Phosphorus Index • Plant tissue test • Application records • Yield records/history • Waste Analysis

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Condition - Contaminants - Animal Waste and Other Organics - P	Phosphorus nutrient levels from applied animal waste and other organics restrict desired use of the land.	Phosphorus application levels do not exceed soil storage/ plant uptake capacities based on soil test recommendations and risk analysis results.	Same as National	Pounds/Acre/ Year – average annual pounds of phosphorus (P) reduced per acre for the field or planning area/unit	• P Index
Soil Condition - Contaminants - Animal Waste and Other Organics - K	Potassium nutrient levels from applied animal waste and other organics restrict desired use of the land.	Potassium application levels do not exceed soil storage/ plant uptake capacities based on soil test recommendations and risk analysis results.	Same as National	Pounds/Acre/ Year – average annual pounds of potassium (K) reduced per acre for the field or planning area/unit	• Soil Test
Soil Condition – Contaminants - Commercial Fertilizer - N	Over application of nitrogen degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of nitrogen do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Soil nutrient levels do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained. Commercial fertilizer applications do not exceed LSU Agricultural Center's recommendations.	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit	• Soil Test • Phosphorus Index • Soil Quality Kit-pH meter

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Condition – Contaminants - Commercial Fertilizer - P	Over application of phosphorus degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of phosphorus do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Soil nutrient levels do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained. Commercial fertilizer applications do not exceed LSU Agricultural Center's recommendations.	Pounds/Acre/Year – average annual pounds of phosphorus (P) reduced per acre for the field or planning area/unit	• Soil Test
Soil Condition – Contaminants - Commercial Fertilizer - K	Over application of potassium degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of potassium do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Soil nutrient levels do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained. Commercial fertilizer applications do not exceed LSU Agricultural Center's recommendations.	Pounds/Acre/Year – average annual pounds of potassium (K) reduced per acre for the field or planning area/unit	• Soil Test

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
SOIL					
Soil Condition - Contaminants - Residual Pesticides	Residual pesticides in the soil have an adverse effect on non-target plants and animals.	Pesticides are applied, stored, handled, and disposed of so that residues in the soil do not adversely affect non-target plants and animals.	Pesticides are applied, stored, handled, and disposed of so that residues in the soil do not adversely affect non-target plants and animals. Pesticides are applied according to label recommendations and mitigating practices are installed as applicable.	Non-measurable	• Visual assessment • WIN-PST • NAPRA • Soil test • Plant and animal tissue test
Soil Condition - Damage from Sediment Deposition	Sediment deposition damages or restricts land use/management or adversely affects ecological processes.	Sediment deposition is sufficiently reduced to maintain desired land use/management and ecological processes.	Same as National	Acres/Year – average annual acres of sediment deposition reduced for the field or planning area/unit	• Visual assessment • Volume calculation • Current water and wind erosion prediction tools (RUSLE2 and WEQ) coupled with sediment delivery ratios • Plant and animal community assessment

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quantity - Excessive Seepage	Subsurface water oozing to the surface restricts land use and management.	Subsurface water is managed to limit periods of saturation that are unfavorable to the present or intended land use. Management complies with wetland policies.	Same as National	Acres/Year – average annual acres of seep reduced for the field or Planning area/unit	• Visual Assessment (physical presence of water, prevalence of hydrophytic vegetation, etc.) • Client interview • Area measurements
Water Quantity - Excessive Runoff, Flooding, or Ponding	The land becomes inundated restricting land use and management.	Excess water amounts and/or rates of flow are controlled consistent with desired present or intended land use goals and wetland policies.	Same as National	Non-measurable	• Visual assessment • Client interview • Stream Visual Assessment Protocol • National Engineering Handbook (EFH – chapter 2 and 3) • Hydrologic models, e.g. HECRAS,TR-20,TR-55
Water Quantity - Excessive Subsurface Water	Water saturates upper soil layers restricting land use and management.	Subsurface water is managed to limit periods of saturation compatible with the present or intended land use and wetland policies.	Same as National	Non-measurable	• Visual assessment of soil cores and coring holes • Plant quality and quantity measurements • National Engineering Handbook, Part 650 (EFH-Chapter 14)
Water Quantity - Drifted Snow	Wind-blown snow deposits and accumulates around and over surface structures restricting ingress, egress and conveyance of humans and animals.	Snowdrifts are reduced or prevented to allow ingress, egress, and conveyance of humans and animals.	N/A	Non-measurable	• Visual assessment • Client interview • Depth and area measurements

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quantity - Inadequate Outlets	Natural or constructed outlets too small to remove excess water in a timely manner.	Outlets are designed, installed, upgraded or maintained to adequately convey water for present or intended uses.	Outlets are designed, installed, upgraded or maintained to adequately convey water for present or intended uses. Activities must be consistent with wetland policies.	Non-measurable	• Visual assessment • Client interview • National Engineering Handbook, part 650 (EFH – Chapters 2,3,7) • Hydrologic models, e.g. HECRAS, TR-20, TR-55
Water Quantity – Inefficient Water Use on Irrigated Land	Limited water supplies are not optimally utilized.	Land and water management is planned and coordinated to provide optimal use of natural and applied moisture.	Land and water management is planned and coordinated to provide optimal use of natural and applied moisture. Minimum 75% irrigation efficiency.	Acre-Inches/Acre/Year – average annual acre-inches of water per acre used more beneficially for the field or planning area/unit	• Visual assessment • National Engineering Handbook, Part 652, Irrigation Guide • Crop quality and quantity measurements • Farm Irrigation Rating Method (FIRM) • Louisiana Irrigation Guide
Water Quantity – Inefficient Water Use on Non-irrigated Land	Natural moisture is not optimally utilized.	Management provides optimum use of natural moisture for the present or intended land use.	Same as National	Acre-Inches/Acre/Year – average annual acre-inches of water per acre used more beneficially for the field or planning area/unit	• Visual assessment • Plant or animal quality and quantity measurements

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quantity – Reduced Capacity of Conveyances by Sediment Deposition	Sediment deposits in ditches, canals, culverts, and other water conveyances reduce the desired flow capacity.	Conveyance structures are upgraded or maintained to adequately convey water for present or intended uses.	Conveyance structures are upgraded or maintained to adequately convey water for present or intended uses. Controlling ephemeral and/or classic gully erosion.	Cubic yards – volume of sediment in cubic yards removed to maintain water conveyances for the field or planning area/unit	• Visual assessment • Client interview • National Engineering Handbook, Part 650 (EFH – Chapters 2,3,70 • Hydrologic models, e.g., HECRAS, TR-20, TR-55
Water Quantity – Reduced Storage of Water Bodies by Sediment Accumulation	Sediment deposits in water bodies reduce the desired volume capacity.	Water bodies and contributing source areas are treated to allow sufficient water storage for present and intended uses.	Water bodies and contributing source areas are treated to allow sufficient water storage for present and intended uses. Ephemeral and classic gully erosion are controlled.	Acre-Inches/Year – average annual reduction in acre-inches in sediment deposition within water bodies for the field or planning area/unit	• Visual assessment • Depth and area measurements • National Engineering Handbook, Part 650 (EFH – Chapters 2,3,7,11)
Water Quantity – Aquifer Overdraft	Water withdrawals exceed recharge rates.	Land and water management are coordinated to conserve aquifer water levels.	Same as National	Acre-Inches/Year – average annual reduction in acre-inches of groundwater overdraft for the field or planning area/unit	• Water level measurements

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quantity – Insufficient Flows in Water Courses	Water flows are not consistently available in sufficient quantities to support ecological processes and land use and management.	Authorized uses and management of water are coordinated to minimize the impacts on water course flows.	Same as National	Non Measurable	• Visual assessment • Water flow records • Gauge Station data • Consumptive use/allocation water rights • Habitat Evaluation Guides • National Biology Handbook
Water Quality – Harmful Levels of Pesticides in Groundwater	Residues resulting from the use of pest control chemicals degrade groundwater quality.	Pesticides are applied, stored, handled, disposed of, and managed so that groundwater uses are not adversely affected	Pesticides are applied, stored, handled, disposed of, and managed so that groundwater uses are not adversely affected. Pesticides are applied according to label restriction and mitigation measures are installed as applicable.	Non-measurable	• WIN-PST (Windows Pesticide Screening Tool – USDA/NRCS) • NAPRA (National Agricultural Pesticide Risk Analysis – USDA/NRCS) • Vadose zone and groundwater chemical sampling and assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality – Excessive Nutrients and Organics in Groundwater	Pollution from natural or human induced nutrients such as N, P, and organics (including animal and other wastes) degrades groundwater quality.	Nutrients and organics are stored, handled, disposed of, and applied such that groundwater uses are not adversely affected.	Nutrients and organics are stored, handled, disposed of, and applied such that groundwater uses are not adversely affected. Implement management practice to reduce nitrogen leaching on soils with a high leaching index.	Non-measurable	• National Engineering Handbook, Part 651, Ag. Waste Mgt. Field Handbook • Nitrate Leaching Index • Phosphorus Leaching Index • Farm*A*Syst • Vadose zone and groundwater chemical/particle sampling and assay
Water Quality – Excessive Salinity in Groundwater	Pollution from salts such as Ca, Mg, Na, K, HCO_3, CO_3, Cl, and SO_4 degrades groundwater quality.	Salts are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected.	Salts are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected. Monitor irrigation water to prevent the build up of salts.	Electrical Conductivity (EC) – average reduction in EC for the field or planning area/unit	• Vadose zone and groundwater salinity sampling (total dissolved solids [TDS] or electrical conductivity) and assay • National Engineering Handbook, Part 652, Irrigation Guide • Soil salinity sampling and assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality – Harmful Levels of Heavy Metals in Groundwater	Natural or human induced metal pollutants present in toxic amounts degrade groundwater quality.	Materials containing heavy metals are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected.	Materials containing heavy metals are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected. Heavy metals are not applied in excess of EPA Life time.	Non-measurable	• Vadose zone and groundwater chemical sampling and assay
Water Quality – Harmful Levels of Pathogens in Groundwater	Kinds and numbers of viruses, protozoa, and bacteria are present at a level that degrades groundwater quality.	Materials that harbor pathogens are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected.	Materials that harbor pathogens are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected. Follow Louisiana Agricultural Waste Land Application Guidelines.	Non-measurable	• Vadose zone and groundwater chemical sampling and assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality – Harmful Levels of Petroleum in Groundwater	Fuel, oil, gasoline and other hydrocarbons present in toxic amounts degrade groundwater quality.	Petroleum products are used, stored, handled, disposed of, and managed such that groundwater uses are not adversely affected.	Same as National	Non-measurable	• Vadose zone and groundwater chemical sampling and assay
Water Quality – Harmful Levels of Pesticides in Surface Water	Pest control chemicals present in toxic amounts degrade surface water quality.	Pesticides are applied, stored, handled, disposed of, and managed such that surface water uses are not adversely affected	Pesticides are applied, stored, handled, disposed of, and managed such that surface water uses are not adversely affected. Apply pesticides according to label instructions and LSU Agricultural Center's recommendations and implement mitigation practices as applicable.	Non-measurable	• WIN-PST (Windows Pesticide Screening Tool – USDA/NRCS) • NAPRA (National Agricultural Pesticide Risk Analysis – USDA/NRCS) • Surface water chemical sampling assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality – Excessive Nutrients and Organics in Surface Water	Pollution from natural or human induced nutrients such as N, P, and organics (Including animal and other wastes) degrades surface water quality.	Nutrients and organics are stored, handled, disposed of, and managed such that surface water uses are not adversely affected.	Nutrients and organics are stored, handled, disposed of, and managed such that surface water uses are not adversely affected. Do not apply nutrients in amounts in excess of LSU Agricultural Center's recommendations. Animal waste and other biosolids are applied to either a nitrogen or phosphorus standard, depending of PI value.	Non-measurable	• SVAP (Stream Visual Assessment Protocol – USDA/NRCS) • P index • National Engineering Handbook, Part 651, Ag. Waste Mgt. Field Handbook • Surface water chemical/particle sampling and assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality – Excessive Suspended Sediment and Turbidity in Surface Water	Pollution from mineral or organic particles degrades surface water quality.	Movement of mineral and organic particles is managed such that surface water uses are not adversely affected.	Movement of mineral and organic particles is managed such that surface water uses are not adversely affected. Control ephemeral and classic gully erosion.	Non-measurable	• Visual assessment • Client interview • SVAP (Stream Visual Assessment Protocol – USDA/NRCS) • Water Quality Indicators Guide – Surface Waters, Field Sheets IA and 1B (Terrene Institute ©1996) • Surface water chemical/particle sampling and assay
Water Quality - Excessive Salinity in Surface Water	Pollution from salts such as Ca, Mg, Na, K, HCO_3, HCO_3, CO_3, Cl, and SO_4 degrades surface water quality.	Salts are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected.	Same as National	Electrical Conductivity (EC) **–** average reduction in EC for the field or planning area/unit	• SVAP (Stream Visual Assessment Protocol – USDA/NRCS) – Salinity

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality - Harmful Levels of Heavy Metals in Surface Water	Natural or human induced metal pollutants are present in toxic amounts that degrade surface water quality.	Materials containing heavy metals are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected.	Materials containing heavy metals are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected. Heavy metals are not applied in excess of EPA lifetime limits.	Non-measurable	• Surface water chemical sampling and assay
Water Quality - Harmful Temperatures of Surface Water	Undesired thermal conditions degrade surface water quality.	Use and management of land and water are coordinated to minimize impacts on surface water temperatures.	Same as National	Non-measurable	• SVAP (Stream Visual Assessment Protocol – USDA/NRCS) – canopy cover • HSI model for target species (Habitat Suitability Index – USF&WS) • Surface water temperature sampling and assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
WATER					
Water Quality - Harmful Levels of Pathogens in Surface Water	Kinds and numbers of viruses, protozoa, and bacteria are present at a level that degrades surface water quality.	Materials that harbor pathogens are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected.	Materials that harbor pathogens are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected. Follow Louisiana's Agricultural Waste Land Application Guidelines.	Non-measurable	• Surface water pathogen sampling and assay
Water Quality - Harmful Levels of Petroleum in Surface Water	Fuel, oil, gasoline and other hydrocarbons present in toxic amounts degrade surface water quality.	Petroleum products are used, stored, handled, and disposed of such that groundwater uses are not adversely affected.	Same as National	Non-measurable	• Surface water chemical sampling and assay

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
AIR					
Air Quality - Particulate matter less than 10 micrometers in diameter (PM 10)	Particulate matter less than 10 micrometers in diameter are suspended in the air causing potential health hazards to humans and animals.	Land use and management operations comply with PM 10 requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations	Land use and management operations comply with PM 10 requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations. When fire is used in conservation management, a burning plan is essential.	Pounds/Year – average annual pounds of reduced PM-10 emissions for the field or planning area/unit	• Specific guidelines contained in State or Federal Implementation Plan; or other approved NRCS tool. • Air quality analysis • General LA Department of Environmental Quality Monitoring Data
Air Quality - Particulate matter less than 2.5 micrometers in diameter (PM 2.5)	Particulate matter less than 2.5 micrometers in diameter are suspended in the air causing potential health hazards to humans and animals.	Land use and management operations comply with PM 2.5 requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations.	Same as National	Pounds/Year – average annual pounds of reduced PM-2.5 emissions for the field or planning area/unit	• Specific guidelines contained in State or Federal Implementation Plan; or other approved NRCS tools • General LA Department of Environmental Quality Monitoring Data
Air Quality - Excessive Ozone	High concentrations of ozone (O_3) are adversely affecting human health, reducing plant yields, and leading to the creation of smog.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations.	Same as National	Pounds/Year – average annual pounds of reduced ozone precursors emissions for the field or planning area/unit	• Specific guidelines contained in State or Federal Implementation Plan; or other approved NRCS tools • General LA Department of Environmental Quality Monitoring Data

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
AIR					
Air Quality - Excessive Greenhouse Gas – CO_2 (carbon dioxide)	Increased CO_2 concentrations are adversely affecting ecosystem processes.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations.	Same as National	Non-measurable	• Model simulations (Century, EPIC, CQUESTER); sampling for soil carbon or International Panel on Climate Change methodology; or other NRCS approved tools
Air Quality - Excessive Greenhouse Gas – N_2O (nitrous oxide)	Increased N_2O concentrations are adversely affecting ecosystem processes.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations.	Same as National	Non-measurable	• Model simulations (NLEAP or DayCENT), or IPCC methodology; or other NRCS approved tools • General LA Department of Environmental Quality Monitoring Data
Air Quality - Excessive Greenhouse Gas – CH4 (methane)	Increased CH4 concentrations are adversely affecting ecosystem processes. .	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, Tribal, State, and Local regulations.	Same as National	Non-measurable	• IPCC methodology; or other NRCS approved tools

National and State Resource Concerns and Quality Criteria					
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AIR					
Air Quality - Ammonia (NH3)	Animal waste and inorganic commercial fertilizers emit ammonia that contributes to odor, is a PM2.5 precursor, and contributes to acid rain.	Land use and management operations comply with requirements of all applicable Federal, Tribal, State, and Local regulations.	Land use and management operations comply with requirements of all applicable Federal, Tribal, State, and Local regulations. Follow Louisiana's Agricultural Waste Land Application Guidelines.	Pounds/Year – average annual pounds of reduced NH_3 emissions for the field or planning area/unit	• Approved NRCS technical guidance and tools

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
AIR					
Air Quality - Chemical Drift	Materials applied for pest control drift downwind and contaminate/injure non-targeted fields, crops, soils, water, animals and humans.	Land use and management operations comply with all applicable Federal, Tribal, State, and Local regulations, and applicable label directions.	Land use and management operations comply with all applicable Federal, Tribal, State, and Local regulations, and applicable label directions. Apply pesticides according to label instructions and LSU Agricultural Center's recommendation.	Non-measurable	• Approved NRCS technical guidance and tools

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
AIR					
Air Quality - Objectionable Odors	Land use and management operations produce offensive smells.	Odor-producing facilities and activities are planned and sited to mitigate potential nuisance impacts and meets all applicable Tribal, State, and Local regulations.	Odor-producing facilities and activities are planned and sited to mitigate potential nuisance impacts and meets all applicable Tribal, State, and Local regulations. Follow Louisiana's Agricultural Waste Land Application Guidelines.	Non-measurable	• Olfactory assessment • Agricultural Waste Management Field Handbook (AWMFH) • NRCS approved tools
Air Quality - Reduced Visibility	Sight distance is impaired due to airborne particles causing unsafe conditions and impeded viewing of natural vistas especially in Class I viewing areas (primarily national parks and monuments).	Land use and management operations comply with all applicable Federal, Tribal, State, and Local regulations including state and local smoke and/or burn management plans.	Same as National	Non-measurable	• Visual assessment • Regional air partnership recommendations and/or state guidance for smoke management
Air Quality - Undesirable Air Movement	Wind velocities (too little or too much) reduce animal or plant productivity, impact human comfort and increase energy consumption.	Devices and practices are sited and planned to mitigate excess or deficient air movement.	Same as National	Non-measurable	• Visual assessment • Anemometers • Approved NRCS technical guidance and tools

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
AIR					
Air Quality - Adverse Air Temperature	Air temperatures (too cold or too hot) reduce animal or plant productivity, impact human comfort and increase energy consumption.	Devices and practices are planned and sited to mitigate temperature extremes.	Same as National	Non-measurable	• Chill factor indices; heat indices • Air temperature assessment

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
PLANTS					
Plants not adapted or suited	Plants are not adapted and/or suited to site conditions or client objectives.	Selected plants are adapted to the soil and climatic conditions or the site is modified to make it suitable for the desired plants. Plants are sustainable, do not negatively impact other resources, and meet client objectives. For specific land uses, additional criteria apply: Cropland: A healthy stand with vigorous growth. Yields 75% of client expectations. Rangeland: Plants on or planned for the site are listed in applicable Ecological Site Descriptions (ESD) Pastureland: Plants on or planned for the site have a site adaptation score greater than 3 using Pasture Condition Scoring (PCS)and are listed in applicable Forage Suitability Groups (FSG)reports. Hayland: Plants on or planned for the site are listed in applicable Forage Suitability Groups (FSG) reports. Forestland/Agroforest: Plants on or planned for the site are listed in Ecological Site Descriptions (ESD)	Same as National Cropland: A Same as National. Rangeland: Same as National. Pastureland: Same as National. Hayland: Same as National. Forestland/Agroforest: Plants on or planned for the site are listed in Ecological Site Descriptions (ESD) or soil interpretation records.	Non-measurable	• On-site investigation and records • Forage Suitability Groups (FSG) • Pasture Condition Scoring (PCS) • Client interview • PLANTS database • VEGSPEC • Seeding and Planting Guide • Plant hardiness zone map • Soil pH, drainage class, sodium adsorption ratio (SAR) and electrical conductivity (EC) suitability ranges. • Soil interpretations – Section IV • Local agronomy guides • University Extension Service information • Soil survey manuscripts • Ecological Site Descriptions (ESD) • Conservation Tree and Shrub Groups (CTSG) • Silvics of North America Trees • NRCS Discipline Manuals/handbooks

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
PLANTS					
Plant – Condition – Productivity, Health and Vigor	Plants do not produce the yields, quality, and soil cover to meet client objectives.	Selected plants on or planned for the site are sufficiently productive to meet or exceed client needs. For specific land uses, additional criteria apply: Cropland: A healthy stand with vigorous growth produces at least 75% of site potential. Rangeland: The plant community has a similarity index of at least 60% or an upward trend for similarity indices less than 60%. Pastureland: Forage yields are at least 75% of high management estimates cited in FSG reports. Hayland: Forage yields at least 75% of high mgt. estimates cited in Forage Suitability Groups (FSG) reports Forestland/Agroforest: Forests consist of healthy stands with vigorous growth having a stand density within 25% of optimum stocking on a stems/acre basis. Plants chosen for agroforest applications are consistent with Conservation Tree and Shrub Groups (CTSG) listings and height performance.	Same as National Cropland: A Same as National Rangeland: The plant community has a similarity index of at least 60% or an upward trend for similarity indices less than 60%. When the present plant community is compared to the vegetation state, it has a similarity index or at least 60% or an upward trend when the similarity index is less than 60%.	Non-measurable	• Local agronomy guides • Client interview • Plant tissue and harvest analysis • Crop scouting • NRCS discipline manuals/handbooks • National Range and Pasture Handbook • Ecological Site Descriptions • Rangeland Similarity Index Worksheet • Rising plate meter • Forage Suitability Groups (FSG) • Electronic probe calibrated for the forage mixture, or a clip and weigh sampling procedure. • Plot sampling of understory vegetation • Soil survey reports • Soil Testing • Crop/soil yield comparison in the vicinity • Pasture Condition Scoring • Keys for disease and insect symptoms • Keys for nutrient deficiencies, toxicities, and other conditions • Rangeland Health Assessment • Stocking rate of desired species • Plot sampling of understory vegetation • Stocking measurement for the tree stands • Conservation Tree and Shrub Groups (CTSG)

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
PLANTS					
Plant – Condition – Productivity, Health and Vigor (Continued)			Pastureland: Forage yields are at least 75% of high management estimates cited in FSG reports. Forage yields are greater than the low management estimates cited in the FSG reports. Hayland: Same as National. Forestland/Agroforest: Same as National	Non-measurable	
Plant Condition – Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act	The site includes individuals, habitat or potential habitat for one or more plant species listed or proposed for listing under the Endangered Species Act.	Populations and/or habitats of Threatened and Endangered plant species are managed to maintain, increase or improve current populations, health, or sustainability.	Same as National	Non-measurable	• Client interviews • Inventory site • General Manual, 190, Part 410 • US Fish and Wildlife Service parish endangered species lists • Federal and state endangered species rules and regulations • Consultation with appropriate federal, state, and local agencies/groups • PLANTS Website

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
PLANTS					
Plant Condition – Threatened or Endangered Plant Species: Declining Species, Species of Concern	The site includes individuals, habitat or potential habitat for one or more plant species that the State or Tribal government with jurisdiction, or the State Technical Committee, has identified as a species of concern. This includes plant species that have been identified as candidates for listing under the Endangered Species Act.	Populations and/or habitats of plant species of concern are managed to maintain, increase, or improve current populations, health, or sustainability.	Same as National	Non-measurable	• Client interviews • Inventory of site • Fish and wildlife agency web sites • LA Dept. of Wildlife and Fisheries – Natural Heritage Program • LA Comprehensive Wildlife Conservation Strategy • Consultation with appropriate federal, state, and local agencies/groups
Plant Condition - Noxious and Invasive Plants	The site has noxious or invasive plants present.	The site is managed to control noxious and invasive plants and to minimize their spread.	Same as National	Non-measurable	• Client interviews • Inventory site • Consult weed management associations • Consultation with appropriate federal, state, and local agencies/groups • State or local noxious weed list • PLANTS Website
Plant Condition - Forage Quality and Palatability	Plants do not have adequate nutritive value or palatability for the intended use	Forage plants are managed to produce the desired nutritive value and palatability for the intended use.	Same as National	Non-measurable	• NIRS Forage Quality Analysis (NUTBAL) • Plant tissue analysis
Plant Condition – Wildfire Hazard	The kinds and amounts of fuel loadings (plant biomass) pose risks to human safety, structures, and resources should wildfire occur.	Fuel loadings are reduced and/or isolated to meet client needs in minimizing the risk and incidence of wildfire.	Same as National	Acres/Year – average annual acres protected from wildfire for the field of planning area/unit	• Visual assessment protocols • Site and flammable biomass inventories • Aerial photo analysis

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
ANIMALS					
Fish and Wildlife - Inadequate Food	Quantity and quality of food is unavailable to meet the life history requirements of the species or guild of species of concern	Food availability meets the life history requirements of the species or guild of species of concern.	Same as National	Non Measurable; based on habitat evaluation guide	• Visual assessment • Inventory of food species • Aerial photo analysis • State Adapted Wildlife Habitat Evaluation Guide • National Biology Handbook
Fish and Wildlife – Inadequate Cover/Shelter	Cover/shelter for the species of concern is unavailable or inadequate. For aquatic species, this includes lack of hiding, thermal, and/or refuge cover	The ecosystem or habit types support the necessary plant species in the kinds, amounts, and physical structure; and the connectivity of fish and wildlife cover is adequate to support, over time, the species of concern.	Same as National	Non Measurable; based on habitat evaluation guide	• Visual assessment • Inventory of cover/shelter • Aerial photo analysis • State Adapted Wildlife Habitat Evaluation Guide • National Biology Handbook
Fish and Wildlife – Inadequate Water	The quantity and quality of water is unacceptable for the species of concern	The quantity and quality of water meets the life history requirements of the species of concern.	Same as National	Non Measurable; based on habitat evaluation guide	• Surface water dissolved oxygen sampling and assay • Stream Visual Assessment Protocol • Habitat Suitability Index - model for target species • Inventory of water supplies • Aerial photo analysis • State Adapted Wildlife Habitat Evaluation Guide • National Biology Handbook
Fish and Wildlife – Inadequate Space	Lack of area and fragmentation of areas disrupt life history requirements of the species of concern	Adequate area and connectivity of areas meet life history requirements of the species of concern. (Examples: staging areas for rest and feeding, lekking areas for breeding, migratory movement corridors)	Same as National	Non Measurable; based on habitat evaluation guide	• Visual assessment • Stream Visual Assessment Protocol • Inventory of space/areas • Aerial photo analysis • State Adapted Wildlife Habitat Evaluation Guide • National Biology Handbook

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
ANIMALS					
Fish and Wildlife -Plant Community Fragmentation	Natural plant communities have insufficient structure, extent, and connectivity to provide ecological functions and/or achieve management objectives.	Fish and wildlife habitat functions of connected plant communities are maintained sufficiently to support the species or guild of species of concern	Same as National	Non Measurable; based on habitat evaluation guide	• Stream Visual Assessment Protocol • Aquatic and terrestrial habitat evaluation procedures • Wildlife Habitat Evaluation Guide (WHEG)
Fish and Wildlife - Imbalance Among and Within Populations	Populations are not in proportion to available quantities and qualities of food (plants, predator/prey), cover/shelter, water, and space and other life history requirements.	Land and water use and management are consistent with direct population management activities conducted by fish and wildlife agencies.	Same as National	Non Measurable; based on habitat evaluation guide	• Fish and wildlife agency guidance and protocols
Fish and Wildlife – Threatened and Endangered Fish and Wildlife Species: Fish and Wildlife Species Listed or Proposed for Listing under the Endangered Species Act	The site includes individuals, habitat or potential habitat for one or more fish or wildlife species listed or proposed for listing under the Endangered Species Act.	Populations and/or habitats of Threatened and endangered fish and wildlife species and/or habitats they occupy are managed to maintain, increase, or improve current populations, health, or sustainability.	Same as National	Non-measurable	• Client interviews • Inventory of presence/absence of T&E species • General Manual, 190, Part 410 • US Fish and Wildlife Service parish endangered species lists • Fish and wildlife recovery plans • Federal and state endangered species rules and regulations • Consultation with appropriate federal, state, and local agencies/groups • Fish and wildlife agency web sites

National and State Resource Concerns and Quality Criteria					
Natural Resource Concern	**Description of Concern**	**National Quality Criteria**	**State Quality Criteria**	**Measurement Units**	**Assessment Tools for Quality Criteria Evaluation**
ANIMALS					
Fish and Wildlife – Threatened and Endangered Species: Declining Species, Species of Concern	The site includes individuals, habitat or potential habitat for one or more fish or wildlife species that the State or Tribal government with jurisdiction, or the State Technical Committee, has identified as a species of concern. This includes fish and wildlife species that have been identified as candidates for listing under the Endangered Species Act.	Populations and/or habitats of fish and wildlife species of concern are managed to maintain, increase, or improve current populations, health, or sustainability.	Same as National	Non-measurable	• Client interviews • Inventory of site • Fish and wildlife agency web sites • LA Dept. of Wildlife and Fisheries – Natural Heritage Program • LA Comprehensive Wildlife Conservation Strategy • Consultation with appropriate federal, state, and local agencies/groups
Domestic Animals – Inadequate Quantities and Quality of Feed and Forage	Total feed and forage is insufficient to meet the nutritional and production needs of the kinds and classes of livestock	Feed and forage including supplemental nutritional requirements are provided to meet production goals for the kinds and classes of livestock. Native grazers are factored into the total feed and forage balance computations.	Same as National	Non-measurable	• Measured inventory • National Range and Pasture Handbook • Grazing Lands Application (GLA) software • Nutritional Balance Program (NUTBAL) • NIRS/Nutritional Balance Profile Program (NUTBAL Pro) • Forage quality laboratory analysis • Other State adapted forage/livestock management software and job sheets
Domestic Animals – Inadequate Shelter	Livestock are not protected sufficiently to meet the production goals for the kinds and classes of livestock	Artificial and/or natural shelter is provided to meet production goals for the kinds and classes of livestock.	Same as National	Non-measurable	• Visual assessment • Inventory of facilities and their capacities • Aerial photo analysis • National Range and Pasture Handbook

National and State Resource Concerns and Quality Criteria					
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ANIMALS					
Domestic Animals – Inadequate Stock Water	The quantity, quality and distribution of drinking water is insufficient to meet the production goals for the kinds and classes of livestock	Sufficient water of acceptable quality is provided and adequately distributed to meet production goals for the kinds and classes of livestock. To reduce potential for water contamination, watering facilities are constructed or modified to minimize mortality to indigenous wildlife.	Same as National	Non-measurable	• Visual assessment • Inventory of distribution needs • Aerial photo analysis • National Range and Pasture Handbook
Domestic Animals - Stress and Mortality	Animals exhibit illness or death from disease, parasites, insects, poisonous plants, or other factors	Land and water use and management are consistent with activities conducted to alleviate stress and mortality factors.	Same as National	Non-measurable	• Animal health/mortality alerts • State and local biosecurity protocols • State and local standards for animal disposal