

**Required Information
Operations and Maintenance (O&M) Manual
For Septage & Biosolids Beneficial Use Application Sites**

The minimum information for an O&M Manual is listed below. The O&M manual is to be bound in a three ring or other appropriate binder and include:

1. Table of Contents - A table of contents with page numbers and a list of all maps and figures.
2. Permit – A copy of the current septage or biosolids authorization permit and a sample template of the Permittee’s quarterly reporting form (Discharge Monitoring Report or DMR).
3. Site Description: A brief narrative description of the site including depth to groundwater and general groundwater flow direction.
4. Site Map– A scale-map of the land application site, which details the application fields (specify their acreage), fence, property boundary, coordinates (latitude/longitude), compass direction (specify North) and the parcel’s township, section and range. Within a one-mile radius of the application site, identify all wells, residences, surface water features, public roadways and any important topographic features.
5. Fencing/Posting - Placement of warning signs: At a minimum, the entrance to the application site shall be posted, and additionally, one warning sign placed on each side of the perimeter fence at a spacing interval not to exceed 300 ft per sign along any side of the fence. The acceptable signage wording is “DOMESTIC SEPTAGE (or BIOSOLIDS) APPLIED, NO TRESPASSING”, or similar content.
6. Buffers: Discuss required buffers (setbacks) where septage or biosolids application is prohibited. For the setback requirements, please refer to your permit.
7. Containment Area: If materials are temporarily stored on-site prior to land-application, discuss information on tanks and secondary containment berms. For septage storage, a secondary containment berm is required, which provides a minimum of 110% of the total tank volume. A sample of the wording (e.g. “DOMESTIC SEPTAGE”, “SEWAGE SLUDGE” or similar content) used to placard all storage tanks is to be provided. Labeling of tanks is to contrast against the tank background color and be stenciled at least four (4) inches in height. (Note: permit also requires storage tanks to identify name and phone number of Permittee).
8. Grease Blending: If this site land applies domestic or restaurant grease removed from a grease trap or grease interceptor, specify the method of blending (mixing) to ensure that the required ratio of septage and grease is incorporated into the soil, which is typically specified at three (3) parts septage to one (1) part grease (refer to permit for the required blending ratio). To maintain the required ratio, the volume of domestic septage and grease, which are collected, blended and land applied is to be tracked and recorded in the logbooks.

9. Equipment Details: General detail (e.g., make, model, capacity) on all important land application equipment is required, e.g. disk, tractor, screen box.
10. Screenings: Provide detail of the method used to screen, store and dispose of the solid screenings removed from the septage. Include dimensions of the screen openings and the screen cleaning frequency. For biosolids screening, the degree of foreign material screening will be determined based on the level of foreign material removal at the wastewater treatment plant. The screenings and trash storage area is to be kept separate from the land application parcels and its location identified on the site's plot plan.
11. Vector/Odor Reduction Attraction: Detail on the controls and practices used to minimize vectors (e.g., flies, rats, vermin), objectionable odors and wind-blown screenings debris (e.g. sealed/bagged trash containers with sturdy sealing lids) at this facility is required. The maximum time-interval between land application and soil incorporation is to be stated.
12. Agronomic Application Rate: Include the proposed crop's nitrogen requirement (lbs N/acre-yr) and application rate (gallons or tons of material per acre-yr) to ensure that operation of the facility will not exceed the agronomic uptake requirement of the selected crop. This data is to be calculated and available prior to land application to ensure that a scheduled crop planting is appropriate for the actual land application rate. Data is to be referenced (tabulated) in the manual and appropriate for the growing region, climate, soil- type and irrigation method. For general reference, please consult with your local agronomic specialist, UNR Cooperative Extension Field Office, State or Federal Department of Agriculture or other agricultural specialist knowledgeable of your area. If portable toilet wastes are serviced and land applied, note the appropriate application rate reduction factor specified below in the following item.
13. Portable Toilets: Indicate if your business will service portable (chemical) toilets or other holding tanks where the waste is not anaerobically digested. If so, the land application reporting logs are to differentiate between the gallons of septage/grease and portable toilet wastes applied. Note that the permit will include a reduction factor (i.e. typically one-sixth), by which the septage application rate is to be reduced to reflect the more concentrated nutrient level in portable toilet wastes.
14. Planting/Harvest: Provide information on the proposed planting, irrigation and harvest schedule. Identify all third parties, if a party other than the Permittee is responsible for the farming operation. If the crop is harvested, provide information on the determination of crop yield and any adjustments to the application rate if a lower than expected crop yield is found, which would require a decrease in the land application rate. Note that crop nitrogen requirements are based on a specific yield. If your crop selection does not meet the anticipated yield, then seasonal reductions in the application rate are to be adjusted regularly to prevent over-application of septage or biosolids.

Note: If your crop is not harvested annually by mechanical means and instead planted as a food source for wildlife forage or domestic livestock grazing, then the materials (septage or biosolids) may only be land applied once in every five-year permit term at a rate not to exceed the one-time agronomic requirement of the crop planted.

15. Land Owner's Authorization: If the Permittee does not hold title to the application site, then include an authorization letter from the land owner indicating the Permittee has proper authorization to land apply septage or biosolids at this site.
16. Safety & Hygiene: Provide information on any recommended employee hygiene or safety procedures (e.g., hand washing, personal protective equipment, immunizations (Hepatitis, Tetanus), etc.).
17. Good Housekeeping: Discuss the frequency (e.g. daily, weekly and monthly) of the Permittee's site inspections and procedures to ensure timely removal of all screenings, foreign material and trash in an appropriate manner. Include a sample inspection log to ensure that the site is regularly maintained and these inspections duly recorded (and available for NDEP review). Discuss what steps and adjustments are taken if field inspections indicate the pass-through of foreign material (i.e. screenings) through the Permittee's screening equipment. Good housekeeping entails that the Permittee conduct regular field inspections and debris removal since screening equipment is not 100% efficient in terms of debris removal.
18. Emergency Contacts: Include a list of personnel (agencies) with telephone numbers, which will be contacted in case of an emergency or upset at this site. Include a spill response and containment plan with a current NDEP contact number. If any chemicals will be used or stored on this site as part of the application operation, a copy of the relevant Material Safety Data Sheets (MSDS) must be included.
19. Haulers: A list of all approved septage or biosolids haulers transporting materials to this site is required including their name, address, telephone number, license (authorization #) and truck information. Note that your permit requires NDEP approval prior to permitting any new septage haulers to transport materials to your site.
20. Appendix - Include all appropriate items that have not been included elsewhere. This would be materials such as:
 - Maps
 - List of References or Definitions
 - Crop Data
 - Operating/Inspection Logs
 - Equipment Catalog Information
 - Communication with NDEP
 - Effluent Management Plan (if the site is irrigated with reclaimed water)
 - Superintendent's or Owner's letter of approval of the manual

General Note: as site conditions change, the O&M Manual is to be updated and kept current. A copy of this O&M Manual is required to be kept on-site and available on request to an NDEP Inspector. The O&M Manual should be reviewed regularly and updated accordingly at each permit issuance, renewal or modification (e.g. minimum update frequency of once every five (5) years).