DRAFT BIOSOLIDS FEE GUIDANCE MANUAL

I Purpose

The Biosolids Fee Guidance Manual provides information pertinent to local monitoring activities, including procedures for conducting those activities and requesting reimbursement of the monitoring costs. Such activities will be described in the following text.

II Background

The Biosolids Fee Guidance Manual is provided to individuals who are either local government officials or designated local monitors, by the Virginia Department of Health (VDH), as a reference for local monitoring activities.

A. Reimbursable charges for local monitor activities:

1. The following reimbursable charges were identified and agreed to by the HB 2827(2001) Ad Hoc Committee members:

a. A review of permit information related to health and environmental protection issues.

(Reviewing data in a permit or permit application to land-apply biosolids prior to the land application operations, i.e., within the month that the operations occur, usually following 48 hour notice to local government from the land applier)

b. Travel expenses for site monitoring, inspections, sample collection and delivery and examination of records.

(Reviewing the generator's records - contents of which are determined by state regulations)

c. Time charges for the site inspections: at VDH inspection, prior to, during and following biosolids application.

(Including verifying sign notices, buffer distances, site management and post application runoff.)

d. Records management costs, including data entry, communications and reports.

(Managing records - including: data entry, communications, developing reports)

e. Complaint and incident response, including contact with the public and state regulatory agency staff.

(Responding to problematic incidents and complaints - Includes: reporting complaints - communicating with the public – communicating with VDH)

f. Sample collection and testing costs including postage and time.

(Transporting samples to an appropriate laboratory. Reimbursable testing costs are confined to analytical measurements of regulated constituents only.)

g. Specified training expenses.
(Discussed in part III. of this Manual)

2. Reimbursement of local monitoring costs deemed reasonable by the Division of Wastewater Engineering (DWE) will be made in order of receipt of an acceptable invoice. Such invoices will be reimbursed for reasonable costs up to $2.50, as adjusted, per dry ton of biosolids land applied in a county during the period of time specified in the submitted invoice. If sufficient revenue exists from the fees collected monthly, then invoiced claims exceeding $2.50, as adjusted, per dry ton of biosolids land applied in that county, during the period of time specified in the submitted invoice, may be released for reimbursement of up to $4.00 per dry ton of biosolids land applied in that county during the month that the reimbursable costs were incurred , based on the order of receipt of the invoice.

B. Reimbursement Procedure.

1.Application. Local government must submit a reimbursement application to request reimbursement from the division. All information is to be clearly typed or printed and all required or supporting documents must be attached. The county administrator or designated local biosolids monitor shall sign and date the application where indicated. The original signed application with one copy of each of the supporting documents is to be forwarded to the division. Applications may not be submitted by facsimile or through electronic means. A reimbursement invoice form as included with this Manual, must be completed before a reimbursement application can be submitted. The invoice form must include all expenses for which reimbursement is requested during the designated time period.

2. Application forms and submittal. The application for reimbursement must be submitted within 30 days of the last day of the month in which the reimbursable activity occurred. All applications received after this time frame will be ineligible for reimbursement. The application forms and detailed instructions are included in this Manual and copies can be obtained from the DWE. The following is a description of the application forms and an explanation of their use:

a. Form 1 - Reimbursement Application. An Invoice Form shall be submitted with each application for reimbursement. The invoice form should list all reimbursable charges. To be reimbursed for eligible expenses, an applicant must provide documentation to demonstrate that the expenses were incurred. Invoices are acceptable proof of incurred expenses. Include legible copies of invoices signed by the local biosolids monitor or agent who performed or managed the monitoring activities. All invoices are to include the following:

1). VDHBUR Permit Number and site identification;

2). (Number), or site address;

3). Biosolids contractor’s name;

4). Date and type of activity monitored;

5). Name of biosolids monitor;

6). Number of hours to be reimbursed and charge per hour;

7). List of expenses for which reimbursement is sought; and

8). Type of sampling activity performed and associated laboratory expense vouchers.

The application requires the county administrator to certify that the responsible official has read and understands the requirements for reimbursement and that the application submitted is not fraudulent. The local monitor must attest to the accuracy and completeness of the information provided.

b. Form 2 - Multiple Owners Payment Assignment Form. When there are multiple local governments as claimants, a separate, signed and notarized invoice form for each claimant must be filled out and submitted with the application.

Submittal of the original completed reimbursement application, including the application worksheets and the appropriate supporting documentation, should be accomplished by mailing these documents to: Virginia Department of Health, Division of Wastewater Engineering, 1500 East Main Street, Room 109, Richmond, VA 23219.

3. After receipt of an application for reimbursement of biosolids monitoring costs, the DWE will evaluate it to determine whether:

a. The invoiced costs are eligible for reimbursement;

b. The application has been completed correctly, including all required signatures;

c. All of the necessary forms and documentation have been submitted;

d. There are any costs submitted for reimbursement that are not eligible;

4. Only invoices pertaining to the monitoring activity claimed in the current application will be accepted. Costs omitted from previous claims are ineligible for reimbursement in subsequent claims. Likewise, invoices submitted in previous claims will not be eligible documentation for reimbursement of costs in subsequent claims. To reduce the risk of disqualification of costs, costs for different monitoring activities should be invoiced separately. If possible, invoices should be structured so that costs are grouped according to task or activity.

5. Upon completion of the reviews described in this section, the DWE will render reimbursement decisions, as described in this Manual, based upon the information contained in the file. These reimbursement decisions will be documented and communicated to the applicant through a reimbursement decision letter.

C. Processing Reimbursements.

1. When the DWE finds essential information is missing, an evaluation will be made to determine whether the claim can be processed without the information and, if so, what impact the missing information will have with respect to the amount approved for reimbursement. If the claim can be processed without the missing information, then the VDH may in its sole discretion process the claim "as is." If it is not possible to process the claim "as is," the DWE will contact the claimant and attempt to resolve the deficiencies. If contacted, an applicant will have 14 days from the date of the call or letter to submit the information requested and cure any deficiencies. Extensions of the 14-day deadline will not be granted. An application that does not contain all of the required information after the 14-day time frame may be rejected or processed "as is," which can result in complete denial or a partial reimbursement. In rare cases, an application may have so many deficiencies or defects that it cannot be processed and is rejected immediately with a written explanation of the defects and remedies needed.

2. Following a reimbursement decision, the DWE will prepare a reimbursement decision letter. The reimbursement decision letter will include information on the total amount requested in the application, the amount disallowed [, and] the amount approved. If the division determines that a claim should not be paid in full, the reimbursement payment decision will briefly describe the reason for the amount awarded or denied.

3. Claimants may submit a written response indicating why costs denied on the reimbursement decision should be paid. If the claimant disagrees with the decision in the reimbursement payment package, a Notice of Intent (NOI) to object and a Reconsideration Claim Form must be submitted to the DWE within the filing deadlines specified in the reconsideration procedure package.

4. If filing deadlines are not met, the decision in the reimbursement payment package is final. This written objection is to be in the format specified in the reconsideration procedure package and explain the reasons for disagreement with the decisions in the reimbursement payment letter, and supply any additional supporting documentation. Upon receipt of this information and at the claimant's request, the DWE may schedule a reconsideration meeting to reevaluate the denied costs.

5. If sufficient revenue exists, then delayed claims exceeding $2.50 as adjusted, per dry ton of biosolids land applied in that county during the period of time specified in the submitted invoice may be released for reimbursement of up to $4.00 per dry ton of biosolids land applied in that county that month, based on their placement on the reimbursement list. Due to possible fluctuations in claim amounts and revenues received, it may not be possible for the DWE to predict exactly how long delayed payment processing will take.

D. Compliance with State Regulations and Local Ordinances

1. Any locality that has adopted an acceptable ordinance for the testing and monitoring of the land application of sewage sludge pursuant to §62.1-44.19:3 (local monitoring) shall have the authority to order the abatement of any violation of State Regulations. Such abatement order shall only involve the activity identified as constituting the violation. The abatement order shall specify the Code provision or regulation violated by the activity and order that the activity cease immediately, until a recommendation is received from the VDH concerning abatement of the alleged violation. The local monitor should contact DWE (the area permit writer initially), as soon as possible upon finding the suspected violation, to obtain a recommendation. The DWE may elect to conduct a site inspection to establish confirmation of the alleged non-compliance.

2.In the event of any dispute concerning the existence of a violation, the activity alleged to be in violation shall be halted pending a determination by the VDH, whose decision shall be final and binding unless reversed on judicial appeal pursuant to the Administrative Process Act (§2.2-4026). Any land applier who fails or refuses to halt such activity may be compelled to do so by injunction issued by a court having competent jurisdiction.

3.Upon determination by the VDH that there has been a violation of State Regulations and that such violation poses an imminent threat to public health, safety or welfare, the VDH will commence appropriate action to abate the violation and immediately notify the local monitor and chief administrative officer of any locality potentially affected by the violation.

III Reimbursable Activities

The Biosolids Use Regulations Fee amendments allow jurisdictions with duly adopted ordinances to be reimbursed for certain activities associated with the monitoring of land application operations. As stated above, the types of activities include those which serve to ensure that all land application activities are in compliance with state regulations. Therefore all reasonable activities as listed in this section may be submitted for reimbursement according to the procedures outlined in the previous section.

Thus the types of reimbursable activities generally fall into six categories including: 1) the initial review of the land application permit; 2) site inspections and sampling and monitoring, including local travel and sample collection and delivery; 3) record keeping; 4) complaint and incident response; 5) biosolids and soil sample testing costs; and 6) training.

This section provides guidance on conducting reimbursable activities. Specific information on permit review procedures, site surveillance, complaint response, sampling and recordkeeping will assist jurisdictions in effectively monitoring land application activities.

A. Permit Review

1. Reviewing land application permits to identify potential health and environmental protection issues is the first step in ensuring compliance with the regulations. The initial review of permit documents may take place after receiving a copy of the permit application from the land applier. Comments on a permit application are to be formally sent to VDH following receipt of the 30 day comment period notice from VDH. However, the application may be discussed with the land applier and VDH staff at any time. The expenses associated with a follow up review of the application and other permit documentation information just prior to land application activities will be reimbursable. Documentation review may just include the permit and the site booklets. In order for the documentation review of land application permits to be reimbursable, it must be conducted within the month that the operations occur, usually following the 48 hour notice to local government from the land applier that operations will be initiated on permitted sites. The following sections describe what permit review typically entails. A jurisdiction may be reimbursed for time spent on permit review activities as described in this section.

2. There are two documents required for each land application site – the VDH operation permit and the site specific booklets. The permit approval documents describe the regulatory conditions that must be met. The permit booklets contain site-specific information on each field and property owner information.

3. The permit, permit letter and modification letters contain information about the land applier, permit number, modification number, County, effective dates and authorizing signature. The permit also references the requirements stipulated in the Biosolids Use Regulations. Although most VDH operation permits contain similar requirements, some contain different additional special conditions. Site specific requirements may be outlined in either the list of special conditions (usually contained in Attachment B of the cover letter) or within the permit letter itself. Additional requirements may include nutrient management stipulations, additional buffer designations or specific notification requirements prior to land application.

4. The site booklets contain property owner's and/or operator's information, possible crop types, soils and acreage information, site maps and farm location. Each site must contain a Biosolids Application Agreement signed by the property owner or authorized designee. The agreement must include those restrictions as presented in Table A-1 of the Biosolids Use Regulations. Tax maps are provided to ensure that property is correctly delineated. There is usually a listing of all possible crops types to be grown on the permitted fields in the site booklet. Several different forms of soils information are provided in the site booklets including, soils analysis, soils descriptions and soils maps. Field acreages may be double checked using a planimeter or dot grid calibrated to the scale of the maps

provided. Most field acreages are obtained from the Farm Service Agency (FSA) office. Detailed site maps are provided which show the areas to be land applied as well as areas to be buffered such as wells, houses, surface waters, steep slopes, rock outcrops, etc. Location maps are also provided and may be helpful in finding where the site lies in relation to housing developments, towns, churches, schools, etc. The site booklet may be reviewed prior to conducting fieldwork to identify initial concerns to be field checked during site inspections.

B. Site Inspections and Monitoring

1. Site inspections and sampling and monitoring are usually performed during or after land application of biosolids on a permitted site. However, local monitors should visit site areas prior to operations to talk with neighbors and determine if special operation conditions may be desirable. Such special conditions may include increases buffers to minimize any possible impacts on neighbors with serious illnesses and operational time restrictions to minimize impacts on schools or day care facilities. If the land applier disagrees with imposition of such conditions then the VDH must be contacted to resolve the disagreement. Operational inspections involve checking to ensure permit requirements and restrictions are met on the field, which may be more important than sampling and analytical testing of the biosolids or soils samples. Record review is also included in the oversight process, including the review of monthly spreading reports. Reimbursement may be provided for: 1) local travel time to and from the site; 2) time spent conducting the inspection; 3) time for sample collection and delivery; 4) local mileage to and from the inspection site; and 5) mileage for sample delivery.

2. Site inspections include observing the permitted field or fields where biosolids are or have recently been applied to verify that all environmental and health features have been properly managed by the land applier. All surface waters, wells or drinking water supplies, occupied dwellings, roads, property lines, steep slopes, rock outcrops, sinkholes and shallow soils must be appropriately buffered. These areas may be identified by both observation (i.e., surface waters, wells, dwellings and roads) and taking field measurements (i.e., slopes and depth to water table or bedrock.) Biosolids transportation vehicles may also be inspected at the land application site.

3.Site inspections are typically conducted by driving or walking each field to verify that observable features are buffered. Buffer distances between the outer edge of the biosolids application area and a protected feature may be measured with a measuring wheel, tape, pacing or other recognized method. The minimum buffer distances from adjacent features include those provided in Table 3-1. Note that distances may vary depending on tillage method and time of year. Perennial streams carry flowing water throughout the year. Intermittent streams are dry during certain times of the year (usually the summer) but carry water at others. Buffer distances to property lines may be reduced with the written consent of the

landowner. However if two buffer distances apply, the greater of the two must be maintained, i.e., a minimum distance of 200 feet must be maintained from the closest part of an occupied dwelling. Any feature requiring a buffer not indicated on the site map in the site booklet must be buffered at the time of biosolids operations.

Table 3-1: Minimum Buffer Distances from Land Application Area

Adjacent Features	Surface Application	Incorporation	Winter
Occupied Dwellings	200 ft.	200 ft.	200 ft.
Water supply wells or springs	100 ft.	100 ft.	100 ft.
Property lines	100 ft.	50 ft.	100 ft.
Perennial streams and other surface waters except intermittent streams	50 ft.	35 ft.	100 ft.
Intermittent streams/drainage ditches	25 ft.	25 ft.	50 ft.
All improved roadways	10 ft.	5 ft.	10 ft.
Rock outcrops and sinkholes	25 ft.	25 ft.	25 ft.
Agricultural drainage ditches with slopes equal to or less that 2 %	10 ft.	5 ft.	10 ft.

4. There are some additional features as those listed in Table 3-1, including swales, grassed waterways and erosion gullies. Swales are natural features that are expected to carry a concentrated flow of water from the field during moderate intensity rainfalls. Grass waterways are designed drainage ways for the purpose of preventing erosion. A gully is an erosion feature, usually one foot or more in depth, that may carry water off a field during rainfall events. Although these features are not specifically addressed in the regulations, they should be addressed. If a shallow drainage feature such as a swale drains onto another part of the permitted property resulting in no net runoff from the site, the feature does not need to be avoided. Otherwise, biosolids should not be placed directly in swales and grass waterways. If a gully is shallow enough to be filled in by heavy plowing (usually no more than one foot deep), biosolids may be placed there before plowing.

5. Some features require field measurements such as depth to water table or bedrock and steep slopes. Soils descriptions provide indications that water table or bedrock is less than 18 inches. Auger borings may be taken in the indicated areas. There are several indications that an average slope may exceed the regulatory limit, including visual observations and the topography and/or soils maps. A review of topo maps may reveal areas of potential steep slopes indicated by topography lines being close together or the soils type symbol ending with the letters “C” or “D”. Slopes can be measured using a clinometer or other field instrument used for such purposes.

C. Site Features

1. Any areas having water table or bedrock within 18 inches of the surface is not to be used for land application of biosolids and must be buffered out of the permitted site. When taking auger borings to determine if ground water or bedrock is within 18 inches of the surface, the following method is recommended. Make the boring 18 inches deep. A mark may be place on the auger itself 18 inches from the bottom to assist in determine adequate depth. Borings should be placed in the lowest areas of the field or where the soil type indicates shallow water table. If the auger hit rock before reaching the 18-inch depth, the soil is too shallow and the area must be buffered out of the permitted site. The presence of mottles or small gray patches in the soil column indicates that groundwater has been near the surface. Waiting at least 30 minutes after taking the boring for non-clayey soils and on hour after taking the borings in heavy clayey soils to see if any water appears in the hole will provide additional information on water table level. Areas with water tables within 18 inches must be buffered out of the permitted site.

2. Slope requirements fall into 3 basic categories: 1) less than or equal to 5 percent; 2) between 5 and 7 percent; and 3) between 7 and 15 percent. Slopes greater than 15 percent are prohibited from receiving biosolids for agricultural purposes. Additional management practices may be required as the slopes become steeper, depending on the time of year. Since hay and pastureland have sufficient vegetative cover, some of those restrictions may not apply. Slopes may also become a determining factor when determining whether land application on snow cover or frozen ground is permitted. For example, no land application is permitted on frozen ground with slopes greater than 5 percent. Also, biosolids may be applied to snow covered ground as long as the average depth is less than 1 inch and it is incorporated within 24 hours on slopes less than 7 percent. Tillage and planting practices are required on crop fields with less than 60 percent uniform residue cover. As the slopes increase and the winter season approaches, management practices increase to prevent nutrient loss and runoff. Table 3-2 provides a table listing management restrictions according to slope and time of year.

3.The percent soil coverage with crop residue can be measured at the field using the line-transect method. The instrument needed is a line with 100 easily noticed marks, such as six inch marks on a 50 foot tape or twelve inch marks on a 100 foot tape. This will provide 100 locations to determine if residue is present. The line should be laid at an angle across rows while avoiding moving any residue, which would invalidate the results. Walk directly over the line making sure to view it from the same angle at each mark. Observe the number of times the marks intercept a piece of residue on one side of the tape. For example, if choosing the left side of the tape, those pieces of residue intercepting the marks on the right side of the tape only are not counted. The number of intersections after reading 100 marks provides a percent surface coverage. Several

measurements should be taken at each field to account for differences in soil, crop tillage and other management conditions. Try to avoid turn rows or field edges for more accurate results and at least three measurements should be taken and averaged for final results. An established crop, such as hay or pasture provides at least 70 percent soil coverage and can be measured using the line-transect method.

4. Dewatered or dry biosolids may be applied to frozen ground when the slope is less than 5 percent and the soil is well-drained. Any biosolids applied on frozen ground must be done on sites with adequate vegetative cover unless incorporation within 24 hours is possible. For purposes of the Biosolids Use Regulations, ground is considered to be frozen if the soil is too hard for the normal operation of chisels, discs or other plow devices. This is usually demonstrated when the device raises large chunks or blocks of frozen soil, or when the plow cannot properly penetrate the soil.

5. Biosolids applications should not take place on saturated soils due to increased runoff and soil compaction potential. Soil is saturated when it is no longer capable of absorbing water and any additional rainfall would result in runoff. Therefore when soils are or expected to become saturated before spreading is completed, operations should be halted. If the soil was previously dry, is well drained and the rainfall is a low accumulation of only a few tenths of an inch, the operation does not necessarily need to stop. Consideration should also be given to preventing damage to the field such as rutting and soil compaction.

Table 3-2: Management Requirements for Land Application of Biosolids

<table>
<tr><th>Slope</th><th colspan="5">Time of Year</th></tr>
<tr><td rowspan="2">0-15%</td><td colspan="3" rowspan="2"></td><td colspan="2">Oct 1 – Feb 28</td></tr>
<tr><td colspan="2">Only 50% or less PAN rate allowed on tallgrass/hay.</td></tr>
<tr><td></td><td>Mar 15 - Aug 31</td><td>Sep 1 – Sep 14</td><td>Sep 15 – Nov 15</td><td>Nov 16 –Dec 21</td><td>Dec 22 - Mar 14</td></tr>
<tr><td rowspan="5">< 5%</td><td colspan="5">Inject or incorporate within 48 hours when < 60% soil coverage with crop residue or during times of frequent flooding</td></tr>
<tr><td>Planting should occur within 30 days of application</td><td colspan="2">Must be planted within 45 days of application if no established cool season grass is present
Must be planted by Nov. 16</td><td colspan="2">Dry or dewatered biosolids is permitted on frozen ground with 200' vegetated buffer from surface water, > 60% soil coverage with crop residue and when on well drained soils</td></tr>
<tr><td colspan="3"></td><td colspan="2">May apply to < 1" of snow if incorporated within 24 hours</td></tr>
<tr><td colspan="3"></td><td colspan="2">Biosolids prohibited on warm season grasses and alfalfa (frequent below-agronomic rate)</td></tr>
<tr><td colspan="3"></td><td>For leaching index >10, should have established cool grass or crop</td><td></td></tr>
<tr><td rowspan="6">5% - 7%</td><td colspan="3" rowspan="2">Inject or incorporate within 48 hours when < 60% soil coverage with crop residue or during times of frequent flooding</td><td colspan="2">No incorporation necessary if > 60% uniform residue cover</td></tr>
<tr><td colspan="2">• Incorporate within 48 hours maintaining 30% soil coverage with crop residue, or
• Ridge till or chisel plow along contour within 48 hours</td></tr>
<tr><td>Planting should occur within 30 days of application</td><td colspan="2">Must be planted within 45 days of application if no established cool season grass is present
Must be planted by Nov. 16</td><td>For leaching index >10, should have established cool grass or crop</td><td></td></tr>
<tr><td colspan="3"></td><td colspan="2">No application on frozen ground</td></tr>
<tr><td colspan="3"></td><td colspan="2">May apply to < 1" of snow if incorporated within 24 hours</td></tr>
<tr><td colspan="3"></td><td colspan="2">Biosolids prohibited on warm season grasses and alfalfa (frequent below-agronomic rate)</td></tr>
<tr><td rowspan="5">> 7%</td><td colspan="3">Inject or incorporate within 48 hours when < 60% soil coverage with crop residue or during times of frequent flooding</td><td colspan="2" rowspan="2">• Surface apply or inject beneath an established living crop or timely planted cover crop, or
• Surface apply or inject maintaining a 60% soil coverage with crop residue, or
• Surface apply or inject in compliance with soil conservation plan
Double buffers to perennial streams and surface waters</td></tr>
<tr><td>Planting should occur within 30 days of application</td><td colspan="2">Must be planted within 45 days of application if no established cool season grass is present
Must be planted by Nov. 16</td></tr>
<tr><td colspan="3"></td><td colspan="2">Biosolids prohibited on warm season grasses and alfalfa (frequent below-agronomic rate)</td></tr>
<tr><td colspan="3"></td><td>For leaching index >10, should have established cool grass or crop</td><td></td></tr>
<tr><td colspan="3"></td><td colspan="2">No application on frozen ground</td></tr>
<tr><td>> 15%</td><td colspan="5">Biosolids application prohibited at all times</td></tr>
</table>

D. Agronomic Rate of Application

1. Biosolids application rates are often limited based upon plant available nitrogen (PAN). Soil pH may be a limiting factor when lime stabilized biosolids are used (see the paragraph on Soil pH). The land applier is responsible for determining the acceptable loading rate on a field-by-field basis. The rates may be established by determining the predominant soil type in a field and then identifying the corresponding soil productivity group and nitrogen requirement for the proposed crop. For frequent biosolids application or frequent below agronomic rate applications, residual organic nitrogen from previous years' biosolids applications may need to be assessed.

2. To determine correct application rates, the following parameters must be known.

- Nitrogen content of biosolids or PAN
- Nitrogen uptake of the crop to be grown
- Useable acreage of the field, excluding the buffer zones
- Weight of biosolids to be applied in wet tons
- Percent solids content of biosolids in order to convert wet tons to dry tons

3.Biosolids application rates are limited to the *agronomic rate.* Agronomic rate is defined as the amount of biosolids, ***always on a dry weight basis,*** which provides the amount of nitrogen needed by the crop, or whatever plants are grown on the land, yet minimizes the amount of nitrogen that leaches below the root zone and into groundwater. Biosolids contain nitrogen in organic and inorganic forms. Most of the nitrogen in biosolids is in the organic form which is unavailable to plants until it is converted to inorganic nitrogen. All of the inorganic nitrogen is considered plant available nitrogen (PAN). Most of the inorganic nitrogen is in the form of ammonium and ammonia. Ammonia nitrogen is subject to loss by volatilization. Losses are greater for material left on the surface. Injection below the soil surface prevents losses. Estimates of volatilization losses for three methods of application are listed in Table 3.3.

Table 3-3: Ammonia nitrogen Volatilization Factors in Biosolids

Application method	Ammonia volatilization factor
surface spreading	0.50
surface spreading followed by incorporation	0.75
subsurface injection	1.00

4. The ammonia (includes ammonium) concentration is multiplied by the ammonia volatilization factor to obtain the percentage of ammonium that will be PAN. For example, an ammonium volatilization factor of 0.5 results in 50% of the ammonia being lost. Small amounts of nitrate, another inorganic form of nitrogen, are present in biosolids. All nitrate is PAN. Ammonium and ammonia in soil are converted to nitrate by naturally-occurring microorganisms within a few days to a few weeks depending on soil temperature and moisture. A portion of the organic nitrogen is mineralized (converted to an inorganic form) as the organic compounds in biosolids are decomposed, and thus becomes available during the growing season after biosolids is applied to the land. The inorganic ammonium, ammonia, and nitrate produced during decomposition of organic substances in biosolids are identical to the ammonium, ammonia, and nitrate found in commercial fertilizers. An estimate of the mineralization rate is needed to calculate the PAN and subsequently the agronomic rate for the biosolids application. The estimated mineralization rates for various biosolids are listed in Table 3.4.

Table 3-4: Estimated Nitrogen Mineralization rates for Biosolids

Treatment Process	Mineralization Factor		
	1st Year	2nd Year	3rd Year
Alkaline-stabilized	0.30	0.15	0.07
Aerobically-digested	0.30	0.15	0.08
Anaerobically-digested	0.20	0.10	0.05

Composted	0.10	0.05	0.03

5. A large portion of biosolids Nitrogen is reported as *total Kjeldahl nitrogen* (TKN), which includes the organic and Ammonia forms of nitrogen. The Ammonia nitrogen concentrations are subtracted from TKN to obtain the organic nitrogen concentration. Then the percent mineralization is multiplied by the organic nitrogen concentration to obtain the contribution of organic nitrogen to the PAN. Thus percent PAN from the organic fraction is: % PAN = [mineralization factor (Kmin)][(%TKN - % ammonium)]. The three sources of nitrogen-nitrate, ammonium (adjusted for volatilization), and mineralizable organic nitrogen- are added to obtain the PAN for the biosolids. Following is an example calculation for an aerobically digested biosolids, 0.5% nitrate, 0.8% ammonium, and 5.75% TKN that was surface spread, then immediately incorporated: From above, the mineralization factor for aerobically-digested biosolids is 0.3 and the volatilization factor (Kvol) is 0.75; therefore,

%PAN	=	nitrate + [(Kvol)(ammonium)] + [(Kmin)(TKN – ammonium)]
	=	0.5% + [(0.75)(0.8%)] + [(0.3)(5.75% - 0.8%)]
	=	0.5% + 0.6% + [(0.3)(4.95%)]
	=	2.57% or 51.4 pounds per dry ton

6. PAN requirements vary depending on the crop and soil productivity group. A list of nitrogen recommendations provided by Department of Conservation and Recreation (DCR) is provided in Table 3.5. These rates are to be used in determining the agronomic rate for biosolids applications when nitrogen is the rate-determining factor.

7. Agronomic PAN rate calculation example:

- Determine the fertilizer N recommendation for the crop based on the expected yield level for the soil.

  Use Table 3-5 or justify alternative site specific loading rates by documenting historic crop yield records or by written verifications from Virginia Tech/Virginia Cooperative Extension personnel.
- Subtract anticipated N credits (i.e., other sources of N) from the recommended fertilizer N rate, such as:
- Residual N from a previous legume crop (as estimated from Table 11C in the Biosolids Use Regulations)
- N that has already been applied or will be applied during the growth of the crop by fertilizer, manure, or other sources that will be readily available to plants
- Residual N remaining from previous waste (e.g., manure, biosolids)

Table 3-5 Recommended Plant Available (PAN) Application Rates in Pounds of Nitrogen (N) per Acre

Crop	Soil Productivity Group								
	I		II		III		IV		V
	A	B	A	B	A	B	A	B	
	lbs N/acre								
Corn grain or silage	160 - 180	150 - 170	140 - 160	130 - 150	120 - 140	110 - 130	100 - 120	85 – 105	65 – 85
Grain sorghum	140	130	120	110	100	95	90	90	80
Full season soybeans	160 - 180	150 - 170	140 - 160	130 - 150	120 - 140	110 - 130	100 - 120	85 – 105	65 – 85
Canola	100		90		80		60		60
Wheat	100		90		80		60		60
Barley	90		80		80		60		60
Rye	75		75		75		75		75
Oats	80		80		80		60		60
Tallgrass hay	250		250		200		160		160
Bermudagrass hay	300		300		260		210		210
Pasture Fescue/Orchardgrass	120		120		100		80		80
Bermudagrass pasture	200		200		160		120		120
Alfalfa	300		300		210		150		150
Sudangrass, sudangrass sorghum, millet	70		70		70		70		70
Stockpiles tall fescue (summer applcation by August 31)	90		90		90		60		60

- Calculate the adjusted biosolids N rate by subtracting "total N available from existing, anticipated, and planned sources" from "total N requirement of crop."

- Calculate the PAN/dry ton of biosolids for the first year of application using the following equation:

$$PAN = NO_3\text{-}N + Kvol\ (NH_4\text{-}N) + Kmin\ (Org\text{-}N)$$

where:
PAN = lbs plant-available N/dry ton biosolids
NO_3-N = lbs nitrate N/dry ton biosolids
Kvol = volatilization factor, or plant-available fraction of NH_4-N (Table 3.3)
NH_4-N = lbs ammonium N/dry ton biosolids
Kmin = mineralization factor, or plant-available fraction of Org-N (Table 3.4)
Org-N = lbs organic N/dry ton biosolids (estimated by organic N = total Kjeldahl N - NH_4-N)

- Calculate the amount of biosolids required to supply the crop N needs by:

Tons dry biosolids required/acre = adjusted biosolids N rate (in lbs/acre) divided by PAN/dry ton biosolids. Divide the tons of dry biosolids by the percent solids to convert to wet weight.

8. There are basically three application frequencies allowed in the Biosolids Use Regulations including: 1) frequent application; 2) infrequent application; and 3) frequent below-agronomic rate. There are very few sites permitted for frequent application as these sites require additional monitoring and reporting. Most land application sites are permitted for infrequent or frequent below-agronomic rate. For infrequent application sites, biosolids may be applied once in three years at a rate so the total crop needs for nitrogen are not exceeded during a one year crop period. The one year nitrogen need may include double cropping, so that application could take place twice in one year for a rotation such as corn and soybeans. Frequent below-agronomic application rates involve frequent application of biosolids on permanent

pasture or hay at less than the PAN requirements. Frequent below agronomic rates may involve two different methods. The first is to provide a maximum of 70 percent of the nitrogen requirement of the permanent pasture or hay crop on an annual basis. The 70 percent rate must be calculated after accounting for the previous two years' residual nitrogen based on the applied biosolids nitrogen mineralization rates. This method may be practical for 3 consecutive years application before the nitrogen residual reduces the amount applied to an impractical small amount. The second method is to provide a maximum of 50 percent of the nitrogen requirement of the permanent pasture or hay crop on an annual basis without accounting for residual nitrogen from previous year' biosolids applications.

9. Soil pH samples must be measured prior to land application operations and must be taken within one year of initiating land application. The amount of biosolids which have been lime stabilized or otherwise have a high lime content may be restricted according to the soil pH. Target soil pH values of 6.5 for low coastal plain soils and 6.8 for mid to upper coastal plain soils should not be exceeded. The recommended lime application rates to obtain desired pH values are provided in Table 3-6 for coastal plain soils and Table 3-7 for soils outside the coastal plains. The application rates for lime stabilized biosolids may be calculated by dividing the rates in Table 3-6 and 3-7 by the percent calcium carbonate equivalency (CCE) in the biosolids.

10. Land appliers must ensure biosolids are spread evenly across fields at the proper application rates to avoid excessive nitrogen loadings to the field which could result in impairment to the surface and groundwater, result in poor utilization of the nutrients by the crops and decrease crop yields. Therefore, application equipment must be properly calibrated. Pasture and hay fields should be grazed or clipped to a height of approximately four and six inches, respectively, prior to biosolids application. Otherwise, the biosolids must be uniformly applied so as not to mat down the vegetative cover so that the site vegetation can be clipped to a height of approximately four inches within one week of the biosolids application. If application methods do not result in a uniform distribution of biosolids, additional operational methods shall be employed following application such as dragging with a pasture harrow, followed by clipping if required. Biosolids off-loading areas, generally have concentrated amounts of biosolids.

Table 3.6: Recommended Lime Application Rates Needed to Adjust Initial Soil pH to 6.5 for Coastal Plains Soils

Initial pH	Soil Type	
	Lime, tons/acre	
	Coarse Textured	Fine Textured
4.8	3.5	4.5
5.0	3.0	3.73
5.5	1.75	2.5
6.0	1.25	1.5
6.3	0.75	1.0

Table 3.7: Recommended Lime Application Rates Needed to Adjust Initial Soil pH to 6.8 for Soils Located Outside the Coastal Plains

Initial pH	Soil Type	
	Lime, tons/acre	
	Coarse Textured	Fine Textured
4.8	4.25	5.75
5.0	4.0	5.25
5.5	3.0	4.0
6.0	2.0	2.75
6.5	1.25	1.5

E. Follow-up Inspections

1. Follow-up inspections are conducted to ensure that any incorporation requirements, access restrictions and cropping and planting requirements are performed. In some cases, biosolids must be incorporated into the soil within specific time periods. The times for incorporation vary depending on the reason. In cases where the biosolids is incorporated to meet vector attraction reduction requirments, the biosolids must be incorporated within six hours of application. In other instances, biosolids may need incorporation due to insufficient vegetative cover, time of year or weather conditions (see Table 3-2). Biosolids applied on soils classified as frequently flooded must be incorporated during those times of year when flooding is likely (November through May) within 24 hours.

2. There are different access restriction on fields which have received Class B biosolids depending on the use of the site. Access to any site with a high potential for public use by the general public must be controlled for at least one year. Access to agricultural sites with a low potential for public exposure must be controlled for 30 days. Grazing by non-lactating animals is restricted on site which received biosolids for 30 days while that the lactating dairy livestock is 60 days.

3. Cropping and planting follow-up refers to both those crops which are required to be planted and those crops which are restricted from being grown on biosolids amended soils. The crops for which the biosolids application rate was applied must be planted in a timely manner (see Table 3-2 for specific dates and time frames). Crops grown for direct human consumption without processing prior to use are restricted according to the following guidelines

- Food crops with harvested parts that touch the biosolids/soil mixture and are not totally above the land surface shall not be harvested for 14 months

- Food crops with harvested parts below the surface shall not be harvested for 20 months following application when the biosolids remain on the land surface for 4 months or longer prior to incorporation into the soil
- Food crops with subsurface harvested parts shall not be harvested for 38 months following application, when the biosolids remain on the land surface less than 4 months prior to incorporation

F. Equipment Requirements

1. Liquid biosolids can be applied by surface spreading or subsurface injection. Application equipment includes 6,000-gallon tankers equipped with splash plates which distribute the biosolids in a fan spray. The applicator vehicles are usually equipped with flotation tires. Biosolids must be applied at a rate not to exceed 14,000 gallons per acre, per application. Sufficient drying time must be allowed between subsequent applications. Two or more passes is usually necessary to provide the full agronomic rate. Liquid biosolids can also be injected below the soil surface using tractor-drawn tank wagons with injection shanks and tank trucks fitted with flotation tires and injection shanks. Both types of equipment minimize odor problems and reduce ammonia volatilization by immediate mixing of soil and biosolids. Injection can be used either before planting or after harvesting crops, but it is likely to be unacceptable for forages and sod production. Some injection shanks can damage the sod or forage stand and leave deep injection furrows in the field. Subsurface injection will minimize runoff from all soils and can be used on slopes up to 15 percent. Injection should be made perpendicular to slopes to avoid having liquid biosolids run downhill along injection slits and pond at the bottom of the slopes. As with surface application, drier soil will be able to absorb more liquid, thereby minimizing downslope movement.

2. There are requirements for vehicles transporting biosolids in the Biosolids Use Regulations addressing spillage and leakage issues. There are different requirements for liquid (0 to 15 percent solids) and cake (15 to 35 percent solids) biosolids. If liquid biosolids are transported, the transport vehicle must contain a watertight compartment such as a tank truck. A loaded transport vehicle can be checked for watertightness by looking for any visible signs of leaking or dripping. A tank truck should be fully enclosed (no hatches open on top). Dewatered or cake biosolids are usually transported by dump trailers or sealed intermodal boxes. The trailers and boxes must be watertight and equipped with seals to prevent leaks. Trailers that do not have fully enclosed tops must have internal baffles, topside splashguards and turnbuckle fastened gates. The splashguards must be constructed of metal or other sufficiently strong material to prevent the escape of biosolids during sudden braking or impact. There should be no holes or cracks in the splashguard large enough to allow biosolids to escape and the splashguard must cover at least 25 percent of the trailer area.

3. Heavy truck traffic during biosolids operations has the potential to impact the road leaving and entering the permitted sites. The most common occurrence is to carry soil residuals on tires which is then deposited on the adjacent road in what is referred to as drag out. Often, following recent precipitation, wet soil or mud is on the tires and only insignificant amounts of biosolids are present. However, if the drag out becomes excessive, efforts must be made to clean the tires before leaving the field. Several cleaning methods can be used such as, scraping, brushing or pressure washing, assisted by running the trucks over lain gravel prior to entering the roadway.
If drag out exceeds state or local standards, operations should be suspended until the problem is resolved.

G. Sampling and Monitoring

1.Although site inspections provide immediate information on permit compliance, sampling and monitoring of biosolids, soils and water quality, may provide additional information on compliance with the Biosolids Use Regulations. Biosolids producers and land appliers are responsible for demonstrating that the biosolids meets processing and quality standards at the time of use. Soil sampling and testing for

certain soils parameters is performed by land appliers prior to land application. Water quality samples may provide information on nutrient contamination or other pollutants, if there is evidence of biosolids leaving the site. Each jurisdiction may be reimbursed for up to three samples per county per contractor per year at a cost of up to $1200 per contractor. Thus sample collection and subsequent testing should be done only if permit non-compliance is suspected.

2. There are three categories for which biosolids are monitored: 1) pathogens and measures of pathogen and vector attraction reduction, 2) trace elements, and 3), agronomic characteristics (nutrients and moisture).

a. Pathogen and vector attraction reduction may be demonstrated using treatment process performance parameters accepted for stabilizing treated sewage sludge, or through direct monitoring of pathogens or indicator organisms. Most testing results simply verifies that the biosolids have been stabilized prior to leaving the wastewater treatment works. Sometimes, stabilization is not complete such as with sewage sludge lagoon cleanouts and vector attraction reduction must be achieved in the field by incorporation within six hours. Land applied biosolids may be stabilized through a number of different processes. Therefore, the monitoring for process parameters such as pH, temperature, or indicator organisms such as fecal coliforms, depends upon the type of biosolids treatment.

b. Lime stabilized biosolids use the microbiological destructive power of osmotic pressure and heat generated from the lime reaction to inactivate (cannot grow) pathogens. In order for these physical actions to last a sufficient amount of time to inactivate pathogens, the pH must be maintained above 12 for 2 hours and 11.5 for 22 additional hours. Therefore, lime stabilized biosolids should have a pH above 11.5 at the time it reaches the field, unless it has been held in storage over an extended period of time. In that case, the pH should not be below 10 to minimize the potential for odors.

c. Digested (decomposed) biosolids are held in biological reactors called digesters for a minimum time at a minimum temperature to reduce pathogens. These parameters must be measured and controlled at the treatment works. Vector attraction reduction is accomplished primarily through volatile suspended solids reduction, which is also measured and controlled at the plant. Ideally, the volatile suspended solids of anaerobically (no oxygen available to support decomposition of organic solids) digested biosolids should be below 55 percent once it reaches the fields.

d. For aerobically (oxygen present) digested biosolids vector attraction reduction is accomplished by demonstrating volatile solids reduction or through measurements of specific oxygen uptake rates in the treated sewage sludge. A volatile suspended solids of 55 percent or less is desirable. A specific oxygen uptake rate of 1.5 milligrams of oxygen per gram on total solids or less is required.

e. The trace elements or “heavy metals” required to be measured in biosolids are: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium and zinc. The concentrations of these elements must be lower than the allowable concentrations listed in Table 3-8.

Table 3-8: Ceiling Limits for Trace Element Concentrations in Biosolids

Trace Element	Concentration in Milligrams per Kilograms (Dry Weight)
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840

Mercury	57
Molybdenum	75
Nickel	420
Selenium	10
Zinc	7,500

f. Biosolids can be monitored for several agronomic parameters. Since application rates are based on nitrogen, it is the primary nutrient of concern. Phosphorus and potassium are two other principle nutrients of interest to ensure they are in sufficient quality to support adequate crop growth and subsequent nitrogen uptake. The solids content of the biosolids must also be measured to calculate the proper application rate of the biosolids. Percent solids content allow for the conversion between laboratory results usually provided on a "dry weight" basis and the actual application rate which is on a "wet weight" basis.

3. Most biosolids will be in applied in the dewatered or cake form and can be sampled when the material is in off-loaded piles at the staging areas. It is important to get representative samples of biosolids to get accurate results, therefore several samples should be collected from different off-loaded piles with a probe at different depths of the pile. Samples collected during application should be composites of sub-samples taken from several loads, or taken at several times or places during application. Samples should be cooled immediately after collection to minimize loss of ammonium. Label all samples provided including at least the client name, sample number, type of sample, date of sampling and telephone number.

4. Samples shipped to a lab should be packaged to avoid breakage and spillage with a sufficient amount of insulation and artificial refrigerant (blue ice) to maintain a temperature of 4 degrees centigrade for the trip. Contact the laboratory that will be performing the analysis to determine the amount of sample required for each analysis and the necessary number of duplicate containers. Leave air space in the container and seal securely. If samples are mailed in, place them in an insulated container and ship them to the lab early in the week (not before a holiday) to ensure quick delivery.

5.All samples collected must follow chain of custody. When samples are collected and transported to a lab, it is important to track all persons who handle the sample and the time each person took possession of the sample. This is called a chain of custody record. The lab usually supplies a chain of custody sheet with the sampling kit containers. However if necessary, anyone can create a chain of custody record sheet. It should have, at a minimum, the following:

- Sample collector's name and signature,
- Date and time of collection,
- Place and address of collection, and
- Date, time and signatures of all persons taking possession of the sample.

Each person handling the sample must maintain a copy of the chain of custody record sheet.

6. Soil testing may provide information on soil pH, nutrients and trace element concentrations in the soil. Additional parameters usually measured are: cation exchange capacity, boron, magnesium, manganese, chromium and sulfur. Soil sampling for nutrients such as phosphorus and potassium is useful to the farmer. Potassium is not present in significant concentrations in biosolids and if it is deficient in soils, additional potassium fertilization is recommended. Phosphorus has recently gained more attention and may be restricted in the future on fields measuring high or excessive in available phosphorus levels.

7. Soil samples should represent the entire field where biosolids are applied. Samples are taken at a plow depth of six inches, four inches for pasture and hay land. Samples should be combinations of several small samples, or a composite from several locations in the field, usually in locations that represent an acre of land. A composite sample should not represent a land area grater than 20 acres, and, if a field is

larger than this, separate composite samples should be prepared. If a field contains two or more distinctly different kinds of soil, samples should be taken from each type then completely mixed together in a clean container of several gallon capacity and the required amount withdrawn for analysis. Collect samples using clean, stainless or plastic buckets and a soil probe or auger. Avoid contaminating the sample with manure, biosolids, lime, fertilizer or other substances. When sampling avoid unusual areas such as eroded sections, dead furrows, fence lines, terraces, roads or manure or straw stockpile area. Do not sample animal droppings, urine spot, eroded knolls, or depressions. All samples collected must follow chain of custody.

8.The costs for the analysis of specific constituents in biosolids and soils sample, including the shipping cost are reimbursable. Reimbursement may include the laboratory cost for analyzing biosolids for: nitrogen forms; calcium carbonate equivalency; total phosphorus and percent solids (see section on Biosolids Sampling). Reimbursable soils analysis parameters include: nitrogen forms, phosphorus, potassium, magnesium, calcium, pH and calcium carbonate equivalency.

H. Record Review

1. Record review provides another layer of oversight where the documentation of field activities can be reviewed compliance. Biosolids producers must periodically monitor and report on the quality of the biosolids they produce. Land appliers must document site-specific operational information on each field daily.

2. Biosolids producers or treatment works owners must verify and document that they are treating their biosolids to meet the federal and state standards for the land application of biosolids. These records contain information on the treatment process and means to achieve the required pathogen and vector attraction reductions. The treatment works owners also routinely monitor for the nine regulated trace elements and report those results. Finally, the producer must provide a certification statement that the biosolids meet all land application standards and that the data reported is correct.

3. Land appliers compile and submit information on all activities on a monthly basis to include the following:

- Name of permittee
- VDHBUR permit number
- Dates of application
- Site or field number
- Soil pH
- Crop
- Source of biosolids and approximate field areas receiving the biosolids
- Amount of biosolids applied in dry tons and the method and calculations used to calculate the reported value
- Dates and type of any interactions with local monitors and names of individuals involved in interactions
- Name of responsible representative of permittee and a statement signed and dated by that representative indicating that the information submitted has been verified by that representative as correctly reported

4. The reported information may be checked against information obtained from field inspections. Application rates and frequency may be checked to ensure they do not exceed allowable loading rates.

I. Recordkeeping

1. Recordkeeping is an important part of a biosolids oversight and monitoring cost reimbursement program. Documentation and reports are one part of verifying compliance with the Biosolids Use Regulations. They also provide a means to document the expenses and reimbursable activities. Therefore, it is necessary to create and maintain records in an efficient manner to properly access and interpret regulatory information. Time spent on recordkeeping is reimbursable.

2.Specific information is generated during the entire life cycle of the land application process. These include notification of permit or modification issuance to post application records. Some letters are sent directly to the jurisdiction while a jurisdiction may be copied on letters and correspondence addressed to the land applier or others. Following is a list of typical letters, correspondences and reports to be filed and maintained.

- Notice of permit issuance or reissuance
- Notice of modification issuance
- Notices of permit variances
- Copies of permits and modifications
- Copies of variances
- Copies of site surveillance inspections conducted by VDH
- Copies of complaint or incident response conducted by VDH
- Notification by land applier where operations are expected to occur in a given time period
- Monthly spreading reports from the land appliers
- Site inspections conducted by the local Monitor
- Complaint and incident response reports conducted by the local Monitor
- Biosolids and/or soils sample chain of custody forms
- Biosolids and/or soils sample analytical results

J. Complaint and Incident Response

1. Biosolids complaint and incident response is a key activity. Complaints usually pertain to odors, truck traffic and road conditions, alleged permit violations and negative health impacts. The time spent on responding and investigating biosolids complaints is reimbursable. The mileage spent travelling to the field in question is also reimbursable.

2. Every effort should be made to investigate biosolids complaints and follow-up with the person who called in the complaint on the same day the complaint is received. Provided below are recommended steps to take when responding to complaints.

- Receive the call or return the call of the person who complained. If returning a message, speak with the person who left the message in order to get the most accurate information.
- Obtain basic information from the caller, including name, phone number, location and time incident occurred.
- Notify the contractor involved that a complaint has been received. Obtain information on the site such as: permit number; site name or number; field or field(s) operated on; biosolids source; method of application; start date of operations; status of current operations and information on any incidents which may have occurred.
- Conduct a site visit. Take the site booklet for verification of proper field locations. Take photos or make sketches if necessary to show field features, buffer distances and any other details related to the complaint.
- Collect biosolids or soils samples if deemed advisable (see section on Monitoring).
- Determine whether a violation exists. If so, call the Division of Wastewater Engineering as ask what action to take. Provide DWE with all relevant information.

- If a violation does not exist, take steps the help solve the problem causing the complaint when reasonably possible. For example, sweeping the road free of tracked out mud may be possible. Recommend the possible solutions to the land applier and contact DWE if necessary.
- After completing the investigation, conferring with DWE and making any recommendations to the land applier, call or visit the person who called in the complaint. Inform them of your findings and any actions taken or to be taken to help solve the issue. If no violation exists, reassure the complainant that all operations are being conducted according to the regulations and that those requirements minimize and reduce negative impacts on pubic health and the environment. If appropriate, explain the permitting process. Answer all questions truthfully and to the best of your knowledge. Refer additional questions to DWE staff. Provide written material on the land application program.
- Write an investigation report. Include all the information collected from the complainant, the site date, analytical results and any other pertinent information.
- Conduct any follow-up inspections or calls to ensure that all measures were taken to remedy the situation and that all involved are apprised of all those measures.

K. Training

1. Quality training programs for biosolids monitors will enhance the land application program by reducing the potential for negative environmental impacts. Many resources are available for training through biosolids organizations, states or regions. Additionally, the World Wide Web serves as a tool for disseminating and obtaining information. Reimbursement for training is provided for in the Biosolids Fee Amendments. Local monitors are able to attend up to three days of training per year plus one day of travel time to training. Lodging and per diem expenses during training are also reimbursable. Training expenses are reimbursable up to a total of $1188 annually.

2. Training content for local monitors should provide on overview of the entire biosolids lifecycle from the wastewater treatment process to post-land application operations. Training should be focused on issues directly related to verifying compliance with the state regulations. Nutrient Management training offered by the Department of Conservation and Recreation is considered essential. Following is an overview of suggested training topics:

- Regulatory Compliance
  - Applicable regulations
  - Meeting regulatory requirements
- Biosolids Quality
  - Pathogen reduction
  - Vector attraction reduction
  - Trace element concentration limits
- Sampling and testing biosolids
  - Biosolids sampling procedures
  - Biosolids analyses
- Public Information
  - Working with application site neighbors
  - Communicating the general public
- Transportation to Land Application
  - Highway regulations and driver performance
  - Spill response
- Land Application Nutrient Management
  - Nitrogen and the environment
  - Other nutrients

- Calculation of Agronomic Rates
  - Calculation principle
  - Making calculations
- Soil Testing
  - Test selection and sample collection
  - Soil testing methods
- Land Application Site Management
  - Soil survey information
  - Evaluating site suitability
- Biosolids Application
  - Site management goals
  - Site management procedures
- Fee Reimbursement Procedures
  - Allowable activities
  - Documentation and submittals

3. As stated, there are many training resources available. Following is a list of regional resources.
   - Virginia Department of Conservation and Recreation Nutrient Management Training School
   - Pennsylvania Water Environment's Biosolids Recycling Course
   - North Carolina's Land Application Course
   - Virginia Rural Water Association Biosolids Recycling Course
   - Virginia Department of Environmental Quality's Sampling and Testing for Small Treatment Plants Manual.

FORM 1

Biosolids Land Application Local Monitoring Expenses

REIMBURSEMENT INVOICE

VDH Use Only		
Claim No:	Activity Dates:	
County:	Date Rec'd:	
Evaluator:	VDHBUR:	Approval Amount:

Complete and submit with all required supporting documentation to Virginia Department of Health, Division of Wastewater Engineering, 1500 East Main Street, Room 109 Richmond, VA 23219. Type or print legibly the required information in the applicable sections below. Refer to the Biosolids Use Regulations (12 VAC 5-585) for instructions on how to complete the form. The application will NOT be accepted unless the Certification in Section VIII has been signed and notarized by the claimant.

I. Claimant Information			
A. Name of Local Government Official:	B. County:		
C. Claimant Mailing Address:	D. City, State	E. Zip Code	
F. Claimant Telephone No. ( )	G. Claimant Fax No. ( )	H. Local Monitor Name	
I. Contact Person for Reimbursement	J. Contact Person Telephone No. ( )	K. Contact Person Fax No. ( )	

II. Monitoring Activity Information (Attach additional separate sheets if necessary)		
A. VDHBUR No. and Site Identification	B. Farm(er) and Site Location	
C. Type of Monitoring Activity and Dates	D. Reimbursable Time and Charges	
E. Sampling and Testing Information	F. Name and location of Lab used	G. Total Lab Charges

III. Multiple Owner Information (For Local Monitor employed by multiple jurisdictions)

Are the expenses listed above part of a multiple owner payment submission?

☐ Yes ☐ No

If you answered "Yes" to the above question, you are required to submit this invoice with the multiple owner payment Form 2.

IV. Responsible Official Statement (Please sign name):

A. Were the listed expenses incurred during the dates included in Part II.C of this form?

☐ Yes ☐ No

If you answered "No", please attach the neces sary documentation to explain the discrepancy.

V. Statement Of Costs

A. Are all expenses listed in this invoice complete at the date of this invoice?

☐ Yes ☐ No

B. Will additional reimbursement costs incurred for monitoring activities at the site(s) listed above be submitted?

☐ Yes ☐ No

C. Total costs claimed for reimbursement in this Invoice

$_____

VI. County Administrator Certification (Please print name):

The following signature attests that the monitoring activities for which reimbursement is sought have been performed in accordance with the provisions of the Biosolids Use Regulations (12 VAC 5-585):

_____ _____

County Administrator Date

_____ _____

Local Monitor Date

INSTRUCTIONS FOR COMPLETING THE REIMBURSEMENT INVOICE

Fill in the following information

Block I. Claimant Identification

A. Claimant's name: The Local government jurisdiction where land application of biosolids occurred and local monitoring activities took place during the dates specified is the claimant, but a responsible local government official should be named. The claimant may submit an invoice for costs incurred for any completed local monitoring activities during the stated reimbursement period since any prior invoice submittals for a reimbursement period of time. The claimant named in this section will be considered the person or entity that will receive all original correspondence and will be named as the payee on the reimbursement checks unless a Payment Assignment Form has been completed.

Where there are multiple jurisdictions (owners) employing the same local monitor, one Claimant may claim the costs submitted for the reimbursable monitoring expenses. The other owners must assign the right to reimbursement to this single claimant by using the Multiple Owners Payment Assignment Form 2.

B. Provide the County in which land application of biosolids occurred and the invoiced monitoring expenses are claimed.

C. D. E. Provide the claimant's current mailing address; including the city, state, and zip code.

F. List the telephone number, including area code, for the claimant.

G Provide the fax number, including area code, for the claimant.

H. Provide the Local Monitor's name. The Local Monitor may be an individual, a business entity (e.g. partnership or corporation) or a government agency.

I. Provide the name of a person who can answer questions about the invoice.

J. List the telephone number, including area code, where the contact person can be reached.

K. Provide the fax number, including area code, for the contact person.

Block II. Monitoring Activity Information (Attach additional separate sheets to provide this information if necessary).

A. Provide the VDHBUR Permit number(s) authorizing the land application of biosolids on the listed sites for which monitoring expenses are being claimed. The site identification numbers as listed in the VDHBUR Permit should be included. Also, the monitoring activities site location can be identified by the farm name as is generally known.

B. List the Farm name or landowner's name if known and the site's location (street name), including the city, state, and zip code, if known.

C. Describe the type of reimbursable monitoring activity that occurred and the date that the activity took place.

D. List the time expended for the monitoring activities and the reimbursable charges for that activity.

E. Describe any sampling activity on specific sites or other locations and list any laboratory testing of samples.

F. List the Name of any Laboratories performing testing on samples collected.

G. Provide the reimbursable laboratory testing costs.

Block III. Multiple Owner Information

Check the box indicating whether or not this invoice is part of a multiple owner payment request. If "Yes" is checked, submit the invoice with a complete copy of Form 2 with all other invoices and required endorsements.

Block IV. Responsible Official Statement

Signature of responsible local official checking the box indicating whether or not the local monitoring expenses listed in this invoice were verified to occur during the period of time that reimbursement is claimed . If "No" is checked, submit documentation explaining why any claimed monitoring expenses did not occur during the listed time period.

Block V. Statement of Costs

A. Check whether or not the expenses claimed in this invoice are complete for the time period specified in this invoice.

B. Check whether or not additional reimbursement claims will be submitted for monitoring activities during the time period specified in this invoice.

C. Enter the total costs being claimed for the monitoring activities during the time period specified in this invoice.

Block VI. County Administrator Certification

Signature of County Administrator indicates that the invoice has been properly prepared by a responsible official who has verified that the local monitoring expenses claimed in this invoice are correct to the best of their knowledge

Signature of Local Monitor indicates that the claimed expenses are accurate and complete for activities they have reported.

Local Government Responsible Official Signature:

Name:_____ Signature:_____ Date:_____

VDH Evaluator Authorization Signature:

Name:_____ Signature:_____ Date:_____

FORM 2

Biosolids Land Application Fee - Reimbursement

MULTIPLE OWNERS PAYMENT ASSIGNMENT

An application for reimbursement may be submitted to the Virginia Department of Health by several Local Governments that employ the same local monitor entity if this form is included as part of the application. For reimbursement of expenses incurred by a local monitor serving multiple Local Governments, each local government must sign, and notarize, a Payment Assignment Form. If all Local Governments do not sign, and submit a separate invoice form, the Payment Assignment Form will not be processed.

Local Monitor Name: _____ Date(s) of activities _____

Counties where activity occured: _____

Name(s) of Responsible Local Official: _____

Local Monitor Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone/Fax/e-mail: _____

MONITORING ACTIVITIES CERTIFICATION

I _____, certify that I am the responsible Local Government Official for assuring that the monitoring activities for which reimbursement is sought have been performed by the local monitor listed above.

I _____, certify that I am the responsible Local Government Official for assuring that the monitoring activities for which reimbursement is sought have been performed by the local monitor listed above.

I _____, certify that I am the responsible Local Government Official for assuring that the monitoring activities for which reimbursement is sought have been performed by the local monitor listed above.

I _____, certify that I am the responsible Local Government Official for assuring that the monitoring activities for which reimbursement is sought have been performed by the local monitor listed above.

The following signature attests that the monitoring activities for which reimbursement is sought have been performed in accordance with the provisions of the Biosolids Use Regulations (12 VAC 5-585):

_____ _____

Local Monitor Signature Date

FORM 2

Biosolids Land Application Fee - Reimbursement

MULTIPLE OWNERS PAYMENT ASSIGNMENT FORM

RP Signature: _____ Date: _____ Page _____ of _____

DEQ Initial: ____ Date: _____ Effective: 1/1/98

(Rev. 1/17/00)

PAYMENT ASSIGNMENT FORM

This form is for use by claimants who wish to assign their reimbursement payment to another party. A copy of the notarized original of this form must be submitted with reimbursement invoices for which the claimant wishes to assign the payment to another party. All assignments are subject to the approval of VDH.

Reimbursement Invoice Number:	**VDH Use Only**:

Part I: Claim Assignment (must be completed by Claimant)

Party to Receive Payment:

Claimant Name:_____ Name:_____

Total Costs Claimed in this Application: $_____ Address_____

Contact Name/Telephone of Assignee:_____ City: _____State_____Zip_____

By signing below, I:

1. Assign the invoice reimbursement payment for the above-referenced claim and any reconsideration of that claim to the Assignee designated above.
2. Warrant and represent that I am the claimant, or in claims in which the claimant is not an individual, that I have the authority to assign this payment on behalf of the claimant.
3. Agree that the assignment by this form applies only to the reimbursement claim with which it is submitted and any reconsideration of that claim.
4. Agree that use of this form does not transfer my liability for the submitted invoice.
5. Agree that any check issued as a result of this reimbursement claim will be issued only to the name of the party designated as the assignee on this form.
6. Agree that if the check is issued to the claimant rather than the party designated as assignee on this Assignment Request Form, I bear the responsibility for transferring the payment to the assignee.

_____ _____

Claimant Signature Date

THIS STATEMENT MUST BE NOTARIZED

State of_____}
}
City/County of_____} ss:

Subscribed and sworn to before me by _____ on this _____ day of _____,_____

/s/_____ My commission expires _____

VDH Use Only
RCVD

Biosolids Land Application Fee - Reimbursement

NOTICE OF INTENT TO SEEK RECONSIDERATION

If you have questions about how to complete this form, please call the Virginia Department of Health, Division of Wastewater Engineering (DWE) at (804) 786-1755. After completing this form, please mail it to: VDH-DWE, 1500 E. Main St., Room 109, Richmond, VA 23219 or fax it to (804) 786-5567. **DWE MUST RECEIVE THIS FORM WITHIN 21 DAYS OF THE DATE OF THE CERTIFIED MAIL RECEIPT FOR THE ORIGINAL CLAIM.**

Any additional payment approval in the Reconsideration process will be made payable to the payee referenced below (designated in the original claim) and will be mailed to the address below. If changes need to be made please refer to the instructions on the back of this form.

1. **Payee Name** ***ABC County***
2. **Address** ***1234 Anywhere Road***
   City/County VA 2XXXX
3. **Name of Contact Person** ***John Doe***
4. **Daytime Telephone Number** ***804-XXX-ZZZZ*** **5. Fax Number** ***804-XXX-Z00Z***
6. **VDHBUR#**_____ **7. Claim#** ***00X***
8. **Local Monitor Name** _____
9. **Local Monitor Address** _____
   City/County VA 2XXXX

_____of_____

_____Effective: 1/1/98

(Rev. 1/17/00)

Section I. Method of Reconsideration *(PLEASE REFER TO THE BIOSOLIDS USE REGULATIONS FOR DETAILS)*

A. Please check the appropriate box to indicate whether you wish to seek reconsideration by meeting or by correspondence.

Panel Meeting Written Determination

B. Please check the appropriate box to indicate whether or not you wish to participate in a technical evaluation conference (TEC).

I wish to participate in a TEC I do not wish to participate in a TEC

SECTION II. CLAIM FILE

Please indicate whether you wish to have your claim file copied and mailed to you. DWE recommends that all claimants seeking reconsideration request and review their claim file.

I do not wish to request a copy of my claim file at this time.

I would like for a copy of the file for the above-referenced claim to be mailed to me at the above stated address. I understand that I will be billed $0.20 per page for the copies if more than 25 pages must be copied.

If you wish your copying bill and/or copies to be mailed to an address other than the address listed above, please indicate the address below:

Alternate address for copies/billing: _____

_____

_____

_____

Payee Signature **Date**

Instructions for Completing the

Notice of Intent to Seek Reconsideration

Note: To ensure that this form is received at DWE by the filing deadline, DWE suggests sending it by certified mail (return receipt requested), express service, courier, or fax (804) 786-5567.

Claimant Information

Verify the (1) Payee Name
(2) Address
(3) Name of Contact Person
(4) Daytime Telephone Number **(of the contact person)**
(5) Fax Number **(of the contact person)**
(6) VDHBUR Number(s) **(in the Decision Package you are contesting)**
(7) Claim Number **(of the Decision Package you are contesting)**
(8) Local Monitor Name
(9) Local Monitor Address

and indicate if this has changed since the original claim was filed by marking corrections on the pre-printed information. (You will be contacted if additional information is needed.)

RP Signature:_____ Date:_____ Page_____of_____

DEQ Initial: ____ Date:_____

Section I. Method of Reconsideration

Check the option corresponding to the method of reconsideration you wish to select, either a Panel Meeting or a Written Determination, with or without a Technical Evaluation Conference (see Reconsideration Procedures for details.)

Section II. Claim File

Indicate whether you wish to receive a copy of the claim file. If applicable, provide the alternate address for copies and copy billing. An invoice for copy costs at $0.20 per page will be included with file copies if more than 25 pages must be copied. *If the claimant fails to pay the invoice amount, the cost for the copies will be offset against reimbursement due the claimant.*

Only that portion of the file that the claimant does not already have is copied. The documents copied typically include DWE evaluation notes and memoranda/correspondence.

Signature Line

The Payee (claimant or assignee) must sign and date the form.

Form 4

Biosolids Land Application Fee Reimbursement
RECONSIDERATION CLAIM FORM

If you have questions about how to complete this form or the Reconsideration Procedures, or if you have any questions in general, please call the Virginia Department of Health, Division of Wastewater Engineering (DWE) at (804) 786-1755. After completing this form, please mail it to: VDH-DWE, 1500 E. Main St., Room 109, Richmond, VA 23219 or fax it to (804) 786-5567. **THIS FORM AND WORKSHEET (S) MUST BE RECEIVED BY DWE WITHIN 45 DAYS OF THE DATE OF THE CERTIFIED MAIL RECEIPT FOR THE ORIGINAL CLAIM.**

SECTION A. PAYEE INFORMATION

If any additional monies are approved for this reconsideration claim, payment will be made to the payee (referenced below) as designated in the original claim. Please review items 3 through 11 for verification. If any corrections need to be made to the information, please check the boxes that apply and write the correct information in SECTION C. CORRECTED INFORMATION below.

1. › **Payee Name is correct as listed below but the address needs to be corrected-** I have submitted the corrected address in Section C. of this page.
2. , **Assign payment to a different party other than the one listed below-** I have completed a notarized payment assignment form 2(if applicable).
3. › **Payee Name** _____*ABC County*_____
4. › **Address** _____*1234 Anywhere Road*_____
   _____*City/County, VA 2XXXX*_____
5. › **Name of Contact Person** _____*John Doe*_____
6. › **Daytime Telephone Number** __*804-XXX-ZZZZ*_____ 7. › **Fax Number** ___*804-XXX-Z00Z*_____
8. › **VDHBUR#**_____ 9. › **Claim#** _____*00Y*_____
10. › **Local Monitor Name** _____
11. › **Local Monitor Address** ___*City/County, VA 2XXXX*
    _____
    _____

___of_____

DEQ Initial: _____ Date:_____

SECTION B. STATEMENT OF COSTS FOR RECONSIDERATION

12. Total costs being contested in this application $_____.

SECTION C. CORRECTED INFORMATION

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

PLEASE NOTE

- The Payee Name and Address on this form will be used for all correspondence, and the Final Agency decision and check (if applicable) will be sent to this name and address unless a notarized Payment Assignment Form is submitted.
- Any supporting documentation should be submitted with this form.
- You must submit this page *and* the Reconsideration Claim Form Worksheet(s) by the deadline.

THIS FORM IS CONSIDERED INCOMPLETE WITHOUT THE RECONSIDERATION CLAIM FORM WORKSHEET.

Instructions for Completing the

Reconsideration Claim Form

Note: To ensure that this claim form is received at DWE by the filing deadline, it is suggested that this claim be sent by certified mail (return receipt requested), express service, courier, or fax (804) 786-5567.

Section A. Payee Information

Verify the (3) Payee Name
(4) Address
(5) Name of Contact Person
(6) Daytime Telephone Number **(of the contact person)**
(7) Fax Number **(of the contact person)**
(8) VDHBUR Number(s) **(in the Decision Package you are contesting)**
(9) Claim Number **(of the Decision Package you are contesting)**
(10) Local Monitor Name
(11) Local Monitor Address

and indicate if this pre-printed information has changed since the original claim was filed by writing the correct information in **Section C. Corrected Information**.

The claimant address is the address to which the Final Agency decision and check (if applicable) will be mailed. If an assignment has been filed, the assignee address is the address to which the Final Agency decision and check (if applicable) will be mailed, with a copy of the Final Agency decision sent to the claimant.

Section B. Statement of Costs for Reconsideration

Indicate the total dollar amount being contested. This dollar amount must agree with the Grand Total on the Reconsideration Claim Form Worksheet. The Reconsideration Claim Form is considered incomplete without the Reconsideration Claim Form Worksheet.

Activity Authorization Form for Land Application of Biosolids

Local Monitoring

VDHBUR #:_____ Site Name:_____ Contractor:_____

Responsible Official:_____ Phone No.:_____ Fax No: _____ E-Mail:

Note: Approval of work is not VDH approval of reimbursable costs.

Proposed Units	Contingent Units	Work Performed	Verified Units	Unit Type	Code	Task	Comments/Results
				Hour			
				Mile		Auto Mileage	
				Each		Equipment	
				Sample		Tested for:	
				Sample			
				Hour			

RP Signature:_____ Date:_____ Page_____of_____

DEQ Initial: ____ Date:_____ Effective: 1/1/98
(Rev. 1/17/00)

RP Signature:_____ Date:_____ Page_____of_____

DEQ Initial: ____ Date:_____

Instructions: Reimbursable expenses include equipment, travel and time to investigate the land application operations or complaint, collect samples, and conduct a survey of potential receptors of drinking water wells within 500 feet and surface water bodies within 200 feet of the land application site. Also included is laboratory analysis of samples for regulated parameters to verify compliance. The following monitoring activities are typically authorized at land application sites:

	Hours	Local Monitor (field work, recon, general site management*****, report prep)
⏩	Mile	Auto Mileage
⏩	Each	Sampling
⏩	Sample	Testing

⏩ = Site Dependant

***** = Time for site management inspection is included in the hours allotted to the Local Monitor

Travel time is limited to 4 hours each way and a maximum of 50 miles each way. Based on site conditions, the VDH may authorize additional time to collect and transport samples.

Site Inspection Checklist

General Information

County/Jurisdiction:_____ VDHBUR Permit No.:_____

Land Applier/Contractor:_____ Modification. No.:_____

Farm Name/Site Designation:_____

Inspected by:_____ Date & Time:_____

Field Conditions

Weather:	YSunny Y Cloudy Y Rainy Temp. _____ % Humidity ___
Soil Conditions:	YDry Y Moist Y Saturated
Biosolids Source & Type:	Y Lime Stabilized Y Anaerobic Digest Y Aerobic Digest Other_____ Source_____
Buffers Observed?	Y Yes Y No
Established Crop?	Y Yes Y No Y N/A
Sufficient Ground Cover?	Y Yes Y No Y N/A Y Field Checked
Shallow Soils Present?	Y Yes Y No Y Field Checked
Seasonal High Water Table Present?	Y Yes Y No Y Field Checked
Steep Slopes?	Y Yes Y No Y Field Checked
Frequently Flooded Soils Incorporated During Times of Flooding?	Y Yes Y No Y N/A
Slope Restrictions Observed?	Y Yes Y No Y N/A
Uniform Application?	Y Yes Y No
Signs of Runoff?	Y Yes Y No
Frozen Ground Restrictions Met?	Y Yes Y No Y N/A
Application Rate:	Y 100% PAN Y 70% PAN Y 50% PAN Y pH Y Max. hydraulic loading (14,000 gallons/acre)

RP Signature:_____ Date:_____ Page_____of_____

DEQ Initial: ____ Date:_____

	Y Max. solids loading (15 dry tons/acre)
Application Method	Y Surface Y Surface w/incorporation Y Injection
Odors Present?	Y None Y Normal Y Above normal
Odor Description:	Y Lime Y Ammonia Y Sulfides Y Septic Y Earthy YFishy Other_____

Transport Vehicles

Visible Signs of Leakage or Dripage from Transport Vehicles?	Y Yes Y No	
Liquid Tanks Fully Enclosed? (No open hatches)	Y Yes Y No	Y N/A
Trailers Watertight and Equipped with Seals?	Y Yes Y No	Y N/A
Splashguards, Internal Baffles and Turnbuckles Present on Trailers not Fully Enclosed?	Y Yes Y No	Y N/A
Condition of Trucks Satisfactory?	Y Yes Y No	Y N/A
Condition of Haul Route Satisfactory?	Y Yes Y No	Y N/A

Permit Review Checklist

General Information

County/Jurisdiction:_____ VDHBUR Permit No.:_____

Land Applier/Contractor:_____ Modification. No.:_____

Farm Names/Site Designations:_____

_____

_____

Inspected by:_____ Date:_____

Permit/Modification Information

Permit/Modification Signed?	Y Yes Y No
Expiration Date?	If expired, extension granted? Y Yes Y No
Amount of Acres Permitted?	
Special Conditions?	Y Yes Y No
Additional Requirements Other than those Listed in Standard Attachment B? (describe):	

Site Booklet Information

RP Signature:_____ Date:_____ Page_____of_____

DEQ Initial: ____ Date:_____

Landowner Consent Form Signed and Dated?	Y Yes Y No
Crop Information Provided?	Y Yes Y No
Acreage Provided and Matching Permit?	Y Yes Y No
Soils Analyses Provided for Each Field? (recommended minimum - pH, phosphorus, potassium and magnesium)	Y Yes Y No
Soils Descriptions Provided?	Y Yes Y No
Shallow Soils Present?	Y Yes (check during site visit) Y No
Soils with Seasonal High Water Table Present?	Y Yes (check during site visit) Y No
Frequently Flooded Soils Present?	Y Yes Y No
Soil Productivity Groups Provided?	Y Yes Y No
Soils Maps Provided?	Y Yes Y No
Soils with C or D Slopes Present?	Y Yes (check during site visit) Y No
Location Map Provided?	Y Yes Y No
Tax Maps Provided?	Y Yes Y No
Detailed Site Map Provided Showing Buffers around Property Boundaries, Dwellings, Surface Waters, Wells, Springs, Roads, Rock, Sinkholes, Slopes, etc?	Y Yes Y No

Comments:

Complaint Investigation Checklist

Initial Information

Name of Complainant:_____ Date of Complaint:_____

Contact Information:_____

Time/Date Incident Occurred:_____ Incident Location:_____

County/Jurisdiction:_____

Nature of Complaint: YOdor YTruck traffic YRunoff YContamination

YHealthDescribe:_____

_____

Responded by:_____ Time/Date:_____

Contractor Information

Contractor/Land Applier:_____ VDHBUR Permit No.:_____

Farm Name/Site Designation:_____ Modification No.:_____

Biosolids Source Applied:_____ Method of Application:_____

Fields Applied:_____ Acreage Applied:_____

Dates of Operation:_____ Completion Date:_____

Investigation Information

Site Inspection Conducted? Y Yes Y No If Yes, Attach Site Inspection Checklist

Complainant Visited? Y Yes Y No Date of Visit:_____
Additional Information:_____

_____

_____

Other Neighbors Visited? Y Yes Y No Date of Visit:_____
Additional Information:_____

_____

_____

Biosolids Sample Collected: Y Yes Y No If Yes, Attach Chain-of-Custody Form
Soils Sample Collected: Y Yes Y No If Yes, Attach Chain-of-Custody Form

Health Department Contact

Health Department Contacted? Y Yes Y No
Person Contacted:_____ Date of Contact:_____

Follow-Up

Follow-up Measures Taken? Y Yes Y No Y N/A
Follow-up Interview with Complainant Conducted? Y Yes Y No Date:_____