High Conservation Value Forests 4.1-2

Public Drinking Water

Management Plan Framework

**High Conservation Value 4**: Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).

**HCVF 4.1 and 4.2 – Public Drinking Water Sources**

High Conservation Value Forests under 4.1 and 4.2 criteria are designated for providing a source of community drinking water and for protecting community drinking water supplies respectively. These areas were delineated using data suggested by the Department of Environmental Protection.

For surface water withdrawals it was suggested that Surface Water Protection Zones be considered. Due to its relative proximity and importance the Zone A ¼ mile buffer distance was used for all reservoir and stream public drinking water withdrawal points.

For ground water withdrawals it was suggested that wellhead protection Zones be considered. Zone 1 delineations based on site-specific source and aquifer characteristics were utilized for all public drinking water, ground water withdrawal points.

While High Conservation Value Forest boundaries have been identified, public drinking water sources will be considered at the larger watershed or aquifer level.

**Description of HCV Area and Location:**

Each High Conservation Value Forest management plan shall contain the location as well as a description of the delineated area including the reason it was selected, importance to the surrounding landscape, acreage, land use history, stand layer information and any other known plant and/or animal composition or information.
Management Objectives:

Recognizing the importance and need for water, the Conservation and Natural Resources Act states, "The Department of Conservation and Natural Resources shall have the power: to give to boroughs and other municipalities of this Commonwealth, upon such terms and subject to such restrictions and regulations as the Department may deem proper, the privilege of impounding water and drilling water wells upon any state forest, and of constructing, maintaining and operating lines of pipes upon and through state forests for the purpose of conveying water therefrom, wherever it shall be to the public interest so to do".

The management of municipal watersheds and groundwater sources is aimed at correcting past problems, such as the immediate removal of pollution sources and soil stabilization in problem areas, and at preventing future problems from arising. This is done by prohibiting possible pollution sources from becoming established, and by controlling the management of the other forest resources to prevent soil erosion and sedimentation.

The management of potential municipal watersheds and groundwater sources is aimed at the gradual removal of pollution sources, at prohibiting potential pollution sources from becoming established, and at controlling permanent physical development to avoid future erosion and sedimentation problems.

Management Recommendations (as specified in the State Forest Resource Management Plan):

Timber Harvesting in Municipal Watersheds

Timber management will be permitted on municipal watersheds, but with restrictions to protect water quality. Research has shown that removing trees through silvicultural practices can increase water yields of forested watersheds. For the present management period, the Bureau of Forestry does not plan to implement management activities specifically designed to increase water yield; however, this could be necessary in the future.

The following guidelines apply, in addition to all other water resources guidelines, when a proposed state forest timber sale is located upstream from a dam or impounding basin on a watershed that supplies water to a municipality, institution or others for domestic, industrial or recreational use:

A. A. When the stand analyses have been completed, the District Forester shall notify the proper authority by certified, return-receipt mail. The special precautions that will be taken by the Bureau of Forestry to protect the watershed during the logging operations, how the timber sale will affect the watershed, and a deadline for reply (at least 30 days), should be included in the notification. The District Forester shall send Regional Sanitarian a copy of the same information forwarded to a municipality,
institution or private user.

1. If no reply is received from authority by deadline date, the District Forester shall attempt to contact the authority by telephone or in person in order to ascertain reactions to the sale and request a letter confirming the same. If the letter of confirmation is not received from authority, the District Forester shall assume that the authority has no objections and proceed with the sale.

2. If the reply from authority offers no objections, the District Forester may proceed with the sale.

3. If reply from authority objects to the sale, the District Forester shall contact the authority to discuss the matter further in order to resolve the objection. If objection is resolved, the authority should confirm this in a letter to District Forester. If objection is not resolved, the District Forester shall forward his recommendation to the Silviculture Section who will notify the District Forester whether or not sale should be processed.

4. Copies of all letters to and from each authority should be submitted immediately by the District Forester to the Silviculture Section.

B. The sale proposal forwarded to the Silviculture Section shall include a report containing the following information:

1. The location and owner or lessee of each recreational area, dam or impounding basin and of the land immediately adjoining each dam or impounding basin provided the abandonment of same has been confirmed by owner’s or lessee’s letter to the District Forester.

2. The distance each dam, recreational area or impounding basin is located downstream from the nearest boundary of the proposed sale.

3. A list of special precautions that should be taken by the Bureau of Forestry to protect the recreational area, watershed or water supply and, if applicable, an explanation how the proposed timber sale will improve the watershed or water supply when, in the opinion of the District Forester, proposed timber sale will affect the watershed or water supply.

4. A statement describing how the proposed timber sale will affect the recreational area, watershed or water supply.

C. Upon receipt of the sale proposal from the District Forester, the Silviculture Section shall decide if the proposed sale area and watershed shall be inspected by the District Forester in conjunction with the watershed authority involved before approval is granted.

1. If the proposed sale is approved, the Silviculture Section will notify the District Forester to proceed with the sale.

2. If the proposed sale is not approved the Silviculture Section will notify the District Forester accordingly.
D. When the proposed timber sale is located on a watershed that does not supply water to a municipality, institution or others for domestic, industrial or recreational use, the word "none" shall be entered under total sale area opposite municipal watershed on Form FMT -5 or under area opposite watershed on Form FMT -4.

E. Timber management on municipality, institutional, and private watersheds must follow the same criteria that are required for logging on all watersheds, along with the following additional restrictions:

1. An approved metal gate should be installed at the entrance of a main haul road prior to logging operations to protect the road system from erosion caused by unauthorized vehicles.
2. Portable sawmill sites within a municipality, institutional, or private watershed must be located no closer than one mile to the intake or impounding reservoir.
3. Herbaceous cover must be established on all large disturbed areas such as portable sawmill sites, roads, log landings, and skid trails subject to erosion either prior to or as quickly as possible after sale termination to comply with the Silviculture Manual.

Oil, Gas, and Mineral Activities in Municipal Watersheds

Oil, gas, and mineral activities in municipal watersheds will be implemented in a manner that eliminates or minimizes impacts to water resources and protects municipal water sources. These activities must be reviewed independently for each resource to be extracted, for each watershed and for each location within the watershed. An Environmental Review must be completed for proposed oil, gas, and mineral activities in municipal watersheds. In addition to the standard 21 items, this review should consider circumstances such as mineral ownership (if minerals are reserved, we may not be able to prevent their extraction); benefits to be gained by the Commonwealth (e.g., land reclamation); or economic value of the resource (e.g., loss of gas because of migration); and the possible adverse effects on the watershed.

Refer to the Oil and Gas Lease as well as the Guidelines for Administering the Oil and Gas Lease for specific operating guidelines.

The extraction of oil, gas and minerals from within designated municipal watersheds located on State Forest lands may be permitted. However, this extraction must be reviewed on a site-specific and case-by-case basis.

Within the High Conservation Value Forest boundaries no gas management activities which result in earth disturbance will be permitted.

Actions:
Continue the policy of requiring a case-by-case review for the exploration or development activities on the surface of municipal watersheds. Whenever possible, the bureau should consider issuing a non-development lease for oil and gas exploration and production within municipal watersheds, which would allow for directional drilling from adjacent lands.

Recreation Development and Activities in Municipal Watersheds

Recreation management and activities will be implemented in a manner that eliminates or minimizes potential pollution and sedimentation threats. The following guidelines apply specifically to recreation-related management and activities in municipal watersheds:

A. Existing campsite leases must be inspected at each lease renewal by the local Sewage Enforcement Officer to ensure that the sanitary system complies with present Department of Environmental Protection regulations.

B. Under present Department of Environmental Protection regulations, recreational uses (such as swimming, fishing, camping and motor-boating) having the potential of discharging pollutants into a municipal water supply are permitted only where the water supply receives full treatment; (i.e., chemical addition, coagulation, filtration and disinfection).

C. New trailside shelters or structures will be prohibited.

D. Construction of recreation access roads through existing or potential municipal watersheds should be kept to a minimum.

E. Vehicular trails through both existing and potential watersheds must comply with the same standards of construction as in the Silviculture Manual with the exception that water bars will not be permitted and a more narrow right-of-way and running surface may be used.

F. No shallow water impoundments for wildlife will be constructed within existing and potential municipal watersheds where the water does not receive full treatment.

Guidelines for Groundwater Conservation and Protection

Wellhead Protection Area (WHPA)

A WHPA is defined as the surface and subsurface area surrounding a public water supply well, wellfield, spring or infiltration gallery through which contaminants are reasonably
likely to move toward and reach the water source. Chapter 109 currently establishes three zones of protection for wellhead protection areas:

1. Zone I is the immediate area surrounding the source, which may range from a radius of 100 to 400 feet depending on site-specific source and aquifer characteristics.
2. Zone II is a radius of one-half mile, unless a more detailed delineation is established to identify the surface area overlying the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery (capture zone for a well; note that this is not the same as the zone of influence).
3. Zone III is an area that contributes surface water or groundwater to Zone II that may be significant to protecting the well. Collectively, Zone II and Zone III constitute the contributing area of the well.

The figure below illustrates the concept of wellhead protection zones.

The Bureau of Forestry will cooperate with other local municipalities (water supplier) and agency experts (DEP, DCNR Topo-Geo, USGS) in efforts to implement the following guidelines for managing water wellhead protection zones:

**Zone I: 100-400 Foot Radius** *(High Conservation Value Forest Area 1 Delineation)*

1. Prohibit management activities or land uses having the potential to adversely impact the water quality or quantity. Examples include, but are not limited to
wastewater disposal, stormwater basins, parking lots, permanent structures, heavily traveled roads, etc.

2. Prohibit the storage, use, or disposal of potential contaminants, unless the chemical or material is used in the production or treatment of drinking water.

3. Prohibit the storage of liquid fossil fuels (except if used as an auxiliary power source for a public water supply system).

4. Timber sale and oil and gas access roads with heavy truck traffic, and public-use roads with heavy traffic should not be located in Zone I. Minor, less used skid trails and public-use roads could be permitted, depending on the particular site.

5. Cooperate with local municipalities and agency experts in efforts to develop specific protection guidelines for Zone I for specific wells.

6. Identify existing and potential sources of contamination.

7. Comply with all other guidelines for protecting water resources.

Zone II: One-half Mile Radius

1. Cooperate with local municipalities and agency experts in efforts to delineate (map) the one-half mile radius protection zone.

2. Cooperate with local municipalities and agency experts in efforts to develop specific protection guidelines for Zone II for specific wells.

3. Identify existing and potential sources of contamination.

4. Comply with all other guidelines for protecting water resources.

Zone III: Area Contributing Surface or Groundwater.

1. Cooperate with local municipalities and agency experts in efforts to delineate (map) Zone III.

2. Cooperate with local municipalities and agency experts in efforts to develop specific protection guidelines for Zone III for specific wells.

3. Identify existing and potential sources of contamination.

4. Comply with all other guidelines for protecting water resources.

Impacts to the Larger Forest Ecosystem

Except for wellhead protection zones, most of the water resources guidelines are aimed at protecting surface water. However, because most streamflow is derived from groundwater, management activities in groundwater recharge areas have implications for both surface and groundwater. Activities such as mining, oil and gas well drilling, and other surface activities that generate pollutants have the most potential to cause groundwater degradation. Plans for these activities should be evaluated carefully, and then closely monitored. Refer to the Oil and Gas Guidelines and Oil and Gas Lease for information on protecting groundwater during oil and gas drilling operations.

Groundwater resources will be managed as part of the larger hydrologic system. In addition to managing wellhead protection zones to protect the groundwater resource, the Bureau of Forestry is also concerned with potential negative impacts to the larger forest
ecosystem resulting from over-developing groundwater resources. When considering requests for drilling groundwater wells, the Bureau of Forestry will work with agency experts to assess the well’s potential impact to the surrounding forest ecosystem. Watersheds have varying tolerances to varying levels of groundwater development. The Bureau of Forestry will cooperate with agency experts to ensure that additional wells in certain watersheds will not adversely impact the water resources within that particular watershed. The Bureau of Forestry will work closely with local municipalities and agency experts to conduct thorough site assessments for individual water wells as well regional planning efforts considering local water needs and the available water supply.

Requests for Additional Water Withdrawals

Requests for additional surface or groundwater withdrawals will be critically reviewed according to DCNR’s Framework for Evaluating Water Withdrawals on DCNR Lands in Pennsylvania, 2009.

Monitoring:

Monitoring of public drinking water sources will be carried out in a number of different ways. Water Quality itself as it relates to potability and use is monitored by the municipalities in charge of processing the water for consumption and use. A coordinated relationship should be in place between individual forest districts and the municipality where information can be relayed in a timely manner.

Timeline

Although water quality and quantity monitoring is carried out by municipalities, an over arching monitoring timeline shall be laid out in an effort to intercept any issues which may affect the quality or quantity of water sources to be used for the purposes of drinking and home use.

Periodic evaluations should be conducted at intervals no less than once in a 5 year period incorporating at least 20% of the areas annually. Additional annual evaluations should be carried out in areas where current land altering type management is taking place. For areas with current management activities district involvement in maintaining the integrity of the water source involved should be carried out in a manner relative to its specific management activities in order to catch any possible threats to the source water.

Threat Evaluation
Any perceived threat to water quality or quantity should be evaluated and recorded. Types of threats may include but would not be limited to:

- Soil erosion issues
- Chemical spills
- Bacterial contamination
- Lack of vegetative stabilization
- Invasive species
- Adjacent land use

**Conclusions and Recommendations**

After a site evaluation has been conducted, the findings should be documented in a manner that outlines any potential threats or recommendations for improvement. These findings and recommendations should be forwarded to the district forester for further planning and action. Where applicable to the municipality, that information shall be forwarded to the appropriate contact for further planning and coordination.

**Map:**

For internal use only, an appropriate to scale map shall be provided for each watershed containing a public drinking water source and outlined High Conservation Value Forest. In instances where a threat has been documented or recommendations for improvement have been made these areas shall be identified and included on the map to be maintained with the specific HCVF management plan.