

Recommendations for a Memorandum of Agreement Residuals Management Program

NC DENR Division of Water Quality and
Orange County Health Department
August, 28, 2008

Submitted by the Blue Ridge Environmental Defense League
and Carolina Concerned Citizens

The following recommendations, compiled by citizens of Orange County, will provide increased protection of public health and the environment from the potential impacts of land application of sewage sludges through a Memorandum of Agreement between the NC Division of Water Quality and the Orange County Health Department's Environmental Health Division.

1. Increased public involvement.

Notification of new and/or modified permits to spread sludge and opportunity for public hearings.

Existing rule: Under the "Guidelines for Conducting Public Hearings," the appendices for rules in each division not listed.

*See Appendices for specific legal requirements and guidelines for public notification and hearings by DENR divisions:

<http://www.enr.state.nc.us/officeofpublicaffairs/Pages/Public%20Hearings1.pdf>

Recommendations: While the NC Division of Water Quality (DWQ) has the authority to hold public hearings on new and/or modified permits (i.e., additional acreage to a permit) to land apply sludge, the public has not been given due process which includes obtaining public documents relevant to the permit, asking specific questions about the permitting process, and voicing opinions or concerns at a public hearing to be considered by the DWQ.

Before a parcel of land can begin receiving sewage sludge or water treatment sludge under a new or modified permit there should be an opportunity for the public to comment on the new draft permit or modification to a permit, and request a public hearing if necessary. However, there has been no opportunity for the public to request hearings on new or modified permits to spread sludge *because there has been no public notification of new permit applications or modified permits*. Public notification is essential due to the fact that sludge applications may have detrimental impacts on adjacent properties as well as health implications for nearby residents. Owners of adjacent properties, in particular, are not notified prior to sludge applications on adjoining properties or nearby fields.

The National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) of 1997 both state that a "major federal action significantly affecting the quality

of the human environment must undergo an evaluation and public disclosure of its environmental effects.”

The following recommendations are based on Texas’ regulations for land application of sewage sludge. Each recommendation should be carried out under a partnership between the DWQ and Orange County, with oversight by Orange County inspectors:

- a. A notice of intent to issue a permit should be made available to the public by posting a legal notice in local newspapers in the permittee’s primary location (city) of operations and in each county where sludge is proposed to be spread under the permit. The notice should be posted twice a week for two consecutive weeks in order to give the public a full opportunity to see the notice. Also, the notice should list the counties where land under the permit to receive sludge will be applied.
- b. A notice of intent to issue a permit should be sent by U.S. mail to all adjacent property owners within 5,000 feet from the property line of the land owner applying for the permit. Most county GIS systems are capable of implementing notification to adjoining property owners since all land application sites have coordinate locations listed.
- c. All new draft permits and/or modifications to permits should be made available for public review in public libraries, on the county’s website, the DWQ website, and at the regional DWQ office. Notifications of applications should be posted on the DWQ and Orange County websites two weeks prior to application.
- d. The notification must include a copy of the draft permit and/or permit modification with information on how to request a public meeting or hearing if requested.
- e. The purpose of a public hearing is for members of the public, farmers, adjacent land owners, operators of the wastewater treatment plant, appliers of sewage sludge, and other involved parties to voice their opinions and concerns about the activities under the proposed permit or permit modification, and for the DWQ to consider the comments of each party. A copy of DWQ’s decision with the reason for approval or denial should be mailed to adjacent property owners and filed with the local county office.

<http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/39j.pdf>
<http://www.capitol.state.tx.us/tlodocs/78R/billtext/html/HB02546F.htm>

2. Increased monitoring and enforcement

Posting of signs limiting public access to areas that receive sludge applications

Existing rule: Title 15A of the North Carolina Administrative Code, subchapter 02T.1109, requires the restriction of public access to land for 30 days following any residuals land application event. This rule is currently not enforced as signs or other barriers constructed are not being posted by the applier to limit or prevent public access to sludged areas.

Recommendations: Signs limiting public access should be posted in areas receiving sludge in Orange County. Signs should be large enough to be visible to motorists and foot traffic, posted at the perimeter of the property adjacent to any roadway and property corners, and list the type of

activity with the date of the application, the permit number of the field receiving the sludge with a contact number to call with questions and/or complaints.

http://h2o.enr.state.nc.us/admin/rules/documents/NCAdminCode_15A_subch2T_1jan2007.pdf. pp. 65, 66.

Monitoring and enforcement of grazing animals on sludge-applied land

Existing rule: Subchapter 02T.1109 requires that landowners do not graze animals on sludge-applied land for 30 days after an application event. Farmers are told by the applicers about this rule; however, there is no dedicated monitoring or penalties assessed to ensure that this rule is being followed.

Recommendations: Restrictions on grazing practices should be enforced by county inspectors and further enforced through the addition of penalties assessed to farmers who do not comply with these restrictions.

http://h2o.enr.state.nc.us/admin/rules/documents/NCAdminCode_15A_subch2T_1jan2007.pdf. pp. 66.

Monitoring and enforcement of growing food, feed and fiber crops for human consumption on sludge-applied land

Existing rule: Subchapter 2T.1109 requires that food crops, feed crops, and fiber crops shall not be harvested for 30 days after sludge is applied; food crops with harvested parts that touch the sludge that are grown entirely above the land surface shall not be harvested for 14 months after a sludge application; food crops with harvested parts below the land surface shall not be harvested for 20 months following sludge application when sludge remains on the land for 4 months or longer prior to incorporation into the soil; food crops with harvested parts below the land surface shall not be harvested for 38 months when sludge remains on the surface for less than 4 months prior to incorporation into the soil. Turf is not allowed to be harvested for one year after sludge application. These rules are currently not being monitored or enforced in Orange County.

Recommendations: Reviews of permits with dedicated monitoring and enforcement of the harvesting of certain crops grown on sludge should be carried out by county inspectors to ensure compliance.

http://h2o.enr.state.nc.us/admin/rules/documents/NCAdminCode_15A_subch2T_1jan2007.pdf. pp. 66.

Monitoring and enforcement of permitted crops

Existing rule: Subchapter 2T.1104 requires that “a project evaluation and a site management plan with recommendations concerning cover crops and their ability to accept the proposed rates of liquids, solids, minerals and other constituents of the residuals shall be provided to the DWQ by the applicant.”

The amount of sewage sludge applied to a field is determined, in part, through the agronomic growth rate of a particular crop. A sewage sludge application rate exceeding the agronomic rate could result in contamination of the ground water from a nutrient (such as nitrates) heavy metals

or other harmful substance. The type of crop to be grown is listed in the permit for land application and is good for five years. However, there is no dedicated monitoring or enforcement to ensure that the same crop will be grown continuously under a permit's five-year timeline, nor any process for crop rotation and required changes in the application rates specific to the different crops planted.

Recommendations: The development of a dedicated monitoring and enforcement program in partnership with the Orange County Health Department/Environmental Health Division would help to ensure that crops are grown according to regulations. An added penalty assessed to farmers who violate this restriction would ensure that the permitted crop is grown continuously over the course of the permit or notification of application rates for crop changes that are not reported. These measures would help to ensure that: 1) Over-application of sewage sludge does not occur in the event a farmer decides to change crops; 2) A switch to another crop, such as a food or fiber crop, is grown under the correct requirements and conditions; 3) Risks to drinking water, groundwater, surface waters, wildlife, and ecosystems are reduced; 4) Better protections of food crops, meat and milk products consumed by the public.

http://h2o.enr.state.nc.us/admin/rules/documents/NCAdminCode_15A_subch2T_1jan2007.pdf.
[p. 57.](#)

Delivery of sludge during business daylight hours only.

Existing rule: There is no rule concerning requirements for times of delivery for sewage sludge applications.

Recommendations: For purposes of testing, monitoring, and enforcement under a partnership between DWQ and Orange County, sludge should be delivered to designated fields during daylight business hours.

Disclosure of sludge applications on property sales.

Existing rule: There is no rule that requires disclosure of sludge applications upon a sale of land.

Recommendations: Before land is sold the following disclosures should be made:
a. Total volumes of sludge applied; b. Origin of sludge; c. Length of time sludge was applied; d. Regulated constituent levels tested. This is similar to Brownfields legislation under CERCLA Law that requires disclosure of any environmental liabilities on the property before sale or transfer. Disclosure of sludge applications is particularly important given that organic farming is becoming an increasingly popular and sustainable farming practice in Orange County.

Testing of soil semi-annually.

Existing rule: Based on the EPA 40 CFR 503.8 (b), Subchapter 02T.1111 requires that soil sampling on land that has received sewage sludge be conducted once per year for almost all land application sites since an acre of farmland usually does not accept 290 metric tons of sludge per year. The use of the same soil testing requirements for designated land disposal sites as farm acreage is inconsistent with the intent to protect farmlands.

Recommendations: Since each batch of sewage sludge is not tested prior to land application, a follow-up soil analysis by an Orange County inspector is highly recommended in order to check

the reliability of the information from the preparer (applier). Additional testing should also be required following a complaint related to a health, safety or compliance issue.

http://h2o.enr.state.nc.us/admin/rules/documents/NCAdminCode_15A_subch2T_1jan2007.pdf, p. 67.

Monitoring and enforcement for Threatened or Endangered species.

Existing rule: Part 503 of the 40 CFR federal regulations prohibits the land application of sewage sludge if it is likely to “adversely affect threatened or endangered species or their designated critical habitat.” Critical habitat is any place where the threatened or endangered species grows during in its life cycle. The applier is required to consult with the USFWS to determine if there are threatened or endangered species present in areas receiving sludge and to keep records of management practices to ensure that the requirements are being met with records to indicate applicable management practices. This rule is currently not being enforced.

Recommendations: There are approximately seventeen species in Orange County listed as threatened or endangered by the USFWS. The development of a dedicated monitoring and enforcement program in partnership with Orange County inspectors in consultation with the USFWS would ensure that threatened and endangered species are protected from contaminants in sludge that may pose a potential risk to wildlife and wildlife habitat.

<http://www.epa.gov/OW-OWM.html/mtb/biosolids/sludge.pdf>. pp. 24, 25.

Testing of surface waters for sludge runoff.

Existing rule: There is no rule that allows or requires the testing of surface waters for possible contamination from sludge runoff.

Recommendations: In the case of possible runoff from sludge applications to surface waters, a state or county inspector should have the authority to have access to the property and test farm surface waters, fields, and banks for contaminants in runoff that may include toxic metals, nutrients, bacteria, total coliform, and other substances required to be tested for under current state regulations.

3. Development of a “Rapid Response” program for recording and investigating illnesses, complaints and potential violations associated with land application of sewage sludge.

Existing rule: Currently, both the state and local governments do not have a dedicated program or protocol for recording and responding to citizen complaints regarding issues related to the spreading of sewage sludge. Subchapter 02T.1109 (C) states that “bulk residuals shall not be applied to the land under the following conditions, if the application causes prolonged nuisance conditions.” Without a protocol and dedicated program to record and investigate complaints there is no way of assessing health problems and other concerns associated with exposures to sewage sludge. Also, there is no information readily available to the general public concerning what actions may be taken in the event a sludge application creates a nuisance condition.

Recommendations: The development of a Rapid Response program, in partnership with the

Orange County Health Department, is the first step in assessing health problems and other concerns associated with exposures to sewage sludge. The program would provide a protocol for responding to reports of complaints, potential violations, and health related issues from Orange County residents.

The incorporation of an investigative protocol, such as the protocol developed by Dr. Steve Wing, Department of Epidemiology, UNC School of Public Health, would provide a standardized procedure for documenting reported: 1) Illnesses and symptoms associated with health problems, general complaints and potential violations; 2) Recent land applications of sewage sludge in the vicinity; 3) Sources, amounts and characteristics of the sludge applied; 4) Factors that could affect off-site migration of pollutants from land application sites; and 5) Other exposures that could be related to reported symptoms of illness.

Records of investigations would be entered into an electronic database and made available to state and local governments that could be used to examine patterns of reported concerns, changes in the frequency or types of concerns, and relationships between reported concerns and the sources and characteristics of a particular sludge applied to land. State or local inspectors should be afforded the right to obtain a sample of the sludge being applied to the field, and secure a sample from the wastewater treatment plant as well as soil and/or water samples for investigative purposes.

<http://www.exchangeproject.unc.edu/documents/pdf/research-summaries/Biosolids%20protocol/InvestigationProtocolFinal%2007-1128.pdf>

4. Farm Protection and Informed Consent: development of an educational package for farmers on the potential risks of using sewage sludge as a fertilizer.

Existing rule: There is a great amount of research available concerning the potential risks of using sewage sludge as fertilizer on farmlands. However, there has been no effort on the part of the state or county to inform farmers of these potential risks.

Wastewater treatment plants are unable to test for the potentially thousands of compounds present in any one sludge batch, which can vary from hour to hour. Conventional treatment does not result in the removal of all pathogens in Class B sludge applied to farmlands. Sludge has contaminated groundwater, private wells, and surface waters, and is responsible for the deaths of hundreds of dairy cattle and contamination of milk products. Sludge has been linked with a variety of human illnesses, and associated with the deaths of three people. Chemicals and compounds present in sludge have been linked with cancers and other human illnesses. Contaminants found to concentrate in sewage sludge have been proven to cause deformities in certain aquatic species and damage the reproductive systems of fish. Farmers are not required to carry indemnity insurance in the case of a citizen complaint, lawsuit or accident involving sludge.

Recommendations: The farms and farm families should receive the best information on using sewage sludge as a fertilizer in helping them to make informed decisions regarding farm and land management programs. This includes full disclosure of the potential or known components of sewage sludge and the potential impacts of these components on human health, crops and the environment. Information should provide additional scientific research and information concerning the farmer's assessment of potential risks assumed by allowing farmers to receive the

free or “paid to take” municipal sewage sludge. The NC Division of Water Quality must assume more of the legal “Due Care” for farmers to be able to do “Due Diligence.”

*See document attached, “Who is Protecting Our Farmers, The Land, Our Water and People from Land Applied Sewage Sludges?” BREDL and CCC, Aug. 2008.

5. Creation of a Sludge Management Fund

Existing rule: The DWQ’s land residuals management program is both understaffed and underfunded to ensure that the existing regulations under the US-EPA and NC’s residuals management program are being implemented and enforced. Additionally, funding for expanded enforcement and monitoring activities is unavailable which has resulted in a stagnant and ineffective program that does not adequately serve and protect the residents of Orange County.

Recommendations: Many states, such as Virginia, charge municipalities a “tipping fee” based on volumes (per dry ton) of sludge applied. This fee has provided Virginia with the necessary funds to develop, implement, and strengthen its land application program. The creation of a Sludge Management Fund” to assist with the “biosolids” regulatory functions of the Division of Water Quality in partnership with Orange County, would serve this purpose. The municipality should pay a fee to dispose of sewage sludge on farmlands in Orange County. The fund would subsidize county-employed staff to assist DWQ with the monitoring, enforcement, compliance, testing, inspections, and other regulatory functions associated with the Division of Water Quality’s Residuals Management Program as required by the US-EPA 40 CFR Part 503.

*Adapted from Virginia Division of Environmental Quality Sludge Management Fund and with recommendations from the Joint Legislative Audit and Review Commission of the Virginia General Assembly, “Review of Land Application of Biosolids in Virginia,” 2005, <http://www.deq.state.va.us/vpa/sewage.html>.

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