CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0166

WASTE DISCHARGE REQUIREMENTS
FOR
SACRAMENTO RENDERING COMPANIES
RANCHO CORDOVA RENDERING PLANT
SACRAMENTO COUNTY

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

1. Sacramento Rendering Companies (hereafter known as Discharger) submitted a Report of Waste Discharge (RWD) dated 5 March 2005 to obtain Waste Discharge Requirements for the discharge of animal rendering process wastewater. Additional technical information used to supplement the RWD was submitted on 21 April, 26 May, and 22 July 2005.

2. The Sacramento Rendering Companies facility is in Sections 24 and 25, T8N, R6E, and Section 30, T8N, R7E, MDB&M, as shown on Attachment A, which is attached hereto and made part of the Order by reference. The property, which is owned by the Discharger, is at 11350 Kiefer Boulevard in Rancho Cordova and comprises Assessor's Parcel Numbers 067-0090-005-0000, 067-0090-019-000, 067-0050-048-0000, 067-0090-021-0000, 067-0090-002-0000.

3. Order No. 5-00-244, adopted by the Regional Board on 27 October 2000, prescribes requirements for the discharge of animal rendering process wastewater to land to irrigate livestock pasture. The Discharger has applied for a revised Order to allow increased flows resulting from operational changes and new air emissions control equipment.

Existing Facility and Operations

4. The Discharger operates a rendering plant that processes livestock carcasses, meat and poultry processing by-products, and grease from restaurants and other food service businesses. The facility site plan is depicted on Attachment B, which is attached hereto and made part of the Order by reference.

5. Approximately 750,000 pounds per day of carcasses and meat processing by-products are rendered. The rendering process typically operates 24 hours per day, seven days per week. The material is first crushed and then cooked to evaporate moisture. The dehydrated material is then screened and passed through a screw press to separate fat from the protein solids. The protein solids are ground to create protein meal product, and the fat is centrifuged and then pumped to outdoor storage tanks.

6. Tanker trucks deliver grease from restaurants and other food service businesses. Water is separated from the grease and the grease is then processed in the same cookers used to render meat by-products.

7. Vapor from the cookers flows through an air-cooled condenser. Air leaving the condenser is treated to remove odor-producing compounds using a Venturi scrubber and a thermal oxidizer.

8. Scrubbers 1 through 4 treat air exhausted from the plant building to reduce objectionable odors.

9. Hydrochloric acid, and sodium hypochlorite (approximately 750 pounds per month) are used to generate chlorine dioxide, which is then added to the air scrubber water supply to oxidize organic compounds. Approximately 2,500 pounds of sodium chloride is used each month to regenerate the ion exchange system that produces softened water for the boiler.

10. Wastewater generated by the rendering plant consists of moisture from animal by-products, water separated from grease, condensate from the cookers, contact water from the Venturi scrubber and Scrubbers 1 through 4, plant sanitation wastewater, water softener reject, boiler blowdown, and storm water runoff from some of the roof drains and the exterior part of the processing plant's front loading area.

11. Wastewater flows are variable, ranging from 70,000 to over 100,000 gallons per day (gpd). Estimated current flows from each waste stream are tabulated below.

Wastewater Source	Estimated Average Daily Flow (gpd)
Cooker condensate	50,000
Venturi scrubber contact water	10,080
Other scrubber contact water	17,280
Water separated from grease	15,000
Sanitation water	6,440
Water softener reject	800
Boiler blowdown	400
Storm water runoff	200
Total	100,200

12. The RWD's characterization of the waste streams based on sampling performed in 2004 is summarized below.

	Concentration Range (mg/L)				
Waste Stream	BOD [1]	TDS [2]	FDS [3]	Ammonia-N	TKN [4]
Cooker condensate	4,500 to 9,300	140 to 570	12 to 340	360 to 1,300	390 to 1,400
Venturi scrubber	--	470 to 720	44 to 76	180 to 260	230 to 320
Other scrubbers	190 to 810	200 to 460	--	14 to 84	31 to 210
Water from grease	--	460 to 3,500	--	38 to 130	--
Sanitation water [5]	7,362	2,100	--	--	631
Water softener reject [5]	11	12,500	--	--	2

	Concentration Range (mg/L)				
Waste Stream	BOD [1]	TDS [2]	FDS [3]	Ammonia-N	TKN [4]
Boiler blowdown	--	1,200 to 2,000	--	<1	<2
Applicable Water Quality Limit [6]	NA	450	NA	1.5	NA

-- Not analyzed.
NA Not Applicable .
[1] Biochemical oxygen demand.
[2] Total dissolved solids.
[3] Fixed (or inorganic) dissolved solids.
[4] Total Kjeldahl nitrogen.
[5] These waste streams were not analyzed separately. Average concentrations were estimated based on mass balance.
[6] Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

Based on these data and flow rates, approximately 80 percent of the BOD mass and approximately 76 percent of the TKN mass results from cooker condensate. Approximately 45 percent of the fixed dissolved solids results from sanitation and 33 percent comes from water softener reject.

13. Water for processing and pasture irrigation is supplied by three-on-site production wells. Wells 1 and 2 are irrigation supply wells, and Well 3 supplies approximately 60,000 gpd of fresh water for the rendering process.

Wastewater Treatment and Storage

14. Process wastewater and incidental storm water are routed to a sump known as the hot well. Partial solids settling takes place, and floating fat and grease are skimmed from the hot well. The wastewater is pumped from the hot well to a pre-treatment system consisting of an equalization tank, a pre-skimmer unit, and a dissolved air flotation (DAF) unit, as shown on Attachment C, which is attached hereto and made part of the Order by reference. Polymer is added to the DAF unit to promote solids settling. Approximately 50,000 pounds per day of solids and grease are removed by the DAF unit and rerouted to the cookers. The DAF effluent is discharged to the facility's wastewater pond system. DAF effluent monitoring data for 2004 are summarized below.

Constituent	DAF Effluent Concentration Range (mg/L)	Applicable Water Quality Limit (mg/L) [2]
BOD	2,300 to 11,000	NA
Total organic carbon [1]	1,500 to 2,300	NA
TDS	960 to 3,100	450
FDS [1]	40 to 370	NA

Constituent	DAF Effluent Concentration Range (mg/L)	Applicable Water Quality Limit (mg/L) [2]
Ammonia-N	230 to 990	1.5
TKN	430 to 1,200	NA
Nitrate-N	<1	10
Chloride [1]	220 to 260	106
Sodium [1]	170 to 250	69

[1] Based on three sampling events in November 2004.

[2] Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

15. The wastewater pond system consists of a pumping station, flow meter, eight small lagoons (known as the finger lagoons), two winter storage ponds and two mixing lagoons. The wastewater is used to irrigate approximately 74.8 acres of pastureland owned by the Discharger during the dry season only, as shown on Attachment B.

16. The finger lagoons are operated in series to provide anaerobic treatment. They are approximately four feet deep with a total of 1.1 acre-feet of capacity at two feet of freeboard.

17. Based on monitoring data obtained in 2004, the finger lagoons' treatment performance is variable. BOD removal varied from –330 to 60 percent; ammonia nitrogen removal varied from –244 to 65 percent; and TKN removal varied from 0 to 65 percent. The negative removal values may result from periodic overloading, climactic conditions, or a combination of the two. The RWD states that improved maintenance, such as more frequent pond cleaning, could increase the BOD removal rate to as much as 50 percent.

18. During the rainy season (16 October through 14 April), effluent from the finger lagoons is pumped to Winter Storage Pond 1 (shown on Attachment C), which was constructed in 1956 and enlarged in 2004. As wastewater accumulates in Winter Storage Pond 1, it overflows into a gravity pipeline that conveys it to Winter Storage Pond 2, which was constructed in 2004 and expanded during the summer of 2005. The storage capacity of these ponds is tabulated below.

Parameter	Winter Storage Pond 1	Winter Storage Pond 2 [1]
Surface area (acres)	2.9	11
Depth at two feet of freeboard (feet)	19	7
Volume at two feet of freeboard		
(acre-feet)	40	72
(MG)	13	23.4

[1] Volume estimated (to be verified by survey in fall 2005).

19. The former Back Mixing Pond was reconstructed in 2004 to provide separate storage for fire suppression water and irrigation tailwater/field runoff. The current Back Mixing Pond covers approximately three acres. It has a design maximum depth of 8 feet and 13 acre-feet of storage capacity. The fire suppression water pond previously contained a mixture of wastewater, tailwater, and field runoff, but now stores only fresh water supplied from one of the on-site production wells.

20. The Front Mixing Pond covers approximately 0.6 acres. It has a design depth of 11 feet, and a storage capacity of four acre-feet.

Land Application of Wastewater

21. During the dry season (15 April through 15 October each year), wastewater is conveyed from the Winter Storage Ponds and the finger lagoons to the Back Mixing Pond for pasture irrigation, as indicated on Attachment D, which is attached hereto and made part of the Order by reference. The Back Mixing Pond also receives tailwater from the irrigated pasture. The Back Mixing Pond can be used to pump wastewater to both the back (southern) pasture areas and the Front Mixing Pond. The Front Mixing Pond is used to pump wastewater to irrigate the front (northern) pasture areas. Fresh water from the irrigation supply wells can be pumped to the mixing ponds or used to directly irrigate the pastureland. The Winter Storage Ponds are typically empty by August each year.

22. With the exception of the DAF unit effluent meter described above, the Discharger uses pump curves, pressure gauges, and pump run time logs to estimate flows between the various ponds and to the land application areas.

23. The front pasture consists of Fields 1 and 2, with a total area of approximately 12.8 acres. The back pasture consists of Fields 3 through 5, with a total area of approximately 62 acres. The former Field 6 is no longer irrigated with wastewater, and the former Field 7 was used to construct the new Winter Storage Pond 2. Field 8 is a small separate horse pasture of approximately one acre, which is no longer irrigated with wastewater.

24. Overland irrigation methods are used. During the dry season, approximately 2.7 to 4.5 million gallons per month (approximately 2.0 inches per month) of wastewater from the mixing ponds are applied to the pasture, and supplemental fresh water applications range from 2 to 23 million gallons per month (approximately 5.2 inches per month). During the 2004 dry season, approximately 27 percent of the total irrigation water used was wastewater.

25. Daily BOD loading rates to the irrigated pasture in April 2004 typically ranged from 9 to 167 pounds per acre per day, with an average of 60 pounds per acre per day. The mean cycle average BOD loading was 30 pounds per acre per day. The RWD states that these loading rates are representative of the entire irrigation season because higher irrigation demand in later months is met with fresh water from the irrigation supply wells, not wastewater.

26. Based on the estimated TKN output from the DAF unit in 2004 (640 pounds per day), the average nitrogen loading rate to the irrigated pasture may have been as high as 2,400 pounds per acre per year. However, most of the nitrogen in the DAF effluent and the finger lagoons is typically in the

form of ammonia, and it is not clear how much of the ammonia volatilizes in the Winter Storage Ponds and/or as a consequence of land application. However, based on the available data, it is likely that nitrogen has historically been applied at rates far in excess of agronomic rates for the mixture of pasture grass and alfalfa that is grown in the pasture.

Storm Water Management Issues

27. Storm water from outdoor areas of the plant and some of the building roof drains is collected into a subsurface storm drain system that discharges to Frye Creek, an intermittent tributary of Laguna Creek. Storm water runoff from Fields 1 and 2 is conveyed by the same drainage system to an outfall at Frye Creek (shown as Outfall OpA on Attachment B). Tailwater from Fields 1 and 2 is conveyed to the front mixing pond for recycling. The back pasture areas drain both tailwater and storm water to the Back Mixing Pond, which is used to recycle tailwater and capture the first flush of storm water from those fields.

28. Prior to 2004, the Front and Back Mixing Ponds captured all storm water flows from the pasture areas and were allowed to overflow into Frye Creek. However, because the Discharger was ostensibly diluting wastewater with fresh water at a ratio of 20 to 1 for irrigation and cleaning out the Back Mixing Pond prior to the rainy season each year, such releases were not specifically prohibited by Order No. 5-00-244.

29. On 14 January 2004, Regional Board staff inspected the facility. The Discharger was in the process of constructing a new fire suppression pumping system and had reportedly drained storm water from the Back Mixing Pond into Frye Creek to facilitate construction. No violations were observed.

30. On 20 January 2004, the Sacramento County Department of Water Resources investigated a complaint from a neighboring landowner and found dark-colored, odorous water in Frye Creek that was traced back to the Discharger's Back Mixing Pond outfall (Outfall BP on Attachment B). County staff suspected that the Discharger had released wastewater into the creek via the Back Mixing Pond and issued a Notice of Violation to the Discharger.

31. In response to the County's complaint investigation, Regional Board staff issued a Notice of Violation (NOV) to the Discharger on 10 February 2004. The NOV required that the Discharger submit a technical report documenting its investigation into the source of the discharge to Frye Creek.

32. The Discharger's initial response to the NOV was inadequate. Therefore, on 8 April 2004, the Executive Officer issued an order for technical reports pursuant to Section 13267 of the California Water Code. The order required that the Discharger submit an adequate response to the NOV as well as a wastewater, tailwater, and storm water management plan for the facility. The Discharger was also required to document the completion of improvements proposed in that plan by 15 October 2004.

33. The Discharger submitted a revised response to the NOV on 15 April 2004, and the wastewater, tailwater, and storm water management plan on 15 June 2004 in response to the order for technical

reports. Staff met with the Discharger on 22 June 2004 to discuss the plan and expressed concern about using wastewater storage ponds to capture and subsequently release storm water from the pasture to surface water. The Discharger subsequently submitted a conceptual improvement plan on 30 August 2004. The plan was approved and the Discharger completed several improvements proposed in the plan in fall 2004:

a. The Back Mixing Pond was reconstructed to provide a separate fire suppression supply pond for fresh water;

b. Modifications were made to the storm water drainage system to allow storm water to bypass the Back Mixing Pond after the first flush of storm water runoff from the back pasture areas is captured and retained.

c. The original Winter Storage Pond (now Winter Storage Pond 1) was deepened to provide more storage capacity; and

d. A new Winter Storage Pond (Winter Storage Pond 2) was constructed adjacent to the Back Mixing Pond.

The system was designed so that storm water generated in the back pasture areas after the first flush could bypass all storage ponds and discharge directly to Frye Creek. First flush storm water from the front pasture areas was to be collected in the Front Mixing Lagoon and pumped to Winter Storage Pond 1. Subsequent runoff was to be allowed to overflow from the Front Mixing Lagoon into to the storm drain system that serves the rendering plant areas and discharges into Frye Creek. In 2004, additional modifications were made to convey runoff from Fields 1 and 2 directly to the storm drain system that discharges at Outfall OpA.

34. On 12 January 2005, a United States Environmental Protection Agency (USEPA) contractor inspected storm water discharges from the facility. Among other violations, the inspector observed stained and turbid water discharging from the plant area storm drain outfall into Frye Creek. Staff issued an NOV that required the Discharger to address all of the violations and submit an updated Storm Water Pollution Prevention Plan.

35. On 28 February 2005, Regional Board staff inspected the land application fields and ponds to assess whether runoff from the fields might be the source of the discolored runoff observed by the USEPA contractor. Dark-colored water was observed ponding at the base of some of the fields. Likewise, stained water was observed discharging from the fields and into Frye Creek. In addition, Fields 5 and 6 did not have adequate runoff controls to prevent tailwater or storm water from leaving the site through other drainage courses. Staff requested that the Discharger perform storm water sampling as soon as possible prior to the end of the rainy season to assess the chemical character of storm water at several points within the field drainage system and Frye Creek.

36. On 22 April 2005, the Discharger submitted a storm water monitoring report as requested. A single sample of runoff or ponded storm water was obtained from each sampling location on 4 March 2005 during a light rain that reportedly generated low to medium runoff. Selected storm water monitoring results are tabulated below.

	Analytical Result (mg/L)						
Monitoring Location	TDS	BOD	Ammonia-N	TKN	Nitrate-N	Sodium	Chloride
Background [1]	62	16	0.3	2.4	<2	<1	1.6
Fields							
Fields 1 and 2	260	25	15	24	2.4	27	30
Between Fields 2/3 [2]	260	14	0.73	6.4	<2	23	14
Field 3	340	53	16	24	18	38	38
Field 4	180	17	0.5	4.4	<2	10	1.8
Field 5	150	16	0.76	4.5	<2	10	2.5
Field 6	130	51	0.65	3	<2	14	2.1
Outfall OpA [3]	160	16	0.55	3	<2	19	5.9
Outfall BP [4]	140	16	0.78	4.2	<2	9.5	2.3
Frye Creek downgradient	110	14	0.51	2.8	<2	6.1	3.5

[1] Sample was obtained from ponded water in a neighboring pasture not irrigated with process wastewater.
[2] Sample was obtained from ponded water in a small area between the two fields.
[3] Outfall OpA discharges storm water from the processing plant area and Fields 1 and 2.
[4] Outfall BP discharges storm water from Fields 3 through 6.

37. With the exception of sodium and TDS, these data indicate that runoff from Fields 4, 5, and 6 is not significantly different from runoff from the off-site pasture. Runoff from Fields 1, 2, and 3 contained elevated concentrations of all of the constituents listed above. Samples obtained from both of the facility storm drain outfalls showed constituent concentrations similar to those from Fields 4, 5, and 6, as did the creek sample downstream of the facility (i.e., TDS and sodium concentrations were greater than apparent background).

38. The Discharger's report concluded that the source of wastewater constituents might be associated with decaying vegetation, livestock waste, and contact with tailwater ditches that drain Fields 1 and 2. The report proposed specific improvements to reduce storm water ponding and improve storm water conveyance system reliability for Fields 1, 2, 4, 5, and 6, and construction of additional berms around Fields 5 and 6 to prevent uncontrolled runoff to other drainage courses. The Discharger subsequently decided to remove Field 6 from service and has completed all other the proposed improvements.

39. It should be noted that the storm water monitoring performed in March 2005 was not performed in accordance with standard storm water sampling protocols during a light rain, which necessitated sampling from ponded water in some cases. Additionally, the sampling event was approximately four months after the last wastewater irrigation event, and approximately 17 inches of precipitation occurred in the Rancho Cordova area between 1 November 2004 and 3 March 2005. Therefore, the

storm water samples may not be representative of typical storm water discharges to Frye Creek. Further monitoring is needed to determine whether the Discharger's current field storm water retention program is adequate to protect surface water quality during the entire rainy season. Additional improvements may be needed to improve storm water quality and/or provide additional storm water detention.

Proposed Changes in the Discharge

40. The Discharger plans several operational changes that will influence wastewater generation rates as follows:

    a. The fresh water flow rate to the air scrubbers will be increased to improve odor control performance;

    b. The frequency of plant sanitation will be increased to reduce odors;

    c. The volume of grease processed will increase to accommodate market demand for the service;

    d. The cooker condensate flow will increase; and

    e. Water softener regeneration brine will be segregated and disposed of off-site.

    Projected future average daily flows are summarized below.

	Estimated Average Daily Flow (gpd)	
Wastewater Source	Current	Future
Cooker condensate	50,000	55,000
Venturi scrubber contact water and other scrubber contact water	27,360	54,720
Water separated from grease	15,000	22,500
Sanitation water	6,440	14,880
Water softener reject	800	0
Boiler blowdown	400	400
Storm water runoff	200	2,300
Total	100,200	150,000

41. The BOD and TKN mass loading rates to the DAF unit are expected to increase by approximately 12 and 10 percent, respectively, though effluent concentrations are expected to decrease due to the additional fresh water usage. The fixed dissolved solids mass loading is expected to decrease by approximately 21 percent due to segregation of the water softener reject from the overall wastewater stream.

42. The RWD states that both the DAF unit and the finger lagoons have sufficient unused treatment capacity to accommodate the increased flows provided that the proposed finger lagoon maintenance program is fully implemented.

43. Based on the predicted wastewater flow rate, character, and pasture currently available for wastewater irrigation, BOD loading rates to the pasture are expected to increase to an average 67 pounds per acre per day as a daily maximum and 30 pounds per acre per day as a cycle average.

44. Assuming no ammonia volatilization occurs after the DAF unit, total nitrogen loading rates will be approximately 2,700 pounds per acre per year. Although conservatively estimated, the apparent nitrogen loading rate is significantly higher than the agronomic rate for the crop. Based on the low concentrations of nitrate in groundwater, the RWD suggests that site conditions and operational practices promote denitrification that may decrease plant available nitrogen by up to 70 percent. However, because groundwater is relatively deep and there is only one recently installed well that monitors groundwater beneath the pasture, it is premature to conclude that such is the case. The Discharger owns additional land contiguous with the existing land application areas that could be brought into service as wastewater irrigation areas, and has the capability to modify the treatment system to improve nitrogen removal. Therefore, it is appropriate to require that the Discharger:

    a. Analyze soil samples obtained during monitoring well installation;

    b. Monitor waste constituent transformation and movement beneath the land application areas;

    c. Complete a nitrogen assimilation study to determine whether nitrogen is migrating beneath the pasture areas; and

    d. Develop a nitrogen mitigation plan as needed to protect groundwater quality.

45. The water balance provided as an addendum to the RWD indicates that the facility currently has adequate wastewater and storm water storage capacity to accommodate an average daily flow of 150,000 gallons.

Site-Specific Conditions

46. The rendering plant area is relatively level, and the irrigated pasture areas are gently sloped at an elevation of approximately 145 feet above mean sea level (MSL). Frye Creek originates immediately west of the back pasture area and trends northeast to southwest along the western rendering facility boundary.

47. Subsurface soils at the site are interbedded layers and lenses of clay, silt, sand, gravel, and mixtures thereof. The permeability of these soils varies from low to high.

48. The reference evapotranspiration rate (ET_0) for the area is approximately 57 inches.

Groundwater Considerations

49. Groundwater is generally encountered at approximately 5 feet MSL (about 140 feet below the ground surface). There are currently five groundwater monitoring wells at the facility, as shown on Attachment B. Monitoring wells MW-1 through MW-4 were installed in 2003, and MW-5 and MW-6 were installed in summer 2005. Based on recent groundwater monitoring data, the groundwater gradient is generally towards the southwest, but data from the new wells suggests that there may be some on-site variations that were not previously known, which may be attributable to recent increases in groundwater usage in the area. Monitoring well MW-3 is typically upgradient of the wastewater ponds and cross-gradient of the pasture areas. MW-4 is downgradient of Winter Storage Pond 1, MW-2 is downgradient of the finger lagoons, and MW-6 is within the back pasture area (Field 3). Monitoring Well MW-1 was downgradient of the former Back Mixing Lagoon; it was abandoned and replaced with MW-5 in summer 2005 because it was no longer downgradient of the reconstructed Back Mixing Pond.

50. Groundwater monitoring data obtained since November 2003 (six quarterly sampling events) are summarized below. (Analytical data from the first sampling of wells MW-5 and MW-6 are pending).

	Range of Results (mg/L)			
Constituent	MW-3 (upgradient)	MW-1 (downgradient)	MW-2 (downgradient)	MW-4 (downgradient)
TDS	170 to 190	420 to 660	180 to 220	470 to 550
Ammonia N	<0.10	<0.10	<0.10	<0.10
Nitrate N	1.5 to 1.9	5.0 to 5.8	1.8 to 2.6	1.9 to 3.2
Chloride	7.1 to 8.2	170 to 210	26 to 30	120 to 130
Sodium	21 to 25	30 to 39	20 to 24	30 to 39
Magnesium	5.7 to 6.7	26 to 34	10 to 13	30 to 37
Iron, dissolved	<0.1	Typically <0.1	<0.1	<0.1
Manganese, dissolved	<0.01	Typically <0.01	<0.01	<0.01

These data indicate that background groundwater is generally of high quality, and that Winter Storage Pond 1, the finger lagoons, and the former Back Mixing Pond may have caused increases in concentrations of TDS, sodium, chloride, and magnesium. The increases in TDS and chloride may constitute pollution. It is appropriate to require continued monitoring and a statistical analysis of groundwater quality to make a formal determination regarding groundwater degradation. If groundwater quality has been degraded, the Discharger must make improvements to prevent further degradation and will be required to cleanup and abate the degradation and/or pollution.

51. MW-2 is relatively close to MW-4 and is also downgradient of Winter Storage Pond 1. However, with the exception of chloride and magnesium, monitoring results for this well are similar to those for the background well. This phenomenon has not been explained.

52. The existing and proposed groundwater monitoring network is adequate to assess whether groundwater degradation has occurred from the use of the older wastewater treatment and storage ponds. However, based on past and projected future nitrogen and salt loading rates for the irrigated pasture, additional monitoring wells are needed to monitor groundwater beneath the pasture areas to define the extent of degradation and/or pollution, if degradation and/or pollution is confirmed. Additional wells are needed to better define localized gradient conditions, and to assess groundwater quality beneath and downgradient of the land application area and new Winter Storage Pond 2.

Other Considerations For High Strength Organic Waste

53. Excessive application of high strength organic wastewater to land application areas can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater by overloading the shallow soil profile and causing waste constituents (organic carbon, nitrate, other salts, and metals) to percolate below the root zone.

54. According to *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency (US EPA Publication No. 625/3-77-0007) (hereafter *Pollution Abatement*), in applying food-processing wastewater to land for biological treatment, the loading of BOD_5 should not exceed 100 lbs/acre/day (as a cycle average) to prevent nuisance odors. Although the Discharger's waste may not technically be "food processing waste", the discharge is chemically similar to typical food processing waste discharges and is similar in terms of waste management/disposal practices.

55. Acidic and/or reducing soil conditions can be detrimental to land treatment system function, and may also cause groundwater degradation. If the buffering capacity of the soil is exceeded and soil pH decreases below 5 or the soil becomes reducing, naturally occurring metals (including iron and manganese) may dissolve and degrade underlying groundwater. *Pollution Abatement* recommends that water applied to crops have a pH within 6.4 to 8.4 to protect crops.

56. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and issuance of this Order does not create a vested right to continue the discharge. Failure to provide best practicable treatment and control; preclude conditions that threaten pollution, degradation, or nuisance; and protect groundwater quality will be sufficient reason to enforce this Order, modify it, or revoke it and prohibit further discharge.

Basin Plan and Beneficial Uses

57. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition revised September 2004, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.

58. Surface water drainage is to Frye Creek, which is tributary to Laguna Creek and the Sacramento River within the legal boundaries of the Sacramento-San Joaquin River Delta. The Basin Plan designates the beneficial uses of the Sacramento-San Joaquin River Delta as municipal and domestic supply; agricultural supply; industrial supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat, and navigation.

59. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

60. State Board Resolution No. 68-16 prohibits degradation of groundwater quality unless it has been shown that:

    a. The degradation is consistent with the maximum benefit to the people of the State

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses;

    c. The degradation does not cause exceedance of one or more water quality objectives; and

    d. The discharger employs best practicable treatment and control to minimize degradation.

    The Discharger has not provided the required demonstration pursuant to State Board Resolution No. 68-16 to be allowed to cause groundwater degradation, and therefore none is authorized.

Waste Character and Waste Management Unit Classification

61. Water Code Section 13173 defines "designated waste" to include "[n]on hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations that exceed applicable water quality objectives or that could reasonably be expected to affect beneficial uses of waters of the state as contained in the appropriate state water quality control plan."

62. Based on the waste characterization data summarized in Finding Nos. 12 and 14, several of the individual waste streams and the combined waste stream discharged from the DAF unit to the finger lagoons and Winter Storage Ponds are designated waste due to concentrations of dissolved solids, ammonia, sodium, and/or chloride that exceed the applicable water quality limits. The Discharger plans to segregate the highly saline water softener reject and other high-salinity waste streams for treatment, recycling through the cookers, or off-site disposal. Until such changes are fully implemented, the discharge of designated waste will continue..

63. The Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, California Code of Regulations (hereafter Title 27), Section 20240 states that waste management units shall be classified according to their ability to contain wastes, and that such classification shall consider the site-specific circumstances relating to the unit's ability to protect water quality.

64. The Discharger's waste management system is subject to classification under Section 20240 at each point of potential release of waste constituents, including any structure where the waste is contained for conveyance, treatment, storage, or disposal. This includes floor drains, sumps, and any storage unit such as a tank or pond. The structure that defines each point of potential release must either be constructed to comply with Title 27 or be exempted from it.

65. Title 27 Section 20090(i) exempts fully enclosed units of limited areal extent and of reliable structural integrity (e.g., aboveground tanks, reinforced concrete sumps, and stainless steel sumps). The wastewater sumps at the facility are constructed of reinforced concrete. The facility's aboveground tanks used to contain wastewater are either steel or plastic tanks, and are designed and manufactured for that purpose. The indoor process equipment, including the water softener, boiler, cookers, and scrubbers are housed in a roofed building with a reinforced concrete pad. All of these features are of limited areal extent and provide structural integrity that qualifies them for exemption from the prescriptive and performance standards of Title 27. Containment of designated waste in the fully enclosed units identified above is authorized under this Order provided that the units are operated and maintained to provide full and continuous containment for all designated waste.

66. The unlined finger lagoons and Winter Storage Ponds are used to treat and store liquid designated waste. However, pursuant to Section 20210 of Title 27, such waste can only be discharged to a Class I or Class II surface impoundment equipped with engineered lining and leachate collection and recovery systems. Therefore, continued discharge to the finger lagoons and Winter Storage Ponds can only be allowed if a) the wastewater is first treated to reduce waste constituent concentrations to the applicable water quality limits or whatever level is required to ensure compliance with Resolution No. 68-16, or b) they are reconstructed to comply with the Title 27 requirements for Class II surface impoundments.

67. It is reasonable to allow the Discharger time to either comply with Title 27 or alter the character and management of the wastewater so that the finger lagoons and Winter Storage Ponds are not subject to regulation under Title 27. Continued discharge in the interim will not alter the responsibility of the Discharger to assess and, if appropriate, clean up the impacts that have already occurred.

68. Section 20210 of Title 27 does not preclude land application of decomposable designated waste for treatment and/or beneficial reuse. Given the depth to groundwater, the availability of additional land, and the availability of low-salinity supplemental irrigation water for dilution, it should be possible to use the rendering plant wastewater for crop irrigation without causing groundwater degradation. Total dissolved solids (TDS) includes both volatile dissolved solids (VDS) and fixed dissolved solids (FDS). The proportion of VDS to FDS in wastewater varies with the source, but it appears that up to 40% of the TDS in DAF unit effluent is in the volatile form. The volatile dissolved solids are subject to breakdown by soil microorganisms and, in a well-managed land application system, should not migrate to groundwater. Likewise, nitrogen undergoes microbial transformation in the soil column, is taken up by plants, and is volatilized into the atmosphere. Land application without groundwater degradation depends on appropriate wastewater management. Accordingly, groundwater monitoring is appropriate to detect whether the irrigated pasture is managed such that groundwater degradation does not occur.

69. The discharge of wastewater to irrigate the Discharger's pasture is therefore exempt from the requirements of Title 27. The exemption, pursuant to Section 20090(b), is contingent on the following:

    a. The Regional Board is issuing waste discharge requirements,

    b. The discharge complies with the Basin Plan, and

    c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.

70. Section 20435 of Title 27 sets forth specific requirements for unsaturated (vadose) zone monitoring for land treatment units. Although the Discharger's irrigated pasture is not classified as a land treatment unit, it is appropriate to require vadose zone monitoring and to use the requirements of Section 20435 to determine the adequacy of the monitoring system and appropriate interpretation of the monitoring results.

71. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. Although the Discharger's facility and discharge may be modified so that all waste management units are exempt from Title 27, the data analysis methods of Title 27 are appropriate for determining whether the discharge complies with the groundwater limitations of this Order.

72. Based on groundwater monitoring results submitted to date, it appears that the discharge has degraded groundwater quality with respect to salinity constituents. Because concentrations of some constituents in groundwater downgradient of the wastewater ponds exceed the limits used to apply narrative water quality objectives for groundwater, the degree of degradation may be sufficient to constitute pollution. If statistical analysis demonstrates that degradation has occurred, it is appropriate to require that the Discharger either implement treatment technology and source control measures to improve the quality of the waste to preclude the discharge from being a continuing source of degradation or provide full containment pursuant to Title 27.

73. In order to ensure compliance with applicable regulations and protect groundwater quality, it is appropriate to:

    a. Prohibit discharge of designated waste to unlined ponds and non-exempt structures;

    b. Establish Discharge Specifications for land application to prevent groundwater degradation;

    c. Establish a schedule for appropriate technical studies and operational changes to ensure that land application of wastewater is performed at agronomic rates for nutrients;

    d. Establish groundwater limitations;

    e. Require groundwater monitoring for all ponds and land application areas;

    f. Require vadose zone monitoring for all land application areas; and

    g. Require further assessment of groundwater degradation.

74. Because the Discharger cannot immediately cease the discharge of designated waste in violation of this Order, and because groundwater monitoring shows that the Discharger cannot (or may not be able to) comply with the Groundwater Limitations of this Order, it is appropriate to adopt a companion Cease and Desist Order that sets forth a scope and schedule for work that will bring the Discharger into compliance within a reasonable period.

Other Regulatory Considerations

75. Federal regulations for storm water discharges promulgated by the U.S. Environmental Protection Agency (40 CFR Parts 122, 123, and 124) require specific categories of facilities which discharge storm water to obtain NPDES permits. The Discharger has obtained coverage for its processing facility under the State Board's Water Quality Order No. 97-03-DWQ to comply with those regulations. However, that coverage applies only to the industrial processing facility. Discharges of storm water from pasture irrigated with wastewater are regulated under this Order. Based on limited late-season storm water monitoring in 2005, the Discharger may need to implement further operational and/or structural improvements to ensure that waste constituents are not discharged with storm water runoff from the irrigated pasture.

76. Section 13267(b) of California Water Code provides that: *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports."*

The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2005-0166 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

77. The rendering plant and wastewater system have been in operation since 1965, and their operation is therefore exempt from the provisions of the California Environmental Quality (CEQA). On 28 January 2005, the Sacramento County Department of Environmental Review and Assessment issued a mitigated Negative Declaration for the construction of Winter Storage Pond 2. The Negative Declaration requires that the Discharger control potential erosion and siltation associated with earth-moving activities and comply with a Mitigation Monitoring Program.

78. The action to adopt revised waste discharge requirements for the facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with Title 14 CCR, Section 15301.

79. This Order is intended as interim waste discharge requirements to allow the Discharger to continue operations while obtaining and analyzing additional information and implementing facility improvements sufficient to protect the beneficial uses of groundwater and comply with applicable regulations, plans, and policies.

Public Notice

80. All of the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

81. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

82. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, pursuant to Sections 13263 and 13267 of the California Water Code, Order No. 5-00-244 is rescinded and Sacramento Rendering Companies, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

Note:

1. *Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.*

2. *Additional compliance requirements are set forth in Cease and Desist Order No. R5-2005-0167.*

A. Discharge Prohibitions:

1. Effective **30 August 2009,** discharge of designated waste to any wastewater structure or pond that is neither exempt from Title 27 nor constructed to comply with Title 27 is prohibited.

2. Land application of wastewater to areas other than those described in Finding Nos. 21 and 23 is prohibited unless new land application areas are approved in writing by the Executive Officer. Such areas shall be limited to land owned by the Discharger as described in Finding No. 2 and shown on Attachment A.

3. Land application of wastewater to any field that does not have a fully functional tailwater return and runoff control system is prohibited.

4. Bypassing the DAF unit, finger lagoons, or any other treatment system installed after adoption of this Order is prohibited.

5. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

6. Discharge of irrigation tailwater from any of the designated land application areas to any off-site area or drainage course is prohibited.

7. Discharge of waste classified as hazardous, as defined in Sections 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.

B. Discharge Specifications:

1. The monthly average effluent flow (as measured downstream of the DAF unit) shall not exceed 150,000 gpd.

2. Objectionable odors originating from the wastewater ponds and all land application areas shall not be perceivable beyond the Discharger's property limits.

3. With the exception of the finger lagoons, the dissolved oxygen content in the upper one foot of any pond shall not be less than 1.0 mg/l as a means of discerning compliance with Discharge Specification No. 2.

4. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.

5. All land application areas shall be managed to prevent breeding of mosquitoes and other vectors. Specifically:
   a. All wastewater applied to land must infiltrate completely or drain back to the mixing ponds as tailwater within 24 hours.
   b. Low-pressure pipelines, unpressurized pipelines, and ditches that are accessible to mosquitoes shall not be used to store wastewater.
   c. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation

6. All wastewater storage ponds shall also be managed to prevent breeding of mosquitoes. Specifically:
   a. Erosion control measures shall be implemented to minimize small coves and irregularities around the perimeter of the water surface.
   b. Weeds within and around the perimeter of the pond shall be minimized through control of water depth, harvesting, or herbicides.
   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

7. All treatment, storage, and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

8. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.

9. The facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow and design seasonal precipitation during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

10. Freeboard in any pond shall never be less than two feet as measured from the water surface to the lowest point of overflow.

11. On or about **15 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications B.9 and B.10.

12. Neither the treatment nor the discharge of waste shall cause a condition of nuisance or pollution as defined by the California Water Code, Section 13050.

C. Interim Effluent Limitations

Wastewater discharged from the finger lagoons to the storage ponds or land application areas shall not exceed the following effluent limits, or such concentrations as the Discharger determines necessary to ensure compliance with the Groundwater Limitations:

Constituent	Units	Monthly Average Concentration
Total Dissolved Solids	mg/L	2,000
Total Nitrogen	mg/L	750

D. Land Application Area Specifications

1. Wastewater shall only be used to irrigate the designated areas between 15 April and 15 October each year. Groundwater may be used for irrigation at any time as needed to sustain the crops.

2. Hydraulic loading of wastewater and supplemental fresh water to the land application areas shall be at rates designed to minimize percolation of waste constituents below the evaporative zone, except as needed to promote surface soil chemistry that is consistent with sustainable agricultural land uses.

3. Crops shall be grown on the land application areas. Crops shall be selected based on nutrient uptake capacity, tolerance of anticipated soil conditions, water needs, and evapotranspiration rates. All crops shall be grazed or they shall be harvested and removed from the irrigation areas at least once per year.

4. The maximum BOD_5 loading to each land application area irrigation check shall not exceed any of the following:

   a. 200 lbs/acre on any single day;

   b. 100 lbs/acre/day as a cycle average; and

   c. The daily and cycle average loading rate that ensures compliance with Discharge Specifications B.2 and B.12 and the Groundwater Limitations.

   Loading calculations shall be performed as specified in the attached Monitoring and Reporting Program No. R5-2005-0166, which is a part of this Order.

5. Effective **30 August 2009**, the total nitrogen loading to each land application area irrigation check shall not exceed the agronomic rate for plant available nitrogen (PAN) for the type of crop to be grown, as specified in the most recent edition of the Western Fertilizer Handbook. The method for determining PAN shall be approved by the Executive Officer based on a site-specific technical study to be completed by the Discharger.

6. The irrigation system shall be designed and managed to ensure even application of wastewater over each irrigation field.

7. Irrigation with wastewater shall not be performed within 24 hours before a predicted storm, during precipitation, or within 24 hours after the end of any precipitation event, nor shall it be performed when the ground is saturated.

8. There shall be no standing water in any portion of the irrigated fields more than 24 hours after application of wastewater ceases.

9. The Discharger may allow storm water runoff from the designated land application areas to be released into Frye Creek only when sufficient runoff has been captured and stored such that waste constituent concentrations in any runoff discharged to surface waters do not exceed those of runoff from adjacent pastureland not irrigated with wastewater.

10. Effective **30 August 2009**, the discharge shall not cause the buffering capacity of the soil profile to be exceeded nor shall it cause the soil to become reducing.

11. The Discharger shall provide and maintain the following setbacks for all wastewater land application areas:

Setback Definition	Surface Irrigation Setback (feet)
Edge of irrigated area[1] to public property (e.g., street and Folsom South Canal)	10
Edge of irrigated area to other agricultural property	0
Edge of irrigated area/solids disposal area to occupied residence	50

Setback Definition	Surface Irrigation Setback (feet)

[1] As defined by the wetted area produced during irrigation.

9. Application of process wastewater shall only occur where checks are graded to provide uniform water distribution, minimize ponding, and provide complete tailwater control.

10. Check runs shall be no longer, and slopes shall be no greater, than that which permits uniform infiltration and maximum practical irrigation efficiency.

11. Irrigation or impoundment of wastewater shall not occur within 50 feet of any domestic well unless it is demonstrated to the satisfaction of the Executive Officer that a shorter distance is justified.

12. Tailwater ponds and ditches shall be maintained essentially free of emergent, marginal, and floating vegetation.

E. Solids Disposal Requirements:

1. Collected screenings, sludge, and other solids generated at the processing facility shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

2. Any proposed change in solids use or disposal practice shall be reported to the Executive Officer at least 90 days in advance of the change.

F. Groundwater Limitations:

The discharge shall not cause underlying groundwater to contain any chemical constituent in concentrations greater than natural background water quality.

G. Provisions:

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision G.2:

   a. By **28 February 2006**, the Discharger shall submit a *Monitoring Well Installation Workplan.* The workplan shall describe the proposed installation of additional groundwater monitoring sufficient to completely characterize groundwater gradient and groundwater quality upgradient of the facility and downgradient of the wastewater ponds and land application areas. Monitoring wells shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of

Attachment E, which is attached hereto and made part of this Order by reference. It shall also include a preliminary identification and assessment of nearby water supply wells and their effects on groundwater elevations and gradients at the facility site.

b. By **28 February 2006**, the Discharger shall submit a *Finger Lagoon Operation and Maintenance Plan* that describes in detail the proper operation of the finger lagoon wastewater treatment system and procedures and recommended frequency for pond cleaning to ensure optimal treatment of the wastewater. The Discharger shall immediately implement the plan.

c. By **30 March 2006**, the Discharger shall submit a *Setback and Tailwater/Runoff Control Compliance Report* that demonstrates that all setbacks are met and all land application fields have fully functional tailwater/runoff control systems.

d. By **30 September 2006**, the Discharger shall submit a *Monitoring Well Installation Report* that describes the installation of groundwater monitoring wells and contains the items found in the second and third sections of Attachment E.

e. By **30 August 2009**, the Discharger shall fully comply with Land Application Area Specifications D.5 and D.10 and shall submit a report certifying compliance.

f. By **30 August 2009**, the Discharger shall fully comply with Prohibition A.1 and shall submit a report certifying compliance.

2. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geological 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 section 415 and 3065 of Title 16, CCR, 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.

3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0166, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.

4. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

5. At least 90 days prior to termination or expiration of any lease, contract, or agreement involving the land application areas that is used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Regional Board in writing of the

situation and of what measures have been taken or are being taken to assure full compliance with this Order.

6. The Discharger shall submit to the Regional Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is reported, then the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.

7. The Discharger shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.

8. In the event of any change in control or ownership of the facility or land application areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

9. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

10. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel at the facility shall be familiar with its contents.

11. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 29 November 2005.

_____

THOMAS R. PINKOS, Executive Officer

ALO:11/29/2005

AMENDED

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0166

FOR
SACRAMENTO RENDERING COMPANIES
RANCHO CORDOVA RENDERING PLANT
SACRAMENTO COUNTY

The Discharger shall comply with this Monitoring and Reporting Program (MRP), issued pursuant to Water Code Section 13267, which describes requirements for monitoring industrial process wastewater and groundwater. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form. Field test instruments (such as those used to measure pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

WASTEWATER POND MONITORING

The finger lagoons, winter storage ponds, and irrigation mixing ponds shall be monitored as follows:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Influent Flow [1]	gpd	Meter Reading	Daily	Monthly
Flows to Mixing Ponds				
Wastewater Flow [2]	gpd	Meter Reading	Daily	Monthly
Fresh Water Flow [2]	gpd	Meter Reading	Daily	Monthly
Freeboard	0.1 feet	Staff Gauge Measurement	Weekly	Monthly
Dissolved Oxygen	mg/L	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly

[1] Report as total daily flow from the DAF unit to the finger lagoons.

[2] Report as total daily flow to each mixing pond. If there is no flow meter, flow may be estimated by a calibrated pump curve and pump run times.

FINGER LAGOON INFLUENT AND EFFLUENT MONITORING

Influent samples shall be collected at a point downstream of the DAF unit to represent the discharge to the first finger lagoon. Effluent samples shall be collected at a point downstream of the last finger lagoon prior to discharge to land application areas or storage ponds. At a minimum, the Discharger shall monitor the finger lagoon influent and effluent as follows:

			Sampling Frequency		
Constituent/Parameter	Units	Sample Type	Influent	Effluent	Reporting Frequency
Total dissolved solids	mg/L	Grab	Monthly	Weekly	Monthly
Fixed dissolved solids	mg/L	Grab	Monthly	Monthly	Monthly
BOD_5 [1]	mg/L	Grab	Monthly	Monthly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly	Weekly	Monthly
Ammonia nitrogen	mg/L	Grab	Monthly	Weekly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Weekly	Monthly
Sodium	mg/L	Grab	Monthly	Monthly	Monthly
Chloride	mg/L	Grab	Monthly	Monthly	Monthly
Magnesium	mg/L	Grab	Monthly	Monthly	Monthly

[1] 5-day, 20ºC Biochemical Oxygen Demand.

EFFLUENT MONITORING

During periods of discharge to the land application areas, the Discharger shall monitor the quantity and quality of the discharge. The Discharger shall establish one or more permanent monitoring stations within the wastewater conveyance system as needed to ensure that all samples are representative of the actual discharge to the fields. At a minimum, the Discharger shall monitor the effluent wastewater as follows:

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Flow to each field	gallons	Measurement	Daily	Monthly
pH	pH units	Grab	Weekly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Monthly
Fixed dissolved solids	mg/L	Grab	Monthly	Monthly
Suspended Solids	mg/L	Grab	Weekly	Monthly
BOD_5 [1]	mg/L	Grab	Weekly	Monthly
Total Organic Carbon	mg/L	Grab	Weekly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Weekly	Monthly

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Ammonia Nitrogen	mg/L	Grab	Weekly	Monthly
Nitrate Nitrogen	mg/L	Grab	Weekly	Monthly
Other Salinity Species [2]	mg/L	Grab	Weekly	Monthly

[1] 5-day, 20ºC Biochemical Oxygen Demand.

[2] Includes boron, chloride, iron, magnesium, manganese, sodium, phosphorus, potassium, sulfide, sulfite, and sulfate. Samples for iron and manganese shall be filtered with a 0.45-micron filter prior to sample preservation.

LAND APPLICATION AREA MONITORING

A. Daily Pre-Application Inspections

The Discharger shall inspect the land application areas at least **once daily** prior to and during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. The following items shall be documented for each check or field to be irrigated on that day:

a. Evidence of erosion;
b. Containment berm condition;
c. Condition of each standpipe and flow control valve (if applicable);
d. Proper use of valves;
e. Soil saturation;
f. Ponding;
g. Tailwater ditches and potential runoff to off-site areas;
h. Potential and actual discharge to surface water;
i. Odors that have the potential to be objectionable at or beyond the property boundary; and
j. Insects.

Temperature; wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report. If no irrigation with wastewater takes place during a given month, then the monthly monitoring report shall so state.

B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	0.1 in.	Rain Gauge [1]	Daily	Monthly, Annually
Irrigation fields and checks receiving wastewater	--	Observation	Daily	Monthly, Annually
Hydraulic loading rate				
Wastewater	in.	Calculated [2]	Daily	Monthly, Annually
Fresh water	in.	Calculated [2]	Daily	Monthly, Annually
BOD loading rate	lb/ac/day	Calculated [2, 3]	Daily	Monthly, Annually
Wastewater nitrogen loading rate	lb/ac/day	Calculated [2, 4]	Daily	Monthly, Annually
Nitrogen loading rate, other sources (fertilizer, etc.)	lb/ac/mo	Calculated [2, 5]	Monthly	Monthly, Annually
Total dissolved solids loading rate	lb/ac/mo	Calculated [2, 4]	Monthly	Monthly, Annually
Fixed dissolved solids loading rate	lb/ac/mo	Calculated [2, 4]	Monthly	Monthly, Annually

1 Data obtained from the nearest National Weather Service rain gauge is acceptable.

2 Rate shall be calculated for each irrigation check.

3 BOD_5 shall be calculated using the daily applied volume of wastewater, actual application area, and the average of the three most recent BOD_5 results.

4 Total nitrogen and TDS/FDS loading rates shall be calculated using the applied volume of wastewater, actual application area, and the average of the three most recent effluent monitoring results.

5 Loading rates for supplemental nitrogen shall be calculated using the actual load and the application area.

GROUNDWATER MONITORING

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Unless otherwise expressly approved, water supply wells shall not be used as monitoring wells. Once installed, all new monitoring wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Sample Type	Sampling Frequency [3]	Reporting Frequency
Depth to Groundwater	feet	Measurement	Quarterly	Quarterly
Groundwater Elevation [1]	feet	Calculated	Quarterly	Quarterly
Gradient Magnitude	feet/feet	Calculated	Quarterly	Quarterly
Gradient Direction	degrees	Calculated	Quarterly	Quarterly
pH	pH Units	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Fixed Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Ammonia Nitrogen	mg/L	Grab	Quarterly	Quarterly
Nitrate Nitrogen	mg/L	Grab	Quarterly	Quarterly
Other Salinity Species [2]	mg/L	Grab	Quarterly	Quarterly

[1] Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

[2] Includes boron, chloride, iron, magnesium, manganese, sodium, phosphorous, potassium, sulfide, sulfite, and sulfate. Samples for iron and manganese shall be filtered with a 0.45-micron filter prior to sample preservation.

[3] The five existing wells shall be monitored quarterly upon adoption of this Order. Effective upon installation of the new wells pursuant to the Provisions of this Order, groundwater shall be sampled monthly for all wells until eight monthly sampling events have been completed. Thereafter, the sampling and reporting frequency shall be quarterly.

STORM WATER MONITORING

The Discharger shall monitor the quality of storm water discharged from the land application areas to surface water. Permanent sampling locations shall be established to provide representative samples from each of the following: a background pasture area, Field 1, Field 2, Field 3, Field 4, Field 5, Frye Creek upgradient of Outfall OpA, Outfall OpA, Outfall BP, and Frye Creek downgradient of Outfall BP. Samples shall be obtained monthly during the first precipitation event that generates sufficient runoff during the rainy season (15 October through 15 April). However, sampling may be deferred to the next weekday during daylight hours as needed.

Constituent/Parameter	Units	Sample Type	Sampling and Reporting Frequency
pH	pH Units	Grab	Monthly
BOD	mg/L	Grab	Monthly
Total dissolved solids	mg/L	Grab	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly
Ammonia nitrogen	mg/L	Grab	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly
Other salinity species [1]	mg/L	Grab	Monthly

[1] Includes chloride, iron, manganese, sodium, and sulfate.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, groundwater), sampling location, and the reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all groundwater monitoring reports shall be prepared under the direct supervision of a California-registered professional and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board on the **1st day of the second month following sampling** (i.e., the January report is due by 1 March). At a minimum, the reports shall include:

1. Results of pond, finger lagoon influent/effluent, effluent, land application area, and storm water monitoring, and daily precipitation data. Data shall be presented in tabular format.
2. If storm water samples were not collected because there was no rainfall during the month, the report shall so state.
3. Daily pre-irrigation inspection reports.
4. A comparison of monitoring data to the discharge specifications and applicable limitations and an explanation of any violation of those requirements.
5. When requested by staff, copies of laboratory analytical report(s).
6. Calibration log(s) verifying calibration of any field monitoring instruments (e.g., DO, pH, and EC meters) used to obtain data.

B. Quarterly Monitoring Reports

Effective on the date of this MRP, the Discharger shall establish a quarterly groundwater sampling schedule such that samples are obtained approximately every three months. However, **upon completion of the new monitoring wells** required by the Provisions, the Discharger shall temporarily establish a monthly groundwater sampling schedule until eight consecutive monitoring events have been completed for all wells. **Thereafter**, the groundwater sampling frequency shall revert to quarterly.

Quarterly monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by May 1st) each year. The Quarterly Report shall include the following:

1. Results of groundwater monitoring.

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any.
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements.
6. Summary data tables of historical and current water table elevations and analytical results.
7. A scaled map showing relevant structures and features of the facility, the disposal check boundaries, the locations of monitoring wells, and groundwater elevation contours referenced to mean sea level datum.
8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be submitted to the Regional Board by **1 February** of each year. The Annual Report shall present a summary of all monitoring data obtained during the previous calendar year, and shall include the following. The Annual Report may also include the contents of the 4th Quarterly Monitoring Report.

1. If requested by staff, tabular and graphical summaries of all data collected during the year with data arranged to confirm compliance with the WDRs.
2. An evaluation of the performance of the pretreatment systems and finger lagoons.
3. An evaluation of the groundwater quality at the facility.
4. An evaluation of storm water quality and the need for additional retention or other controls to improve runoff quality.
5. A narrative description of wastewater residual solids disposal practices.
6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
8. A forecast of influent flows for the coming year, as described in Standard Provision No. E.4.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

29 November 2005
(date)

ALO:11/29/2005

INFORMATION SHEET

ORDER NO. R5-2005-0166
SACRAMENTO RENDERING COMPANIES
RANCHO CORDOVA RENDERING PLANT
SACRAMENTO COUNTY

Sacramento Rendering Companies operates a rendering plant that processes livestock carcasses, meat and poultry processing by-products, and grease from restaurants and other food service businesses. Air leaving the condenser is treated to remove odor-producing compounds using a Venturi scrubber and a thermal oxidizer. Other scrubbers treat air exhausted from the plant building to reduce objectionable odors.

Wastewater generated by the rendering plant consists of moisture from animal by-products, water separated from grease, condensate from the cookers, contact water from the scrubbers, plant sanitation wastewater, water softener reject, boiler blowdown, and storm water runoff from the processing plant loading dock. Current daily wastewater flows are approximately 100,000 gallons per day (gpd). The wastewater contains high levels of biochemical oxygen demand (BOD), ammonia, and dissolved solids.

Process wastewater is pumped from a settling sump to an equalization tank, a pre-skimmer unit, and a dissolved air flotation (DAF) unit. The DAF effluent is discharged to the facility's wastewater pond system consisting of a pumping station, flow meter, eight small lagoons (known as the finger lagoons), two winter storage ponds and two mixing lagoons. The wastewater is used to irrigate approximately 74.8 acres of pastureland owned by the Discharger during the dry season only.

During the rainy season (16 October through 14 April), effluent from the finger lagoons is pumped to Winter Storage Pond 1, which can overflow to Winter Storage Pond 2. During the dry season (15 April through 15 October each year), wastewater is conveyed from the Winter Storage Ponds and the finger lagoons to the Back Mixing Pond for pasture irrigation. The Back Mixing Pond also receives tailwater from the irrigated pasture. The Back Mixing Pond can be used to pump wastewater to both the back (southern) pasture areas and the Front Mixing Pond. The Front Mixing Pond is used to pump wastewater to irrigate the front (northern) pasture areas. Fresh water from the irrigation supply wells can be pumped to the mixing ponds or used to directly irrigate the pastureland. The Winter Storage Ponds are typically empty by August each year.

The front pasture consists of Fields 1 and 2, with a total area of approximately 12.8 acres. The back pasture consists of Fields 3 through 5, with a total area of approximately 62 acres.

The Discharger plans several operational changes that will increase wastewater generation rates to approximately 150,000 gpd as an average daily flow. The BOD and total Kjeldahl nitrogen (TKN) mass loading rates to the DAF unit are expected to increase by approximately 12 and 10 percent, respectively. The inorganic dissolved solids mass loading is expected to decrease by approximately 21 percent due to segregation of the water softener reject from the overall wastewater stream. The RWD states that both the DAF unit and the finger lagoons have sufficient unused treatment capacity to accommodate the increased flows provided that the proposed finger lagoon maintenance program is fully implemented.

Groundwater is generally encountered at approximately 140 feet below the ground surface. Based on recent groundwater monitoring data, the groundwater gradient is generally towards the southwest.

Staff's derivation of certain Discharge Specifications and Provisions contained in this Order and the companion Cease and Desist Order (CDO) is discussed below.

Discharge Prohibition A.1 and CDO Tasks 1, 6, and 8
Based on wastewater and groundwater monitoring data presented in the RWD, the wastewater discharged to the finger lagoons and Winter Storage Ponds is a designated waste, and the discharge appears to have caused groundwater to exceed the applicable water quality limits for total dissolved solids, sodium, and chloride. Therefore, Discharge Prohibition A.1 prohibits the discharge of designated waste to any wastewater structure or pond after 30 August 2009 unless that structure is exempt from Title 27 or constructed to comply with Title 27. Additionally, the CDO requires compliance with Title 27 and sets forth a reasonable time schedule for planning, design, and completion of facility improvements to ensure that the compliance deadline is met. CDO Task 6 requires that the Discharger submit a *Title 27 Compliance Report* that describes a specific scope for planning, design and construction. CDO Task 8 requires the Discharger to submit a *Report of Waste Discharge* that includes a design for the improvements, and CDO Task 1 requires that the Discharger fully comply with Prohibition A.1 and submit a report certifying compliance by 30 August 2009.

Discharge Specification B.4 and Provision H.1.b
Based on monitoring data obtained in 2004, the finger ponds' treatment performance is variable. BOD removal varied from –330 to 60 percent; ammonia nitrogen removal varied from –244 to 65 percent; and TKN removal varied from 0 to 65 percent. The negative removal values may result from periodic overloading, climactic conditions, or a combination of the two. The RWD states that improved maintenance, such as more frequent pond cleaning, could increase the BOD removal rate to as much as 50 percent. Because both BOD and nitrogen loading rates will increase as the facility expands, it is appropriate to require that the wastewater pre-treatment systems be operated to maximize treatment of wastewater and optimize the quality of the discharge, as required by Discharge Specification B.4.

In order to ensure that the Discharger operates and maintains the finger lagoons consistent with that requirement, Provision H.1.b requires that the Discharger submit and implement an Operation and Maintenance Plan that describes in detail the proper operation of the finger lagoon wastewater treatment system and procedures and recommended frequency for pond cleaning to ensure optimal treatment of the wastewater

Land Application Area Specification D.4
Loading limits for BOD are needed because excessive loading can deplete soil oxygen and cause anaerobic conditions. Anaerobic degradation of organic matter can cause severe nuisance odors and promote incomplete biodegradation, thereby allowing dissolved organic material to percolate through the unsaturated zone into groundwater. Anaerobic decomposition of organic wastes also causes reducing conditions and creates organic acids that can decrease soil pH. Reducing conditions and/or a low pH environment can cause excessive leaching of metals in the soil into underlying groundwater.

This Land Application Area Specification prescribes a maximum BOD loading of 200 lb/ac on any one day, and 100 lb/ac/day as a cycle average. Both loading limits are readily achievable based on information provided in the RWD. Compliance with this requirement should provide adequate time for oxidation and infiltration between irrigation events to prevent odors due to putrefaction.

Land Application Area Specifications D.5 and D.10 and CDO Tasks 2, 5, and 9
Loading limits for nitrogen are needed to protect groundwater quality. The Discharger's wastewater currently contains high concentrations of nitrogen, primarily in the form of ammonia. Assuming no ammonia volatilization occurs after the DAF unit, total nitrogen loading rates are approximately 2,700 pounds per acre per year, which is significantly higher than the agronomic rate for the pasture grasses currently grown. Based on the low concentrations of nitrate in groundwater, the RWD suggests that site conditions and operational practices promote denitrification that may decrease plant available nitrogen by up to 70 percent. However, because groundwater is relatively deep and there is only one recently installed well to monitor groundwater beneath the pasture, it is premature to conclude that such is the case.

Therefore, Land Application Area Specification D.5 states that the total nitrogen loading to each land application area irrigation check shall not exceed the agronomic rate for plant available nitrogen (PAN) for the type of crop to be grown, requires that the method for determining PAN be approved by the Executive Officer, and provides a compliance date. Additionally, discharge of high strength waste can cause reducing or acidic soil conditions that dissolve inorganic constituents, posing further threat to groundwater quality. Therefore, Land Application Area Specification D.10 requires that the Discharger maintain the land application areas to prevent exceeding the soil buffering capacity or creating reducing conditions, and provide a compliance date.

The Discharger will not be able to immediately comply with these requirements. Therefore, CDO Tasks 2, 5 and 9 require that the Discharger complete a land application assessment study to determine appropriate PAN loading rates, determine whether nitrogen and other soluble waste constituents are migrating beneath the pasture areas, determine whether soil buffering capacity is being affected by the discharge, and develop a mitigation plan as needed to protect groundwater quality. This does not relieve the Discharger of the requirement to prevent nuisance conditions during the interim non-compliance period allowed by the WDRs and CDO.

Land Application Area Specifications D.1 and D.7 through D.9 and CDO Tasks 3 and 4
Based on limited storm water monitoring performed late in the 2004-2005 rainy season, runoff discharged to Frye Creek from Fields 1, 2, and 3 contained elevated concentrations of several wastewater constituents when compared to background runoff quality. The Discharger's storm water monitoring report concluded that the source of wastewater constituents might be associated with decaying vegetation, livestock waste, and contact with tailwater ditches that drain Fields 1 and 2. The report proposed specific improvements to reduce storm water ponding and improve storm water conveyance system reliability for Fields 1, 2, 4, 5, and 6, and construction of additional berms around Fields 5 and 6 to prevent uncontrolled runoff to other drainage courses.

In order to prevent discharge of contaminated storm water to surface waters, Land Application Area Specifications D.1 and D.7 through D.9 prohibit:

a. Irrigation with wastewater during the rainy season (15 October through 15 April);

b. Irrigation with wastewater within 24 hours before a predicted storm, during precipitation, or within 24 hours after the end of any precipitation event;

c. Standing water in any portion of the irrigation fields more than 24 hours after application of wastewater ceases; and

d. Release of storm water runoff from the designated land application to Frye Creek unless sufficient runoff has been captured and stored such that any runoff discharged to surface waters exhibits waste constituent concentrations that do not exceed those of runoff from adjacent pastureland not irrigated with wastewater

Based on the 2004-2005 storm water monitoring results, further storm water monitoring is needed to determine whether the Discharger's current field storm water management program is adequate to protect surface water quality. Additional improvements may be needed to provide additional storm water detention. Therefore, CDO Task 3 requires that the Discharger submit a 2005/2006 Storm Water Monitoring Report that documents monthly monitoring and analysis of storm water samples during the 2005/2006 rainy season. If appropriate, the report shall include a Storm Water Retention Improvements Plan that specifies physical and/or operational improvements to be fully implemented no later than 30 November 2006 to ensure that contaminated storm water is retained on-site and recycled for irrigation the following year.

Additionally, CDO Task 4 requires that the Discharger submit a Storm Water Retention Improvements Completion Report that documents completion of all improvements described in the approved Storm Water Retention Improvements Plan, as requested by the Executive Officer.

Effluent Limitations

Effluent Limitations for total dissolved solids and total nitrogen are imposed primarily to ensure that the overall waste stream concentrations do not increase. Monthly average concentration limits were established based on monitoring data presented in the RWD, and the Discharger should be able to meet those limits without additional treatment. Weekly monitoring is required for those constituents because the waste character varies with time and monthly grab samples are not adequate to characterize the monthly average concentration.

Provisions H.1.a, H.1.d, and CDO Tasks 7 and 11 through 15

Groundwater monitoring data obtained since November 2003 indicate that background groundwater quality is generally excellent, and that Winter Storage Pond 1 and the former Back Mixing Pond may have caused increases in concentrations of TDS, sodium, chloride, and magnesium. One well was recently installed beneath the irrigated pasture, but data has not yet been submitted. It is appropriate to require continued monitoring and a statistical analysis of groundwater quality to make a formal determination regarding compliance with the groundwater limitations of this Order.

The existing and proposed network is adequate to assess whether groundwater degradation has occurred. However, based on past and projected future nitrogen and salt loading rates for the irrigated pasture, additional monitoring wells are needed to monitor groundwater beneath the pasture areas to define the extent of degradation if degradation is confirmed. Therefore, Provisions H.1.a and H.1.d require that the Discharger construct additional groundwater monitoring wells in accordance with an approved workplan.

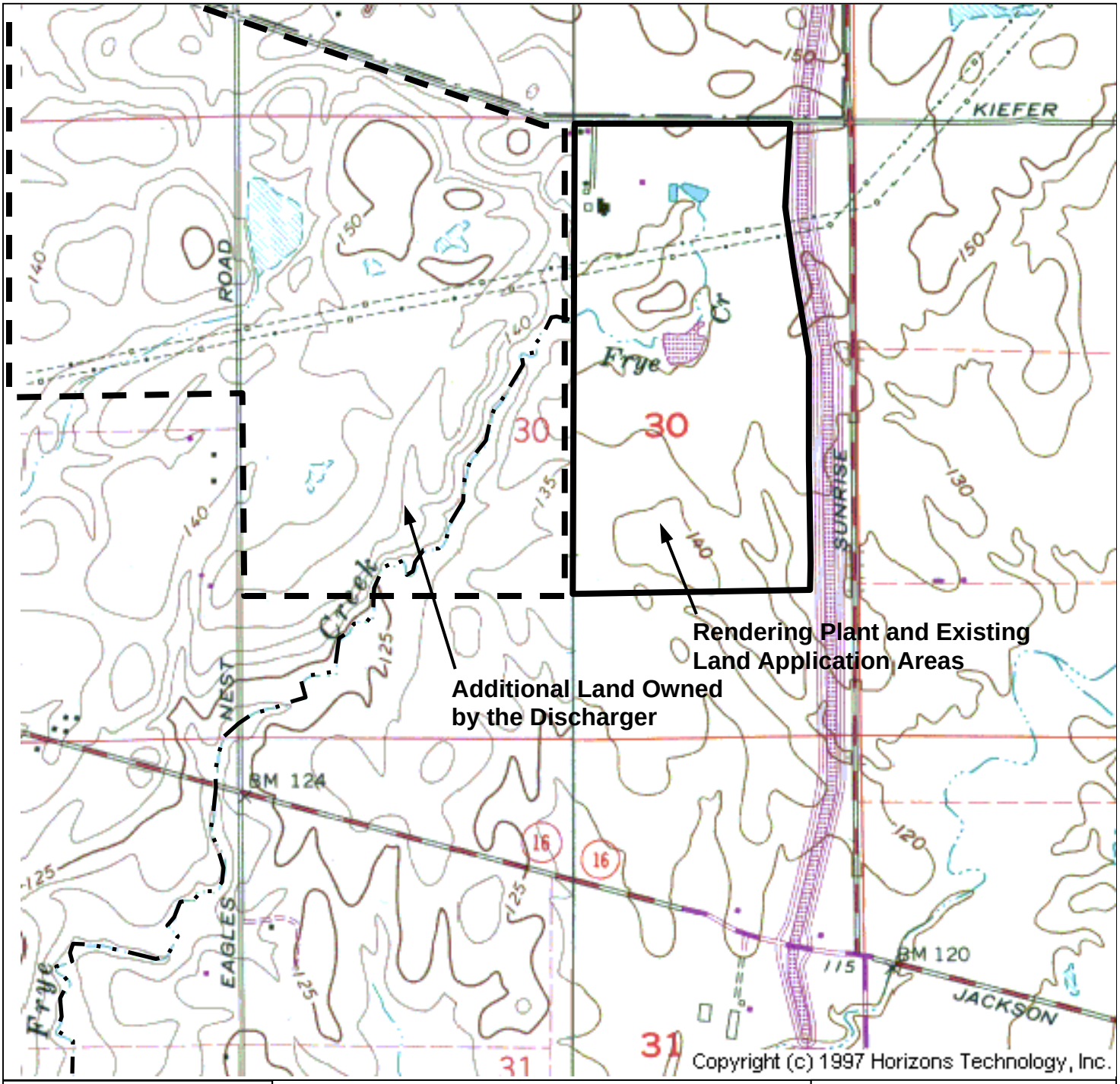
Determination of background groundwater quality and a groundwater impacts assessment are required pursuant to CDO Task 7 because, although the facility has operated for over fifty years, there has been no

subsurface investigation to assess the site-specific soil and groundwater conditions necessary to determine whether the wastewater management system is adequately protective of water quality. Based on the outcome of the CDO Task 7 study, the Discharger may be required to perform CDO Tasks 11 through 15, which require definition of the nature and extent of soil and groundwater impacts, completion of a corrective action feasibility study, and (if appropriate) soil and/or groundwater cleanup. These requirements are consistent with the food processing facility assessment and enforcement strategy presented to the Regional Board at its 29 January 2005 meeting. Although rendering activities many not be considered a food processing industry, rendering process wastewater is similar to food processing wastewater in terms of organic strength and salinity, and the Discharger manages its process wastewater in the same way that many food processors do (i.e., treatment and storage in unlined ponds and land application for irrigation and fertilization of corps). Therefore, consistency with the current food processing facility assessment and enforcement strategy is appropriate.

ALO:11/29/05

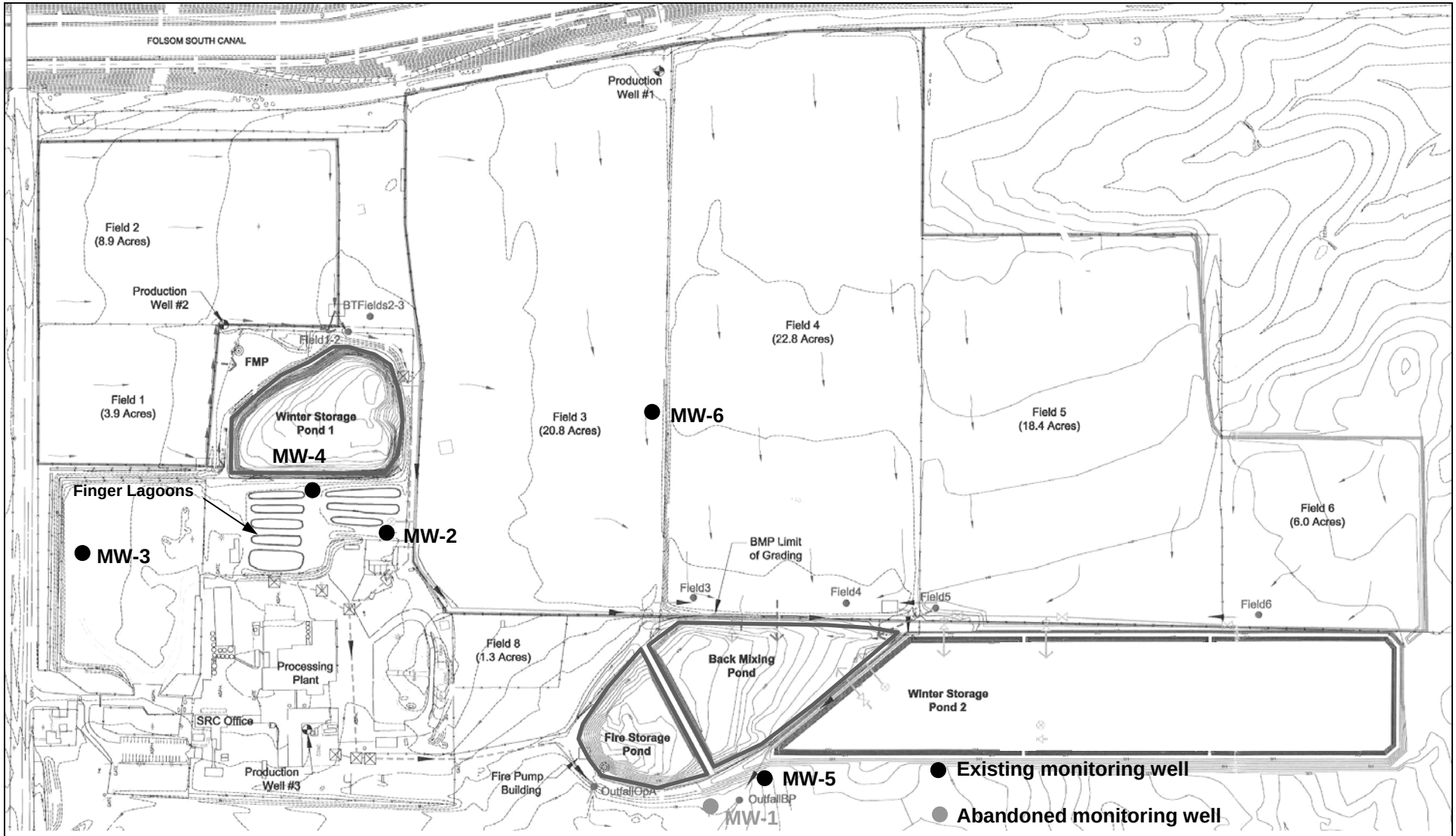
AMENDED

ATTACHMENT A



Drawing Reference: USGS Topographic Map 7.5-Minute Quadrangle East Sacramento	**VICINITY MAP** SACRAMENTO RENDERING COMPANIES RANCHO CORDOVA RENDERING PLANT SACRAMENTO COUNTY ORDER NO. R5-2005-0166	Approx. Scale: 1" =1,300'

ATTACHMENT B



Drawing Reference:
2005 Storm Water Monitoring Report
Erler and Kalinowski, Inc.
April 2005

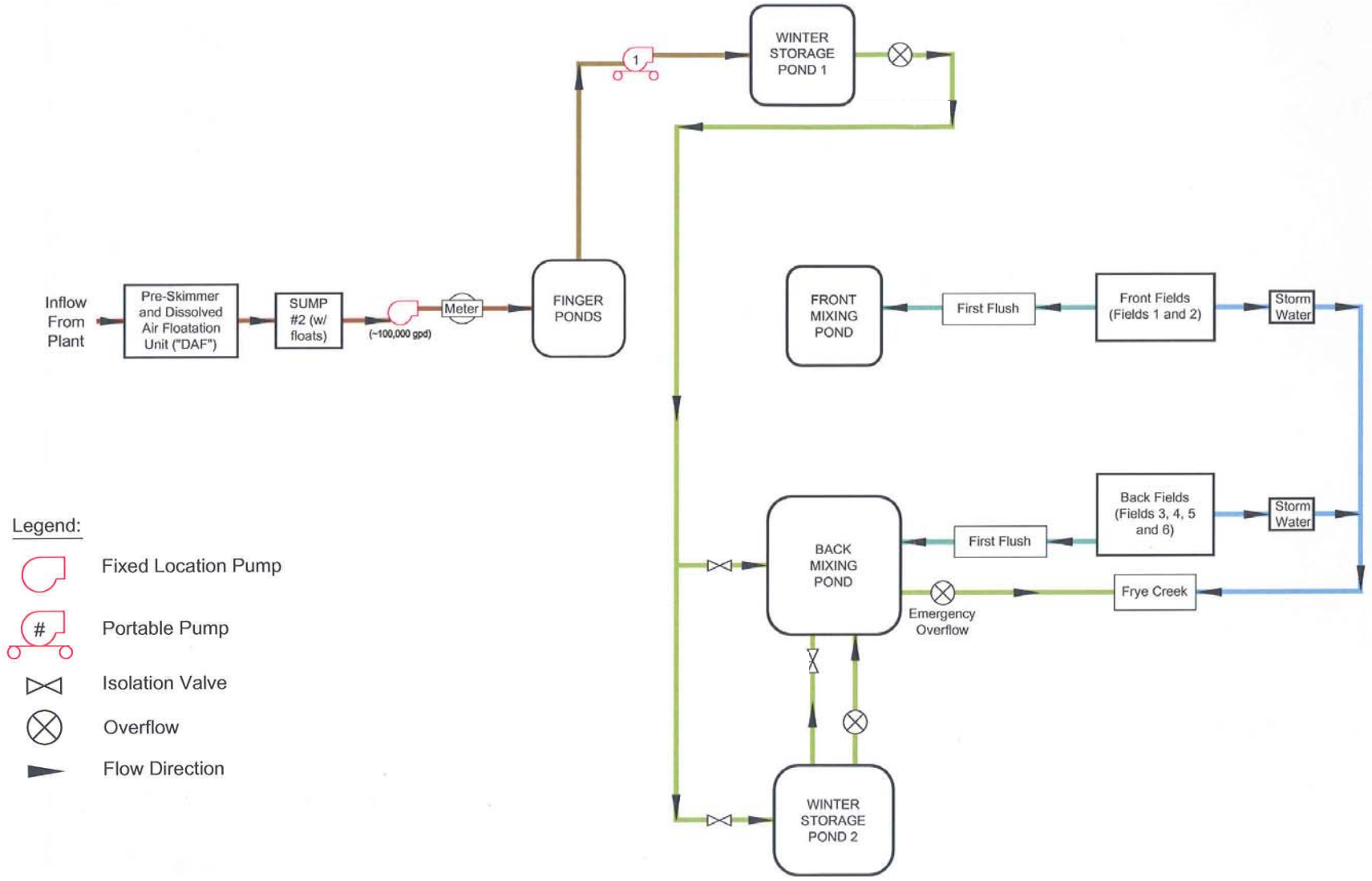
SITE PLAN
SACRAMENTO RENDERING COMPANIES
RANCHO CORDOVA RENDERING PLANT
SACRAMENTO COUNTY

ORDER NO. R5-2005-0166

N

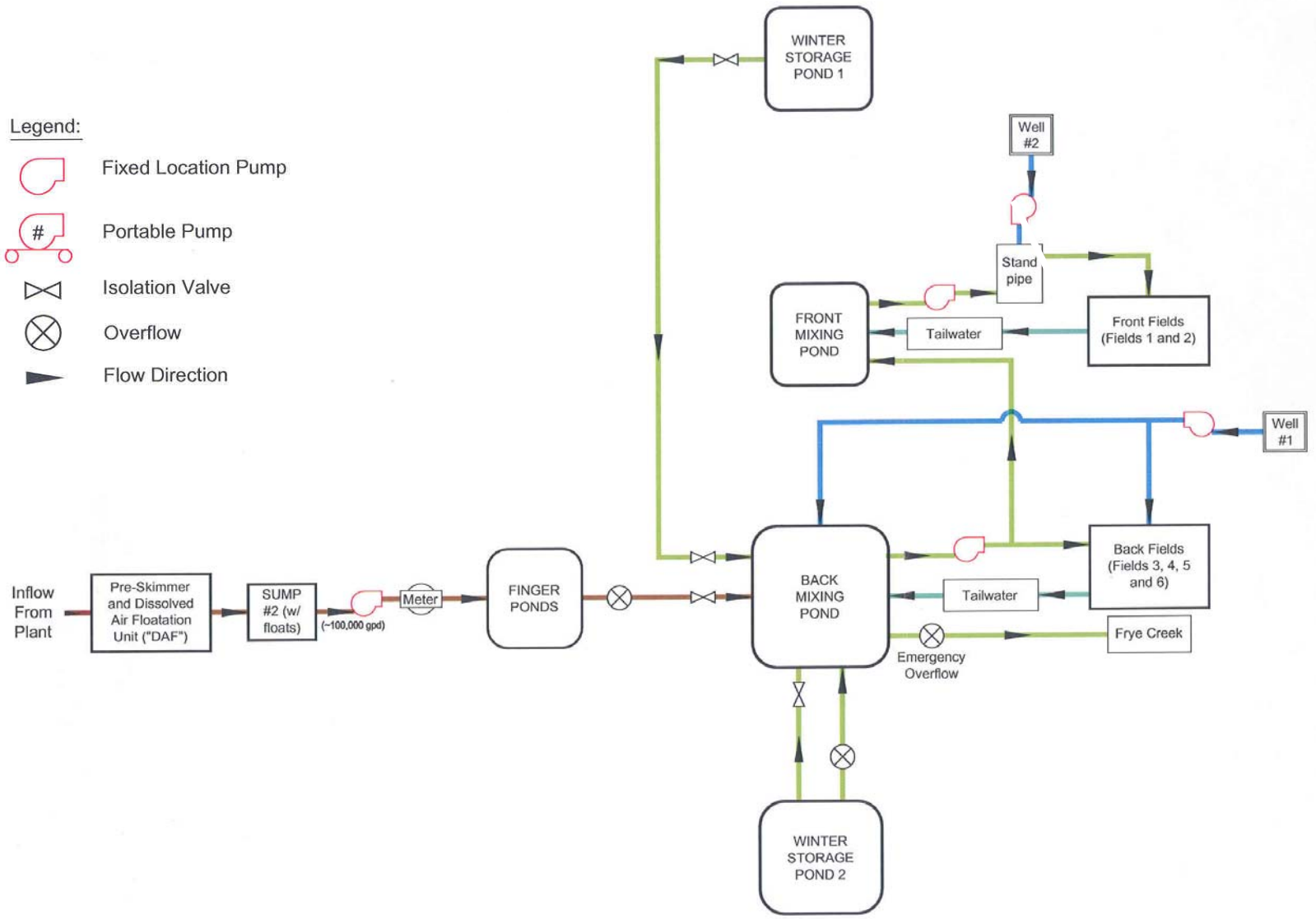
Approx. Scale: 1" = 400'

ATTACHMENT C



Drawing Reference: Report of Waste Discharge Erler and Kalinowski, Inc. February 2005	**WET SEASON FLOW SCHEMATIC** SACRAMENTO RENDERING COMPANIES RANCHO CORDOVA RENDERING PLANT SACRAMENTO COUNTY ORDER NO. R5-2005-0166	

ATTACHMENT D



Drawing Reference: Report of Waste Discharge Erler and Kalinowski, Inc. February 2005	**DRY SEASON FLOW SCHEMATIC** SACRAMENTO RENDERING COMPANIES RANCHO CORDOVA RENDERING PLANT SACRAMENTO COUNTY ORDER NO. R5-2005-0166	

ATTACHMENT E
MONITORING WELL WORKPLAN AND MONITORING WELL
INSTALLATION REPORT GUIDANCE
SACRAMENTO RENDERING COMPANIES
SACRAMENTO COUNTY

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing the minimum listed information. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. All workplans and reports must be signed by a registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California.

SECTION 1 - Monitoring Well Installation Workplan

A. General Information:
   - Purpose of well installation project
   - Copies of County Well Construction Permits (to be submitted after workplan review)
   - Monitoring well locations and rationale
   - Survey details
   - Equipment decontamination procedures
   - Health and safety plan
   - Topographic map showing any existing wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details:
   - Describe drilling technique
   - Sampling intervals, and logging methods

C. Monitoring Well Design:
   - Casing diameter and centralizer spacing (if needed)
   - Borehole diameter
   - Depth of surface seal
   - Well construction materials
   - Diagram of proposed well construction details
   - Type of well cap, bottom cap either screw on or secured with stainless steel screws
   - Size of perforations and rationale
   - Grain size of sand pack and rationale
   - Thickness and position of bentonite seal and sand pack
   - Depth of well, length and position of perforated interval

D. Well Development:
   - Method of development to be used
   - Method of determining when development is complete
   - Parameters to be monitored during development
   - Method of development water storage and disposal

E. Well Survey:
   - Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
   - Describe what well features will be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)
   - Vertical accuracy shall be to at least 0.01 foot

G. Well Sampling:
- Minimum time after development before sampling (48 hours)
- Well purging method and amount of purge water
- Sample containers, collection method, and preservation method
- Table describing sample volumes, sample containers, preservation agents, and hold times
- QA/QC procedures

H. Water Level Measurement:
- The elevation reference point at each monitoring well shall be within 0.01 foot. Ground surface elevation at each monitoring well shall be within 0.01 foot.
- Method and time of water level measurement shall be specified.

I. Proposed time schedule for work.

SECTION 2 – Groundwater Sampling and Analysis Plan

A. General Information:
- Site Location
- Monitoring well locations
- Monitoring well construction details including elevation, well depth, casing material and size, and screen interval
- Equipment decontamination procedures
- Health and safety plan
- Topographic map showing any existing wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Water Level Measurement:
- Ground surface elevation at each monitoring well shall be within 0.01 foot.
- Method and time of water level measurement shall be specified
- Water level in well shall be allowed to equilibrate prior to measuring the depth to water

C. Well Sampling:
- Well purging method and amount of purge water, purge water storage
- Sample containers, collection method, and preservation method
- Table describing sample volumes, sample containers, preservation agents, and hold times
- Identification of analytical laboratory
- Chain of custody procedures
- QA/QC procedures

D. Proposed time schedule for work.

SECTION 3 - Monitoring Well Installation Report

A. Well Construction:
- Number and depth of wells drilled
- Date(s) wells drilled and completed
- Description of drilling and construction

Scaled map of facility site features including monitoring wells, buildings, storage ponds, waste piles, etc.

A well construction diagram for each well must be included in the report, and must contain the following details:

- Drilling Contractor and driller name
- Depth of open hole (same as total depth drilled if no caving occurs)
- Method and materials of grouting excess borehole
- Footage of hole collapsed
- Length of slotted casing installed
- Depth of bottom of casing
- Depth to top of sand pack
- Thickness of sand pack
- Depth to top of bentonite seal
- Thickness of bentonite seal
- Thickness of concrete grout
- Boring diameter
- Casing diameter
- Casing material
- Size of perforations
- Well elevation at top of casing
- Stabilized depth to groundwater
- Date of water level measurement
- Monitoring well number
- Date drilled
- Location

B. Well Development:

- Date(s) of development of each well
- Method of development
- Volume of water purged from well
- How well development completion was determined
- Method of effluent disposal
- Field notes from well development should be included in report.

C. Well Survey:

- Identify the coordinate system or reference points
- Survey the well casing with the cap removed (horizontal and vertical coordinates)
- Registered Engineer or Licensed Surveyor’s report and field notes in appendix
- Describe the measuring points (i.e. ground surface, top of casing, etc.)
- Tabular survey data