

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0084

WASTE DISCHARGE REQUIREMENTS
FOR
ROBERT AND SHARON HILARIDES
DBA SIERRA CATTLE COMPANY
FOR
CLOSURE AND POST-CLOSURE OPERATION AND MAINTENANCE
WEST PONDS SITE
TULARE COUNTY

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

1. Robert J. Hilarides and Sharon J. Hilarides, doing business as Sierra Cattle Company, own the property containing the City of Lindsay's former olive brine ponds, West Ponds site. The Hilarides are referred to hereafter as Discharger.
2. The City of Lindsay (City) operated two sets of ponds for the disposal of olive processing brine wastewater from the Lindsay Olive Growers (LOG) olive processing plant. The ponds, known as the West Ponds and the East Ponds, are separated by a distance of about 1,300 feet. The locations of both sets of ponds are illustrated on Attachment A, which is incorporated herein and made part of this Order. On 27 March 1987, the Regional Board issued Waste Discharge Requirements (WDRs) Order No. 87-054 for the City's West Ponds and East Ponds.
3. The City constructed the West Ponds between 1967 and 1969 and was responsible for their operation and maintenance. Discharges to the ponds ceased in 1992 when LOG declared bankruptcy.
4. Saline olive processing wastewater migrated from the ponds, caused degradation of the underlying soil and groundwater and impacted a number of drinking water and agricultural supply wells in the area.
5. During October 1999, the Discharger purchased the West Ponds site from the City. This Order addresses closure and post-closure land use and maintenance of only the West Ponds site.
6. Cease & Desist (C&D) Order No. 91-151 was issued to the City, and Cleanup & Abatement (C&A) Order No. 92-708 (amended by Special Order No. 94-280) was issued to the City and LOG. The C&D and C&A Orders contain requirements for submission of plans and a time schedule to, among other things, retrofit or close the ponds, conduct an Evaluation Monitoring Program to characterize the nature and extent of groundwater degradation, and conduct a Corrective Action Program. The City never completed the tasks required by the Orders.

7. This Order addresses the regulations contained in Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Section 20005 et seq. (hereafter Title 27) as related to the new conditions at the West Ponds site.
8. The Discharger submitted a Closure Plan and Report of Waste Discharge (RWD), dated 24 June 1999, for closure of the West Ponds site and construction of a large dairy farm thereon as the post-closure land use. A revised Closure Plan and RWD, dated 22 September 1999, was submitted to address Regional Board staff comments regarding the original document.
9. The Discharger will have up to 9,100 Jersey milk cows; 2,000 dry cows; and 2,000 calves on the dairy farm. Dairy structures on the site consist of corrals (some with shade structures), freestall barns, a 700-foot by 60-foot milking barn, a hospital barn, a feed storage area, a calf hutch area, and underground utilities including water supply pipelines, electrical lines, a domestic sewage pipeline, dairy wastewater/stormwater conveyance pipelines, and recycled wastewater pipelines.
10. Four dairy wastewater separation ponds and two dairy wastewater retention ponds (collectively "dairy ponds") have been excavated on property also owned by the Hilarides immediately west of the West Ponds site. The Discharger owns approximately 1,100 acres of cropland in the area to be irrigated with reclaimed dairy wastewater. The dairy ponds and cropland are not located on the West Ponds site, and their operation is not regulated by this Order.
11. The facility also includes a cheese making operation that is located inside the milking barn. Equipment for cheese production includes storage vats, heating units, and a cold storage room. Cheese is stored for aging inside the facility, byproduct whey is pumped into mobile equipment to be fed to cattle, and wash water is disposed of via underground pipelines to the off-site dairy ponds.
12. This Order implements the *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, (hereafter Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

LOCATION & DESCRIPTION

13. The West Ponds site (hereafter Site or facility) encompasses 160 acres and formerly consisted of five ponds identified by the letters E, F, G, H, and I. A map of the Site and surrounding facilities is included as Attachment B, which is incorporated herein and made part of this Order. The Site is about three miles northwest of the City of Lindsay in the unincorporated area of Tulare County. The Site is at an elevation of about 330 feet above mean sea level (MSL). The Site is comprised of the 60-acre Assessor's Parcel Number (APN) 153-22-03 and the 100-acre APN 153-22-04, both of which are located in Section 33, T19S, R26E, MDB & M.
14. The Site is not within a fault hazard zone. The closest known Holocene fault is approximately 20 miles to the southeast near Lake Success. Recorded magnitudes of seismic events along that fault range between 4.5 and 4.9 on the Richter scale, corresponding to an anticipated peak ground

acceleration at the facility of about 0.05 g. The Owens Valley Fault is approximately 60 miles east of the facility. The 1972 seismic event along the Owens Valley Fault near the Haiwee Reservoir had a Richter magnitude of 8.3, which is considered the maximum probable earthquake for the facility. The peak ground acceleration anticipated at the facility due to the maximum probable earthquake is about 0.1g.

15. Land within 1,000 feet of the Site is used for farming, confined animal feeding operations, private residences, and a sanitary landfill (County of Tulare Exeter Landfill). Additional waste disposal facilities within approximately one-half mile include the City of Lindsay Wastewater Treatment Facility, the former City of Exeter Dump, and the former City of Lindsay Dump. The locations of these facilities are illustrated on Attachment B.
16. The Discharger owns the adjoining property west of the Site, which contains six earthen dairy ponds – four separation ponds with dimensions of about 900 feet by 60 feet by 15 feet deep and two retention ponds with dimensions of about 2,200 feet by 250 feet by 20 feet deep. The dairy ponds were constructed for retention of dairy waste and also provide containment for stormwater that is collected and drained from the Site via an underground pipeline system. Dairy wastewater and stormwater will be utilized for reclamation operations and contained on property owned or controlled by the Discharger.
17. Directly south/southwest and adjoining the Site are three contiguous parcels of land, containing 71, 75, and 79 acres, on which the citrus processing wastewater from Valley Foods, Inc., is discharged into two unlined ponds and subsequently to land for reclamation. The Valley Foods reclamation area is maintained and operated by the City of Lindsay. The eastern and western parcels are owned by Ed Brower Dairy, Inc., and the center parcel by Garden Grove, Inc. WDRs Order No. 85-203 was issued to the City, Valley Foods, and the landowners to regulate the Valley Foods wastewater reclamation area.
18. The Brower dairy occupies the next contiguous parcel west of the Valley Foods reclamation area and discharges dairy wastewater into two earthen retention ponds. Discharges of Brower dairy wastewater and wastewater from the former Console Foods Inc., which was a vegetable processing facility in the City, as well as the citrus wastewater, have occurred on the Valley Foods reclamation area. The locations of the Valley Foods reclamation area and the Brower dairy retention ponds are illustrated on Attachment B.
19. The mean annual precipitation in the area of the Site is 11.3 inches as measured at the Exeter station. The mean annual pan evaporation is 78.6 inches as measured at the Delano Government Camp station with a Class A evaporation pan.
20. The 100-year, 24-hour precipitation event for the Site area is estimated to be 3.42 inches, and the 1,000-year, 24-hour precipitation event is estimated to be 4.44 inches, as calculated by a Pearson type III distribution using data collected from the Exeter station.

21. A Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel No. 060406 0001 C, dated 28 September 1984) indicates that one portion of the Site is within a Zone A 100-year flood plain and the remainder is within a Zone C area of minimal flooding. However, a more recent FEMA Flood Insurance Rate Map (Panel No. 065066 0675B, dated 29 September 1986) indicates that the entire Site is very likely outside the 100-year flood plain. Since closure of the ponds has raised the Site elevation by several feet, flooding is likely a minimal concern.

WASTE & SITE CLASSIFICATION

22. The olive processing wastewater formerly discharged to the ponds at the Site was typically characterized as having electrical conductivity (EC) levels between 10,000 and 84,000 $\mu\text{mhos/cm}$ and chloride concentrations between 4,000 and 42,000 mg/L. The waste was classified as 'designated waste' using the criteria set forth in California Water Code, Section 13173.
23. The West Ponds were classified as Class II surface impoundments in accordance with the regulations that were in effect when the site was classified. However, the ponds did not meet the primary containment requirements or the siting criteria contained in the regulations (Title 23, CCR, §2510 et seq.).
24. The Discharger initiated closure of the West Ponds in accordance with Title 27 as a non-municipal solid waste landfill, with brine contaminated soil left in-place. This Order classifies the Site as a Class II, non-municipal solid waste landfill in accordance with Title 27.

SURFACE WATER & GROUNDWATER CONDITIONS

25. Prior to construction of the West Ponds, Lewis Creek, a valley floor water, flowed through the Site. During pond construction, Lewis Creek was redirected into channels immediately adjoining the Site on the north and west boundaries. The designated beneficial uses of surface waters on the valley floor, as specified in the Basin Plan, are agricultural supply, industrial service and process supply, contact and noncontact water recreation, warm fresh water habitat, preservation of rare, threatened and endangered species, and groundwater recharge.
26. The Site is in the Kaweah Delta Hydrologic Area (558.10) of the Tulare Lake Basin as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
27. The Site is within the Lewis Creek interfan area. The subsurface stratigraphy in the area consists of alternating layers of relatively thin alluvial sand with moderate hydraulic conductivities interbedded with relatively thick, high-plasticity clay.
28. Available information indicates that three general groundwater zones are present beneath the Site. The first groundwater zone (Zone 1) is an unconfined aquifer occurring from approximately 40 to 75 feet below ground surface (bgs). The second groundwater zone (Zone 2) is a confined aquifer occurring from approximately 185 to 500 feet bgs. The third groundwater zone (Zone 3) is a

confined aquifer occurring from approximately 540 to 750 feet bgs. Bedrock in the area appears to be at a depth of greater than 800 feet bgs. Zones 1 and 2 are separated by a relatively thick clay sequence, interbedded with thin sands, occurring from approximately 75 to 185 feet bgs. Zones 2 and 3 are separated by a bluish-gray reduced clay sequence occurring from approximately 500 to 540 feet bgs.

29. Groundwater elevations in Zone 1 at the Site have ranged between about 305 feet above MSL in 1986 to 275 feet above MSL in 1993. In 2002, the Zone 1 groundwater elevation was about 185 feet above MSL. The groundwater flow direction in Zone 1 has typically been toward the west-southwest, although it has varied from anywhere between southwest and northwest, as indicated by monitoring data collected by the City.
30. Based on data collected by the California Department of Water Resources, the groundwater flow direction in Zone 2 has typically been toward the southwest. No known data are available regarding the groundwater flow direction in Zone 3.
31. In background areas, Zones 1 and 2 contain good quality groundwater occurring between brown clay interbeds. Information regarding the characteristics of groundwater in Zone 3 is sparse and background water quality in the deep zone is not well defined.
32. Typical concentrations for Zone 1 background groundwater samples are as follows:

<u>Constituent</u>	<u>Concentration</u>	<u>Units</u>
Bicarbonate	400	mg/L
Calcium	60	mg/L
Chloride	60	mg/L
Electrical Conductivity (EC)	900	µmhos/cm
Magnesium	40	mg/L
Nitrate	20	mg/L
pH	7.7	
Potassium	2	mg/L
Sodium	80	mg/L
Sulfate	70	mg/L
Total Dissolved Solids (TDS)	700	mg/L

33. Typical concentrations for Zone 2 background groundwater samples are as follows:

<u>Constituent</u>	<u>Concentration</u>	<u>Units</u>
Bicarbonate	156	mg/L
Calcium	22	mg/L
Chloride	146	mg/L
Electrical Conductivity (EC)	822	µmhos/cm
Magnesium	12	mg/L
Nitrate	15	mg/L
pH	8.4	
Potassium	2	mg/L
Sodium	129	mg/L
Sulfate	43	mg/L
Total Dissolved Solids (TDS)	515	mg/L

34. The designated beneficial uses of groundwater in the area, as specified in the Basin Plan, are domestic and municipal (MUN), agricultural, and industrial supply.
35. There are numerous municipal, domestic, and agricultural groundwater supply wells within one mile of the Site.
36. The Department of Water Resources (DWR) previously conducted three investigations of groundwater quality in the area. The reports of the investigations are titled: “Ground Water Quality in the Vicinity of Lindsay Sewage Treatment Plant” (1981); “Ground Water Quality in the Vicinity of Lindsay Sewage Treatment Plant” (1983); and “Ground Water Quality in the Vicinity of the City of Lindsay Olive Brine Ponds” (1986). The DWR studies concluded that the discharge of olive brine wastewater at the facility as described in Finding No. 22, polluted groundwater underlying and downgradient of the ponds.
37. Analytical results of groundwater from on-site monitoring wells and private wells in the area document an extensive plume of highly saline groundwater beneath and downgradient of the Site. In areas, EC exceeds 10,000 µmhos/cm and chloride concentration exceeds 1,000 mg/L. The pollution has degraded the beneficial uses of groundwater in the area.
38. Further groundwater evaluation work is needed to define the extent of groundwater that has been degraded from past operations. Groundwater evaluation work and remedial measures for the Site will be addressed in a separate Order.

GROUNDWATER AND UNSATURATED ZONE MONITORING

39. The current groundwater monitoring network for the Site is comprised of 11 monitoring wells screened within Zone 1. The network includes one background well (MW-10D), eight monitoring wells located within the Site boundaries or along the point of compliance (MW-01, MW-02, MW-15D, MW-16D, MW-20, MW-100, MW-400, and MW-500), and two monitoring wells located cross-gradient or down-gradient from the Site (MW-200, and MW-300).
40. During construction of the closure cap at the Site, some of the groundwater monitoring well casings were lengthened or shortened to accommodate new surface elevations at those locations. This Order requires all monitoring wells to be re-surveyed to establish new measuring point elevations for groundwater measurements.
41. Six soil-moisture monitoring gypsum blocks are located at a depth of about four feet below the low hydraulic conductivity layer of the earthen cover. This Order requires the installation of additional unsaturated zone monitoring devices.

CLOSURE CAP CONSTRUCTION

42. Closure requirements for surface impoundments are contained in Title 27, Section 21400. Section 21400(b)(2)(A) allows closure as a landfill pursuant to the closure and post-closure maintenance requirements for landfills contained in Section 21090. The prescriptive standard for the final cover is contained in Section 21090(a).
43. Title 27, Section 20950(a)(2)(A)1 states that the goal of closure for a surface impoundment closed as a landfill is “to minimize the infiltration of water into the waste, thereby minimizing the production of leachate and gas.” Gas production, or leachate production from the decomposition of organic or municipal solid waste, are not concerns at the Site.
44. Title 27, Section 20950(a)(2)(A)2 states that the goal of post-closure maintenance for a surface impoundment closed as a landfill is “to assure that the Unit continues to comply with the performance standard of ¶(a)(2)(A)1 until such time as the waste in the Unit no longer constitutes a potential threat to water quality.”
45. Title 27, Section 20080(b) allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Section 20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2).

46. California Water Code, Section 13360(a)(1) allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
47. The Discharger acquired title to the Site in 1999 from the City and proposed to close the West Ponds pursuant to the prescriptive standards contained in Title 27. The Discharger submitted a proposed closure plan on 24 June 1999, and a revised plan on 22 September 1999. The amended plan was considered substantially complete by Regional Board staff on 15 October 1999. The plan proposed closure of the Site as a landfill with brine contaminated soil remaining in place, and construction of a prescriptive standard soil cover in accordance with Title 27 requirements.
48. Between 1999 and 2001, the Discharger constructed an earthen landfill cap at the Site. The cap consists of, from bottom to top, a subgrade layer, a foundation layer, a low permeability layer, a layer of unengineered fill, and an erosion resistant layer. The subgrade layer, consisting of the approximately one-foot thick clay soil layer that has overlain the polyethylene liner since the ponds were constructed, was mechanically compacted as one of the initial closure steps. The upper four layers were each constructed using essentially the same type of clay soil, which was derived both from the original pond berms and from the adjacent excavation for the dairy ponds. The foundation layer was compacted to at least 85-percent of maximum dry density and varies from less than one foot thick to greater than two feet thick depending on location. The low permeability layer was compacted to at least 90-percent of maximum dry density, is one foot thick, and has a hydraulic conductivity of not greater than 1×10^{-6} cm/sec, as indicated by laboratory tests. The layer of unengineered fill ranges between zero and six feet thick, depending on location. The erosion resistant layer was compacted to at least 90-percent of maximum dry density, is a minimum of one foot thick across the site, and has a hydraulic conductivity of not greater than 1×10^{-6} cm/sec, as indicated by both laboratory and field tests.
49. The Dischargers' consultant submitted a Closure Report, dated 11 April 2001, which, with subsequent addenda, contains all Construction Quality Assurance data collected during construction of the earthen cover. The consultant also submitted a letter, dated 21 September 2001, certifying that the West Ponds had been closed in accordance with the approved closure plan and subsequent addenda and revisions.
50. In December 2002, approximately 60 medium-sized olive trees were planted along the entry driveway from Road 188 to the milking barn. The trees were planted in excavations approximately four-feet in diameter and two-feet deep, which in some locations extends through the low-permeability layer of the cover system.

DAIRY OPERATIONS

51. The dairy facility houses milking cows in freestall barns, dry cows in partially-shaded corral areas, and calves in a calf hutch area. The dairy facilities layout is illustrated on Attachment C, which is incorporated herein and made part of this Order. Many of the facilities illustrated on Attachment C have been constructed, some are currently under construction, and others are planned for construction in the future as the dairy grows to its planned maximum size. Attachment C illustrates the location of the underground wastewater/stormwater conveyance pipelines, but does not illustrate the locations of other underground utilities such as water supply pipelines, electrical lines, a domestic sewage pipeline, and recycled wastewater pipelines. Attachment C also illustrates the locations of the off-site wastewater separation basins and dairy ponds, which have been constructed but are not addressed in this Order.
52. In addition to this Order, the dairy facility will be regulated under a National Pollutant Discharge Elimination System (NPDES) Permit/Waste Discharge Requirements General Order (WDRGO). The NPDES Permit and WDRGO will address and regulate specific areas of the dairy operation, wastewater discharges to the off-site basins and ponds, and the application of dairy wastewater on land owned or controlled by the Discharger.
53. Water supply for the dairy facility is provided from two off-site domestic supply wells via underground pipelines. The two wells are screened in Zone 2 and are about 50 feet apart. One well is a backup well that will only operate if the primary well or pump is damaged. The location of the two wells is illustrated on Attachment B.
54. Water supplied from the domestic supply well is used for worker drinking water and sanitary facilities, to cool milk in refrigeration units at the milking barn, for cow drinking water, and as supply for the fire hydrant system.
55. Return water from the refrigeration system is pumped to a large storage tank for re-use consisting of supplying water to the dairy cow wash sprinkler system and to wash the floors of the wash and drip pens at the milk barn. All such wash water flows on concrete walkways and/or in underground drainage pipelines to the off-site dairy ponds.
56. Each milking cow is provided an individual bedded stall in the covered freestall structure. The milking cows generally stay in the stalls except when they are walked to the milking barn on concrete walk lanes twice per day. The floors of the freestall barns are concrete and curbs separate the feed lane from the freestalls. A concrete apron at grade surrounding each barn intercepts run-off from barn roofs. The apron diverts roof run-off to inwardly-draining concrete lanes inside the barns. The intercepted precipitation will mingle with barn-generated wastewater and gravity feed via underground drainage pipelines to the off-site dairy ponds.
57. The freestall barns and lanes are flushed with water pumped back from the off-site retention ponds through underground recycled wastewater pipelines. The flush water and entrained solids are then returned to the off-site dairy ponds via underground drainage pipelines.

58. Manure is periodically scraped from the corrals. The scraped manure is temporarily stored in piles on concrete pads or loaded directly to manure spreading trucks. The scraped manure will be used as bedding material in the freestalls or as fertilizer on off-site croplands.
59. Domestic sewage from the milking barn gravity drains to an off-site septic tank and leach field via an underground sewage pipeline. The septic tank and leach field is located between Lewis Creek and the dairy wastewater separation basins. The septic tank and leach field site is regulated by the County of Tulare and not this Order.

DAIRY DRAINAGE SYSTEM

60. Dairy design concepts relating to surface water drainage were not reviewed and approved prior to construction, since they were not included in the closure plans and specifications that were submitted to the Regional Board prior to construction. Several components related to the proposed dairy design were incorporated during closure construction, as follows: (a) approximately 9,500 linear feet of 12- to 24-inch diameter polyvinyl chloride (PVC) and high density polyethylene (HDPE) drainage system piping, discharging to the off-site dairy ponds, were installed in approximately 4-foot wide trenches up to approximately 10 feet in depth, penetrating all five layers of the earthen cover material and the old pond bottom at some locations; (b) two portions of the site, which each cover about 7-acres and will not be covered by pavement or structures, were constructed with a surface slope of only about ½ percent; and (c) the final topographic contours of the cover consist of cuts and fills corresponding to proposed dairy lanes and raised barn/pen areas.
61. A quality assurance/quality control program was not submitted or implemented for the drain pipe construction phase, as required by Title 27. Watertight joints, available from the pipe manufacturer, were not installed. Furthermore, the manufacturer's specifications state that installation shall be in accordance with ASTM D2321, but the installation did not comply with ASTM D2321 in that: (a) the pipes were placed directly on native soil without constructing a compacted bedding surface, and (b) haunching and backfill material were simply pushed back into the trenches without applying commonly accepted engineered backfill and compaction techniques to successive lifts of soil. ASTM D2321 states that "failure to achieve required density, especially in the pipe zone, may result in excessive deflection."
62. To address whether the drain pipeline trenching has compromised the integrity of the final cover, in-place permeability tests were conducted in August 2002 at six locations (one per every 1,600 feet of total trenching) along the pipeline alignment. The testing results indicate that the trench backfill permeability at the tested locations were less than 1×10^{-6} cm/sec, as required by Title 27. The Discharger has since excavated and recompacted the cover material at the trench backfill areas that initially failed permeability tests.
63. To assess potential drain pipe defects, Regional Board staff required an interior video camera inspection, which was performed in August 2002. Due to access constraints, the video inspection was limited to approximately 60 percent of the total pipeline length. The video inspection

revealed a section of crushed or broken pipe, a possible crack in another pipe, and an irregular invert grade and hole in the pipe top at a third location. Pipe manufacturer representatives have stated that, based on their experience, most backfill settlement and pipe deflection occurs within the first one to two years after installation. The drain pipe trenches were backfilled in early 2001. The Discharger has since repaired the damaged portions of the pipeline and cleaned soil from several pipe sections.

64. To address whether the drain pipeline installation has increased the potential for water infiltration, either due to percolation from the surface or due to pipe leakage, this Order requires pipeline-integrity monitoring and unsaturated zone monitoring.
65. Title 27, Section 21090(b)(1)(A) requires that the final cover of a closed landfill be designed, graded, and maintained to prevent ponding. Section 21090(b)(3) requires that the final closure plan incorporate a precipitation and drainage control plan that meets the requirements of Section 20365. Section 20365(a) states that waste management units “shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, erosion, slope failure, washout, and overtopping under the precipitation conditions specified in Table 4.1,” which for Class II waste management units is the 1000-year, 24-hour design storm. Section 20365(c)(1) also requires that diversion and drainage facilities be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under the 1000-year, 24-hour design storm.
66. The *Water Balance Analysis*, dated 8 April 2002, indicates that, based on drainage inlet and pipe design, water would pond up to about 1.5-feet deep on the Site for approximately 33 hours following the 1000-year, 24-hour design storm. Therefore, the as-built drainage facilities threaten to violate Title 27, Sections 21090(b)(1)(A), 21090(b)(3), and 20365. This Order contains contingency measures to address this condition.
67. Title 27, Section 21090(b)(1)(A) requires that all portions of the final cover have a surface slope of at least three percent to prevent ponding. Section 21090(b)(1)(B) states that: “The RWQCB can allow portions of the final cover to be built with slopes of less than three percent if the discharger proposes an effective system for diverting surface drainage from laterally adjacent areas and preventing ponding in the allowed flatter portion. Analyses submitted in support of such a proposal shall take into account the design storm intensity for the Unit [under Section 20365].”
68. Two seven-acre areas have a slope of only about ½ percent to accommodate dairy activities, rather than the minimum three percent slope required for a Title 27 prescriptive standard cover. The Discharger submitted a report, dated 25 June 2002, containing an analysis of the surface drainage conditions. The report concluded that because the cover permeability is approximately 3×10^{-7} cm/sec, infiltration in the two areas should be less than on the Title 27 prescriptive standard slope of 3-percent with a permeability of 1×10^{-6} cm/sec. Thus, this Order concurs with the two seven-acre areas having slopes of about ½ percent as an engineered alternative.

OTHER UNDERGROUND DAIRY UTILITIES

69. In addition to the drain pipes, several other types of underground utilities for the planned dairy operation were installed within excavations of the earthen cover, including water supply pipelines originating from the off-site supply wells, electrical lines originating from a connection at Road 188, a domestic sewage pipeline originating from the milking barn and extending off-site to the west, and recycled wastewater pipelines originating from the off-site dairy retention ponds.
70. This Order requires ongoing monitoring to assess whether utility line leakage is occurring or whether cover performance has been compromised by the trenching and backfilling to install utility lines. If any such defects are detected, this Order requires appropriate repairs and demonstrations to reestablish compliance with Title 27.

CEQA & OTHER LEGAL CONSIDERATIONS

71. This Order requires the Discharger to submit technical reports as authorized under California Water Code Section 13267(b)(1), which states in part:

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

The technical reports required by this Order, and by the attached Monitoring and Reporting Program No. R5-2004-0084, are necessary to assure compliance with these waste discharge requirements.

72. The action to issue waste discharge requirements for closure of this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq, and the CEQA guidelines, in accordance with Title 14, CCR, Section 15301.
73. Concerning the post-closure land use as a dairy farm, the Tulare County Board of Supervisors approved a special use permit, a zoning change, and a general plan amendment for the project and, as the CEQA Lead Agency, filed a Notice of Determination (NOD) with the county clerk on 9 October 2002. The NOD states that: (a) the project will have a significant effect on the environment, (b) an Environmental Impact Report was prepared for the project, (c) mitigation

measures were made a condition of project approval, (d) a statement of overriding considerations was adopted for the project, and (e) findings were made pursuant to the CEQA provisions. The mitigation measures that pertain to potential water quality impacts due to dairy operations at the Site are: (a) the owner/operator must comply with waste discharge requirements to be issued by the Regional Board, and (b) all manured areas must be maintained with a sufficient slope to prevent ponding and to convey all precipitation and moisture to drainage systems and ultimately to the off-site dairy ponds. This Order addresses these measures.

74. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this site. They have been provided with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
75. The Regional Board, in a public meeting on 4 June 2004, heard and considered all comments pertaining to this proposed Order.
76. Any person adversely affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action. The petition must be received by the State Board within 30 days of the date of issuance of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request or are available at www.swrcb.ca.gov/water_laws.

IT IS HEREBY ORDERED, pursuant to California Water Code, Sections 13263 and 13267, that Robert and Sharon Hilarides, dba Sierra Cattle Company, and their agents, successors, and assigns, in order to meet the provisions of California Water Code, Division 7, and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge to land of any type of solid or liquid waste (except for wastes directly excreted by cows to corral areas) at this facility is prohibited.
2. Storage of manure (after scraping from corrals) on unpaved surfaces (i.e., surfaces not constructed of either portland cement concrete or asphalt concrete) at this facility is prohibited.
3. The release of liquids, pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or aggravation of the existing groundwater pollution to occur, as indicated by the most appropriate statistical or nonstatistical data analysis method and retest method listed in this Order, the accompanying Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements, is prohibited.

4. The discharge of solid waste, liquid waste, storm water, or leachate to surface waters (including Lewis Creek), surface water drainage courses, or groundwater, except as allowed in a National Pollutant Discharge Elimination System Permit, is prohibited.

B. FACILITY SPECIFICATIONS

1. To achieve the post-closure maintenance goal of Title 27, Section 20950(a)(2)(A)1, this Order, with any subsequent amendments or revisions approved by the Regional Board, shall stay in effect until such time as the Regional Board determines that the waste remaining in place at the Site no longer constitutes a potential threat to water quality.
2. The operation and maintenance of the facility, such as the wastewater discharge to offsite dairy ponds, shall not cause, contribute to, or exacerbate a condition of contamination, pollution, or nuisance, as defined in the California Water Code. California Water Code Section 13050(k), defines “contamination” as an impairment of the quality of the waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. Section 13050(l) defines “pollution” as an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (A) the waters for beneficial uses; or (B) facilities which serve these beneficial uses. Section 13050(m) defines “nuisance” as anything which meets all of the following requirements: (A) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (B) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and (C) occurs during, or as a result of, the treatment or disposal of wastes.
3. The operation and maintenance of the facility shall not cause nuisance conditions that are perceivable or detectable outside the property boundaries of the Site.
4. The conditions at the facility shall not cause any increase in the concentration of waste constituents in soil-pore liquid, soil, groundwater, or other geologic materials on or off-site.
5. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.
6. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste on or off-site, slope failure, or other change in site conditions which could impair the integrity of the cover system, containment facilities, or precipitation and drainage control structures.
7. To minimize the potential for throughflow into the underlying brine-contaminated soil, water used for facility maintenance in unpaved areas shall be limited to the minimum amount necessary for dust control and construction.

8. Landscaping vegetation shall be limited to plants that require minimal or no irrigation and that have roots which will not penetrate into, or through, the low-permeability layer of the earthen cover. Irrigation shall be limited to only that amount of water necessary to keep such vegetation alive.
9. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with this Order.
10. Surface drainage from the waste management facility shall be diverted to the dairy ponds located immediately west of the Site to prevent discharge on the Site or into surface waters. The Discharger shall submit, for review and approval by the Executive Officer, a technical report prepared by a registered engineer or geologist, describing proposed storm water management practices. The report shall include calculations showing that no discharge to surface waters will occur under reasonably foreseeable circumstances. The report shall specifically address Lewis Creek, which directly adjoins the Site on the north and west. The report shall contain a mass-balance calculation, including monthly average rainfall, evaporation, and precipitation rates, showing that the dairy ponds can accommodate the storm event as a worst-case condition (i.e., when water in the dairy ponds is at its highest anticipated elevation under expected conditions). The report shall also contain contingency measures for removing excess water from the Site to prevent any ponding of liquids should precipitation and drainage quantities exceed the capacity of the installed pipelines (e.g., during the 1,000-year, 24-hour precipitation event). The report shall describe: (a) the operation concepts and capacity of necessary equipment for removing excess water, (b) where such equipment is stored, readily available for deployment to the Site, and (c) the ultimate disposal location for the excess water. The report shall also include criteria for deploying the equipment prior to storms that are predicted to be of such intensity and/or duration as to cause ponding on the Site. The Discharger shall comply with the time schedule for submittal of the report established in Section E of this Order.
11. The Discharger shall maintain the integrity and effectiveness of all components of the closure cover throughout the post-closure compliance period, including, but not limited to, repairing the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover. The Discharger shall submit for prior review and approval by the Executive Officer, proposed plans and specifications or technical reports, including, where appropriate, a construction quality assurance and quality control plan, for any modifications or repairs to or on top of, the completed cover, including grading, excavation, paving, pipelines, building construction, or the placement of structure foundations.
12. The Discharger shall establish and operate an unsaturated zone monitoring system that is acceptable to the Executive Officer. The Discharger shall comply with the time schedule for submittal of written plans and reports for unsaturated zone monitoring established in Section E of this Order.

13. If the unsaturated zone monitoring results for any of the monitoring points are indicative of an increasing trend of moisture content over pre-established background data, the Discharger shall: (a) within 7 days of discovering the evidence of significant infiltration, notify Regional Board staff, and (b) within 45 days of discovering the evidence of significant infiltration, submit a workplan and time schedule for assessing repair or improvement options for the cover and for subsequently implementing the best option.
14. As required by Title 27, Section 21090(a)(4), the Discharger shall establish a cover-integrity monitoring and maintenance program that is acceptable to the Executive Officer. The Discharger shall comply with the time schedule for submittal of a program plan established in Section E of this Order.
15. Paved surfaces that are used for manure storage shall drain directly to underground pipes that will convey the drainage water to the off-site dairy ponds. The water draining from the paved surfaces that are used for manure storage shall at no time directly contact the land surface.
16. The Discharger shall establish a pavement-integrity monitoring and maintenance program that is acceptable to the Executive Officer. The program shall address all pavements upon which liquid or solid waste is deposited (e.g., cow manure or urine) or upon which wastewater, wash water, or storm water collect or flow. The objective of the program shall be to prevent leakage of liquids through damaged or cracked areas of pavement and into the underlying brine-contaminated soil. The Discharger shall comply with the time schedule for submittal of a program plan established in Section E of this Order.
17. The Discharger shall establish a pipeline-integrity monitoring and maintenance program that is acceptable to the Executive Officer. The program shall address all underground pipelines that convey liquids or semi-liquid wastes. The objective of the program shall be to prevent leakage of liquids from pipes, joints, or any other pipeline features and into the underlying brine-contaminated soil. The program elements shall be in addition to the unsaturated zone monitoring required elsewhere in this Order. The program shall include interior video camera inspections of the wastewater/stormwater drainage pipelines and pressure tests of the water supply pipelines, no less frequently than every two years. The program shall also include a monitoring method that is acceptable to the Executive Officer for all other underground pipelines that convey liquids or semi-liquid wastes, including the recycled wastewater (flush) pipeline and the domestic sewage pipeline. The Discharger shall comply with the time schedule for submittal of a program plan established in Section E of this Order.

C. PROVISIONS

1. The Discharger shall maintain a copy of this Order and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2004-0084
FOR ROBERT AND SHARON HILARIDES, DBA SIERRA CATTLE COMPANY
FOR CLOSURE AND POST-CLOSURE OPERATION AND MAINTENANCE
WEST PONDS SITE
TULARE COUNTY

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2. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2004-0084, which is incorporated into and made part of this Order.
4. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Title 27 (27 CCR §20005, et seq.) and Subtitle D (40 CFR 258)*, dated April 2000, which are incorporated into and made part of this Order.
5. At any time, the Discharger may submit a written request, including appropriate supporting documents, to the Executive Officer, proposing modifications to Monitoring and Reporting Program (M&RP) No. R5-2004-0084. The Discharger shall implement the revised M&RP approved by the Executive Officer upon receipt of a signed copy of the revised M&RP.
6. The Discharger shall install any additional groundwater, soil pore liquid, or leachate monitoring devices necessary to comply with Monitoring and Reporting Program No. R5-2004-0084, as adopted or as revised by the Executive Officer. Whenever new monitoring devices are installed, or whenever new constituents are added to the analyte list for an existing monitoring device, initial monitoring shall be conducted on a monthly basis for as many months as are necessary to develop an adequate baseline data set, as determined by the Executive Officer.
7. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
8. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.
9. The Discharger shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and any leachate generated during the closure and post-closure maintenance period of the facility and during subsequent use of the property for other purposes.
10. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, then the Discharger shall notify the succeeding owner or operator by letter, a copy of which shall be forwarded to this office, of the existence of this Order at least 14 days in advance of the change in control or ownership.
11. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of

assuming ownership or operation of this site. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name, address, and telephone number of the persons responsible for contact with the Regional Board, and a statement that the new owner or operator assumes full responsibility for compliance with this Order. The request must comply with the signatory requirements of this Order. Failure to submit the request shall be considered a discharge without requirements, which is a violation of the California Water Code. Transfer of this Order to a succeeding owner or operator shall be approved or disapproved by the Regional Board.

D. GENERAL MONITORING AND REPORTING SPECIFICATIONS

1. The Discharger shall provide Regional Board staff a minimum of one-week notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices. At the beginning of each sampling period (e.g., quarterly, annually, etc.), as set forth in Monitoring and Reporting Program No. R5-2004-0084, the Discharger shall submit a schedule listing anticipated sampling dates for that sampling period. If Regional Board staff plans to observe sampling activities, the Discharger will be notified at least one week prior to the scheduled date.
2. Prior to performing any sample collection and analysis, the Discharger must specify the methods that will be used in a Sample Collection and Analysis Plan that is acceptable to the Executive Officer. Sample collection, storage, and analysis shall be performed in accordance with acceptable methods, such as the most recent version of a USEPA-approved method or *Standard Methods for the Examination of Water and Wastewater* (Standard Methods). If analytical methods other than USEPA-approved methods or Standard Methods are proposed, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use. One criterion for the Executive Officer's review will be whether the proposed alternative method has detection limits that are low enough to provide an adequate indication of a release. Another criterion will be whether the proposed alternative method provides equivalent or greater accuracy and precision as the specified method.
3. In the event the Discharger does not comply or will be unable to comply with any prohibition or requirement of this Order for any reason, the Discharger shall notify the appropriate Regional Board office **within one business day** after it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, shall describe corrective actions that are being implemented, shall include a timetable for corrective actions, and shall describe the measures being taken to prevent recurrences.
4. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Order, and records of all data

used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post closure period.

5. All technical reports required herein that involve planning, investigation, evaluation, design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with California Code of Regulations, Title 16, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
6. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall state whether any violations have occurred since the last report was submitted, and whether the violations have been corrected. The accompanying report shall include a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including a time schedule if the actions have not yet been implemented.

E. SPECIFIC REPORTING REQUIREMENTS

1. By **16 July 2004**, the Discharger shall submit, for review and approval by the Executive Officer, a technical report describing in detail the unsaturated zone monitoring program, location of all soil moisture monitoring point locations, moisture content measurement device calibration, and containing background soil moisture data for each unsaturated zone monitoring location. The report shall be prepared by a registered civil engineer or a registered geologist, as required by Title 27, Section 20415(e)(1).
2. By **20 August 2004**, the Discharger shall submit, for review and approval by the Executive Officer, a technical report prepared by a registered engineer or geologist describing proposed storm water management practices. The report shall contain proposed contingency measures to be implemented when a storm is predicted that would be of such intensity and/or duration as to cause ponding on the Site.
3. By **15 October 2004**, the Discharger shall submit, for review and approval by the Executive Officer, a Cover-Integrity Monitoring and Maintenance Program Plan to address the requirements of Title 27, Section 21090(a)(4). The Plan shall contain provisions for periodic leak searches, soil settlement, an annual surface survey, periodic identification of other problem areas, prompt cover repair, and shall contain a schedule for submittal of cover-integrity monitoring and maintenance reports. The Plan shall be prepared by a registered civil engineer or a certified engineering geologist, as required by Title 27, Section 20950(b).

4. By **15 October 2004**, the Discharger shall submit, for review and approval by the Executive Officer, a Pavement-Integrity Monitoring and Maintenance Program Plan. The Plan shall contain provisions for periodic leak searches, periodic identification of other problem areas, and prompt repair and shall contain a schedule for submittal of pavement-integrity monitoring and maintenance reports. The Plan shall be prepared by a qualified California-registered professional.
5. By **15 October 2004**, the Discharger shall submit, for review and approval by the Executive Officer, a Pipeline-Integrity Monitoring and Maintenance Program Plan. The program shall address all underground pipelines that convey liquids or semi-liquid wastes. The objective of the program shall be to prevent leakage of liquids from pipes, joints, or any other pipeline features and into the underlying brine-contaminated soil. The program elements shall be in addition to the unsaturated zone monitoring required elsewhere in this Order. The program shall include interior video camera inspections of the wastewater/stormwater drainage pipelines and pressure tests of the water supply pipelines, no less frequently than once every five years. The program shall also include a monitoring method that is acceptable to the Executive Officer for all other underground pipelines that convey liquids or semi-liquid wastes, including the recycled wastewater (flush) pipeline and the domestic sewage pipeline. The Plan shall be prepared by a qualified California-registered professional and shall contain a schedule for submittal of pipeline-integrity monitoring and maintenance reports.
6. By **15 December 2004**, the Discharger shall submit, for review and approval by the Executive Officer, plans for initiating and completing corrective action for all known and reasonably foreseeable releases from the closed facility, with detailed cost estimates and a demonstration of financial assurance, as required by Title 27, Division 2, Chapter 6. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or maintenance. The report regarding the annual review of the financial assurance for initiating and completing corrective action shall be submitted by **30 April** of each year. The assurances of financial responsibility shall name the Regional Board as beneficiary and shall provide that funds for corrective action shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5.
7. By **15 December 2004**, the Discharger shall submit, for review and approval by the Executive Officer, a demonstration of financial assurance for post-closure maintenance, as required by Title 27, Division 2, Chapter 6. As required by Title 27, Section 21090(a)(4), the anticipated post-closure maintenance plan cost shall include the cover-integrity monitoring and maintenance program costs. The Discharger shall conduct an annual review of the financial assurance for post-closure maintenance, and submit a report for Executive Officer review and approval. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation. The report regarding

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2004-0084
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the annual review of the financial assurance for post-closure maintenance shall be submitted **by 30 April** of each year. The assurances of financial responsibility shall name the Regional Board as beneficiary and shall provide that funds for post-closure maintenance shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5.

8. By **15 December 2004**, the Discharger shall submit proof to the Regional Board that an instrument has been properly recorded against the property, or that some other instrument has been executed which is normally examined during title search and which is capable of providing notice to all subsequent property owners, that notifies future potential property owners that: (1) a closed non-municipal solid waste landfill containing brine-contaminated soil exists on the two parcels comprising the Site; (2) land use options for the two parcels are restricted by the post-closure WDRs; and (3) in the event that the Discharger defaults on implementing the post-closure maintenance requirements or any evaluation monitoring or corrective action needed to address a release, then the responsibility for implementing such work may fall to the property owner.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify that 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 4 June 2004.

THOMAS R. PINKOS, Executive Officer

LSO:lso/rac

MONITORING AND REPORTING PROGRAM NO. R5-2004-0084
ROBERT AND SHARON HILARIDES, DBA SIERRA CATTLE COMPANY
FOR CLOSURE AND POST-CLOSURE OPERATION AND MAINTENANCE
WEST PONDS SITE
TULARE COUNTY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2004-0084
FOR
ROBERT AND SHARON HILARIDES
DBA SIERRA CATTLE COMPANY
FOR
CLOSURE AND POST-CLOSURE OPERATION AND MAINTENANCE
WEST PONDS SITE
TULARE COUNTY

Compliance with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005 and following (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Title 27 (27 CCR §20005, et seq.) and Subtitle D (40 CFR 258)*, dated April 2000, is ordered by Waste Discharge Requirements (WDRs) Order No. R5-2004-0084 and Section 13267 of the California Water Code. **Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance with the WDRs and with the California Water Code, which can result in the imposition of civil monetary liability.**

A. REQUIRED REPORTS

	<u>Report</u>	<u>Due</u>
1.	Groundwater Monitoring Reports (Section C.2)	Semi-annually by dates shown in Section B
2.	Unsaturated Zone Monitoring Reports (Section C.3)	Semi-annually by dates shown in Section B
3.	Annual Monitoring Summary Reports (Section B)	Annually by 1 February
4.	Annual Facility Inspection Reports (Section C.4.a)	Annually by 15 November
5.	Cover-Integrity Monitoring and Maintenance Reports (Section C.4.b)	Periodically, as specified in plan to be approved by Executive Officer
6.	Pavement-Integrity Monitoring and Maintenance Reports (Section C.4.c)	Periodically, as specified in plan to be approved by Executive Officer
7.	Pipeline-Integrity Monitoring and Maintenance Reports (Section C.4.d)	Once every five years, by 15 November

	<u>Report</u>	<u>Due</u>
8.	Storm Event Inspection Reports (Section C.4.e)	As necessary
9.	Response to a New Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING

The Discharger shall report monitoring data and information as required by this Monitoring and Reporting Program, by Order No. R5-2004-0084, and by the Standard Provisions and Reporting Requirements. Reports that do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements.

Each monitoring report shall include a compliance evaluation summary as specified in the Standard Provisions and Reporting Requirements. Field and laboratory tests shall be reported in each monitoring report. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the sample location, the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer (e.g. Access, dBase, Excel, Lotus 1-2-3, Paradox, or tab- or comma-delimited text files). All analyzed constituents, whether detected or not, shall be reported in the digital format, which shall be arranged with the following fields or columns at a minimum (note that this digital format differs from the typical printed format of a monitoring report table):

<u>Column</u>	<u>Data</u>	<u>Format</u>
1	Sampling Location	Text
2	Date Sampled	Date
3	Constituent Name	Text
4	Analytical Result	Number
5	Quantitation Limit	Number
6	Detection Limit	Number

Monitoring reports shall be submitted to the Regional Board in accordance with the following schedule for the calendar period in which monitoring was conducted:

<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>	<u>Calendar Period Ends</u>	<u>Report Date Due</u>
Semiannual	Semiannually	30 June	31 July
		31 December	31 January
Annual	Annually	31 December	28 February

The results of **all water quality related monitoring** conducted for the facility, whether required by the Regional Board or not, shall be reported to the Regional Board in accordance with the reporting schedule above for the calendar period in which the monitoring was conducted.

The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the previous calendar monitoring year. The annual report shall contain the information specified in the Standard Provisions and Reporting Requirements, and a discussion of compliance with the WDRs.

All monitoring reports requiring engineering or geologic analysis shall be prepared by an appropriately registered professional, as required by the California Business and Professions Code.

C. REQUIRED MONITORING PROGRAMS

1. General Requirements

The Discharger shall comply with the applicable monitoring provisions of Title 27. Sample collection and analysis for each medium shall be conducted in accordance with a plan, which includes a quality assurance/quality control component, that has been previously reviewed and approved by the Executive Officer.

Analytical method detection limits (MDLs) and practical quantitation limits (PQLs) shall be reported in tabular form. In the event that MDLs or PQLs change between reporting periods, the compliance evaluation summary for the next monitoring report shall mention the change(s) and the report shall include an explanation for the change that is written and signed by the office manager of the analytical laboratory. The Discharger shall require the analytical laboratory to report censored data (trace level and nondetect determinations). All analytical peaks shall be reported in tabular form, including those peaks that cannot be quantified and/or specifically identified.

2. Groundwater

The Discharger shall operate and maintain a groundwater monitoring program. The program shall include, as a minimum, monitoring of ten wells located at/near the site (MW-01, MW-

02, MW-15D, MW-16D, MW-20, MW-100, MW-200, MW-300, MW-400, and MW-500), and one background well (MW-10D). The locations of the monitoring wells are shown on Attachment B of this Order.

Samples shall be collected from all established monitoring wells and the facility's domestic supply well at the frequencies indicated in Table I and analyzed for the parameters/constituents listed in the Table. The Discharger shall collect, preserve, transport, and analyze groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

Hydrographs for each monitoring well shall be submitted **semi-annually** showing the elevation of groundwater and the elevations of the top and bottom of the screened interval and of the pump intake. The hydrographs shall include historical data for trend evaluation purposes.

The Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional monitored saturated zones. For each monitored saturated zone, the Discharger shall submit groundwater potentiometric-surface contour maps **semi-annually**.

Key constituents of concern (EC, chloride, and nitrate, as a minimum) shall be graphically presented **annually**, plotting time versus constituent concentration for each monitoring well and supply well, and including historical results for trend evaluation purposes. Analytical results for these wells shall also be graphically presented **annually** using a Stiff diagram, a Piper diagram, and/or a Schueller plot.

3. **Unsaturated Zone Monitoring**

The Discharger shall operate and maintain an unsaturated zone monitoring program in accordance with documents approved by the Executive Officer. Additional monitoring points may become necessary as determined by the Executive Officer, and this Monitoring and Reporting Program will be revised accordingly by the Executive Officer. The Discharger shall conduct the monitoring in accordance with quality assurance/quality control standards contained in documents approved by the Executive Officer. Monitoring data shall be graphically presented annually, plotting time versus monitoring parameter for each monitoring point, as applicable, and including historical results for trend evaluation purposes.

4. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess, including any damage to, the drainage control system, groundwater and unsaturated zone monitoring equipment (including wells, etc.), and any other components of the facility and its monitoring systems. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual facility inspection report describing the results of the inspection and any repair measures implemented, including photographs of any problems and repairs.

b. Cover-Integrity Monitoring and Maintenance

The Discharger shall conduct a cover-integrity monitoring and maintenance program in accordance with a Cover-Integrity Monitoring and Maintenance Program Plan approved by the Executive Officer. The plan shall contain a schedule for submittal of cover-integrity monitoring and maintenance reports.

c. Pavement-Integrity Monitoring and Maintenance

The Discharger shall conduct a pavement-integrity monitoring and maintenance program in accordance with a Pavement-Integrity Monitoring and Maintenance Program Plan approved by the Executive Officer. The plan shall contain a schedule for submittal of pavement-integrity monitoring and maintenance reports.

d. Pipeline-Integrity Monitoring and Maintenance

The Discharger shall conduct a pipeline-integrity monitoring and maintenance program in accordance with a Pipeline-Integrity Monitoring and Maintenance Program Plan approved by the Executive Officer. The plan shall contain a schedule for submittal of pipeline-integrity monitoring and maintenance reports.

The plan shall contain provisions for the following:

- 1) in each year ending in “5” or “0” (eg. 2005, 2010) and prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an interior video camera inspection of the wastewater/stormwater drainage pipelines, including all pipes that are reasonably accessible to a typical pipeline video camera system; the Discharger shall clean soil and debris from the pipes as needed to facilitate the video inspection; the inspection shall assess damage to the

pipes and joints, sediment collection, and any pipeline features that could result in water leakage or pipeline blockage; any necessary construction, maintenance, or repairs shall be completed by **31 October** of that same year; and

- 2) in each year ending in "5" or "0" (eg 2005, 2010), and prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct pressure tests of all water supply pipelines at the Site; the tests shall assess damage to the pipes and joints, sediment collection, and any pipeline features that could result in water leakage or pipeline blockage; any necessary construction, maintenance, or repairs shall be completed by **31 October** of that same year.

The plan shall also include proposed monitoring methods to periodically assess the integrity of the recycled wastewater (flush) pipeline and the domestic sewage pipeline that are in addition to the unsaturated zone monitoring required elsewhere in this Monitoring and Reporting Program.

e. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following a storm yielding one inch or more of precipitation within 24 hours. Necessary repairs shall be completed **within 30 days** of the inspection. Surface areas where ponding of stormwater or wastewater is observed shall be corrected by backfilling with cover material and compacting/regrading to achieve proper slope and drainage. Ponding problems shall be corrected **within 60 days** of the inspection. The Discharger shall submit a report describing any damage and subsequent repairs **within 45 days** of completion of the repairs, including photographs of the problem and the repairs.

The Discharger shall implement the above monitoring and reporting program on the effective date of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

4 June 2004
(Date)

TABLE I
GROUNDWATER MONITORING
FIELD PARAMETERS AND CONSTITUENTS

<u>Field Parameters</u>	<u>Units</u>	<u>Frequency</u>
Groundwater Elevation	Feet & hundredths, above MSL	Semi-Annually
Temperature	°C	Semi-Annually
PH	pH units	Semi-Annually
<u>Constituents</u>	<u>Units</u>	<u>Frequency</u>
Electrical Conductivity (EC @ 25° C)	µmhos/cm	Semi-Annually
Total Dissolved Solids (TDS)	mg/L	Semi-Annually
Chloride	mg/L	Semi-Annually
Sodium	mg/L	Semi-Annually
Alkalinity	mg/L	Annually
Ammonia	mg/L	Annually
Bicarbonate	mg/L	Annually
Boron	mg/L	Annually
Calcium	mg/L	Annually
Carbonate	mg/L	Annually
Iron	mg/L	Annually
Magnesium	mg/L	Annually
Manganese	mg/L	Annually
Nitrate	mg/L	Annually
Nitrite	mg/L	Annually
Nitrogen, Total	mg/L	Annually
Phosphate	mg/L	Annually
Phosphorus, Total	mg/L	Annually
Potassium	mg/L	Annually
Silica	mg/L	Annually
Sulfate	mg/L	Annually
Fecal Coliform	mg/L	Annually
Total Coliform	mg/L	Annually
Total Organic Carbon (TOC)	mg/L	Annually

INFORMATION SHEET

ORDER NO. R5-2004-0084
ROBERT AND SHARON HILARIDES, DBA SIERRA CATTLE COMPANY
FOR CLOSURE AND POST-CLOSURE OPERATION AND MAINTENANCE
WEST PONDS SITE
TULARE COUNTY

The site of the former West Olive Brine Ponds is about three miles northwest of the City of Lindsay. Until the ponds were covered by an earthen cover beginning in 1999, the facility consisted of five large single-lined ponds covering an area of about 160 acres in Section 33, T19S, R26E, MDB&M. The former West Ponds are regulated by WDRs Order No. 87-054, which also regulates three other ponds known as the East Ponds. The East Ponds cover an area of about 70 acres in Sections 34, T19S, R26E, and Section 3, T20S, R26E, MDB&M. This Order applies only to the former West Ponds site.

Olive brine wastewater generated at the Lindsay Olive Growers (LOG) processing plant in the City was previously discharged to both the West and East ponds. The discharge from LOG was high in salinity with electrical conductivity greater than 10,000 $\mu\text{mhos/cm}$ and chloride concentrations above 4,000 mg/L. The discharge ceased in 1992 due to the bankruptcy of LOG.

Cease and Desist Order No. 91-151 was issued to the City and Cleanup and Abatement Order No. 92-708 (amended by Order No. 94-280) was issued to the City and LOG regarding the ponds. These Orders contain requirements for submittal of plans and a time schedule to, among other things, retrofit or close the ponds, characterize the nature and extent of groundwater degradation resulting from wastewater migration from the ponds, and submit a corrective action plan by certain dates. The City has not complied with the past Orders. An Evaluation Monitoring Program has never been completed and a corrective action plan was never submitted.

In October 1999, the City sold the 160-acre property comprising the West Ponds to Robert and Sharon Hilarides, dba Sierra Cattle Company (hereafter Discharger). The Discharger elected not to pursue a Prospective Purchaser Agreement with the Regional Board regarding the environmental issues associated with the property. This Order establishes closure and postclosure maintenance requirements for the West Ponds site.

In 1999 the Discharger proposed to close the West Ponds in accordance with Title 27 as a non-municipal solid waste landfill, with brine contaminated soil remaining in-place. The Discharger submitted a proposed closure plan on 24 June 1999, and an amended plan on 22 September 1999. The plan was considered substantially complete by Regional Board staff on 15 October 1999. An earthen cover was constructed between 1999 and 2001.

The closure plan proposed the construction of a 10,000 cow dairy atop the closed unit as the post-closure use of the facility. A significant part of the dairy has been completed and is currently in operation. This Order addresses the operation of the dairy on top of the closed West Ponds, but does not address dairy wastes that will be discharged to dairy ponds constructed adjacent to the West Ponds site.

The site is within the Lewis Creek interfan area. The geological information indicates there are zones of sandy alluvial soil with moderate permeability rates alternating with silt and high plasticity clay,

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underlying the site. As demonstrated by historical groundwater pollution from wastewater discharged to the ponds, the sandy soil would not prevent the migration of the saline waste to underlying groundwater.

The uppermost groundwater aquifer is about 40 to 70 feet below ground surface. Background water quality outside of the influence of impacted groundwater is generally good. Background electrical conductivity (EC) averages approximately 1,000 $\mu\text{mhos/cm}$, and background chloride concentration averages approximately 60 mg/L. The direction of groundwater flow is typically to the west-southwest. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal (MUN), agricultural, and industrial supply.

Groundwater monitoring indicates the ponds leaked and polluted groundwater. Chloride, EC, and TDS have consistently been detected in groundwater at concentrations exceeding Secondary Maximum Contaminant Levels (MCLs) for drinking water. Since 2001, chloride concentrations in groundwater beneath the Site have been reported as high as 2,800 mg/L, sodium concentrations have been as high as 1,200 mg/L, EC levels have been as high as 9,200 $\mu\text{mhos/cm}$, and TDS concentrations have been as high as 6,400 mg/L. At least two private water supply wells have been affected by releases from the Site, with chloride concentrations as high as 295 mg/L and EC levels as high as 1,660 $\mu\text{mhos/cm}$. The nature and extent of the plume of high salinity wastewater has not been determined, but it extends laterally at least 2,000 feet southwest. In 1994 the City constructed an alternative drinking water supply for the residents in the area where domestic water wells had been impacted. Nothing has been done toward the provision of an alternative water supply to affected agricultural water users.

This Order requires the Discharger to conduct groundwater monitoring at selected wells and conduct unsaturated zone monitoring to assess whether water is infiltrating through the earthen cover and into the brine-contaminated soil that remains in place beneath the cover. A separate C&A Order issued to the Discharger and the City of Lindsay requires both entities to conduct an Evaluation Monitoring Program to evaluate the lateral and vertical extent of the impacted groundwater that resulted from brine waste previously discharged to the former ponds.

Several components related to the proposed dairy construction project were incorporated during the closure construction that were not reviewed nor approved by Regional Board staff. Approximately 9,500 linear feet of drainage system piping, 12 to 24 inches in diameter, were installed in approximately 4-foot wide trenches up to approximately 10-foot in depth. The trenches penetrate the entire thickness of the compacted cover material and through the old pond liner, discharging into the dairy ponds adjacent to the site. The trenches were backfilled without construction quality assurance measures required by Title 27. Subsequently, the Hilarides performed a series of permeability tests on the trench backfill material to demonstrate that the backfill permeability is less than 1×10^{-6} cm/sec, as required by Title 27 for a prescriptive standard cover. Corrective measures have since been implemented for trench backfill areas that initially failed permeability tests. In addition, the Hilarides performed a pipeline video camera inspection of about 60 percent of the pipeline system to assess the integrity of the pipes and joints. The inspection results indicate that several sections of pipe were damaged during placement. Corrective action has since been implemented for damaged sections of the pipeline and followup

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inspections conducted. This Order requires a preparedness plan designed to respond to precipitation events in order to preclude ponding, since the pipes are undersized for the Title 27 design storm.

Two areas on the site, each covering about 7-acres which would not be covered by pavement or structures should the dairy farm be built, were constructed with a surface slope of only about ½ percent. Title 27 requires 3-percent slopes unless the Discharger can show that a lesser slope will provide adequate water quality protection. The Discharger submitted an analysis showing that the ½ % slope would result in less infiltration than the Title 27 prescriptive standard slope of 3 % with a permeability of 1×10^{-6} cm/sec, because the completed cover has a permeability of about 3×10^{-7} cm/sec.

In addition to the drainage pipelines discussed above, the dairy includes various other underground utilities that required trenches penetrating the earthen cover. These utilities include water supply pipelines, electrical lines, a domestic sewage pipeline, and recycled wastewater pipelines. Construction quality assurance testing of the trench backfill areas has been completed by the Discharger to ensure that backfill areas meets Title 27 requirements. This Order requires ongoing monitoring to ensure that water infiltration through the cover is not occurring due to the presence of these utility lines.

The action to issue waste discharge requirements for closure of this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq, and the CEQA guidelines, in accordance with Title 14, CCR, Section 15301. Concerning the post-closure land use as a dairy farm, the Tulare County Board of Supervisors approved a special use permit, a zoning change, and a general plan amendment for the project and, as the CEQA Lead Agency, filed a Notice of Determination (NOD) with the county clerk on 9 October 2002. The NOD states that: (a) the project will have a significant effect on the environment, (b) an Environmental Impact Report was prepared for the project, (c) mitigation measures were made a condition of project approval, (d) a statement of overriding considerations was adopted for the project, and (e) findings were made pursuant to the CEQA provisions. The mitigation measures that pertain to potential water quality impacts due to dairy operations at the site are: (a) the owner/operator must comply with WDRs to be issued by the Regional Board, and (b) all manured areas must be maintained with a sufficient slope to prevent ponding and to convey all precipitation and moisture to drainage systems and ultimately to the off-site dairy ponds.

LSO:lso/rac:6/4/2004