

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 95-140

WASTE DISCHARGE REQUIREMENTS
GENERAL ORDER FOR REUSE OF
BIOSOLIDS AND SEPTAGE
ON AGRICULTURAL, FOREST, AND RECLAMATION SITES

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. Domestic wastewater treatment plants produce large volumes of solid waste (biosolids) composed of solid, semi-solid and liquid residue, which includes scum and solids removed in primary, secondary, and advanced treatment. Biosolids do not include ash generated from incineration of biosolids or grit and screenings generated during preliminary treatment. The handling and disposal of biosolids constitutes a major expense to the facilities. A large portion of biosolids are discharged either to sanitary landfills (where its high moisture content can potentially contribute to leachate generation and where, if acidic conditions exist and heavy metals are present in the biosolids, they can become mobile within the landfill and increase the threat to the ground water) or is stockpiled indefinitely (where, if improperly stored, it can threaten ground or surface water quality or create public nuisance conditions). Decades of practice has shown that beneficial reuse of biosolids is, in many cases, environmentally and economically preferable to disposal of biosolids in a landfill.
2. Septage is (a) the solids pumped from septic tanks in order to prevent them from overflowing the septic tank and plugging the wastewater disposal fields, and (b) wastes from portable toilets. The solids consist of a mixture of water, sewage solids, and microorganisms. Septage has been variously discharged to landfills, discharged to holding/infiltration ponds, or land spread. All of these methods of disposal pose a potential threat of ground or surface water pollution and can create public nuisance conditions. For purposes of this Order, septage does not include restaurant or grease trap wastes, car wash pumpings, or other industrial wastes.
3. The Board wishes to encourage the diversion of biosolids and septage away from landfills to beneficial uses, while assuring adequate protection of water quality and public health.
4. Individual waste discharge requirements previously have been adopted for each biosolids and septage reuse operation, necessitating from two to four months of lead time for the project. Adoption of this General Order will reduce the lead time for startup of new biosolids and septage reuse projects.
5. Biosolids and septage contain fertilizer and soil amendment characteristics which are beneficial to farming, forestry, and land reclamation operations as follows:

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- a. Nitrogen is a basic nutrient for plant growth. It is present in the forms of ammonia, nitrates and organic nitrogen at concentrations from two to ten percent by weight on a dry weight basis. The ammonia and nitrate forms of nitrogen are immediately available for plant usage. Organic nitrogen is released slowly (mineralized) over many months, providing a continuing supply of nitrogen for crops and minimizing the potential for movement of nitrogen to the ground water. The nitrogen available for plant usage at any given time is the sum of the ammonia, nitrate and mineralized organic nitrogen.
 - b. Phosphorus is a basic nutrient for plant growth and is present in all biosolids and septage in varying concentrations.
 - c. Micronutrients, including a variety of salts and metals, are necessary for plant growth, and are present in biosolids and septage in varying amounts.
 - d. Organic material improves soil structure, reduces soil erosion, aids soil moisture retention, improves tillability, and helps hold fertilizers and metals in the root zones for plant usage.
 - e. Liming agents are available when the biosolids have been chemically stabilized with lime. Liming agents increase soil pH and can improve the permeability of the soils. Higher pH soils will generally more tightly bind heavy metals, decreasing the chance of the metals migrating to the ground water.
6. Biosolids and septage have the following characteristics which can create water quality and public health problems if improperly treated, managed, and regulated:
- a. Pathogens (disease causing organisms) can be present. Unless the biosolids or septage have been specially treated or disinfected to destroy pathogens, significant concentrations of bacteria, virus, and parasites can remain. Public health problems can be prevented with appropriate control over public access to the applications areas and restrictions on the type and usage of crops grown on the application sites. Buffer zones around water supply wells, surface water drainage courses, and public areas will prevent transmission of pathogens to the public.
 - b. Heavy metals will be present. If heavy metals are over-applied to a field, they can cause ground water pollution, toxicity to the plants, or buildup of metals in the plant tissues with transmission of the metals into the food chain. Future cropping or other land uses could be restricted. Only some of the metals commonly found in biosolids and septage are known to cause water quality or public health problems. Application rates for those metals can be set to eliminate the problems.

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- c. Nitrogen can be over-applied, allowing buildup of nitrogen in the soils. Excess nitrogen will eventually be converted to the nitrate form and can migrate to the ground water. Excess nitrate in the ground water can result in exceedance of drinking water standards and a public health threat. Nitrogen over-application can be prevented by matching the application rate of the nitrogen to the nitrogen usage rate of the crops and to soil permeability and soil retention capability.
 - d. Odor and insect nuisances can be caused if the biosolids or septage have not been adequately treated (stabilized) prior to application, or if wet biosolids or septage is allowed to stand in piles or on the ground surface for several days. Compliance with State and Federal standards for stabilization of the biosolids will minimize the potential for odors and insect nuisances. Proper management at the application site will prevent serious odor or insect nuisances. Properly stabilized biosolids will generate limited, transient odors in the immediate vicinity of the application operations - proper site selection will eliminate nuisances by providing adequate buffer zones around residences and public areas.
 - e. Discharge of organic material, metals and pathogens to surface waters can be prevented by control of field runoff, avoiding wet weather application, and incorporating the biosolids or septage into the soil soon after application. The water quality threat of organic matter discharging to surface waters due to the organic content of the biosolids is no greater than for a similar quantity of other organic soil amendments, such as steer manure.
 - f. The possibility of adverse public perception concerning crops grown with biosolids or septage can lead to difficulties in the sale of some human food chain crops, including refusal of some food processors to accept foods grown on biosolids or septage amended soils.
7. The U. S. Environmental Protection Agency has promulgated biosolids and septage reuse regulations in 40 CFR 503, *Standards for the Use or Disposal of Sewage Sludge*, which establish management criteria for the protection of ground and surface waters, set application and cumulative loading rates for heavy metals, and establish stabilization and disinfection criteria.
- The Board is using the standards in 40 CFR 503 as guidelines in establishing this Order, but the Board is not the implementing agency for 40 CFR 503. The Dischargers may have permitting, reporting and other compliance responsibilities with the U. S. Environmental Protection Agency. Compliance with this Order does not necessarily constitute full compliance with 40 CFR 503.
8. Each discharger covered by this General Order shall submit an annual fee, and an application fee equal to the annual fee, pursuant to Section 13260, California Water Code. The amount of the fee is currently determined by the type of Order issued, and the threat to water quality and complexity of the specific discharge, as detailed in Section 2200, Chapter 9, Division 3, Title 23,

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California Code of Regulation. Biosolids application projects would generally be rated as Non-Chapter 15 waste discharge requirements with a Category "II" threat to water quality rating, and a Category "b" complexity rating. Individual projects may receive different threat and/or complexity ratings based upon specifics for that project.

9. This General Order may be periodically revised to reflect changes in federal or state laws or regulations, or Regional Board policies.
10. The Board may prescribe requirements for any discharge which may impact water quality, in accordance with Section 13263 of the California Water Code. The Board may issue individual waste discharge requirements or may prohibit discharge of biosolids or septage where it finds such orders are appropriate. Upon issuance of individual waste discharge requirements or prohibition orders, discharge of biosolids or septage pursuant to this General Order is prohibited.
11. This Order shall apply to the individuals, companies, or municipalities transporting and placing the biosolids (Class A or Class B) or septage, and to individual property owners and/or operators (collectively Discharger). To obtain coverage under the General Order, a complete Notice of Intent (NOI) must be submitted with an appropriate fee. Dischargers who submit a complete NOI and appropriate fee are authorized to land apply biosolids or septage as an agricultural, forest, or reclamation site soil amendment onto the land specified in the NOI in compliance with the terms and conditions of this General Order.
12. A separate NOI and filing fee must be filed for each biosolids or septage reuse project to be eligible for coverage under this Order. A separate NOI and filing fee must be filed for each land owner involved in a reuse project. Attachment A to this Order contains an NOI form which details the minimum contents of the NOI. A single reuse project will be limited to sites comprising not more than 2000 net acres available for application. Net acreage is the land available for application, excluding roads, surface water drainages, and required buffer areas. The sites comprising a single reuse project shall be contained within a ten mile radius of a given location. There is no restriction of the number of NOIs which may be filed for reuse within any geographic area. A single reuse project may be a one time application or repetitive applications to the same parcel. Filing fees are annual fees. Projects will be billed for an annual fee equalling the filing fee until the project is completed and coverage under the General Order has been terminated.
13. This Order sets minimum standards for the use of biosolids and septage as agricultural, forest or reclamation site soil amendments, and does not preempt or supersede the authority of local agencies to prohibit, restrict or control the use of biosolids and septage subject to their control. It is the responsibility of the Discharger to make inquiry and obtain any local governmental agency permits or authorizations prior to the application of biosolids at each site.

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14. Conditions are set forth in this Order for the regulation of Class A biosolids which have been processed by a *Process to Further Reduce Pathogens* or an equivalent treatment such as composting (as defined in 40 CFR 503). However, Class A biosolids which meet the "low metals" requirements of either Table 3 or Table 4 of Section 503.13 of 40 CFR 503 pose an extremely low threat to water quality when used as fertilizers and soil amendments, equivalent to non-biosolids containing fertilizers or soil amendments. The Board, therefore, under separate action, waived waste discharge requirements for Class A, low metals ("Exceptional Quality") biosolids products.
15. The biosolids and septage to be applied are non-hazardous decomposable wastes applied as a soil amendment pursuant to best management practices and, as such, are exempt from the requirements of Title 23, California Code of Regulations (CCR), Section 2510, et seq., (Chapter 15), per Section 2511(f).
16. The construction and use of biosolids storage facilities allowed by this Order are for short term storage of biosolids in the event that biosolids can not be immediately applied to the ground surface because of an unanticipated event, such as mechanical breakdown of equipment or an unseasonal rainstorm. Because of the short period of storage allowed by this Order, the stockpiled biosolids are not a threat to the quality of underlying ground water, and thus the storage basins need not be regulated as either waste piles or surface impoundments under Chapter 15. If longer term storage is proposed, such as a basin to contain biosolids during winter when weather and soil conditions may preclude application of the biosolids to the soil, the stockpiled biosolids and the contained stormwater runoff could threaten the quality of underlying ground water. Therefore, the discharger will need to apply for separate waste discharge requirements for the long term biosolids storage facility. Biosolids application to land associated with a project using a long term biosolids storage basin may be conducted under this Order, if appropriate.
17. On 5 August 1994, the Board considered the adoption of a mitigated Negative Declaration and Waste Discharge Requirements for a proposed application of biosolids to the Roddy Ranch (Assessor's Parcels No. 007-010-025, 027, 028, and 029; 054-120-011, 012, 014 and 015; 054-300-001 through 008) in Contra Costa County, and concluded that an Environmental Impact Report (EIR) should be prepared for the project. As the Board has previously determined that an EIR is needed for biosolids application to this site, biosolids and septage may not be applied to Roddy Ranch under this General Order. If an EIR is completed, the proposed discharger may submit a Report of Waste Discharge for individual Waste Discharge Requirements.
18. The designated beneficial uses of ground water within the Central Valley Region are domestic, industrial and agricultural supply, except where lesser beneficial uses are designated in the Water Quality Control Plan.

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19. The Board has adopted a Water Quality Control Plan, Third Edition, for the Sacramento River Basin (5A), Sacramento-San Joaquin Delta Basin (5B), and the San Joaquin River Basin (5C). The Board has also adopted the Water Quality Control Plan for the Tulare Lake Basin (5D). These Plans contain water quality objectives for all waters of the Basins. These requirements implement those Plans.
20. The Board has adopted a mitigated negative declaration in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.) and the State guidelines. The potential significant environmental impacts from the reuse of biosolids and septage as a soil amendment were identified as follows:
 - a. Increased soil erosion
 - b. Nuisance odors
 - c. Alterations of surface water quality
 - d. Deterioration of ground water quality
 - e. Creation of any health hazard or potential health hazard
21. The potential significant environmental impacts identified in Finding No. 20 will be mitigated to a level of insignificance by compliance with this Order as follows:
 - a. The potential for increased soil erosion from the site will be mitigated as follows: When biosolids or septage are to be applied to slopes greater than ten (10) percent, a report by an agronomist is required to specify application procedures to prevent soil erosion.
 - b. The potential for nuisance odors will be mitigated as follows: public nuisances, which would include odor nuisance conditions, are prohibited; biosolids are required to meet one of the Vector Attraction Reduction requirements contained in 40 CFR 503.33, which will either reduce potential odor-producing compounds to a concentration which generally causing no significant odor problems, or requires burial of the biosolids; and buffer zones are required around application areas to allow dissipation of any odors.
 - c. The potential for alterations in the quality of surface waters will be mitigated as follows: the discharge of biosolids or septage to surface waters or surface water drainage courses is prohibited; biosolids and septage may not be applied to land subject to substantial erosion during flooding, and may not be applied to flooded or frozen land; biosolids must comply with disinfection standards prior to application; application to steep slopes requires special evaluation by an agronomist; buffer zones along water courses are prescribed; runoff from application areas is prohibited for 30 days unless soil incorporation is performed or there is significant soil vegetation; and flood and stormwater protection standards are prescribed for biosolids storage facilities.

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- d. The potential for deterioration of ground water quality will be mitigated as follows: the application of nitrogen at rates in excess of anticipated vegetative usage is prohibited; monitoring of the nitrogen content of biosolids and septage and calculation of acceptable loading rates is required; for biosolids storage, the length of time that biosolids may be stored on the ground at any one location is restricted, and the storage facilities must be designed to minimize the production of leachate; metals concentration and loading limits prescribed by US EPA to prevent migration of metals to ground water; and monitoring of biosolids and septage for metals concentrations and calculation of cumulative loading rates is required.
 - e. The potential for creation of any health hazard or potential health hazard will be mitigated as follows: the discharge of hazardous wastes is prohibited; the biosolids and septage must be analyzed for metals prior to use; limitations on the concentration and total loading for metals are prescribed in the General Order; biosolids must be utilized in a manner which minimizes potential movement of material from the reuse site; buffer zones are established along areas where there is public access, water courses, wells, etc., to limit the potential exposure; Class A or Class B disinfection standards must be met for biosolids prior to application; and restrictions are placed on grazing of animals and harvesting of crops to prevent movement of pathogens into the human food chain.
22. The Board has notified interested agencies and persons of its intent to prescribe general waste discharge requirements for the reuse of biosolids and septage as an agricultural soil amendment and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
23. The Board, in a public meeting, heard and considered all comments pertaining to the General Order.

IT IS HEREBY ORDERED that all Dischargers that file a NOI indicating their intention to be regulated under provisions of this General Order, and all heirs, successors, or assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of biosolids or septage is prohibited unless a completed NOI and appropriate filing fee have been submitted for the project and a Pre-Application Report has been approved, or individual waste discharge requirements or a waiver of waste discharge requirements has been adopted for the project.

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2. The discharge of biosolids or septage to surface waters or surface water drainage courses is prohibited.
3. The discharge of waste classified as 'hazardous' or 'designated', as defined in Section 2521(a) and Section 2522(a) of Chapter 15, is prohibited.
4. Application of biosolids and septage at rates in excess of the nitrogen requirements of the vegetation, or at rates that would allow excess nutrients or metals to leach and degrade ground water, is prohibited, except as allowed by Prohibition A.5.
5. Application of biosolids or septage at rates in excess of the nitrogen requirements of the vegetation may be allowed for soil reclamation projects as part of an overall plan for reclamation of sites (such as abandoned mine tailings and gravel quarries), provided the Discharger can demonstrate that the application of excess nitrogen will not result in unacceptable degradation of underlying ground waters. A report providing this demonstration shall be submitted to and approved by the Executive Officer prior to the application of biosolids or septage to reclamation sites at greater than agronomic rates.
6. Application of biosolids and septage shall be confined to the designated reuse areas, as stated in the NOI.
7. Discharge of biosolids or septage with pollutant concentrations greater than those shown below is prohibited.

<u>Constituent</u>	<u>Ceiling Concentration mg/kg dry weight</u>
Arsenic	75 ²
Cadmium	85 ²
Chromium	3000 ^{1,2}
Copper	4300 ^{1,2}
Lead	840 ²
Mercury	57 ^{1,2}
Molybdenum	75
Nickel	420 ²
Selenium	100 ²
Zinc	7500 ^{1,2}

¹ Total Threshold Limit Concentrations (TTL) prescribed in Section 66261.24, Title 22, California Code of Regulation are as follows: Chromium 2500 mg/kg, Copper 2500 mg/kg, Mercury 20 mg/kg, and Zinc 5000 mg/kg on a wet weight basis. [Note: this is only a partial listing of TTL values.] Biosolids which contain metals at or above the TTL wet weight concentrations are defined as "hazardous" and may not be discharged under this Order, unless a variance is granted by the Department

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of Toxic Substances Control (DTSC). If any biosolids sample contains chromium, copper, mercury or zinc in dry weight concentrations exceeding the TTLC wet weight concentrations, the sample concentration must be recalculated on a wet weight basis and compared to the TTLC values to verify whether the biosolids are "hazardous".

2 Soluble Threshold Limit Concentrations (STLC) prescribed in Section 66261.24, Title 22, California Code of Regulations are as follows. Note that this is a partial listing of STLC values.

<u>Constituent</u>	<u>STLC</u>	<u>10 x STLC</u>
Arsenic	5	150
Cadmium	1.0	10
Chromium	5	50
Copper	25	250
Lead	5	50
Mercury	0.2	2
Nickel	20	200
Selenium	1.0	10
Zinc	250	2500

STLCs are based on "as is" waste, that is, solids plus any diluting water. The extraction test used to determine the soluble concentrations results in a ten times dilution of the waste, therefore, if the total metals concentration of the waste on either a dry weight or wet weight basis is less than the listed "10 x STLC" value in the above chart, the waste can not be hazardous for that constituent, and further consideration of that constituent is not necessary. If the dry weight concentration (mg/kg) of any constituent exceeds the "10 x STLC" value, the wet weight concentration (mg/kg) of that constituent should be calculated. If the wet weight concentration still exceeds the "10 x STLC" value, a representative sample of the biosolids or septage should be analyzed by the Waste Extraction Test (WET) procedure. If the results of the WET procedure exceed the STLC values, the waste is "hazardous".

8. Application of biosolids or septage onto land having less than 24 inches of depth to ground water at the time of application is prohibited.
9. The storage of septage, other than in enclosed tanks or containers, is prohibited.
10. Biosolids and septage applications to the Roddy Ranch (as described in Finding 17) are prohibited under this General Order.

B. GENERAL LIMITATIONS

All biosolids and septage applications must comply with the following limitations. Additional limitations are imposed under Section C (Class B Biosolids):

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1. Biosolids shall comply at the time of application with either Class A or Class B pathogen reduction standards as listed in 40 CFR 503.
2. Septage shall comply with the pathogen standards for septage as listed 40 CFR 503.32.
3. Biosolids and septage shall comply with one of the vector attraction reduction standards as listed in 40 CFR 503.33.
4. Biosolids and septage shall not be applied to land in amounts which cause the following cumulative loadings to be exceeded:

<u>Constituent</u>	<u>Cumulative Loadings:</u>	
	<u>kilograms per hectare</u>	<u>pounds per acre</u>
Arsenic	41	37
Cadmium	39	35
Chromium	3000	2670
Copper	1500	1336
Lead	300	267
Mercury	17	15
Nickel	420	374
Selenium	100	89
Zinc	2800	2494

5. Biosolids and septage shall not be applied to land subject to substantial erosion during a flood.
6. Biosolids and septage shall not be applied to water-saturated or frozen ground, nor applied during periods of rain or snow fall.
7. If biosolids or septage are incorporated into the ground, tillage practices shall minimize the erosion of soils from the application site by wind, storm water, or irrigation water.
8. If biosolids or septage are applied to ground surfaces having a slope greater than ten percent (10%), a report shall be prepared by a certified agronomist, soil scientist, or a Certified Professional Erosion and Sediment Control Specialist and submitted to the Board for approval which outlines site conditions that justify application of biosolids or septage to the steeper slopes, and specifies the application and management practices to be used to assure containment of the biosolids or septage on the application site and to prevent soil erosion.

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C. CLASS B BIOSOLIDS AND NON-DISINFECTED SEPTAGE LIMITATIONS

Biosolids which have **NOT BEEN** treated to Class A pathogen standards by a Process to Further Reduce Pathogens (PFRP), as listed in 40 CFR 503, and septage which has **NOT BEEN** treated by alkali addition in accordance with procedures specified in 40 CFR 503.32(c), must comply with the following:

1. The discharge of tailwater or field runoff within 30 days after application of Class B biosolids or non-disinfected septage is prohibited for application areas where biosolids have not been incorporated into the soil and there is not sufficient vegetation in the application area and along the path of runoff to prevent movement of biosolids particles from the application site.
2. After the last application of biosolids in each field, the Discharger shall ensure the following:
 - a. For at least 30 days
 - (1) Public access to the application sites is restricted for land with a low potential for public exposure;
 - (2) Food, feed and fiber crops are not harvested; and
 - (3) Animals are not grazed.
 - b. For at least 12 months:
 - (1) Public access to the site is restricted for land with a high potential for public exposure;
 - (2) Turf is not to be harvested if harvested turf is placed on land with a high degree of public exposure; and
 - (3) If the field is used as pasture, grazing of milking animals used for producing unpasteurized milk for human consumption is prevented.
 - c. For at least 14 months:

Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface are not harvested.
 - d. For at least 38 months:

Food crops with harvested parts below the land surface are not harvested, unless the biosolids remained exposed on the ground surface for at least four months prior to incorporation into the soil; and

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3. Staging areas, and biosolids and septage application shall be at least:
 - a. 10 feet from property lines.
 - b. 500¹ feet from domestic water supply wells.
 - c. 50 feet from non-domestic water supply wells.
 - d. 50 feet from public roads.
 - e. 100 feet from surface waters, including creeks, ponds, lakes and marshes.
 - f. 10 feet from agricultural buildings.
 - g. 500 feet from residential buildings.

D. BIOSOLIDS STORAGE² SPECIFICATIONS:

Biosolids shall be considered to be "stored" if they are placed on the ground or in non-mobile containers (i.e., not in a truck or trailer) at the application site or an intermediate storage location away from the generator/processing site prior to application. "Storage" does not include biosolids placed on the ground for brief periods of time solely to facilitate transfer the biosolids between transportation and application vehicles.

1. Biosolids shall not be stored for more than seven consecutive days prior to application.
2. Biosolids containing free liquids shall not be placed on the ground prior to application on an approved site.
3. Biosolids shall not be stored directly on the ground at any one location for more than seven days in any 60 day period.
4. Sites for the storage of Class B biosolids shall be located, designed, and maintained to restrict public access to the biosolids.

¹A lesser setback distance from domestic supply wells (not to be less than 100 feet) may be used if the Discharger can demonstrate to the Executive Officer that the ground water, geologic, topographic and well construction conditions at the specific site are adequate to protect the public health of individuals using the supply well.

²Applies to biosolids storage facilities at the reuse site, not to biosolids storage facilities which are part of a wastewater treatment plant, or which are covered by separate waste discharge requirements

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5. Biosolids storage sites which contain biosolids between 1 October and 30 April shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
6. Biosolids storage facilities which contain biosolids between 1 October and 30 April shall be designed and maintained to contain all storm water falling from a ten year, twenty-four hour storm.
7. Biosolids storage facilities shall be designed, maintained, and operated to minimize the generation of leachate.
8. If biosolids are to be stored at the site, a plan describing the storage program and means of complying with this Order shall be submitted for Executive Officer approval no later than 60-days prior to the storage of biosolids. The storage of biosolids shall not commence until after approval of the plan.
9. The Discharger shall operate the biosolids storage facilities in accordance with the approved biosolids storage plan.

E. GROUND WATER LIMITATIONS:

1. The discharge, in combination with other sources, shall not cause underlying ground water to:
 - a. Be degraded.
 - b. Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in 22 CCR, Division 4, Chapter 15.
 - c. Contain concentrations of chemical constituents in amounts that adversely affect agricultural use.
 - d. Exceed a most probable number of coliform organisms of 2.2 MPN/100 ml over any seven day period.
 - e. Exceed concentrations of radionuclides specified in 22 CCR, Division 4, Chapter 15.

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F. **TERMINATION OF COVERAGE**

1. Coverage of a biosolids or septage reuse project by this General Order may be terminated by submittal of a **Notice of Termination** form (Attachment C) and Post-Application Reports for all biosolids or septage applications. The Discharger will be responsible for paying all Annual Fees for coverage under this General Order until coverage is properly terminated.
2. If an individual Waste Discharge Requirements Order is issued to the Discharger for a project, the applicability of this General Order to the discharge is automatically terminated on the effective date of the individual Waste Discharge Requirements Order.

G. **PROVISIONS:**

1. Neither the distribution, application, nor storage of biosolids or septage shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
2. The Discharger shall submit copies of each Notice of Intent to the appropriate regional office(s) of the Department of Fish and Game, and to the County Health Department(s) and County Agricultural Commissioner(s) with jurisdiction over the proposed application site(s).
3. The Discharger shall comply with the Monitoring and Reporting Program No. 95-140, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
4. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and are by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
5. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.
6. The Discharger shall be responsible for informing all biosolids or septage haulers using the site of the conditions contained in this General Order.
7. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may

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result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of the applicability of this Order to a specific project.

8. Individuals and companies responsible for site operations retain primary responsibility for compliance with these requirements, including day-to-day operations and monitoring. Individual property owners and property managers retain primary responsibility for crop selection and any access or harvesting restrictions resulting from biosolids or septage application. Individual owners of the real property at which the discharge will occur are ultimately responsible for ensuring compliance with these requirements. Enforcement actions will be taken against landowners in the event that enforcement actions against site operators are ineffective or would be futile, or that enforcement is necessary to protect public health or the environment.
9. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
10. The Board will review this Order periodically and will revise requirements when necessary.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 May 1995


for WILLIAM H. CROOKS, Executive Officer

KDL: 26 May 1995



NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF GENERAL ORDER NO. 95-140
TO USE WASTEWATER TREATMENT PLANT BIOSOLIDS OR SEPTAGE
ON AN AGRICULTURAL, FOREST OR RECLAMATION SITE

I. Owner/Operator of spreading operations

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person		(check one) Owner _____ Operator _____ Owner/Operator _____		

II. Property Owner

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

III. Site Operator/Property Manager (if any)

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

IV. Billing Address

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

V. Site Location

Street (including address, if any)	
Nearest Cross Street(s)	
County:	Total Size of Site (acres):
Township/Range/ Section T _____ R _____ Section _____ MDB&M	
Latitude/Longitude: _____ Deg. _____ Min. _____ Sec. N. _____ Deg. _____ Min. _____ Sec. W	
Attach a map of at least 1:24000 (1" = 2000') showing the proposed application site (eg. USGS 7.5' topographic map). The map should also show runoff/runoff controls, storage or staging areas, nearby surface waters, wells and residences.	

VI. Certification

I hereby certify under penalty of perjury that the information provided in this application and in any attachments is true and accurate to the best of my knowledge. I also certify that copies of this Notice of Intent have been submitted to the regional office of the Department of Fish and Game, and the county health department and agricultural commissioner with jurisdiction over the application site.	
Signature of Owner/Operator of Spreading Operations	Title
Printed or Typed Name	Date
Signature of Property Owner	Title
Printed or Typed Name	Date
Signature of Site Operator/Manger (if any)	Title
Printed or Typed Name	Date

kd:5/31/95

PRE-APPLICATION REPORT

ATTACHMENT 1 TO MONITORING AND REPORTING PROGRAM NO. 95-140
USE OF WASTEWATER TREATMENT PLANT BIOSOLIDS OR SEPTAGE
ON AN AGRICULTURAL, FOREST OR RECLAMATION SITE

I. Owner/Operator of spreading operations

NOI Identification Number: _____

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person		(check one) Owner _____ Operator _____ Owner/Operator _____		

II. Property Owner

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

III. Billing Address

- Person/Business/Agency to receive billing for annual fees

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

IV. Site Location

Street (including address, if any)	County:
Nearest Cross Street(s)	Total Size of Site (acres or hectares):
Township/Range/ Section	T _____ R _____ Section _____ MDB&M
Latitude/Longitude:	_____ Deg. _____ Min. _____ Sec. N. _____ Deg. _____ Min. _____ Sec. W

Attach a map of at least 1:24000 (1" = 2000') showing the proposed application site (eg. USGS 15' topographic map). The map should also show runoff/runoff controls, storage or staging areas, nearby surface waters, wells and residences.

Has the application site been undisturbed for two or more years? Yes _____ No _____. If yes, biologic impact studies required.

V. Biosolids / Septage Source

Wastewater Treatment Plant/Septage hauler(s)				
Mailing Address				
City	State	Zip	Phone	
Contact Person				
Level of Pathogen Treatment:	Biosolids (Class A _____ Class B _____)		Septage (Disinfected _____ Undisinfected _____)	
Describe Treatment:				
Vector Attraction Reduction Description:				

VI. Application Information

- If different crops/loadings are planned, submit information in a supplementary letter

Quantity of biosolids or septage	_____ tons or _____ cubic yards	or _____ gallons
Application area size	_____ acres	Maximum ground slope _____
Ammonia Concentration	_____ mg/kg	(If ground slope exceeds 10 deg., agronomist report needed)
Organic Nitrogen Concentration	_____ mg/kg	Mineralization rate for first year following application
Proposed Nitrogen Loading	_____ lb Organic Nitrogen/acre	(submit supporting calculations on separate sheet)
Residual Nitrogen Loading	_____ lb Organic Nitrogen/acre	
from Previous Applications	_____ lb Organic Nitrogen/acre	
Proposed Crop/Land Use:	_____	
Crop Nitrogen Usage:	_____ lb Nitrogen per year	Nitrogen Usage Reference: _____
When will the biosolids be applied? (be specific)		

VII. Pollutant Loadings

Biosolids or Septage Pollutant	Concentration mg/kg, dry weight			Pollutant Loadings kg/hectare, dry weight			kg/hectare Limit
	Material	Limit	10 times STLC	New +	Past =	Total	
Arsenic		75	150				41
Cadmium		85	10				39
Chromium		3000	50				3000
Copper		4300	250				1500
Lead		840	50				300
Mercury		57	2				17
Molybdenum		—	—				18
Nickel		420	200				420
Selenium		100	10				100
Zinc		7500	2500				2800

VIII Site Controls

What are the crops to be planted and the intended land uses during the next three years?

Describe Public Access Control:

Will there be storage near the fields before application? Yes _____ No _____

Describe the storage:

Will there be any tailwater or stormwater runoff for 30 days? Yes _____ No _____
 Describe soil and vegetation conditions between the application area and the nearest drainage course, and describe runoff controls on a separate sheet of paper.

Is the site subject to:
 inundation by floods? Yes _____ No _____ If yes, provide details on separate sheet of paper
 erosion by floods? Yes _____ No _____ If yes, provide details on separate sheet of paper

Will all buffer zone and setback limits at the application site be met? Yes _____ No _____

Will there be:
 Food crops be grown within 38 months of application? Yes _____ No _____ If yes, please describe.
 Animal grazing within 30 days of application? Yes _____ No _____ If yes, please describe.
 Lactating animals grazing within 12 months of application? Yes _____ No _____ If yes, please describe.

IX. Certification

I hereby certify under penalty of perjury that the information provided in this application and in any attachments is true and accurate to the best of my knowledge.

Signature of Owner/Operator		Signature of Property Owner	
Printed or Typed Name		Printed or Typed Name	
Title	Date	Title	Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 95-140

ATTACHMENT B TO
GENERAL ORDER FOR REUSE OF
DOMESTIC WASTEWATER TREATMENT PLANT BIOSOLIDS AND SEPTAGE
ON AGRICULTURAL, FOREST AND RECLAMATION SITES

PRE-APPLICATION REPORT

A pre-application report shall be submitted for each field or distinct application area prior to each application of biosolids or septage, in accordance with the waste discharge requirements. Where biosolids or septage are applied on a continuing basis to a single area, the pre-application report may cover ongoing operations and need not be submitted for each load applied. For continuing operations an updated pre-application report must be submitted annually. The Pre-Application Report shall be signed by the Owner/Operator of the biosolids or septage application operation, and by the Property Owner. The Property Owner may submit written authorization to allow a representative of the Property Owner, such as a tenant or land management company, to sign the Pre-Application Report.

A Pre-Application Report form is included as Attachment 1 to this Monitoring and Reporting Program. The form details the minimum information which must be submitted in the Report. If additional space is needed, or additional information is being submitted, the Pre-Application Report form should be completed as fully as possible and the additional information submitted on separate sheets of paper. The additional information should be referenced on the Pre-Application form (for example, "See Attached Sheet"). The Pre-Application Report form may be modified by the Executive Officer as the need arises. With the concurrence of Board staff, the Discharger may submit a Pre-Application Report in a different format for projects involving multiple fields, crops, NOIs, etc.. Any alternative format for submittal of the Pre-Application Report must contain the equivalent data specified on Attachment 1.

POST-APPLICATION REPORT

A post-application report shall be submitted after each application of biosolids to a site. The report shall include:

1. Identification of the application area(s), including a map clearly showing each field or site covered by the post-application report.
2. Total volume (cubic yards) and weight (dry tons) of biosolids applied.
3. Tons of wet biosolids per acre and tons of dry biosolids per acre applied.
4. Kilograms per hectare of metals and pounds per acre of total nitrogen applied.
5. Any variations from the pre-application report.
6. A statement concerning compliance with land use restrictions identified in the General Order.

MONITORING AND REPORTING PROGRAM
 GENERAL ORDER FOR REUSE OF
 BIOSOLIDS AND SEPTAGE
 ON AGRICULTURAL, FOREST AND RECLAMATION SITES

BIOSOLIDS AND SEPTAGE MONITORING

Representative samples of biosolids and septage to be applied to land shall be composite and analyzed a minimum of twice per year for the following:

<u>Constituent</u>	<u>Units¹</u>
Percent Solids	%
Nitrogen:	
Ammonia	mg/kg
Nitrate	mg/kg
Total Kjeldahl	mg/kg
Organic	mg/kg
Phosphorous	mg/kg
Potassium	mg/kg
pH	pH Units
Heavy Metals ²	mg/kg
Boron	mg/kg
Fecal Coliform ³ or <i>Salmonella sp.</i> ³	MPN/gram dry weight

¹ To be reported as dry weight corrected for percent moisture

² Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, and Zinc

³ Not required for septage.

REPORTING

Pre-Application Reports shall be submitted for Regional Board staff review and approval at least 30 days prior to application of biosolids or septage to land.

Post-Application Reports shall be submitted:

- a. For completed operations, within 60 days of the last application of biosolids or septage.
- b. For ongoing application operations, by 1 March for all septage and biosolids applications for the preceding calendar year.

MONITORING AND REPORTING PROGRAM
GENERAL ORDER FOR REUSE OF
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In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements.

The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Board.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision B.3.

Ordered By: Thomas R Pinkus
for WILLIAM H. CROOKS, Executive Officer

26 May 1995

(Date)

KDL: 26 May 1995

NOTICE OF TERMINATION

OF COVERAGE UNDER GENERAL ORDER NO. 95-140
FOR USE WASTEWATER TREATMENT PLANT BIOSOLIDS OR SEPTAGE
ON AGRICULTURAL, FOREST OR RECLAMATION SITES

Submission of this Notice of Termination constitutes notice that the owner/operator no longer has coverage under the General Order for beneficial reuse of biosolids or septage as a soil amendment or fertilizer.

I. **WDID Number** _____ **NOI ID No.** _____

II. **Owner/Operator of spreading operations**

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person		(check one: Owner _____ Operator _____ Owner/Operator _____		

III. **Property Owner**

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

IV. **SITE OPERATOR/PROPERTY MANAGER (if any)**

Name				
Mailing Address				
City	County	State	Zip	Phone
Contact Person				

V. **Site Location**

Street (including address, if any)	
Nearest Cross Street(s)	
County:	Total Size of Site (acres):
Township/Range/ Section T _____ R _____ Section _____ MDB&M	
Latitude/Longitude: _____ Deg. _____ Min. _____ Sec. N. _____ Deg. _____ Min. _____ Sec. W	
Attach a map of at least 1:24000 (1" = 2000') showing the proposed application site (eg. USGS 7.5' topographic map). The map should also show runoff/runoff controls, storage or staging areas, nearby surface waters, wells and residences.	

VI. PROJECT STATUS

Project involved (check one):	Class A Biosolids _____	Class B Biosolids _____
	Disinfected Septage _____	Undisinfected Septage _____
Were biosolids or septage used at the site?	Yes _____	No _____
Date of last application:	_____	
Total amount land applied:	_____ gallons	_____ dry tons
Are land use restrictions still in effect for the property?	Yes _____	No _____
Describe the land use restrictions and how they will be enforced.		

VII. Certification

I hereby certify under penalty of perjury that the information provided in this application and in any attachments is true and accurate to the best of my knowledge.	
Signature of Owner/Operator of Spreading Operations	Title
Printed or Typed Name	Date
Signature of Property Owner	Title
Printed or Typed Name	Date
Signature of Site Operator/Manger (if any)	Title
Printed or Typed Name	Date

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER FOR REUSE OF BIOSOLIDS AND SEPTAGE ON AGRICULTURAL, FOREST AND RECLAMATION SITES

This General Order prescribes waste discharge requirements for the beneficial use of domestic wastewater treatment plant biosolids and septage on agricultural, forest and reclamation sites. The Order primarily uses standards and limitations prescribed by the U.S. Environmental Protection Agency in *Standards for the Use or Disposal of Sewage Sludge* (40 CFR 503), supplemented by some additional restrictions pertinent to regional concerns. Prospective users of biosolids and septage submit a completed Notice of Intent (NOI) and annual fee to obtain coverage under the Order. The NOI and a monitoring and reporting program require periodic testing of the biosolids or septage for compliance with the regulations.

The Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Board is not the implementing agency for 40 CFR 503. The Dischargers may have permitting, reporting and other compliance responsibilities with the U. S. Environmental Protection Agency. Compliance with this Order does not constitute full compliance with 40 CFR 503.

This General Order does not cover all possible biosolids reuse conditions allowed under 40 CFR 503, and contains additional limitations to further protect water quality. If a specific project does not conform to the conditions of the General Order, the discharger may submit a Report of Waste Discharge to apply for individual waste discharge requirements (WDRs) for the project. The individual WDRs may contain less stringent conditions or allow additional reuse options for that specific project. Projects involving the use of "Exceptional Quality" biosolids may qualify for a waiver of a Report of Waste Discharge and Waste Discharge Requirements under Regional Board Resolution No. 95-144.

USE OF THIS ORDER

To obtain coverage under this General Order the site operator (i.e., the persons, corporation, or city which will be transporting and applying the biosolids or septage) and the land owner must submit a completed **Notice of Intent** (NOI) and appropriate annual fee. If there is a management company representing the property owner, a representative of the management company must also sign the NOI. The Regional Board considers that the site operator has the primary responsibility for compliance with the General Order. However, the property owner has a major responsibility for compliance with any crop restrictions following biosolids or septage application, and has a legal responsibility as landowner should violations of the Order occur. The NOI identifies the individuals responsible for the application of the biosolids or septage and provides the location of the reuse project. Detailed information on the source(s) of biosolids, application rates, etc., are provided in a **Pre-Application Report**.

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INFORMATION SHEET
GENERAL ORDER FOR REUSE OF BIOSOLIDS AND SEPTAGE
ON AGRICULTURAL, FOREST AND RECLAMATION SITES

Prior to submitting the NOI, the responsible parties should review the General Order in detail. If the proposed biosolids or septage reuse project does not fully comply with the terms and conditions of the General Order, do not submit an NOI as no variation from the conditions of the General Order are possible. If there are disagreements on the type and frequency of monitoring as required by the Monitoring and Reporting Program, an NOI may be submitted, because conditions in the Monitoring and Reporting Program may be modified for specific projects. If the proposed project does not meet the terms and conditions of the General Order, the project proponents should discuss the matter with the Regional Board staff. Individual waste discharge requirements may be able to be adopted for biosolids and septage reuse projects, which do not conform to the General Order.

Upon submittal of a complete NOI and annual fee, the dischargers are covered by the General Order and have waste discharge requirements to apply biosolids or septage on the specified property. No further action by the discharger or the Regional Board is necessary to obtain coverage under the General Order.

Prior to application of biosolids or septage, the discharger must submit a Pre-Application Report (Attachment 1 to the Monitoring and Reporting Program) which details: the source and quality of the biosolids or septage; land use plans, including the crops to be grown; anticipated nitrogen uptake for cover crops; public access control; and other matters pertinent to compliance with the General Order. The Pre-Application Report must be approved by the Board staff prior to the application of biosolids or septage. The Pre-Application Report must be signed by the project operator and the Property Owner. The Property Owner may submit a written authorization to delegate some other party, such as a land management company, lessee, etc., to sign the Pre-Application Report. This delegation is not allowed for the NOI signatures.

During and following biosolids or septage application, the Monitoring and Reporting Program specifies sampling and analyses which must be conducted of the biosolids or septage. Reporting is required annually for projects which continue for long periods of time.

Upon completion of the biosolids or septage application project, or when the discharger decides that no biosolids or septage will be applied, the discharger may submit a Notice of Termination (Attachment C) and any unsubmitted Post-Application Reports to terminate coverage under the General Order. Annual fees will be due and payable until the Notice of Termination and unsubmitted Post-Application Reports are submitted. No further land application of biosolids or septage will be allowed after submittal of a Notice of Termination without the submittal of a new Notice of Intent and annual fee.

BACKGROUND

Domestic wastewater treatment plants produce large volumes of solid waste (biosolids) composed of solid, semi-solid and liquid residue, which includes scum and solids removed in primary, secondary, and advanced treatment. The handling and disposal of this waste constitutes a major expense to the municipalities. Traditionally, the biosolids have been discharged either to sanitary landfills (where its high moisture content can potentially contribute to leachate generation and where, if acidic conditions exist and heavy metals are present in the biosolids, they can become mobile within the landfill and increase the threat to the ground water) or is stockpiled indefinitely (where, if improperly stored, it can threaten ground or surface water quality or create public nuisance conditions).

Septage is the solids pumped from septic tanks in order to prevent solids from overflowing the septic tank and plugging the wastewater disposal fields. The solids consist of a mixture of sewage solids and microorganisms. Septage has been variously discharged to landfills, discharged to holding/infiltration ponds, or land spread. All of these methods of disposal pose a threat of ground or surface water pollution and can create public nuisance conditions. Septage does not include pumped industrial and commercial wastes such as from grease trap, oil/water separators, car wash sumps, etc., although septic tank or portable toilet wastes containing only domestic wastewater generated at industrial or commercial sites are acceptable.

Decades of practice has shown that beneficial reuse of biosolids and septage is, in many cases, environmentally and economically preferable to their disposal in a landfill.

Biosolids and septage contain fertilizer and soil amendment characteristics which are beneficial to farming operations as follows:

- a. Nitrogen is a basic nutrient for plant growth. It is present in the forms of ammonia, nitrates and organic nitrogen at concentrations from two to ten percent by weight on a dry weight basis. The ammonia and nitrate forms of nitrogen are immediately available for plant usage. Organic nitrogen is released slowly over many months, providing a continuing supply of nitrogen for crops and minimizing the potential for movement of nitrogen to the ground water.
- b. Phosphorus is a basic nutrient for plant growth and is present in all biosolids and septage in varying concentrations.
- c. Micronutrients, including a variety of salts and metals, are necessary for plant growth, and are present in biosolids and septage in varying amounts.
- d. Organic material improves soil structure, reduces soil erosion, aids soil moisture retention, improves tillability, and helps hold fertilizers and metals in the root zones for plant usage.
- e. Liming agents are available when biosolids have been chemically stabilized with lime. Liming agents increase soil pH and can improve the permeability of the soils. Higher pH soils will

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generally more tightly bind heavy metals, decreasing the chance of the metals migrating to the ground water.

Biosolids and septage have the following characteristics which can create water quality and public health problems if improperly managed and regulated:

- a. Pathogens (disease causing organisms). Unless the biosolids or septage have been specially treated or disinfected to destroy pathogens, significant concentrations of bacteria, virus, and parasites remain. Public health problems can be prevented with appropriate control over public access to the applications areas and restrictions on the type and usage of crops grown on the application sites. Buffer zones around water supply wells, surface water drainage courses, and public areas will prevent transmission of pathogens to the public.
- b. Heavy metals will be present. If heavy metals are over-applied to a field, they can cause ground water pollution, toxicity to the plants, or buildup of metals in the plant tissues with transmission of the metals into the food chain. Only selected metals commonly found in biosolids and septage are known to cause water quality or public health problems. Application rates for those metals can be set to eliminate the problems.
- c. Nitrogen can be over-applied, allowing buildup of nitrogen in the soils. Excess nitrogen will eventually be converted to the nitrate form and can migrate to the ground water. Excess nitrate in the ground water can result in exceedance of drinking water standards and a public health threat. Nitrogen over-application can be prevented by matching the application rate of the nitrogen to the nitrogen usage rate of the crops.
- d. Odor and insect nuisances can be caused if the biosolids or septage have not been adequately treated (stabilized) prior to application, or if wet biosolids or septage is allowed to stand in piles or the ground surface for several days. Compliance with State and Federal standards for stabilization of the biosolids will minimize the potential for odors and insect nuisances. Proper management at the application site will prevent serious odor or insect nuisances. Properly stabilized biosolids will generate limited, transient odors in the immediate vicinity of the application operations - proper site selection will eliminate nuisances by providing adequate buffer zones around residences and public areas.
- e. Discharge of organic material to surface waters can be prevented by control of field runoff, avoiding wet weather application, and incorporating the biosolids or septage into the soil soon after application. The water quality threat of organic matter discharging to surface waters due to the organic content of the biosolids is no greater than for a similar quantity of other organic soil amendments, such as steer manure.
- f. The possibility of adverse public perception concerning crops grown with biosolids or septage can lead to difficulties in the sale of some human food chain crops, including refusal of some food processors to accept foods grown on biosolids or septage amended soils.

LIMITATIONS IN THE GENERAL ORDER

* TOXICITY AND GROUND AND SURFACE WATER PROTECTION STANDARDS

1. The discharge of 'hazardous' or 'designated' (i.e., materials which have a significant potential for degrading ground water) materials are prohibited.
2. Numeric limitations are prescribed for ten metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc) to prevent soil or plant toxicity caused by excessive concentrations of metals, introduction of heavy metals into the food chain, or ground water contamination. The limitations are set on the maximum allowable (ceiling) dry weight concentration of the metals in the biosolids at the time of application, and on the cumulative (lifetime) loading rate allowed at an application site. The limitations are taken from U.S. EPA regulations in 40 CFR 503.13, Tables 1 and 2.
3. Application rates of the biosolids are limited to the agronomic rate for nitrogen. The agronomic rate for nitrogen will take into account that most of the total nitrogen is not immediately available for plant uptake, but that the total nitrogen will be slowly converted into available forms over several years. For land reclamation operations or other "single application" projects, the rate of biosolids application may be increased to allow for plant uptake over several years.
4. The discharge of biosolids and septage to surface waters or surface water drainage courses is prohibited.
5. The discharge of tailwaters for 30 days following application is prohibited unless the biosolids or septage has been incorporated into the ground, or there is sufficient vegetative material to retain unincorporated materials, to minimize the chance of biosolids or septage being carried from the application site to surface waters.
6. Biosolids may not be applied to frozen or saturated ground or during rain or snowfall to minimize the chance of discharges to surface waters.
7. A 100 foot setback from surface water drainage courses is prescribed. Other setbacks from ground water wells, public areas and buildings are specified to minimize the potential for ground water or public health impacts. A 500 foot setback is prescribed around domestic water supply wells, but this distance may be reduced to as little as 100 feet by the Executive Officer based upon site specific conditions. The primary concern with water well contamination is from movement of pathogens across the ground surface and then down around the well casing. If site conditions preclude this possibility, such as the presence of a canal between the application site and the well, or the well head being located up a steep hill from the application site, the lesser setback distances will be warranted.
8. Biosolids may not be applied to ground subject to substantial erosion by floodwaters. Erosion of the soil at the application site would allow the biosolids to enter surface waters. Application

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of biosolids within flood zones is not prohibited. Inundation of application site after application would not result in any significant quantity of biosolids or septage being carried off with the flood waters as long as active erosion of the site is not occurring.

9. Biosolids storage is limited to brief periods of time, allowing for staging of biosolids at the site prior to application, and for equipment breakdowns, unexpected rain, etc. Long term storage of biosolids is not allowed under this Order. Any storage occurring during wet months must have 100 year flood protection and 10 year, 24 hour rainfall containment to prevent the discharge of large quantities of biosolids due to storm events.
10. Biosolids and septage may not be applied unless there is at least a 24" depth to ground water at the time of application. The 24" depth is intended to minimize placement of biosolids directly into the ground water, where the mobility and longevity of pathogens is increased. Most agricultural operations will not till the biosolids into the soils to depths greater than 24" because biosolids must remain in the root zone to serve as a fertilizer. The "depth at time of application" recognizes that rapid environmental attenuation of the pathogens occurs, reducing the potential for movement of pathogens from the application site during times when ground water is less than 24" to the ground surface.

*** PUBLIC HEALTH PROTECTION**

11. Biosolids must comply with either the Class A or Class B standards defined by U.S. EPA in 40 CFR 503, Appendix B. Class A biosolids have been treated to destroy pathogenic (disease causing) organisms, and therefore have little risk of transmitting pathogens to humans. Class B biosolids have been treated to destroy a large percentage of pathogens, but significant concentrations of the organisms exist. Class B biosolids use is therefore subject to use restrictions described further below.
12. For Class B biosolids, the site access and use restrictions from 40 CFR 503.32(b)(5) are prescribed. Waiting periods are set during which public access, grazing or harvesting of food crops are not allowed. In addition to the EPA requirements, grazing by milking animals used for the production of unpasteurized milk is prevented for 12 months.
13. Setbacks for Class B biosolids staging and spreading areas are prescribed along property lines, wells, public roads and dwellings to minimize the potential for human contact with the biosolids.

*** ODORS AND NUISANCE CONDITIONS**

14. All biosolids must be treated and/or used in accordance with one of the Vector Attraction Reduction Standards as defined in 40 CFR 503.33. These standards present a number of options for either stabilizing the organic matter prior to application to minimize odors and attraction of insects and other vectors, or for immediate burial of the biosolids beneath the soil at the reuse site.

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15. Long term storage of biosolids is not allowed under the Order.
16. Septage storage at the site is allowed only in enclosed containers to minimize odors.

*** NOTIFICATION OF OTHER AGENCIES**

17. The Discharger is required to submit copies of the NOIs to the appropriate Regional Office of the Department of Fish and Game, and the county Health Department and Agricultural Commissioner with jurisdiction over those projects. This notification will allow those agencies to take whatever action is needed under their respective authorities to evaluate and/or regulate the application operations. Review and approval of the NOIs by these agencies is not required for coverage under the General Order.

*** MONITORING**

18. Biosolids analyses for heavy metal and nutrient content must be provided with the application for the project, and periodically during application operations.
19. Following the completion of the application operation, or annually for ongoing operations, a post-application report must be submitted identifying the locations of application and the amount of biosolids and metals applied.

NOTICE OF INTENT (NOI) - ATTACHMENT A

To apply for coverage under the General Order, an NOI must be completed and submitted along with the appropriate annual fee. Upon submittal of the completed NOI and fee, the discharger has coverage.

NOTICE OF TERMINATION - ATTACHMENT C

To terminate coverage under the General Order, a Notice of Termination must be completed and submitted. Any unsubmitted Post-Application Reports should be submitted at the same time. Upon submittal of the Notice of Termination no further land application of the biosolids or septage will be allowed under the General Order until a new NOI and annual fee are submitted. Annual fees will be due and payable until the Notice of Termination and all unsubmitted Post-Application Reports are submitted.