2532 - WATER QUALITY MANAGEMENT

2532.01 – Authorities

See FSM 2501 for authorities related to Water Quality Management.

In addition to the authorities listed in FSM 2501, Water Quality Management is guided by the following regulation:

Title 36, Code of Federal Regulations, section 219.8 (a)(4) (36 CFR 219.8 (a)(4)). The Land Management Planning regulation requires the Chief of the Forest Service to establish requirements for National Best Management Practices for water quality in the Forest Service Directive System.

2532.02 - Objective

The objective of Water Quality Management is to protect and improve the physical, chemical, biological, and aesthetic quality of the water resource, where needed. It is consistent with the purposes of the National forests and National water quality goals.NationalNational

The specific objectives of Water Quality Management are as follows:

1. To produce water of a quality suitable for the beneficial uses identified in the Land and Resource Management Planning Process (FSM 1920).

2. To ensure safe drinking water for public use on National forests, whether the source is a natural or developed water supply (FSM 7420). Observe the EPA water quality criteria where State standards do not exist.

3. To ensure safe water quality for designated primary contact recreation areas. Observe the EPA water quality criteria where State standards do not exist,.

2532.03 - Policy

1. Establish and apply the National Best Management Practices (BMPs) Program to all land and resource management activities. This will be the method of control for non-point sources of water pollution to achieve established Federal, State, Tribal, or local water quality goals.

2. Consider water quality needs of local, Regional, and National public interests both on and off the National forest to help determine appropriate water quality management activities.

3. Establish objectives to manage the quality of the water resource in land and resource management plans (FSM 1920).

4. Include a water quality evaluation for all environmental analyses (FSM 1950). Identify the water quality implications of proposed and alternative land management practices.

5. Evaluate the data collection activities of other agencies before undertaking additional water quality inventories or monitoring efforts.

6. Conduct water quality data collection activities within the guidelines of an inventory or monitoring plan approved by a Line Officer.

7. Specify the accuracy, precision, and threshold limits of detection for water quality analytical laboratories to utilize when measuring parameters or conducting tests.

8. All water quality testing laboratories owned or used by the Forest Service must be certified by the State and/or EPA for potable water (FSM 7420).

9. Use the Environmental Protection Agency's (EPA) Storage and Retrieval (STORET) system as the primary depository for stream and lake water quality data. Ensure all water quality data placed in the STORET system is (1) collected and analyzed by standardized methods and procedures or (2) entered with descriptive qualifiers which specify the method of collection or analysis.

10. Monitor all water provided for public domestic purposes and primary contact water sports to ensure public health and safety. Design monitoring systems consistent with applicable State or Federal regulations for the specific water use. Policies for monitoring potable water supplies are contained in FSM 7420.

2532.04 - Responsibility

See FSM 2504 and FSM 2530.4 for responsibilities regarding water quality management.

In addition to the water quality management responsibilities listed in FSM 2504 and FSM 2530.4, the following responsibilities apply to the National BMP Program:

2532.04a – Washington Office, Director, Watershed, Fish, Wildlife, Air and Rare Plants (WFWARP) staff

The Director has the responsibility to:

1. Establish and maintain the National Core BMPs (http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf) for water quality management.

a. Review the National Core BMPs at least every 5 years

b. Update the National Core BMPs as necessary.

c. Coordinate with internal and external stakeholders and partners.

2. Establish and maintain the National Core BMP monitoring protocols

a. Review the National Core BMP monitoring protocols at least every 5 years.

b. Update the National Core BMP monitoring protocols as necessary.

c. Coordinate with internal and external stakeholders and partners.

3. Establish and maintain the National BMP data management system within the corporate data management structure.

4. Establish and manage a process to evaluate the National BMP Program, including appropriate performance targets to monitor implementation and effectiveness, corresponding data management, and modify the program as needed.

a. Determine the National reporting period to evaluate and report National BMP monitoring results.

b. Complete an evaluation of the National BMP monitoring results every established reporting period and develop a standardized monitoring report.

2532.04b - Washington Office, Director, Environmental Sciences Research staff

The Director has the responsibility to establish a program within Research and Development (R&D) to identify new BMPs, new or improved ways to monitor BMPs, and to evaluate and validate existing BMPs, in cooperation with the WFWARP Director.

2532.04c - Regional Foresters

Regional Foresters have the responsibility to:

1. Implement a sound and consistent program for water quality management practices and monitor procedures on each National forest and grassland to achieve water quality goals.

2. Coordinate Regional implementation of the National BMP Program.

a. Establish and maintain the Regional supplement to the National Core BMPs, as needed.

1) Review the Regional supplement at least every 5 years to remain current with best available science and BMP monitoring results, and adjust existing BMPs or develop new BMPs where improvements are needed.

2) Update the Regional supplement as necessary.

b. Provide training to Regional office and forest or grassland employees on Regional implementation of the National BMP Program.

c. Assign performance targets to administrative units to monitor National BMP Program implementation and effectiveness and corresponding data management.

d. Provide consistent a regular report of the BMP implementation and effectiveness monitoring data via the National database.

e. Use the National Core BMP monitoring results to help assess the water quality management goal attainment in the Region. Identify and implement program changes in the Region, as needed.

3. Coordinate with the appropriate Federal, State, Tribal, and local agencies involved in BMPs, water quality regulation, management of water-related beneficial uses, and watershed management. Develop interagency agreements as needed.

2532.04d Station Directors

Station Directors have the responsibility to:

1. Incorporate sound and consistent water quality management practices and monitoring procedures at facilities and research sites managed and maintained by R&D. This includes research sites such as natural areas and experimental forests, to achieve water quality goals.

2. Implement the National BMP Program for research activities conducted or approved by R&D.

    a. Identify or develop site-specific BMP prescriptions consistent with the National Core BMPs (http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf) for water quality protection and improvement in research activities, project planning and implementation.

b. Monitor the implementation and effectiveness of BMPs using the National Core BMP monitoring protocols.

c. Report results of BMP implementation and effectiveness monitoring in the National BMP data management system.

2532.04e Forest and Grassland Supervisors

Forest and Grassland Supervisors have the responsibility to:

1. Incorporate water quality management practices and procedures, including the National BMP Program, into land and resource management activities on the forest or grassland.

   a. Include plan components that implement BMPs at the time of development or revision of land management plans (36 CFR 219.8 (a)(4)).

   b. Identify or develop site-specific BMP prescriptions consistent with the National Core BMPs (http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf) for water quality management in land and resource management activities and project planning and implementation. Use applicable State, Tribal and local BMPs, Forest Service Regional guidance and land management plans, and other organization guidance to develop appropriate site-specific prescriptions tailored to local conditions and water quality goals.

   c. Monitor the implementation and effectiveness of BMPs using National Core BMP monitoring protocols.

   d. Report monitoring results of BMP implementation and effectiveness in the National BMP data management system.

2. Evaluate the attainment of water quality management goals through formal and informal reviews of project plans, monitoring, and reports using the National Core BMP monitoring protocols.

   a. Implement changes in land and resource management activities through the use of established procedures where applicable.

   b. Adjust local BMPs as needed.

3. Establish a process for the identification, implementation, and tracking of corrective action(s) where water quality problems associated with land and resource management activities are identified.

4. Make BMP and water quality management training available for forest or grassland personnel.

5. In cooperation with the Regional office, coordinate with appropriate Federal, State, Tribal and local agencies involved in water quality regulation, management of water-related beneficial uses, watershed management, and BMPs.

2532.04f District Rangers

The District Rangers have the responsibility to:

1. Design, apply, and document site-specific BMP prescriptions consistent with the National Core BMPs (http://www.fs.fed.us/biology/resources/ pubs/watershed/FS_ National_Core_BMPs_April2012.pdf) for water quality protection and improvement in plans, implementation, and administration of land and resource management activities on the district.

2. Participate in project-level reviews of implementation and effectiveness monitoring.

3. Take corrective actions for identified water quality or BMP problems associated with land and resource management activities. Use established procedures to address the issues as soon as practical.

2532.05 - Definitions

1. Best Management Practices for Water Quality (BMPs). Methods, measures, or practices selected by an agency to meet its nonpoint source control needs. BMPs include, but are not limited to, structural and nonstructural controls, operations, and maintenance procedures. BMPs can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants to receiving waters (36 CFR 219.19).

2. National Core BMPs. The Nationally standardized set of BMPs for the broad range of activities that occur on National Forest System lands as specified in the National Core BMP Technical Guide (http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_ BMPs_April2012.pdf).

3. National Core BMP Monitoring Protocols. The Nationally standardized set of procedures for monitoring the implementation and effectiveness of the National Core BMPs as specified in the National Core BMP Monitoring Technical Guide.

4. Reporting period. The period of time, not to exceed three years, determined by the WO Director of Watershed, Fish, Wildlife, Air, and Rare Plants as the base monitoring period in which a valid set of BMP monitoring data will be collected and reported at the National scale.

5. Water Quality. The physical, chemical, radiological, and biological (including microbiological), characteristics of the water resource.

6. Water Quality Inventory. The characterization of the quality of a water resource (FSM 2531.11).

7. Water Quality Monitoring. The systematic evaluation of water quality specifically designed to answer management questions relative to management goals, objectives, or targets.

8. Water Quality Sampling. The collection of water quality data using accepted statistical techniques.

2532.06 - References

USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide. Washington, DC: USDA Forest Service. (http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf)

2532.1 - Water Quality Inventory

Inventory water quality on all National Forest System lands, as needed, to manage all National forest resources. Inventory water quality characteristics when land and resource management plans are being developed. Develop statistical sampling design based on the analysis procedures that provide the desired water quality interpretations.

Display the results of inventories and characterize water quality using maps, data-bases, or other appropriate documentation. Inventories should be analyzed and interpreted to help establish management objectives. Water quality inventories must provide specific information sufficient to address issues and concerns identified in land and resource planning and management activities (see FSM 2531.1).

2532.2 - Analysis and Interpretation of Water Quality Data

Analyze and interpret water quality inventory data to predict the effect of proposed land management practices on present and future water quality. Use this information, along with watershed condition and other soil and water resource data, to develop improved design of management practices, provide a comparison of outputs under alternative management practices, and establish a basis for use in defining water resource management objectives. The analysis must be rigorous enough to make definitive statements related to the anticipated water quality response. Apply a risk analysis to selected alternatives similar to that discussed in chapter 10, FSH 2509.15.

2532.3 - Water Quality Standards

Each State is required to review its water quality standards at least once every 3 years and revise them as necessary. Participate in review of State standards and work toward change where consideration is not given to the following factors:

1. Standards should reflect National as well as local water quality objectives, be related to beneficial uses, and recognize natural background and variability.

2. The National BMP Program should normally comply with water quality standards. Practices should be based upon site-specific conditions, including consideration of social, economic, and technical feasibility.

3. Water quality standards that reflect nonpoint source conditions should be used to measure the effectiveness of best management practices.

4. Certain water quality concerns should be given consideration for evaluation, such as sediment, by observing a surrogate such as channel condition.

5. Antidegradation policy should include a consideration of both time and space and should not be based on change at a single point.

2532.4 – National BMP Program

The National BMP Program is a nationally standardized adaptive management approach for water quality management consistent with the Federal Clean Water Act (CWA), State, and Tribal water quality programs. This approach incorporates BMP use, BMP implementation, effectiveness monitoring, and corresponding management adjustments to achieve and document nonpoint source pollution control and water quality protection. The National BMP Program is intended to complement State and Tribal CWA programs; and improve CWA compliance and water quality stewardship on National Forest System (NFS) lands.

The National BMP Program , as specified in the National BMP Program Handbook (FSH 2509.19), includes this directive, the Handbook, the National Core BMPs (http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf), the National

Core BMP monitoring protocols, and the corresponding data management system. Implementation of the program is required on all NFS lands.

The National Core BMPs do not supersede or replace existing and currently used Regional, State, Tribal, National forest or grassland BMPs; rather, the National Core BMPs are intended to provide a structure for Agency consistency, and accountability, during the implementation and monitoring of the National BMP Program. The National Core BMPs provide general, non-prescriptive direction for protecting water quality while carrying out land and resource management activities that commonly occur on all NFS lands. The National Core BMPs require the utilization of site-specific prescriptions to achieve water quality protection. State, Tribal, local BMPs, Forest Service Regional guidance, and land management plans provide more specific direction tailored to local conditions and water quality goals. This information should be used to develop site-specific BMP prescriptions to meet the objective of each National Core BMP, if applicable, along with BMP monitoring results, best available science, and professional judgment,

2532.5 - Water Quality Planning

Consider the quality of National forest water resources and establish goals and objectives for water quality management in the land and resource planning process (FSM 1920). Inventory and analyze the characteristics of the water resource to provide background information to determine water quality management goals and objectives.

When establishing water quality management objectives, consider:

1. The needs and concerns of non-National forest interests, as well as National forest users.

2. The long-term and short-term natural water quality characteristics.

3. The cumulative effects of pollution sources on and off National Forest System lands.

Emphasize preventive conservation practices in all water quality management programs. Tailor such practices to individual site characteristics. Include definition of practices, application of practices, and evaluation to ensure that prescriptions achieve water quality goals.

Coordinate Forest Service land management planning with water quality management planning by State and local agencies pursuant to Sections 208 of the Clean Water Act, as amended (FSM 2500).

2532.51 - Contingency Plans

Prepare a contingency plan for all Forest Management activities where an accidental discharge of toxic or hazardous material could result in pollution of surface or ground water (FSM 7443).

2532.6 - Water Quality Monitoring

Overall objective, policy, and direction for watershed and soil and water resource monitoring are in FSM 2525. Specific responsibilities are in FSM 2504.

Water quality monitoring is an evaluation of the success of meeting water quality goals, objectives, and targets identified in forest plans. The forest plan provides guidelines for establishing a monitoring program. Include criteria in these guidelines for identifying specific activities to monitor expected precision, accuracy, and reliability of results and for determining an appropriate balance between long-term and short-term monitoring. Consider utilizing surrogates for evaluation of water quality impacts. For example, evaluate channel condition in place of sediment sampling.

2532.61 - Plans of Operation

Water quality monitoring requires systematic sample design, data collection, analysis, and reporting processes. Design these systematic processes to meet monitoring requirements specified in the forest plan or Regional guide and establish them in an approved monitoring plan of operation prepared prior to start of monitoring activities (FSM 2525.1). The monitoring plan of operation must include:

1. Monitoring Objective. The objective for sampling or collecting data must be directly tied to identified management needs. Design sampling to answer specific questions. Collect only data identified as necessary in the plan.

2. Duration. Specify the total period of time for the monitoring activity. Consider short-term and long-term monitoring needs when establishing the total period of time.

3. Monitoring Location. Specify the location of or the criteria and process used to select the monitoring location. If the location is known, include a map of suitable scale that identifies the specific points at which monitoring activities are to be carried out.

4. Data Requirements. Provide list of data parameters to be collected.

5. Monitoring Frequency. State the sampling frequency for water quality parameters or data collection. Monitoring frequency, as determined by sampling design, must be sufficient to answer management question(s) to an appropriate level of accuracy and precision.

6. Procedures. Specify the field and analytical procedures used in carrying out the monitoring activities. Identify responsibilities for data collection, sampling techniques,

sampling equipment, and sample preservation and transportation requirements. Identify the type of analyses to be made, analytical standards and techniques, and location of laboratory facilities to be used.

7. Data Analysis and Interpretation. Outline procedures for data analysis, interpretation, and presentation. Analysis procedures must correlate closely with statistical sampling design. Interpretation should specify a given level of statistical confidence and probability of occurrence. Identify final storage facilities.

8. Reporting. Specify time requirements and recipients for reporting monitoring results.

9. Quality Control. Specify quality control procedures for sampling, sample analysis, and data analysis.

10. Monitoring Cost. Estimate cost to complete monitoring effort, including a final report.

2532.62 - Quality Control

Incorporate quality control procedures in all monitoring activities, including, but not limited to:

1. Sample equipment calibration, field instrument records, and flow measurement devices.

2. The selection of appropriate standardized methodologies used to sample, store, transport, and analyze samples.

3. The use of an interlaboratory quality control program that approaches EPA laboratory certification or equivalent quality assurances of on-Forest laboratory methods.

4. The establishment of a systematic data storage, retrieval, and analysis system.