Flat Point Farm DRI
Water Resource Staff Notes
1 October 2009

As currently configured, the property includes 4 existing dwellings, livestock and hay storage buildings and an agricultural operation on 91.5 acres. The Farm is within the Tisbury Great Pond watershed that is a nitrogen impaired water body. The Commission's Water Quality Policy calls for a nitrogen limit of 0.8 kilograms per acre per year or 73.2 kilograms of nitrogen loading per year from the entire property.

The Water Quality Policy for DRIs allows development on properties where the nitrogen loading is over the limit for the property, provided there is no net increase in nitrogen loading. The policy doesn't provide guidance for the calculation of nitrogen loading from farms. MVC staff proposes the following methodology, which seems fair, which doesn't penalize farmers using good farming practices today, and which encourages better practices in the future.

Proposed Policy and Calculation Method for Agriculture.

Farming activities are considered a crucial component of the Vineyard while also being a potential source of significant nitrogen loading to fragile coastal waters.

1. Calculation of the Current Acceptable Agricultural Load, namely the agronomic farm crop nitrogen fertilization rates based on the following industry averages.

Corn	140 pounds/acre/year
Row crops other than corn	100 pounds/acre/year
Pasture/hay	40 pounds/acre/year
Legume pasture/hay	6.7 pounds/acre/year (based on 40 pounds applied in the re-seeding year, namely every 6 years)

   Animal nitrogen loading shall be based on a stocking rate of animal units/ acre as recommended by the Natural Resource Conservation Service for either conventional rotational grazing or for intensive grazing. A manure management plan prepared by NRCS may be required for larger operations.
2. The Current Acceptable Agricultural Load is "grandfathered" as the maximum allowed for farming operations on site. This number is used in determining the existing nitrogen loading when applying the policy prohibiting additional loading in nitrogen-impaired watersheds.
3. The actual farming practice treatments are evaluated to determine what the actual nitrogen application and loading are.
4. If the actual load exceeds the Current Acceptable Agricultural Load, the applicant must propose changes to farming practices or other techniques to bring the nitrogen loading down to that level. A farm plan prepared by the USDA Natural Resource Conservation Service may be required to identify appropriate farming practices.
5. If the actual is equal to or less than the acceptable, the farm operation is considered to meet the nitrogen load limits for the watershed.
6. Changes in the farming operation are acceptable as long as the total nitrogen load, including the Current Acceptable Agricultural Load, are not exceeded.
7. If the property owner commits to implement farming practices that would permanently reduce the nitrogen loading from farming, this reduction could be used to offset additional development in

order to meet the Water Quality Policy's requirement of no net increase in nitrogen loading in an impaired watershed.

Calculation for Flat Point Farm

Current Acceptable Load

- **Housing:** Nitrogen loading from the 4 residences is approximately 36.8 kilograms (81.1 #) per year. Note: This is on the high side as one of the residences is a small camp.
- **Farming:** The Current Acceptable Agricultural Load based on acceptable agronomic application rates for the crops grown are:
    - 50 acres of pasture/hay 18 kilograms (40 #) of actual nitrogen/ acre/year; 6 acres—Legume hay 18 kilograms /acre/per 6 years
    - 1 acre row crops—45 kilograms (100 #)/acre/year
  - Total acceptable nitrogen application is 963 kilograms (2123 #) per year from forage and row crops.
  - Agronomic loading potential to the groundwater would be 181 kilograms (399#) from forage crops, 11 kilograms from garden crops and 40 kilograms (88.2#) from animal droppings. The total potential agronomic load is 232.0 kilograms (511.6#) per year.
- Current Acceptable Agricultural Load based on agronomic recommendations from all uses plus existing residential loading: 268.8 kilograms (592.7#) per year.

Actual Practice

- Actual practice is to fertilize 20 acres of hay and to allow animal droppings only on 30 acres of pasture. The total annual application is:
    - 20 acres of Hay field is 270 kilograms (595.5 #)/year applied to 75% of the acreage
    - 6 acres of legume hay is 108 kilograms (238 #) every 6 years or 18 kilograms (40 #)/year on average
    - Animal stocking rates are below typical rates and add 800 kilograms (1764 pounds) of nitrogen to the pastures annually of which about 40 kilograms may leach.
    - Actual practice loading to the groundwater is approximately 73 kilograms (161#) from forage crops, 11 kilograms (24.3#) from row crops and 40 kilograms (88 #) from animal droppings. The total is 124 kilograms (273.4#) per year.
- The total actual load from the property from all uses is estimated at 160.8 kilograms (354.6#) per year including existing residential uses (1.8 kilograms (4#) per acre per year).

Proposal

- An additional 4 houses (3 affordable and 1 in the barnyard area) would increase the total load by another 36.8 kilograms for a total loading from residential uses of 73.6 kilograms per year.
- If the applicant commits to continue with the actual farming practices, the load from farming would continue to be 124.0 kilograms per year.
- The total load would be 197.6 kilograms (435.7#) per year (2.2 kilograms (4.9#) per acre per year).
- MVC staff anticipates that the Applicant will make a commitment about maintaining current farm practices at the Public Hearing. Note that even if this commitment about agricultural practices applied to only part of the property, they should still be able to come in under the Total Acceptable Load.