TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE
WATER QUALITY – No. 1 **SPOKANE, WASHINGTON**
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Water Quality Indicator Tools

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Adapted from:

- Water Quality Tech Note No. 1, USDA-NRCS Oregon, Feb. 12, 1999, Terry Nelson
- NRCS Water Quality Indicators Guide: Surface Waters, Terrene Institute, 1717 K Street NW, Suite 801, Washington D.C. 20006

Purpose and Scope

This technical note provides information on *water quality indicator tools* for use by Natural Resources Conservation Service Field Office Personnel and others. These tools are organized and designed to be used in conjunction with the Field Office Technical Guide (FOTG), Section III, Quality Criteria. These tools are to be used to document water quality concerns.

Indicators describe a current, past, or future resource condition. Indicators estimate resource conditions so their use must be combined with common sense and professional judgment. The tools presented also provide general background into the pollution process for different water quality parameters. This information can help educate and remind conservation planners of resource considerations related to water quality. Indicator tools can be used to determine water quality problems, set benchmark conditions, guide inventories, and evaluate and document water quality in the future. The planner can use the tools with their clients to help them understand pollution concepts and how different conservation practices can reduce or eliminate risks of pollution. Our clients could use most of the tools to do their own self-assessments.

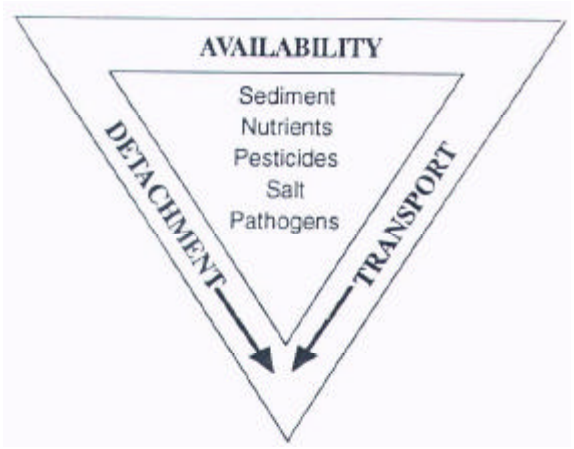
Principles of Water Quality

Water quality is defined by its capability to support beneficial uses of water. Beneficial uses include domestic water supply, livestock watering, irrigation, aquatic life, water contact recreation, navigation, aesthetics, and the like. A water quality problem exists when the beneficial or intended use of that waterbody is impaired. Chemical, physical, and biological parameters usually measure water quality. Common parameters include bacteria, dissolved oxygen, nutrients, pH, sedimentation, turbidity, temperature, electrical conductivity, and toxics (heavy metals and volatile organics). Water quality can also be measured in terms of riparian/aquatic habitat condition or from macroinvertebrate, fish, or algal populations. Water quantity plays an important role in quality by influencing a water bodies assimilative capacity and ability to support aquatic life.

When solving a water quality problem potentially resulting from agricultural activities:

(a) the pollutant or stressor causing the problem must be identified,
(b) the cause and effect relationship between the pollutant or stressor and the water quality effect must be determined,
(c) the source and pathway of the pollutant must be described, and
(d) appropriate control practices must be selected and applied.

A stressor is any condition caused by management activities. For example, a reduction of streamside shading can cause elevated water temperatures that adversely impact aquatic habitat communities.



The pollution process can be visualized through the pollutant delivery triangle:

- Availability - Presence and amount of contaminant available.
- Detachment - Process by which material is mobilized
- Transport - Pathway by which a pollutant leaves agricultural area to receiving waters

Control of most pollutants can be assessed in terms of the capability to impact one or more of these three processes. For example, integrated pest management limits the amount of chemical pesticide used or reduces its *availability*. Erosion control practices control *detachment* of soil particles and subsequent sedimentation. A filter strip or buffer intercepts the *transport* of sediments to a water body.

Some water quality concerns like stream temperature, riparian habitat, and stream flow cause direct impacts to the stream. Understanding of basic riparian habitat management, hydrology, and geomorphologic principles is necessary to determine appropriate solutions to these non-chemical water quality problems.

FOTG Quality Criteria

Quality criteria are quantitative or qualitative statements of a treatment level required to achieve a Resource Management System (RMS) for identified resource considerations for a particular land area. They are established in accordance with local, state, and federal programs and regulations in consideration of ecological, social, and economic effects. NRCS planning procedures suggest quality criteria be expressed using a *target* and an *indicator*. The term target value is used to express a desired future condition of a resource as measured by an *indicator*. Another way of looking at indicators and target values is to think of a yardstick as the indicator and the target as a point on that yardstick.

NRCS and others have previously developed many of the referenced tools. Worksheet versions of new tools created for this technical note are included in Appendix A.

The **Water Quality Indicators Guide Field Sheets (1B, 2B1, and 2B2) (see Appendix B)** provide additional visual descriptors to help indicate whether a problem exists.

These tools provide estimates of resource conditions. They should always be used with common sense and professional judgment. In areas with sensitive waterbodies and/or vulnerable aquifers, the planner should exercise additional care in the tool's application and interpretation to minimize risk to the environment and human health.

The ***Pesticide Storage, Handling, and Disposal Worksheet (Table 1, Appendix A)*** **provides** an assessment tool that can be used to judge the pesticide risks associated with their storage, handling and disposal. The worksheet provides a basis for indicating if quality criteria is being met and helps identify practices that need to be considered. The worksheet was derived from Oregon Home*A*Syst worksheets on pesticide storage and handling.

Assume the same client stores over 50 gallons of mostly liquid pesticides. Most have a high leaching or surface loss potential. They are stored in their original, good condition containers inside a shed with a concrete floor with curbed foundation. Mixing occurs outside on a pervious soil surface located near (less than 50 feet

from) an ephemeral ditch. Pesticide materials are hand poured into sprayer. All handling and cleanup occurs at the same site, rinsate dumped on ground. Used containers have been stacked, outside the shed for a number of years. Based on this information using the **Pesticide Storage, Handling, and Disposal Worksheet** this client has a moderate to high risk of creating a surface or a groundwater problem. If the RMS alternative includes: practices for mixing and handling pesticides on an impervious surface with curbs and sump; and recommends use of more dry product formulations, collecting rinsate and applying back on targeted fields, and properly recycling used containers, the rating would improve to low-moderate risk meeting the quality criteria.

Nutrients, Organics and Pathogens

Nutrients are defined as any organic or inorganic substances that promote plant or animal growth. Organics include animal wastes and other biosolids. Animal wastes can contribute nutrients, organic matter, and pathogens to receiving waters. Nitrogen and phosphorus are the two major nutrients from agriculture that can degrade water quality. When these nutrients are introduced into a stream, lake or estuary at high rates, aquatic plant productivity may be increased dramatically by a process referred to as eutrophication. Eutrophication has many negative side effects on aquatic ecosystems. Increased growth of algae and aquatic weeds can degrade water quality, reduce dissolved oxygen levels, cause wide pH fluctuations and interfere with use of the water for fisheries, recreation, industry, agriculture, and drinking. Toxins produced by explosive growth of some algae and dinoflagellates can pose serious health threats to humans, wildlife, and livestock. High levels of nitrate (> 10 ppm nitrate nitrogen) in drinking water reduces the oxygen carrying capacity of blood which is potentially dangerous to infants (blue baby syndrome). Organic matter includes a family of compounds containing carbon. Excessive concentration of organic matter in surface water results in increased turbidity and oxygen consumption. In ground water, organics have been found to cause foul odors and tastes. Pathogens associated with animal wastes can transmit diseases to humans and livestock.

Availability of nutrients is best controlled through proper nutrient management that budgets nutrient application according to residual soil nutrient levels and crop requirements. Soil tests, testing nutrient content of manure and basing nutrient requirements on reasonable yield estimates are needed for accurate nutrient budgets.

Nutrient *detachment* and *transport* within the environment is governed by several factors:

- Nutrient form, method of application, and timing.
- Soil characteristics (runoff, leaching and erosion potential, clay content, pH, etc.)
- Precipitation, temperature and other climatic conditions

Nutrient detachment controls are primarily management practices to prevent surface flow or water infiltrating into the soil from coming in contact with nutrients. Timely incorporation of manure, sludge, or fertilizers beneath soil surface can reduce excess nutrients in runoff. If the nutrients cannot be incorporated, they should be spread on fields with close growing crops or crop residue to control runoff and erosion. Prevention of nutrient contamination of groundwater can also be accomplished by use of nutrient forms that are not easily detached such as low solubility or slow release fertilizers. Nutrient applications can be applied in split applications to be available in the amounts and in the time frames crops need them. Supporting practices such as filter strips, buffers, sediment ponds, and grassed waterways can be used to interrupt the transport of nutrients. Cover crops can be used to utilize excess soil nutrients. Deep-rooted crops within a rotation can recycle nutrients that have moved below the rooting zone of more shallow rooted crops.

Animal wastes are potential sources of approximately 150 diseases. Numerous factors influence the nature and amount of disease producing organisms that reach surface or groundwater. Some of these are climate, soil types, depths to water table, infiltration rates, topography, animal types, and presence of disease-causing organisms. When livestock wastes are applied on dry, sunny days harmful bacteria die off quite rapidly. Manure applied on cool rainy days to water saturated soils can yield high concentrations of bacteria and

viruses in runoff. For quality criteria purposes, it is assumed if animal wastes are managed to control nutrient pollution that pathogens will be controlled too.

Note: *The planned conservation management system must include practices that overcome the site and management limitations that create the risk of nutrient loss to runoff and leaching. This may include a nutrient management program that considers the crop nutrient requirements; rate, timing, placement, application method, and form of nutrients applied; nutrient credits for legumes; residual soil nutrients; erosion control practices; filter strips and buffers; water management and irrigation water management.*

The ***Nutrient Storage and Handling Worksheet*** **(Table 2, Appendix A) provides** an assessment tool that can be used to judge the nutrient risk associated with the storage and handling of commercial fertilizers. In addition, ***Livestock Waste Storage Worksheet*** **(Table 3, Appendix A) and** ***Livestock Confinement Area Management Worksheet*** **(Table 4, Appendix A)** can be used to judge whether nutrients, organics, and pathogens associated with animal wastes are being properly handled. The worksheets provide a basis for indicating if quality criteria are being met and helps identify practices that need to be considered.

Petroleum Products

Above ground and underground storage of liquid petroleum products such as motor fuel and heating fuel presents a threat to public health and the environment. Petroleum fuels contain a number of potentially toxic compounds including common solvents such as benzene, toluene, and xylene, and additives such as ethylene dibromide and organic lead compounds. Benzene is considered a human carcinogen. Oils affect aquatic organisms by acting on epithelial surfaces of gills interfering with respiration. Oil is detrimental to waterfowl by destroying the natural buoyancy and insulation of their feathers. Several important petrochemicals are known to be acutely toxic to fish. At low levels, smell or taste cannot detect fuel contaminants, yet waters may be contaminated to the point of affecting human health or the environment.

On farm, improper storage and handling of petroleum products are the most likely sources of potential contaminants. According to the U.S. Environmental Protection Agency, nearly one out of four underground storage tanks in the U.S. may now be leaking.

Indicator Tools

The Petroleum Storage and Handling Worksheet **(Table 5, Appendix A)** may be used to indicate if benchmark conditions and the planned conservation management system meet RMS quality criteria. To meet quality criteria a ranking of low or low-moderate risk must be obtained.

Suspended Sediments and Turbidity

Sediment is organic or inorganic material that is in suspension, in transport, or already moved and deposited away from its point of origin. Sediment is considered a pollutant when it concentrates to the point to which it degrades habitat suitability for aquatic organisms, and/or increases turbidity that in turn reduces light penetration and the process of photosynthesis. Turbidity is an expression of the clarity of water. Turbidity in water results from suspended matter such as clay, silt, colloidal materials, organic matter, or other material that is dissolved or suspended in surface water. Suspended sediment and turbidity are not interchangeable measurements, however they are different measures of similar processes and have similar effects on the environment. Besides interfering with aquatic life, sediment deposition in water bodies causes reduced water storage capacity, safety hazards for swimming and boating, increased costs for water treatment, and reduced aesthetics.

Sediment is the result of erosion, and suspended sediment is the primary cause of increased turbidity in agricultural streams. Chemicals such as some pesticides, phosphorus, and ammonium are transported with sediment in an adsorbed state. As a result, sediment is a carrier of many other pollutants to surface waters. Over time, changes to the aquatic environment can cause these chemicals to be released from the sediment and contribute to eutrophic or toxic conditions.

Availability of sediment from crop and pastureland is best controlled through erosion control practices. Once soil particles are detached, practices that reduce water flow so that sediment is deposited on site before reaching surface waters are preferred. Examples of practices commonly used to control sediment delivery include residue management, terraces, contoured strips, filter strips and buffers, grassed waterways, irrigation water management, sediment control basins, and tailwater recovery systems.

Other major sources of sediment associated with agriculture stem from erosion of streambanks, ditches and other drainages. Changes in stream flow, channel morphology, and vegetative cover represent some of the contributing factors to bank instability. Grade stabilization structures, waterways, buffers, permanent vegetative cover, proper grazing use, bio-engineering practices, etc. are a few of the conservation practices that might be considered to control streambank erosion and resultant sediment.

Indicator Tools

Note: *The planned conservation management system must overcome the site and management limitations that create excessive sedimentation and turbidity with practices that control erosion, reduce surface runoff, and/or filter sediment.*

As stated in the quality criteria, it is assumed that the water quality criteria for sediment will be met by meeting the quality criteria for erosion. The **Sediment and Turbidity Worksheet (Table 6, Appendix A)** provide descriptors to help indicate whether a sediment or turbidity problem exists. Both waterbodies and farm fields should be evaluated. When no ditch, stream, lake, pond, or wetland lie in proximity of the fields being evaluated, the planner must judge likelihood of sediment laden or turbid runoff reaching off site waters.

APPENDIX A

Table 1 Pesticide Storage, Handling, & Disposal Worksheet

Ground & Surface Water Contaminants - Pesticides - Pesticide Storage, Handling, & Disposal					
Farm:					
Rating Item	**Low Risk 4 Points**	**Low-Moderate Risk 3 Points**	**Mod-High Risk 2 Points**	**High Risk 1 Point**	**Score**
1. Amount stored	No pesticides stored at any time	Less than 5 gallon or less than 50 pounds of pesticide	Between 5 and 50 gallons or between 50 and 500 pounds of pesticide	More than 50 gallons or more than 500 pounds of pesticide	
2. Leaching or surface loss potentials[1]	If no pesticides with intermediate or high leaching or surface loss potential stored on property	If most (>50%) pesticides stored have low or very low leaching or surface loss potential with only a few (<30%) intermediate and no high potentials	If most (>50%) pesticides stored have a low or intermediate leaching or surface loss potential with few (<30%) high potentials	If more than 30% have high potential	
3. Formulation	All dry	Mostly dry (>50%)	Mostly liquid (>50%)	All liquid	
4. Storage Area	Impermeable surface with curbs to contain leaks and spills	Impermeable surface, no curbs	Permeable surface (wooden floor)	Permeable surface (dirt or gravel floor)	
5. Containers	Original containers clearly labeled and in good condition (no holes, tears, or weak seams)	Original containers in fair condition but with labels partially missing or hard to read	Containers old showing signs of wear	Containers old with holes, tears, weak seams, and no labels.	
6. Mixing and loading practices	Impermeable surface with curbs to contain and sump to collect spills	Impermeable surface with curbs to contain leaks and spills, no sump	Moderately impermeable or concrete with some cracks, no curbs or sump	Permeable surface, spills soak into ground	
7. Location of mixing and loading areas	Located on impermeable surface with curbs to contain and all spills collected	Located on permeable surface over 100 feet downslope from well and over 500 feet from stream, pond, or drainageway	Located on permeable surface between 50-100 feet downslope or within 100-500 feet upslope of well and within 100-500 feet from stream, pond, or drainageway	Located on permeable surface within 50 feet downslope or within 100 feet upslope of well and within 100 feet from stream, pond or drainageway	
8. Handling	Closed system for all liquid and dry product transfers	Closed system for most liquids, some liquid and dry products hand poured, sprayer fill port easy to reach	All liquids and dry products hand poured, sprayer fill port easy to reach	All liquids and dry products hand poured, sprayer fill port hard to reach	
9. Sprayer cleaning and rinsate	Sprayer washed out, rinsate collected, and disposed of at hazardous waste management facility	Sprayer washed out and sprayed on target field, rinsate collected and applied in next load on labeled crop	Sprayer washed out on impermeable pad, rinsate collected and applied in next load on labeled crop	Sprayer washed out and dumped	
10. Container disposal	Unrinsed containers and bags taken to hazardous waste management facility	Multiple rinsed containers returned to Oregon Agricultural Chemical and Fertilization Association annual collection event	Disposal of unrinsed bags and containers on farm but at least 500 feet from surface water or a well	Disposal of unrinsed bags and containers on farm within 500 feet of surface water or a well	
Pesticide Handling Rating		Accumulative Score (Sum of above rating items)			0
		Average Score (Accumulative/ 10)			0

Ratings: 3.6-4=Low risk, 2.6-3.5=Low to moderate risk, 1.6-2.5=Moderate to high risk, 1-1.5=High Risk

[1] See pesticide loss potentials database Appendix C

Table 2 Nutrient Storage and Handling Worksheet

Ground & Surface Water Contaminants - Nutrients - Nutrient Storage and Handling					
Farm:					
Rating Item	**Low Risk 4 Points**	**Low-Moderate Risk 3 Points**	**Mod-High Risk 2 Points**	**High Risk 1 Point**	**Score**
1. Amount stored	None stored at any time	Less than 1 ton dry or 55 gallons liquid	Between 1 and 20 tons dry or between 55 and 1,500 gallons liquid	More than 20 tons dry or more than 1,500 gallons liquid	
2. Type of storage	Dry formulations covered on impermeable surface and spills collected. Liquid formulations on impermeable surface where spill can be contained	Dry formulations covered on clay soils, liquid formulations on clay lined secondary containment, most spill can be recovered	Dry formulations partially covered on loamy soils, liquid formulations on loamy soils, most spill cannot be recovered	No cover, dry and liquid formulations located on sandy soils, spills not recovered	
3. Containers	Original containers clearly labeled and in good condition (no holes, tears, or weak seams)	Original containers in fair condition but with labels partially missing or hard to read	Containers old showing signs of wear, high potential for leaks	Containers with holes, tears, weak seams, fertilizer leaking, and no labels.	
4. Mixing and loading practices	**Liquid formulations** handled on concrete surface with curbs to contain and sump to collect leaks. **Dry formulations** handled on clayey soils with spills collected	**Liquid formulations** handled on concrete surface with curbs to contain leaks and spills, no sump. **Dry formulations** handled on loamy soils most spills collected	**Liquid formulations** handled on concrete pad with some cracks, no curbs or sump, some spill collected. **Dry formulations** handled on loamy soils most spills not collected	**Liquid formulation** handled without a mixing/loading pad, permeable surface, spills soak into ground. **Dry formulations** handled on sandy soils spills not collected	
5. Location of mixing and loading areas	Mixing and loading practices contain all spills and leaks (Score low risk for rating item no. 4 above)	Located on permeable surface over 100 feet downslope from well and over 500 feet from stream, pond, or drainageway	Located on permeable surface between 50-100 feet downslope or within 100-500 feet upslope of well and within 100-500 feet from stream, pond, or drainageway	Located on permeable surface within 50 feet downslope or within 100 feet upslope of well and within 100 feet from stream, pond or drainageway	
6. Handling	Closed system for all liquid formulations. Dry product easily loaded. Very low risk of spill	Some liquid formulation hand poured, easy to load both dry and liquid product, low risk of spill	All liquids and dry products hand filled, fill port easy to reach, moderate risk of spill	All liquids and dry products hand filled, fill port difficult to reach, high risk of spill	
7. Cleanup and Disposal	Fertilizer sprayer or spreader washed out in the field. Rinsate (from liquid sprayer) collected and applied in next load on labeled crop	Fertilizer sprayer or spreader washed on pad at farmstead. Rinsate (from liquid sprayer) collected and applied in next load on labeled crop	Fertilizer sprayer or spreader washed at farmstead on permeable surface. Rinsate dumped at least 100 feet from well, stream or pond	Fertilizer sprayer or spreader washed at farmstead on permeable surface. Rinsate dumped within 100 feet of well, stream or pond	
Nutrient Storage Rating		Accumulative Score (Sum of above rating items)			0
		Average Score (Accumulative/ 7)			0

Ratings: 3.6-4=Low risk, 2.6-3.5=Low to moderate risk, 16-2.5=Moderate to high risk, 1-1.5=High Risk

Table 3 Livestock Waste Storage Worksheet

Ground & Surface Water Contaminants - Nutrients, Organics & Pathogens - Livestock Waste Storage					
Farm:					
Rating Item	**Low Risk 4 Points**	**Low-Moderate Risk 3 Points**	**Mod-High Risk 2 Points**	**High Risk 1 Point**	**Score**
1. No on-farm storage facilities	Wastes hauled off farm for proper storage and disposal	N/A	N/A	Daily spreading of livestock wastes	
2. On-farm storage Manure stack or Liquid/Slurry storage	Manure stack covered; on impermeable surface; rainfall and runoff diverted. Concrete, clay lined, or other liquid tight design; designed and built to NRCS standards; properly maintained; no cracks and leaks.	Manure covered; on low permeable soil; rainfall and runoff diverted. Earthen structure built to NRCS standards and properly maintained.	Manure partially covered; on slightly permeable soils; some runoff collected. Not designed to NRCS standards; on slightly permeable soils; poorly maintained, some evidence of cracks and leaks.	Manure not covered; runoff not collected. Not designed to NRCS standards; on permeable soils; not maintained; leaks and cracks.	
3. Storage volume	Not full at end of rainy season; if liquid/slurry adequate capacity to hold 25-year, 24-hour storm; solids removed to avoid loss of storage capacity.	Not full at end of rainy season; if liquid/slurry not adequate capacity to hold 25-year, 24-hour storm.	Storage facility requires occasional emptying during the rainy season; if liquid/slurry not adequate capacity to hold 25-year, 24-hour storm.	Storage facility requires regular emptying during the rainy season; if liquid/slurry not adequate capacity to hold 25-year, 24-hour storm.	
4. Storage location	Manure stack or earthen pond located more than 500 feet from well, stream, pond, or drainageway. Or Liquid/slurry storage located more than 200 feet from well, stream, pond, or drainageway or has emergency containment dike for accidental spills or leaks.	Manure stack or earthen pond located between 250-500 feet from well, stream, pond, or drainageway. Or Liquid/slurry storage located between 100-200 feet from well, stream, pond, or drainageway	Manure stack or earthen pond located less than 250 feet downslope from well, stream, pond, or drainageway. Or Liquid/slurry storage located more than 100 feet downslope from well, stream, pond, or drainageway	Manure stack or earthen pond located less than 250 feet upslope from well, stream, pond, or drainageway. Or Liquid/slurry storage located 100 feet from upslope well, stream, pond, or drainageway	
Livestock Waste Storage Rating for Ground & Surface Waters		Accumulative Score (Sum of above rating items)			0
		Average Score (Accumulative/ 4)			0

Ratings: 3.6-4=Low risk, 2.6-3.5=Low to moderate risk, 1.6-2.5=Moderate to high risk, 1-1.5=High Risk

Table 4 Livestock Confinement Area Management Worksheet

Ground & Surface Water Contaminants - Nutrients, Organics & Pathogens - Livestock Confinement Area Management					
Farm:					
Rating Item	**Low Risk 4 Points**	**Low-Moderate Risk 3 Points**	**Mod-High Risk 2 Points**	**High Risk 1 Point**	**Score**
1. Location	More than 200 feet from well and more than 500 feet from stream, pond, or drainageway	Between 100-200 feet of well and between 250-500 feet from stream, pond, or drainageway	Between 50-100 feet of well and between 100-250 feet from stream, pond, or drainageway	Less than 50 feet of well and less than 100 feet from stream, pond, or drainageway	
2. Livestock water source	Stock water in troughs, with overflow diverted to wastewater system	Stock water in troughs with overflow diverted from lot area. Stock excluded from streams or ditches.	Live water fenced, with stock water provided in water gap.	Stock water provided by live stream or irrigation ditch.	
3. Surface water diversion	All upslope and roof water diverted. Diversion and gutters well maintained.	Most upslope surface and roof water diverted. Diversions and gutters occasionally maintained.	No surface water diverted. Some roof water collected and redirected. Gutters and diversions not maintained.	All water (surface and roof water) runs through the yard.	
4. Lot runoff control system	No yard runoff. Fully covered area or runoff from surfaced lot directed to waste storage facility.	All runoff collected from compacted, earthen lot. Solids mounded and collected or stored.	Most of lot runoff diverted to filter strip and collected. Some solids removed.	Lot runoff uncontrolled. Solids rarely collected.	
5. Yard cleaning and scraping	No yard (animals confined)	Every month or two lot smoothed, leveled, and regularly shaped.	Quarterly. Lot rough and irregular in shape.	Rarely. Lot poorly sited and developed for cleaning and scraping.	
6. Dairy cow concentration on yard	No yard. Confined to barn, roofed yard or pasture.	75 sf/a or more on fenced, curbed concrete pad and/or 400 sf/a on graded earthen surface. More than 1800 sf/a in exercise area.	50 sf/a or more on concrete pad and/or 200-300 sf/a on earthen surface. More than 1200 sf/a in exercise area.	Some concrete, less than 50 sf/a and less than 200 sf/a on earthen surface.	
7. Dairy replacements concentration	No yard. Confined to barn, roofed yard, or pasture.	More than 40 sf/a on fenced, curbed concrete pad and/or more than 150 sf/a on earthen yard.	40-20 sf/a on concrete and/or 75-150 sf/a on earthen surface.	Less than 75 sf/a on earth.	
8. Beef feeder concentrations	No yard. Confined to barn.	Barn and/or paved lot more than 50 sf/a. Earthen lot with mound more than 300 sf/a, or without mound more than 500 sf/a.	No shelter. Paved lot with 30-50 sf/a. Earthen lot with mound 150-300 sf/a or earthen without mound 250-500 sf/a.	Paved less than 30 sf/a. Earthen less than 250 sf/a.	
9. Beef cows/heifers concentrations	Barn, roofed yard, or pasture.	Barn with paved lot more than 60 sf/a. Earthen with mound 400 sf/a or without mound 600 sf/a.	Paved lot more than 30 sf/a. Earthen with mound 200-400 sf/a or without mound 300-600 sf/a.	Paved less than 30 sf/a. Earthen without mound less than 200 sf/a.	
10. Sheep/ewes concentrations	No yard. Confined to barn, roofed yard, or pasture.	Barn and paved lot more than 20 sf/a. Earthen more than 40 sf/a.	Barn and paved lot 15-20 sf/a. Earthen 25-40 sf/a.	Barn and paved lot less than 15 sf/a. Earthen less than 25 sf/a.	
11. Feeder lambs concentrations	No yard. Confined to barn, roofed yard, or pasture.	Barn and paved lot more than 10 sf/a. Earthen more than 25 sf/a.	Barn and paved lot 5-10 sf/a. Earthen 10-25 sf/a.	Barn and paved lot less than 5 sf/a. Earthen less than 10 sf/a.	
12. Hogs/sows Concentrations	No yard. Confined to barn.	Shed and paved lot more than 30 sf/a.	Shed and earthen lot more than 10 sf/a	Shed and earthen lot less than 10 sf/a.	
13. Horses concentrations	No yard. Confined to barn, roofed yard, or pasture.	Earthen exercise lot more than 2,500 sf/a.	Earthen exercise lot 1,000-2,500 sf/a.	Earthen exercise lot less than 1,000 sf/a	
14. Poultry concentrations	No lot. In building.	N/A	Earthen lot of more than 4 sf/a.	Earthen lot of less than 4 sf/a.	
Livestock Confinement Area Rating		Accumulative Score (Sum of above rating items)			0
		Average Score (Accumulative/no. items rated)			

Ratings: 3.6-4=Low risk, 2.6-3.6=Low to moderate risk, 1.6-2.5=Moderate tohigh risk, 1-1.5=High Risk

Table 5 Petroleum Product Storage Worksheet

Ground & Surface Water Contaminants - Petroleum Product Storage					
Farm:					
Rating Item	**Low Risk 4 Points**	**Low-Moderate Risk 3 Points**	**Mod-High Risk 2 Points**	**High Risk 1 Point**	**Score**
1. Tank installation	Installed by licensed installer.	Installed according to dealer recommendations.	No information on installation.	Installed without backfill, setbacks, secondary confinement, anchors, and other protections.	
2. Storage tank container location	Located over 300 feet from well and over 500 feet from stream, pond, or drainageway	Located between 150-300 feet from well and between 200-500 feet from nearest surface water.	Located between 100-150 feet from well and from 100-200 feet of nearest surface water.	Located less than 100 feet from well and less than 100 feet of nearest surface water.	
3. Type and age of tank/corrosion protection	Underground synthetic tank or tank protected from rust by cathodic protection. Above ground steel tank properly coated, installed, and vented.	Underground steel tank less than 15 years old, coated with paint or asphalt. Above ground steel tank not properly painted, but properly installed and vented.	Underground coated steel tank 15 or more years old or bare steel tank less than 15 years old. Above ground steel tank not properly painted, installed and vented.	Underground, bare steel tank 15 or more years old.	
4. Spill and tank overfill protection	Filling of equipment is done on impermeable catch basin plus automatic shutoff. Above ground tanks located on impermeable pad with dike areas holding more than 125% of tank volume.	Filling of equipment is done on impermeable catch basin plus overfill alarm. Above ground tanks located on low permeability soils with 125% secondary containment.	Filing of equipment done on low permeability soils or concrete pad without catch basin. Above ground tanks on low permeability soils or concrete pad with 100% secondary containment.	No protection or secondary containment.	
5. Monitoring and maintenance	Accurate records are maintained on all fuel use. Tanks and fueling equipment are monitored monthly for leaks.	Records are maintained on all fuel use. Tanks and fueling equipment are occasionally monitored for leaks.	Occasional inventory control and tanks and fueling equipment tested annually for leaks.	No inventory control, testing or monitoring.	
6. Abandoned tanks	Tanks removed from property as soon as no longer in use.	Tanks cleaned, capped, and secured within one year of abandonment.	Tanks cleaned, not secured after more than one year of abandonment.	No actions taken.	
Petroleum Storage Rating		Accumulative Score (Sum of above rating items)			0
		Average Score (Accumulative/ 6)			0

Ratings: 3.6-4=Low risk, 2.6-3.6=Low to moderate risk, 1.6-2.5=Moderate to high risk, 1-1.5=High Risk

Table 6 Sediment and Turbidity Worksheet

Surface Water Contaminants -Sediment & Turbidity					
Farm:					
Rating Item	**Low Risk 4 Points**	**Low-Moderate Risk 3 Points**	**Mod-High Risk 2 Points**	**High Risk 1 Point**	**Score**
Part A. Observations of Water Body (If no runoff to ditch, stream, wetland or pond proceed to Part B)					
1. Turbidity of water body	• What's expected for near pristine conditions • Clear or very slightly muddy after storm • Object visible at depths greater than 3 to 6 ft.	• What's expected for properly managed agricultural watersheds • Little muddy after storms but clear rapidly • Objects visible at depth between 1.5 to 3 ft.	• Considerable increase in turbidity for area • Considerable muddiness after storm and stays muddy most of the time. • Objects visible to depth of 0.5 to 1.5 ft.	• Significant increase in turbidity for area • Very muddy-suspended sediment most of time • Objects visible to depths less than 0.5 ft.	
2. Bank Stability	• Banks stable • Banks are low (at elevation of active flood plain) • 33% or more of eroding surface area of banks in outside bends protected by roots that extend below base flow elevation.	• Moderately stable • Banks are low (at elevation of active flood plain) • Less than 33% of eroding surface area of banks in outside bends protected by roots that extend below base flow elevation.	• Moderately unstable • Banks may be low but typically high • Outside banks are actively eroding	• Unstable. • Banks may be low but typically high • Some straight reach and inside edges of bends are eroding as well as outside bends.	
3. Embeddedness & Sedimentation	• Gravel, cobble and boulder particles are 0-20% surrounded by fine sediment • Pools essential sediment free	• Gravel, cobble and boulder particles are 20-30% surrounded by fine sediment • Pools with light dusting of sediment	• Gravel, cobble, and boulder particles are 30-40% surrounded by fine sediment • Pools with heavy coating of sediment	• Gravel, cobble, and boulder particles are more than 40% surrounded by fine sediment. • Few if any deep pools present.	
Part A. Sediment & Turbidity Rating for Water Bodies			**Accumulative Score (Sum of above rating items)**		0
			Average Score (Accumulative/3)		0
Part B. Observation of Farm Fields					
4. Erosion Potential	• Not significant • Less than T • No signs of gullies or concentrated flow erosion • All RMS level conservation practices installed to control erosion & sediment delivery • Practices well managed	• Some erosion evident • About T • Very few gullies • Most (80%) needed conservation practices installed • Good management	• Moderate erosion • T to 2 T • Gullies or furrows from storm events obvious • Only about 50% of necessary practices are installed • Management only fair •	• Heavy erosion • More than 2T • Many gullies or furrows • Few, if any, conservation practices to control erosion and sediment delivery are installed • Management poor	
5. Runoff Potential	• Low • Soil surface loss potential1 low • Slope less than 1% • All RMS to control surface and irrigation runoff installed • Excellent management	• Moderate • Soil surface loss potential1 is low to moderate • Slopes between 1%-3% • Most (80%) needed conservation practices installed • Good management	• Considerable • Soil surface loss potential1 is moderate to high • Slopes between 3%-5% • Only about 50% of necessary practices are installed • Management only fair	• High • Soil surface loss potential1 is high • Slopes greater than 5% • Few, if any, conservation practices to control surface and irrigation runoff are installed • Management poor	
6. Sediment Transport & Delivery	• Buffers & filter strips installed separating fields from water body by over 150 ft. • All water & sediment control basins practices needed are installed • Practices well managed	• Buffers & filter strips installed separating fields from water body by 75-150 ft. • Most water & sediment control basins needed are installed • Good management	• Buffers & filter strips installed separating fields from water body by 35-75 ft. • Few water & sediment control basins needed are installed • Management only fair	• Buffers & filter strips installed separating fields from water body by less than 35 ft. • No water & sediment control basins needed are installed • Management poor	
Part B. Sediment & Turbidity Rating			**Accumulative Score (Sum of above rating items)**		0
			Average Score (Accumulative/3)		0

Ratings: 3.6-4=Low risk, 2.6-3.6=Low to moderate risk, 1.6-2.5=Moderate to high risk, 1-1.5=High Risk

APPENDIX B
WA version of NRCS Water Quality Indicators Guide: Surface Water Field Sheets

FIELD SHEET 1B: ANIMAL WASTE INDICATORS FOR CROPLAND, HAYLAND OR PASTURE

Evaluator		**County/State**		**Date**	
Field Evaluated		**Field Location**		**Total Score/Rank**	

Rating Item	Excellent	Good	Fair	Poor
1. Erosion Potential	• Not Significant. • Less than T (tolerance; little sheet, rill, or furrow erosion. • No gullies or ephemeral erosion. • **OTHER**	• Some erosion evident • About T; some sheet, rill, or furrow erosion • Very few gullies or ephemeral erosion • **OTHER**	• Moderate erosion • T-2T • Gullies, ephemeral erosion, or furrows from heavy events obvious • **OTHER**	• Heavy erosion • More than 2T • Many gullies, ephemeral erosion, furrows & presence of critical erosion areas • **OTHER**
	10 ☐	**7** ☐	**3** ☐	**0** ☐
2. Runoff Potential	Low: • Very flat to flat terrain (0-0.5% slope). • Runoff curve number (RCN) 61-70 • Dry, low rainfall (less than 20") • Even, gentle impact (scattered shower-type) rainfall • **OTHER**	Moderate: • Flat to gently sloping (0.5-2.0% slope) • RCN 71-80 • Semi-dry (20-30") • Even, gentle to moderate intensity rainfall. • **OTHER**	Considerable: • Gently to moderately sloping (2.0-5.0% slope). • RCN 81-90 • Semi-wet (30-40"). • Even to uneven intense rainfall. • **OTHER**	High: • Moderately sloping to steep terrain (greater than 5%). • RCN greater than 90 • Wet (more than 40"). • Intense uneven rainfall, especially in seasons when soil is exposed. • **OTHER**
	10 ☐	**8** ☐	**4** ☐	**0** ☐
3. Filtering effect or sedimentation potential of a vegetated buffer or water/sediment collecting basin	• Intervening vegetation between cropland & watercourse greater than 200 ft. • Type of intervening vegetation ungrazed woodland, brush, or herbaceous plants. • Water & sediment control basins properly installed & maintained. • **OTHER**	• Intervening vegetation between cropland & watercourse between 100 to 200 ft. • Type of intervening vegetation grazed woodland, brush, or herbaceous plants or range. • Water & sediment control basins properly installed but poorly maintained. • OTHER	• Intervening vegetation between cropland & watercourse between 50 to 100 ft. • Type of intervening vegetation high density cropland • Water & sediment control basins poorly installed & poorly maintained. • **OTHER**	• Cropping from less than 50 ft. up to water's edge • Type of intervening vegetation low density cropland or bare soil • No water or sediment control basins. • **OTHER**
	8 ☐	**6** ☐	**4** ☐	**2** ☐

4. Resource Management Systems (RMS) on whole farm (combined value for all agricultural areas)	• Excellent management. • RMS treatments always used as needed • **OTHER**	• Good management • Most (80%) of the needed RMS treatments installed • **OTHER**	• Fair management • About 50% of the needed RMS treatments installed • Cropping confined to proper land class • **OTHER**	• Poor management • Few, if any, needed RMS level treatments installed • Cropping not confined to proper classes • **OTHER**
	9 ☐	**7** ☐	**3** ☐	**0** ☐
5. Potential for ground water contamination	Low:	Moderate:	Considerable:	High:
	• Soils rich to very rich in organic matter (greater than 3.0%). • Slow to very slow percolation in light textured soils such as clays, silty or sandy clays, or silty clay loams • Perched water table present. • In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is greater than 150 ft. • In shallow bedrock areas (25-50 ft. soil & shale cap), well depth greater than 200 ft. • In Karst areas, well depth is greater than 1,000 ft., if aquifer is "confined" • **OTHER**	• Soils rich to moderate in organic matter (3.0-1.5%). • Slow to moderate percolation in clay loams or silts • Perched water table present. • In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 100-149 ft. • In shallow bedrock areas, well depth is 50-199 ft. • In Karst areas, well depth is 500-999 ft. • **OTHER**	• Soils moderate to low in organic matter (1.5-0.5%). • Moderate to rapid percolation in silty loams, loams, or silts. • In protected bedrock areas, well depth is 15-29 ft. • In shallow bedrock areas, well depth is 25-49 ft. • In Karst areas, well depth is 100-499 ft. • **OTHER**	• Soils low to very low in organic matter (less than o.5%). • Rapid percolation in coarse textured loamy sands or sands • In protected bedrock areas, well depth is less than 15 ft. • In shallow bedrock areas, well depth is less than 25 ft. • In Karst areas, well depth is less than 100 ft. • **OTHER**
	9 ☐	**6** ☐	**4** ☐	**0** ☐
1. Add the circled Rating Item scores to get a total for the field sheet			**TOTAL**	**[ ]**

2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 40. Check "good" if the score falls between 26 and 39, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor", recommend practices to help remedy the conditions.

RANKING	**Excellent (40-46)[ ]**	**Good (26-39) [ ]**	**Fair (10-25) [ ]**	**Poor (9 or less) [ ]**

FIELD SHEET 2B$_1$: ANIMAL WASTE INDICATORS FOR PASTURE OR RANGE ANIMALS

Evaluator		County/State		Date	
Field Evaluated		Field Location		Total Score/Rank	

Rating Item	Excellent	Good	Fair	Poor
1. Runoff Potential	Low: • Runoff curve number (RCN) 61-70 • Very flat to flat terrain (0-0.5% slope). • Dry, low rainfall (less than 20") with rainfall erosivity (R) less than 50. • Even, gentle impact (scattered shower-type) rainfall • **OTHER**	Moderate: • RCN 71-80 • Flat to gently sloping (0.5-2.0% slope) • Semi-dry (20-30") with R 50 to 100 • Even, gentle to moderate intensity rainfall. • **OTHER**	Considerable: • RCN 81-90 • Gently to moderately sloping (2.0-5.0% slope). • Semi-wet (30-40") with R 100-200. • Even to uneven intense rainfall. • **OTHER**	High: • RCN greater than 90 • Moderately sloping to steep terrain (greater than 5%). • Wet (more than 40" rain) with R greater than 200. • Intense uneven rainfall in seasons when soil is exposed. • **OTHER**
	10 ☐	**8** ☐	**4** ☐	**0** ☐
2. Ungrazed buffer zone	• Pasture or range with a strip of intervening vegetation greater than 200 ft. • **OTHER**	• Pasture or range with 50 to 200 ft. strip of intervening vegetation. • **OTHER**	• Pasture or range with 10 to 50 ft. of intervening vegetation. • **OTHER**	• Pasture or range in close proximity to end or adjacent to water course. • **OTHER**
	9 ☐	**7** ☐	**3** ☐	**2** ☐
3. Rate of Waste Decomposition	• Rapid decomposition of waste due to hot, sunny climate • **OTHER**	• Moderate to rapid decomposition due to warm sunny climate. • **OTHER**	• Slow to moderate decomposition due to cooler, more overcast climate. • **OTHER**	• Slow decomposition due to cold climate with little direct solar radiation. • **OTHER**
	9 ☐	**7** ☐	**3** ☐	**2** ☐
4. Pasture or Range Management	Excellent: • 90% cover • Proper grazing. • Animal numbers within the carrying capacity of vegetation. • No fertilization or pH adjustment and application of recommended amounts of fertilizer for maximum forage utilization based on soil tests. • **OTHER**	Good: • 70-90% cover. • Occasional bare areas. • Animals exceed carrying capacity only 1 or 2 times per year. • No fertilization or recommended amounts for maximum forage utilization. • **OTHER**	Fair: • 50-70% cover. • Some bare spots • Animals exceed carrying capacity over 25% of the year. • Fertilization at greater than recommended amounts for forage utilization. • **OTHER**	Poor: • 50% or less cover • Numerous bare spots. • Animal numbers exceed carrying capacity 100% of year. • Significant over-application of animal waste or commercial fertilizer close to water's edge. • **OTHER**
	9 ☐	**6** ☐	**3** ☐	**0** ☐

FIELD SHEET 2B$_1$: ANIMAL WASTE INDICATORS FOR PASTURE OR RANGE ANIMALS

5. Potential for ground water contamination	Low:	Moderate:	Considerable:	High:
	• Soils rich to very rich in organic matter (greater than 3.0%). • Slow to very slow percolation in light textured soils such as clays, silty or sandy clays, or silty clay loams • Perched water table present. • In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is greater than 150 ft. • In shallow bedrock areas (25-50 ft. soil & shale cap), well depth greater than 200 ft. • **OTHER**	• Soils rich to moderate in organic matter (3.0-1.5%). • Slow to moderate percolation in clay loams or silts • Perched water table present. • In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 100-149 ft. • In shallow bedrock areas, well depth is 50-199 ft. • **OTHER**	• Soils moderate to low in organic matter (1.5-0.5%). • Moderate to rapid percolation in silty loams, loams, or silts. • In protected bedrock areas, well depth is 15-29 ft. • In shallow bedrock areas, well depth is 25-49 ft. • **OTHER**	• Soils low to very low in organic matter (less than o.5%). • Rapid percolation in coarse textured loamy sands or sands • In protected bedrock areas, well depth is less than 15 ft. • In shallow bedrock areas, well depth is less than 25 ft. • **OTHER**
	9 [ ]	**6** [ ]	**4** [ ]	**0** [ ]
1. Add the circled Rating Item scores to get a total for the field sheet			**TOTAL**	**[ ]**
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 40. Check "good" if the score falls between 26 and 39, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor", recommend practices to help remedy the conditions.				
RANKING	**Excellent (40-46)[ ]**	**Good (26-39) [ ]**	**Fair (10-25) [ ]**	**Poor (9 or less) [ ]**

Animal Waste **FIELD SHEET 2B$_2$: ANIMAL WASTE INDICATORS FOR TOTALLY OR PARTIALLY CONFINED ANIMALS**

Evaluator		County/State		Date	
Field Evaluated		Field Location		Total Score/Rank	

Rating Item	Excellent	Good	Fair	Poor
1. Runoff Potential	Low: • Runoff curve number (RCN) 61-70 • Very flat to flat terrain (0-0.5% slope). • Dry, low rainfall (less than 20") with rainfall erosivity (R) less than 50. • Even, gentle impact (scattered shower-type) rainfall • **OTHER**	Moderate: • RCN 71-80 • Flat to gently sloping (0.5-2.0% slope) • Semi-dry (20-30") with R 50 to 100 • Even, gentle to moderate intensity rainfall. • **OTHER**	Considerable: • RCN 81-90 • Gently to moderately sloping (2.0-5.0% slope). • Semi-wet (30-40") with R 100-200. • Even to uneven intense rainfall. • **OTHER**	High: • RCN greater than 90 • Moderately sloping to steep terrain (greater than 5%). • Wet (more than 40" rain) with R greater than 200. • Intense uneven rainfall in seasons when soil is exposed. • **OTHER**
	10 ☐	**8** ☐	**4** ☐	**0** ☐
2. Animal waste yield to water body; proportion of waste to leave the site	• Site is 600 ft. from water body with intervening vegetation. • Rapid decomposition of waste due to hot, sunny climate • **OTHER**	• Site is between 200-500 ft. from water with intervening vegetation. • Moderate to rapid decomposition due to warm sunny climate. • **OTHER**	• Site 200 ft. from water. • Slow to moderate decomposition due to cooler, more overcast climate. • **OTHER**	• Site is on bank of water body; or in close proximity to it. • Slow decomposition due to cold climate with little direct solar radiation. • **OTHER**
	10 ☐	**8** ☐	**4** ☐	**2** ☐
3. Animal access to water	• None to very little. Watering areas located far from naturally occurring water bodies. • **OTHER**	• Very limited. Watering away from stream or pond. Stream used only as access path. • **OTHER**	• Access limited to watering • **OTHER**	• Unlimited access for both watering and cooling. • **OTHER**
	9 ☐	**7** ☐	**3** ☐	**0** ☐
4. Runoff management	Excellent management: • Runoff is completely diverted away from concentrated waste. RMS treatments used as needed, such as surface water diversion, including guttering • **OTHER**	Good management: • A good portion of clean runoff is diverted from waste. Runoff from feedlot, barns, etc. is diverted to holding pond. • **OTHER**	Fair management: • Only a partial runoff management system. Evidence of contaminated runoff going directly to streams or ponds. • **OTHER**	Poor management: • Little or no runoff management. Natural runoff removes most of the waste or little to no management of lagoons results in recurrent overflows. Evidence of lagoon overflows, manure-caked flow paths, etc. • **OTHER**
	10 ☐	**7** ☐	**3** ☐	**0** ☐

5. Waste handling and utilization practices	Excellent management always with: • Established collection schedule. • Application at proper rates & times. • Control of odor & pests. • Regular sampling & record keeping. • More than sufficient acreage for waste utilization. • **OTHER**	Good management most of the time (80%) with some of the following: • Established collection schedule. • Application at proper rates & times. • Control of odor & pests. • Sufficient acreage for waste utilization. • **OTHER**	Haphazard management common: • Collection random • Applies waste anytime even before predicted rainfall. • Odor and pests as occasional problems. • Insufficient acreage for waste utilization. • **OTHER**	No or little management: • A real mess most of the time. • Continual odor and waste accumulation problems. • **OTHER**
	10 ☐	**8** ☐	**4** ☐	**0** ☐
6. Potential for ground water contamination	Low: • Soils rich to very rich in organic matter (greater than 3.0%). • Slow to very slow percolation in light textured soils such as clays, silty or sandy clays, or silty clay loams • Perched water table present. • In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is greater than 150 ft. • In shallow bedrock areas (25-50 ft. soil & shale cap), well depth greater than 200 ft. • **OTHER**	Moderate: • Soils rich to moderate in organic matter (3.0-1.5%). • Slow to moderate percolation in clay loams or silts • Perched water table present. • In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 100-149 ft. • In shallow bedrock areas, well depth is 50-199 ft. • **OTHER**	Considerable: • Soils moderate to low in organic matter (1.5-0.5%). • Moderate to rapid percolation in silty loams, loams, or silts. • In protected bedrock areas, well depth is 15-29 ft. • In shallow bedrock areas, well depth is 25-49 ft. • **OTHER**	High: • Soils low to very low in organic matter (less than o.5%). • Rapid percolation in coarse textured loamy sands or sands • In protected bedrock areas, well depth is less than 15 ft. • In shallow bedrock areas, well depth is less than 25 ft. • **OTHER**
	9 ☐	**6** ☐	**4** ☐	**0** ☐
1. Add the circled Rating Item scores to get a total for the field sheet			**TOTAL**	**[ ]**
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 51. Check "good" if the score falls between 33 and 50, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor", recommend practices to help remedy the conditions.				
RANKING	**Excellent (51-58)[ ]**	**Good (33-50) [ ]**	**Fair (11-32) [ ]**	**Poor (10 or less) [ ]**