

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2007-0721

FOR
CLARK'S SEPTIC SERVICE, LLC
RESTAURANT, GREASE TRAP, AND POULTRY WASTE REUSE AREAS
STANISLAUS COUNTY

This Order is issued to Clark's Septic Service, Limited Liability Company (LLC), based on provisions of California Water Code Section 13304, which authorizes the Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) to issue a Cleanup and Abatement Order (CAO).

The Executive Officer of the Regional Water Board finds, with respect to the Discharger's acts, or failure to act, the following:

1. Clark's Septic Service, LLC, owns and operates Clark's Septic Service and is hereafter referred to as "Discharger".
2. On 26 March 1993, the Regional Water Board adopted Waste Discharge Requirements (WDRs) Order No. 93-047, which prescribes requirements for the disposal of up to 20,000 gallons per day (gpd) of grease trap and poultry waste pumpings to land.
3. The land disposal areas authorized by WDRs Order No. 93-047 are as follows:
 - a. 14 acres at 1118 South Tegner Road in Turlock, in Section 21, T5S, R10E, MDB&M (Assessor's Parcel Number, or APN, 044-010-003-000). This parcel was owned by John Myrtakis, and was leased by Clark's Septic Service. This parcel is currently owned by J & R Investments, Incorporated, and Clark's Septic Service was evicted in April 2004.
 - b. 6 acres at 9585 Crows Landing Road, in Section 17, T5S, R9E, MDB&M (APN 022-036-003-000). This parcel is owned by Clark's Septic Service.
 - c. 16 acres at 695 Albers Road, in Section 22, T5S, R10E, MDB&M (APN 014-044-004-000). This parcel is owned by Clark's Septic Service.

COMPLIANCE HISTORY

4. Following an inspection of the Discharger's disposal areas on 28 June 1999, Regional Water Board staff issued a Notice of Violation (NOV) on 26 July 1999 for violations of the WDRs. As documented in the 28 June 1999 inspection report, Regional Water Board staff noted the following violations of WDRs Order No. 93-047:
 - a. Domestic septage had been discharged to the land application areas. Discharge Prohibition A.4 of WDRs Order No. 93-047 states that "[d]ischarge of septage is prohibited."
 - b. No crops were being cultivated to uptake nitrogen added by the waste disposal. In addition, the site inspection report noted that a recent crop had been disked into the

soil rather than being harvested and removed, thereby adding more nitrogen to the soil. This violated Discharge Specification B.4, which states that “[*]and application of the wastes shall not exceed the annual nitrogen uptake anticipated for the crops to be grown on the reuse area.*”

The NOV requested the Discharger to submit a technical report by 16 August 1999, including a response to the complaint regarding disposal of septage at one or more of the disposal sites, a workplan to ensure waste incorporation into the soil within 24 hours of application in compliance with Discharge Specification B.3, and a cropping plan based on soil and waste testing that demonstrated adequate crop uptake of nutrients in the discharge. The Discharger failed to submit the technical report.

5. The facility was inspected again on 27 June 2000. On 5 July 2000, Regional Water Board staff transmitted a copy of the inspection report and reiterated the request for the technical report requested in the 26 July 1999 NOV. The inspection report noted the continuing presence of feminine hygiene products at the Crows Landing Road disposal area and documented Regional Water Board staff reminding the Discharger of Discharge Specification B.3, which requires wastes to be incorporated into the soil within 24 hours of arrival at the land disposal site.
6. On 12 October 2001, Regional Water Board staff conducted another inspection. On 17 October 2001, Regional Water Board staff issued an NOV for violations of the WDRs. The NOV cited the Discharger for discharging septage to the Crows Landing Road disposal area, as evidenced by the presence of plastic drinking straws and tampon applicators, in violation of WDRs Order No. 93-047 Prohibition A.4. The NOV requested the Discharger to submit, by 15 December 2001, a report describing operational modifications and/or procedures employed to eliminate the discharge of septage at the land disposal areas.
7. In a letter dated 17 December 2001, the Discharger submitted a response to the 17 October 2001 NOV. The response included photographs and a description of metal baskets created by the Discharger and attached to the pumper truck discharge valves. The Discharger described the baskets as being “...*designed with perforated metal, which allows the waste to flow out and contain solid items that may be therein.*” However, the use of perforated metal baskets does not preclude the discharge of liquid septage. Therefore, the Discharger’s response was inadequate to correct the violation.
8. On 19 November 2002, an NOV was issued to the Discharger for violating Monitoring and Reporting Program (MRP) No. 93-047 by failing to adequately monitor waste streams and for violating Discharge Specification B.4 by applying nitrogen in excess of the anticipated agronomic rate.
9. In mid-2006, Regional Water Board staff received complaints about the Discharger’s operations from Stanislaus County staff. On 3 October 2006, Regional Water Board staff, accompanied by Stanislaus County staff, conducted an inspection of the two active disposal sites. As documented in the inspection report, Regional Water Board staff observed the following:

- a. Evidence of septage discharge at both locations, including portions of feminine hygiene products, bottle caps, straws, toilet paper, a knock-out from a septic sewer system distribution box, and truck load security tags from a trucking company for whom the Discharger provides septic system pumping. These items indicate violations of Discharge Prohibition A.4, which prohibits the discharge of septage;
 - b. Landspreading of wastes to access roads at 695 Albers Road site, where wastes cannot be incorporated into the soil, in violation of Discharge Specification B.3, which requires wastes to be landspread and incorporated into the soil within 24 hours of arrival at the site;
 - c. An agricultural well within 30 feet of the 9585 Crows Landing Road disposal area and wastewater disposal within 5 feet of an agricultural well and a property line at the 695 Albers Road site, in violation of Discharge Specification B.5, which requires a setback distance of not less than 100 feet from irrigation wells and not less than 25 feet from property lines;
 - d. No means of precluding the public from accessing the disposal sites, in violation of Discharge Specification B.7, which requires that public contact with wastes be precluded through such means as fences, signs, and other acceptable alternatives.
10. On 9 May 2007, Regional Water Board staff issued a Notice of Violation for the violations discovered during the 3 October 2006 inspection.

REGULATORY CONSIDERATIONS

11. As described in the Findings, the discharge of septage to land and the discharge of grease trap and poultry waste pumpings within the prescribed setback distances to irrigation wells and property lines are violations of WDRs Order No. 93-047, and threaten to cause, or have caused, pollution or nuisance. The Discharger, by discharging prohibited wastes and by discharging permitted wastes outside the authorized disposal area, has caused or permitted, or threatens to cause or permit, waste to be discharged in such a manner that it threatens to cause, or has caused, a threat to public health and/or created a condition of pollution or nuisance. Each of these actions subjects the Discharger to an order under Section 13304 of the California Water Code.
12. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
13. Surface water drainage from the 9585 Crows Landing Road site is to the San Joaquin River, while surface water drainage from the 695 Albers Road site is to the Tuolumne River. The beneficial uses of the San Joaquin River and the Tuolumne Rivers are

municipal and domestic supply; agricultural irrigation supply; industrial process supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

14. The beneficial uses of the underlying groundwater include municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
15. Section 13304(a) of the California Water Code provides that:

“Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. A cleanup and abatement order issued by the state board or a regional board may require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant.”

16. Section 13267(b) of the California Water Code provides that:

“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

17. The technical reports required by this Order are necessary to ensure compliance with this Cleanup and Abatement Order and WDRs Order No. 93-047, and to ensure the protection of public health and safety and protection of waters of the state. The Discharger owns and operates the facility that discharges waste subject to this Order.
18. The issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act, pursuant to Section 15321(a)(2), Title 14, California Code of Regulations.
19. Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Section 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions are available at http://www.waterboards.ca.gov/water_laws/cawtrcde/wqpetition_instr.html and will also be provided upon request.

IT IS HEREBY ORDERED, pursuant to Sections 13304 and 13267 of the California Water Code, Clark's Septic Service, Limited Liability Company, shall cleanup and abate, forthwith, the land disposal areas at 9585 Crows Landing Road (APN 022-036-003-000) and 695 Albers Road (APN 014-044-004-000) such that all the requirements prescribed in WDRs Order No. 93-047 are met.

Any person signing a document submitted under this Order shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

1. The Discharger shall **immediately** comply with all aspects of WDRs Order No. 93-047.
2. The Discharger shall **immediately** cease discharge of septage to land.
3. The Discharger shall **immediately** cease any discharge of stormwater and/or irrigation tailwater from the land disposal areas.
4. By **1 October 2007**, the Discharger shall submit a *Septage Separation Report*, which shall include sufficient information to demonstrate that waste acceptance and disposal procedures have been changed to ensure septage waste is not discharged to land.

5. By **1 October 2007**, the Discharger shall submit a *Nitrogen Loading Workplan*. For each disposal area, the Workplan shall include a soil sampling plan for nitrogen compounds, including nitrate (as N), nitrite (as N), ammonia (as N), organic nitrogen, and total Kjeldahl nitrogen. For each of the two disposal areas, the Discharger shall establish, with concurrence of Regional Water Board staff, three soil profile monitoring locations and one representative background location. The background location shall be in an area that historically received neither industrial and commercial wastewater nor septage, preferably off of the Discharger's property and in an area not used for pasturing livestock. Soil sample analyses shall be conducted using deionized water and the Waste Extraction Test method, as defined in Title 22 of the California Code of Regulations. Soil samples shall be collected at depths of 0.5 feet, 3 feet, and 6 feet. An appropriate registered professional experienced in the field of wastewater treatment and disposal and groundwater investigation shall prepare the technical report.
6. By **1 October 2007**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan*. The workplan shall describe the proposed installation of at least one monitoring well upgradient of each of the disposal areas located at 9585 Crows Landing Road and 695 Albers Road, and a sufficient number of downgradient wells to determine whether groundwater quality has been impacted by the waste discharge at these disposal sites. Monitoring wells shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment A, *Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports*, which is attached hereto and made part of this Order by reference.
7. By **1 October 2007**, the Discharger shall submit a *Topography and Drainage Report*. For each of the two land disposal sites, the Report shall include a topographical map identifying drainage courses at the sites and points of discharge, or potential discharge, of stormwater and/or irrigation tailwater from the disposal areas. The Report shall also include a characterization of the soil type and slope of the soils to which waste is applied at each disposal site.
8. By **15 November 2007**, the Discharger shall collect soil samples in accordance with its approved *Nitrogen Loading Workplan*.
9. By **15 November 2007**, the Discharger shall submit a *Well Survey Report*. The Report shall contain the following:
 - a. Well Map—A map showing the locations of all water wells within the land disposal area boundaries and showing the locations of all such wells within 500 feet outside of the land disposal area boundaries.

- b. Well Owner—Name and address of the owner of each well indicated in 9.a.
 - c. Well Information—Well information, where available, for each water well indicated in 9.a including, but not limited to:
 - i. Total depth of well;
 - ii. Diameter of casing at ground surface and at total depth;
 - iii. Type of well construction (cable tool, rotary, *etc.*);
 - iv. Depth and type of perforations;
 - v. Name and address of well driller;
 - vi. Year of well construction;
 - vii. Use of well (agricultural, domestic, stock watering, *etc.*);
 - viii. Depth and type of seals;
 - ix. Lithologic, geophysical, and other types of well logs, if available; and
 - x. Water levels, pump tests, water quality, and other well data, if available.
 - d. Land use—Current land use within one mile of the land application area boundaries, including:
 - i. Types of land use (e.g., residential, commercial, industrial, agricultural, recreational, *etc.*);
 - ii. Types of crops;
 - iii. Types of livestock; and
 - iv. Number and location of dwelling units.
 - e. Groundwater Use—Current and estimated future use of groundwater within 500 feet of the land disposal area boundaries.
10. By **15 January 2008**, the Discharger shall submit a *Nitrogen Loading Report*. The Report shall include the results of at least one round of sampling for the constituents and locations identified in the approved *Nitrogen Loading Workplan*, as well as an analysis of potential impacts from the discharge.
11. By **15 December 2007**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* that describes the installation of groundwater monitoring wells, and contains the items found in the second section of Attachment A.
12. By **31 January 2009**, the Discharger shall submit a *Background Groundwater Quality Study and Degradation Assessment Report*. For each groundwater monitoring parameter/constituent identified in Revised Monitoring and Reporting Program (MRP) No. 93-047, the report shall present a summary of monitoring data collected in accordance with the Revised MRP, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in downgradient wells. Determination of background quality shall be made using the methods described in Title 27 of the California Code of Regulations, Section 20415(e)(10), or equivalent, and shall be

based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration.

If the *Background Groundwater Quality Study Report* shows that the wastewater discharge has impacted, or is likely to impact groundwater quality, then upon request of the Executive Officer the Discharger shall submit a *Groundwater Mitigation Plan* which shall evaluate contaminant control alternatives, describe a preferred alternative, and provide a proposed timeline to meet the Groundwater Limitations of WDRs Order No. 93-047. The selected contaminant control alternative must comply with State Water Resources Control Board Resolution No. 68-16 and be consistent with the most recent Basin Plan.

13. By **1 June 2009**, the Discharger shall submit a Report of Waste Discharge (RWD). The RWD shall consist of the following:
 - a. A completed Form 200 *Application/Report of Waste Discharge General Information* (enclosed), which for a corporation must be signed by a principal executive officer of at least the level of senior vice president.
 - b. The answers to the enclosed *Additional Information Requirements for a Report of Waste Discharge*. Please note that these answers must be in the form of a technical report prepared by a California Registered Professional Engineer or Geologist.
14. **Beginning with the fourth quarter of 2007**, the Discharger shall submit a *Quarterly Compliance Status Report*. These reports shall describe all work completed during the calendar quarter to comply with this Cleanup and Abatement Order; and any new or modified waste acceptance, handling, or disposal practices. These reports shall be submitted by the **1st day of the second month following the quarter for which the report is prepared** (e.g., the January-March quarterly report is due by May 1st).

In addition to the above, the Discharger shall comply with existing WDRs Order No. 93-047 and Revised MRP No. 93-047, as well as all applicable provisions of the California Water Code that are not specifically referred to in this Order. As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order may result in the assessment of an Administrative Civil Liability up to \$1,000 per day or up to \$10,000 per day of violation, depending on the violation, pursuant to the California Water Code, including section 13268. The Regional Water Board reserves its right to take any enforcement actions authorized by law.

This Order is effective upon the date of signature.

original signed by

PAMELA C. CREEDON, Executive Officer

21 August 2007

(Date)

Attachments:

- *Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports*
- *Form 200 Application/Report of Waste Discharge General Information*
- *Additional Information Requirements for a Report of Waste Discharge*

MRH: 10-April-07

**ATTACHMENT A
REQUIREMENTS FOR
MONITORING WELL INSTALLATION WORKPLANS AND
MONITORING WELL INSTALLATION REPORTS**

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report that includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

**SECTION 1 - Monitoring Well Installation Workplan and
Groundwater Sampling and Analysis Plan**

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details
 - Borehole diameter
 - Casing and screen material, diameter, and centralizer spacing (if needed)
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
 - Anticipated depth of well, length of well casing, and length and position of perforated interval
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack
 - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.)
- Parameters to be monitored during development and record keeping technique
- Method of determining when development is complete
- Disposal of development water

- E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)
- F. Schedule for Completion of Work
- G. Appendix: Groundwater Sampling and Analysis Plan (SAP)
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
 - General sampling techniques
 - Record keeping during sampling (include copies of record keeping logs to be used)
 - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

- A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
Number of monitoring wells installed and copies of County Well Construction Permits
Topographic map showing facility location, roads, surface water bodies
Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements

Describe the measuring points (i.e. ground surface, top of casing, etc.)

Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix

ATTACHMENT C
ADDITIONAL INFORMATION REQUIREMENTS
FOR REPORT OF WASTE DISCHARGE
MISCELLANEOUS ORGANIC WASTE APPLICATION SITES
June 2007

Please provide a technical report prepared by a California registered Civil Engineer that presents the following information:

1. A site index or key map at a scale of at least 1:24,000 (e.g., USGS 7.5" topographic map) showing the following:
 - a. Site topography;
 - b. Public and private roads;
 - c. Major drainages and surface waters;
 - d. Wells on or within 500 feet of the site boundary (specify well type and construction details, if available);
 - e. Residences on or within 500 feet of the site boundary;
 - f. Site access roads;
 - g. All vernal pools and wetlands;
 - h. Storm water detention/retention basins;
 - i. Waste staging and storage areas; and
 - j. The boundaries of each application field.
2. A Flood Insurance Rate Map (FIRM) or other floodplain map prepared by a public agency showing the site boundaries, surface waters, roads, and the 100-year floodplain.
3. Application field maps of at least 1:1200 (1" = 100') showing the boundaries of each application field, typical drainage patterns, all minor drainages (including manmade drainage systems), tailwater/runoff detention ponds, run-on/runoff control structures, and setback and buffer zones for each application field. One or more adjacent fields may be depicted on each application field map.
4. For each storm water detention/retention basin, provide the following information:
 - a. Method of construction (e.g., cut/fill balance, excavated, above-grade);
 - b. Total runoff catchment area (fields identification and total acreage);
 - c. Surface area, depth, and volumetric capacity at two feet of freeboard;
 - d. Design precipitation event criteria and runoff calculations showing that the capacity is sufficient to contain runoff from the design event with two feet of freeboard.
5. The name, mailing address, phone number, and primary contact name for each hauler that will transport waste to the site(s).
6. A description of the means and methods of waste application, staging, and short-term storage.
7. Typical crops grown and planting/harvesting cycles.

8. Typical rooting depth for each type of crop.
9. Crop nitrogen requirements (tons per acre per year).
10. Proposed application period (e.g., dry weather only or year round).
11. Typical waste application rate (wet and dry tons per acre per application and wet and dry tons per year).
12. Typical waste application cycle time (weeks or months).
13. Typical nitrogen application rate (tons per acre per year) considering all sources (e.g., waste, supplemental fertilizers, other organic matter, livestock waste, etc.).
14. Methods of public access control.
15. A description of all runoff controls and typical maintenance procedures.
16. A description of storm water management practices (e.g., retention period after last waste application, criteria for determining whether storm water may be allowed to run off to surface waters).
17. The following information each application field:
 - a. Field identification
 - b. Acreage (total and net application area with setbacks and buffers)
 - c. Number and type of wells present, and any available construction information Average and maximum slopes
 - d. Surface soil types and depths
 - e. Method of irrigation
 - f. Typical irrigation cycle and water application depth (days/weeks and inches, respectively)
 - g. Historical annual and cumulative loading rates for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc since inception of waste application at the field.
 - h. Typical anticipated annual loading rates for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.
 - i. Historical and current cation exchange capacity. Discuss any changes since the inception of waste application.
 - j. Historical and current soil pH and description of previous lime applications and other steps to control soil pH.
 - k. Based on historic and anticipated future metals loading rates, projected years of waste application before the any cumulative load ceiling or limiting soil concentration is reached.

18. Anticipated annual time schedule for field operations including anticipated waste application windows, seeding operations, supplemental fertilization, irrigation, and cultivation/harvest.
19. A *pH Control Plan* that describes a program to regularly monitor soil pH, particularly in those fields where pH tends to be acidic, and implement pH control as needed to consistently maintain the soil pH within an acceptable range. Include sample calculations with supporting documentation to show how lime (or other chemical dosing) rates will be determined.
 - a. Typical soil pH, including any variability associated with waste application cycles.
20. An *Erosion Control Plan* that explains in detail the justification for using each field where slopes are 10 percent or greater and special application and management practices to be used to assure containment of the waste within the application area.
21. A *Spill Response and Traffic Plan* that includes at least:
 - a. Typical routes to access the site for waste transport vehicles
 - b. Emergency contacts and notification procedures
 - c. A discussion of personal protective equipment required to response to spills
 - d. Response instructions for spill during waste transport
22. An adverse *Weather and Alternative Plan* that details procedures to be used when waste cannot be applied due to adverse conditions (wind, precipitation, field preparation delays, access road limitations, *etc.*).
23. A supplemental technical report prepared by a Registered Geologist or Certified Hydrogeologist that provides an assessment of the following:
 - a. Groundwater degradation, if any, that has resulted from the existing operation; and
 - b. The potential for the continued discharge to degrade groundwater quality
 - c. This assessment must be made based on site-specific data and must provide technically-based answers to the following questions based on historical data and supplemental data to be collected for the purpose of this study:
 - d. What are subsurface conditions at the site? ¹
 - e. What is the groundwater elevation and gradient at site?
 - f. What is background shallow groundwater quality for typical municipal waste constituents? Compare to established water quality objectives. ²

¹ This must be based on subsurface investigation at the proposed disposal site including soil borings and/or cone penetrometer tests and groundwater analyses. If desired, groundwater samples may be obtained using a one-time sampling method such as Hydropunch®.

² Include analyses for the following: total coliform organisms, total dissolved solids, ammonia (as N), total Kjeldahl nitrogen, nitrate (as N), nitrite (as N), and a complete anion/cation scan with ion balance (including metals monitored pursuant to 40 CFR 503). Total coliform organisms shall be determined using the 15- or 25- tube method.

- g. For each monitored constituent, has the existing facility degraded groundwater quality?
If so:
- What constituents exceed the applicable water quality objective?
 - What constituents exceed background concentrations?
 - Based on site hydrogeology, is the degradation contained within a defined area (or one that could be defined by additional investigation)?
- h. Based on site hydrogeology, the nature of the waste, and the proposed disposal method, what level of degradation is expected to result from continued land application of waste (if any)?

At a minimum, the report shall include the following:

- Rationale for field investigation approach.
 - Description and documentation of all investigational methods and activities.
 - Description of the site hydrogeology including stratigraphy, groundwater elevation and gradient, transmissivity, and influence of all recharge and pumping sources (*i.e.*, a site conceptual model).
 - Description of fate and transport mechanisms for all monitored constituents.
 - Description of data reduction/analysis techniques and results.
 - Presentation of historical and supplemental site-specific soil and groundwater data.
 - Comparison of groundwater quality data to background groundwater quality and water quality objectives for each constituent.
 - An analysis of all data and conclusions regarding each of the above questions.
-