

FINAL REGULATIONS

WATER QUALITY MONITORING REQUIREMENTS FOR HAZARDOUS WASTE LAND DISPOSAL UNITS - R-04-11

Note: Post-hearing typographical corrections, indicated by bold-face double-strikeout text, are non-substantive in nature.

Amend section 66264.90 of the California Code of Regulations, title 22, division 4.5, chapter 14, article 6 to read as follows:

§66264.90. Applicability.

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~~(e) For all regulated units which are operating, have operated or have received all permits necessary for construction or operation on or before July 1, 1991, the owner or operator shall prepare an application for a permit modification pursuant to chapter 21 of this division to establish monitoring programs that comply with the provisions of this article and submit this application to the Department within 180 days of July 1, 1991. The owner or operator of such regulated units shall begin any necessary construction within 30 days of receiving approval from the Department and shall implement the approved monitoring programs according to a schedule of compliance established by the Department.~~

The Department may replace all or part of the requirements of sections 66264.91 through 66264.100 applying to a regulated unit with alternative requirements for a water quality monitoring and response program set out in the permit where the Department determines that:

(1) The regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management unit(s) (or areas of concern) are likely to have contributed to the release; and

(2) It is not necessary to apply the water quality monitoring and response program requirements of sections 66264.91 through 66264.100 because alternative requirements will protect human health and the environment.

(f) In order to apply section 66264.90(e), the owner or operator must submit a report to the Department that demonstrates that each proposed alternative to the requirements of sections 66264.91 through 66264.100 shall provide adequate protection of human health and the environment. The demonstration report shall include the rationale and all supporting data for each proposed alternative requirement. The owner or operator is not relieved of any requirement of sections 66264.91 through 66264.100 until the Department evaluates the submitted report and issues or modifies the permit.

(g) If the owner or operator determines that any alternative requirement specified through section 66264.90(f) may not adequately protect human health and the environment, the owner or operator shall, within 90 days, submit an

application for a permit modification to make any appropriate changes to the water quality monitoring and response program.

(h) In the event that the Department determines that any alternative requirement specified through section 66264.90(f) may not adequately protect human health and the environment, the Department shall send written notification of such determination to the owner or operator by certified mail, return receipt requested. As part of the determination, the Department may require that certain requirements of sections 66264.91 through 66264.100 be reinstated in whole or part. The owner or operator shall, within 90 days after receipt of such notification by the Department, submit an application for a permit modification to make any appropriate changes to the water quality monitoring and response program.

NOTE: Authority cited: Sections ~~208~~, 25150, and 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code; 40 CFR Section 264.90.

Amend section 66264.94 of the California Code of Regulations, title 22, division 4.5, chapter 14, article 6 to read as follows:

§66264.94. Concentration Limits.

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(b) The Department shall review the proposed concentration limits and statements and shall approve, modify or disapprove each proposed limit and each proposed statement. Upon final approval by the Department, each concentration limit and each statement shall be specified in the facility permit. The Department shall only approve different concentration limits for different monitoring points in the same medium where necessary:

(1) to describe background conditions in multiple surface water bodies, multiple aquifers or geochemically dissimilar zones in the same aquifer;

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NOTE: Authority cited: Sections ~~208~~, 25150, ~~and~~ 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code; 40 CFR Section 264.94.

Amend section 66264.97 of the California Code of Regulations, title 22, division 4.5, chapter 14, article 6 to read as follows:

§66264.97. General Water Quality Monitoring and System Requirements.

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(b) Groundwater Monitoring System.

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(3) A copy of each well report, as required by Water Code section 13751, shall be submitted to the Department within 60 days of the construction, alteration, or destruction of the well.

~~(3) A copy of drillers' logs shall be filed with the Department on Department of Water Resources form DWR 188 Rev 12-86, available from the Department of Water Resources, 3251 S Street, Sacramento, CA 95816-7017, or by phone at (916) 322-7171.~~

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(8) All wells shall be adequately destroyed (decommissioned) if the wells will no longer provide useful information. Decommissioning may only proceed after approval by the Department or as directed by the Department.

(c) Surface Water Monitoring System.

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(3) The owner or operator may modify or exclude certain chapter 14, article 6 requirements pertaining to surface water monitoring if it is impracticable or technically inappropriate to comply with surface water monitoring requirements listed in this article. The owner or operator shall make an appropriate demonstration for alternative surface water monitoring requirements. The owner or operator is not relieved of any surface water monitoring requirements until the Department evaluates the proposal and issues or modifies the permit.

(d) Unsaturated Zone Monitoring System.

(1) Except as otherwise provided in subsections (d)(5) and (d)(7) of this section, the owner or operator shall establish an unsaturated zone monitoring system for each regulated unit.

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(4) Liquid recovery types of unsaturated zone monitoring (e.g., the use of lysimeters) are required unless the owner or operator demonstrates to the

satisfaction of the Department that such methods of unsaturated zone monitoring cannot provide ~~an indication of~~ useful information regarding a release from the regulated unit. The Department shall require complementary or alternative (non-liquid recovery) types of unsaturated zone monitoring as necessary to ~~provide the best assurance of the earliest possible detection of~~ adequately monitor a release from the regulated unit.

(5) ~~Unsaturated zone monitoring is required at all new regulated units unless the owner or operator demonstrates to the satisfaction of the Department that no method for unsaturated zone monitoring can provide any indication of a release from that regulated unit. For a regulated unit that has operated or has received all permits necessary for construction and operation before July 1, 1991, unsaturated zone monitoring is required unless the owner or operator demonstrates to the satisfaction of the Department that either there is no unsaturated zone monitoring device or method designed to operate under the subsurface conditions existant at that waste management unit or the installation of unsaturated zone monitoring devices would require unreasonable dismantling or relocating of permanent structures.~~

(6) The owner or operator of a land treatment unit shall comply with the unsaturated zone monitoring and response requirements for that unit in article 13 of this chapter, in addition to the unsaturated zone monitoring requirements of this article.

(7) ~~The owner or operator may modify or exclude certain chapter 14, article 6 requirements pertaining to unsaturated zone monitoring if it is impracticable (e.g., insufficient liquid volume for analyses) prohibit unsaturated zone monitoring systems from complying with chapter 14, article 6 requirements or technically inappropriate to conduct unsaturated zone monitoring at the regulated unit. The owner or operator shall make an appropriate demonstration for alternative unsaturated zone monitoring requirements. The owner or operator is not relieved of any unsaturated zone monitoring requirements until the Department evaluates the proposal and issues or modifies the permit.~~

(e) General Monitoring Requirements.

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(4) The water quality monitoring program shall include and implement consistent sampling and analytical procedures that are designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points. At a minimum the program shall include a detailed description of the procedures and techniques for:

- (A) sample collection (e.g., purging techniques, sampling equipment and decontamination of sampling equipment);
- (B) sample preservation and shipment;
- (C) analytical procedures; and
- (D) chain of custody control.

(5) The water quality monitoring program shall include appropriate sampling and analytical methods for groundwater, surface water and the unsaturated zone that accurately measure the concentration of each constituent of concern and the concentration or value of each monitoring parameter.

(6) For each regulated unit, the owner or operator shall collect all data necessary for selecting the appropriate statistical method pursuant to subsections (e)(7), (e)(8) and (e)(9) of this section and for establishing the background values pursuant to subsection (e)(11) of this section. At a minimum, this data shall include analytical data obtained during quarterly sampling of all background monitoring points for a period of one year, including the times of expected highest and lowest annual elevations of the groundwater surface. The Department may approve sampling at times other than the expected highest and lowest annual elevations, if appropriate, however quarterly sampling is still required for a period of at least one year. For a new regulated unit, this data shall be collected before wastes are discharged at the unit and background soil pore liquid data shall be collected from beneath the unit before the unit is constructed.

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(8) The owner or operator shall propose one of the following statistical methods:

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(E) another statistical test method submitted by the owner or operator for approval by the Department including, but not limited to, any statistical method which includes a procedure to verify that there is statistically significant evidence of a release from the regulated unit. If the statistical test method includes a verification procedure, this procedure shall consist of either a single composite retest (i.e., a statistical analysis of the original data combined with newly-acquired data from the monitoring point at which evidence of a release has been indicated) or shall consist of at least two discrete retests (i.e., statistical analyses which analyze only newly-acquired data from the monitoring point at which evidence of a release has been indicated). The verification procedure shall comply with the following requirements in addition to the statistical performance standards under subsection (e)(9) of this section.

1. If the verification procedure consists of discrete retests, rejection of the null hypothesis for any one of the retests shall be considered confirmation of significant evidence of a release.

2. The number of additional samples collected and analyzed for use in the verification procedure shall be appropriate for the form of statistical test specified in the facility permit for that constituent of concern or monitoring parameter pursuant to subsection (e)(7) of this section. This number shall be greater than or equal to the number of samples specified in the facility permit for that constituent of concern or monitoring parameter pursuant to subsection (e)(12)(A) of this

section.

3. If resampling at the interval identified for use in the initial statistical test pursuant to subsection (e)(12)(B) of this section would cause the entire resampling effort to take longer than 30 days, the sampling interval for use in the verification procedure shall be reduced to ensure that all samples are collected and submitted for laboratory analysis within 30 calendar days from the time that the owner or operator determines statistically significant evidence of a release pursuant to subsection 66264.98(g) or (i). Resampling may occur within a different time frame provided the owner or operator receives written approval from the Department.

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6. For a verification procedure consisting of discrete retests, the statistical method used shall be the same as the method used in the initial statistical comparison. Notwithstanding any provision of subsection (e)(9) of this section, the critical value for the tests shall be chosen so that the Type I error rate for all individual monitoring point comparisons is the same, whether for an initial test or for a retest, and is equal-to-or-greater-than either

$$(1-0.95^{1/(mws)})^{0.5} \times (1/r)^{0.5}$$

or

$$1-(.99)^{1/6}$$

whichever is larger, where: m = the number of monitoring parameters; w = the number of monitoring points at the waste management units; s = the number of times that suites of monitoring data from the waste management unit are subjected to initial statistical analysis within a period of six months (i.e., s > 1); and r = the number of discrete retests that are to be conducted at a monitoring point whose initial statistical analysis for a given constituent of concern or monitoring parameter has indicated the presence of a release (i.e., r > 2).

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(9) Each statistical method chosen under subsection (e)(7) of this section for specification in the facility permit shall comply with the following performance standards for each six-month period.

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(E) The statistical method shall account for data below the practical quantitation limit with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit approved by the Department pursuant to subsection (e)(7) of this section that is used in the statistical method shall be the lowest concentration (or value) that can be reliably achieved within limits of precision and accuracy specified in the facility permit for

routine laboratory operating conditions that are available to the facility. The Department shall consider the practical quantitation limits listed in Appendix IX to chapter 14 for guidance purposes when specifying limits of precision and accuracy in the facility permit.

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(12) For each constituent of concern and monitoring parameter listed in the facility permit, the owner or operator shall propose, for approval by the Department, the sampling methods to be used to establish background values and the sampling methods to be used for monitoring pursuant to this article. Upon final approval by the Department, sampling methods consistent with the following shall be specified in the facility permit.

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(B) The sampling method (including the sampling frequency and the interval of time between successive samples) shall be appropriate for the medium from which samples are taken (e.g. i.e., groundwater, surface water and soil-pore liquid). The sampling method shall include either one of the following:

~~1. a sequence of at least four samples collected at least semiannually from each monitoring point and each background monitoring point and statistical analysis performed at least semi-annually. Samples shall be taken at an interval that assures, to the greatest extent possible, that an independent sample is obtained. The Department shall require more frequent sampling and statistical analysis when necessary to protect human health and the environment. For groundwater, the sampling frequency and the interval between successive sampling events shall be based upon the rate of groundwater flow, and upon any variation in groundwater flow rate and direction. The rate of groundwater movement shall be calculated by reference to the aquifer's effective porosity, hydraulic conductivity and hydraulic gradient; or~~

1. the collection of not less than one sample quarterly from each monitoring point and background monitoring point and statistical analysis performed at least quarterly; or

~~2. an alternate sampling method. The alternate method shall provide for the collection of not less than one sample quarterly from each monitoring point and background monitoring point and statistical analysis performed at least quarterly;~~

2. a sequence of at least four samples collected at least semi-annually from each monitoring point and each background monitoring point and statistical analysis performed at least semi-annually. Samples shall be taken at an interval that assures, to the greatest extent possible, that an independent sample is obtained. The Department shall require more frequent sampling and statistical analysis when necessary to protect human health and the environment. For groundwater, the sampling frequency and the interval between successive sampling events shall be based upon the rate of groundwater flow, and upon any

variation in groundwater flow rate and direction. The rate of groundwater movement shall be calculated by reference to the aquifer's effective porosity, hydraulic conductivity and hydraulic gradient; or

3. an alternate sampling method. Alternate collection and analysis frequencies may be proposed by the owner or operator for approval by the Department.

(13) The groundwater portion of the monitoring program shall include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity and pH) at each well each time groundwater is sampled. Field parameter determinations may be modified or waived, after receiving written approval by the Department, if the owner or operator can demonstrate that representative samples are obtained. Any modifications to field parameter determinations shall be specified in the monitoring and response program.

(14) The owner or operator shall graph all analytical data from each monitoring point and background monitoring point and shall submit these graphs to the Department at least annually, except graphs are not required for constituents for which no new data have been collected since the previous graph submittal. Each graph shall represent data for one constituent of concern or monitoring parameter and shall be at a scale appropriate to show trends or variations in water quality. Unless the owner or operator receives written approval from the Department to use an alternate procedure, each graph shall include data from related monitoring and background points as long as the depicted data effectively illustrates trends or variations in the data. ~~represent data from one monitoring point or background monitoring point and one constituent of concern or monitoring parameter. Graphs shall be at a scale appropriate to show trends or variations in water quality. All graphs for a given constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data.~~

(15) In addition to the water quality sampling conducted pursuant to the requirements of this article, the owner or operator shall measure the water level in each well and determine groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional aquifers monitored pursuant to subsection (b)(1) of this section at least quarterly, including the times of expected highest and lowest elevations of the water levels in the wells. However, based on site-specific conditions, the Department may approve an alternate frequency of at least annually. The owner or operator using an approved alternative sampling frequency shall, based on available groundwater data, determine, at least annually, whether the requirements of section 66264.97(b)(1) are satisfied. If the evaluation shows that the requirements of section 66264.97(b)(1) are not satisfied, the owner or operator shall submit to the Department an application for a permit modification to make the appropriate changes to modify the number, location or depth of the groundwater monitoring wells as necessary to bring the groundwater monitoring system into compliance with the requirements of this article.

(16) Water quality monitoring data collected in accordance with this article,

including actual values of constituents and parameters, shall be maintained in the facility operating record. The Department shall specify in the permit when the data shall be submitted for review.

NOTE: Authority cited: Sections ~~208~~, 25150, ~~and~~ 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code; 40 CFR Section 264.97.

Amend section 66264.98 of the California Code of Regulations, title 22, division 4.5, chapter 14, article 6 to read as follows:

§66264.98. Detection Monitoring Program.

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(f) The owner or operator shall conduct sampling and analyses for the monitoring parameters listed in the facility permit pursuant to subsection (e) of this section. The Department shall specify the frequencies for collecting samples and conducting statistical analyses pursuant to section 66264.97(e)(12). For groundwater, sampling shall be scheduled to include the times of expected highest and lowest annual elevations of the groundwater surface unless the owner or operator can demonstrate to the satisfaction of the Department that alternative sampling times are appropriate.

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(k) If the resampling pursuant to subsection (j)(2) of this section confirms that there is statistically significant evidence of a release from the regulated unit or if the owner or operator does not resample pursuant to subsection (j)(2) of this section, then the owner or operator shall do the following.

(1) For that regulated unit, immediately sample all monitoring points ~~in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit and determine the concentration of all constituents of concern. The owner or operator may modify the number of monitoring points and constituents of concern after receiving written approval from the Department.

(2) For that regulated unit, immediately sample all monitoring points ~~in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit and determine whether constituents in the list of Appendix IX to chapter 14 are present, and if so, in what concentration(s). The owner or operator may modify the number of specific Appendix IX analytes based on site-specific conditions and previous Appendix IX sampling results after receiving written approval from the Department.

(3) For any Appendix IX constituents found in the analysis pursuant to subsection (k)(2) of this section that are not specified in the list of constituents of concern for that unit, the owner or operator may resample within one month and repeat the analysis for those constituents. Resampling may occur within a different time frame provided the owner or operator receives written approval from the Department. Each constituent detected in both analyses shall be added to the list of constituents of concern specified in the facility permit for evaluation monitoring unless the owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit. If the owner or operator does not resample for

the constituents found pursuant to subsection (k)(2) of this section, the constituents found during this initial Appendix IX analysis will be added to the list of constituents of concern specified in the facility permit for evaluation monitoring unless the owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit.

(4) For each Appendix IX constituent added to the list of constituents of concern pursuant to subsection (k)(3) of this section, the owner or operator shall:

(A) collect all data necessary for establishing the background concentration for that constituent and for selecting an appropriate statistical procedure pursuant to section 66264.97(e)(6);

(B) propose an appropriate statistical procedure pursuant to section 66264.97(e)(7);

(C) propose a procedure to establish the background concentration for that constituent pursuant to section 66264.97(e)(10); and

(D) establish the background concentration pursuant to section 66264.97(e)(11).

(5) Within 90 days of determining statistically significant evidence of a release, the owner or operator shall submit to the Department an application for a permit modification to establish an evaluation monitoring program meeting the provisions of section 66264.99. The application shall include the following information:

(A) an identification of the concentration of each constituent of concern at each monitoring point as determined during the most recent sampling events, and an identification of the concentration of each Appendix IX constituent at each monitoring point ~~for the regulated unit in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit;

(B) any proposed changes to the water quality monitoring systems at the facility necessary to meet the requirements of section 66264.99;

(C) any proposed additions or changes to the monitoring frequency, sampling and analytical procedures or methods or statistical methods used at the facility necessary to meet the requirements of section 66264.99;

(D) a detailed description of the measures to be taken by the owner or operator to assess the nature and extent of the release from the regulated unit.

(6) Within 180 days of determining statistically significant evidence of a release, the owner or operator shall submit to the Department an engineering feasibility study for a corrective action program necessary to meet the requirements of section 66264.100. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.

(7) If the owner or operator determines, pursuant to subsection (g) or (i) of this section, that there is statistically significant evidence of a release from the regulated unit at any monitoring point, the owner or operator may demonstrate that a source other than the regulated unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis or

statistical evaluation, or by natural variation in the groundwater, surface water or the unsaturated zone. The owner or operator may make a demonstration pursuant to this subsection in addition to, or in lieu of, submitting both a permit modification application pursuant to subsection (k)(5) of this section and an engineering feasibility study pursuant to subsection (k)(6) of this section; however, the owner or operator is not relieved of the requirements specified in subsections (k)(5) and (k)(6) of this section unless the demonstration made under this subsection successfully shows that a source other than the regulated unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis or evaluation or from natural variation in groundwater, surface water or the unsaturated zone. In making a demonstration pursuant to this subsection, the owner or operator shall:

(A) within seven days of determining statistically significant evidence of a release, notify the Department by certified mail that the owner or operator intends to make a demonstration pursuant to this subsection;

* * * *

(n) For any regulated unit for which a detection monitoring program is established after the successful completion of a corrective action program pursuant to section 66264.100(g):

(1) the Department shall include in the list of monitoring parameters for each medium (groundwater, surface water and the unsaturated zone) all hazardous constituents that have been detected in that medium due to a release from that regulated unit;

(2) the owner or operator shall analyze samples from all groundwater monitoring points at the point of compliance for that regulated unit and determine the concentration of each constituent contained in Appendix IX to chapter 14 at least annually during any remaining years of the compliance period. The owner or operator may propose to modify the number of monitoring points and specific Appendix IX analytes for analysis based on site-specific conditions and previous Appendix IX sampling results. If the Department approves the proposal, it shall be incorporated into the monitoring and response program. If the owner or operator finds either an Appendix IX constituent at a concentration above the concentration limit established in the permit for that constituent or one that is not already identified in the permit as a monitoring parameter, the owner or operator may resample within one month of the original sample and repeat the analysis for those constituents. Resampling may occur within a different time frame provided the owner or operator receives written approval from the Department. If the owner or operator does not resample, or if the resampling confirms that the concentration limit for a constituent has been exceeded or that a new constituent is present:

(A) the owner or operator shall report the concentration of each such constituent to the Department within seven days of the latest analysis;

(B) the Department shall add each such constituent to the list of monitoring parameters specified in the facility permit for groundwater unless the

owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit; and

(C) if a constituent is added to the list of monitoring parameters pursuant to subsection (n)(2)(B) of this section, the owner or operator shall immediately collect samples and conduct statistical tests for each monitoring parameter to determine whether there is statistically significant evidence of a release from the regulated unit.

NOTE: Authority cited: Sections ~~208~~, 25150, ~~and~~ 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code; 40 CFR Section 264.98.

Amend section 66264.99 of the California Code of Regulations, title 22, division 4.5, chapter 14, article 6 to read as follows:

§66264.99. Evaluation Monitoring Program.

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(e) In conjunction with the assessment conducted pursuant to subsection (b) of this section, and while awaiting final approval of the application for a permit modification submitted pursuant to subsection (d) of this section, the owner or operator shall monitor groundwater, surface water and the unsaturated zone to evaluate changes in water quality resulting from the release from the regulated unit. In conducting this monitoring, the owner or operator shall comply with the following requirements:

* * * *

(3) the owner or operator shall conduct sampling and analyses for the monitoring parameters listed in the facility permit pursuant to subsection (e)(2) of this section. The Department shall specify in the facility permit the frequencies for collecting samples and for conducting statistical analyses pursuant to section 66264.97(e)(12) to evaluate changes in water quality due to the release from the regulated unit. For groundwater, sampling shall be scheduled to include the times of expected highest and lowest annual elevations of the groundwater surface unless the owner or operator can demonstrate to the satisfaction of the Department that alternative sampling times are appropriate;

(4) in addition to monitoring for the monitoring parameters specified pursuant to subsection (e)(2) of this section, the owner or operator shall periodically monitor for all constituents of concern specified in the facility permit and evaluate changes in water quality due to the release from the regulated unit. The Department shall specify the frequencies for monitoring pursuant to this subsection after considering the degree of certainty associated with the demonstrated correlation between values for monitoring parameters and values for the constituents of concern;

(5) the owner or operator shall conduct water quality monitoring for each monitoring parameter and each constituent of concern in accordance with section 66264.97(e)(12). The owner or operator shall maintain a record of water quality analytical data as measured and in a form necessary for the evaluation of changes in water quality due to the release from the regulated unit;

(6) the owner or operator shall analyze samples from all monitoring points ~~in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit for all constituents contained in Appendix IX to chapter 14 at least annually to determine whether additional hazardous constituents are present and, if so, at what concentration(s). The owner or operator may propose to modify the number of monitoring points and specific Appendix IX analytes based on site-specific conditions and previous

Appendix IX sampling results. If the Department approves the proposal, it shall be incorporated into the monitoring and response program. If the owner or operator finds Appendix IX constituents in the groundwater, surface water or the unsaturated zone that are not already identified in the permit as constituents of concern, the owner or operator may resample within one month and repeat the analysis for those constituents. Resampling may occur within a different time frame provided the owner or operator receives written approval from the Department. If the second analysis confirms the presence of new constituents, the owner or operator shall report the concentration of these additional constituents to the Department by certified mail within seven days after the completion of the second analysis and the Department shall add them to the list of constituents of concern specified in the facility permit unless the owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit. If the owner or operator does not resample, then the owner or operator shall report the concentrations of these additional constituents to the Department by certified mail within seven days after completion of the initial analysis and the Department shall add them to the list of constituents of concern specified in the facility permit unless the owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit; and

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NOTE: Authority cited: Sections ~~208~~, 25150, and 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, and 25159.5, Health and Safety Code; 40 CFR Section 264.99.

Amend section 66264.100 of the California Code of Regulations, title 22, division 4.5, chapter 14, article 6 to read as follows:

§66264.100. Corrective Action Program.

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(h) The owner or operator shall report, in writing, to the Department on the effectiveness of the corrective action program. The owner or operator shall submit these reports at least semiannually. More frequent reporting shall be required by the Department as necessary to ensure the protection of human health or the environment.

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NOTE: Authority cited: Sections ~~208~~, 25150, and 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, and 25159.5, Health and Safety Code; 40 CFR Section 66264.100.

Amend section 66265.90 of the California Code of Regulations, title 22, division 4.5, chapter 15, article 6 to read as follows:

§66265.90. Applicability.

* * * *

(b) The Department may replace all or part of the requirements of sections 66265.91 through 66265.99 applying to a regulated unit with alternative requirements for a water quality monitoring and response program set out in an approved closure or post-closure plan where the Department determines that:

(1) The regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management unit(s) (or areas of concern) are likely to have contributed to the release; and

(2) It is not necessary to apply the water quality monitoring and response program requirements of sections 66265.91 through 66265.99 because alternative requirements will protect human health and the environment. The alternative standards for the regulated unit must meet the requirements of section 66264.101(a).

(c) In order to apply section 66265.90(b), the owner or operator must submit a report to the Department that demonstrates that each proposed alternative to the requirements of sections 66265.91 through 66265.99 shall provide adequate protection of human health and the environment. The demonstration report shall include the rationale and all supporting data for each proposed alternative requirement. The owner or operator is not relieved of any requirement of sections 66265.91 through 66265.99 until the Department provides written approval of the submitted report.

(d) If the owner or operator determines that any alternative requirement specified through section 66265.90(c) may not adequately protect human health and the environment, the owner or operator shall, within 90 days, submit an amended water quality sampling and analysis plan to make any appropriate changes to the water quality monitoring and response program.

(e) In the event that the Department determines that any alternative requirement specified through section 66265.90(c) may not adequately protect human health and the environment, the Department shall send written notification of such determination to the owner or operator by certified mail, return receipt requested. As part of the determination, the Department may require that certain requirements of sections 66265.91 through 66265.99 be reinstated in whole or part. The owner or operator shall, within 90 days after receipt of such notification by the Department, submit an amended water quality sampling and analysis plan to make any appropriate changes to the water quality monitoring and response program.

NOTE: Authority cited: Sections ~~208~~, 25150, and 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25150.5 and 25159, Health and Safety

Code; 40 CFR Section 265.90.

Amend section 66265.91 of the California Code of Regulations, title 22, division 4.5, chapter 15, article 6 to read:

§66265.91. Required Programs and the Water Quality Sampling and Analysis Plan.

* * * *

(b) The owner or operator shall develop and follow a water quality sampling and analysis plan that satisfies the requirements of this article. The owner or operator shall submit this plan to the Department and ~~initiate~~ institute a water quality monitoring program required by subsection (a) of this section ~~within 180 days of July 1, 1991. Until the water quality monitoring program is in full operation, the owner or operator shall continue to monitor in accordance with 40 CFR Part 265, Subpart F.~~ The owner or operator shall submit all modifications to the water quality sampling and analysis plan to the Department and shall maintain a current version of the water quality sampling and analysis plan in the operating record at the facility. The Department shall require the owner or operator to modify the water quality sampling and analysis plan as necessary to protect human health or the environment.

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NOTE: Authority cited: Sections ~~208~~, 25150, ~~and 25259~~ and 58012, Health and Safety Code. Reference: Sections 25150, 25150.5 and 25159, Health and Safety Code; 40 CFR Section 265.91.

Amend section 66265.97 of the California Code of Regulations, title 22, division 4.5, chapter 15, article 6 to read:

§66265.97. General Water Quality Monitoring and System Requirements.

* * * *

(b) Groundwater Monitoring System.

* * * *

(3) A copy of each well report, as required by Water Code section 13751, shall be submitted to the Department within 60 days of the construction, alteration, or destruction of the well. A copy of drillers' logs shall be filed with the Department on Department of Water Resources form DWR 188 Rev 12-86, available from the Department of Water Resources, 3251 S Street, Sacramento, CA 95816-7017, or by phone at (916) 322-7171.

(4) All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport.

(5) The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples.

(6) For each monitoring well the annular space (i.e., the space between the bore hole and well casing) above and below the sampling interval shall be appropriately sealed to prevent entry of contaminants from the surface, entry of contaminants from the unsaturated zone, cross contamination of saturated zones and contamination of samples.

(7) All monitoring wells shall be adequately developed to enable collection of representative groundwater samples.

(8) All wells shall be adequately destroyed (decommissioned) if the wells ~~will~~ no longer provide useful information. Decommissioning may only proceed after approval by the Department or as directed by the Department.

(c) Surface Water Monitoring System.

(1) The owner or operator shall establish a surface water monitoring system to monitor each surface water body that could be affected by a release from the regulated unit.

(2) Each surface water monitoring system shall include:

(A) a sufficient number of background monitoring points established at appropriate locations and depths to yield samples from each surface water body that represent the quality of the surface water that has not been affected by a release from the regulated units;

(B) for a detection monitoring program under section 66265.98, a sufficient number of monitoring points established at appropriate locations and depths to yield samples from each surface water body that provide the best assurance of

the earliest possible detection of a release from the regulated unit; and

(C) for an evaluation monitoring program under section 66265.99, a sufficient number of monitoring points established at appropriate locations and depths to yield samples from each surface water body that provide the data necessary to evaluate changes in water quality due to the release from the regulated unit.

(3) The owner or operator may modify or exclude certain chapter 15, article 6 requirements pertaining to surface water monitoring if it is impracticable or technically inappropriate to comply with surface water monitoring requirements listed in this article. The owner or operator shall make an appropriate demonstration for alternative surface water monitoring requirements and obtain written approval from the Department before incorporating any changes into the water quality sampling and analysis plan.

(d) Unsaturated Zone Monitoring System.

* * * *

(4) The owner or operator shall install liquid recovery types of unsaturated zone monitoring (e.g., the use of lysimeters) unless the owner or operator submits to the Department, and maintains in the facility operating record, evidence that such methods of unsaturated zone monitoring cannot provide an indication of useful information regarding a release from the regulated unit. The owner or operator shall install complementary or alternative (nonliquid recovery) types of unsaturated zone monitoring as necessary to ~~provide the best assurance of the earliest possible detection of~~ adequately monitor a release from the regulated unit.

~~(5) The owner or operator may only omit unsaturated zone monitoring from the monitoring program if the owner or operator submits to the Department, and maintains in the facility operating record, evidence that either there is no unsaturated zone monitoring device or method designed to operate under the subsurface conditions existant at that waste management unit or that installation of unsaturated zone monitoring devices would require unreasonable dismantling or relocating of permanent structures.~~

The owner or operator may modify or exclude certain chapter 15, article 6 requirements pertaining to unsaturated zone monitoring if it is impracticable (e.g., insufficient liquid volume for analyses) ~~prohibit unsaturated zone monitoring systems from complying with chapter 14, article 6 requirements~~ or technically inappropriate to conduct unsaturated zone monitoring at the regulated unit. The owner or operator shall make an appropriate demonstration for alternative unsaturated zone monitoring requirements and obtain written approval from the Department before incorporating any changes into the water quality sampling and analysis plan.

(6) The owner or operator of a land treatment unit shall comply with the unsaturated zone monitoring and response requirements for that unit in article 13

of this chapter, in addition to the unsaturated zone monitoring requirements of this article.

(e) General Monitoring Requirements.

* * * *

(6) For each regulated unit, the owner or operator shall collect all data necessary for selecting the appropriate statistical methods pursuant to subsections (e)(7), (e)(8) and (e)(9) of this section and for establishing the background values pursuant to subsection (e)(11) of this section. At a minimum, this data shall include analytical data obtained during quarterly sampling of all background monitoring points for a period of one year, including the times of expected highest and lowest annual elevations of the groundwater surface. The Department may approve sampling at times other than the expected highest and lowest annual elevations, if appropriate, however quarterly sampling is still required for a period of at least one year. For a new regulated unit, this data shall be collected before wastes are discharged at the unit and background soil pore liquid data shall be collected from beneath the unit before the unit is constructed.

* * * *

(8) The owner or operator shall specify one of the following statistical methods in the water quality sampling and analysis plan:

* * * *

(E) another statistical test method if sufficient documentation to support selection of the method is submitted to the Department and is maintained in the facility operating record. If the statistical test method includes a procedure to verify that there is statistically significant evidence of a release from the regulated unit, this procedure shall consist of either a single composite retest (i.e., a statistical analysis of the original data combined with newly-acquired data from the monitoring point at which evidence of a release has been indicated) or shall consist of at least two discrete retests (i.e., statistical analyses which analyze only newly-acquired data from the monitoring point at which evidence of a release has been indicated). The verification procedure shall comply with the following requirements in addition to the statistical performance standards under subsection (e)(9) of this section.

1. If the verification procedure consists of discrete retests, rejection of the null hypothesis for any one of the retests shall be considered confirmation of significant evidence of a release.

2. The number of additional samples collected and analyzed for use in the verification procedure shall be appropriate for the form of statistical test specified in the water quality sampling and analysis plan for that constituent of concern or

monitoring parameter pursuant to subsection (e)(7) of this section. This number shall be greater than or equal to the number of samples specified in the water quality sampling and analysis plan for that constituent of concern or monitoring parameter pursuant to subsection (e)(12)(A) of this section.

3. If resampling at the interval identified for use in the initial statistical test pursuant to subsection (e)(12)(B) of this section would cause the entire resampling effort to take longer than 30 days, the sampling interval for use in the verification procedures shall be reduced to ensure that all samples are collected and submitted for laboratory analysis within 30 calendar days from the time that the owner or operator determines statistically significant evidence of a release pursuant to subsection 66265.98(g) or (i). Resampling may occur within a different time frame provided the owner or operator receives written approval from the Department.

* * * *

(9) Each statistical method chosen under subsection (e)(7) of this section shall comply with the following performance standards for each six-month period.

* * * *

(E) The statistical method shall account for data below the practical quantification limit with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit that is used in the statistical method shall be the lowest concentration (or value) that can be reliably achieved within limits of precision and accuracy specified in the water quality sampling and analysis plan for routine laboratory operating conditions that are available to the facility. ~~The owner or operator shall consider the practical quantification limits listed in Appendix IX to chapter 14 for guidance purposes when specifying limits of precision and accuracy in the water quality sampling and analysis plan.~~

* * * *

(13) The groundwater portion of the monitoring program shall include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity and pH) at each well each time groundwater is sampled. Field parameter determinations may be modified or waived, after receiving written approval by the Department, if the owner or operator can demonstrate that representative samples are obtained. Any modifications to field parameter determinations shall be specified in the water quality sampling and analysis plan.

(14) The owner or operator shall graph all analytical data from each monitoring point and background monitoring point and shall submit these graphs to the Department at least annually, except graphs are not required for constituents for which no new data have been collected since the previous graph

submittal. Each graph shall represent data for one constituent of concern or monitoring parameter and shall be at a scale appropriate to show trends or variations in water quality. Unless the owner or operator receives written approval from the Department to use an alternate procedure, each graph shall include data from related monitoring and background points as long as the depicted data effectively illustrates trends or variations in the data. ~~represent data from one monitoring point or background monitoring point for one constituent of concern or monitoring parameter. Graphs shall be at a scale appropriate to show trends or variations in water quality. All graphs for a given constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data.~~

(15) In addition to the water quality sampling conducted pursuant to the requirements of this article, the owner or operator shall measure the water level in each well and determine groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional aquifers monitored pursuant to subsection (b)(1) of this section at least quarterly, including the times of expected highest and lowest annual elevations of the water levels in the wells. The Department may approve collection of water level measurements at times other than the expected highest and lowest water level elevations, if appropriate, however quarterly measurements are still required. The owner or operator shall use this data to determine, at least annually, whether the requirements of section 66265.97(b)(1) are satisfied. If the evaluation shows that the requirements of section 66265.97(b)(1) are not satisfied, the owner or operator shall, as soon as technically feasible, modify the number, location or depth of the groundwater monitoring wells as necessary to bring the groundwater monitoring system into compliance with the requirements of this article.

* * * *

(17) Water quality monitoring data collected in accordance with this article, including actual concentrations or values of all constituents and parameters, all background water quality data, all statistical evaluations, all water level elevation data and all data used to derive the groundwater flow rate and direction shall be maintained in the facility operating record throughout the active life of the facility and throughout the postclosure care period. The owner or operator shall submit this data to the Department at least annually. This information shall be submitted no later than March 1 following each calendar year. The Department shall require more frequent reporting where necessary to protect human health or the environment.

NOTE: Authority cited: Sections ~~208~~, 25150, and 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code.

Amend section 66265.98 of the California Code of Regulations, title 22, division 4.5, chapter 15, article 6 to read:

§66265.98. Detection Monitoring Program.

* * * *

(g) The owner or operator shall conduct sampling and analyses for the monitoring parameters listed in the water quality sampling and analysis plan. The owner or operator shall specify the frequencies for collecting samples and conducting statistical analyses to determine whether there is statistically significant evidence of a release from the regulated unit for any monitoring parameter specified in the water quality sampling and analysis plan pursuant to subsection (e) of this section. For groundwater, samples from each monitoring point and each background monitoring point shall be collected at least quarterly during detection monitoring, including the times of expected highest and lowest annual elevations of the groundwater surface. The Department may approve sampling at times other than the expected highest and lowest annual elevations, if appropriate, however quarterly sampling is still required. The owner or operator shall conduct more frequent sampling and statistical analyses where necessary to protect human health or the environment. When specifying the frequencies for collecting samples and conducting statistical analyses for groundwater, the owner or operator shall consider the groundwater flow rate and any variation in groundwater flow rate and direction.

* * * *

(l) If the resampling pursuant to subsection (k)(2) of this section confirms that there is statistically significant evidence of a release from the regulated unit or if the owner or operator does not resample pursuant to subsection (k)(2) of this section, then the owner or operator shall:

(1) for that regulated unit, immediately sample all monitoring points ~~in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit and determine the concentration of all constituents of concern. The owner or operator may modify the number of monitoring points and constituents of concern after receiving written approval from the Department;

(2) for that regulated unit, immediately sample all monitoring points ~~in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit and determine whether constituents in the list of Appendix IX to chapter 14 are present, and if so, in what concentration(s). The owner or operator may modify the number of monitoring points and specific Appendix IX analytes after receiving written approval from the Department;

(3) for any Appendix IX constituents found in the analysis pursuant to subsection (l)(2) of this section that are not specified in the list of constituents of concern for that unit, the owner or operator may resample within one month and

repeat the analysis for those constituents. Resampling may occur within a different time frame provided the owner or operator receives written approval from the Department. Each constituent detected in both analyses shall be added to the list of constituents of concern specified in the water quality protection standard for evaluation monitoring unless the owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit. If the owner or operator does not resample for the constituents found pursuant to subsection (l)(2) of this section, the constituents found during this initial Appendix IX analysis will be added to the list of constituents of concern specified in the water quality protection standard for evaluation monitoring unless the owner or operator demonstrates to the satisfaction of the Department that the constituent is not reasonably expected to be in or derived from waste in the regulated unit;

(4) for each Appendix IX constituent added to the list of constituents of concern pursuant to subsection (k)(3) of this section, the owner or operator shall:

(A) collect all data necessary for establishing the background concentration for that constituent and for selecting an appropriate statistical procedure pursuant to section 66265.97(e)(6);

(B) select an appropriate statistical procedure pursuant to section 66265.97(e)(7);

(C) select a procedure to establish the background concentration for that constituent pursuant to section 66265.97(e)(10); and

(D) establish the background concentration pursuant to section 66265.97(e)(11);

(5) within 90 days of determining statistically significant evidence of a release, submit to the Department an amended water quality sampling and analysis plan to establish an evaluation monitoring program meeting the provisions of section 66265.99. The amended plan shall include the following information:

(A) an identification of the concentration of each constituent of concern at each monitoring point as determined during the most recent sampling events, and an identification of the concentration of each Appendix IX constituent at each monitoring point ~~for the regulated unit in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit;

* * * *

NOTE: Authority cited: Sections ~~208~~, 25150, ~~and~~ 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code.

Amend section 66265.99 of the California Code of Regulations, title 22, division 4.5, chapter 15, article 6 to read:

§66265.99. Evaluation Monitoring Program.

* * * *

(e) In addition to the requirements set forth in subsections (b), (c), and (d) of this section, the owner or operator shall continue to monitor groundwater, surface water and the unsaturated zone to evaluate changes in water quality resulting from the release from the regulated unit. In conducting this monitoring, the owner or operator shall comply with the following requirements:-;

* * * *

(3) The owner or operator shall conduct sampling and analyses for the monitoring parameters listed in the water quality sampling and analysis plan. The owner or operator shall specify in the water quality sampling and analysis plan the frequencies for collecting samples and for conducting statistical analyses to evaluate changes in water quality due to the release from the regulated unit. For groundwater, samples from each monitoring point and each background monitoring point shall be collected at least quarterly during the compliance period of the regulated unit, including the times of expected highest and lowest annual elevations of the groundwater surface. The Department may approve sampling at times other than the expected highest and lowest annual elevations, if appropriate, however quarterly sampling is still required. The owner or operator shall conduct more frequent sampling where necessary to protect human health or the environment. When specifying the frequencies for collecting samples and conducting statistical analyses for groundwater, the owner or operator shall consider the groundwater flow rate and any variation in ground water flow rate and direction.

* * * *

(6) The owner or operator shall analyze samples from all monitoring points ~~in the affected medium (groundwater, surface water or the unsaturated zone)~~ affected by a release from the regulated unit for all constituents contained in Appendix IX to chapter 14 at least annually to determine whether additional hazardous constituents are present and, if so, at what concentration(s). The owner or operator may propose to modify the number of monitoring points and specific Appendix IX analytes based on site-specific conditions and previous Appendix IX sampling results. If the Department approves the proposal, it shall be incorporated into the water quality sampling and analysis plan. If the owner or operator finds Appendix IX constituents in the groundwater, surface water or the unsaturated zone that are not already identified in the water quality sampling and analysis plan as constituents of concern, the owner or operator may resample within one month and repeat the analysis for those constituents. Resampling

may occur within a different time frame provided the owner or operator receives written approval from the Department. If the second analysis confirms the presence of new constituents, the owner or operator shall report the concentration of these additional constituents to the Department by certified mail within seven days after the completion of the second analysis and the owner or operator shall add them to the list of constituents of concern specified in the water quality sampling and analysis plan unless documentation is maintained in the facility operating record that demonstrates that the constituent is not reasonably expected to be in or derived from waste in the regulated unit. If the owner or operator does not resample, then the owner or operator shall report the concentrations of these additional constituents to the Department by certified mail within seven days after completion of the initial analysis and the owner or operator shall add them to the list of constituents of concern specified in the water quality sampling and analysis plan unless documentation is maintained in the facility operating record that demonstrates that the constituent is not reasonably expected to be in or derived from waste in the regulated unit.

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NOTE: Authority cited: Sections ~~208~~, 25150, ~~and~~ 25159 and 58012, Health and Safety Code. Reference: Sections 25150, 25159 and 25159.5, Health and Safety Code.