CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0122

WASTE DISCHARGE REQUIREMENTS FOR PACIFIC COAST PRODUCERS AND CITY OF WOODLAND YOLO COUNTY

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

1. Pacific Coast Producers (PCP) submitted a Report of Waste Discharge (ROWD) dated 2 November 2001 and additional information dated 23 January 2002 for land discharge of industrial/process wastewater generated from an existing food processing factory in Yolo County. The process wastewater will be treated and applied at agronomic rates to approximately 750 net acres of agricultural land (hereafter referred to as "irrigation area") for irrigation reuse and/or wastewater treatment. The factory is owned and operated by PCP. The irrigation area is owned by the City of Woodland and leased to PCP under an agreement updated in 2001.

2. Pacific Coast Producers and the City of Woodland (City) are hereafter jointly referred to as "Discharger".

3. Waste Discharge Requirements (WDRs) Order No. 81-013 was issued to the City for the Industrial (cannery) Wastewater Treatment facilities in January 1981 for the discharge of up to 5.1 mgd of process wastewater for crop irrigation. The cannery's original owner, Contadina Foods, operated under WDRs Order No. 90-077 until purchased by Del Monte Foods in 1997. Order No. 90-077, adopted by the Regional Board on 23 March 1990, prescribed requirements for discharge of up to 2.4 million gallons per day (mgd) of process wastewater from the factory under the ownership of Contadina Foods to six equalization/storage tailwater ponds and irrigation areas leased from the City. A change in ownership from Contadina Foods to Del Monte Foods was addressed as a name change in WDRs Order No. 98-178, adopted by the Regional Board on 11 September 1998. The change in ownership from Del Monte Foods to PCP in August 2001 was addressed as a name change in WDRs Order No. 5-01-220, adopted by the Regional Board on 7 September 2001.

4. Order No. 90-077 is neither adequate nor consistent with the current plans and policies of the Regional Board and is being revised based upon information submitted by the Discharger.

5. This Order prescribes requirements for the discharge of up to 5.0 mgd of treated industrial effluent (hereafter referred to as "process wastewater") from food processing operations at the factory to the irrigation area. The factory (APN 063-050-091 and 063-060-071) and the irrigation area (APN 27-390-20-1, 27-390-22-1, and 27-390-23-1) are located in Sections 1 and 36, T10N, R2E and Sections 6 and 31, T10N, R3E, MDB&M, as shown on Attachments A, B and C, which are attached hereto and part of this Order by reference.

6. Domestic wastewater generated from the factory is discharged to the City of Woodland's regional sewage system regulated by the Regional Board under a National Pollution Discharge Elimination System (NPDES) permit.

FACTORY PROCESSES AND OPERATIONS

7. PCP intends to utilize the factory to produce whole peeled, stewed, sliced, diced, paste, sauce and puree tomato products. Incoming tomatoes will be washed, peeled and processed to achieve desired product for canning. The factory may use lye and/or steam processes to achieve peeling. Although sauce production may occur throughout the year, the majority of the operations will take place from July through October.

8. The factory utilizes boilers, cooling towers, water softeners, water supply conditioners, and other additives.

9. The Discharger intends to implement source control measures and improvements to the pretreatment process prior to the startup of the 2002 processing season. Improvements are necessary to ensure that effluent limitations and specifications of this Order will not be exceeded or violated at any time during the processing season.

WATER SUPPLY

10. Two wells, referred to as the North and South wells, currently represent the only active water supply for the factory. Raw water quality analyses conducted on a regular basis from these wells have indicated that concentrations of nitrate and Total Dissolved Solids (TDS) are somewhat elevated, generally 30 to 35 mg/L and 600 to 700 mg/l respectively, but are within the range of concentrations found in water from the City's water supply wells.

PROCESS WASTEWATER

11. Industrial wastewater is generated at the factory from such food processing operations as lye peeling, canning, cleanup, condensate, and cooling tower/boiler blow down. For the purposes of this Order, industrial wastewater generated at the factory, or any fraction thereof (i.e.: commingled irrigation or storm water), shall be considered "process wastewater".

12. The average design process wastewater flow rate from the factory is 4.0 mgd, with a peak weekly flow rate of 4.5 mgd and a peak daily flow rate of 5.0 mgd. The design flow for off-season production is 0.75 mgd, usually five days per week.

13. Process wastewater is screened prior to conveyance to a sump from which it may flow by gravity or be pumped to the irrigation area.

14. Historical and projected process wastewater characterization for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) are as follows (based on Del Monte data and data from the PCP Lodi factory):

Parameter	Units	Previous	Projected
Avg. BOD Concentration	mg/L	1,600	2,000
Peak Week BOD Concentration	mg/L		2,500
Avg. TSS Concentration	mg/L	1,200	1,100
Peak Week TSS Concentration	mg/L		1,500
TDS	mg/L	1,900	2,700
Total Fixed Dissolved Solids	mg/L		1,250

Source: PCP Report of Waste Discharge dated 2 November 2001.

WASTE SOLIDS

15. Solid/semi-solid wastes, consisting primarily of skins, vines, pumice, mud, dirt and other very fine solids, are also generated by the processing operations. Such solid/semi-solid wastes are segregated from the process wastewater stream for separate handling. Storage of solid/semi-solid wastes will only occur on relatively impervious surfaces with leachate collection capabilities. Disposal alternatives may include reuse as animal feed or land application as a soil amendment at demonstrated agronomic rates not to exceed the irrigation area's waste assimilative capacity. A solids management and disposal plan is required as part of this Order to ensure proper handling and disposal of such materials.

PROCESS WASTEWATER REUSE/DISPOSAL SYSTEM – IRRIGATION AREA

16. The 750-acre irrigation area consists of eight fields referred to as Fields A through H. Tailwater control for irrigation runoff is channeled to four tailwater holding ponds located along the northern side of the site. Such runoff may be recycled back to the irrigation area. Irrigation techniques will be implemented such that the use of the tailwater control facilities is minimized to the extent reasonable. Refer to Attachments B and C, which are attached hereto and part of this Order by reference, illustrating the location and layout of the irrigation area.

17. Two aerated lagoons, located just north of Field H and just west of the tailwater ponds, have formerly been used for storage and partial treatment of process wastewater. However, except under emergency conditions, discharge of process wastewater to these lagoons is prohibited under the conditions of this Order.

18. The Discharger provided an Operations Plan in the ROWD describing the management of the irrigation area. The Operations Plan details irrigation methods, field conditions and improvements, vegetation plan, and anticipated research activities for improvement of process wastewater operations and land use techniques.

19. Irrigation rotation will be based upon such considerations as the acceptable hydraulic and nutritive loading rates, vegetative needs, soil conditions, and saturation conditions.

20. The irrigation area is to be consistently improved and maintained to ensure effective disposal and protection of water quality.

21. Depending on market conditions, soil types, nitrogen uptake, adaptability to irrigation techniques, and habitat considerations, the vegetation likely to be grown at the irrigation area includes production crops, forage, specialized grasses, trees and shrubs. Primary production crops will likely include corn, milo, grass hay and other major row crops.

22. According to the United States Environmental Protection Agency (USEPA), TSS loading rates should not exceed 70 lbs/acre/day and BOD loading rates should not exceed 100 lbs/acre/day to prevent development of nuisance conditions associated with applying food-processing wastewater to land for biological treatment (*Pollution Abatement in the Fruit and Vegetable Industry*, USEPA Publication No. 625/3-77-0007, hereafter *Pollution Abatement*). As provided in the ROWD and documented in the Information Sheet, the Discharger's projected average TSS and BOD loading rates, 49 lb/ac/d and 89 lb/ac/d respectively, are within the limits recommended by *Pollution Abatement*.

23. *Pollution Abatement* recommends that water applied to crops have a pH within 6.4 to 8.4 to protect crops from damage by food processing wastewater. Acidic soil conditions can be detrimental to bacteria responsible for conversion of organic matter and nitrogen. If soil pH decreases below 5, iron and manganese may dissolve and degrade underlying groundwater if the buffering capacity of the soil is exceeded.

24. Discharge under the conditions of this Order, including application at reasonable agronomic rates not to exceed the irrigation area's waste assimilative capacity (including conversion, reuse and attenuation), will ensure that the discharge will not have an adverse impact on groundwater nitrate concentrations.

25. TDS within process wastewater consists of organic and inorganic factions and, based on data from PCP's Lodi plant, the TDS concentration in process wastewater under this Order is projected to be approximately 2,700 mg/L. The inorganic (i.e.: fixed) portion of the dissolved solids consists primarily of additives and cleaning products used in processing, plus the background level of inorganic dissolved solids in the source water. The organic portion of the dissolved solids primarily consists of dissolved carbohydrates and proteins from the food products. Provided that the soil has sufficient assimilative capacity and the application is

conducted at reasonable loading rates, the organic portion of the TDS should generally be consumed within the soil profile and represents less of a threat to groundwater degradation. Elevated levels of sodium in the process wastewater in relation to calcium and magnesium could exacerbate the existing alkali soil conditions at the irrigation area. There is evidence that the shallow groundwater at the irrigation area has existing elevated concentrations of TDS, which may be a result of natural background conditions and historical uses of the irrigation area and surrounding properties for agriculture and wastewater disposal. Source control measures to reduce the salinity of the process wastewater and alkali soil reclamation efforts will be applied to mitigate potential adverse affects to soil and groundwater from the discharge under this Order. The compliance schedule within this Order outlines the requirements for a technical report for further study of the salinity impacts from this discharge on groundwater. In addition, controllable sources upgradient of the irrigation area may be required to reduce the discharge of salinity to groundwater under separate Regional Board action.

26. Immediately west of the irrigation area, the City operates a municipal wastewater treatment plant (WWTP), consisting of oxidation ditch treatment facilities and several hundred acres of unlined sludge storage ponds. The irrigation area is also bounded on the western side by a Reclamation District canal supplying surface water for irrigation of surrounding farmland. The irrigation area is bounded to the north, south and east by agricultural farming practices currently conducted by Conway Ranch. These wastewater treatment and ranching operations are considered to be outside factors influencing local groundwater characteristics, including contributing to the degradation of localized groundwater quality. Such outside influences complicate efforts to assess the potential and/or actual impacts to groundwater quality from the irrigation area alone.

GROUNDWATER

27. Depths to groundwater in monitoring wells around the irrigation area are generally shallow at 5 to 7 feet bgs, with historical water levels often occurring within a few feet of the ground surface. Shallow groundwater levels in individual wells are likely influenced by adjacent drainage ditches, ponds and other hydraulic features. Groundwater levels are typically highest in late winter and early spring.

28. Groundwater flow in and around the irrigation area generally trends easterly to northeasterly with a gradient of about 0.001 feet per foot. Average groundwater velocity was estimated at 0.0004 feet per year (fpy) for the shallow clay and 3.7 fpy for the gravelly sand.

29. Shallow groundwater quality is generally elevated in salts, nitrates and boron to the east of Woodland. In geologic times, portions of this area held evaporating floodwaters from Cache Creek and the Sacramento River, which tended to concentrate salts in shallow groundwater. More recently, deep percolate from agricultural irrigation has impacted shallow groundwater,

resulting in elevated salts and nitrates compared to deeper groundwater zones and surface waters.

30. Groundwater monitoring to date has shown elevated concentrations of electrical conductivity (EC), Chemical Oxygen Demand (COD) and salinity in the wells and piezometers in the irrigation area. Groundwater in the western-most monitoring wells (upgradient) is highly variable with an EC ranging between about 600 to 6,000 µmhos/cm. Three piezometers at the southern end of Field H have exhibited very high concentrations of EC, ranging as high as 40,000 µmhos/cm. High levels of salinity (particularly sodium) in the general area of Fields G and H are believed to reflect, in part, natural conditions and groundwater quality impacted by previous operations in which wastewater from lye peeling, cleanup, condensate and cooling tower blowdown were discharged to shallow ponds in this area as early as 1968. Groundwater along the eastern-northeastern side (downgradient) of the irrigation area generally has an EC concentration of about 3,000 to 5,000 µmhos/cm. Monitoring wells installed to the east-southeast of this "EC" hot-spot" generally have concentrations between 2,000 to 4,000 µmhos/cm.

31. Nitrate levels in wells have varied over the years, with a few wells exceeding the 10 mg/L maximum contaminant level (MCL) drinking water limit on occasion. Liquid fertilizer application on adjacent fields is likely a significant contributor such elevated nitrate concentrations.

32. Reclamation District 2035 monitors groundwater levels in wells, constructed in 1991, north and south of the irrigation area.

33. The City monitors and regularly reports groundwater depth and quality to the Regional Board on monitoring wells surrounding its municipal WWTP. EC of samples from monitoring wells at the City's WWTP have ranged from 1800 to 2700 µmhos/cm. The City has also completed a groundwater investigation on the City landfill located just south of the WWTP and has provided additional regional groundwater quality and level information.

34. A Brown and Caldwell report cites thirteen additional water supply wells located within one-half mile of the site for agricultural, monitoring, municipal and industrial purposes. With the exception of two upgradient water supply wells, area wells draw water from deep aquifers not related to the shallow aquifer monitored at the site.

SITE SPECIFIC CONDITIONS

35. The climate in the area is Mediterranean semi-arid. Precipitation occurs mostly in late autumn, winter and early spring. The growing season is approximately 230 to 280 days long. Prevailing wind is from the south-southwest at an average wind speed of 5.1 miles per hour (mph). According to the Department of Water Resources, extreme annual short duration

rainfall for a 24-hour period is 13 inches in the vicinity of Woodland. Historical precipitation and evapotranspiration statistics are provided in the Information Sheet.

36. The factory, irrigation area and surrounding lands are relatively flat. The most recent FEMA map identifies the irrigation area in the 100-year flood plain.

37. Primary soils at the irrigation area consist of clay, with significant areas classified as saline-alkali affected. Comprised primarily of Pleistocene and Holocene era unconsolidated sediments, the area is considered to be in the "flood basin deposits" geomorphic unit for Yolo County. The predominant soils are the Willow clay and Pescadero silty clay, saline-alkali, with permeability ratings of 0.2-0.63 in/hr and 0.06-0.2 in/hr, respectively.

38. Logs for monitoring wells and piezometers at the Discharger's site indicate that subsurface soils consist of clay from the ground surface to 7-10 feet below ground surface (bgs); fine soil with clay from 7 feet bgs to 15 feet bgs; and gravelly sand from 15 to 30 feet bgs. Alternating clay and sand and gravel layers exist to approximately 180 feet bgs. Deeper sand and gravel aquifers exhibit semi-confined characteristics.

39. The native TDS concentration in groundwater from major producing wells in the area (typically screened deeper than 200 feet) is greater than 500 mg/L. According to the USGS, the general groundwater type is magnesium-calcium bicarbonate to the south and west of the factory, and magnesium-sodium bicarbonate to the north and east of the factory. Groundwater in the area near Cache Creek naturally contains relatively high levels of boron (up to 4 mg/L) because of long-term recharge from the creek.

ANTI-DEGRADATION

40. The Regional Board has considered anti degradation pursuant to State Water Resources Control Board Resolution No. 68-16 (hereafter Resolution 68-16 or the Antidegradation Policy) and finds that degradation of groundwater by this discharge is not consistent with maximum benefit to the people of the State. Under ideal conditions, the assimilative capacity of the underlying soil and proper irrigation management practices should prevent degradation of groundwater from infiltration of incidental waste constituents. However, past operations have likely impacted groundwater and nearby controllable sources (City WWTF, adjacent agriculture, etc.) continue to present a threat. The Regional Board may take additional actions to require nearby controllable sources to address their impacts. Such offsite controllable sources make it difficult to identify natural background and isolate the potential impacts from the discharge. The Discharger may be required by the Executive Officer to further reduce effluent concentrations beyond the limits established in this Order in concert with other activities undertaken by adjacent offsite controllable sources to reduce impacts and improve groundwater quality. This Order requires the operation of Fields A-H as a Land Treatment Unit (LTU), as defined in Finding No. 54, and additional studies to demonstrate and ensure the protection of water

quality from the discharge. The Discharger will incorporate source control measures and engineering controls as required to protect water quality. This Order requires the implementation of an enhanced monitoring program with an annual groundwater assessment technical report to be submitted to the Regional Board.

41. Excessive application of food processing 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 pollutants (organic carbon, nitrate, salts, and metals) to percolate below the root zone. This Order contains effluent limitations for TDS, which are subject to revision by the Executive Officer or action by the Regional Board. If sufficient information becomes available, this Order may be revised to increase or further reduce loading rates as appropriate. If the Discharger is unable to modify its waste stream or disposal methods such that groundwater quality will not be impacted, then the Regional Board would be required to classify the waste as a designated waste and demand full containment under *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, California Code of Regulations, §§20005 et seq., (hereinafter Title 27).

42. State regulations pertaining to water quality monitoring for waste management units are found in Title 27, Section 20380. These regulations prescribe procedures for detecting and characterizing the impact of waste constituents on groundwater quality.

SACRAMENTO AND SAN JOAQUIN RIVER BASIN PLAN

43. The Regional Board adopted a Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins (hereafter Basin Plan), which designates beneficial uses, establishes narrative and numerical water quality objectives, and contains implementation plans and policies for protecting all waters of the Basin. The Basin Plan includes plans and policies of the State Water Resources Control Board incorporated by reference, including the Antidegradation Policy, Resolution 68-16. Pursuant to the California Water Code (CWC), §13263(a), waste discharge requirements must implement the Basin Plan.

44. The beneficial uses of ground waters are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

45. Surface water drainage is to Tule Canal, tributary to the Yolo Bypass.

46. The beneficial uses of the Yolo Bypass surface water body, according to the Basin Plan, are agricultural irrigation and stock watering; contact and other non-contact recreation, canoeing and rafting, warm and cold freshwater habitat, warm and cold migration, warm spawning, and wildlife habitat.

47. Basin Plan water quality objectives to protect the above beneficial uses include numeric objectives and narrative objectives for chemical constituents in groundwater, as well as toxicity and tastes and odors of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use, including any exceedance of MCLs specified in Title 22, CCR, as necessary for domestic supply. The Basin Plan requires application of the most stringent objective for each constituent as necessary to ensure that waters do not contain a chemical constituent, toxic substance, radionuclide, pesticide, or taste- or odor-producing substance in a concentration that adversely affects a domestic drinking water or agricultural supply, or any other of the above-identified beneficial uses.

48. The Basin Plan establishes water quality objectives considering numerous factors. Achievement of the objectives depends on applying them to controllable water quality factors, or factors resulting from human activities that may influence the quality of the waters of the State. Objectives do not require improvement over naturally occurring background concentrations. Controllable factors were not allowed to cause further degradation of water quality in instances where uncontrollable factors have already resulted in water quality objectives being exceeded.

49. The Basin Plan procedure for applying water quality objectives as terms of discharge in waste discharge requirements requires maintenance of the existing quality of groundwater except where the Regional Board determines an adverse change is consistent with Resolution 68-16. Resolution 68-16 requires the Regional Board to regulate waste discharges in a manner that maintains high quality waters of the State. Any change in quality can only occur after full application of best practicable treatment and control (BPTC) of the waste and must be consistent with maximum benefit to the people of the State, not unreasonably affect a beneficial use, and not result in water that exceeds a water quality objective.

LAND TREATMENT

50. The Discharger does not employ the minimum technology-based treatment specified in the Basin Plan, but uses alternative methods that rely on effective land treatment.

51. Successful treatment and control by applying waste constituents to land is an inexact science highly dependent upon the constituent, soils, climate, other practices that affect the property, and sound waste management and control. The process depends upon attenuation (decomposition, immobilization, and transformation) in the soil profile and consumption from the root zone by crops to remove waste constituents. Excessive application rates for waste constituents can result in anaerobic waste or soil conditions that can create nuisance odor and vector conditions. Excessive application rates can also overload the shallow soil profile and

root zone to impair crops, crop waste constituent consumption, and the waste attenuation process itself, and lead to leaching of waste constituents out of the treatment zone. Excessive application can also result in dissolution of soil minerals such as calcium and magnesium. Excessive hydraulic applications, even if from use of supplemental fresh water, can flush waste constituents, decomposition by-products, and dissolved minerals out of the treatment zone. Absent sufficient sustained reliable attenuation of residual waste constituents in the remaining soil profile, the constituents will eventually discharge into groundwater. Temporal storage of residual waste constituents within the soil column can misrepresent the effectiveness of the process.

TREATMENT AND CONTROL REQUIREMENTS

52. The Discharger has not made the required BPTC and Title 27 demonstration for any waste constituent. The LTU has been in operation for years and can be assumed to have been operating under steady-state conditions. Data and information regarding past operation contain instances of nuisance and evidence of groundwater degradation. Further, certain waste constituents discharged to the LTU, such as inorganic dissolved solids, are conservative and will not be degraded, transformed, or immobilized in the treatment zone. Evidence of groundwater degradation includes several inorganic constituents. Given the nature of the waste constituents, the Regional Board is unable now and unlikely in the future to determine the discharge complies with Title 27 standards for a LTU. However, if significant changes to treatment and control are made and sufficient documentation provided, the Regional Board may be able to assure protection of high quality groundwater and exempt the discharge from Title 27 requirements for full containment of the waste. Pursuant to §20090(b), exemption requires that:

a. The Regional Board issue waste discharge requirements,

b. The waste discharge requirements implement the Basin Plan and allow discharge only in accordance with the Basin Plan,

c. The wastewater be nonhazardous waste and without need to be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

53. While the Regional Board can find now that conditions 52.a and 52.c are met, technical documentation is insufficient at this juncture to identify final and specific conditions of discharge that assure consistency with 52.b. Determinations of BPTC for each waste constituent, at least comparable to the minimum performance standard set forth by the Basin Plan (and Resolution 68-16) and Title 27, are necessary first. A reasonable schedule of tasks to generate all necessary documentation for a final Regional Board determination on this matter is essential, and the benefit to be derived from such documentation more than justifies the burden of preparation. In the interim, and because of the schedule of tasks, the Regional Board

conditionally finds this Order consistent with Resolution 68-16 and the Basin Plan, and therefore 52.b, and temporarily exempts the discharge from Title 27.The discharge is nonhazardous, but exhibits characteristics of "designated waste," as defined by CWC, §13173(b), as the concentrations of some waste constituents when applied to land have potential for causing exceedances of water quality objectives or affecting beneficial uses. The discharge contains decomposable waste constituents (e.g., organic carbon and nutrient compounds) and inorganic dissolved solids in concentrations orders of magnitude greater than water quality objectives. The discharge is appropriately categorized as designated waste because of these constituents and are subject to the full containment provisions of Title 27. The waste need not be contained if the waste constituents of concern can be demonstrated to be effectively removed by controlled land treatment or, if not removed, subjected to BPTC and reduced sufficiently thereby to satisfy criteria of Resolution 68-16. Regardless, given the applicability of Title 27, some of its definitions and terms are used herein.

54. Regulations for the land treatment of designated waste are contained in Title 27. Title 27, §20210, allows designated waste constituents that are decomposable to be discharged to a Class I or Class II Land Treatment Unit (LTU). Title 27, §20164, defines LTU as a, "waste management unit (Unit) at which liquid and solid waste is discharged to, or incorporated into, soil for degradation, transformation, or immobilization within the treatment zone." It defines treatment zone as, "a soil area of the unsaturated zone of a land treatment unit within which constituents of concern are degraded, transformed, or immobilized." The Discharger's method of waste constituent treatment and control, specifically the discharge to the irrigation area, is an LTU subject to the performance standards of Title 27. Hereafter, the irrigation area will also be referred to as the LTU.

55. Performance standards of Title 27 applicable to this LTU require that:

a. The Discharger demonstrate prior to discharge that the LTU can completely degrade, transform, or immobilize designated waste constituents in the treatment zone (§20250(b));

b. The Discharger establish prior to discharge the appropriate design depth of the treatment zone for each designated waste constituent, not to exceed five feet below the initial ground surface (§20250(b));

c. The Discharger establish prior to discharge to the LTU a site-specific Water Quality Protection Standard (§20390) for each designated waste constituent (under §20395), the concentration limits (under §20405), and the Point of Compliance and all Monitoring Points (under §20405).

d. The Regional Board prescribe specific standards by which to monitor water quality (§20420), including a detection monitoring program (§20420), an evaluation monitoring program (§20425), and an unsaturated zone monitoring program for the LTU (§20435).

56. Regional Board acceptance of a discharger's treatment and control method for a waste constituent as BPTC requires a discharger to demonstrate first that it has comprehensively evaluated and compared, then chosen and implemented, the most effective technology and control methods to sustain the highest possible water quality. The demonstration must consider existing proven technologies, performance data from treatability studies, and methods currently and successfully used by similarly situated dischargers. Basin Plan technology-based and Title 27 performance standards must be considered in this process.

a. For decomposable constituents, technology has been employed by industrial dischargers to remove or substantially reduce these constituents prior to land discharge for the past several decades and establishes the minimum specified by the Basin Plan. For example, the 1973 publication *Waste Disposal Control in the Fruit and Vegetable Industry* by H. R. Jones (Noyes Data Corporation) summarizes design and operation parameters for solids separation (e.g., screening, dissolved air flotation) and biological treatment (e.g., anaerobic digestion, activated sludge, trickling filtration). It indicates that high strength wastes are more efficiently treated in anaerobic lagoons that can handle up to 500 lbs/acre/day, and that nutrient additives, mostly nitrogen and phosphorus, improve efficiency.

b. Inorganic dissolved solids can be effectively controlled by means of source control and treatment. Source control includes best management practices of selective and judicious chemical use and waste stream isolation where possible (in particular clean-in-place wastewater, ion exchange rinsate, and boiler blowdown). Treatment and containment technology includes reverse osmosis and ion exchange, and Title 27 standards.

57. As stated in CWC, §13263(g), discharge is a privilege, not a right, and this conditional authorization to discharge while obtaining technical documentation for a future decision does not in any way create a vested right to continue the discharge. Failure to provide the level of management required preclude conditions that threaten pollution or nuisance will be sufficient reason to modify, revoke, or enforce this Order, as well as prohibit further discharge.

58. The Discharger must complete a comprehensive evaluation of the irrigation area/LTU. The evaluation must identify which waste constituents in the discharge will be consistently and completely degraded, transformed, or immobilized in a treatment zone of less than five feet from the initial soil surface (ground surface) per Title 27, §20250(b)(5) and identify the practices and controls, and any necessary pretreatment, to assure this. It must also evaluate which waste constituents will be consistently removed by crop uptake, and the practices and controls and any necessary pretreatment that assure this occurs within the root depth of crops grown on the LTU. If removal, containment, or uptake of a waste constituent cannot be guaranteed by the Discharger to occur within the treatment and root zones, the Discharger must complete a BPTC evaluation for the waste constituent, and identify the concentration and mass of the constituent that will be released to groundwater and its consequent impact on

concentrations of the constituent in groundwater. If the Discharger wishes the Regional Board to consider authorizing continued discharge with the characterized impact, it shall also submit all available documentation as to why the Regional Board should find the degradation of maximum public benefit.

59. This Order requires optimal performance of an LTU and specifies minimum conditions of LTU performance to ensure the discharge does not degrade groundwater quality. Discretionary decisions of the Discharger regarding budget, personnel, equipment, energy, and day-to-day activities can adversely affect these. Technical and monitoring reports on operation, maintenance, and performance relate directly to the Regional Board's need to know in a timely manner whether the Discharger is effectively operating and maintaining the LTU. Soil, soil-pore liquid, and groundwater monitoring is necessary to measure whether effective operation, and reliance on constituent treatment in the soil profile, mitigates the impact on groundwater quality as described in environmental documents, and complies with discharge specifications and groundwater limitations. This necessitates a comparison of constituent concentrations in samples from a network of wells, LTU and background soils, and from an unsaturated zone monitoring system. The burden, including costs, of regularly obtaining information about its potential impacts on water quality and submitting the required reports is reasonable given the costs of remediation in event of failure.

60. The conditions of discharge in this Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final effluent and groundwater limitations, so the proposed Order sets limitations for the interim while site-specific, constituent-specific limits are developed in conjunction with a BPTC evaluation, including source control and pretreatment. Additional information must be developed and documented by the Discharger as required by schedules set forth in the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

61. 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 attached Monitoring and Reporting Program No. R5-2002-0122 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

62. 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 the level of management required to assure best practicable treatment and control, preclude conditions that threaten pollution or nuisance, and protect groundwater quality will be sufficient reason to enforce this Order, modify it, or revoke it and prohibit further discharge. This Order prescribes limits for BOD loading, nutrient loading, water application rates, and pH, but it remains the responsibility of the Discharger to assure that its waste loading practices do not degrade groundwater or create a condition of pollution or nuisance. Acceptable loading rates established in this Order are subject to change if conditions are such that the discharge of wastewater causes, or threatens to cause, pollution or nuisance.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

63. The action to update waste discharge requirements for this facility is exempt from the provisions of the California Environmental Quality Act (CEQA), (Public Resources Code Section 21000, et seq.) in accordance with Section 15301, Title 14, California Code of Regulations (CCR). The project consists of the replacement/reconstruction of existing facilities for substantially the same purpose and capacity as provided for in the January 1980 Draft Environmental Impact Report and August 1982 Final Supplemental Project Report, which described the discharge of up to 5.1 mgd of process wastewater to 570 acres of the irrigation area.

PUBLIC NOTICE

64. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

65. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. 90-077 is rescinded and Pacific Coast Producers and the City of Woodland, their 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: 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.]

A. Discharge Prohibitions:

1. Land application of wastewater or solid/semi-solid wastes to areas other than those described in Finding Nos. 16 and 40.

2. Land application of wastewater or solid/semi-solid wastes to any subarea or irrigation check not having a fully functional tailwater/runoff control system.

3. The direct or indirect discharge of wastes (which includes process wastewater) to surface waters or surface water drainage courses is prohibited.

4. The discharge of process wastewater, storm water which has commingled with process wastewater, or irrigation tailwater beyond the boundaries of the properties designated for wastewater application is prohibited.

5. Discharge of wastes to storm water retention facilities not otherwise permitted for waste discharge is prohibited.

6. By-pass or overflow of unscreened waste or overflow of untreated or partially treated wastes is prohibited.

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

8. Commingling of process wastewater and domestic wastewater is prohibited.

9. Discharge of domestic wastewater to the irrigation area is prohibited.

10. Discharge of wastes other than that described in Finding No. 5 is prohibited.

11. Discharge of wastes in amounts that exceed the assimilative capacity of the LTU including agronomic uptake of crops is prohibited.

12. Discharge of wastes to the existing lagoons identified in Finding No. 17 is prohibited unless under emergency conditions under a spill containment plan approved by the Executive Officer.

B. Discharge Specifications:

1. The treatment and discharge shall be conducted in a manner that prevents the generation of conditions of pollution or nuisance as defined by Section 13050 of the California Water Code. More specifically,

   a. Objectionable odors originating at the irrigation area shall not be perceivable beyond the limits of the Discharger's property boundaries at an intensity that threatens to create nuisance conditions.

   b. The dissolved oxygen content of process wastewater in the upper zone (1 foot) in the tailwater storage ponds, shall not be less than 1.0 mg/l.

   c. Application or impoundment of process wastewater shall not occur within 50 feet of any domestic well, 50 feet of any drainage courses, or 150 feet of any residential property boundary or occupied commercial building, unless it is demonstrated to the satisfaction of the Executive Officer that a shorter distance is justified.

   d. The perimeter of the irrigation area shall be graded to prevent ponding of applied process wastewater along public roads or other public areas.

   e. Process wastewater applied to the irrigation area shall be managed to minimize erosion and runoff.

   f. Hydraulic rates and practices shall ensure that all applied process wastewater is distributed uniformly on adequate acreage and has infiltrated or evaporated within 24 hours of ceasing the discharge to a particular irrigation check or group of checks.

   g. Low-pressure and unpressurized pipelines accessible to mosquitoes shall not be used to store wastewater.

2. The monthly average discharge of process wastewater, or any fraction thereof, to the irrigation area shall not exceed 4.0 mgd. The daily maximum discharge of process wastewater to the irrigation area shall not exceed 5.0 mgd. During the months of November through March, the peak daily discharge to the irrigation area shall not exceed 0.75 mgd.

3. The discharge shall be conducted in a manner that does not degrade groundwater, including the following:

a. No waste constituent shall be released or discharged, or placed where it can be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.

b. A minimum separation distance of 5 feet shall be maintained between the surface elevation of the irrigation area and the highest anticipated elevation of underlying groundwater, including the capillary fringe.

c. The maximum organic loading to the irrigation area shall not exceed what environmental conditions at the time of application, as identified in the technical report on the irrigations area's waste assimilative capacity submitted pursuant to Provision No. E.8.

d. Discharge to the irrigation area shall be at reasonable agronomic rates that consider the character of the wastewater, crop, soil, climate, other nutrient sources and irrigation management system. The nutritive loading of the irrigation area, including any applied supplemental nutritive amendments, shall not exceed the crop demand, as identified in the technical report on the irrigation area's assimilative capacity submitted pursuant to Provision No. E.8. Degradable organic (BOD) and salt mass loading rates shall preclude creation of a nuisance condition or degradation of groundwater.

e. Hydraulic loading of wastewater shall be at rates designed to minimize percolation below the evaporative/root zone.

f. Discharge to the irrigation area shall be conducted in a manner that reflects the implementation of best available technology and best management practices to control inorganic dissolved solids to the maximum extent feasible.

g. Until Provision No. E.5 is satisfied, the Discharger shall assess and implement appropriate source control measures sufficient to ensure that the monthly average TDS concentration of the process wastewater discharged to the irrigation area shall not exceed 2700 mg/L prior to blending with supplemental irrigation water.

h. Until Provision No. E.6 is satisfied, the discharge from the LTU as measured by the vadose zone soil-pore liquid analysis shall not have a pH less than 6 or greater than 8.5 pH units.

i. The discharge shall not cause the buffering capacity of soils within the irrigation area to be exceeded.

4. The maximum BOD_5 loading to the irrigation area shall not exceed the following:

a. 300 lbs/acre on any single day;

b. 100 lbs/acre/day as a 7-day (weekly) average; or

c. The maximum loading rate that ensures that the discharge will not create a condition of pollution or nuisance.

5. The maximum total nitrogen loading to the LTU 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. PAN shall be calculated as 100% of the total nitrogen content of the waste, unless and until the Discharger demonstrates to the approval of Regional Board staff that another proportion is technically justified.

6. The discharge shall be conducted in a manner that ensures consistent compliance with this Order. More specifically,

   a. The Discharger shall install an unsaturated zone monitoring system that includes soil monitoring using soil cores and soil-pore liquid monitoring using appropriate devices such as lysimeters capable of acquiring soil-pore liquid samples. The unsaturated zone monitoring system shall consist of a sufficient number of sampling points at appropriate locations and depths to yield samples, including those immediately below the depth of the treatment zone (i.e., five feet below ground surface), that represent the quality of soil-pore liquid and the chemical makeup of soil under the following:

      i. background conditions (i.e., soil that has not been affected by the discharge of waste);

      ii. conditions reflecting the irrigation area prior to Order adoption (i.e., soil that had been part of the Discharger's existing irrigation area but to which the Discharger no longer applies waste); and

      iii. conditions representative of the active irrigation area.

   b. The Discharger shall comply with the detection monitoring provisions in this Order for the unsaturated zone and groundwater and in accordance with the Monitoring and Reporting Program (MRP).

   c. The Discharger shall submit a proposed Water Quality Protection Standard as defined by and in accordance with Provision E.10 of this Order. The Water Quality Protection Standard shall consist of constituents of concern, their concentration limits, the point of compliance, and all water quality monitoring points. Concentration limits shall consist of the background concentrations of each constituent of concern or concentrations greater than background, as determined by the procedure described in the technical report submitted pursuant to Provision E.10, task a.

   d. The Discharger shall comply with Water Quality Protection Standards as specified in the technical report submitted pursuant to Provision E.10, task f.

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

8. The Discharger shall design, construct, operate, and maintain the irrigation area/LTU to maximize the degradation, transformation, and immobilization of waste constituents in the treatment zone.

9. The irrigation area shall be irrigated with the process wastewater via a closed system designed and operated to contain all tailwater and storm water runoff within the boundaries of the irrigation area. The discharge shall be distributed uniformly across each discrete irrigation check to the maximum extent possible. Check runs shall be graded to minimize ponding and be no longer, and slopes shall be no greater, than which permits uniform infiltration and maximum practical irrigation efficiency.

10. The Discharger shall operate the LTU in accordance with an approved Ranch/Cropping Plan and appropriate modifications thereof.

11. No physical connection shall exist between wastewater piping and any domestic water supply well, domestic wastewater pipelines or any irrigation well.

12. The irrigation area shall be managed to prevent breeding of mosquitoes.

13. The LTU, tailwater control ditches and pond shall be managed to prevent breeding of mosquitoes. In particular,

    a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

    b. Ponds and tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation.

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

    d. Low pressure and unpressurized pipelines accessible to mosquitoes shall not be used to store wastewater.

14. The tailwater pond shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the non-irrigation season. 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. Design shall be constructed, operated, and maintained to prevent inundation of washout due to floods with a 100-year return frequency. The vertical distance between the surface of wastewater in ponds and the lowest point of

overflow from the ponds (freeboard) shall at all times be greater than or equal to two feet.

C. Solids Disposal Requirements:

1. Solids and sludges shall be removed from screens, sumps, ponds, etc. as needed to ensure optimal operation of the pretreatment units

2. Collected screening, sludge and other solids removed from liquid wastes shall be appropriately recycled or otherwise disposed of in a manner approved by the Executive Officer, and consistent with the *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.

3. Treatment and storage of solids and sludges shall be confined to the Discharger's property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations.

4. Any storage of solids and sludges on the Discharger's property shall be temporary and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils.

5. Use of solids and sludges as a soil amendment on the irrigation area shall comply with a solids disposal plan approved of by the Executive Officer.

6. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer.

D. Groundwater Limitations:

Release of waste constituents from any processing, collection, treatment, storage or disposal component associated with the factory, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than ambient background water quality.

E. Provisions:

1. The Discharger shall comply with the MRP No. R5-2002-0122, which is incorporated into and made part of this Order, and any revisions thereto as ordered by the Executive Officer. This compliance includes, but is not limited to, maintenance of vadose zone and groundwater monitoring systems, and reporting of organic and nutritive loading in accordance with the procedures detailed in the MRP.

2. The Discharger shall comply with all applicable portions of 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)*.

3. A violation of any of the applicable portions of the *Standard Provisions* or the MRP is a violation of these waste discharge requirements.

4. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, §§6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, §§415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

5. Should the Discharger desire relief from the TDS limit prescribed by Discharge Specification B.3.g, it shall provide an engineering characterization of the organic and inorganic nature of wastewater that it discharges to the irrigation area. The characterization must include, at a minimum, (a) a demonstration that the Discharger controls inorganic dissolved solids to the maximum extent feasible, and (b) that such relief will not cause degradation of groundwater underlying the site. The technical report submitted pursuant to this Provision shall be prepared in accordance with Provision E.4. Following written acceptance of the report from the Executive Officer, this Provision will be considered satisfied.

6. The Discharger shall submit a technical report to demonstrate whether it complies with Discharge Specification B.3.i, in any request to relax this Order's discharge pH limitation (Discharge Specification B.3.h.). The report shall summarize and interpret soils, wastewater, and vadose zone monitoring data, and demonstrate that the effect of the discharge on soil pH has not exceeded and will not exceed the buffering capacity of the soil profile. The technical report submitted pursuant to this Provision shall be prepared in accordance with Provision E.4. Following written acceptance of the report from the Executive Officer, this Provision will be considered satisfied.

   By **1 February of each year following the satisfaction of this Provision**, the Discharger shall provide an annual soil monitoring report that includes an appropriate analysis based on discharge constituents, soil pH and buffer pH (e.g. lime requirement) capacities within the irrigation area. The report shall demonstrate that the (1) the resulting effect of the discharge of soil pH will not exceed the buffering capacity of the

of the soil profile, and (2) it does not cause or contribute to cause soluble metals (e.g. iron and manganese) to leach into and degrade groundwater. All soil monitoring reports submitted pursuant to this Provision shall be prepared in accordance with Provision E.4.

7. Pursuant to Section 13267 of the California Water Code, **by 90 days following adoption of this Order**, the Discharger shall submit a technical report describing a solids waste management plan. The technical report shall be prepared in accordance with Provision E.4, and is subject to Executive Officer written approval.

8. Pursuant to Section 13267 of the California Water Code, **by 1 January 2003**, the Discharger shall submit a technical report describing the waste assimilative capacity of the irrigation area/LTU. The technical report shall be prepared in accordance with Provision E.4, and is subject to Executive Officer written approval.

9. Pursuant to Section 13267 of the California Water Code, by **1 July 2002** and **1 November of each year thereafter**, a Ranch/Cropping Plan shall be submitted to the Regional Board prepared by an agronomist and shall identify the crops to be grown, present nitrogen removal calculations, and crop cutting/harvesting procedures. The report shall evaluate the effect of applying wastewater to the irrigation area. The report shall evaluate the Discharger's application rate and shall include a description of the irrigation schedule, potential vegetation/crop problems, water usage of recommended crops, evapotranspiration rates, infiltration rates, planting/harvesting schedules and the long term impact to soil and quality of the wastewater application. The report shall also address the loading rates of TDS, sodium chloride, BOD and nitrogen to the land application area. Salt accumulation in soil and potential groundwater impacts must be addressed. The plan shall be updated and address the previous processing season.

10. The Discharger shall submit a technical report describing the installation of a vadose zone monitoring program in accord with Discharge Specification B.6.a. The Discharger shall comply with the following compliance schedule in implementing work required by this Provision:

	Task	Compliance Date
a.	Submit technical report: vadose zone monitoring program work plan	**180 days** following Order adoption
b.	Implement vadose zone monitoring work plan	**60 days** following completion of task a
c.	Complete vadose zone monitoring system installation and commence monitoring of soil and of soil-pore liquid	**60 days** following completion of task b

Task	Compliance Date
d. Submit technical report: vadose zone monitoring system installation report of results	**30 days** following completion of task d
e. Report on sampling procedures as described in the MRP	**1st day of the second month** following the first sampling event
f. Submit technical report: Water Quality Protection Standards	**365 days** following completion of task e

Technical reports submitted pursuant to this Provision shall be prepared in accordance with Provision E.4 and are subject to Executive Officer approval.

11. Compliance with Discharge Specification B.6.d and, by extension, Discharge Specification 3.a and this Order's groundwater limitations will be evaluated, in part, on data collected from the approved vadose zone monitoring system. Should the Discharger fail to comply with the schedule to characterize Water Quality Protection Standards by the date specified in Provision E.10, task f, the Regional Board shall not consider the lack of Water Quality Protection Standards as sufficient defense to enforcement for violations of Discharge Specification 3.a or this Order's groundwater limitations.

12. The Discharger shall submit a technical report describing a proposed modified groundwater monitoring well network. The network shall include one or more background monitoring wells and sufficient number of designated monitoring wells to evaluate compliance with this Order's groundwater limitations. These include monitoring wells immediately downgradient of the irrigation area. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC, §13801. The existing well network will be evaluated as part of this effort, and the proposed network should include existing monitoring wells where they will serve to measure compliance or provide other relevant information (e.g., depth to groundwater) and recommend their destruction if they will no longer serve a useful purpose. The Discharger shall install approved monitoring wells, properly destroy ineffective wells, and commence groundwater monitoring in accordance with the MRP. After the first sampling event, the Discharger shall report on its sampling protocol as specified in this Order's MRP. After one year of monitoring, the Discharger shall characterize natural background quality upgradient of the City of Woodland's wastewater treatment plant for monitored constituents in a technical report. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

Task	Compliance Date
a. Submit technical report: groundwater monitoring program work plan	**180 days** following Order adoption
b. Implement groundwater monitoring work plan	**60 days** following completion of task b
c. Complete groundwater monitoring network, destroy abandoned wells (as necessary), and commence groundwater monitoring	**60 days** following completion of task c
d. Submit technical report: groundwater monitoring network installation report of results	**30 days** following completion of task d
e. Report on sampling procedures as described in the MRP	**1st day of the second month** following the first sampling event
f. Submit technical report: natural background quality	**365 days** following completion of task e

Technical reports submitted pursuant to this Provision shall be prepared in accordance with Provision E.4 and are subject to Executive Officer approval.

13. Compliance with this Order's groundwater limitation will be evaluated, in part, on data collected from approved groundwater monitoring wells following completion of Provision E.12, task f. Should the Discharger fail to comply with the schedule to characterize natural background groundwater quality at approved monitoring zones by the date specified in Provision E.12, task f, the Regional Board shall not consider the lack of natural background characterization as sufficient defense to enforcement for violations of this Order's groundwater limitation.

14. **Within 90 days following receipt of written notification by the Regional Board that the Discharger is in violation of this Order's groundwater limitations,** the Discharger shall submit an amended report of waste discharge to make any appropriate changes to the character of the discharge and/or the design and operation of the irrigation area as necessary to comply with this Order.

15. Pursuant to Section 13267 of the California Water Code, by **1 February of each year** the Discharger shall submit a thorough Groundwater Assessment Report. This report must be prepared pursuant to Provision E.4 by a registered professional with experience in groundwater quality monitoring and assessment. The technical report shall include the following:

- ξ A narrative discussion of the existing groundwater monitoring well network, disposal site hydrogeology, including subsurface stratigraphy, soil infiltration characteristics, depth to groundwater, groundwater gradient, and seasonal gradient variations over the previous monitoring year.
- ξ Groundwater elevation contour maps for each of the preceding four quarters of monitoring.
- ξ Historical summary data tables for all monitored constituents.
- ξ Concentration vs. time graphs for electrical conductivity, total dissolved solids and nitrate nitrogen. Each graph shall represent the results for a single constituent, and multiple wells may be plotted on a single graph.
- ξ Definition of site-specific background concentration for each of the constituents as listed in the MRP.
- ξ A narrative analysis of spatial and temporal trends for each of the constituents listed above with respect to established background concentrations.
- ξ An evaluation of monitoring data from background and compliance monitoring wells in an appropriate data analysis method as described in Title 27, Section 20415(e)(7-9). If any water quality protection standard have been exceeded, a specific plan for source control and a corrective action program and time schedule to assure compliance with the Discharge Specifications and Groundwater Limitations of this Order shall be submitted to the Regional Board in this Groundwater Assessment Report.

16. By **1 August 2002**, the Discharger shall submit a Sample Collection and Analysis Plan that will be followed for groundwater monitoring. At a minimum, the Sample Collection and Analysis Plan shall include: water level elevation measurement techniques, sample collection details (purging techniques, sampling equipment to be used, and decontamination of sampling equipment), sample preservation and shipment, analytical procedures, chain of custody control, and quality assurance/quality control standards. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

17. **By 3 February 2003**, the Discharger shall submit a Wastewater Treatment and Disposal Operations Evaluation technical report that presents a complete engineering assessment of the efficiency of the existing pretreatment/land treatment system. At a minimum, the report shall provide a thorough technical evaluation of the need for the following:

    - ξ Additional pretreatment to reduce the mass loading of BOD to the irrigation area;

- ξ Source control and/or treatment to reduce the salt loading of the discharge to the irrigation area;
- ξ Measures to ensure hydraulic loading of the irrigation area does not exceed the rates required to minimize infiltration below the evaporative/root zone (e.g., operational modifications, additional acreage, and/or water conservation measures);
- ξ Modifications to current cropping practices to improve nitrogen removal by crops;
- ξ Modifications to current irrigation practices to improve distribution of degradable organic compounds evenly over the land surface; and
- ξ Other operational modifications to reduce the potential for nuisance odors at the property boundary.

The report shall present a complete description of measures that the Discharger has selected for implementation to ensure compliance with this Order. The report shall include an implementation schedule for any improvements and/or system rehabilitation necessary to fully comply with this Order during each discharge season.

18. The Discharger shall maintain a copy of a current Operation and Maintenance Plan (O&M Plan) shall be kept at the facility for the reference by operating personnel and they shall be familiar with its contents. The O&M Plan shall discuss all aspects of managing the discharge operation to comply with the terms and conditions of this Order and how to make field adjustments as necessary to preclude nuisance conditions. The O&M Plan shall also include the current cropping plan for each processing season.

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

20. The Discharger is ultimately responsible for the effectiveness of its treatment and control measures in assuring compliance with groundwater limitations, and is liable for remediation of any impact on groundwater not authorized herein. Failure to properly operate and maintain best practicable treatment and control, or failure of such measures to perform effectively, shall be grounds to rescind this Order, reclassify the waste and designated, and require compliance with Title 27 prescribed waste containment standards or initiate enforcement, as appropriate.

21. The Discharger shall use the best practicable cost-effective control technique(s) currently available to comply with discharge limits specified in this Order.

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

23. 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 being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board in writing when it returns to compliance with the time schedule.

24. 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.

25. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

26. Pursuant to Section 13267 of the California Water Code, the Discharger may be required to submit technical reports as directed by the Regional Board.

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

I, THOMAS R. PINKOS, Acting 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 7 June 2002.

/s/ Thomas R Pinkos

THOMAS R. PINKOS, Acting Executive Officer

AMENDED

SKC:6/7/02

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2002-0122

FOR
PACIFIC COAST PRODUCERS
AND CITY OF WOODLAND
YOLO COUNTY

The Discharger shall comply with the following Monitoring and Reporting Program (MRP), which outlines the requirements for industrial wastewater effluent, process and irrigation supply water, irrigation area, vadose zone, groundwater and storage pond monitoring. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer or Regional Board.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on sample chain of custody forms. The results of analyses performed in accordance with specified test procedures, taken more frequently than required at locations specified in this program, shall be reported to the Regional Board and used in determining compliance.

EFFLUENT DISCHARGE MONITORING

Effluent discharge samples shall be collected such that they are representative of the volume and nature of the process wastewater discharge from the factory to the irrigation area, prior to any commingling of factory process wastewater and supplemental irrigation water. Time of collection of grab samples shall be recorded. Effluent discharge monitoring shall include at least the following:

Constituent[1]	Units	Sample	Frequency
Daily Flow	mgd[2]	Metered	Continuous
5-day, 20°C Biochemical Oxygen Demand (BOD_5)	mg/l	8-hr-Composite	2/Week[3]
Chemical Oxygen Demand (COD)	mg/l	8-hr-Composite	2/Week[3]
Total Organic Carbon (TOC)	mg/l	8-hr-Composite	1/Week
pH	pH Units	Grab	1/Week
Total Acidity	mg/l as $CaCO_3$	8-hr Composite	2/Month[4]
Electrical Conductivity @ 25°C (EC)	µmhos/cm	8-hr Composite	2/Month[4]
Suspended Solids	mg/l	8-hr Composite	2/Month[4]
Settleable Solids	ml/l	8-hr Composite	2/Month[4]
Nitrogen Compounds			
Nitrate-Nitrogen	mg/l	8-hr Composite	2/Month[4]
Total Kjeldahl Nitrogen	mg/l	8-hr Composite	2/Month[4]
Ammonia Nitrogen (as N)	mg/l	8-hr Composite	2/Month[4]
Total Nitrogen	mg/l	Calculated	2/Month[4]

Constituent[1]	Units	Sample	Frequency
Total Dissolved Solids (TDS)[5]	mg/l	8-hr Composite	1/Month
Inorganic/Fixed Dissolved Solids (IDS)	mg/l	8-hr Composite	1/Month
Total Phosphorus	mg/l	8-hr Composite	Quarterly[6]
Total Coliform	MPN/100 ml	8-hr Composite	Quarterly[6]
General Minerals[7]	mg/l	8-hr Composite	Semiannually[8]

1 Sampling is required during discharge to the irrigation area. If results of monitoring indicate that the discharge appears to violate discharge specifications, but monitoring frequency is not sufficient to validate violation, the sampling frequency shall be increased to confirm the magnitude and duration of violation.

2 Million gallons per day

3 Once per week when the processing plant operates less than four days in a week. Upon establishment of a demonstrated relationship between BOD_5 and COD effluent concentrations, and upon approval by Regional Board staff, the frequency of BOD_5 monitoring may be reduced to once every two weeks.

4 Sampling shall be in nonconsecutive weeks

5 TDS referenced hereafter in this program shall be determined using EPA Method No. 160.1 for combined organic and inorganic TDS and EPA Method No. 160.4 for inorganic TDS

6 January, April, July, and October; concurrent with EC monitoring

7 See General Minerals Analyte List below

8 April and October; concurrent with TDS monitoring

General Minerals Analyte List

Alkalinity (as $CaCO_3$), unfiltered		Phosphorus, total dissolved (P)
Boron	Hardness (as $CaCO_3$), calculated	Potassium
Bicarbonate (as $CaCO_3$), unfiltered	Iron	Sodium
Calcium	Magnesium	Sulfate
Carbonate (as $CaCO_3$), unfiltered	Manganese	

PROCESSING SUPPLY WATER MONITORING

The Discharger's processing facility supply water shall be monitored for the following:

Constituent[1]	Units	Sample	Frequency
pH	pH Units	Grab	Quarterly[1]
EC	µmhos/cm	Grab	Quarterly[1]
TDS	mg/l	Grab	Annually[2]
IDS	mg/l	Grab	Annually[2]

Constituent[1]	Units	Sample	Frequency
Nitrate-Nitrogen	mg/l	Grab	Annually[2]
Total Phosphorus	mg/l	Grab	Annually[2]
Total Coliform	MPN/100 ml		Annually[2]
General Minerals[3]	mg/l		Annually[2]

1 January, April, July, and October

2 Concurrent with pH and EC sampling

3 Processing facility supply water samples placed in an acid-preserved bottle must first be filtered through a 0.45 µm nominal pore size filter. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24-hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

IRRIGATION SUPPLY WATER MONITORING

Each source of irrigation supply water for the irrigation area (if different than that of the processing facility) shall be monitored for the following:

Constituent[1]	Units	Sample	Frequency
pH	pH Units	Grab	Quarterly[1]
EC	µmhos/cm	Grab	Quarterly[1]
TDS	mg/l	Grab	Annually[2]
IDS	mg/l	Grab	Annually[2]
BOD_5	mg/l	Grab	Annually[2]
Nitrate-Nitrogen	mg/l	Grab	Annually[2]
Total Nitrogen	mg/l	Grab	Annually[2]
Total Phosphorus	mg/l	Grab	Annually[2]
General Minerals[3]	mg/l		Annually[2]

1 January, April, July, and October

2 Concurrent with pH and EC sampling

3 Irrigation supply water samples placed in an acid-preserved bottle must first be filtered through a 0.45 µm nominal pore size filter. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24-hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

SOLIDS MONITORING

The Discharger shall record and report monthly the waste type, quantity, specific discharge location, loading rates and method of disposal of each type of waste solids disposed of during the processing season, as well as during the off-season, if applicable.

During periods of solid waste discharge, representative composite samples of each solid/semi-solid waste stream (lye peel, mud, wet waste, pumice, etc) discharged to the LTU shall be collected on a weekly basis and analyzed for the following:

Constituent	Units[1]
Alkalinity (as $CaCO_3$)	mg/kg
Bicarbonate (as $CaCO_3$)	mg/kg
BOD	mg/kg
Calcium	mg/kg
Carbonate (as $CaCO_3$)	mg/kg
Chloride	mg/kg
Electrical Conductivity	µmhos/cm
Magnesium	mg/kg
Nitrogen	
Ammonia (NH_3-N)	mg/kg
Nitrate (NO_3-N)	mg/kg
Total Kjeldahl (TKN)	mg/kg
Organic	mg/kg
Percent Solids	%
Percent Nitrogen	%
Phosphorous	mg/kg
Potassium	mg/kg
pH	pH Units
Salinity	mg/kg
Sulfate	mg/kg
Total Dissolved Solids	mg/kg

[1] To be reported as dry weight corrected for percent moisture

Verification that the application of solids on the LTU will not exceed the maximum concentrations (mg/l) to protect groundwater (to prevent constituents from leaching to groundwater), and will not exceed the maximum cumulative loading rates is required. Results of sampling and verification procedures are to be submitted on a monthly basis.

Sampling of solid waste streams that are not discharged but are taken offsite (i.e.: to landfill, for uses as animal feed, etc.) is not required. However, records providing the volume and/or weight of solids transferred offsite and the nature of product disposal/reuse shall be submitted on a monthly basis.

IRRIGATION AREA MONITORING

A. Daily Inspections

The Discharger shall inspect the irrigation area at least once daily during periods of irrigation, and observations from those inspections shall be documented and included in the monthly monitoring reports. Evidence of erosion, field saturation, ponding, runoff, accumulation of solids, soil clogging, odors and insects shall be documented. The documentation shall also include any corrective actions taken based on observations made.

B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations (considering both solid and liquid discharges) and shall present the data in the Monthly and Annual Reports:

Constituent	Units	Sample	Frequency
Precipitation	±0.1 inch	Rain gauge[1]	Daily
Adjacent land uses (description)	--	Observation	Weekly
Field subareas and checks receiving wastewater and/or solids	--	Observation	Daily
Application area	acres	Estimated	Daily
Source of solids and/or wastewater	--	--	Daily
Process wastewater flow	mgd	Metered	Continuous
	inches	Calculated	Daily
Irrigation water flow	mgd	Estimated	Daily
Volume of solids applied	yd^3/acre/day	Calculated	Weekly
Weight of solids applied	lbs/acre/day	Calculated	Weekly
Hydraulic loading rate	inches/acre	Calculated[2]	Weekly
BOD_5 loading rate	lbs/acre/day	Calculated[2, 3]	Weekly
Process wastewater and solids nitrogen loading rate	lbs/acre/day	Calculated[2, 6]	Weekly
Nitrogen loading rate, other sources	lbs/acre/day	Calculated[2, 4]	Weekly[5]
Total nitrogen loading rate	lbs/acre/day	Calculated[2, 6]	Weekly
pH of applied water[7]	pH Units	Grab	Weekly

1 Rain gauge shall be accurate to the nearest 0.01 inch

2 Rate shall be calculated for each irrigation subarea/check

3 BOD_5 loading rates shall be calculated for each subarea/check using the daily applied volume of process wastewater and solids, estimated daily application area, and a running average of the three most recent results of BOD_5 for the source of the water, which shall also be reported along with supporting calculations

4 Loading rates for fertilizer constituents (i.e. nitrogen and phosphorous) shall be calculated using the actual load and the application area

5 When chemical fertilizers are applied
6 Total nitrogen loading rates shall be calculated for each subarea/check using the applied volume of process wastewater and solids, actual application area, and the proportional average of the three most recent results of effluent total nitrogen and solids nitrogen
7 Wastewater blended with irrigation water

In addition, the Discharger shall calculate and report each month a water balance in a format that includes: (1) daily process wastewater applied, (2) daily irrigation water applied, (3) daily rainfall, (4) crop evapotranspiration, (5) soil moisture content, and (6) percolation to groundwater.

VADOSE ZONE MONITORING – SOILS

The Discharger shall establish representative soil monitoring locations as follows: five background locations in areas outside of the irrigation area (Fields A-H) and at least one representative soil profile monitoring location per 50 acres within the irrigation area (minimum of two per Field), five (5) in the designated background plot, and five (5) within the designated baseline plot (as defined in the Discharger's approved vadose zone monitoring system). Soil samples shall be collected and analyzed for at least the following constituents:

Constituent	Units	Sample	Frequency
Moisture content	percent volume	based on work plan	As required[3]
Soil pH	pH units	6 inches	Quarterly[3]
Buffer pH	mg/kg as $CaCO_3$	6 inches	Quarterly[3]
Total alkalinity	mg/kg	6 inches	Semiannually[3]
Exchangeable cations		6 feet[2]	Semiannually[3]
Cation exchange capacity	meq/100 grams	6 feet[2]	Semiannually[3]
Nitrogen compounds	mg/kg	6 feet[2]	Semiannually[3]
Nitrate-Nitrogen	mg/kg		Semiannually[3]
Total Kjeldahl Nitrogen	mg/kg		Semiannually[3]
Total Nitrogen	mg/kg		Semiannually[3]
Carbon compounds		6 feet[2]	Semiannually[3]
Total Organic Carbon	% dry weight		Semiannually[3]
Total Inorganic Carbon	mg/kg as $CaCO_3$		Semiannually[3]
Total Carbon	mg/kg		Semiannually[3]
Salinity	mg/kg	6 feet[2]	Semiannually[3]
Phosphorus (available)	mg/kg	6 feet[2]	Semiannually[3]
Potassium (available)	mg/kg	6 feet[2]	Semiannually[3]
Iron	mg/kg	6 feet[2]	Semiannually[3]
Manganese	mg/kg	6 feet[2]	Semiannually[3]

1 Whenever wastewater is applied
2 Samples shall be collected at 3-foot depth increments
3 April and October

VADOSE ZONE MONITORING – SOIL-PORE LIQUID

The Discharger shall install a vadose zone monitoring system within the irrigation area, as well as in a representative background location outside the areas that receive solid and liquid waste. The background locations shall be as similar as possible to the land application areas.

Within this monitoring system, the Discharger shall conduct soil-pore liquid monitoring using appropriate devices capable of acquiring soil-pore liquid samples (i.e.: pan or ceramic lysimeters). The unsaturated zone monitoring system shall be approved by Regional Board staff and consist of a sufficient number of sampling points at appropriate locations and depths to yield samples, including those immediately below the depth of the treatment zone (i.e., five feet below ground surface), that represent the quality of soil-pore liquid.

For each subarea and the background location, devices shall be installed at a minimum of five locations in different irrigation checks at a location approximately one-half the check length from the top of the check. The devices shall be designed to provide sufficient sample volume to perform the analytical testing program specified below, and shall be completely purged after each sampling event.

As described in the Provisions section of this Order, the Discharger shall propose the type and locations, as well as methods to be used to purge and sample the devices. These techniques shall be implemented upon approval of the Executive Officer. At a minimum, the Discharger shall report the results of samples collected at a depth of five feet for each of the monitoring locations identified in its land application study. The Discharger shall collect and analyze samples using standard EPA methods for at least the following constituents:

Method	Constituent	Units	Frequency[1]
	Dates of Purging and Sampling	--	Second and Fourth Quarters
	Volume Purged Before Sampling	ml	Second and Fourth Quarters
	Volume Removed After Sampling	ml	Second and Fourth Quarters
	pH	pH Units	Second and Fourth Quarters
	EC	mg/l	Second and Fourth Quarters
	Total Nitrogen	mg/l	Second and Fourth Quarters
EPA 160.1	TDS	mg/l	Second and Fourth Quarters
EPA 160.2	IDS	mg/l	Second and Fourth Quarters
	Chloride	mg/l	Second and Fourth Quarters
	Iron	mg/l	Second and Fourth Quarters
	Manganese	mg/l	Second and Fourth Quarters
EPA 415.1	TOC	mg/l	Second and Fourth Quarters

[1] If the devices cannot collect a sufficient sample volume for all the proposed constituents, the Discharger shall collect samples in the order listed above and submit supporting data in monthly monitoring reports that show vadose zone monitoring for all the above constituents was not feasible.

GROUNDWATER MONITORING

Groundwater samples shall be collected from a Regional Board staff approved network of groundwater monitoring wells and piezometers installed at the irrigation area. Prior to collecting samples and after measuring the water level, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

In reporting the results of the first sampling event performed pursuant to this program, the Discharger shall include a detailed description of the procedures and techniques for: (a) sample collection, including purging techniques, sampling equipment, and decontamination of sampling equipment; (b) sample preservation and shipment; (c) analytical procedures; and (d) chain of custody control. The Discharger shall report when it deviates from these procedures and techniques.

At least quarterly and concurrently with groundwater quality sampling, the Discharger shall measure the water level in each well as groundwater depth (in feet and hundredths) and as groundwater surface elevation (in feet and hundredths above mean sea level). Samples shall be collected from approved monitoring wells and analyzed for the following constituents at the following frequency:

Constituent/Parameter	Units	Type of Sample	Frequency
Depth to groundwater	±0.01 foot	Measured	Quarterly[1]
Groundwater elevation	Above mean sea level, ±0.01 foot	Calculated	Quarterly[1]
Gradient and Direction	ft/ft, degrees	Calculated	Quarterly[1]
pH	pH Units	Grab	Quarterly[1]
Total Organic Carbon	mg/l	Grab	Quarterly[1]
BOD	mg/l	Grab	Quarterly[1]
COD	mg/l	Grab	Quarterly[1]
Nitrogen compounds:			
Ammonia (as NH_3-N)	mg/l	Grab	Quarterly[1]
Nitrate (as NO_3-N)	mg/l	Grab	Quarterly[1]
Total Kjeldahl Nitrogen (TKN)	mg/l	Grab	Quarterly[1]
Total Organic Nitrogen (as N)	mg/l	Calculated	Quarterly[1]
Salinity compounds/parameters:			
EC	µmhos/cm	Grab	Quarterly[1]

Constituent/Parameter	Units	Type of Sample	Frequency
TDS	mg/l	Grab	Quarterly[1]
IDS	mg/l	Grab	Quarterly[1]
Adjusted SAR[2]	None	Calculated	Quarterly[1]
Total Coliform	MPN/100 ml	Grab	Quarterly[1]
General Minerals	mg/l	Grab	Quarterly[1]
Metals[2]	µg/l	Grab	Annually[1]
Title 22 Constituents[4]	various	Grab	1/X years[5]

1 January, April, July and October
2 Adjusted sodium adsorption ratio (SAR) shall be determined
3 Samples shall pass through a 0.45 µm filter prior to analysis
4 Title 22, sections 64431 (Inorganic Chemicals); 64431 (Fluoride); 64443 (Radioactivity); 64444 (Organic Chemicals); and 64449 (Secondary MCLs – Consumer Acceptance Limits)
5 First monitoring shall be conducted within **30 days** following final groundwater monitoring well network installation.

TAILWATER PONDS

This section shall apply at any time process wastewater, or any fraction thereof, is discharged to and/or contained within the tailwater ponds. Samples shall be collected in each of the ponds utilized and analyzed for the following constituents:

Constituents	Units	Sample Type	Sampling Frequency	Reporting Frequency
Influent Flow	gpd	Continuous	Daily	Monthly
Freeboard	±0.1 feet	Observation	Weekly	Monthly
pH	pH Units	Grab	Weekly	Monthly
EC	µmhos/cm	Grab	Weekly	Monthly
Dissolved Oxygen	mg/l	Grab	Weekly	Monthly

If process wastewater is discharged or contained within the tailwater storage ponds longer than seven days or more than once every two months, the Discharger shall submit a technical report to the Regional Board within 5 days describing the use of the pond(s) and what action(s) is being take to ensure complaince with Waste Discharger Requirements.

REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements.

Monthly monitoring reports shall be submitted to the Board by the **1st day of the second month** following sample collection, and include, at a minimum, monitoring data collected during the month. Samples taken either quarterly or semiannually shall be submitted with the monitoring report following sample collection.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in a manner that clearly illustrates whether the discharge complies with waste discharge requirements. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board by the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). Monthly reports for the months of March, June, September, and December may be submitted as part of the Quarterly Monitoring Report.

1. Monthly monitoring reports shall contain all monitoring data required as outlined in this MRP. Data shall be presented in tabular format.

2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements.

3. Copies of laboratory report(s).

4. A calibration log verifying weekly calibration of any field monitoring instruments (e.g. DO, pH and EC meters) used to obtain data.

5. Daily discharge volumes (solid and liquid waste) and acres irrigated shall be tabulated, the report shall include a discussion of the discharge volumes and irrigation practices used (method of application, application period/duration, drying times, etc.) for each of the irrigation areas utilized during the month. Hydraulic loading rates (inches/acre/month) shall be calculated.

6. Maximum daily BOD_5 loading rates (lbs/acre/day) shall be calculated on a daily and monthly basis using the total volume applied on the day of application, estimated daily application area and a running average of the three most recent results of BOD_5, which also shall be reported along with the supporting calculations. Average BOD_5 loading rates shall be calculated using the total volume applied on the day of application, the

total application period (e.g. day of application and drying time), estimated application area on the day of application and a running average of the three most recent results of BOD_5.

7. Total nitrogen loading rates (lbs/acre/month) shall be calculated on a daily and monthly basis using the daily applied volume of wastewater, estimated daily application area, and the most recent results of total nitrogen, which shall also be reported along with supporting calculations.

8. Loading rates for fertilizer constituents (e.g. nitrogen and phosphorous) shall be calculated on a monthly basis using the daily applied load and the estimated daily application area.

B. Quarterly and Vadose Zone Monitoring Reports

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are collected and analyzed approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1st day of the second month** after the quarter (e.g. the January through March report is due May 1st) each year. At a minimum, the report shall contain:

1. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities. The narrative shall be sufficiently detailed to verify compliance with the WDRs, 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 the casing volume; and total volume of water purged.

2. Calculation of groundwater elevations, an assessment of the groundwater flow direction and gradient on the date of measurement, comparison to previous flow direction and gradient data and discussion of seasonal trends, if any.

3. Results of groundwater monitoring and vadose zone monitoring (when applicable).

4. A comparison of monitoring data to the discharge specifications, groundwater limitations, vadose zone limitations, and surface water limitations, and explanation of any violation of those requirements.

5. Summary data tables of historical and current water table elevations and analytical results.

6. When applicable (i.e.: for the second and fourth quarterly reports):

a. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for vadose zone monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs documenting purging and sampling activities.

b. A narrative discussion of the analytical results for all vadose zone monitoring locations, including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

c. A comparison of monitoring data to applied effluent quality and the groundwater limitations.

d. Summary data tables of historical and current vadose zone analytical results.

7. A scaled map showing relevant structures and features of the facility, the land application area and irrigation check boundaries, the locations of monitoring wells and other sampling stations, and groundwater elevation contours referenced to mean sea level datum.

8. Copies of laboratory analytical report(s).

C. Annual Report

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

1. Tabular and graphical summaries of all monitoring analytical data obtained during the previous four quarterly reporting periods, presented in tabular form to confirm compliance with the WDRs.

2. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), BOD_5, total nitrogen, and TDS.

3. A narrative description of the annual vadose zone (soil and soil-pore liquid) sampling program and a map of sampling locations.

4. A mass balance relative to constituents of concern and hydraulic loading along with supporting data and calculations. The report shall describe the types of crops planted and dates of planting and harvesting for each crop.

5. Tabular and graphical summaries of historical soil and infiltrate analytical results for all monitored constituents and parameters.

6. An evaluation of the performance of the pretreatment system and disposal site and estimated flows for next calendar year.

7. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control and groundwater protection, including consideration of application management practices (e.g. waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), soil profile monitoring data and groundwater monitoring data.

8. An evaluation of the groundwater quality at the facility and irrigation area.

9. A narrative description of the solids disposal practices, including the name and contact information for each disposal facility and the quantity disposed.

10. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the waste discharge requirements.

11. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

12. The names and telephone numbers of persons to contact regarding the facility's land discharge for emergency and routine situations.

13. A certified statement of when the flow meter and other monitoring instruments (e.g., hand held pH meters) and devices were last calibrated, including identification of who did the calibration.

14. A summary of groundwater monitoring in a format (both printed and electronic) selected in concurrence with Board staff, including

    a. Hydrographs showing the groundwater elevation in each approved well for at least the previous five years or to the extent that such data are available, whichever is fewer. The hydrographs should show groundwater elevation with respect to the elevations of the top and bottom of the screened interval and be presented at a scale of values appropriate to show trends or variations in groundwater elevation. The scale for the background plots shall be the same as that used to plot downgradient elevation data;

    b. Graphs of the laboratory analytical data for all samples taken from each approved well within at least the previous five calendar years (as data become available). Each such graph shall plot the concentration of one or more waste constituents specified below over time for a given monitoring well, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent, the

scale for the background plots shall be the same as that used to plot downgradient data. Separate graphs shall show hydrologic equipotential gradients and equal concentration gradients for constituents specified below.

Groundwater Constituents to Evaluate

Alkalinity (as $CaCO_3$)	Phosphate
Ammonia (as N)	Potassium
Boron	Sodium
Calcium	Sulfate
Chloride	IDS/TDS
Hardness (as CaCO3)	TKN
Iron	Total Coliform
Magnesium	Total Nitrogen
Nitrate (as N)	TOC

A letter transmitting the self-monitoring reports shall accompany each report. Such a 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. Pursuant to Standard Provisions, General Reporting requirements B.3, the transmittal letter shall contain the following statement by the Discharger, or the Discharger's authorized agent:

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

All Discharger reports specified above shall be submitted pursuant to Section 13267 of the California Water Code. Technical reports submitted by or for the Discharger shall be prepared and stamped by the appropriate registered professional required by the California Business and Professions Code. 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 registered professional engineer or geologist and signed by the registered professional.

Based on results of the monitoring program after a minimum of two years, the Discharger may request a reduction in the constituents monitored and/or sample frequency. If such reductions are warranted, this MRP may be revised by the Executive Officer.

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

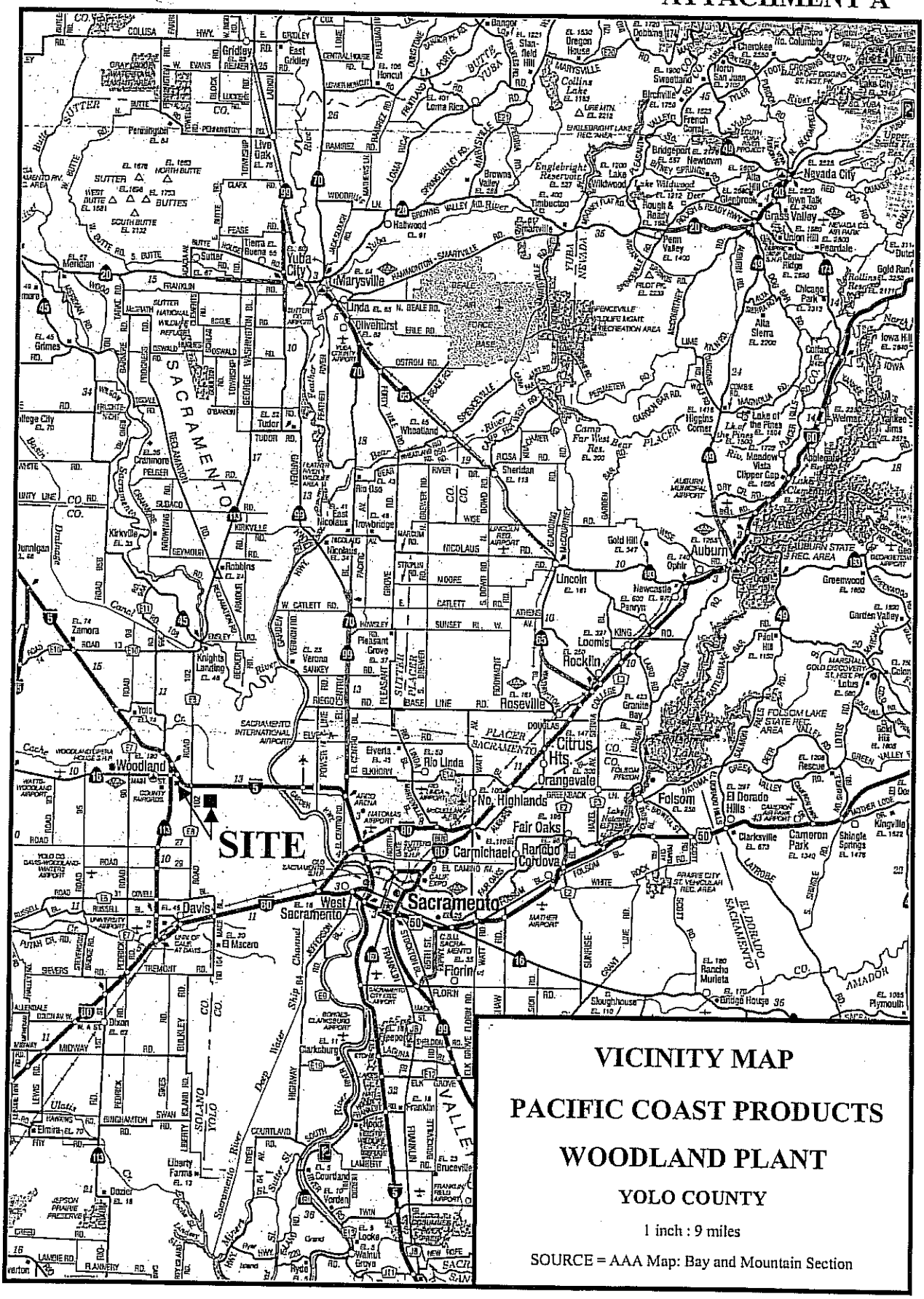
Ordered by: /s/ Thomas R Pinkos
THOMAS R. PINKOS, Acting Executive Officer

7 June 2002
(date)

AMENDED

SKC: 6/7/02

ORDER NO. R5-2002-0122 **ATTACHMENT A**



VICINITY MAP

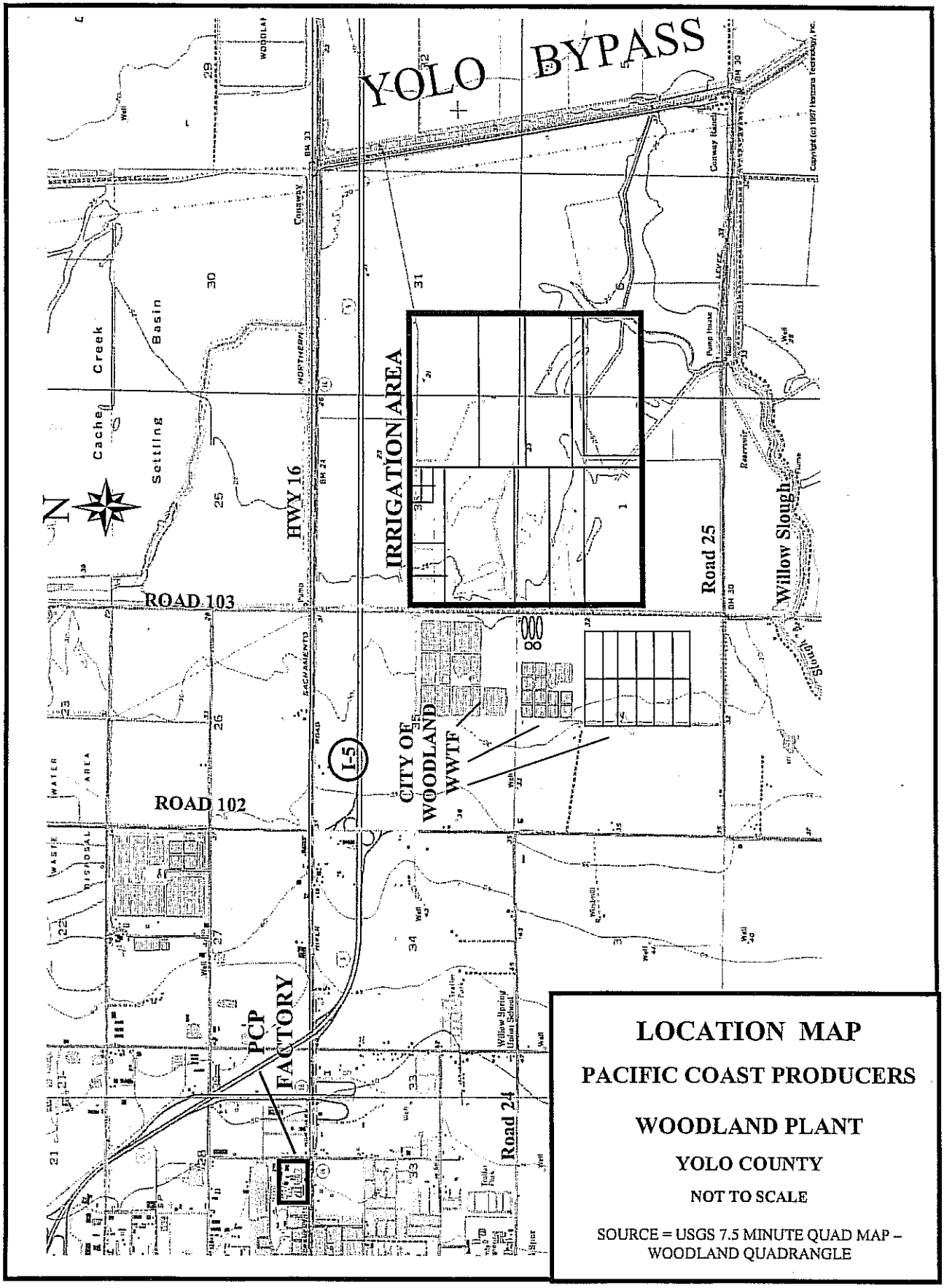
PACIFIC COAST PRODUCTS

WOODLAND PLANT

YOLO COUNTY

1 inch : 9 miles

SOURCE = AAA Map: Bay and Mountain Section



LOCATION MAP

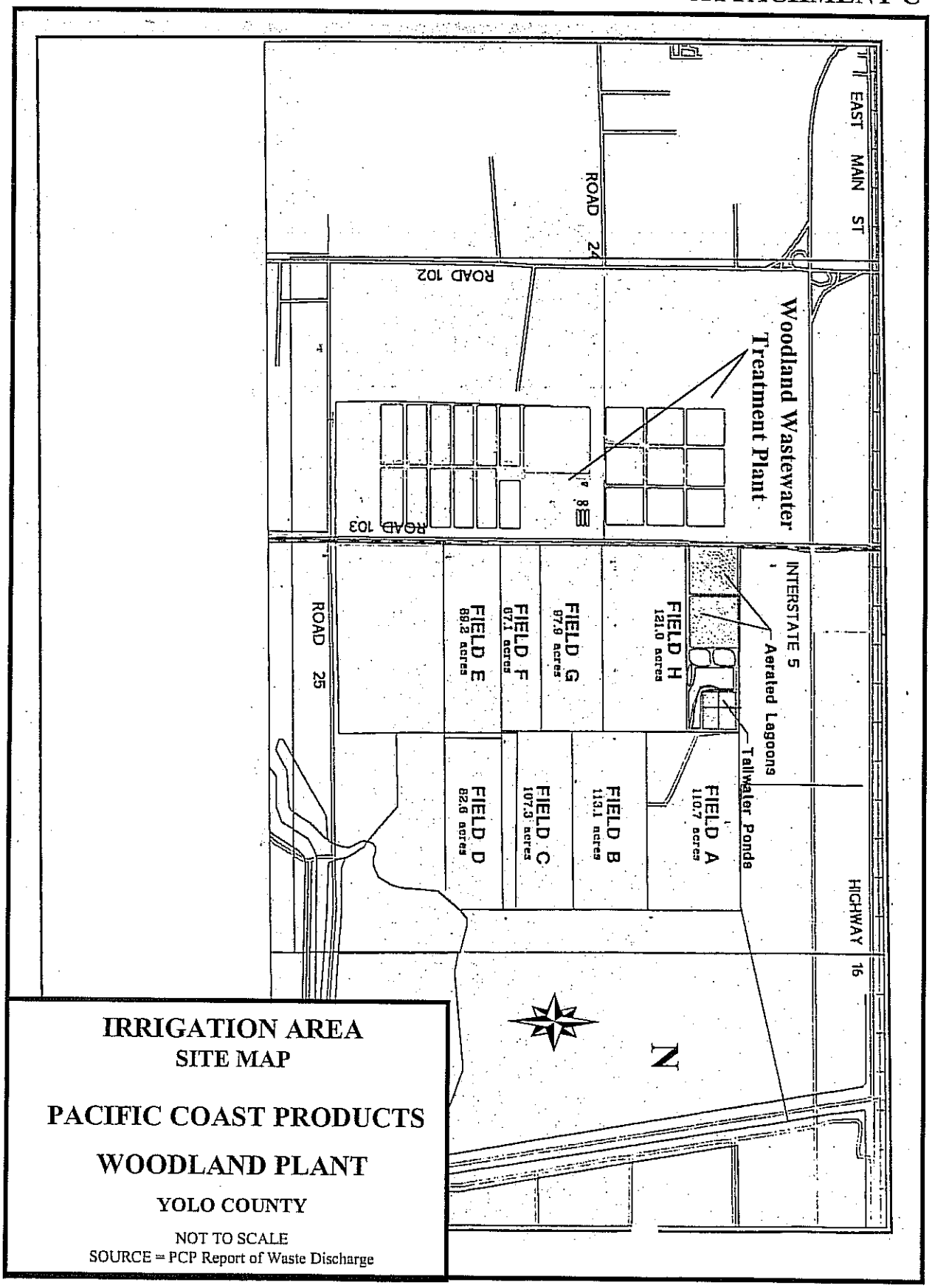
PACIFIC COAST PRODUCERS

WOODLAND PLANT

YOLO COUNTY

NOT TO SCALE

SOURCE = USGS 7.5 MINUTE QUAD MAP – WOODLAND QUADRANGLE



IRRIGATION AREA
SITE MAP

PACIFIC COAST PRODUCTS

WOODLAND PLANT

YOLO COUNTY

NOT TO SCALE
SOURCE = PCP Report of Waste Discharge

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2002-0122
PACIFIC COAST PRODUCERS
AND CITY OF WOODLAND
YOLO COUNTY

Pacific Coast Producers (PCP) submitted a Report of Waste Discharge (ROWD) dated 2 November 2001 and additional information dated 23 January 2002 for land discharge of process wastewater generated from an existing tomato cannery in Yolo County. The process wastewater will be treated and applied at agronomic rates to approximately 750 net acres of agricultural land (hereafter referred to as "irrigation area") for irrigation reuse and/or wastewater treatment. The cannery (APN 063-050-091 and 063-060-071) is owned and operated by PCP. The irrigation area (APN 27-390-20-1, 27-390-22-1, and 27-390-23-1), approximately 4.5 miles to the east-southeast of the cannery, is owned by the City of Woodland and leased to PCP under an agreement updated in 2001. Pacific Coast Producers and the City of Woodland (City) are hereafter jointly referred to as "Discharger".

BACKGROUND

Waste Discharge Requirements (WDRs) Order No. 81-013 was issued to the City for the Industrial (cannery) Wastewater Treatment facilities in January 1981. The cannery's original owner, Contadina Foods, operated under WDRs Order No. 90-077 until purchased by Del Monte Foods in 1997. Historically, cannery operators produced whole tomato, sliced, paste and puree products. Lye (i.e.: NaOH) was the primary peeling agent utilized until 1982, at which time a steam peeling process was initiated. Del Monte's more recent use of the irrigation area for land treatment and reuse of the process wastewater, primarily for the production of sugar beets and grain sirghum (milo), began in July 1998 and ended in September 2000. PCP purchased the cannery in August 2001 and anticipates full production to commence for the 2002 season.

Prior to 1960, rice fields occupied the location of the irrigation area. Wastewater from food processing operations, including lye peeling, cleanup, condensate, cooling tower blowdown, and other sources has been conveyed to the irrigation area since 1968. A feasibility study conducted by James Montgomery Engineers in 1979 compared land application systems with a proposed aerated lagoon system for the treatment and disposal of process wastewater. The study concluded that, due primarily to energy costs, land application would be more cost effective than aerated lagoons. From 1968 through 1987, process wastewater was discharged for evaporation and percolation to shallow ponds (formerly rice fields) in the general area of Fields G and H in the northwest portion of the existing irrigation area. The City occasionally utilized the same area for storm water overflow during the winter months.

Due to odor concerns, the cannery was directed to upgrade its wastewater facilities. With assistance from a Clean Water Grant, a new land treatment/irrigation reuse system was constructed in the early 1980's, which included Fields A through F. According to the project's August 1982 *Final Supplemental Project Report*, the design average and peak daily flows for the 620-acre irrigation facilities completed in 1982 were 3.7 and 5.1 mgd, respectively. An Operations and

Maintenance (O&M) Manual was completed by Raymond Vail and Associates for the wastewater land application system in 1983. The O&M Manual included reference to waste discharge requirements, unit processes, farming operations and related operational procedures.

In the early 1980's, two wastewater treatment lagoons (referred to as the Hyatt Ponds) were constructed in the northwestern portion of Field H to provide additional lagoon treatment capacity for the City's wastewater treatment facility (WWTF). These lagoons were transferred to the cannery in 1989 for process wastewater treatment and storage, primarily in October during harvesting of the irrigation fields. The final major upgrade of the wastewater facilities in 1989 included the addition of Fields G and H, for a gross total of 890 acres of irrigation area, and the installation of fifteen 25-horsepower aerators in the lagoons. No cropping or significant irrigation took place on Fields G and H between 1987 and 1992. Fields G and H went into back into service as process wastewater irrigation areas in 1992. The primary crops grown at the irrigation area have been sugar beets, corn, milo, and grass hay crops.

In June 1992, JR Associates completed a geophysical investigation into the levels of salinity in soil and groundwater in the vicinity of the cannery and irrigation area. The electrical conductivity (EC) and resistivity readings indicated that the process wastewater applied to Fields G and H most likely increased soil salinity and alkali content. The EC of soils in the area at ground surface elevations less than 25 feet tended to be somewhat elevated. Although the soils beneath Fields E and F also showed relatively elevated EC, the source of the salinity could have been attributed to agricultural irrigation activities or natural conditions.

FACTORY PROCESSES AND OPERATIONS

PCP intends to utilize the reconstructed factory to produce whole peeled, stewed, sliced, diced, paste, sauce and puree tomato products. Incoming tomatoes will be washed, peeled and processed to achieve desired product for canning. The factory may use lye and/or steam processes to achieve peeling. The factory utilizes boilers, cooling towers, water softeners, water supply conditioners, and other additives. Although production may occur throughout the year, the majority of the operations will take place from July through October.

As described in a letter to the Regional Board dated 9 April 2002, to provide an acceptable means of discharging and beneficially reusing its process wastewater, PCP intends to incorporate various upgrades and source control measures (i.e.: reduce the amounts of waste products and salt added to the process wastewater) into its processing and ranching/land discharge operations. Upgrades to equipment and process modifications to be implemented prior to the 2002 operating season include experimental vacuum peeling, caustic applicator overflow screening and evaporation, condensate return to boilers, post-applicator rinse water recirculation, peel recovery system, vacuum valve process study, computer-controlled flow system, juice recovery/reuse, reduced product transportation damage from shorter fields-to-factory hauling distances, boiler

water softener use reduction, and additional evaporator capacity and steam economy. Prior to the 2002 operating season, PCP will also submit a detailed land management plan (Ranch Plan) to include a water distribution plan, crop plan, soil amendment study, groundwater reclamation study and alternatives for spring-time irrigation. Improvements are necessary to ensure that effluent limitations and specifications of this Order will not be exceeded or violated at any time during the processing season. As described in the 9 April 2002 letter, additional study and improvements are planned with a long-term goal of improving soil and groundwater conditions at the land application site.

WATER SUPPLY

Prior to 1999, the factory utilized five water supply wells. The West and East wells were decommissioned in 1993 and 1999, respectively. Well W-7 was decommissioned in the mid 1990's. The North and South wells are currently the only active water supply wells for the factory and, as required by the Yolo County Environmental Health Department, water quality sampling has been performed on a regular basis. Concentrations of nitrate and total dissolved solids (TDS) are somewhat elevated, but are within the range of concentrations found in the City's water supply wells. Based on the ROWD, the raw water supply is characterized as follows:

Constituent	Units	Concentration, North Well	Concentration, South Well
Alkalinity (as $CaCO_3$)	mg/L	400	430
Boron	mg/L	2.7	3.0
Calcium	mg/L	82	72
Choride	mg/L	100	93
Electrical Conductivity	µmhos/cm	1100	1100
Magnesium	mg/L	65	64
Nitrate (as NO_3)	mg/L	36	32
pH	pH units	7.5	7.4
Sodium	mg/L	81	93
Sulfate	mg/L	40	40
Total Dissolved Solids	mg/L	700	640
Total Fixed Dissolved Solids	mg/L	540	500
Total Organic Carbon	mg/L	0.6	0.6

Source: PCP Report of Waste Discharge dated 2 November 2001.

PROCESS WASTEWATER

The average design wastewater flow rate is 4.0 mgd, with a peak weekly flow rate of 4.5 mgd and a peak daily flow rate of 5.0 mgd. Peak flows will typically occur in early September. The design flow for off-season production is 750,000 gpd, five days per week, during the months of February, April and May (although minor sauce production may take place in other months).

Process wastewater is screened through Hycor rotary drum screens with 0.030-inch openings and a combined capacity of approximately 3500 gpm. From the screens, process wastewater is conveyed to a sump from which it may flow by gravity or be pumped through a 4.5-mile, 18-inch diameter, concrete lined, steel pipe to the irrigation area. The pipeline has a capacity of approximately 1800-gpm under gravity flow conditions and a 4,000-gpm capacity under pressure.

Flow is measured at the irrigation area by an 18-inch ultrasonic flowmeter. A new ultrasonic flowmeter is to be installed at the factory to measure all flows entering the process wastewater conveyance pipeline.

Historical and projected process wastewater characterization for BOD and total suspended solids (TSS) are as follows:

Parameter	Units	Previous	Projected
Avg. BOD Concentration	mg/L	1,600	2,000
Peak Week BOD Concentration	mg/L		2,500
Avg. TSS Concentration	mg/L	1,200	1,100
Peak Week TSS Concentration	mg/L		1,500
TDS	mg/L	1,900	2,700
Total Fixed Dissolved Solids	mg/L		1,250

Source: PCP Report of Waste Discharge dated 2 November 2001.

The "Previous" data in the above table is based upon historical information from the factory under Del Monte ownership. The "Projected" data is based upon source water quality and data from the PCP Lodi factory.

WASTE SOLIDS

Solid/semi-solid wastes, consisting primarily of skins, vines, pumice, muds, dirt and other fine solids, are also generated by the processing operations. Tomato waste, mud, and pumice production in a typical season is estimated to be approximately 15,500 tons, 1,500 tons and 6,000 tons, respectively. Such solid/semi-solid wastes are segregated from the process wastewater stream for separate handling. Storage of solid/semi-solid wastes will only occur on relatively impervious surfaces with leachate collection capabilities.

As market conditions allow, the Discharger has proposed to reuse the solid/semi-solid wastes for animal feed, or apply the material to alternating 40-acre sections of the irrigation area as a soil amendment. Land application at this rate would result in a total average wet solids application depth of 4.5 inches per season. The ROWD indicated that solids have previously been used as a soil amendment in portions of the irrigation area, although little information exists on the extent of solids application, methods, loading rates or potential impact to groundwater quality. This Order requires that a solids management and disposal plan be submitted for Regional Board staff approval to ensure proper handling and disposal of such materials.

PROCESS WASTEWATER REUSE/DISPOSAL SYSTEM – IRRIGATION AREA

Of the 890 gross acres of available land, approximately 100 acres are taken up by existing lagoons, tailwater facilities and roads. Considering another 40 acres reserved at any given time for solids application, the net irrigation reclamation/disposal area is approximately 750 acres. The 750-acre net irrigation area consists of eight separate fields referred to as Fields A through H.

Two aerated lagoons are located just north of Field H and have formerly been used for storage and partial treatment of process wastewater. The total volume of the lagoons is approximately 50 million gallons, which could provide storage of one to two weeks under extreme emergency conditions. However, discharge of process wastewater to these lagoons is prohibited under the conditions of this Order.

The Discharger provided an Operations Plan in the ROWD describing the management of the irrigation area. The Operations Plan details irrigation methods, field conditions and improvements, vegetation plan, anticipated research activities for improvement of process wastewater operations and land use techniques, and habitat restoration. Irrigation rotation will be based upon such considerations as the acceptable hydraulic and nutritive loading rates, vegetative needs, soil conditions, and saturation conditions. Supplemental water will be commingled with the process wastewater. The amount of commingled process wastewater will vary depending on the irrigation demand. Irrigation techniques will be implemented such that the need for tailwater control facilities is minimized to the extent reasonable. The irrigation area is to be consistently improved and maintained to ensure effective treatment/disposal and protection of water quality. Improvements will include ripping, leveling, amendments, and vegetative maintenance. Research activities and test plots will experiment with plants and techniques that may improve hydraulic and sodium uptake, soil improvement and site enhancement.

As described in the ROWD, the Discharger intends to initially continue applying process wastewater via surface (flood) irrigation. Buried low-head mainlines supply process wastewater to standpipes at the upper end of each field and drainage ditches remove excess water from the

other side of the fields. Most applications will be through the use of furrow irrigation techniques to provide for better solids distribution. Future irrigation practices may include the use of sprinklers or other acceptable means of distributing the process wastewater.

Tailwater control for irrigation runoff is channeled to four tailwater holding ponds located along the northern side of the site. Such runoff is to be minimized and may be recycled back to the irrigation area. Tailwater ditches must be operated and maintained to prevent stagnant conditions which may lead to the production of odors and/or nuisance conditions.

The primary crops grown at the irrigation area have been sugar beets, corn, milo, and grass hay crops. Depending on market conditions, nitrogen uptake and adaptability to irrigation techniques, the primary crops likely to be grown at the irrigation area will include corn, milo, grass hay and other major row crops.

As described in the ROWD, the hydraulic loading of the irrigation area should not be a limiting factor, except possibly during the drying or harvest phase of crops in which certain fields may be temporarily unavailable for discharge. Assuming 70% irrigation efficiency and an evapotranspiration rate of 5.43 inches per month (0.18 inches per day) during September, the month of anticipated peak process wastewater discharge, the agronomic gross irrigation rate would be 0.26 inches per day. For the 750-acre irrigation area, this rate corresponds to an allowable discharge flow rate of 5.2 mgd, indicating extra hydraulic capacity under normal conditions. Primarily in the months of June through August, irrigation water will be supplemented from a water supply well.

According to the United States Environmental Protection Agency (USEPA), to prevent development of nuisance conditions associated with applying food-processing wastewater to land for biological treatment, TSS loading rates should not exceed 70 lbs/acre/day and BOD loading rates should not exceed 100 lbs/acre/day (*Pollution Abatement in the Fruit and Vegetable Industry*, USEPA Publication No. 625/3-77-0007, hereafter *Pollution Abatement*).

As provided in the ROWD, historical (Del Monte) and projected BOD and TSS loadings for the irrigation area are as follows:

Parameter	Units	Previous	Projected
Avg. BOD Concentration	mg/L	1,600	2,000
Avg. BOD Loading	lb/ac/d	43	89
Peak Week BOD Concentration	mg/L		2,500
Peak Week BOD Loading	lb/ac/d		125
Avg. TSS Concentration	mg/L	1,200	1,100
Avg. TSS Loading	lb/ac/d	32	49
Peak Week TSS Concentration	mg/L		1,500

Parameter	Units	Previous	Projected
Peak Week TSS Loading	lb/ac/d		

Source: PCP Report of Waste Discharge dated 2 November 2001

Based upon the above table, the projected average BOD and TSS loadings are within the loading rate limits recommended by *Pollution Abatement*. Under peak conditions, the projected BOD loading is slightly above the 100 lb/ac/d recommended limit. Pursuant to the WDRs, the Discharger will be limited to a weekly average of 100 lb/ac/d and may be required to implement measures to ensure compliance with the limit.

Pollution Abatement recommends that water applied to crops have a pH within 6.4 to 8.4 to protect crops from damage by food processing wastewater. Acidic soil conditions can be detrimental to bacteria responsible for conversion of organic matter and nitrogen. If soil pH decreases below 5, iron and manganese may dissolve and degrade underlying groundwater if the buffering capacity of the soil is exceeded. Given the naturally occurring alkaline nature of the soils, the irrigation area should have the ability to assimilate varying levels pf pH prior to reaching groundwater. Pursuant to the WDRs, the pH of the process wastewater discharge from the land treatment unit, as measured by the vadose zone soil-pore liquid analysis, shall not have a pH less than 6 or greater than 8.5 pH units.

Discharge under the conditions of this Order, including application at reasonable agronomic rates not to exceed the irrigation area's waste assimilative capacity, will ensure that the discharge will not have an adverse impact on groundwater nitrate concentrations. The ROWD states that the BOD:nitrogen ratio is expected to be approximately 30:1 and that nitrogen losses can be as high as 80% (due to denitrified and bacterial immobilization) for food processing wastewaters with ratios above 5:1. Depending on the type and growth efficiency of the crops harvested, the maximum expected nitrogen load is to be addressed through proper crop selection and management.

TDS (an indirect method for measuring salinity) within process wastewater consists of both organic and inorganic factions. The inorganic (i.e.: fixed) portion of the dissolved solids consists primarily of additives and cleaning products used in processing, plus the background level of dissolved solids in the source water. The organic portion of the dissolved solids primarily consists of dissolved carbohydrates and proteins from the food products. Based on data from PCP's Lodi plant, the projected TDS concentration in process wastewater from the facility regulated under this Order is approximately 2,700 mg/L. According to Discharge Specification B.3.g of this Order, the Discharger shall assess and implement appropriate source control measures sufficient to ensure that the monthly average TDS concentration of the process wastewater discharged to the irrigation area shall not exceed 2700 mg/l.

Should the Discharger desire relief from the TDS limit prescribed by Discharge Specification B.3.g, it shall provide an engineering characterization of the organic and inorganic nature of

wastewater that it discharges to the irrigation area. The organic portion of the TDS will generally be consumed within the soil profile, as evidenced by the lack of difference in concentration between TDS and Fixed TDS in groundwater, and represents less of a threat to groundwater degradation. Elevated levels of sodium in the process wastewater in relation to calcium and magnesium could exacerbate the existing alkali soil conditions at the irrigation area. There is evidence that the shallow groundwater at the irrigation area has existing elevated concentrations of TDS, which may be a result of historical and ongoing uses of the irrigation area and surrounding properties for agriculture and wastewater disposal.

Source control measures to reduce the salinity of the process wastewater and alkali soil reclamation efforts will be applied to mitigate potential adverse affects to soil and groundwater from the discharge under this Order. Source control and treatment measures to be implemented include lye recycling, vacuum peeling, a reduction in the use of water softeners at the factory, installation of a filtration system to remove organics from condensate collected during the evaporation process, and the installation of a large multiple effect evaporator to generate additional condensate.

Immediately west of the irrigation area, the City operates a municipal WWTF, consisting of oxidation ditch treatment facilities and several hundred acres of unlined sludge storage ponds. The irrigation area is also bounded on the western side by a Reclamation District canal supplying surface water for irrigation of surrounding farmland. The irrigation area is bounded to the north, south and east by agricultural farming practices currently conducted by Conway Ranch. These wastewater treatment and ranching operations are considered to be outside factors influencing local groundwater characteristics, including contributing to the degradation of localized groundwater quality. Such outside influences complicate efforts to assess the potential and/or actual impacts to groundwater quality from the irrigation area alone. The Order provides the Executive Officer the ability to further modify effluent concentration limits established in Discharge Specification B.3.g in concert with activities anticipated to be undertaken by adjacent offsite controllable sources to reduce impacts and improve overall groundwater quality.

LAND TREATMENT AND CONTROL

Successful treatment and control by applying waste constituents to land is an inexact science highly dependent upon the constituent, soils, climate, other practices that affect the property, and sound waste management and control. The process depends upon attenuation (decomposition, immobilization, and transformation) in the soil profile and consumption from the root zone by crops to remove waste constituents. Excessive application rates for waste constituents can result in anaerobic waste or soil conditions that can create nuisance odor and vector conditions. Excessive application rates can also overload the shallow soil profile and root zone to impair crops, crop waste constituent consumption, and the waste attenuation process itself, and lead to leaching of waste constituents out of the treatment zone. Excessive application can also result in

dissolution of soil minerals such as calcium and magnesium. Excessive hydraulic applications, even if from use of supplemental fresh water, can flush waste constituents, decomposition by-products, and dissolved minerals out of the treatment zone. Absent sufficient sustained reliable attenuation of residual waste constituents in the remaining soil profile, the constituents will eventually discharge into groundwater. Temporal storage of residual waste constituents within the soil column can misrepresent the effectiveness of the process.

The discharge is nonhazardous, but exhibits characteristics of "designated waste," as defined by CWC, §13173(b), given that the concentrations of some waste constituents applied to land have potential for causing exceedances of water quality objectives or affecting beneficial uses. The discharge contains decomposable waste constituents (e.g., organic carbon and nutrient compounds) and inorganic dissolved solids in concentrations orders of magnitude greater than water quality objectives. The discharge is appropriately categorized as designated waste because of these constituents and is subject to the full containment provisions of Title 27. The waste need not be contained if the waste constituents of concern can be demonstrated to be effectively removed by controlled land treatment or, if not removed, subjected to best practicable treatment and control (BPTC) and reduced sufficiently thereby to satisfy criteria of the Antidegradation Policy, Resolution 68-16.

Regulations for the land treatment of designated waste are contained in Title 27. Title 27, §20210, allows designated waste constituents that are decomposable to be discharged to a Class I or Class II Land Treatment Unit (LTU). Title 27, §20164, defines LTU as a, "waste management unit (Unit) at which liquid and solid waste is discharged to, or incorporated into, soil for degradation, transformation, or immobilization within the treatment zone." It defines treatment zone as, "a soil area of the unsaturated zone of a land treatment unit within which constituents of concern are degraded, transformed, or immobilized." The Discharger's method of waste constituent treatment and control, specifically the discharge to the irrigation area, is an LTU subject to the performance standards of Title 27. Hereafter, the irrigation area will also be referred to as the LTU.

Regional Board acceptance of a discharger's treatment and control method for a waste constituent as BPTC requires a discharger to demonstrate first that it has comprehensively evaluated and compared, then chosen and implemented, the most effective technology and control methods to sustain the highest possible water quality. The demonstration must consider existing proven technologies, performance data from treatability studies, and methods currently and successfully used by similarly situated dischargers. Basin Plan technology-based and Title 27 performance standards must be considered in this process. The Discharger does not employ the minimum technology-based treatment specified in the Basin Plan, but uses alternative methods that rely on effective land treatment.

The Discharger has not made the required BPTC and Title 27 demonstration for any waste constituent. The LTU has been in operation for years and can be assumed to have been operating

under steady-state conditions. Data and information regarding past operation contain instances of nuisance and evidence of groundwater degradation. Further, certain waste constituents discharged to the LTU, such as inorganic dissolved solids, are conservative and will not be degraded, transformed, or immobilized in the treatment zone. Evidence of groundwater degradation includes several inorganic constituents. Given the nature of the waste constituents, the Regional Board is unable now and unlikely in the future to determine the discharge complies with Title 27 standards for a LTU. However, if significant changes to treatment and control are made and sufficient documentation provided, the Regional Board may be able to assure protection of high quality groundwater and exempt the discharge from Title 27 requirements for full containment of the waste.

This Order contains a compliance schedule to resolve groundwater and operational issues and provides a reasonable schedule of tasks to generate all necessary documentation to complete a comprehensive evaluation of the irrigation area/LTU. The evaluation must identify which waste constituents in the discharge will be consistently and completely degraded, transformed, or immobilized in a treatment zone of less than five feet from the initial soil surface (ground surface) per Title 27, §20250(b)(5) and identify the practices and controls, and any necessary pretreatment, to assure this. It must also evaluate which waste constituents will be consistently removed by crop uptake, and the practices and controls and any necessary pretreatment that assure this occurs within the root depth of crops grown on the LTU. If removal, containment, or uptake of a waste constituent cannot be guaranteed by the Discharger to occur within the treatment and root zones, the Discharger must complete a BPTC evaluation for the waste constituent, and identify the concentration and mass of the constituent that will be released to groundwater and its consequent impact on concentrations of the constituent in groundwater. If the Discharger wishes the Regional Board to consider authorizing continued discharge with the characterized impact, it shall also submit all available documentation as to why the Regional Board should find the degradation of maximum public benefit.

This Order requires optimal performance of an LTU and specifies minimum conditions of LTU performance to ensure the discharge does not degrade groundwater quality. Discretionary decisions of the Discharger regarding budget, personnel, equipment, energy, and day-to-day activities can adversely affect these. Technical and monitoring reports on operation, maintenance, and performance relate directly to the Regional Board's need to know in a timely manner whether the Discharger is effectively operating and maintaining the LTU. Soil, soil-pore liquid, and groundwater monitoring is necessary to measure whether effective operation, and reliance on constituent treatment in the soil profile, mitigates the impact on groundwater quality as described in environmental documents, and complies with discharge specifications and groundwater limitations. This necessitates a comparison of constituent concentrations in samples from a network of wells, LTU and background soils, and from an unsaturated zone monitoring system.

GROUNDWATER

Seven monitoring wells and three shallow piezometers were constructed at the irrigation site during three separate events between 1990 and 1992. Wells installed at the site are screened differently and likely correspond to the particular drilling event. Wells MW-1 and MW-3 are the deepest monitoring wells (total depth to 30 feet bgs) and are screened across gravelly sand from approximately 15 to 30 feet bgs. MW-4 through MW-7 are drilled to a depth of 20 feet bgs (note: MW-5 drilled to 18 feet bgs) and are screened from 8 to 18 feet bgs, crossing the upper three feet of the shallow gravelly sand. Piezometers SP-1, SP-2 and SP-3, drilled to depths of 12 feet bgs, are screened from approximately 7 to 12 feet bgs across the clayey sand and, unlike the monitoring wells, do not intersect the shallow sand and gravel. Upon determination that the well was not representative and concurrence by Regional Board staff, Monitoring Well No. 3 (MW3) was eliminated as an active well.

Depths to groundwater in monitoring wells around the irrigation area are generally shallow at 5 to 7 feet bgs, with historical water levels often occurring within a few feet of the ground surface. Shallow groundwater levels in individual wells are likely influenced by adjacent drainage ditches, ponds and other hydraulic features. Groundwater levels are typically highest in late winter and early spring.

Groundwater flow in and around the irrigation area generally trends easterly to northeasterly with a gradient of about 0.001 feet per foot. In a September 2001 report by Brown and Caldwell, average groundwater velocity was estimated at 0.0004 feet per year (fpy) for the shallow clay and 3.7 fpy for the gravelly sand (based upon assumed hydraulic conductivities of 0.0001 feet per day for shallow clay and 10 feet per day for the gravelly sand). Adjusting for specific yield, estimated pore velocity would be roughly four times those values.

Shallow groundwater quality is generally elevated in salts, nitrates and boron to the east of Woodland. In geologic times, portions of this area held evaporating floodwaters from Cache Creek and the Sacramento River, which tended to concentrate salts in shallow groundwater. More recently, deep percolate from agricultural irrigation has had a major impact of shallow groundwater, resulting in elevated salts and nitrates compared to deeper groundwater zones and surface waters.

Groundwater monitoring to date has shown elevated concentrations of EC, Chemical Oxygen Demand (COD) and salinity in the wells and piezometers in the irrigation area. Groundwater in the western-most monitoring wells (upgradient) is highly variable with an EC ranging between about 600 to 6,000 µmhos/cm. Three piezometers at the southern end of Field H have exhibited very high concentrations of EC, ranging up to 40,000 µmhos/cm. Groundwater along the eastern-northeastern side (downgradient) of the irrigation area generally has an EC concentration of about 3,000 to 5,000 µmhos/cm. Monitoring wells installed to the east-southeast of this "EC" hot-spot"

generally have concentrations between 2,000 to 4,000 µmhos/cm. Nitrate levels in wells have varied over the years, with a few wells exceeding the 10 mg/L drinking water limit on occasion.

Reclamation District 2035 monitors groundwater levels in wells, constructed in 1991 north and south of the irrigation area, and provides annual reports in an update to their AB3030 Groundwater Management Protection Plan. The City monitors and regularly reports groundwater depth and quality to the Regional Board on monitoring wells surrounding its municipal WWTP. EC of samples from monitoring wells at the City's WWTP has ranged from 1800 to 2700 µmhos/cm. The City has also completed a groundwater investigation on the City landfill located just south of the WWTP and has provided additional regional groundwater quality and level information. The September 2001 Brown and Caldwell report also cites thirteen additional water supply wells located within one-half mile of the site, including use for agricultural, monitoring, municipal and industrial purposes. With the exception of two upgradient water supply wells, area wells draw water from deep aquifers not related to the shallow aquifer monitored at the site.

SITE SPECIFIC CONDITIONS

The project site is in a mixed industrial and agricultural area. Agricultural lands and the Cache Creek Settling Basin are located to the north of the site; the Willow Slough and agricultural lands are to the south; agricultural land, the Yolo Bypass, Sacramento River and several major drains are to the east; and the City WWTF is to the west. Cache Creek and Willow Slough are the nearest major surface water bodies, located about 1.5 miles north and less than one mile south of the site, respectively. The Tule Canal and Sacramento River, about two miles east of the site, are the next closest surface water bodies.

The factory, irrigation area and surrounding lands are nearly level to gently sloping (0-1%), with an elevation ranging from 23 to 25 feet mean sea level (MSL). Artificial surface drainage is generally to the north. Although the irrigation area has not typically been used during the months when flooding is likely to occur, the new FEMA map shows the irrigation area to be in the 100-year flood plain.

The climate in the area is Mediterranean semi-arid (warm, dry summers and cool, moist winters) with an average annual air temperature of 50 to 62 degrees Fahrenheit. The growing season is approximately 230 to 280 days long. Although north winds are not uncommon, prevailing wind is from the south-southwest. Average wind speed for 1998 at the nearest CIMIS station at Zamora was 5.1 miles per hour (mph). Precipitation occurs mostly in late autumn, winter and early spring. According to the Department of Water Resources, extreme annual short duration rainfall for a 24-hour period is 13 inches in Drainage Province A, which includes Woodland. Historical precipitation and evapotranspiration statistics are as follows:

Month	100 Year Rainfall (in/mo)	10 Year Rainfall (in/mo)	Average Rainfall (in/mo)	1 in 10 Dry Year Rainfall (in/mo)	Avg. Ref. E.T. (in/mo)
January	6.56	5.42	3.93	2.04	1.10
February	6.49	5.13	3.30	1.71	1.76
March	3.49	2.94	2.17	1.13	3.17
April	2.96	2.08	1.23	0.64	4.72
May	1.30	0.79	0.36	0.19	6.47
June	0.74	0.36	0.16	0.08	7.08
July	0.39	0.13	0.05	0.03	8.18
August	0.35	0.16	0.06	0.03	7.08
September	1.16	0.60	0.26	0.13	5.43
October	3.74	1.90	1.02	0.53	3.66
November	4.23	3.35	2.16	1.12	1.65
December	3.81	3.53	2.72	1.41	1.10
Totals	35.27	26.41	17.42	9.04	52.13

Source: PCP Report of Waste Discharge dated 2 November 2001.

Primary soils at the irrigation area consist of clay, with significant areas classified as saline-alkali affected. Comprised primarily of Pleistocene and Holocene era unconsolidated sediments, the area is considered to be in the "flood basin deposits" geomorphic unit for Yolo County. The predominant soils are the Willow clay and Pescadero silty clay, saline-alkali. Characteristics of the soils are as follows:

Soil	Topsoil Permeability Rating (in/hr)	Subsoil Permeability Rating (in/hr)
Ritz Loam	0.63-2.0	0.63-2.0
Willows Clay	0.2-0.63	0.06-0.2
Willows Clay, Alkali	0.06-0.2	0.06-0.2
Pescadero Silty Clay, Saline-Alkali	0.06-0.2	0.06-0.2

Source: PCP Report of Waste Discharge dated 2 November 2001.

Logs for monitoring wells and piezometers at the Discharger's site indicate that subsurface soils consist of clay from the ground surface to 7-10 feet below ground surface (bgs); fine soil with clay from 7 feet bgs to 15 feet bgs; and gravelly sand from 15 to 30 feet bgs. Alternating clay and sand and gravel layers exist to approximately 180 feet bgs. Deeper sand and gravel aquifers exhibit semi-confined characteristics.

The native TDS concentration in groundwater from major producing wells in the area (typically screened deeper than 200 feet) is greater than 500 mg/L. According to the USGS, the general groundwater type is magnesium-calcium bicarbonate to the south and west of the factory, and magnesium-sodium bicarbonate to the north and east of the factory. Groundwater in the area near Cache Creek naturally contains relatively high levels of boron (up to 4 mg/L) because of long-term recharge from the creek.

The beneficial uses of ground waters are municipal, domestic, agricultural, industrial service supply, and industrial process supply.

The beneficial uses of the Yolo Bypass surface water body, according to the Basin Plan, are agricultural irrigation and stock watering; contact and other non-contact recreation, canoeing and rafting, warm and cold freshwater habitat, warm and cold migration, warm spawning, and wildlife habitat.

Surface water drainage is to Tule Canal and Willow Slough, tributary to the Yolo Bypass.

SKC: 6/7/02

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS FOR WASTE DISCHARGE REQUIREMENTS

1 March 1991

A. General Provisions:

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

2. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

3. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

   c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge;

   d. A material change in the character, location, or volume of discharge.

4. Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board. A material change includes, but is not limited to, the following:

   a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements.

   b. A significant change in disposal method, location or volume, e.g., change from land disposal to land treatment.

   c. The addition of a major industrial, municipal or domestic waste discharge facility.

   d. The addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.

5. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

6. The discharger shall take all reasonable steps to minimize any adverse impact to the waters of the state resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.

7. The discharger shall maintain in good working order and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

8. The discharger shall permit representatives of the Regional Board (hereafter Board) and the State Water Resources Control Board, upon presentations of credentials, to:

    a. Enter premises where wastes are treated, stored, or disposed of and facilities in which any records are kept,

    b. Copy any records required to be kept under terms and conditions of this Order,

    c. Inspect at reasonable hours, monitoring equipment required by this Order, and

    d. Sample, photograph and video tape any discharge, waste, waste management unit, or monitoring device.

9. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.

10. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be a defense for the discharger's violations of the Order.

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

12. The discharge shall remain within the designated disposal area at all times.

B. General Reporting Requirements:

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at **(916) 464-3291** as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within **two weeks**. The written

notification shall state the nature, time and cause of noncompliance, and shall include a timetable for corrective actions.

2. The discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events.

   This plan shall:

   a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.

   b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes of contingency plans.

   c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

   The Board, after review of the plan, may establish conditions that it deems necessary to control leakages and minimize their effects.

3. All reports shall be signed by persons identified below:

   a. <u>For a corporation</u>: by a principal executive officer of at least the level of senior vice-president.

   b. <u>For a partnership or sole proprietorship</u>: by a general partner or the proprietor.

   c. <u>For a municipality, state, federal or other public agency</u>: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in 3a, 3b or 3c of this requirement if;

      (1) the authorization is made in writing by a person described in 3a, 3b or 3c of this provision;

      (2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a waste management unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

      (3) the written authorization is submitted to the Board

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

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

4. Technical and monitoring reports specified in this Order are requested pursuant to Section 13267 of the Water Code. Failing to furnish the reports by the specified deadlines and falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the discharger.

5. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

   California Regional Water Quality Control Board
   Central Valley Region
   11020 Sun Center Drive, #200
   Rancho Cordova, CA 95670-6114

   or the current address if the office relocates.

C. Provisions for Monitoring:

1. All analyses shall be made in accordance with the latest edition of: (1) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA 600 Series) and (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition). The test method may be modified subject to application and approval of alternate test procedures under the Code of Federal Regulations (40 CFR 136).

2. Chemical, bacteriological, and bioassay analysis shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to EPA guidelines or to procedures approved by the Board.

   Unless otherwise specified, all metals shall be reported as Total Metals.

3. The discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of three

years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

Record of monitoring information shall include:

a. the date, exact place, and time of sampling or measurements,
b. the individual(s) who performed the sampling of the measurements,
c. the date(s) analyses were performed,
d. the individual(s) who performed the analyses,
e. the laboratory which performed the analysis,
f. the analytical techniques or methods used, and
g. the results of such analyses.

4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.

5. The discharger shall maintain a written sampling program sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the discharger shall be familiar with the sampling plan.

6. The discharger shall construct all monitoring wells to meet or exceed the standards stated in the State Department of Water Resources *Bulletin 74-81* and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.22

D. Standard Conditions for Facilities Subject to California Code of Regulations, Title 23, Division3, Chapter 15 (Chapter 15)

1. All classified waste management units shall be designed under the direct supervision of a California registered civil engineer or a California certified engineering geologist. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:

   a. demonstrate that the waste management unit has been constructed according to the specifications and plans as approved by the Board.

   b. provide quality control on the materials and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.

2. Prior to the discharge of waste to any classified waste management unit, a California registered civil engineer or a California certified engineering geologist must certify that the waste management unit meets the construction or prescriptive standards and performance goals in Chapter 15, unless an engineered alternative has been approved by the Board. In the case of an engineered alternative, the registered civil engineer or a certified engineering geologist must

certify that the waste management unit has been constructed in accordance with Board-approved plans and specifications.

3. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the waste management units.

4. Closure of each waste management unit shall be performed under the direct supervision of a California registered civil engineer or a California certified engineering geologist.

E. Conditions Applicable to Discharge Facilities Exempted from Chapter 15 Under Section 2511

1. If the discharger's wastewater treatment plant is publicly owned or regulated by the Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to California Code of Regulations, Title 23, Division 4, Chapter 14.

2. By-pass (the international diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The Board may take enforcement action against the discharger for by-pass unless:

   a. (1) By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); and

      (2) There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or

   b. (1) by-pass is required for essential maintenance to assure efficient operation; and

      (2) neither effluent nor receiving water limitations are exceeded; and

      (3) the discharger notifies the Board ten days in advance.

   The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. above.

3. A discharger that wishes to establish the affirmative defense of an upset (see definition in E.6 below) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

a. an upset occurred and the cause(s) can be identified;

b. the permitted facility was being properly operated at the time of the upset;

c. the discharger submitted notice of the upset as required in paragraph B.1. above; and

d. the discharger complied with any remedial measures required by waste discharge requirements.

In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Board by **31 January**.

5. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to disposal. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

6. Definitions

   a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper action.

   b. The monthly average discharge is the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging. This number is to be reported in gallons per day or million gallons per day.

      Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges by the number of days during the month when the measurements were made.

   c. The monthly average concentration is the arithmetic mean of measurements made during the month.

   d. The "daily maximum" **discharge** is the total discharge by volume during any day.

e. The "daily maximum" **concentration** is the highest measurement made on any single discrete sample or composite sample.

f. A "grab" sample is any sample collected in less than 15 minutes.

g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period;

(1) at equal time intervals, with a maximum interval of one hour

(2) at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

7. Annual Pretreatment Report Requirements:

Applies to dischargers required to have a Pretreatment Program as stated in waste discharge requirements.)

The annual report shall be submitted **by 28 February** and include, but not be limited to, the following items:

a. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the influent and effluent for those pollutants EPA has identified under Section 307(a) of the Clean Water Act which are known or suspected to be discharged by industrial users.

The discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR (Code of Federal Regulations) Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

b. A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the discharger knows or suspects were caused by industrial users of the system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any

additional limitations, or changes to existing requirements, may be necessary to prevent Pass Through, Interference, or noncompliance with sludge disposal requirements.

c. The cumulative number of industrial users that the discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

d. An updated list of the discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The discharger shall provide a brief explanation for each deletion. The list shall identify the inddustrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent that the federal categorical standards. The discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

(1) Complied with baseline monitoring report requirements (where applicable);

(2) Consistently achieved compliance;

(3) Inconsistently achieved compliance;

(4) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

(5) Complied with schedule to achieve compliance (include the date final compliance is required);

(6) Did not achieve compliance and not on a compliance schedule;

(7) Compliance status unknown.

A report describing the compliance status of any industrial user characterized by the descriptions in items (d)(3) through (d)(7) above shall be **submitted quarterly from the annual report date** to EPA and the Board. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order.

e. A summary of the inspection and sampling activities conducted by the discharger during the past year to gather information and data regarding the industrial users. The summary shall include but not be limited to, a tabulation of categories of dischargers that were inspected and sampled; how many and how often; and incidents of noncompliance detected.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

(1) Warning letters or notices of violation regarding the industrial user's apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations;

(2) Administrative Orders regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;

(3) Civil actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;

(4) Criminal actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

(5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;

(6) Restriction of flow to the treatment plant; or

(7) Disconnection from discharge to the treatment plant.

g. A description of any significant changes in operating the pretreatment program which differ from the discharger's approved Pretreatment Program, including, but not limited to, changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority of enforcement policy; funding mechanisms; resource requirements; and staffing levels.

h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

i. A summary of public participation activities to involve and inform the public.

j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

Duplicate signed copies of these reports shall be submitted to the Board and:

Regional Administrator

U.S. Environmental Protection Agency W-5
75 Hawthorne Street
San Francisco, CA 94105

and

State Water Resource Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812

Revised January 2004 to update addresses and phone numbers