LOCAL LIMITS DEVELOPMENT

for

The City of Santa Paula
Water Reclamation Facility

September, 2000

Submitted To

California Regional Water Quality Control Board
Attention: Ms. Winnie Jesena
320 West Fourth Street Suite 200
Los Angeles, CA 90013

Prepared By

Operations Management International
In Cooperation with
The City of Santa Paula

Summary of Limits Generated In This Document		
Parameter	Local Limit	Page Reference
Arsenic	1.01 mg/l	Pg. 21
Cadmium	0.042 mg/l	Pg. 21
Chromium	1.14 mg/l	Pg. 21
Copper	2.42 mg/l	Pg. 21
Cyanide	0.22 mg/l	Pg. 21
Lead	2.67 mg/l	Pg. 21
Mercury	0.002 mg/l	Pg. 21
Nickel	1.65 mg/l	Pg. 21
Silver	0.65 mg/l	Pg. 21
Zinc	5.0 mg/l	Pg. 21
BOD5	600 mg/l	Pg. 22
TSS	800 mg/l	Pg. 22
Chloride	125 mg/l	Pg. 22
TDS	1500 mg/l	Pg. 22
Fats, Oil, and Grease (FOG)	100mg/l - 25mg/l Hydrocarbon	Pg. 23
pH	6.0 – 10.0	Pg. 23
Temperature	104 &150 degrees C	Pg. 23
Flammability	9 minutes per day at 5% LEL, and no reading of 10% LEL allowed	Pg. 24
TTO	No Limit Developed	Pg. 24

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AO	Administrative Order
ATSDR	Agency for Toxic Substances and Disease Registry
BAT	Best Available Treatment
BATEA	Best Available Technology Economically Achievable
BCT	Best Control Technology
BMP	Best Management Practices
BMR	Baseline Monitoring Report
B/N	Base/Neutral
BOD	Biochemical Oxygen Demand
BPJ	Best Professional Judgement
BPT	Best Practicable Technology
CDC	Center for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act.
CFR	Code Of Federal Regulations
CIU	Categorical Industrial User
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CWA	Clean Water Act
CWF	Combined Wastestream Formula
DMR	Discharge Monitoring Report
DSS	Domestic Sewage Study
EMS	Enforcement Management System
EP	Extraction Procedure
EPA	Environmental Protection Agency
FDF	Fundamentally Different Factor
FOV	Finding of Violation
FOG	Fats, Oil and Grease
FR	Federal Register
FTE	Full-Time Equivalent
FWA	Flow-Weighted Averaging
FWPCA	Federal Water Pollution Control Act
GC/MS	Gas Chromatograph/Mass Spectrophotometry
gpd	gallons per day
I+I	Infiltration and Inflow
IDLH	Immediately dangerous to life and health. Unless otherwise noted NIOSH IDLH data are used.
LOAEL	Lowest observable adverse effects level
IU	Industrial User
IWS	Industrial Waste Survey
LTA	Long-Term Average
MAHL	Maximum Allowable Headworks Loading
MAIL	Maximum Allowable Industrial Load
MBZ	Mixing Zone Boundary

ACRONYMS(Continued)

MGD	Million Gallons per Day
MG/L	Milligrams per liter
MG/M^3	Milligrams per cubic meter
MOU	Memorandum of Understanding
MRL	Minimal risk level (non-cancer)
MSDS	Material Safety Data Sheet
NAS	National Academy of Science
NE	No evidence could be found for the existence of an IDLH
NIOSH	National Institute of Occupational Safety and Health
NMP	National Municipal Policy
NPDES	National Pollutant Discharge Elimination System
NOAEL	No observable adverse effects level
NON	Notice of Noncompliance
NOV	Notice of Violation
NRC	National Research Council
OCPSF	Organic Chemicals, Plastics, and Synthetic Fibers
O&G	Oil and Grease
O&M	Operation and Maintenance
OMI	Operations Management International Inc.
OSHA	Occupational Safety and Health Administration
OTS	Office of Toxic Substances
OWEC	Office of Water Enforcement and Compliance
PAD	Proportioned Actual Domestic Flow
PAH	Polycyclic Aromatic Hydrocarbons
PAI	Proportioned Actual Industrial Flow
PASS	Pretreatment Audit Summary System
PCB	Polychlorinated Biphenols
PCI	Pretreatment Compliance Inspection
PCME	Pretreatment Compliance Monitoring and Enforcement
PCS	Permit Compliance System
PEL	Permissible Exposure Limit
PIRT	Pretreatment Implementation Review Task Force
POTW	Publicly Owned Treatment Works
ppd	pounds per day
ppm	parts per million
ppb	parts per billion
PPETS	Pretreatment Permits Enforcement Tracking System
PP/S	Personal protective equipment and/or sanitary measures required for PEL exposure.
PQR	Permits Quality Review
PSNS	Pretreatment Standards for New Sources
PSES	Pretreatment Standards for Existing Sources
QA/QC	Quality Assurance/Quality Control
QNCR	Quarterly Noncompliance Report

ACRONYMS(Continued)

RCRA	Resource Conservation and Recovery Act
REL	Recommended exposure level
RNC	Reportable Noncompliance
SARA	Superfund Amendments and Reauthorization Act
SFO	Stipulation and Final Order
SIC	Standard Industrial Classification
SIU	Significant Industrial User
SMP	Solvent Management Plan
SNC	Significant Noncompliance
SPCC	Spill Prevention Control and Countermeasures
SPMS	Strategic Planing and Management System
STP	Sewage Treatment Plant
STLC	Soluble Threshold Limit Concentration
SUO	Sewer Use Ordinance
SWDA	Solid Waste Disposal Act
TCLP	Toxicity Characteristic Leachate Procedure
TDS	Total Dissolved Solids
TICH	Total Identifiable Chlorinated Hydrocarbons
TLV	Threshold Value Limits
TN	Trade Names
TOMP	Toxic Organic Management Plan
TRC	Technical Review Criteria
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TTO	Total Toxic Organics
TTLC	Total Threshold Limit Concentration
uG/KG	Micrograms per Kilogram
uG/DL	Microgam per deciliter
USC	United States Code
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compounds
VSS	Volatile Suspended Solids
WENDB	Water Enforcement National Data Base
WQA	Water Quality Act
WQS	Water Quality Standards
WRF	Water Reclamation Facility
WWTP	Waste Water Treatment Plant
ZID	Zone of Immediate Dilution

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Appendices

Local Limits Development For
The City of Santa Paula Water Reclamation Facility

I. INTRODUCTION

Under contract with The City of Santa Paula, Operations Management International Inc. (OMI) provides treatment plant O&M, Management Services and technical support in the implementation of the National Pretreatment Program. In response to EPA pretreatment requirements the City of Santa Paula has requested OMI to provide assistance in developing local limits. This document and any subsequent revisions provides a technical basis and rationale for these limits. Section II and III provide some general background on pretreatment limits and the methodology for their development. Sections IV through VIII focus on the Santa Paula Water Reclamation Facility's (WRF) data and methodology used in local limits calculations as well as the final proposed limits. Methodology used in this document has generated concentration based limits to be applied to all Significant Industrial Users as defined in the City's pretreatment ordinance. Upon California EPA approval of the local limits calculated in this document, the City should initiate a public notice of its intent to revise its municipal code with new local limits. At a minimum, facilities considered significant industrial users by the City should be notified directly of intent to adopt the proposed limits. All comments received during the public notice should be evaluated as part of the formal adoption process. Questions about this document may be directed to the writer Jeffrey P. Heroux (508) 676-6771 or the Project Manager, Joyce Hubbard (805)933-2712, both of OMI.

Industrial Base:

Santa Paula's industrial base may be characterized as light commercial/industrial. Industrial waste surveys have identified five significant industrial users. The total peak industrial flow equals less than 90,000 gallons per day representing approximately 4.5 percent of the total average influent flow to the WRF. Three of the industries are citrus fruit packing houses with seasonal discharges. The other industries consist of a very low flow aluminum caster and portable toilet service company. The WRF receives only wash wastewater from this company as the sewerage is pumped out of the toilets and disposed of at an out of town facility.

Santa Paula WRF Process Summary:

Wastewater enters the plant through a 33" inches gravity sewer line and a 24" gravity sewer line. These lines combine to one 36" line that goes to the influent lift station. The flow passes through a comminuter and a manual barscreen. The wastewater is then pumped in equal amounts to each of the two primary clarifiers. Effluent from the primary clarifiers flows by gravity to the two primary biofilters where it receives the first stage of its secondary treatment. A portion of the effluent from the primary biofilters is pumped back to the influent pump station where it is recirculated together with the raw incoming wastewater back to the primary clarifiers. The portion of the primary biofilter

effluent that is not recirculated flows by gravity to a second recirculation pump chamber where it is pumped to the secondary biofilter. The wastewater then flows by gravity to the trickling filter solids contact chamber. It then flows back to the recirculation pump station where it is pumped to the secondary clarifier. A portion of the flow from the secondary clarifier goes to the secondary biofilter and the remainder flows to the pumps which feed the four sand filters. The filtered water is then chlorinated with sodium hypochlorite for disinfection and flows through the chlorine contact chambers. The water is then dechlorinated with sodium bisulfite and discharged to the Santa Clara River.

Settled sludge from the primary clarifier is pumped to the degritters, after which it is thickened and pumped to the digesters. Excess sludge is also removed from the secondary clarifier and sent to the thickener and digester. Digested sludge is then transferred to drying beds for dewatering. The dewatered sludge is currently land applied to cotton fields in Kern County.

II. STATUTORY/REGULATORY BACKGROUND

A. The statutory basis for the development of the National Pretreatment Program is derived from the Federal Water Pollution Control Act of 1972. Section 307 of the Act required EPA to develop pretreatment standards designed to prevent the discharge to Publicly Owned Treatment Works (POTWs) of pollutants "which interfere with, pass-through, or are otherwise incompatible with such works." When the Act was amended in 1977, more pretreatment requirements were added in Section 402. At that time, POTW's became responsible for establishing local pretreatment programs to ensure compliance with the Act.

B. EPA developed the General Pretreatment Regulations (40 Code of Federal Regulations (CFR) Part 403) to implement the requirements of Section 402 of the Clean Water Act. The General Pretreatment Regulations establish general and specific prohibitions and require the development of specific local limits (numerical standards under 40 CFR 403.5).

III. LOCAL LIMITS METHODOLOGY

A. METHODOLOGY FOR DEVELOPMENT OF LOCAL LIMITS

EPA established procedures for POTW's to follow in developing local limits. These procedures are contained in the EPA Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (The "Green Book" December 1987). Procedures from the manual and other sources listed in Appendix F, were utilized in the development of Santa Paula's local limits.

Local limits must be based on a technical assessment of the data and environmental criteria, which are applicable to:

- Control the discharge of pollutants from non-domestic dischargers to a POTW by establishing pollutant concentrations or loadings allowed by each industrial discharge.
- Enforcement of the prohibited discharge standards of the General Pretreatment Regulations.
- Implementation of the four fundamental objectives of the National Pretreatment Program.

    1) To prevent the introduction of pollutants into the POTW which could interfere with its operation.

    2) To prevent pass through of untreated pollutants which could violate applicable water quality standards or National Pollutant Discharge Elimination System (NPDES) effluent limitations.

    3) To prevent the contamination of POTW sludge which would limit the selected sludge uses or disposal practices.

    4) To protect worker health and safety.

The EPA requires POTW's to evaluate the need for local limits for at least nine heavy metals, cyanide, BOD, TSS, Fats Oil and Grease (FOG), and pH. This document provides the technical basis for this limits development. The local limits development process utilizes treatment plant data and environmental criteria specific to the POTW to determine the critical headwork loading or concentration of each pollutant of concern that the treatment plant can accept. Local limits are derived by allocating the critical headwork loadings to non-domestic dischargers utilizing a procedure which ensures that critical headwork loadings are not exceeded. The goal of protecting the environment and the treatment plant is thus achieved.

Treatment plant data that needs to be collected include: non-domestic (industrial plus commercial), domestic, and treatment plant flow rates; domestic, treatment plant, and receiving

water pollutant concentrations; and minimum pollutant concentrations which may interfere with treatment plant operations. Environmental criteria or standards that were evaluated include: water quality of receiving water bodies, POTW sludge quality and use, protection of POTW unit processes, design plant capacity for conventional pollutants, and worker health and safety criteria in the collections system as well as in the POTW.

The basic steps of local limits development consist of:

- Determination of applicable criteria from which local limits will be derived.
- Calculation of allowable headwork loadings and concentrations from this criteria by accounting for POTW process removal of pollutants.
- Selection of the smallest (ie the most stringent) of the allowable headwork loadings and concentrations. This is termed the critical headwork loading or concentration.
- Determination of uniform allowable industrial concentrations from critical headwork concentrations, accounting for contributions from domestic sources and the application of a safety factor.

B. PROTECTION OF WATER QUALITY AND COMPLIANCE WITH NPDES WATER QUALITY-BASED TOXIC LIMITS

POTW's are required to prohibit non-domestic user discharges in amounts that result in violation of water quality-based NPDES permit limits. NPDES permit limits ordinarily consist of specific numeric limitations for conventional pollutants and, in some cases, also for toxic pollutants. Where the POTW has specific limits for toxic pollutants in its NPDES permit, the POTW must determine industrial discharge limitations (local limits) which ensure that NPDES limits are not exceeded. In this determination, the POTW must account for POTW plant removals and domestic contributions for each limited pollutant. The equation utilized for deriving maximum headwork loadings based on NPDES effluent limitations is as follows:

(Equation 1)

$$Lnpdes = \frac{(8.34)(Ccrit)(Qpotw)}{(1-Rpotw)}$$

where:

Lnpdes = Maximum allowable headworks loading (lbs/day) based on NPDES permit limit.

Ccrit = NPDES effluent limits (mg/l)

Qpotw = POTW average flow (MGD)

Rpotw = POTW removal efficiency (as a decimal)

In cases where NPDES permits do not limit toxic pollutants in the POTW effluent, limits are derived based on attainment of applicable water quality criteria in the receiving waterbody. The approach to deriving these limitations is similar to the steady state wasteload allocation approach presented in the EPA Technical Support Document for Water Quality - Based Toxic Control (March 1991). The approach consists of utilizing receiving stream background concentrations, hardness and flows to determine allowable discharges to the receiving waters, which would not cause a violation of numeric standards or criteria. These allowable discharges are then converted to effluent limitations based on the variability of the effluent and the statistical probabilities of exceeding the allowable discharges. The equation utilized to derive maximum headwork loadings based on water quality criteria is as follows:

(Equation 2)

$$Lwq = \frac{(8.34)(Cwq)(Qpotw)}{(1-Rpotw)}$$

where:

Lwq = Maximum allowable headworks loading (lbs/day) based on water quality criteria.

Cwq = 95th percentile limit WQ spreadsheet

Qpotw = POTW average flow (MGD)

Rpotw = POTW removal efficiency (as a decimal)

C. PROTECTION FOR SLUDGE USE

POTW's are also required to prohibit nondomestic discharges in amounts that cause violation of applicable sludge disposal or use regulations, or restrict the POTW from using its chosen sludge disposal use or option. Table 3 of the 40 CFR 503 specifies pollutant concentrations (alternate pollutant limits or APL's) which are one of the criteria required to qualify EPA incentives such as reduced EPA monitoring and record keeping. The equation to calculate allowable headworks

loadings based on Table 3 criteria follows:

(Equation 3)

$$Lin = \frac{(8.34)(Cslcrit)(PS/100)(Qsldg)}{Rpotw}$$

where:

PS =Percent solids in the sludge to disposal (%)

Qsldg = Sludge flow to disposal (MGD)

Cslcrit= Limiting sludge criteria (mg/kg)

Rpotw = POTW removal efficiency (as a decimal)

D. IMPACT ON THE WASTEWATER TREATMENT PLANT

POTW's are also required to protect against nondomestic discharges which inhibit the POTW treatment processes or operations. EPA policy requires POTW's to develop local limits based on known or estimated inhibitory concentrations of toxic pollutants which may be received by a POTW treatment process. Industrial limitations must be derived which ensure that these inhibitory concentrations are not exceeded at the influent of the unit process. In this derivation, the POTW must account for POTW plant or unit process removals and domestic contributions for each limited pollutant. The equations utilized for deriving the Maximum Allowable Headwork Loading (MAHL) based on inhibitory concentrations of toxic pollutants are as follows:

(Equations 4)

Secondary Treatment Inhibition:

$$Linhib2 = \frac{(8.34)(Ccrit)(Qpotw)}{(1-Rprim)}$$

Tertiary Treatment Inhibition (if applicable):

$$Linhib3 = \frac{(8.34)(Ccrit)(Qpotw)}{(1-Rsec)}$$

Sludge Digestion Inhibition:

$$\text{Linhib/sludge} = \frac{(8.34)(\text{Ccrit})(\text{Qdig})}{(\text{Rpotw})}$$

where:

Linhib2 = Maximum allowable headworks loading (lbs/d) based on inhibition of secondary process

Linhib3 = Maximum allowable headworks loading (lbs/d) based on inhibition of the tertiary process

Linhib/sludge = Maximum allowable headworks loading (lbs/d)based on inhibition of sludge unit process)

Ccrit = Inhibition level (mg/l)

Rprim = Primary removal efficiency (decimal)

Rsec = Removal through primary and secondary process.

Qdig = Sludge flow to digester (MGD)

Qpotw = POTW average flow

Rpotw = POTW removal efficiency (decimal)

The local limits spreadsheet computer program in Lotus 4.0 (or higher) automates the calculation of critical headwork concentrations and resulting industrial limitations based on effluent limitations and inhibitory concentrations of toxic pollutants to treatment processes. The equations for secondary treatment inhibition and sludge digester inhibition were used in the development of Santa Paula's local limits.

E. SELECTION OF THE FINAL ALLOWABLE INDUSTRIAL LIMITATIONS

Once MAHL's have been calculated for each environmental criteria, the most stringent is selected. The domestic contribution plus a safety factor is then subtracted. The remaining mass known as the Maximum Allowable Industrial Loading (MAIL) is then divided by the industrial flow to determine the applicable local limit.

IV. DATA COLLECTION EFFORTS

Santa Paula performed 6 consecutive days of local limits sampling from 07/22/00 to 07/27/00. Testing included nine heavy metals; arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. Cyanide and chloride were also included. Most of the data is of very sound quality, as evidenced by the POTW removal efficiencies that are generated from matched pairs of data. The sampling consisted of 24-hour flow proportioned composite samples on the influent and effluent at the treatment plant and 24 hour time composite samples taken in the collection system. The domestic background was sampled at a manhole on California St. just south of Ventura St. This site consists of residential and light commercial dwellings with no industrial contributions.

V. POLLUTANTS OF CONCERN

Pollutants of concern were identified as per EPA policy which requires that POTW's perform a headworks analysis for nine heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc) and cyanide. Due to local water quality criteria concerns chloride was included in the sampling. Because of the 503 regulations selenium and molybdenum were considered for limits development in addition to the above metals affecting sludge quality. Using Best Professional Judgement (BPJ) local limitations are not needed on these two metals at this time.

No additional toxic compounds were identified for limits development. Limits for conventional pollutants are found in Section VIII, "Other Limits and Concerns" below.

VI. ENVIRONMENTAL CRITERIA

Water quality criteria obtained from the California Regional Water Quality Control Board were utilized to determine allowable toxic concentrations in the POTW's discharge which would ensure protection of freshwater habitat. The local limits spreadsheet is utilized to address :

1. Acute and chronic water quality standards.
2. Effect of in-stream hardness on each standard.
3. Dilution.

Table 3 values from 40 CFR 503 have been selected for sludge criteria in order to protect the current high quality of the sludge found at the POTW.

Because no site-specific process inhibition data were available, literature minimum reported inhibition threshold values for anaerobic sludge digester and trickling filter systems were utilized in the calculations of local limits. These data were obtained from Tables 3-2, 3-3, and 3-5 in the EPA Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (December 1987).

VII. CALCULATION OF CRITICAL HEADWORK LOADINGS AND INDUSTRIAL LIMITS

The low MDL's used in testing the Santa Paula WRF system have made it possible to calculate site specific removal rates for many of the pollutants including chromium, copper, lead, mercury, nickel, silver and zinc. For these species removal rates have been calculated. A surrogate of one half the MDL has been utilized in these calculations whenever the test value is non-detect, except in the case where both the influent and the effluent are below detection levels. When both are below detection the numbers have not been used in the calculation of the removal efficiency. Calculations of these removal rates are shown in Appendix A. The test values for each of the metals named, generates a removal efficiency comparable to known removal rates reported in literature (The EPA Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (The "Green Book" December 1987) and rate these have been adopted. The removal rates shown in the following table have been calculated using site specific test data.

Removal Rates Calculated From Site Specific Test Data

CHROMIUM	19.6%
COPPER	40.9%
LEAD	64.5%
MERCURY	31.8%
NICKEL	7.26%
SILVER	75.5%
ZINC	23.9%

All other limits have been calculated using literature values (from the EPA Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (The "Green Book" December 1987) for secondary treatment. Table VII-1 contains a summary of all removal efficiencies utilized.

The removal rate for arsenic, using Best Professional Judgement was set at a conservative 5%. The local limits sampling data showed negative removals for arsenic. This can be partly attributed to extremely low influent and effluent levels which make it difficult to get quantifiable data. The 5% removal efficiency resulted in a final limit based on water quality.

Actual cadmium removal rates were also problematic due to low influent and effluent levels. Best Professional Judgement was used in selecting a 33 % removal rate from the literature values in Table 3-11 *Priority Pollutant Removal Efficiencies Through Trickling Filter Treatment.* The 33% value selected was the second decile value representing the low end of reported removal efficiencies.

The background river concentrations, hardness of the Santa Clara River, 1Q10 and 7Q10 and the treatment plant flow are presented in the local limits model data sheets (Appendix B). Using Best Professional Judgement BPJ the background river concentrations below detection limits have been input at zero for the Santa Clara River. The annual (1999) average flow of the treatment plant (2.054 MGD) has been utilized in the water quality determination.

Literature (from the EPA Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (The "Green Book" December 1987) inhibition of activated sludge, and 95th percentile daily maximum effluent limits were input into the Local Limits Program (see Appendix B) along with domestic flow and concentrations, and non-domestic flow. This spreadsheet calculates the allowable industrial discharge limitations for protection of water quality and inhibition using the equations previously described.

Table 3 limits from 40 CFR 503 regulations were used in the Local Limits program. The spreadsheet calculates the allowable industrial discharge limitations based on these limits as per the equation in Section III (C) of this document.

Using the equations and information above the maximum headworks loading (lb/d) for each criteria was generated. For each pollutant the lowest headworks loading for all criteria was selected. A 5% safety/growth factor was then subtracted. Additionally, the amount of each pollutant which is contributed from domestic sources (as determined from the California Street location) was subtracted from maximum headworks loadings.. The remaining quantity of pollutant is the portion of the MAHL available for industry (known as the Maximum Allowable Industrial Load (MAIL) this is presented in Table VII-2.

Table VII-1: Removals Utilized, %	
Pollutant	**Through Secondary, %**
Arsenic	5.0
Cadmium	33.0
Chromium	19.7
Copper	40.9
Cyanide	59
Lead	64.5
Mercury	31.8
Nickel	7.3
Silver	75.5
Zinc	23.9

Table VII-2 Determination of MAIL (all values in pounds per day).

Pollutant	WQ Water Quality Headworks Loading	I Inhibition Headworks Loading	S Sludge Headworks Loading	5% Safety Factor	Domestic	MAIL*	Basis
Arsenic	0.902	1.121 dig.	19.299	0.0451	0.011	0.8454	WQ
Cadmium	0.128	2.123 dig.	2.781	0.0064	0.0863	0.0351	WQ
Chromium	1.067	NA	NA	0.0534	0.066	0.947	WQ
Copper	28.985	3.426 dig.	86.316	0.1713	1.239	2.0159	I
Cyanide	8.356	0.237 dig.	NA	0.0119	0.0407	0.1848	I
Lead	2.413	18.464 dig.	10.947	0.1207	0.0684	2.22	WQ
Mercury	0.050	NA	1.258	0.0025	0.0095	0.0382	WQ
Nickel	1.848	4.798 dig.	135.4	0.0924	0.3840	1.372	WQ
Silver	3.5	0.649 dig.	NA	0.0325	0.0717	0.5451	I
Zinc	112.52	58.624 dig.	275.7	2.931	2.542	53.15	I

NA-Not Applicable
dig.- anaerobic digester
*Column 7 may not exactly match the quantity "Lowest Headworks Loading - Safety - Domestic" due to rounding differences.

Using water meters and best estimates the industrial flow from the citrus processors is 84,348 gallons per day. The other two industries contribute approximately 1549 gallons per day. Using Best Professional Judgement (BPJ) an industrial flow of 100,000 gallons per day has been used in the spreadsheet to calculate local limits. Use of this industrial flow provides somewhat more conservative limits to cover possible variances. The possible presence of cadmium dischargers, may also require permitting of additional industries and this would increase the overall industrial flow. Using the MAIL in pounds per day from Table VII-2 and 100,000 gallons per day the local limits presented in Table VII-3 are generated.

Table VII-3 Determination of concentration based limit, in mg/l.		
Pollutant	MAIL lb/d	Calculated Limit Mg/l
Arsenic	0.8453	1.01
Cadmium	0.0351	0.0421
Chromium	0.947	1.14
Copper	2.0159	2.42
Cyanide	0.0.1848	0.22
Lead	2.22	2.67
Mercury	0.0382	0.0459
Nickel	1.372	1.65
Silver	0.5451	0.65
Zinc	53.15	63.7

Table VII-4 Proposed Final Limits		
Pollutant	Calculated Limit Mg/l	Proposed Limit Mg/l
Arsenic	1.01	1.01
Cadmium	0.0421	0.042
Chromium	1.14	1.14
Copper	2.42	2.42
Cyanide	0.22	0.22
Lead	2.67	2.67
Mercury	0.0459	0.002 *
Nickel	1.65	1.65
Silver	0.65	0.65
Zinc	63.7	5.0 *

* Explanations of alternate Proposed Limits for Mercury and Zinc.

1. Mercury : The proposed limit of 0.002 mg/l is also the POTWs NPDES effluent limit. This reduced limit will encourage pollution prevention with this highly toxic metal.

2. Zinc : The methodology used in calculating the above limits when applied to Zinc generates a limit of 63.7 mg/l. Using Best Professional Judgement this very high limit indicates that a limit for zinc is not needed at this time and the inclusion in the final limits is actually counterproductive to the goals of the Santa Paula Industrial Pretreatment Program because it could encourage industry with zinc discharges to release this pollutant at high concentrations. Again using BPJ, when an industry is found within the Santa Paula system that has the potential to discharge chromium, an industry specific limit will be generated by the City. The industry will then be permitted using the more stringent of the industry specific limit and the categorical limit if applicable

VIII. OTHER LIMITS AND CONCERNS

In order to achieve the implementation of the four fundamental objectives of the National Pretreatment Program:

> To prevent the introduction of pollutants into the POTW which could interfere with its operation.
>
> To prevent pass through of untreated pollutants which could violate applicable water quality standards or National Pollutant Discharge Elimination System (NPDES) effluent limitations.
>
> To prevent the contamination of POTW sludge which would limit the selected sludge uses or disposal practices.
>
> To protect worker health and safety.

The Santa Paula WRF must also address the need for limits on flow, BOD, TSS, pH, and Fats, Oil and Grease (FOG). Additionally worker health and safety issues require temperature, pH, flammability, and toxicity to be controlled.

BOD and TSS

The industrial users do not contribute significant amounts of BOD, TSS or Flow on an annual basis to the POTW. Intermittent seasonal loadings do occur from the citrus processors. The current local limits for BOD and TSS are 600 mg/l and 800 mg/l respectively. The Santa Paula WRF is capable of treating industrial BOD & TSS loadings at the current local limits levels. The City will maintain the current limits for BOD and TSS.

Chloride and TDS

Chloride and TDS both have negative removals across the treatment plant. Water softeners used by the domestic users contribute the majority of the background chloride levels to the POTW. TDS in the potable water is also high. The industrial users do not contribute significant amounts of Chloride or TDS on an annual basis to the POTW. The current local limits for Chloride and TDS are 125 mg/l and 1500 mg/l respectively. The Chloride limit is already below the NPDES effluent quality performance goal of 220 mg/l. The Santa Paula WRF is capable of treating industrial chloride and TDS loadings at the current local limits levels. The City will maintain the current limits for Chloride and TDS.

pH

pH must be controlled in the system both to protect worker health and safety and to maintain the integrity of the collection system. A lower federal limit of 5.0 is established in 40 CFR 403.5 (b)(2). When the pH of a waste reaches 12.5 the Resource Conservation Recovery Act (RCRA) list the waste as hazardous (40CFR261.22(a)(1)). The current pH limitation found in the Santa Paula Sewer Use Ordinance list the range 6 to 10.0, which meets both the federal limit and the RCRA limit. Using Best Professional Judgment (BPJ) the lower local limit is set at 6.0 and the higher limit is set at 10.0.

Fats, Oil and Grease (FOG)

Because of the impact that FOG can have on the collection system and the treatment plant, the City is required to develop a FOG limit as part of the final limits report. Limits should be based on the types of FOG which are most likely to enter the system. FOG which solidifies between 32° and 150° Fahrenheit causes most collection system interference. The "EPA Model Sewer Use Ordinance" recommends that such compounds be prohibited in the "Specific Discharge Prohibitions" section. FOG from petroleum/hydrocarbon sources can interfere with anaerobic digestion. Common limits for FOG range from 100-200 mg/l but sometimes as high as 600 mg/l. Common limits for hydrocarbon source FOG range from 25 mg/l to 100 mg/l. A limit of 100 mg/l FOG which solidifies below 150° Fahrenheit and a hydrocarbon based FOG limit of 25 mg/l is selected for the WRF. FOG limits have been set using best professional judgment. They are considered justified because of the nature of the grease in the system. The main sources of grease in the Santa Paula WRF system are its restaurants. Grease from these sources solidifies at temperatures commonly found in collection systems and causes interference. The hydrocarbon FOG limit is selected because of the anaerobic digestion unit at the POTW.

Temperature

The federal requirement (40 CFR 403.5 (b)(5)) for temperature involves setting limits in industrial permits which prevent temperatures from reaching 104° F (40° C) at the entrance to the plant. This requirement is incorporated into the sewer use ordinance and is set to protect POTW unit processes. Additionally using best professional judgment a 150° F (65° C) limit has been set in the ordinance for all discharges to the collection system. This temperature limit protects worker health and safety as well as helps to achieve the limit of 104° F (40° C) at the plant. A discharge may potentially meet the 150° F (65° C) but still raise the temperature at the entrance of the POTW above 104° F (40° C). If a discharge with this potential is discovered, the City must place a more restrictive limit into the industry's discharge permit, to meet the 104° F (40° C) requirement.

Flammability

To address flammability the City's Sewer Use Ordinance prohibits any discharge with a closed cup flashpoint greater than 140° F (60° C),(40 CFR 403.5 (b)(1)). Additionally the ordinance requires that no two successive readings of an LEL meter in the headspace of the collection system, below a discharge, exceed 5% or any single reading of 10%. Such intermittent sampling may not reflect varying flammability conditions. Lower explosivity limit readings of headspace correct for the weakness in the closed cup flashpoint test. Using Best Professional Judgement (BPJ), the City will require any industry with the potential to discharge flammable materials to install a continuous recording LEL meter. Limits will be set so that no reading of 10% LEL is allowed and no more than 9 minutes per day above 5% LEL. This control is similar to current pH control schemes, provides complete monitoring of a very serious pollutant and more fully defines to industry what constitutes a violation.

Toxicity

The toxicity of organic compounds presents complex issues in pretreatment and environmental protection in general. Thousands of toxic organic compounds exist ranging from slightly toxic to extreme acute toxicity. Although the Total Toxic Organic Compounds (TTO) concept has been used in some states as a local limit for toxicity, the adoption of a TTO can have problems associated with it and the adoption of TTO is not recommended. The City elects not to develop local limits for toxicity. The City will address any toxicity problem discovered in the system by developing industry specific toxicity limits and implementing through industrial permit.

When an industry is found to be present in the City's system which has the potential to discharge toxic organic material, the City will develop Permit-Specific Limits as follows:

1. For compounds with a reasonable potential to be discharged, limits will be addressed individually and set based on technical data.

2. The most stringent of the technically-developed permit-specific limits for the industry, or the federal categorical limit, if it applies, will then be selected.

3. The City must also carefully consider the fact that more than one limit may apply leading to multiple limits in the permit. Such a situation may arise if the criterion in the collection system leads to a different limit than criteria found within the facility.

Table VIII-1 Other Pollutants		
Pollutant	Minimum Limit	Maximum Limit
BOD5	----	600 mg/l
TSS	----	800 mg/l
Chloride	----	125 mg/l
TDS	----	1500 mg/l
Temperature	----	104 degrees F at POTW 150 degrees F at point of discharge
Flammability	----	9 minutes at 5% LEL no reading of 10%LEL
pH su	6.0	10.5
FOG mg/l	----	100 mg/l Grease Solidifying @<150F 25 mg/l Hydrocarbon FOG

IX. IMPLEMENTATION OF LOCAL LIMITATIONS

The approach utilized in the development of these industrial discharge limitations will allow the City to incorporate the local limitations into its code by resolution. Limitations have been calculated under the assumption that they will be applied to all non-domestic users of the system. The conservative estimate of industrial flow at a somewhat higher volume than currently measured at the SIU's is in keeping with this assumption. It is also the intent of both this document and the City that only users with reasonable potential to discharge such pollutants will be monitored for compliance with these local limits. In preparing permits for significant industrial users the City will compare the most stringent of local limits and any applicable categorical limits. The most stringent limits will then be utilized in the industrial permit. The City reserves the right to allocate up to the maximum allowable industrial loadings for those pollutants whose proposed limit is less than the calculated limit. The City also reserves the right to allocate pollutant loadings using mass-based limits.

Example language for inclusion of local limits by resolution is contained in Appendix E.

Appendix A

Santa Paula

Treatment Plant Data

INFLUENT

DATE		7/22/00		7/23/00		7/24/00		7/25/00		7/26/00		7/27/00	POTW INFLUENT AVERAGE CONC. MDL= MDL
		x		x		x		x		x		x	
PARAMETER		ALL VALUES ARE IN MG/L											
ARSENIC	<	0.0010	<	0.0010	#	0.0016	<	0.0010	<	0.0010	<	0.0010	0.0011
CADMIUM	#	0.0010	<	0.0010	<	0.0010	#	0.0096	#	0.0109	#	0.0092	0.0056
CHROMIUM	#	0.0022	#	0.0043	#	0.0033	#	0.0053	<	0.0010	#	0.0054	0.0036
COPPER	#	0.0610	#	0.1030	#	0.0580	#	0.1190	#	0.0210	#	0.0830	0.0742
CYANIDE	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	0.0050
LEAD	#	0.0013	#	0.0038	#	0.0028	#	0.0044	#	0.0026	#	0.0045	0.0032
MERCURY	#	0.0003	#	0.0005	#	0.0006	#	0.0007	#	0.0009	#	0.0011	0.0007
NICKEL	#	0.0195	#	0.0230	#	0.0220	#	0.0230	#	0.0200	#	0.0270	0.0224
SILVER	<	0.0010	<	0.0010	<	0.0010	#	0.0019	<	0.0010	#	0.0190	0.0042
ZINC	#	0.0800	#	0.1310	#	0.2280	#	0.1560	#	0.0520	#	0.2480	0.1492
CHLORIDE	#	93.0	#	78.0	#	96.0	#	83.0	#	155.0	#	94.0	99.8333

Indicate values above detection limits

One half the MDL is substituted into the table below as a surrogate for numbers below the detection limits of the Laboratory.

							POTW INFLUENT AVERAGE CONC. MDL=1/2MDL
ARSENIC	0.0005	0.0005	0.0016	0.0005	0.0005	0.0005	0.0007
CADMIUM	0.0010	0.0005	0.0005	0.0096	0.0109	0.0092	0.0053
CHROMIUM	0.0022	0.0043	0.0033	0.0053	0.0005	0.0054	0.0035
COPPER	0.0610	0.1030	0.0580	0.1190	0.0210	0.0830	0.0742
CYANIDE	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
LEAD	0.0013	0.0038	0.0028	0.0044	0.0026	0.0045	0.0032
MERCURY	0.0003	0.0005	0.0006	0.0007	0.0009	0.0011	0.0007
NICKEL	0.0195	0.0230	0.0220	0.0230	0.0200	0.0270	0.0224
SILVER	0.0005	0.0005	0.0005	0.0019	0.0005	0.0190	0.0038
ZINC	0.0800	0.1310	0.2280	0.1560	0.0520	0.2480	0.1492
CHLORIDE	93.0	78.0	96.0	83.0	155.0	94.0	99.8333

Santa Paula

EFFLUENT

DATE		7/22/00		7/23/00		7/24/00		7/25/00		7/26/00		7/27/00	POTW Effluent AVERAGE CONC. MDL= MDL
		x		x		x		x		x			
PARAMETER				ALL VALUES ARE IN MG/L									
ARSENIC	<	0.0010	#	0.0011	#	0.0021	<	0.0010	<	0.0010	<	0.0010	0.0012
CADMIUM	#	0.0056	<	0.0010	<	0.0010	#	0.0092	#	0.0100	#	0.0104	0.0062
CHROMIUM	#	0.0017	#	0.0013	#	0.0015	<	0.0010	#	0.0012	#	0.0043	0.0018
COPPER	#	0.0182	#	0.0196	#	0.0260	#	0.0210	#	0.0220	#	0.1150	0.0370
CYANIDE	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	0.0050
LEAD	<	0.0010	#	0.0010	<	0.0010	<	0.0010	<	0.0010	#	0.0045	0.0016
MERCURY	#	0.0002	#	0.0004	<	0.0002	#	0.0007	#	0.0005	#	0.0008	0.0005
NICKEL	#	0.0190	#	0.0181	#	0.0180	#	0.0178	#	0.0220	#	0.0300	0.0208
SILVER	<	0.0010	<	0.0010	<	0.0010	<	0.0010	<	0.0010	#	0.0043	0.0016
ZINC	#	0.0350	#	0.0350	#	0.3450	#	0.0600	#	0.0590	#	0.2050	0.1232
CHLORIDES	#	168.0	#	129.0	#	163.0	#	138.0	#	136.0	#	78.0	135.3333

Indicate values above detection limits

One half the MDL is substituted into the table below as a surrogate for numbers below the detection limits of the Laboratory.

							POTW Effluent AVERAGE CONC. MDL=1/2MDL
ARSENIC	0.0005	0.0011	0.0021	0.0005	0.0005	0.0005	0.0009
CADMIUM	0.0056	0.0005	0.0005	0.0092	0.0100	0.0104	0.0060
CHROMIUM	0.0017	0.0013	0.0015	0.0005	0.0012	0.0043	0.0018
COPPER	0.0182	0.0196	0.0260	0.0210	0.0220	0.1150	0.0370
CYANIDE	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
LEAD	0.0005	0.0010	0.0005	0.0005	0.0005	0.0045	0.0013
MERCURY	0.0002	0.0004	0.0001	0.0007	0.0005	0.0008	0.0004
NICKEL	0.0190	0.0181	0.0180	0.0178	0.0220	0.0300	0.0208
SILVER	0.0005	0.0005	0.0005	0.0005	0.0005	0.0043	0.0011
ZINC	0.0350	0.0350	0.3450	0.0600	0.0590	0.2050	0.1232
CHLORIDES	168.0	129.0	163.0	138.0	136.0	78.0	135.3333

Santa Paula

Treatment Plant Data

DOMESTIC BACKGROUND

DATE		7/22/00		7/23/00		7/24/00		7/25/00		7/26/00		7/27/00	POTW DOMESTIC AVERAGE CONC. MDL= MDL
		x		x		x		x		x		x	
PARAMETER		ALL VALUES ARE IN MG/L											
ARSENIC	<	0.0010	<	0.0010	#	0.0016	<	0.0010	<	0.0010	<	0.0010	0.00110
CADMIUM	<	0.0010	<	0.0010	#	0.0013	#	0.0109	#	0.0086	#	0.0102	0.00550
CHROMIUM	#	0.0033	#	0.0035	#	0.0034	#	0.0092	#	0.0031	#	0.0018	0.00405
COPPER	#	0.0970	#	0.0780	#	0.0650	#	0.0790	#	0.0710	#	0.0660	0.07600
CYANIDE	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	0.00500
LEAD	#	0.0074	#	0.0036	#	0.0046	<	0.0046	#	0.0035	#	0.0014	0.00418
MERCURY	#	0.0003	#	0.0007	#	0.0003	#	0.0009	#	0.0011	#	0.0002	0.00058
NICKEL	#	0.0220	#	0.0192	#	0.0210	#	0.0240	#	0.0310	#	0.0240	0.02353
SILVER	<	0.0010	<	0.0010	<	0.0010	#	0.0143	#	0.0093	#	0.0011	0.00462
ZINC	#	0.1800	#	0.1350	#	0.1110	#	0.1780	#	0.2240	#	0.1080	0.15600
CHLORIDE	#	70.0	#	67.0	#	87.0	#	99.0	#	70.0	#	98.0	81.83

Indicate values above detection limits

One half the MDL is substituted into the table below as a surrogate for numbers below the detection limits of the Laboratory.

							POTW Domestic AVERAGE CONC. MDL=1/2MDL
ARSENIC	0.0005	0.0005	0.0016	0.0005	0.0005	0.0005	0.0007
CADMIUM	0.0005	0.0005	0.0013	0.0109	0.0086	0.0102	0.0053
CHROMIUM	0.0033	0.0035	0.0034	0.0092	0.0031	0.0018	0.0041
COPPER	0.0970	0.0780	0.0650	0.0790	0.0710	0.0660	0.0760
CYANIDE	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
LEAD	0.0074	0.0036	0.0046	0.0023	0.0035	0.0014	0.0038
MERCURY	0.0003	0.0007	0.0003	0.0009	0.0011	0.0002	0.0006
NICKEL	0.0220	0.0192	0.0210	0.0240	0.0310	0.0240	0.0235
SILVER	0.0005	0.0005	0.0005	0.0143	0.0093	0.0011	0.0044
ZINC	0.1800	0.1350	0.1110	0.1780	0.2240	0.1080	0.1560
CHLORIDE	70.0	67.0	87.0	99.0	70.0	98.0	81.8333

Santa Paula

BioSolids

DATE	2/24/99	5/26/99 (Not used)	8/25/99	12/12/99	2/24/00	5/5/00	8/22/00	POTW BioSolids AVERAGE CONC. MDL= MDL
PARAMETER		All Values Are In mg/dry kg						
	x	x	x	x	x	x	x	
ARSENIC	< 5.0	< 5.0	136.0	< 5.0	< 5.0	< 5.0	< 5.0	26.833
CADMIUM	7.0	40.0	1.0	4.0	4.5	5.5	2.5	4.083
CHROMIUM					23.0	37.5	21.0	27.167
COPPER	948.0	11100.0	705.0	745.0	880.0	1430.0	21.0	788.167
LEAD	91.0	808.0	40.0	17.0	45.0	62.5	31.0	47.750
MERCURY	8.6	< 1.0	< 1.0	< 1.0	< 1.0	3.7	2.1	2.900
Molybdenum						25.0	< 5.0	15.000
NICKEL	33.0	190.0	15.0	14.0	17.0	21.0	13.5	18.917
Selenium	14.0	114.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.500
ZINC	1213.0	14900.0	745.0	1035.0	1155.0	1890.0	780.0	1136.333

"<" Indicates values below Minimum Detection Limits (MDL's).

One half the MDL is substituted into the table below as a surrogate for numbers below the detection limits of the Laboratory.

DATE	2/24/99	5/26/99 (Not used)	8/25/99	12/12/99	2/24/00	5/5/00	8/22/00	POTW Biosolids AVERAGE CONC. MDL=1/2MDL
ARSENIC	2.5	2.5	136.0	2.5	2.5	2.5	2.5	24.75
CADMIUM	7.0	40.0	1.0	4.0	4.5	5.5	2.5	4.08
CHROMIUM					23.0	37.5	21.0	27.17
COPPER	948.0	11100.0	705.0	745.0	880.0	1430.0	21.0	788.17
LEAD	91.0	808.0	40.0	17.0	45.0	62.5	31.0	47.75
MERCURY	8.6	0.5	0.5	0.5	0.5	3.7	2.1	2.65
Molybdenum						25.0	2.5	13.75
NICKEL	33.0	190.0	15.0	14.0	17.0	21.0	13.5	18.92
Selenium	14.0	114.0	2.5	2.5	2.5	2.5	2.5	4.42
ZINC	1213.0	14900.0	745.0	1035.0	1155.0	1890.0	780.0	1136.33

POTW REMOVAL RATES

DATE	7/22/00	7/23/00	7/24/00	7/25/00	7/26/00	7/27/00
PARAMETER		ALL VALUES ARE IN MG/L				
INFLUENT WITH 1/2 MDL SURROGATES						
ARSENIC	0.0005	0.0005	0.0016	0.0005	0.0005	0.0005
CADMIUM	0.0010	0.0005	0.0005	0.0096	0.0109	0.0092
CHROMIUM	0.0022	0.0043	0.0033	0.0053	0.0005	0.0054
COPPER	0.0610	0.1030	0.0580	0.1190	0.0210	0.0830
CYANIDE	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
LEAD	0.0013	0.0038	0.0028	0.0044	0.0026	0.0045
MERCURY	0.0003	0.0005	0.0006	0.0007	0.0009	0.0011
NICKEL	0.0195	0.0230	0.0220	0.0230	0.0200	0.0270
SILVER	0.0005	0.0005	0.0005	0.0019	0.0005	0.0190
ZINC	0.0800	0.1310	0.2280	0.1560	0.0520	0.2480
CHLORIDES	93.0000	78.0000	96.0000	83.0000	155.000	94.0000

Percent Removal
LITERATURE VALUES*

PRIMARY REMOVAL	2ND DECIL Trickling Filter	8TH DECILE Trickling Filter
15.0	33.0	93.0
27.0	34.0	71.0
22.0	32.0	89.0
27.0	33.0	79.0
57.0	25.0	70.0
10.0	33.0	62.0
14.0	11.0	57.0
27.0	38.0	86.0
27.0	34.0	81.0

*FROM "GUIDANCE MANUAL ON THE DEVELOPM IMPLEMENTATION OF LOCAL DISCHARGE LIMI UNDER THE PRETREATMENT PROGRAM"

See data handling for discussion of removal rate calculations.

EFFLUENT WITH 1/2 MDL SURROGATES

DATE	7/22/00	7/23/00	7/24/00	7/25/00	7/26/00	7/27/00
ARSENIC	0.0005	0.0011	0.0021	0.0005	0.0005	0.0005
CADMIUM	0.0056	0.0005	0.0005	0.0092	0.0100	0.0104
CHROMIUM	0.0017	0.0013	0.0015	0.0005	0.0012	0.0043
COPPER	0.0182	0.0196	0.0260	0.0210	0.0220	0.1150
CYANIDE	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
LEAD	0.0005	0.0010	0.0005	0.0005	0.0005	0.0045
MERCURY	0.0002	0.0004	0.0001	0.0007	0.0005	0.0008
NICKEL	0.0190	0.0181	0.0180	0.0178	0.0220	0.0300
SILVER	0.0005	0.0005	0.0005	0.0005	0.0005	0.0043
ZINC	0.0350	0.0350	0.3450	0.0600	0.0590	0.2050
Chloride	168.000	129.000	163.000	138.000	136.000	78.0000

REMOVAL RATES **

							AVE R% ***	PRIMARY + 2ND DECIL Tric Fil	PRIMARY + 8TH DECILE Tric Fil
ARSENIC	0.0000	-1.2000	-0.3125	0.0000	0.0000	0.0000	-0.7563		
CADMIUM	-4.6000	0.0000	0.0000	0.0417	0.0826	-0.1304	-1.1515	28.05%	79.05%
CHROMIUM	0.2273	0.6977	0.5455	0.9057	-1.4000	0.2037	0.1966	24.82%	51.83%
COPPER	0.7016	0.8097	0.5517	0.8235	-0.0476	-0.3855	0.4089	24.96%	69.42%
CYANIDE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	24.09%	57.67%
LEAD	0.6154	0.7368	0.8214	0.8864	0.8077	0.0000	0.6446	10.75%	30.10%
MERCURY	0.1600	0.2453	0.8333	-0.0746	0.4535	0.2909	0.3181	29.70%	55.80%
NICKEL	0.0256	0.2130	0.1818	0.2261	-0.1000	-0.1111	0.0726	9.46%	49.02%
SILVER	0.0000	0.0000	0.0000	0.7368	0.0000	0.7737	0.7553	27.74%	62.78%
ZINC	0.5625	0.7328	-0.5132	0.6154	-0.1346	0.1734	0.2394	24.82%	59.13%
Chloride	-0.8065	-0.6538	-0.6979	-0.6627	0.1226	0.1702	-0.4213		

** Note that 0.0% represents 1/2 MDL surrogates on influent and clarifier effluent.
*** AVERAGE OF NON ZERO NUMBERS ONLY

Removal R

POTW REMOVAL RATES Using MDL

DATE	7/22/00		7/23/00		7/24/00		7/25/00		7/26/00		7/27/00
PARAMETER	ALL VALUES ARE IN MG/L										
INFLUENT WITH MDL SURROGATES											
ARSENIC	0.0010	<	0.0010	#	0.0016	<	0.0010	<	0.0010	<	0.0010
CADMIUM	0.0010	<	0.0010	<	0.0010	#	0.0096	##	0.0109	##	0.0092
CHROMIUM	0.0022	#	0.0043	#	0.0033	#	0.0053	<	0.0010	##	0.0054
COPPER	0.0610	#	0.1030	#	0.0580	#	0.1190	##	0.0210	##	0.0830
CYANIDE	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050
LEAD	0.0013	#	0.0038	#	0.0028	#	0.0044	##	0.0026	##	0.0045
MERCURY	0.0003	#	0.0005	#	0.0006	#	0.0007	##	0.0009	##	0.0011
NICKEL	0.0195	#	0.0230	#	0.0220	#	0.0230	##	0.0200	##	0.0270
SILVER	0.0010	<	0.0010	<	0.0010	#	0.0019	<	0.0010	##	0.0190
ZINC	0.0800	#	0.1310	#	0.2280	#	0.1560	##	0.0520	##	0.2480
CHLORIDE	93.0000	#	78.0000	#	96.0000	#	83.0000	##	155.000	##	94.0000

EFFLUENT WITH MDL SURROGATES

DATE	7/22/00		7/23/00		7/24/00		7/25/00		7/26/00		7/27/00
ARSENIC	0.0010	#	0.0011	#	0.0021	<	0.0010	<	0.0010	<	0.0010
CADMIUM	0.0056	<	0.0010	<	0.0010	#	0.0092	##	0.0100	##	0.0104
CHROMIUM	0.0017	#	0.0013	#	0.0015	<	0.0010	##	0.0012	##	0.0043
COPPER	0.0182	#	0.0196	#	0.0260	#	0.0210	##	0.0220	##	0.1150
CYANIDE	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050	<	0.0050
LEAD	0.0010	#	0.0010	<	0.0010	<	0.0010	<	0.0010	##	0.0045
MERCURY	0.0002	#	0.0004	<	0.0002	#	0.0007	##	0.0005	##	0.0008
NICKEL	0.0190	#	0.0181	#	0.0180	#	0.0178	##	0.0220	##	0.0300
SILVER	0.0010	<	0.0010	<	0.0010	<	0.0010	<	0.0010	##	0.0043
ZINC	0.0350	#	0.0350	#	0.3450	#	0.0600	##	0.0590	##	0.2050
CHLORIDE	168.000	#	129.000	#	163.000	#	138.000	##	136.000	##	78.000

REMOVAL RATES **

						AVE R% ***	PRIMARY + 2ND DECILE ACT WAST	PRIMARY + 8TH DECILE ACT WASTE
ARSENIC	0.0000	-0.1000	-0.3125	0.0000	0.0000	0.0000		
CADMIUM	-4.6000	0.0000	0.0000	0.0417	0.0826	-0.1304		
CHROMIUM	0.2273	0.6977	0.5455	0.8113	-0.2000	0.2037		
COPPER	0.7016	0.8097	0.5517	0.8235	-0.0476	-0.3855		
CYANIDE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
LEAD	0.2308	0.7368	0.6429	0.7727	0.6154	0.0000		
MERCURY	0.1600	0.2453	0.6667	-0.0746	0.4535	0.2909		
NICKEL	0.0256	0.2130	0.1818	0.2261	-0.1000	-0.1111		
SILVER	0.0000	0.0000	0.0000	0.4737	0.0000	0.7737		
ZINC	0.5625	0.7328	-0.5132	0.6154	-0.1346	0.1734		
Chloride	-0.8065	-0.6538	-0.6979	-0.6627	0.1226	0.1702		
						-0.2063	0.00%	0.00%
						-1.1515	28.05%	79.05%
						0.3809	24.82%	51.83%
						0.4089	24.96%	69.42%
						0.0000	24.09%	57.67%
						0.4998	10.75%	30.10%
						0.2903	29.70%	55.80%
						0.0726	9.46%	49.02%
						0.2079	27.74%	62.78%
						0.2394	24.82%	59.13%
						-0.4213		

** Note that 0.0% represents 1/2 MDL surrogates on influent and clarifier effluent.
*** AVERAGE OF NON ZERO NUMBERS ONLY

Percent Removal
LITERATURE VALUES*

PRIMARY REMOVAL	2ND DECILE Trickling Filter	8TH DECILE Trickling Filter
15.0	33.0	93.0
27.0	34.0	71.0
22.0	32.0	89.0
27.0	33.0	79.0
57.0	25.0	70.0
10.0	33.0	62.0
14.0	11.0	57.0
27.0	38.0	86.0
27.0	34.0	81.0

*FROM "GUIDANCE MANUAL ON THE DEV IMPLEMENTATION OF LOCAL DISCHARGE UNDER THE PRETREATMENT PROGRAM"

See data handling for discussion of removal rate calculations.

080400

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54329 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:
Sample Date: 7-22-00
Sampled by: J. Montijo
Location: Santa Paula Collection System

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L	<	1 ug/L
Chromium	200.8	1 ug/L		3.3 ug/L
Copper	200.8	1 ug/L		97 ug/L
Lead	200.8	1 ug/L		7.4 ug/L
Mercury	245.1	0.2 ug/L		0.25 ug/L
Nickel	200.8	1 ug/L		22 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		180 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		70 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080400

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54328 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-22-00 to 7-23-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Effluent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		5.6 ug/L
Chromium	200.8	1 ug/L		1.7 ug/L
Copper	200.8	1 ug/L		18.2 ug/L
Lead	200.8	1 ug/L	<	1 ug/L
Mercury	245.1	0.2 ug/L		0.21 ug/L
Nickel	200.8	1 ug/L		19.0 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		35 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		168 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

08040

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54327 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-22-00 to 7-23-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Influent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		1 ug/L
Chromium	200.8	1 ug/L		2.2 ug/L
Copper	200.8	1 ug/L		61 ug/L
Lead	200.8	1 ug/L		1.3 ug/L
Mercury	245.1	0.2 ug/L		0.25 ug/L
Nickel	200.8	1 ug/L		19.5 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		80 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		93 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080 00

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54360 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-23-00 to 7-24-00
Sampled by: J. Leaver of PCL
Location: Santa Paula Collection System

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L	<	1 ug/L
Chromium	200.8	1 ug/L		3.5 ug/L
Copper	200.8	1 ug/L		78 ug/L
Lead	200.8	1 ug/L		3.6 ug/L
Mercury	245.1	0.2 ug/L		0.7 ug/L
Nickel	200.8	1 ug/L		19.2 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		135 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		67 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080 00

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54359 ✓

P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-23-00 to 7-24-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Effluent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L		1.1 ug/L
Cadmium	200.8	1 ug/L	<	1 ug/L
Chromium	200.8	1 ug/L		1.3 ug/L
Copper	200.8	1 ug/L		19.6 ug/L
Lead	200.8	1 ug/L		1 ug/L
Mercury	245.1	0.2 ug/L		0.40 ug/L
Nickel	200.8	1 ug/L		18.1 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		35 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		129 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080400

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54358 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-23-00 to 7-24-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Influent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L	<	1 ug/L
Chromium	200.8	1 ug/L		4.3 ug/L
Copper	200.8	1 ug/L		103 ug/L
Lead	200.8	1 ug/L		3.8 ug/L
Mercury	245.1	0.2 ug/L		0.53 ug/L
Nickel	200.8	1 ug/L		23 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		131 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		78 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

0400

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54381✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-24-00 to 7-25-00
Sampled by: J. Montijo
Location: Santa Paula Collection System

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L		1.6 ug/L
Cadmium	200.8	1 ug/L		1.3 ug/L
Chromium	200.8	1 ug/L		3.4 ug/L
Copper	200.8	1 ug/L		65 ug/L
Lead	200.8	1 ug/L		4.6 ug/L
Mercury	245.1	0.2 ug/L		0.33 ug/L
Nickel	200.8	1 ug/L		21 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		111 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		87 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080400

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54382 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-24-00 to 7-25-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Effluent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L		2.1 ug/L
Cadmium	200.8	1 ug/L	<	1 ug/L
Chromium	200.8	1 ug/L		1.5 ug/L
Copper	200.8	1 ug/L		26 ug/L
Lead	200.8	1 ug/L	<	1 ug/L
Mercury	245.1	0.2 ug/L	<	0.2 ug/L
Nickel	200.8	1 ug/L		18 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		345 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		163 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080400

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54383✓ P.O.#: Local Limits Sampling Program

Report Date: 8/1/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-24-00 to 7-25-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Influent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L		1.6 ug/L
Cadmium	200.8	1 ug/L	<	1 ug/L
Chromium	200.8	1 ug/L		3.3 ug/L
Copper	200.8	1 ug/L		58 ug/L
Lead	200.8	1 ug/L		2.8 ug/L
Mercury	245.1	0.2 ug/L		0.6 ug/L
Nickel	200.8	1 ug/L		22 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		228 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		96 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54410✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-25-00 to 7-26-00
Sampled by: J. Montijo
Location: Santa Paula Collection System

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		10.9 ug/L
Chromium	200.8	1 ug/L		9.2 ug/L
Copper	200.8	1 ug/L		79 ug/L
Lead	200.8	1 ug/L	<	4.6 ug/L
Mercury	245.1	0.2 ug/L		0.90 ug/L
Nickel	200.8	1 ug/L		24 ug/L
Silver	200.8	1 ug/L		14.3 ug/L
Zinc	200.8	1 ug/L		178 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		99 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54411 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-25-00 to 7-26-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Effluent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		9.2 ug/L
Chromium	200.8	1 ug/L	<	1 ug/L
Copper	200.8	1 ug/L		21 ug/L
Lead	200.8	1 ug/L	<	1 ug/L
Mercury	245.1	0.2 ug/L		0.72 ug/L
Nickel	200.8	1 ug/L		17.8 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		60 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		138 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54409 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-25-00 to 7-26-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Influent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		9.6 ug/L
Chromium	200.8	1 ug/L		5.3 ug/L
Copper	200.8	1 ug/L		119 ug/L
Lead	200.8	1 ug/L		4.4 ug/L
Mercury	245.1	0.2 ug/L		0.67 ug/L
Nickel	200.8	1 ug/L		23 ug/L
Silver	200.8	1 ug/L		1.9 ug/L
Zinc	200.8	1 ug/L		156 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		83 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54447 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-26-00 to 7-27-00
Sampled by: J. Montijo
Location: Santa Paula Collection System

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		8.6 ug/L
Chromium	200.8	1 ug/L		3.1 ug/L
Copper	200.8	1 ug/L		71 ug/L
Lead	200.8	1 ug/L		3.5 ug/L
Mercury	245.1	0.2 ug/L		1.1 ug/L
Nickel	200.8	1 ug/L		31 ug/L
Silver	200.8	1 ug/L		9.3 ug/L
Zinc	200.8	1 ug/L		224 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		70 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54445 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-26-00 to 7-27-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Effluent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		10.0 ug/L
Chromium	200.8	1 ug/L		1.2 ug/L
Copper	200.8	1 ug/L		22 ug/L
Lead	200.8	1 ug/L	<	1 ug/L
Mercury	245.1	0.2 ug/L		0.47 ug/L
Nickel	200.8	1 ug/L		22 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		59 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		136 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54446 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-26-00 to 7-27-00
Sampled by: J. Montijo
Location: Santa Paula Wastewater Treatment Plant Influent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		10.9 ug/L
Chromium	200.8	1 ug/L	<	1 ug/L
Copper	200.8	1 ug/L		21 ug/L
Lead	200.8	1 ug/L		2.6 ug/L
Mercury	245.1	0.2 ug/L		0.86 ug/L
Nickel	200.8	1 ug/L		20 ug/L
Silver	200.8	1 ug/L	<	1 ug/L
Zinc	200.8	1 ug/L		52 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		155 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54444 ✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:
Sample Date: 7-27-00 to 7-28-00
Sampled by: P. Wilmeth
Location: Santa Paula Collection System

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		10.2 ug/L
Chromium	200.8	1 ug/L		1.8 ug/L
Copper	200.8	1 ug/L		66 ug/L
Lead	200.8	1 ug/L		1.4 ug/L
Mercury	245.1	0.2 ug/L		0.22 ug/L
Nickel	200.8	1 ug/L		24 ug/L
Silver	200.8	1 ug/L		1.1 ug/L
Zinc	200.8	1 ug/L		108 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		98 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54443✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:
Sample Date: 7-27-00 to 7-28-00
Sampled by: P. Wilmeth
Location: Santa Paula Wastewater Treatment Plant Influent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		9.2 ug/L
Chromium	200.8	1 ug/L		5.4 ug/L
Copper	200.8	1 ug/L		83 ug/L
Lead	200.8	1 ug/L		4.5 ug/L
Mercury	245.1	0.2 ug/L		1.1 ug/L
Nickel	200.8	1 ug/L		27 ug/L
Silver	200.8	1 ug/L		19 ug/L
Zinc	200.8	1 ug/L		248 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		94 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

080800

PAT-CHEM LABORATORIES

Customer: **O.M.I.**
905 Corporation
Santa Paula, CA 93060

Attention: Joyce Hubbard

Sample I.D.#: 54442✓ P.O.#: Local Limits Sampling Program

Report Date: 8/4/00

Subject: Wastewater Composite Sample

Sample Information:

Sample Date: 7-27-00 to 7-28-00
Sampled by: A. Flores
Location: Santa Paula Wastewater Treatment Plant Effluent

Results:

Parameter	EPA Method	Detection Limit		Analysis
Arsenic	200.8	1 ug/L	<	1 ug/L
Cadmium	200.8	1 ug/L		10.4 ug/L
Chromium	200.8	1 ug/L		4.3 ug/L
Copper	200.8	1 ug/L		115 ug/L
Lead	200.8	1 ug/L		4.5 ug/L
Mercury	245.1	0.2 ug/L		0.78 ug/L
Nickel	200.8	1 ug/L		30 ug/L
Silver	200.8	1 ug/L		4.3 ug/L
Zinc	200.8	1 ug/L		205 ug/L
Total Cyanide	335.2	0.005 mg/L	<	0.005 mg/L
Chloride	325.2	1 mg/L		78 mg/L

Comments: Sample was analyzed per EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020).

Respectfully Submitted,

Pat Brueckner
Laboratory Director

CORPORATE OFFICE: 11990 Discovery Ct. • Moorpark, CA 93021 • (805) 532-0012 • FAX (805) 532-0016

Appendix B

DATA ENTRY SHEET

General Information

Enter Data in Boxes Only

1.	Facility Name [USER]:	Santa Paula
2.	NPDES Permit Number [USER]:	CA0054224

Plant Wastewater Flows

3.	Maximum Effluent Flow (MGD)[USER]:	2.577
4.	Average Effluent Flow (MGD)[USER]:	2.054
5.	Total Domestic Flow (MGD)[USER]:	1.954
6.	Total Industrial Flow (MGD)[USER]:	0.100

Receiving Stream and Water Quality Information:

			% Available	
7.	1Q10 Flow (cfs) [USER]:	0.00	100	25% is default
8.	7Q10 Flow (cfs) [USER]:	0.00	100	25% is default
9.	Harmonic Mean Flow (cfs) [USER]:		100	100% is default
10.	30Q5(cfs) [USER]:		100	100% is default

11.	[D]ilution (w/mixing zone) or [R]iver Flow:		[R] is a fixed value [NOT USER ENTERED]
12.	Will mixing zone be allowed [Y] or [N]:	Y	
13.	Applicable Water Quality Standards [F] OR [S]:		[F] is almost always the default value. See manual.
14.	Receiving water protected for drinking water (D1) or consumption of organisms (D2)?	NA	[NA] is the default value.

Receiving Stream Background Information (ug/l)

Note: See Manual for Guidance On Use of Background Information

15.	Arsenic:	0.00000	[0 is default]
	Cadmium:	0.00000	[0 is default]
	Chromium:	0.00000	[0 is default]
	Chromium (VI):	0.00000	[0 is default]
	Copper:	0.00000	[0 is default]
	Cyanide:	0.00000	[0 is default]
	Lead:	0.00000	[0 is default]
	Mercury:	0.00000	[0 is default]
	Molybdenum:		[Cell is locked/Do not change]
	Nickel:	0.00000	[0 is default]
	Selenium:	0.00000	[0 is default]
	Silver:	0.00000	[0 is default]
	Zinc:	0.00000	[0 is default]
16.	Hardness (mg/l CaCO3) [USER]:	613.00	[100] is default but strongly recommend site-specific value.

Wastewater Treatment Process Information

Mark [X] to Process Most Similar to Your Facility [USER].

17.	Primary Clarification:	X
	Waste Activated Sludge:	
	Nitrification:	
	Trickling Filters:	X
	Aerobic Lagoons:	
	Rotating Biological Contactors:	

Sludge Treatment Process Information

Mark [X] Next to Process(s) Most Similar to Your Facility [USER].

18.

Anaerobic Digestion (Sludge):	X
Aerobic Digestion (Sludge):	

Facility's Sludge Quality and Characteristics

Facility's Sludge Quality [USER]

19.

	Avg. Pollutant Conc. (mg/kg dry weight)	
Arsenic	24.75	
Cadmium	4.08	
Chromium	27.17	
Chromium VI		[Cell is locked. Do not change.]
Copper	788.17	
Cyanide		[Cell is locked. Do not change.]
Lead	47.75	
Mercury	2.65	
Molybdenum	13.75	
Nickel	18.92	
Selenium	4.42	
Silver		[Cell is locked. Do not change.]
Zinc	1136.33	

Sludge Characteristics and Quantities [USER]

20.

Sludge Flow to Digester (MGD):	0.0042
Sludge Flow to Disposal (MGD):	0.0034
Percent Solids of Sludge to Disposal (Decimal):	0.8300
Size of Disposal Site (Acres):	4000.00
Disposal Site Life (Years):	75.00

Sludge Quality Goal [USE TABLE BELOW]

21. Enter Number [1-6] From Table Below Corresponding to Desired Sludge Quality: 6

==SCROLL RIGHT FOR MORE SLUDGE QUALITY GOALS ======

	Max Env. Load (503.13 Tbl.2) kg/ha/site life	Max Env. Load (503.13 Tbl.2) mg/kg*	Less Records (503.13 Tbl. 3) mg/kg	States Grade 1 mg/kg	U.S. Sldg. Svy 90% POTWs mg/kg	Current Sldg. +20% mg/kg	User-Specified Sludge Criteria Here mg/kg
Arsenic	41	258	41	100	22	22	41
Cadmium	39	245	39	25	16	4.8996	39
Chromium	NA	NA	NA	1000	278	32.60004	1000
Chromium VI	NA	NA	NA	NA	NA	NA	NA
Copper	1500	9441	1500	1000	1570	945.80004	1500
Cyanide	NA	NA	NA	NA	NA	NA	NA
Lead	300	1888	300	1000	289	57.3	300
Mercury	17	107	17	10	12	3.18	17
Molybdenum	18	113	18	20	22	16.5	18
Nickel	420	2644	420	200	104	22.70004	420
Selenium	100	629	100	10	12	5.30004	100
Silver	NA	NA	NA	NA	NA	NA	NA
Zinc	2800	17624	2800	2000	2663	1363.59996	2800

***Values are converted from kg/ha/site life to mg/kg**
Note: Values Must Be Entered In Item 19 Before This Column Computes.

22. CURRENT PERMIT LIMITS

POLLUTANT	MAX. DAILY LIMIT (mg/l)	EQPG level	WQ Standards from CalTran
Arsenic	0.0500	0.01	0.05
Cadmium	0.0050		0.005
Chromium	0.0500	0.007	0.05
Chromium VI	0.0500		
Copper	1.0000	0.095	1.3
Cyanide	0.2000		0.2
Lead	0.0500		0.015
Mercury	0.0020		0.002
Molybdenum			
Nickel	0.1000		0.1
Selenium			
Silver	0.0500	0.05	
Zinc	5.0000	0.115	

Note: Data from NPDES.

23. INFLUENT AND EFFLUENT DATA

POLLUTANT	INFLUENT USER AVG. CONC.(mg/l)	EFFLUENT USER AVG. CONC.(mg/l)
Arsenic	0.0007	0.0009
Cadmium	0.0053	0.0060
Chromium	0.0035	0.0018
Chromium VI	NA	NA
Copper	0.0742	0.0370
Cyanide	0.0025	0.0025
Lead	0.0032	0.0013
Mercury	0.0007	0.0004
Molybdenum	NA	NA
Nickel	0.0224	0.0208
Selenium	NA	NA
Silver	0.0038	0.0011
Zinc	0.1492	0.1232

24. REMOVAL EFFICIENCIES

POLLUTANT	OPTIONAL PRIMARY R(DECIMAL)	OPTIONAL/USER* TOTAL PLANT R(DECIMAL)	EFFECTIVE REMOVALS FOR CALCULATIONS PRIMARY	SECONDARY*	OVERALL PLANT
Arsenic		0.050	NA	NA	0.05
Cadmium		0.33	0.15	NA	0.33
Chromium		0.20	0.27	NA	0.197
Chromium VI			NA	NA	NA
Copper		0.41	0.22	NA	0.409
Cyanide			0.27	NA	0.59
Lead		0.65	0.57	NA	0.645
Mercury		0.32	0.1	NA	0.318
Molybdenum			NA	NA	NA
Nickel		0.07	0.14	NA	0.073
Selenium			NA	NA	NA
Silver		0.76	0.2	NA	0.7553
Zinc		0.24	0.27	NA	0.239

*PLANT REMOVAL EFFICIENCIES MUST BE SITE-SPECIFIC UNLESS CALCULATED VALUES ARE INAPPOPRIATE. SEE MANUAL.

*Only relevant if "Tertiary" in data item 16 is marked X.

25. DOMESTIC POLLUTANT CONC.

POLLUTANT	SITE-SPECIFIC Avg. Conc. (mg/l)	LITERATURE Avg. Conc. (mg/l)
Arsenic	0.0007	0.0030
Cadmium	0.0053	0.0030
Chromium	0.0041	0.0500
Chromium VI		NA
Copper	0.0760	0.0610
Cyanide	0.0025	0.0410
Lead	0.0042	0.0490
Mercury	0.0006	0.0003
Molybdenum		NA
Nickel	0.0235	0.0210
Selenium		NA
Silver	0.0044	0.0050
Zinc	0.1560	0.1750

SITE SPECIFIC CONCENTRATIONS WILL OVERRIDE LITERATURE VALUES.

26. **PLANT INHIBITION DATA ==========>**

POLLUTANT	LITERATURE ACT. SLDG	OPTIONAL SITE-SPECIFIC ACT. SLDG (OPTIONAL)	=======> LITERATURE NITRIFICATION	OPTIONAL SITE-SPECIFIC NITRIFICATION (OPTIONAL)	========> LITERATURE ANAEROBIC DIGESTER	OPTIONAL SITE-SPECIFIC ANAEROBIC DIGESTER
Arsenic	0.1		NA		1.6	
Cadmium	1		5.2		20	
Chromium	1	3.5	0.25		NA	
Chromium VI	NA		NA		NA	
Copper	1		0.05		40	
Cyanide	0.1	30	0.34		4	
Lead	0.1		0.5		340	
Mercury	0.1		NA		NA	
Molybdenum	NA		NA		NA	
Nickel	1		0.25		10	
Selenium	NA		NA		NA	
Silver	0.25		NA		14	
Zinc	0.3		0.08		400	

27. Safety Factor (Decimal): 0.05

THIS IS THE END OF THE DATA ENTRY SHEET.

Appendix C

CALCULATION OF MAXIMUM ALLOWABLE INDUSTRIAL LOADS

BASIS: PROTECTION OF WATER QUALITY

Pollutant	1 Calculated MAHL(lbs/d)	2 Domestic Load (lbs/d)	3 Actual Load (lbs/d)	4 MAIL (lbs/d)	5 BASIS	MAHL = 90% ACTUAL? (1)
Arsenic	0.902	0.01113041388	0.011991252	0.84538758612	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Cadmium	0.128	0.086370708	0.090790908	0.0350758740895523	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Chromium	1.067	0.066000258	0.05995626	0.947314935026152	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Chromium VI	NA	NA	0	NA	NA	NA
Copper	28.985	1.23852336	1.271072712	26.2975883151269	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Cyanide	8.356	0.0407409	0.0428259	7.89771861219512	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Lead	2.413	0.068444712	0.0553310628	2.22364571053521	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Mercury	0.050	0.0094518888	0.011991252	0.0382719880328446	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Molybdenum	NA	NA	0	NA	NA	NA
Nickel	1.848	0.3834533508	0.3840626712	1.37208516052686	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Selenium	NA	NA	0	NA	NA	NA
Silver	3.500	0.071703984	0.065095368	3.25356001273069	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Zinc	112.552	2.54223216	2.5553358012	104.381828286781	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	

BASIS: PROTECTION OF SLUDGE QUALITY

Pollutant	1 Calculated MAHL(lbs/d)	2 Domestic Load (lbs/d)	3 Actual Load (lbs/d)	4 MAIL (lbs/d)	5 BASIS	MAHL = 90% ACTUAL? (1)
Arsenic	19.299	0.01113041388	0.011991252	18.32300850612	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Cadmium	2.781	0.086370708	0.090790908	2.55602181927273	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Chromium	119.469	0.066000258	0.05995626	113.429969285147	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Chromium VI	NA	NA	0	NA	NA	NA
Copper	86.316	1.23852336	1.271072712	80.7616208942787	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Cyanide	NA	0.0407409	0.0428259	NA	NA	NA
Lead	10.947	0.068444712	0.0553310628	10.3309534275349	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Mercury	1.258	0.0094518888	0.011991252	1.18582484704906	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Molybdenum	NA	NA	0	NA	NA	NA
Nickel	135.410	0.3834533508	0.3840626712	128.255677060159	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Selenium	NA	NA	0	NA	NA	NA
Silver	NA	0.071703984	0.065095368	NA	NA	NA
Zinc	275.729	2.54223216	2.5553358012	259.40076700318	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	

(1) ** = Actual load (column 3) is equal to or greater than 90 percent of the calculated MAHL.

CALCULATION OF MAXIMUM ALLOWABLE INDUSTRIAL LOADS (continued)

BASIS: INHIBITION OF SECONDARY UNIT PROCESSES

Pollutant	1 Calculated MAHL(lbs/d)	2 Domestic Load (lbs/d)	3 Actual Load (lbs/d)	4 MAIL (lbs/d)	5 BASIS	MAHL = 90% ACTUAL? (1)
Arsenic	NA	0.01113041388	0.011991252	NA	NA	NA
Cadmium	NA	0.086370708	0.090790908	NA	NA	NA
Chromium	NA	0.066000258	0.05995626	NA	NA	NA
Chromium VI	NA	NA	0	NA	NA	NA
Copper	NA	1.23852336	1.271072712	NA	NA	NA
Cyanide	NA	0.0407409	0.0428259	NA	NA	NA
Lead	NA	0.068444712	0.0553310628	NA	NA	NA
Mercury	NA	0.0094518888	0.011991252	NA	NA	NA
Molybdenum	NA	NA	0	NA	NA	NA
Nickel	NA	0.3834533508	0.3840626712	NA	NA	NA
Selenium	NA	NA	0	NA	NA	NA
Silver	NA	0.071703984	0.065095368	NA	NA	NA
Zinc	NA	2.54223216	2.5553358012	NA	NA	NA

BASIS: INHIBITION OF TERTIARY UNIT PROCESSES

Pollutant	1 Calculated MAHL(lbs/d)	2 Domestic Load (lbs/d)	3 Actual Load (lbs/d)	4 MAIL (lbs/d)	5 BASIS	MAHL = 90% ACTUAL? (1)
Arsenic	NA	0.01113041388	0.011991252	NA	NA	NA
Cadmium	NA	0.086370708	0.090790908	NA	NA	NA
Chromium	NA	0.066000258	0.05995626	NA	NA	NA
Chromium VI	NA	NA	0	NA	NA	NA
Copper	NA	1.23852336	1.271072712	NA	NA	NA
Cyanide	NA	0.0407409	0.0428259	NA	NA	NA
Lead	NA	0.068444712	0.0553310628	NA	NA	NA
Mercury	NA	0.0094518888	0.011991252	NA	NA	NA
Molybdenum	NA	NA	0	NA	NA	NA
Nickel	NA	0.3834533508	0.3840626712	NA	NA	NA
Selenium	NA	NA	0	NA	NA	NA
Silver	NA	0.071703984	0.065095368	NA	NA	NA
Zinc	NA	2.54223216	2.5553358012	NA	NA	NA

(1) ** = Actual load (column 3) is equal to or greater than 90 percent of the calculated MAHL.

CALCULATION OF MAXIMUM ALLOWABLE INDUSTRIAL LOADS (continued)

BASIS: INHIBITION OF SLUDGE UNIT PROCESSES (ANAEROBIC DIGESTERS)

Pollutant	1 Calculated MAHL(lbs/d)	2 Domestic Load (lbs/d)	3 Actual Load (lbs/d)	4 MAIL (lbs/d)	5 BASIS	MAHL = 90% ACTUAL? (1)
Arsenic	1.121	0.01113041388	0.011991252	1.05372078612	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Cadmium	2.123	0.086370708	0.090790908	1.93039292836364	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Chromium	NA	0.066000258	0.05995626	NA	NA	NA
Chromium VI	NA	NA	0	NA	NA	NA
Copper	3.426	1.23852336	1.271072712	2.01591184782396	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Cyanide	0.237	0.0407409	0.0428259	0.18486316779661	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Lead	18.464	0.068444712	0.0553310628	17.4727087763721	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Mercury	NA	0.0094518888	0.011991252	NA	NA	NA
Molybdenum	NA	NA	0	NA	NA	NA
Nickel	4.798	0.3834533508	0.3840626712	4.17498500536438	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Selenium	NA	NA	0	NA	NA	NA
Silver	0.649	0.071703984	0.065095368	0.545100464563485	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	
Zinc	58.624	2.54223216	2.5553358012	53.1508222333054	MAIL IS BASED ON ALLOWABLE HEADWORKS LOADING	

(1) ** = Actual load (column 3) is equal to or greater than 90 percent of the calculated MAHL.

SCROLL RIGHT FOR COMPARISON OF Maximium Allowable Headworks Loadings ----------> SCROLL DOWN ----------> V

COMPARISON OF MAXIMUM ALLOWABLE INDUSTRIAL LOADS AND CONCENTRATIONS

Pollutant	Inhibition Loadings: Protection of Secondary	Inhibition Loadings: Protection of Tertiary	Inhibition Loadings: Protection of An. Digestor	Final Inhibition MAIL	Final Pass-Through MAIL	Final Sludge MAIL	Final Allowable Industrial MAIL	Final Inhibition Conc.	Final Pass-Through Conc.	Final Sludge Conc.	Final Allowable Industrial Conc	
Arsenic	NA	NA	1.0537	1.0537	0.8454	18.3230	0.8454	1.2635	1.0137	21.9700	1.0137	As
Cadmium	NA	NA	1.9304	1.9304	0.0351	2.5560	0.0351	2.3146	0.0421	3.0648	0.0421	cd
Chromium	NA	NA	NA	NA	0.9473	113.4300	0.9473	0.0000	1.1359	136.0072	1.1359	Cr
Chromium VI	NA	NA	NA	NA	NA	NA	NA	0.0000	0.0000	0.0000	0.0000	Cr6
Copper	NA	NA	2.0159	2.0159	26.2976	80.7616	2.0159	2.4172	31.5319	96.8365	2.4172	Cu
Cyanide	NA	NA	0.1849	0.1849	7.8977	NA	0.1849	0.2217	9.4697	0.0000	0.2217	CN
Lead	NA	NA	17.4727	17.4727	2.2236	10.3310	2.2236	20.9505	2.6662	12.3872	2.6662	Pb
Mercury	NA	NA	NA	NA	0.0383	1.1858	0.0383	0.0000	0.0459	1.4219	0.0459	Hg
Molybdenum	NA	NA	NA	NA	NA	NA	NA	0.0000	0.0000	0.0000	0.0000	Mo
Nickel	NA	NA	4.1750	4.1750	1.3721	128.2557	1.3721	5.0060	1.6452	153.7838	1.6452	NI
Selenium	NA	NA	NA	NA	NA	NA	NA	0.0000	0.0000	0.0000	0.0000	Se
Silver	NA	NA	0.5451	0.5451	3.2536	NA	0.5451	0.6536	3.9012	0.0000	0.6536	Ag
Zinc	NA	NA	53.1508	53.1508	104.3818	259.4008	53.1508	63.7300	125.1581	311.0321	63.7300	Zn

Loadings in lbs/day, Concentrations in mg/l

Percent of Total Industrial Mail: 100%

DETERMINATION OF FINAL LOCAL LIMITS

Pollutant	Final Inhibition MAIC	Final Pass-Through MAIC	Final Sludge MAIC	Calculated Final Limit mg/l	Basis	Proposed Final Limit mg/l
Arsenic	1.2635	1.0137	21.9700	1.0137	Water Quality	1.01
Cadmium	2.3146	0.0421	3.0648	0.0421	Water Quality	0.042
Chromium	0.0000	1.1359	136.0072	1.1359	Water Quality	1.14
Chromium VI	NA	NA	NA	NA		NA
Copper	2.4172	31.5319	96.8365	2.4172	Inhibition	2.42
Cyanide	0.2217	9.4697	0.0000	0.2217	Inhibition	0.22
Lead	20.9505	2.6662	12.3872	2.6662	Water Quality	2.67
Mercury	0.0000	0.0459	1.4219	0.0459	Water Quality	0.002
Molybdenum	NA	NA	0.0000	0.0000		NA
Nickel	5.0060	1.6452	153.7838	1.6452	Water Quality	1.65
Selenium	NA	0.0000	0.0000	0.0000		NA
Silver	0.6536	3.9012	0.0000	0.6536	Inhibition	0.65
Zinc	63.7300	125.1581	311.0321	63.7300	Inhibition	5.00

MAIC = Maximum Allowable Industrial Concentration Based on Uniform Concentration Allocation Method.

Notes:

Arsenic	Calculated limit
Cadmium	Calculated limit
Chromium	Calculated limit
Chromium VI	NA
Copper	Calculated limit
Cyanide	Calculated limit
Lead	Calculated limit
Mercury	Use actual POTW NPDES to encourage Pollution Prevention
Molybdenum	NA
Nickel	Calculated limit
Selenium	NA
Silver	Calculated limit
Zinc	One half of previous Local Limit to encourage EQPGs

Appendix D

Appendix D

Model Resolution Language

Resolution No. XXX

A RESOLUTION ADOPTING LOCAL LIMITS FOR WASTEWATER DISCHARGE QUALITY TO THE CITY OF SANTA PAULA WASTEWATER SYSTEM.

WHEREAS, the Federal Water Pollution Control Act (Clean Water Act) requires The United States Environmental Protection Agency (US EPA) to develop pretreatment standards designed to prevent the discharge to Publicly Owned Treatment Works (POTWs) of pollutants "which interfere with, pass-through, or are otherwise incompatible with such works"; and

WHEREAS, USEPA has developed the General Pretreatment Regulations (40 CFR, Part 403) to implement the requirements of Section 402 of the amended Clean Water Act, establish general and specific prohibitions, and require the development of specific local limits (numerical standards under 40 CFR 403.5); and

WHEREAS, the Santa Paula Water Reclamation Facility has adopted General Ordinance No. 928 establishing a Pretreatment Program, and providing for local limits for discharge to the wastewater system; and

WHEREAS, the local limits contained herein have been approved by USEPA, and has undergone a 30 day public notice;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF SANTA PAULA AS FOLLOWS:

Section 1. That the following technically-based local limits be established to govern all industrial and commercial discharges to the wastewater system:

1.01	mg/l	arsenic
0.042	mg/l	cadmium
1.14	mg/l	chromium
2.42	mg/l	copper
0.22	mg/l	cyanide
2.67	mg/l	lead
0.002	mg/l	mercury
1.65	mg/l	nickel
0.65	mg/l	silver

5.0 mg/l zinc

600 mg/l BOD5

800 mg/l Total Suspended Solids

1500 mg/l Total Dissolved Solids

6.0-10.0 pH

100 mg/l oil and grease (grease which solidifies above 150F)

25 mg/l oil and grease (hydrocarbon source)

PASSED AND ADOPTED THIS _____ DAY OF _____.

Members Voting "Yes": _____
Members Voting "No": _____
Member Absent: _____
Abstaining: _____

AND APPROVED BY THE (LEADING OFFICIAL, MAYOR, MANAGER, ETC.) THIS _____ DAY OF _____.

SIGNED: _____
(Name and Title)

ATTEST: _____
(Name and Title)

Appendix E

Appendix E

Hand Calculation of Chloride Limit

Chloride Headwork loading based on protection of Water Quality and Compliance with NPDES Water Quality - Based Toxic Limits

POTW's are required to prohibit nondomestic user discharges in amounts that result in violation of water quality. The Local Limits spreadsheet used to derive the rest of the limits is not set up to calculate chloride limits. The same methodology used in the spreadsheet are used in this attachment to calculate the chloride limit.

$$Lnpdes = \frac{(8.34)(Ccrit)(Qpotw)}{(1-Rpotw)}$$

where:

Lnpdes = Maximum allowable headworks loading (lbs/day) based on NPDES permit limit.

Ccrit = NPDES effluent limits (mg/l) = 220.0 *

Qpotw = POTW average flow (MGD) = 2.054

Rpotw = POTW removal efficiency (as a decimal) = (- 042) **

$$Lnpdes = \frac{(8.34)(220)(2.054)}{[1-(-0.42)]} = 2653.5 \text{ lbs/day}$$

* = NPDES Effluent Quality Goal

** = POTW effluent chloride levels are consistently higher than influent levels. This is likely due to the addition of sodium hypochlorite as a disinfection agent. The negative removal percentage was used to reflect his condition.

Chloride Headwork Loading Based on Sludge Criteria

There is no chloride limit in the sludge criteria. This section is not applicable.

Maximum headwork loadings must be derived based on Table 3 criteria contained in 40 CFR 503.

$$Lin = \frac{(8.34)(Cslcrit)(PS/100)(Qsldg)}{Rpotw}$$

where:

PS = Percent solids in the sludge to disposal (%) =

Qsldg = Sludge flow to disposal (MGD) =

Cslcrit = Limiting sludge criteria (mg/kg) =

Rpotw = POTW removal efficiency (as a decimal) =

Chloride Maximum Headwork Loading Based On Inhibition

There is no chloride inhibition data for this type of facility. This section is not applicable.

The equations utilized for deriving maximum headwork loadings based on inhibitory concentrations of toxic pollutants are as follows:

Secondary Treatment Inhibition:

$$Linhib2 = \frac{(8.34)(Ccrit)(Qpotw)}{(1-Rprim)}$$

Sludge Digester Inhibition:

$$Linhib/sludge = \frac{(8.34)(Ccrit)(Qdig)}{(Rpotw)}$$

where:

Linhib2 = Maximum allowable headworks loading (lbs/d)based on inhibition of secondary process)

Linhib/sludge= Maximum allowable headworks loading (lbs/d)based on inhibition of sludge unit process)

Ccrit = Inhibition level (mg/l) =

Rprim = Primary removal efficiency (decimal) = (Literature Value)

Qdig = Sludge flow to digester (MGD) =

Qpotw = POTW average flow =

Rpotw = POTW removal efficiency (decimal) =

Selection Lowest Chloride Headworks Loading and Calculation of Limit

Loading Based On:

NPDES/WQ = 2653.5 lb/d
Sludge Criteria = N.A.
Inhibition = N.A.

Lowest Headwork Loading Minus 5% Safety Factor

$$2653.5 - (2653.5 * 0.05) = 2504$$

Minus Uncontrolled Pounds From Domestic Sources

$$2504 - (81.8 * 1.954 \text{ MGD} * 8.34) = 1333 \text{ lb/d (MAIC)}$$

Converted to mg/l using the Industrial Flow

$$\frac{1333 \text{ lb/d}}{(8.34)(0.100)} = 1598 \text{ mg/l Final Calculated Limit}$$

Water quality issues have been driving down chloride limits through out the state. The Santa Clara River water quality objective is currently 80 mg/l. Using Best Professional Judgement it is recommended that the limit for chloride remain at the current limit of 125 mg/l.

Appendix F

Appendix F

REFERENCES

EPA Technical Support Document For Water Quality-Based Toxic Control (March 1991).
EPA Guidance for Writing Case-By-Case Permit Requirements for Municipal Sewage Sludge (May 1990).

EPA Quality Criteria For Water (1986).

EPA Guidance Manual for Electroplating and Metal Finishing Pretreatment Standards (February 1984).

EPA Guidance Manual For POTW Pretreatment Program Development October 1983

EPA Supplemental Manual On The Development And Implementation Of Local Discharge Limitations Under The Pretreatment Program May 1991

EPA Model Sewer Use Ordinance

40 CFR 503

EPA Guidance Manual for Implementing Total Toxic Organics (TTO) Pretreatment Standards 1985

American Conference of Governmental and Industrial Hygenists. TLV's-threshold Limit Values for Chemical Substances in the Work Environment Adopted by ACGIH for 1984-1985.

Cynthia Wilson. Chemical Exposure and Human Health; a Reference to 314 Chemicals With a Guide to Symptoms and a Directory of Organizations 1993 Pub. McFarland & Company, Inc., Publishers Box 611, Jefferson, NC 28640.

Bretherick, Hazards in the Chemical Lab 3rd Ed. 1981.

EPA, Report To Congress On the Discharge of Hazardous Waste To Publicly Owned Treatment Works February 1986.

Treatment of Organically Contaminated Groundwaters in Municipal Activated Sludge Systems Smith et al. 1993.