STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
dnr.mo.gov

MEMORANDUM

DATE: FEB 17 2016

TO: Eric Crawford, Director
Financial Assistance Center, WPP

Chris Wieberg, Section Chief
Operating Permits Section, WPP

Refaat Mefrakis, Section Chief
Engineering Section, WPP

Paul Dickerson, Section Chief
Compliance and Enforcement, WPP

FROM: John Madras, Director JM
Water Protection Program

SUBJECT: No-Discharge Evaluations

The ultimate goal of the Clean Water Act is no discharge. No discharge alternatives are evaluated in the Cost Analysis for Compliance completed by permit writers and enforcement case managers for publicly owned treatment plants, in the Antidegradation Review process, and during the Construction Permitting Processes. However, no-discharge alternatives are often not selected based on a variety of reasons, with little or no justification or documentation provided.

The purpose of the matrix is to provide a list of the common reasons land application is not pursued and provide permit writers, enforcement case managers, and review engineers with a list of questions to ask and types of documentation/justification that communities and consulting engineers can provide. As you and your staff interact with applicants, please use the attached matrix to guide the evaluation of no-discharge alternatives. One goal of the matrix is to create unity and to standardize the efforts of staff as they deal with their various responsibilities. Existing Missouri regulations requiring evaluation of no-discharge alternatives include 10 CSR 20-6.010(4)(D); 10 CSR 20-7.031(3); and 10 CSR 20-8.110(4)(C)8.G.

Besides the regulatory requirements for no-discharge alternatives to be evaluated, the recent changes to the Water Quality Standards and the expected changes to the Water Quality Standards emphasize the need for a comprehensive review of no-discharge alternatives for communities to consider. New or upcoming Water Quality Standards includes both fish and mussel ammonia effluent limits, numeric nutrient criteria, and required disinfection for bacteria in all streams.

In the attached matrix, common reasons for not pursuing no-discharge land application are listed, followed by questions that could be asked for additional details on why that option was discarded, and then examples the community or consulting engineer could provide as documentation. The matrix assumes an application rate of 24 inches per year for surface land application.

If you have any questions please contact Ms. Leasue Meyers at 573-751-7906 or email at Leasue.Meyers@dnr.mo.gov.

JM:lmn

Attachment

No Discharge Additional Justification Questions and Potential Documentation.

Factors Considered	Evaluation and Questions	Potential Documentation
Land Availability	• Evaluate & cost land available within 1.5 miles of the lagoon • Evaluate a long-term lease with a farmer • Capital cost estimate for piping and pumps • Evaluate increased application rates, requiring less land • Multiple application sites for optimal rate per farmer/crop • Public access areas with disinfection (e.g.golf courses, nature parks, etc…)	• Geohydrological or soils report showing application rates • Copy of correspondence/ documentation with land owners regarding land for sale or lease • Provide address or plat map showing areas considered • County Soils Survey Maps consulted and application rates for the soils in the general area were provided • Show calculations for the amount of land necessary for the application rate and for lagoon storage.
Land Cost Expense	• Evaluate land prices and availability farther from the site • Evaluate a long-term lease rather than land purchase • Salvage value of the land after 20 years • Capital cost estimate for piping and pumps • Evaluate long term upgrades of mechanical plant and new WQS vs. cost for land application (ie: mussel ammonia, bacteria, TP, TN)	• Document recent land sales • Copy of correspondence/ documentation with land owners regarding land for sale or lease • 20-year life cycle of land application vs. mechanical plant
Easements/ Cost of Easements	• Contact land owners for rights for an easement • Cost of the easement acquisition in comparison to continued discharging requirements • Condemnation consideration	• Copy of correspondence/ documentation with land owners regarding easement rights • Document why the community is not willing to pursue condemnation (ie: council meeting minutes or letters)
Size of Wastewater Flows	If flows are under 200,000 gpd • Can application rates be increased • Can the facility do seasonal discharge or seasonal application? • Can the facility buy property or lease multiple locations? • Capital cost estimate for piping and pumps	• Copy of correspondence with land owners regarding land for sale or lease, not enough land available • Geohydrological reports • Soils maps and descriptions • Document land costs

Factors Considered	Evaluation and Questions	Potential Documentation
Regional connection	• What is the distance to the closest municipality's line or other facility's line? • Is there any planning/zoning in the area regarding development and services? • Capital cost estimate for piping and pumps to regionalize • Does the regional facility have the capacity to treat effluent and if not what would it cost to upgrade the regional facility	• Map • Detailed cost estimate for lift stations/ piping/ easements and connection • 20-year life cycle • Correspondence with other facility • Letter from the authority stating that the regional facility has no interest in taking flow from the new or expanded facility • Letter from municipality stating area is outside city limits and annexation would be required. • Funding from State Revolving Fund, which does not fund projects outside city limits
Suitability of Site in Proximity of Neighboring Sites	• Can buffer distances be increased to reduce neighbor noticing? • Are there other steps/considerations that can be made? • Change the method of application, avoiding center pivots and/or spray • Drip or subsurface irrigation?	• Copy of the county/city ordinance • Council meeting minutes • 20 year life cycle
Leasing the land	• Could controls built into the contract, such as the owner is required to use a certain percentage of the water annually? • How many land owners were contacted and what restrictions were presented? • Capital cost estimate for piping and pumps	• 20-year life cycle of land cost • Long term leases, at least 20 years • Copy of correspondence/ documentation with land owners regarding land for sale or lease
Zoning Restrictions	• Does the county ordinance specifically restrict land application, surface and subsurface? • Distance to neighboring county	• Copy of the county ordinance • Council meeting minutes

Factors Considered	Evaluation and Questions	Potential Documentation
Unsuitability of Soils	• Was a soils report completed, including map information? • Does the soils report reflect the proposed area? • Is it cost-effective to bring in additional soils? • Can the application rate be decreased? • Is there a different method of application available (e.g. surface, LPP, drip)	• Soils report, with maps and descriptions • Geohydrological Evaluation
Collapse Potential of Storage Facility	• Evaluation of a liner or alternative site • Any additional information provided to Missouri Geological Survey, such as maps or additional soils work	• Cost of installation of a liner • Map of other sites considered and their Geohydrological considerations
Subsurface application alternatives	• What subsurface application alternatives were considered and why were they ruled out • Consider surface, LPP, drip	• Alternatives analysis
High strength waste	• Calculate the Plant Available Nitrogen (PAN) Calculation and/or Sodium Absorption Ratio • Soils loading rate	• PAN result • Soils report • Geohydrological Evaluation
Classified Stream buffer distance	• Installation of vegetated buffer to reduce buffer distance • Higher application rate requiring less land which increases buffer distance	• Map • Geohydrological Evaluation • Soils report • Type and size of necessary vegetated buffer
Industrial components in wastewater	• Calculate the Plant Available Nitrogen Calculation and/or Sodium Absorption Ratio	• PAN result • Micronutrient concentration uptake • Soils report, with test results, maps and descriptions • Geohydrological Evaluation