CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0038

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF TRACY AND LEPRINO FOODS COMPANY
LAND DISCHARGE UNITS OF THE TRACY WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

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

1. The City of Tracy Wastewater Treatment Plant (hereafter Facility) treats primarily domestic wastewater collected via the City of Tracy's wastewater collection system. The Facility also accepts industrial food processing wastewater through a segregated collection system from Leprino Foods Company (Leprino), a local cheese manufacturer. Leprino operates pretreatment ponds at the Facility to treat its industrial food processing wastewater prior to discharge to the City of Tracy's industrial holding ponds. The industrial wastewater is held in the ponds prior to final treatment at the main treatment plant. After treatment, all wastewater is discharged to Old River, under a separate NPDES permit.

2. The City of Tracy submitted a Report of Waste Discharge (ROWD) on 1 November 2000, to update its NPDES permit. Subsequently, on 3 February 2003**,** the City of Tracy submitted a modified ROWD, which included a request to increase the discharge from 9.0 million gallons per day (mgd) to 16 mgd. Because the discharge of waste may impact groundwater at the site, the Facility will be regulated by separate waste discharge requirements (WDRs) in addition to the NPDES permit.

3. These WDRs regulate the industrial pretreatment ponds, industrial holding ponds, sludge drying beds, and biosolids storage areas of the Facility. The remainder of the Facility is regulated under Order No. R5-2007-0036 (NPDES No. CA0079154), not incorporated by reference herein.

4. The close proximity of the City of Tracy's and Leprino's waste units makes it difficult to distinguish between any infiltration to groundwater from the facilities operated by the City of Tracy and from those operated by Leprino. Therefore, where applicable, this Order refers to the City of Tracy and Leprino Foods Company individually and/or jointly as "Discharger." Leprino is solely responsible for discharges from its segregated industrial pipeline and the treatment units it operates at the Facility. The City of Tracy is the owner of the Facility and is responsible for all discharges from the Facility, including the discharges from the Leprino-operated treatment units.

Background

5. The City of Tracy Wastewater Treatment Plant is located north of Interstate 205 on the northern edge of the City of Tracy in San Joaquin County in Section 16, T1S, R5E, MDB&M, as shown in Attachment A, which is attached hereto and made part of this Order by reference.

6. The Facility is composed of a main treatment facility and an industrial treatment facility. The main treatment facility is owned and operated by the City of Tracy and consists of raw influent bar screening, primary sedimentation, biofiltration, conventional activated sludge, and secondary sedimentation. Secondary effluent is disinfected by chlorination and dechlorinated prior to final discharge to Old River. Biosolids are thickened by dissolved air flotation, anaerobically digested, and dewatered in unlined sand drying beds. The dried biosolids are disposed in a landfill or hauled off-site for land application. A flow schematic of the main treatment facility is shown in Attachment B, which is attached hereto and made part of this Order by reference. A plant layout of the main facility is shown in Attachment D, which is attached hereto and made part of this Order by reference.

7. The industrial facility consists, in part, of pretreatment units owned by the City of Tracy and operated by Leprino under an industrial pretreatment permit issued by the City of Tracy, and holding ponds located north east of the main treatment facility site. Leprino is authorized to discharge up to 850,000 gpd of pretreated wastewater in accordance with the industrial wastewater discharge permit.

   The pretreatment units operated by Leprino include two identical lined lagoons constructed in 1977 of compacted berms that rise above the base level of the surrounding ground. The berms are of 1.5:1 slope on the interior and meet a concrete floor 94-ft square, and the floor slab is between 8 – 12 inches thick. The concrete floor serves as the base for grouted threaded supports holding an EDI fine air tube diffuser system 18-inches off the floor. The sloped interior sides of the aerated lagoons are lined with an impermeable Hypalon/EPDM reinforced geotextile fabric specifically designed to seal active lagoon systems. The liner is sealed to the floor of the lagoons with a perimeter-bolted frame completely wrapped by the liner material and grouted in place, and the liner itself is vulcanized into a single continuous sheet. The top of the liner is buried in a trench dug 12-inches deep along the top perimeter of the lagoon system to prevent pullout of the liner top. The freeboard design allows for 2-feet of freeboard.

   The lagoon system is built almost entirely above the surrounding grade. This kind of construction ensures that any liner punctures below the water line will result in saturation of the berm and visual indications of leaking wastewater would be visible on the surrounding berm slopes. Leprino lowers the level of the lagoons periodically to inspect the aeration system and the lagoon liners for signs of wear, and replaces or repairs the lagoon components as needed.

   The purpose of the aerated, lined lagoon system is to allow for reduction of the organic components of the food processing wastewater produced from Leprino's cheese and whey manufacturing process. The process is operated in an aerobic mode that promotes the natural growth of microscopic organisms that consume the soluble portion of the organic materials in the wastewater. The resulting reduction in organic loading is measured as a reduction in BOD_5 in the clarified effluent.

   Following the active aerobic treatment, the pretreated industrial food processing wastewater is transferred to one of the City owned lagoons located north east of the main

plant site. The unlined 8-acre lagoon, known by the City as Pond 2, is leased for operation by Leprino. The secondary lagoon is divided into two sections by a floating baffle to allow for settling of the biosolids and clarification of the pretreated wastewater. A rotary screen polishes the pretreated water just prior to discharge to an adjacent 8-acre unlined lagoon owned and operated by the City known as Pond 1. The operation of the rotary screen is enhanced by addition of a flocculent emulsion polymer prior to screening. Biosolids are stored in the main lagoon section and are allowed to stabilize in a facultative mode. Operation of the Leprino lagoon is regulated by the industrial pretreatment permit issued to Leprino.

Pretreated wastewater may infiltrate into the underlying groundwater from the City's Pond 2, which is leased and operated by Leprino. Therefore, discharges from Pond 2 are regulated by this Order.

8. The City's unlined industrial holding ponds cover approximately 52 acres. According to the City, most of the ponds were constructed over a layer of compacted clay, however the ponds were not designed to be impermeable. The holding ponds were originally constructed to provide storage of peak industrial wastewater flows during the summer canning season to prevent overloading of the main treatment facility. Since there are no longer canneries in the Tracy area that discharge to the Facility, the holding ponds are currently used to store food processing wastewater from Leprino, water from construction dewatering, and process wastewater from the main treatment facility (e.g. digester supernatant, pump seal water, boiler cooling water, etc.). Effluent from the holding ponds enters the main treatment facility at the primary sedimentation basins. A flow schematic of the industrial facilities is shown in Attachment C, which is attached hereto and made part of this Order by reference. The holding ponds allow the pretreated wastewater to percolate to groundwater. Therefore, discharges from the holding ponds are regulated by this Order.

9. The wastewater contained in the holding ponds include constituents such as total dissolved solids (TDS), electrical conductivity (EC), BOD_5, and total suspended solids (TSS). The following table presents wastewater concentrations for selected constituents collected from the unlined holding ponds from 2000-2004:

Constituent	Units	Average	Maximum
BOD_5	mg/L	84[(1)]	479[(1)]
TSS	mg/L	179[(1)]	1580[(1)]
EC	µmhos/cm	3,669[(2)]	4,773
TDS	mg/L	2,331[(2)]	2,942
Chloride	mg/L	496[(2)]	533

Constituent	Units	Average	Maximum
Sulfate	mg/L	198(2)	270
Nitrate-N	mg/L	5(2)	7
Nitrite-N	mg/L	4(2)	5
Arsenic	µg/L	ND(2)	6.9
Manganese	µg/L	51(2)	91

(1) Leprino influent to Pond 2.

(2) Average of Ponds 1 through 5. Actual constituent concentrations vary from pond to pond.

10. The City utilizes sand sludge drying beds for dewatering its anaerobically digested sludge. The Facility includes 12 drying beds with a total surface area of approximately 8.2 acres. The drying beds use an underdrain system to return residual liquid to the plant sewer pump station, which is returned to the facility headworks. However, the beds are not lined to prevent seepage to groundwater. Therefore, discharges from the sludge drying beds are regulated by this Order.

11. The City stores the dried biosolids onsite in an unlined pond prior to final disposal in a landfill or by land application. There is the potential for seepage to groundwater during rainfall events. Therefore, discharges from the biosolids storage area are regulated by this Order.

Site-Specific Conditions

12. Driller's logs from wells in the vicinity of the holding ponds show alternating sands and clays with no predominance of fine- or coarse-grained deposits. Depth to groundwater ranges from 14 to 18 feet below ground surface (bgs) near the holding ponds. Groundwater flows to the north.

13. As shown on Attachment E (which is attached hereto and made part of this Order by reference), the City has installed five groundwater monitoring wells around its unlined holding ponds. These are the only groundwater monitoring wells at the Facility. Additional groundwater studies or monitoring wells may be required to determine if the sludge drying beds, biosolids storage area, and/or Leprino's pretreatment lagoons are adversely affecting groundwater quality. Provisions E.1.b. requires the Discharger to ensure the groundwater monitoring network includes one or more background monitoring wells and a sufficient number of monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater.

Basin Plan, Beneficial Uses, and Regulatory Considerations

14. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, revised August 2006 (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Water Board). Pursuant to section 13263(a) of the California Water Code (CWC), waste discharge requirements (WDRs) must implement the Basin Plan and must take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241.

15. The Basin Plan designates the beneficial uses of underlying groundwaters as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

16. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical and narrative water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water unless higher levels are the result of factors that cannot be reasonably controlled or are not subject to the authority of the State and Regional Water Boards. The Basin Plan requires that the Regional Water Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.

17. The Regional Water Board applies the bacteria objective to all groundwaters designated as municipal or domestic supply (MUN), not just those waters currently used for MUN. This interpretation is consistent with the CWC and the Basin Plan. The Regional Water Board has consistently interpreted the objective to apply to groundwater designated for MUN. The Regional Water Board has a long-standing pattern and practice of adopting WDRs that reflect this interpretation. The following excerpts from the Basin Plan clearly support the plain meaning of the Basin Plan as well as the Regional Water Board's established pattern and practice:

    a. The introductory paragraph on Water Quality Objectives for Ground Waters (page III-9.00 of the Basin Plan) states: *"The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses."*

    b. The Policy for Application of Water Quality Objectives (page IV-16.00) states: *"Water quality objectives apply to all waters within a surface water or ground water resource for which beneficial uses have been designated, rather than at intake, wellhead, or other point of consumption."* Consistent with the CWC and the Basin Plan, the Regional Water Board applies the bacteria objective to all groundwaters designated as MUN, not just those waters currently used for MUN.

c. The Regional Water Board has implemented State Water Board Resolution No. 88-63 (Adoption of Policy Entitled "Sources of Drinking Water") by designating all groundwaters of the State to be suitable or potentially suitable for MUN uses, unless otherwise designated by the Regional Water Board or unless at least one the following three criteria for exceptions apply:

- The total dissolved solids concentration of the resource exceeds 3,000 mg/L (5,000 µmhos/cm, electrical conductivity) and it is not reasonably expected by the Regional Water Board to supply a public water system, or
- There is contamination, either by natural processes or human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or
- The water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day.

The Regional Water Board can only "de-designate" beneficial uses of a specific water body through amendment of the Basin Plan.

18. State Water Board Order No. WQO-2003-0014 upheld the Regional Water Board's interpretation of the Basin Plan with respect to implementation of the bacteria objective, stating: *"The Basin Plan contains a water quality objective for bacteria that applies to groundwater that states: 'In groundwaters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 mL.' Since the groundwater is designated for municipal or domestic supply, a groundwater limitation for coliform of less than 2.2MPN/100 mL is appropriate."*

19. The Basin Plan includes a water quality objective for Chemical Constituents that, at a minimum, requires waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449, and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

20. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents objective requires that

groundwater "*shall not contain chemical constituents in concentrations that adversely affect beneficial uses.*" The Tastes and Odors objective requires that groundwater "*shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.*" Chapter IV, Implementation, of the Basin Plan contains the "Policy for Application of Water Quality Objectives." This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.

Groundwater Degradation

21. The shallow groundwater in the vicinity of the Facility is high in salinity and exceeds water quality objectives. In situations where the background water quality exceeds water quality objectives, the Basin Plan at page IV-15.00 states that, "*Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.*" The Basin Plan also states at page III-9.00 and page IV-17.00 that water quality objectives "*do not require improvement over naturally occurring background conditions."*

22. The record indicates that Regional Water Board staff have been concerned about possible groundwater degradation caused by the City's use of its unlined holding ponds dating back to 1989. A discussion of several groundwater studies performed by the City since that time is provided in the Information Sheet. Monitoring data provided by the City is not conclusive as to whether or not the unlined holding ponds may be adversely affecting groundwater. See Figure F-1 of Attachment F, which is attached hereto and made part of this Order by reference. The City has argued that the groundwater quality in the vicinity of the Facility is variable and naturally high in salinity, therefore, it is difficult to determine whether degradation has occurred, and if so, whether the ponds are the cause of the degradation.

23. The Discharger has utilized the ponds for many years (Leprino started to utilize Pond 2 in 1998), so any assimilative capacity in the shallow groundwater basin has likely been exhausted. In addition, as discussed in Finding 12, the depth to groundwater only ranges from 14 to 18 feet bgs near the holding ponds. Therefore, the attenuation of wastes in the soil column is likely minimal.

24. In a 1995 report regarding groundwater conditions, the City concludes that the unlined holding ponds percolate wastewater to the shallow groundwater. However, the City states that there is not adequate evidence that the ponds have degraded groundwater due to the variability of groundwater quality in the vicinity of the Facility.

25. Based on 28 samples collected by the City from 30 November 1994 to 25 May 2004 at upgradient well MW-5, the groundwater upgradient of the holding ponds contained an average TDS concentration of 1,740 mg/L. Groundwater underlying the ponds (as measured at MW-2, MW-3, and MW-4) contained an average TDS of 2273 mg/l. This data indicates that the unlined holding ponds may be adversely affecting groundwater quality, but additional studies are necessary to confirm this presumption.

26. In 1997, Heinz Food, Inc. ceased discharging up to 2.0 mgd of tomato processing wastewater to the holding ponds during the summer months. Since that time, Leprino has been the primary discharger to the City's holding ponds. Because less wastewater is discharged to the ponds, there is a longer detention time resulting in a greater evapo-concentration of salts. Pond monitoring data collected from October 2000 to March 2005 show an increase in EC from May to October each year and the EC measured in the downgradient wells follows the trend of the pond data (see Attachment F, Figure F-2).

27. On 15 June 2004, Regional Water Board staff issued a CWC Section 13267 Order requiring the City to (a) evaluate potential groundwater degradation from its sludge dewatering process, sludge storage practices, and industrial waste aeration ponds, (b) evaluate Best Practicable Treatment and Control (BPTC) practices for the sludge dewatering and storage practices, and (c) determine the appropriate classification for the wastewater in the holding ponds.

28. The Citywas unable to provide an adequate evaluation as to whether groundwater degradation has occurred as a result of the sludge dewatering, biosolids storage, and industrial waste aeration processes, because groundwater monitoring wells have not been installed downgradient of these treatment units. This Order requires that that analysis be completed. Provisions E.1.b. requires the Discharger to ensure that any studies undertaken using current or new wells as part of the groundwater monitoring network include one or more background monitoring wells and a sufficient number of monitoring wells downgradient of every treatment, storage, and disposal unit that may release waste constituents to groundwater.

Antidegradation Analysis

29. State Water Board Resolution No. 68-16 (hereafter "Resolution 68-16" or the "Antidegradation Policy") requires the Regional Water Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g. exceeds water quality objectives or naturally occurring background concentrations).

30. This Order requires that the discharge be consistent with Resolution 68-16. Groundwater Limitations D.1. prohibits the release of waste constituents from any storage, treatment, or disposal component associated with the Facility, in combination with other sources of the waste constituents, to cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality (i.e. no degradation). The wastewater contained in the holding ponds is primarily food processing wastewater from Leprino. Therefore, any groundwater degradation would not be consistent with maximum benefit to the people of the State. The sludge dewatering system is part of the domestic wastewater treatment plant. However, no groundwater degradation is allowed, because there are standard BPTC methods that will prevent degradation.

31. The Facility currently utilizes sand-lined sludge drying beds to dewater biosolids and the City stores dried biosolids in an unlined pond, which could allow wastewater to percolate to the groundwater. In addition, the Facility includes unlined holding ponds, which contain high salinity wastewater that percolates to groundwater. Resolution 68-16 requires that these facilities meet best BPTC. Provision E.1.c. of this Order requires the Discharger to evaluate and meet BPTC for these treatment units.

Waste Characterization and Waste Management Unit Classification

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

33. Discharge Prohibition A.2. prohibits the discharge of designated wastes, "*Discharge of waste classified as "hazardous" under Section 2521, Chapter 15 of Title 23 or "designated," as defined in Section 13173 of CWC is prohibited.*" Based on the data characterization summarized in Finding 9 of this Order, if not properly controlled, the wastes contained in the unlined holding ponds may be classified as designated waste if the concentration of total dissolved solids exceed the applicable water quality objectives or natural background conditions. Section 20210 of Title 27, California Code of Regulations, requires that such waste can only be discharged to a Class I or Class II surface impoundment equipped with engineered lining and a leachate collection and recovery system.

34. Pursuant to section 20090(b) of Title 27, California Code of Regulations, the discharge of wastewater to land, including but not limited to evaporation ponds, percolation ponds or subsurface leachfields, may be exempted from the State Water Board-promulgated provisions of this subdivision, as long as the activity meets, and continues to meet, all preconditions listed below:

    i. the applicable Regional Water Board has issued WDRs, reclamation requirements or waived such issuance;

    ii. the discharge is in compliance with the applicable water quality control plan; and

    iii. the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

35. An additional Title 27 exemption, section 20090(a), is provided for discharges of domestic sewage or treated effluent associated with municipal wastewater treatment plants provided that the discharge is regulated under WDRs or a waiver of WDRs and that the discharge is consistent with applicable water quality objectives.

36. It remains uncertain whether any incidental discharge to groundwater meets the requirements for an exemption pursuant to section 20090(a) or 20090(b) of Title 27,

California Code of Regulations. The existing and proposed wastewater stored in the holding ponds may not be in compliance with the water quality control plan, because the analytical data show that the wastewater exceeds the Basin Plan's chemical constituents objective for groundwater. In addition, the wastewater treated in the holding ponds is not domestic sewage. It is primarily industrial food processing wastewater from Leprino.

37. Provision E.3. includes a compliance time schedule requiring the Discharger to comply with Discharge Prohibition A.2.

Other Regulatory Considerations

38. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 Code of Federal Regulations (CFR) part 503, *Standard for the Use or Disposal of Sewage Sludge,* which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.

39. The Regional Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Water Board is not the implementing agency for 40 CFR 503 regulations. The City may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA. The ROWD states all biosolids will be hauled to a separate permitted facility.

40. U.S. EPA promulgated Federal Regulations for stormwater on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater Treatment Plants are applicable industries under the stormwater program and are obligated to comply with the Federal Regulations.

41. Section 13267(b) of the CWC 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. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.*"

The monitoring and reporting program required by this Order (Monitoring and Reporting Program No. R5-2007-0038) is necessary to assure compliance with these waste discharge requirements. The City owns and operates the facility that discharges the waste subject to this Order.

42. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC Section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order. Those wells that do not have a construction log, boring log, or County permit may not be used for monitoring associated with this Order.

43. Pursuant to CWC Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

44. The action to update waste discharge requirements for the City of Tracy Wastewater Treatment Plant is exempt from the provisions of the California Environmental Quality Act, in accordance with Title 14, CCR, Section 15301.

Public Notice

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

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

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

IT IS HEREBY ORDERED that pursuant to Sections 13263 and 13267 of the California Water Code, the City of Tracy and Leprino Foods Company, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, 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. Bypass or overflow of untreated or partially treated waste is prohibited.
2. Discharge of waste classified as "hazardous" under Section 2521, Chapter 15 of Title 23 or "designated," as defined in Section 13173 of CWC is prohibited.
3. The discharge of any waste material or constituent from the sludge drying beds or biosolids storage areas to surface waters is prohibited.

B. Discharge Specifications

1. The wastewater treatment units shall not cause pollution or a nuisance as defined by Section 13050 of the CWC.

2. Public contact with wastewater shall be precluded or controlled through such means as fences, signs, or acceptable alternatives.

3. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the property owned by the Discharger.

4. As a means of discerning compliance with Discharge Specification B.3, the dissolved oxygen content in the upper one foot of any wastewater treatment or storage pond shall not be less than 1.0 mg/L.

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

6. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

   a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

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

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

8. No stored wastewater shall have a pH less than 6.5 or greater than 10.0.

C. General Solids Disposal Specifications

Sludge means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the facility. Biosolids refers to sludge that has undergone sufficient treatment and testing to qualify for reuse pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land recycling.

1. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and

consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy these specifications.

2. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal plant operation.

3. Treatment and storage of sludge shall be confined to the treatment facility property, shall be temporary, and shall be conducted in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

4. Use and disposal of biosolids shall comply with the self-implementing Federal regulations of 40 CFR 503, which are subject to enforcement by the U.S. EPA, not the Regional Water Board. If during the life of this Order, the state accepts primacy for implementation of 40 CFR 503, the Regional Water Board may also initiate enforcement where appropriate.

5. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. EPA Regional Administrator at least **90 days** in advance of the change.

6. The City of Tracy is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

7. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.

8. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.

9. Biosolids storage facilities shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

D. Groundwater Limitations

1. Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.

E. Provisions

1. The following reports shall be submitted pursuant to Section 13267 of the CWC and shall be prepared as described in Provision E.2.

   a. **Groundwater Monitoring Workplan.** To determine compliance with Groundwater Limitations D.1., the groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. By **1 November 2007,** the Discharger shall submit a Groundwater Monitoring Work Plan prepared in accordance with, and including the items listed in, the first section of Attachment E: *"Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports."* All monitoring wells shall comply with the appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC section 13801.

   b. **Groundwater Water Quality Characterization.** The Discharger, after two years of monitoring, shall characterize natural background quality of monitored constituents in a technical report, to be submitted by **1 August 2010**. For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10), and shall be based on data from at least eight consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration.

   c. **Best Practical Treatment or Control (BPTC)**. If the groundwater monitoring results show that the discharge of waste is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality, then by **1 December 2010**, the Discharger shall submit a BPTC Evaluation Workplan that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the facilities' waste management system to determine best practicable treatment or control for each the waste constituents of concern. The workplan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

2. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.

3. **Compliance with Prohibition A.2.** Prohibition A.2. requires that the, "*Discharge of waste classified as "hazardous" under Section 2521, Chapter 15 of Title 23 or "designated," as defined in Section 13173 of CWC is prohibited.*" Based on available water quality data, it appears the holding ponds contain wastewater with constituent concentrations that exceed water quality objectives and may be classified as "designated" waste. However, it is necessary for the Discharger to adequately characterize background water quality to make a final determination. Upon completion of the Groundwater Water Quality Characterization study, required in Provisions E.1.b., if the any waste constituent in the holding ponds exceeds water quality objectives or background water quality, whichever is higher, the Discharger will be required to evaluate alternatives to comply with Prohibition A.2. The Discharger shall comply with the following time schedule:

Task	Date Due
i. Submit Work Plan/Schedule to evaluate project alternatives	120 days from notification by the Executive Officer
ii. Submit implementation schedule for selected project alternative	1 year from Executive Officer approval of the Work Plan/Schedule required in Task i.
iii. Submit new Report of Waste Discharge[1]	1 year from Executive Officer approval of the Work Plan/Schedule required in Task i.
iv. Submit Progress Reports[2]	1 February, annually, after approval of the Work Plan/Schedule required in Task i.
v. Full compliance with Prohibition A.2.	Not to exceed 2 years from submission of

Task	Date Due
	the implementation schedule required in Task ii.

[1] If necessary to implement an alternative project not prescribed by this Order.

[2] The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final date.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2007-0038, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)." To the extent there are duplicative requirements in the Standard Provisions, this Order, or Waste Discharge Requirements Order No. R5-2007-0036 (NPDES Permit No. CA007914), the requirements only apply once.

6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

7. The Discharger shall submit to the Regional Water 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 Water Board in writing when it returns to compliance with the time schedule.

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

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

10. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.
11. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as a Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name, address, and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. Transfer shall be approved or disapproved by the Executive Officer.
12. The Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.
13. Leprino has been included in this Order and named as a "Discharger" along with the City of Tracy solely because Leprino operates City-owned Pond 2 under a lease arrangement. At such time that Leprino either ceases to utilize Pond 2 or has met its obligation under Prohibition A.2, Leprino will no longer be considered to be a "Discharger" under this Order and Leprino will no longer have any obligations under this Order.

I, PAMELA C. CREEDON, 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 May 4, 2007.

_____
PAMELA C. CREEDON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2007-0038

FOR

CITY OF TRACY AND LEPRINO FOODS COMPANY
LAND DISCHARGE UNITS OF THE TRACY WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the Discharger's holding ponds, groundwater, biosolids storage area, and sludge. This MRP is issued pursuant to California 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. Regional Water Board staff shall approve specific sample station locations prior to implementation of sampling activities.

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

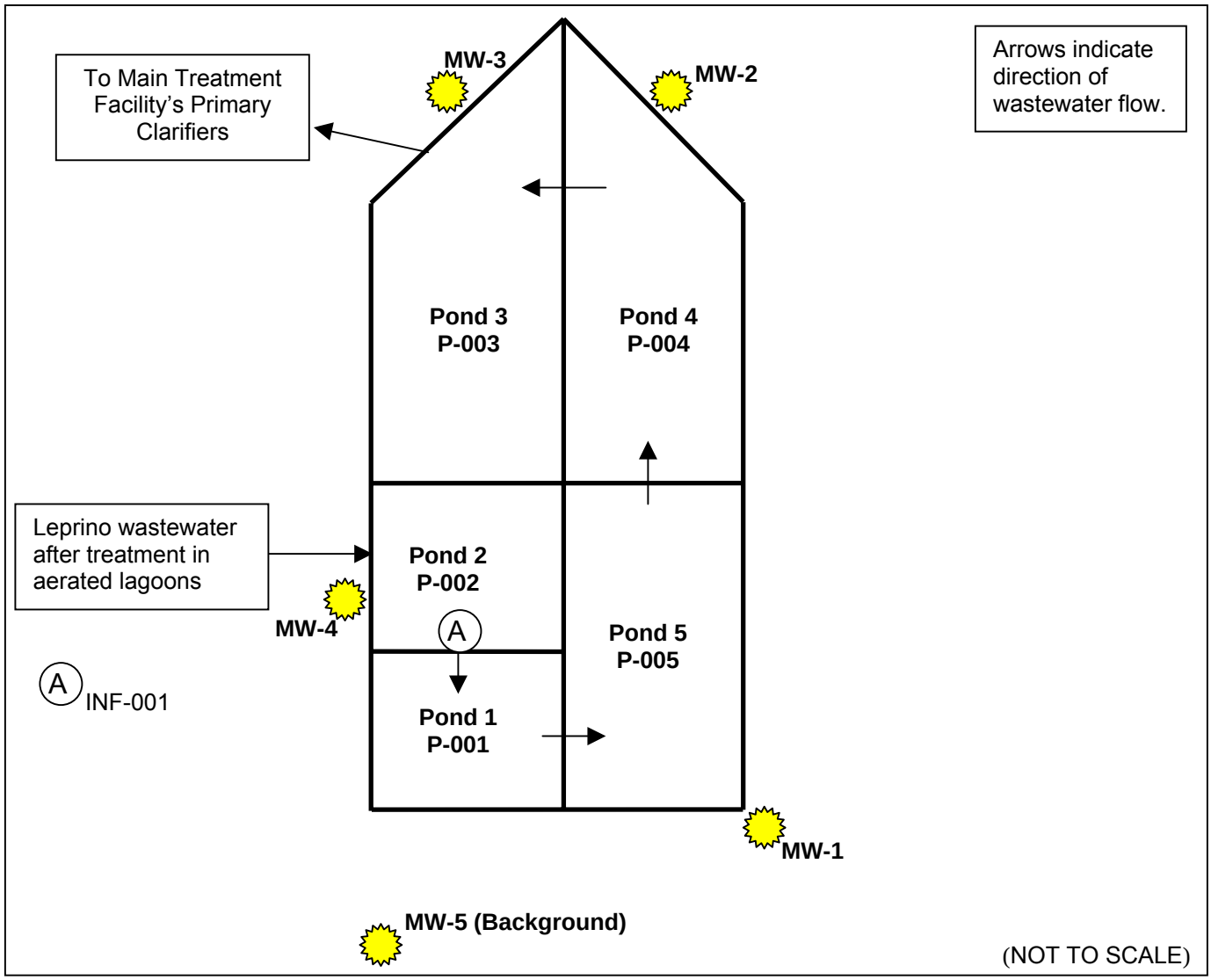
1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described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

MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the discharge specifications and other requirements in this Order:

Monitoring Location Name	Monitoring Location Description
MW-2	Groundwater monitoring well MW-2 (see Figure MRP-1)
MW-3	Groundwater monitoring well MW-3 (see Figure MRP-1)
MW-4	Groundwater monitoring well MW-4 (see Figure MRP-1)
MW-5	Groundwater monitoring well MW-5 (see Figure MRP-1)
INF-001	Leprino Influent to Holding Ponds (see Figure MRP-1)
P-001	Pond 1, Industrial Holding Pond (see Figure MRP-1)
P-002	Pond 2, Leprino Treatment Pond (see Figure MRP-1)
P-003	Pond 3, Holding Pond (see Figure MRP-1)
P-004	Pond 4, Holding Pond (see Figure MRP-1)
P-005	Pond 5, Holding Pond (see Figure MRP-1)
B-001	Biosolids prior to final disposal

Figure MRP-1 – Monitoring Locations



INFLUENT MONITORING

The Discharger shall monitor Leprino's discharge to the Holding Ponds at INF-001 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Minimum Reporting Frequency
Flow	mgd	Meter	Continuous	1/day
BOD 5-day 20°C	mg/L, lbs/day	Composite[1]	1/day	1/day
Total Suspended Solids	mg/L, lbs/day	Composite[1]	1/day	1/day
pH	Standard Units	Grab	1/week	1/week
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	1/week
Total Dissolved Solids	mg/L	Grab	1/week	1/week

[1] 24-hour flow proportional composite

POND MONITORING

The Discharger shall monitor the Holding Ponds at P-001, P-002, P-003, P-004, and P-005 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency
Freeboard	feet	Measurement	1/week
Dissolved Oxygen	mg/L	Grab	1/week
pH	Standard Units	Grab	1/week
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week
Total Dissolved Solids	mg/L	Grab	1/month
Volatile Dissolved Solids	mg/L	Grab	1/month
Nitrate (as N)	mg/L	Grab	1/quarter
Total Kjeldahl Nitrogen	mg/L	Grab	1/quarter
Standard Minerals[1]	mg/L	Grab	1/year

[1] Standard Minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness.

GROUNDWATER MONITORING

Prior to the construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below.

The Discharger shall monitor the groundwater at monitoring locations MW-2, MW-3, MW-4, and MW-5 as follows. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. Samples shall be collected using standard USEPA methods. Groundwater monitoring shall include, at minimum, the following:

Parameter	Units	Sample Type	Minimum Sampling/Reporting Frequency
Groundwater Elevation[1]	Feet	Measurement	1/quarter
Depth to Groundwater[1]	0.01 Feet	Measurement	1/quarter
Gradient	Feet/feet	calculated	1/quarter
Gradient Direction	degrees	calculated	1/quarter
pH	Standard Units	Grab	1/quarter
Total Dissolved Solids	mg/L	Grab	1/quarter
Volatile Dissolved Solids	mg/L	Grab	1/quarter
Electrical Conductivity @ 25 °C'	µmhos/cm	Grab	1/quarter
Total Kjeldahl nitrogen	mg/L	Grab	1/quarter
Nitrate (as N)	mg/L	Grab	1/quarter
Total Coliform Organisms	MPN/100 ml	Grab	1/quarter
Standard Minerals[2]	mg/L	Grab	1/quarter
Title 22 Metals[3]	mg/L	Grab	1/year

[1] Groundwater elevation shall be used to calculate the direction and gradient of groundwater flow. Elevations shall be measured to the nearest one-hundredth of a foot from mean sea level, from a surveyed measuring point elevation on the well. The groundwater elevation shall be measured prior to purging the wells.

[2] Standard Minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness.

[3] Title 22 metals shall include the analyses of arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

BIOSOLIDS MONITORING

1. A composite sample of biosolids shall be collected annually prior to final disposal in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for priority pollutants listed in 40 CFR section 122 Appendix D, Tables II and III (excluding total phenols). Monitoring Location B-001 is not specifically defined in this Order. The biosolids sample shall be collected at a location prior to leaving the Facility for final disposal.

2. Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

REPORTING

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

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 Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in monthly monitoring reports. Monthly reports shall be submitted to the Regional Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Monitoring results;
2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
3. If requested by staff, copies of laboratory analytical report(s); and
4. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

B. Quarterly Monitoring Reports

The Discharger shall establish a quarterly sampling schedule for pond and groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Regional Water Board by the **1st day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1st) and may be combined with the monthly report. The Quarterly Report shall include the following:

1. Results of pond and groundwater monitoring;

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the pond and groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions. For groundwater monitoring, the narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

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

4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);

5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;

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

7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and

8. Copies of laboratory analytical report(s) for pond and groundwater monitoring.

C. Annual Report

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular pond and groundwater monitoring report for the last sampling event of the year;

2. If requested by staff, tabular and graphical summaries of all data collected during the year;

3. An evaluation of the groundwater quality beneath the sludge handling facilities, aerated lagoons, and the unlined ponds;

4. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;

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

6. A discussion of the overall status of BPTC implementation over the past reporting year;

7. Equipment maintenance and calibration records, as described in Standard Provision No. C.4.;

8. Biosolids Reporting Requirements:
   a. Certification of compliance with 40 CFR part 503
   b. Annual sludge production in dry tons and percent solids;
   c. Quantitative results of chemical analyses for the priority pollutants listed in 40 CFR section 122 Appendix D, Tables II and III (excluding total phenols);
   d. Depth of application and drying time for sludge drying beds (if applicable); and
   e. A description of the disposal method(s) used at the Facility, including the following information. If more than one method is used, include the percentage of annual sludge production disposed by each method.
      i. For **landfill disposal**, include (1) the Regional Water Board's WDR numbers that regulate the landfill(s) used, (2) the present classifications of the landfill(s) used, and (3) the names and locations of the receiving facility(ies).
      ii. For **land application,** include (1) location of the site(s), (2) the Regional Water Board's WDR numbers that regulate the site(s), (3) the application rate in lbs/year (specify wet or dry), and (4) subsequent uses of the land.
      iii. For **incineration**, include (1) name and location of the site(s) where sludge incineration occurs, (2) the Regional Water Board's WDR numbers that regulate the site(s), (3) the disposal method of the ash, and (4) the names and locations of facilities receiving ash (if applicable).
      iv. For **composting**, include (1) name and location of the site(s) where sludge composting occurs, and (2) the Regional Water Board's WDR numbers that regulate the site(s).

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. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

_____
(Date)

INFORMATION SHEET

ORDER NO. R5-2007-0038
CITY OF TRACY AND LEPRINO FOODS COMPANY
LAND DISCHARGE UNITS OF THE TRACY WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

I. Permit Information

A. The Tracy Wastewater Treatment Plant (hereafter Facility) treats primarily domestic wastewater collected via the City of Tracy's wastewater collection system. The Facility also accepts industrial food processing wastewater through a segregated collection system from Leprino Foods Company (Leprino), a local cheese manufacturer. Leprino operates pretreatment units at the Facility to pretreat its industrial food processing wastewater prior to discharge to the City of Tracy-operated unlined holding ponds. The industrial food processing wastewater is held in the ponds prior to final treatment at the main treatment plant.

B. The Facility discharges wastewater to Old River, located within the Sacramento-San Joaquin Delta, a water of the United States. The discharge is currently regulated by Order No. 96-104, which was adopted on 3 May 1996 and expired on 3 May 2001. The terms of Order No. 96-104 automatically continued in effect after the permit expiration date.

   The City filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 1 November 2000. Subsequently, on 3 February 2003, the City of Tracy submitted a revised report of waste discharge, which included a request for expansion. Supplemental information was received on 25 September 2003, 30 September 2003, and 29 April 2004. A site visit was conducted on 9 November 2004, to observe Facility operations and conditions.

C. Due to the close proximity of the City of Tracy and Leprino operated waste units, it is difficult to distinguish between the discharges to land from the facilities operated by the City of Tracy and those operated by Leprino. Therefore, where applicable, the City of Tracy and Leprino are individually and/or jointly referred to as "Discharger." Leprino is solely responsible for discharges from its segregated industrial wastewater pipeline and the waste units it operates at the Facility. The City of Tracy is the owner of the Facility and is responsible for all discharges from the Facility, including the discharges from the Leprino operated waste units.

D. The Facility is regulated under Order No. R5-2007-0036 (NPDES No. CA0079154), to discharge treated municipal wastewater to Old River. However, as part of its treatment train, the Facility includes aerated lagoons, unlined holding ponds, unlined sludge drying beds, and unlined sludge storage basins. This Order regulates the land discharges from these treatment facilities.

II. Facility Description

A. Description of Wastewater and Biosolids Treatment or Controls

1. The City of Tracy provides wastewater treatment and disposal services for residences, businesses, and industries within the Tracy area. The Facility was originally constructed in 1930 and has experienced three major expansions. The last expansion was completed in 1987, expanding treatment capacity from 5.5 mgd to 9.0 mgd.

2. The Facility consists of a main treatment facility and an industrial facility, and includes two separate systems for the collection and conveyance of wastewater to the Facility. The main treatment facility accepts domestic and commercial wastewater via the City of Tracy's wastewater collection system. The industrial facility accepts industrial food processing wastewater through a segregated pipeline from Leprino.

   The main treatment facility consists of raw influent bar screening, primary sedimentation, biofiltration, conventional activated sludge, and secondary sedimentation. Secondary effluent is disinfected by chlorination and dechlorinated prior to discharge. Biosolids are thickened by dissolved air flotation, anaerobically digested, and dewatered in unlined sand drying beds. The dried biosolids are hauled off-site for land application or disposed in a landfill. A flow schematic of the main treatment facility is shown in Attachment B.

   The pretreatment units operated by Leprino include two identical lined lagoons constructed in 1977 of compacted berms that rise above the base level of the surrounding ground. The berms are of 1.5:1 slope on the interior and meet a concrete floor 94-ft square, and the floor slab is between 8-12 inches thick. The concrete floor serves as the base for grouted threaded supports holding an EDI fine air tube diffuser system 18-inches off the floor. The sloped interior sides of the aerated lagoons are line with an impermeable Hypalon/EPDM reinforced geotextile fabric specifically designed to seal active lagoon systems. The liner is sealed to the floor of the lagoons with a perimeter-bolted frame completely wrapped by the liner material and grouted in place, and the liner itself is vulcanized into a single continuous sheet. The top of the liner is buried in a trench dug 12-inches deep along the top perimeter of the lagoon system to prevent pullout of the liner top. The freeboard design allows for 2-feet of freeboard.

   The lagoon system is built almost entirely above the surrounding grade. This kind of construction ensures that any liner punctures below the water line will result in saturation of the berm and visual indications of leaking wastewater would be visible on the surrounding berm slopes. Leprino lowers the level of the lagoons periodically to inspect the aeration system and the lagoon liners for signs of wear, and replaces or repairs the lagoon components as needed.

The purpose of the aerated, lined lagoon system is to allow for reduction of the organic components of the food processing wastewater produced from Leprino's cheese and whey manufacturing process. The process is operated in an aerobic mode that promotes the natural growth of microscopic organisms that consume the soluble portion of the organic materials in the wastewater. The resulting reduction in organic loading is measured as a reduction in BOD_5 in the clarified effluent.

Following the active aerobic treatment, the pretreated food processing wastewater is transferred to one of the City owned lagoons located northeast of the main plant site. The unlined 8-acre lagoon, known by the City as Pond 2, is leased for operation by Leprino. The secondary lagoon is divided into two sections by a floating baffle to allow for settling of the biosolids and clarification of the pretreated wastewater. A rotary screen polishes the pretreated water just prior to discharge to a adjacent 8-acre unlined lagoon owned and operated by the City known as Pond 1. The operation of the rotary screen is enhanced by addition of a flocculent emulsion polymer prior to screening. Biosolids are stored in the main lagoon section and are allowed to stabilize in a facultative mode. Operation of the Leprino lagoon is regulated by the industrial pretreatment permit issued to Leprino.

Pretreated wastewater may infiltrate into the underlying groundwater fro the City's Pond 2, which is leased and operated by Leprino. Therefore, discharges from Pond 2 are regulated by this Order.

Leprino transports its food processing wastewater to the Facility via a segregated industrial waste line. Leprino employees operate and maintain the industrial wastewater pipeline and leased pretreatment units. Leprino's industrial pretreatment program permit allows for a discharge of up to 850,000 gallons per day of food-processing wastewater. Compliance with Leprino's industrial pretreatment permit is measured prior to discharge to Pond 1 (see Figure 1). The unlined holding ponds provide evaporation and percolation prior to the wastewater entering the main treatment facility at the primary sedimentation basins. A flow schematic of the industrial facilities is shown in Attachment C.

B. Planned Changes

The City of Tracy is upgrading the Facility to improve treatment and expand capacity. The treatment system capacity will be expanded to 16 mgd through a four-phase expansion. The improvements will improve the effluent quality over the current secondary level treatment. Only Phase 1 of the proposed expansion is estimated to be completed during the term of this Order, which would increase the treatment capacity to 10.8 mgd. The Report of Waste Discharge describes the proposed changes as follows:

1. **Phase 1 (10.8 mgd Design Capacity).** Phase 1 improvements will increase treatment to include nitrification/denitrification and tertiary filtration. The proposed improvements include the construction of new headworks with mechanical screening, replacement of existing primary clarifiers, construction of a flow equalization basin,

construction of three additional secondary aeration basins, installation of two tertiary treatment modules, construction of new chemical building, and paving of sludge drying beds (1/6 of capacity, approx.). The expected initiation of operation of Phase 1 improvements is 1 August 2008.

2. **Phases 2 – 4 (16 mgd Design Capacity).** Phases 2-4 improvements expand the treatment and discharge capacity to 16 mgd. The proposed Phase 2 improvements include construction of a second outfall near the existing outfall, and paving of additional sludge drying beds. The proposed Phase 3 improvements include construction of one aeration basin/secondary clarifier, installation of a new filter pump for tertiary treatment, and paving of sludge drying beds. The proposed Phase 4 improvements include construction of a new primary clarifier, replacement of two effluent pumps with larger capacity pumps, construction of a sludge digester, and paving the remaining sludge drying beds. The proposed initiation of operation of the Phase 2, 3 and 4 improvements are 1 October 2012, 1 September 2014, and 1 November 2016, respectively.

III. Applicable Plans, Policies, and Regulations

A. **Water Quality Control Plans**. The Regional Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the groundwaters underlying the Facility are designated as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

B. **Antidegradation Policy.** State Water Board Resolution No. 68-16 (Resolution 68-16) requires the Regional Water Board, in regulating discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies. Resolution 68-16 requires the discharge be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.

As discussed in Section II.A., the Facility utilizes separate facilities for pretreatment of industrial wastewater, which includes 60 acres of unlined ponds. The wastewater contained in the unlined holding ponds is predominantly food processing wastewater from Leprino. The food processing wastewater contains constituents such as TDS, EC, BOD, and TSS. The food processing wastewater flows in series through the unlined oxidation ponds and is returned to the primary sedimentation basins of the main plant. Attachment F, Figure F-3, shows the layout of the unlined treatment ponds, direction of flow, and locations of groundwater monitoring wells.

The shallow groundwater in the vicinity of the Facility is high in salinity and exceeds water quality objectives. The Basin Plan at page IV-15.00 states that, "*Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.*" EC concentrations in the treatment ponds and underlying groundwater exceed background groundwater concentrations, which indicates groundwater degradation may have occurred, as shown in Attachment F, Figure F-1.

The record indicates that Regional Water Board staff have been concerned about possible degradation of groundwater caused by the unlined ponds for many years. In August 1989, Regional Water Board staff requested the City of Tracy to submit a proposal and time schedule for installing groundwater monitoring wells to assess the potential impact the holding ponds may be having on salinity in the shallow groundwater.

Four groundwater monitoring wells were installed, MW-1 through MW-4 (see Attachment F, Figure F-3). MW-1 was constructed on the southeast corner of the ponds to allow upgradient or background sampling. Samples were collected from the ponds in February and October 1990. Analyses included TDS, pH, sulfate, chloride, fluoride, alkalinity, specific conductance, nitrate, and general metals. In October 1990, water quality samples were collected from the monitoring wells and analyzed for the same parameters as the ponds.

The study concluded that wastewater in the holding ponds did not currently appear to be affecting salinity levels in the local groundwater. Even though the ponds contained wastewater with TDS levels exceeding secondary drinking water standards, groundwater samples indicated the shallow groundwater is naturally high in TDS in the area.

In 1991, Regional Water Board staff ordered the City of Tracy to conduct additional quarterly groundwater monitoring. This monitoring included the collection of samples from the ponds and monitoring wells, with analyses performed for TDS, pH, EC, and chlorides. The monitoring began in March 1992 and included six quarterly sets of data collected by the City of Tracy. The monitoring data appeared to confirm the holding ponds were not negatively affecting the water quality of the shallow groundwater. However, some data was contradictory. Continued concerns about potential degradation of groundwater remained and Regional Water Board staff

ordered installation of a new background monitoring well, further upgradient from the ponds, due to concerns that the background monitoring well, MW-1, was not outside the influence of the ponds. The City of Tracy was also ordered to conduct additional groundwater monitoring, and surface water monitoring in Sugar Cut Slough, which is adjacent to the ponds.

The City installed a new background well, MW-5, further upgradient from the holding ponds. Water quality sampling of the holding ponds, monitoring wells, Sugar Cut Slough, and an agricultural drainage ditch upstream of Sugar Cut Slough was conducted in September and November 1994 and March 1995. The samples were analyzed for TDS, EC, chlorides, and pH. The samples collected in November were also analyzed for major cations and anions.

The data was analyzed and summarized in a 1995 report submitted by the City of Tracy. The 1995 Report concluded the unlined ponds percolated to the shallow groundwater, and that the shallow groundwater in the vicinity of the ponds was in hydraulic continuity with Sugar Cut Slough. Even though downgradient well samples showed higher salinity concentrations than background well samples, the 1995 Report concluded there was not adequate evidence that the ponds were causing the increases, because the underlying groundwater had higher concentrations than the ponds. The 1995 Report further concluded the ponds were not adversely affecting surface water in Sugar Cut Slough.

The monitoring and reporting program contained in Order No. 96-104 required quarterly monitoring of the holding ponds and groundwater for TDS and EC. Based on monitoring from October 1999 through May 2004, it is evident the EC of the ponds has increased from the levels measured in 1994 and 1995, which were used to evaluate groundwater degradation caused by the ponds. Prior to 1997, Heinz Foods, Inc. discharged approximately 1.6 to 2.0 mgd of tomato wastewater to the ponds during the summer months. Since Heinz ceased its discharge to the Facility, the average EC concentrations of the ponds have increased. This may be due to lower flows through the ponds. Leprino discharges on average about 0.6 mgd. Lower flows result in longer detention times and increased evaporation may be causing the increase in EC in the ponds. This is corroborated by pond monitoring data from 2001 – 2004, which show increases in EC from March-October each year. Downgradient groundwater sampling shows that groundwater quality fluctuates with EC peaking in October-December. This is likely the result of the increased EC concentrations in the ponds in late summer and fall.

During an inspection of the Facility on 17 May 2004, Regional Water Board staff cited concerns of possible groundwater degradation due to unlined sludge drying beds and unlined treatment ponds. In addition, Regional Water Board staff raised concerns regarding the designation of the waste in the unlined ponds containing food processing wastewater from Leprino and the lack of best practicable treatment or control (BPTC) for the unlined sludge drying beds. On 15 June 2004, Regional Water Board staff issued a 13267 Order requesting a groundwater study to evaluate if

groundwater degradation has occurred as a result of the sludge dewatering process, the sludge storage practices, and the industrial waste aeration process. No groundwater monitoring wells exist to evaluate degradation due to these processes. The 13267 Order also requested an evaluation of BPTC for the sludge dewatering and storage practices. Finally, the 13267 Order requested an evaluation of the classification of the industrial food processing wastewater treated in the unlined ponds.

In June 2005, the City of Tracy provided a groundwater study that only evaluated groundwater underlying the ponds using data from routine quarterly monitoring since 1990. It failed to evaluate if groundwater degradation had occurred as a result of the sludge dewatering and storage practices and the industrial waste aeration process, which was requested in the 13267 Order.

The 2005 study evaluated the BPTC of the sludge drying and storage practices. The 2005 study concluded that the sludge drying beds needed to be paved to meet BPTC. However, other alternatives exist including dewatering using a belt filter press or a combination of paved drying beds and belt filter press. The 2005 study recommends the City of Tracy pave two drying beds and evaluate the effectiveness of the paved drying beds. After one-year of data collection, the City of Tracy could make a decision of the preferred BPTC alternative.

The 2005 study also evaluated the industrial treatment process and determined that the industrial wastewater should not be classified as designated waste, pursuant to CWC section 13173. The 2005 study concluded, "*The existing lined industrial pretreatment ponds appear to comply with requirements for Class II waste management units as specified in Title 27. Facultative ponds also appear to comply with the intent of Title 27 based on the fact that up to 3 feet of free board is available under normal operating conditions and groundwater is not being adversely impacted by the operation.*"

Waste Characterization. A "designated waste" is defined under CWC section 13173 as any "*non-hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.*" Based on the data characterization summarized in Finding 9 of this Order, the wastes contained in the unlined holding ponds exceed the applicable water quality objectives for TDS. The Discharger has utilized the ponds for many years, so any assimilative capacity in the shallow groundwater basin has likely been exhausted. In addition, the depth to groundwater only ranges from 14 to 18 feet near the holding ponds, so the soil column cannot be relied upon to provide attenuation of wastes. Therefore, if not properly controlled, the food processing wastewater will be classified as a "designated waste." Discharge Prohibition A.2 of this Order prohibits the containment of designated wastes in the holding ponds to protect the beneficial uses of the groundwater. Provision E.3 of this

Order provides a time schedule for the Discharger to come into compliance with Discharge Prohibition A.2., by either reducing the constituent concentrations in the ponds or by lining the ponds in accordance with Title 27 California Code of Regulations pond lining technology. Section 20210 of Title 27, California Code of Regulations, requires that designated waste can only be discharged to a Class I or Class II surface impoundment equipped with engineered lining and a leachate collection and recovery system.

Exemption from Title 27 Does Not Apply. Pursuant to section 20090(b) of Title 27, California Code of Regulations, the discharge of wastewater to land, including but not limited to evaporation ponds, percolation ponds or subsurface leachfields, may be exempted from the State Water Board-promulgated provisions of this subdivision, as long as the activity meets, and continues to meet, all preconditions listed below:

i. the applicable Regional Water Board has issued WDRs, reclamation requirements or waived such issuance;

ii. the discharge is in compliance with the applicable water quality control plan; and

iii. the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

The existing and proposed wastewater treated in the ponds is not in compliance with the water quality control plan, because the analytical data show that the wastewater exceeds the Basin Plan's chemical constituents objective for groundwater. An additional Title 27 exemption, section 20090(a), is provided for discharges of domestic sewage or treated effluent associated with municipal wastewater treatment plants provided that the discharge is regulated under WDRs or a waiver of WDRs and that the discharge is consistent with applicable water quality objectives. The wastewater treated in the ponds is primarily food processing from Leprino and does not comply with water quality objectives. As such it cannot be exempt from Title 27 requirements. The existing food processing wastewater treated in the holding ponds, if not properly controlled, will be classified as a designated waste and must be controlled in accordance with Title 27 requirements.

Biosolids Dewatering. The Facility currently utilizes sand-lined sludge drying beds to dewater biosolids, which allow supernatant to percolate to the groundwater. At this time there are no groundwater monitoring wells in the vicinity of the drying beds. In order to meet BPTC requirements, the City of Tracy plans to pave the drying beds with asphaltic concrete to provide a relatively impermeable barrier, reducing percolation to the underlying groundwater. The City of Tracy has scheduled the paving of the drying beds over four phases, with completion of paving all drying beds in 2016. The paving of the sludge drying beds with asphaltic concrete may not meet the requirements of BPTC. Provision E.1.f requires the Discharger perform a systematic and comprehensive technical evaluation of each major component of the Facility's waste treatment and control to determine for each waste constituent BPTC

as required by Resolution 68-16, including an evaluation of the Facility's biosolids dewatering system.

C. **Stormwater Requirements.** U.S. EPA promulgated Federal Regulations for stormwater on November 16, 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from municipal sanitary sewer systems. Wastewater Treatment Plants are applicable industries under the stormwater program and are obligated to comply with the Federal Regulations.

IV. Groundwater Limitations.

A. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

B. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituents objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 ml. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

C. Based on analytical data provided by the City of Tracy, the industrial wastewater holding ponds may be adversely affecting groundwater. EC concentrations in the treatment ponds and down gradient groundwater wells exceed background groundwater concentrations. Furthermore, the sludge drying facilities are not in compliance with BPTC and may be degrading groundwater.

D. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

V. Monitoring Requirements

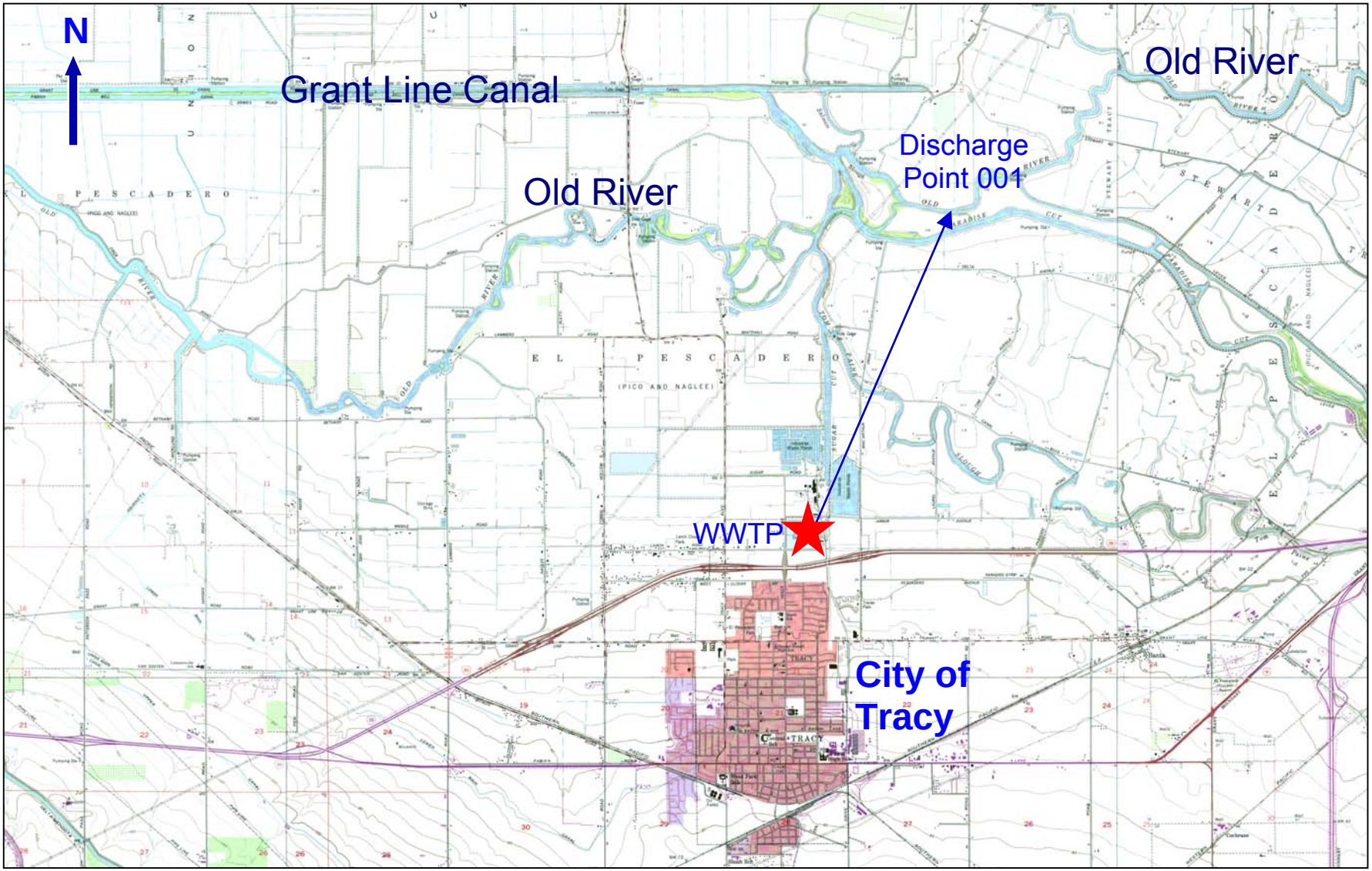
Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all

necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The Order includes pond monitoring, groundwater monitoring, and biosolids monitoring. To ensure that the ponds do not create nuisance conditions, the Discharger is required to monitor freeboard and dissolved oxygen weekly.

The Discharger is required to monitor biosolids to ensure compliance with the biosolids disposal requirements. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

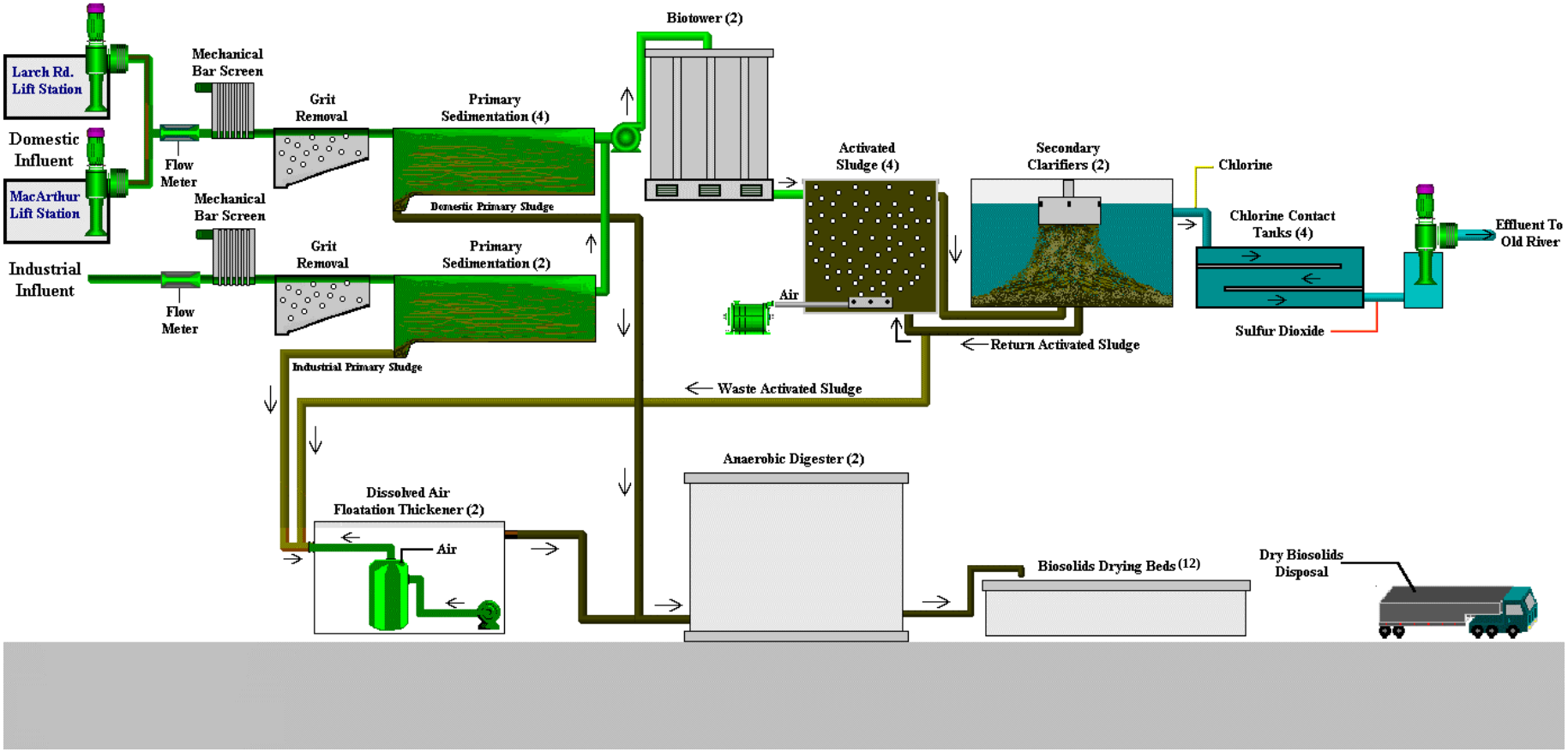
ATTACHMENT A
ORDER NO. R5-2007-0038
LOCATION MAP



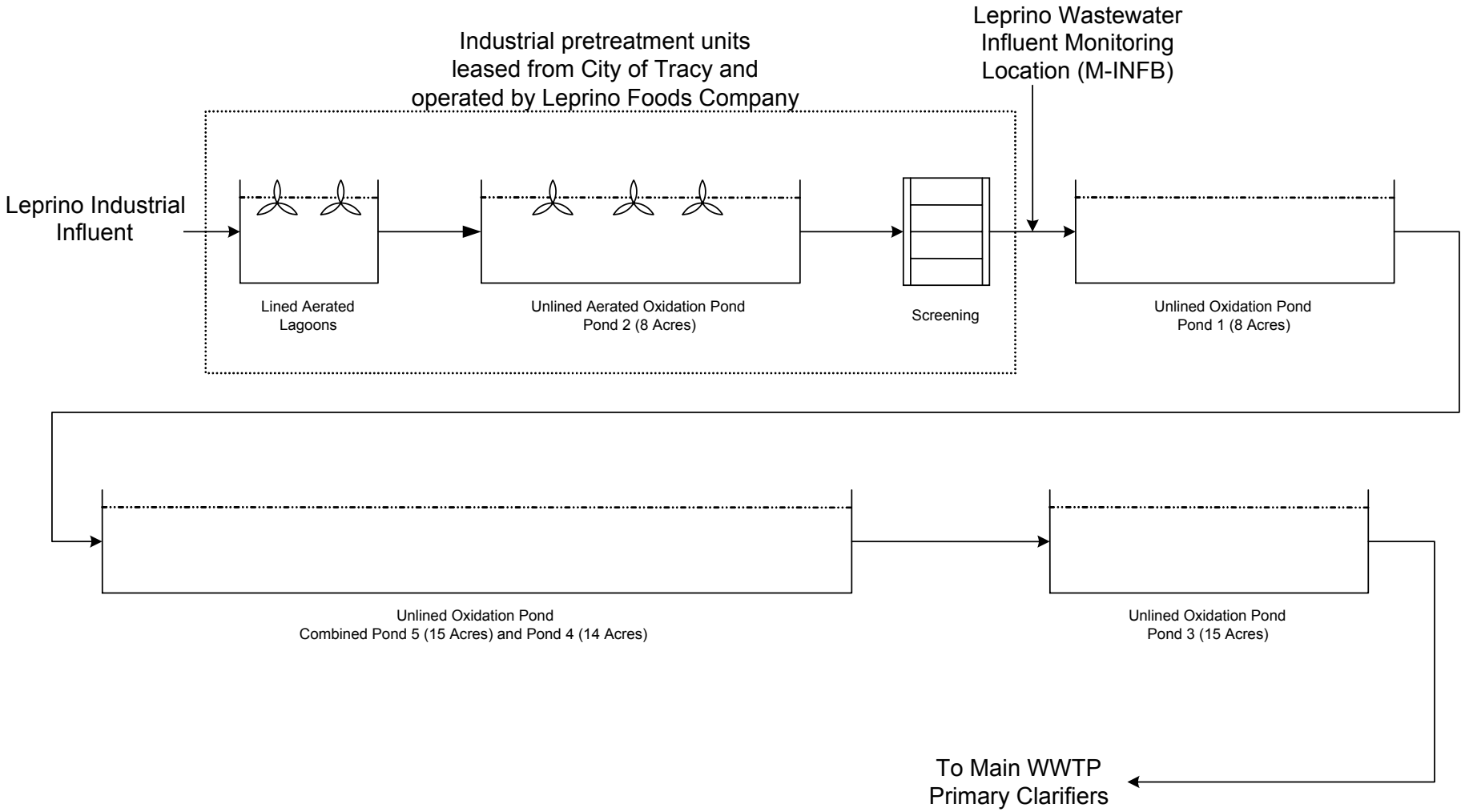
ATTACHMENT B
ORDER NO. R5-2007-0038
MAIN WASTEWATER TREATMENT FACILITY
FLOW SCHEMATIC

City of Tracy

Wastewater Treatment Plant



ATTACHMENT C
ORDER NO. R5-2007-0038
INDUSTRIAL WASTEWATER FACILITY
FLOW SCHEMATIC



ATTACHMENT D
ORDER NO. R5-2007- 0038
MAIN WASTEWATER TREATMENT FACILITY
PLANT LAYOUT

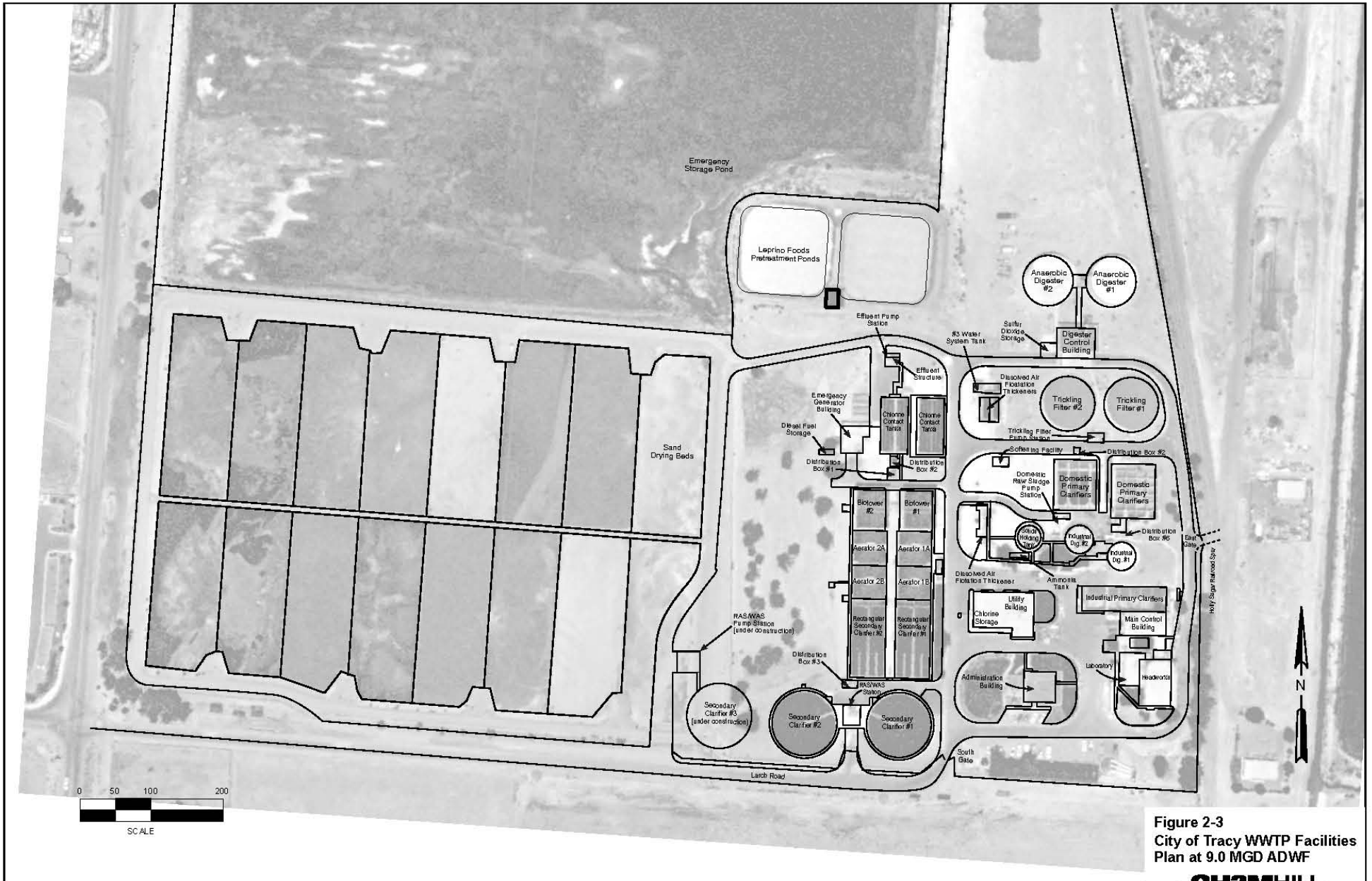


Figure 2-3
City of Tracy WWTP Facilities Plan at 9.0 MGD ADWF

CH2MHILL

153385.CH.11 Fig 2-3 FH8 05-18-01 SFO mg

ATTACHMENT E
ORDER NO. R5-2007-0038

REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:
   Purpose of the well installation project
   Brief description of local geologic and hydrogeologic conditions
   Proposed monitoring well locations and rationale for well locations
   Topographic map showing facility location, roads, and surface water bodies
   Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:
   On-site supervision of drilling and well installation activities
   Description of drilling equipment and techniques
   Equipment decontamination procedures
   Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):
   Diagram of proposed well construction details
   - Borehole diameter
   - Casing and screen material, diameter, and centralizer spacing (if needed)
   - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
   - Anticipated depth of well, length of well casing, and length and position of perforated interval
   - Thickness, position and composition of surface seal, sanitary seal, and sand pack
   - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
   Method of development to be used (i.e., surge, bail, pump, etc.)

Parameters to be monitored during development and record keeping technique
Method of determining when development is complete
Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. Appendix: Groundwater Sampling and Analysis Plan (SAP)
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells

Number of monitoring wells installed and copies of County Well Construction Permits
Topographic map showing facility location, roads, surface water bodies
Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):
On-site supervision of drilling and well installation activities
Drilling contractor and driller's name
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals and logging methods
Well boring log
- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):
Well construction diagram, including:
- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:
Date(s) and method of development
How well development completion was determined
Volume of water purged from well and method of development water disposal
Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):
Identify the coordinate system and datum for survey measurements
Describe the measuring points (i.e. ground surface, top of casing, etc.)
Present the well survey report data in a table
Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix

Sacramento Non15 Unit: updated 3 March 2004

Figure F-1
Treatment Ponds and Groundwater Monitoring Data
Electrical Conductivity (uS/cm)

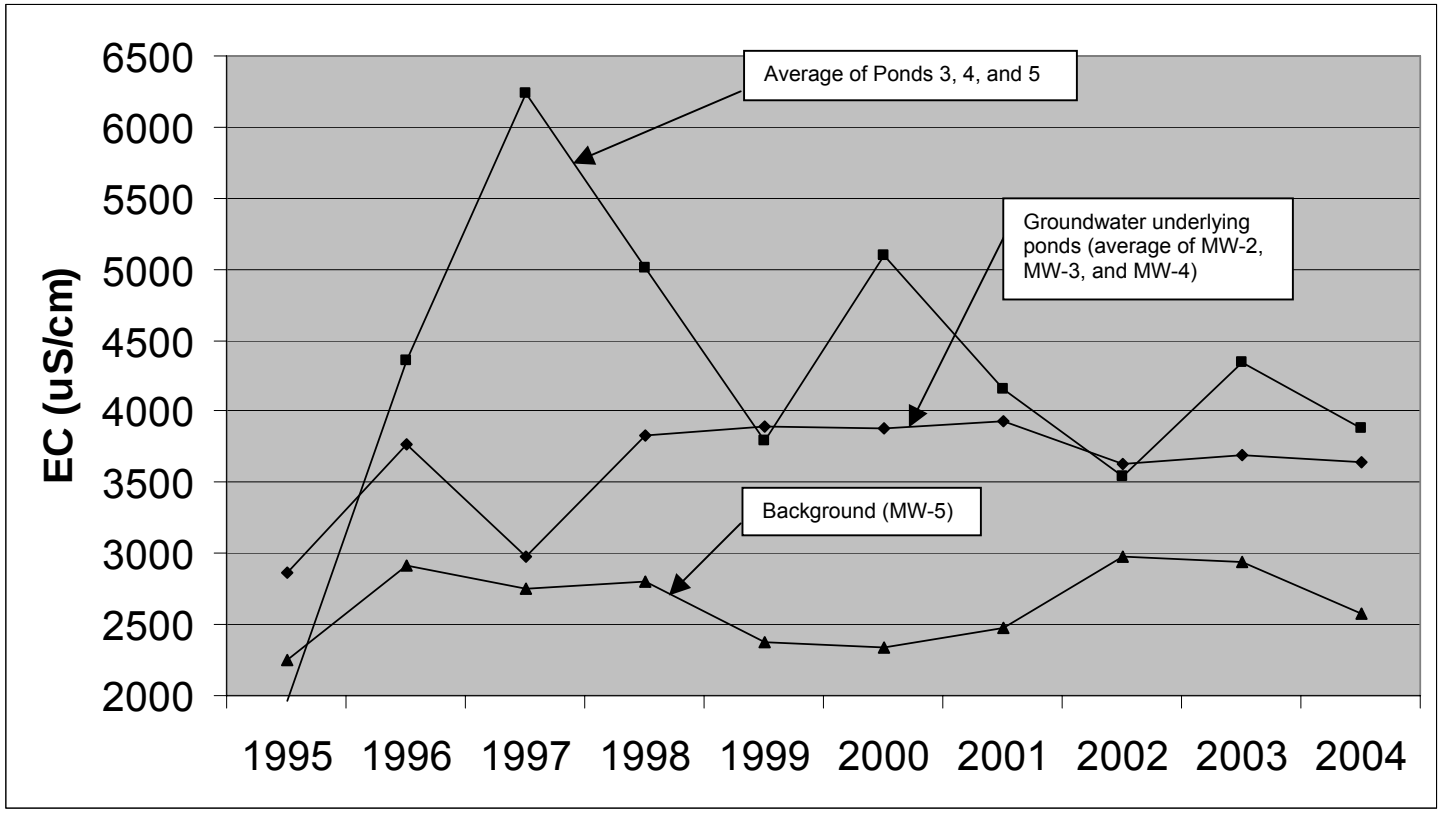


Figure F-3
Unlined Industrial Pond Layout and Groundwater Monitoring Well Location

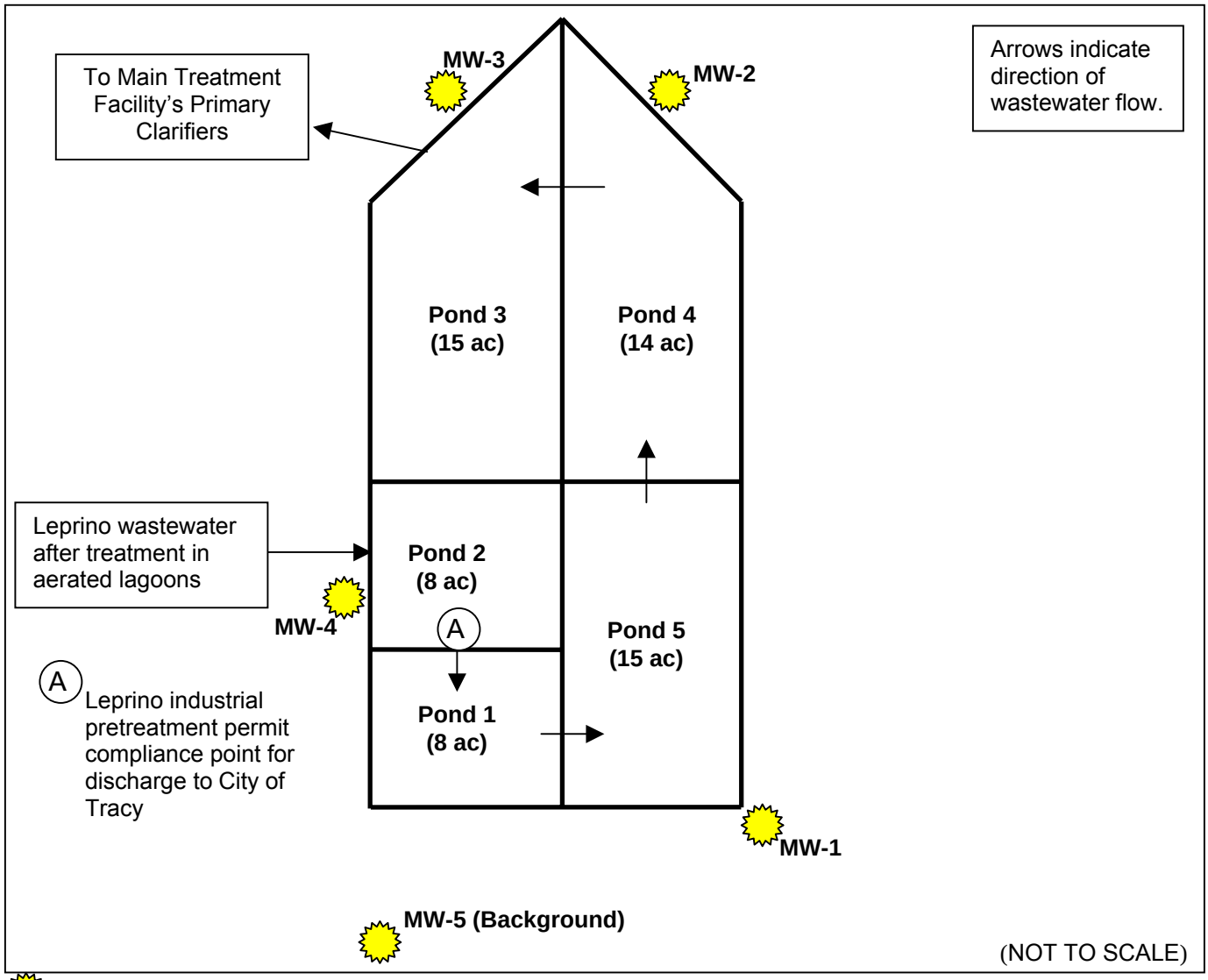


Table F-1
City of Tracy WWTP
Groundwater and Treatment Ponds Data
Electrical Conductivity (uS/cm)

Date	MW-1	MW-2	MW-3	MW-4	MW-5	Pond 1	Pond 2[(1)]	Pond 3	Pond 4	Pond 5
3/23/1992	4132	3870	5600	3240		3480	3160	3980	2670	3320
6/11/1992	3820	5700	7250	3950		3380	3500	4380	4820	6450
9/23/1992	3820	4230	4430	3280		2940	3320	5180	4940	3340
12/31/1992	3800	4200	4700	3100		3300	3200	4000	3400	4800
10/7/1993	3200	4100	3600	3400		2150	2400	4500	6600	
2/15/1994	3450	4500	4350	3300		2700	2800	2900	3850	3000
8/4/1994	3300	4200	4150	3450		2000	2480	3900	4100	2650
8/30/1994	3100	4000	3725	3300		2150	2700	4400	4450	3200
11/30/1994		2700	2550	2400	1750	1800	2000	3300	2950	3050
3/7/1995		3300	2900	2400	2250	2500	2000	1800	2100	2000
6/25/1996		4030	4550	3780	3030	2420	5260	6010	4330	3580
9/30/1996		4300	3400	2530	2810	2760	1990	2550	6000	3700
1/7/1997		4390	3290	2400	2650	No Data	No Data	No Data	No Data	No Data
6/26/1997		4500	2670	2950	3050	4000	2700	4180	12730	10370
10/1/1997		3183	2075	2453	2545	No Data	1924	3380	No Data	No Data
3/30/1998		4800	2850	3360	2810	No Data	No Data	No Data	No Data	No Data
6/22/1998		4810	3180	3410	2710	No Data	No Data	No Data	No Data	No Data
10/2/1998		4830	3620	3600	2870	No Data	No Data	No Data	No Data	No Data
4/7/1999		4210	4040	3180	2270	2150	3330	No Data	No Data	3790
10/14/1999		4330	4010	3580	2470	3270	No Data	No Data	No Data	No Data
3/22/2000		5060	3910	3820	2430	No Data	No Data	No Data	No Data	No Data
6/29/2000		3260	3640	3510	2170	No Data	No Data	No Data	No Data	No Data
10/12/2000		4340	3670	3660	2430	3820	No Data	6110	5040	4120
3/19/2001		3260	4340	3560	2300	2730	3485	3108	2950	2890
7/19/2001		3680	4220	3630	2520	4120	4070	5210	4510	4500
10/29/2001		4180	4700	3750	2610	3360	3380	6330	4330	3600
3/24/2002		3020	3850	3970	2710	3040	3173	3410	3070	3060
6/27/2002		3000	3580	3830	3040	3320	3468	4060	3610	3570
9/25/2002		3220	3800	4050	3310	3200	3473	4690	3590	3560
12/23/2002		3270	3980	4050	2850	3070	3300	3610	3170	3150
3/6/2003		3460	3980	3900	2780	2790	3188	3180	3060	2980
5/19/2003		3440	3730	3830	3000	3260	2633	3460	3260	3240
8/21/2003		3260	3310	3940	2910	3950	3535	5320	5040	4490
11/25/2003		3540	3800	4070	3060	3590	2958	5900	4350	3990
2/11/2004		3610	4660	4150	2770	3280	3050	4390	3260	3300
5/25/2004		3160	4440	3780	2750	3920	3295	4500	3970	3950
8/23/2004		2890	3920	3680	2620	3610	3717	5550	5140	4510
11/17/2004		2700	3400	3260	2170	2120	3140	3140	2430	2400
3/10/2005		2450	3790	3190	2240	2930	No Data	2790	2730	2720

[(1)] Pond 2 EC data is the monthly average Leprino influent EC.