UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Jan 07, 2004

In Reply Refer To: CWA-307-9-03-013

Marc Sulik, Wastewater Treatment Supervisor
City of Chico
Water Pollution Control Plant
4827 Chico River Road
Chico, California 95927

Re: 2004 Pretreatment Program Evaluation

Dear Mr. Sulik:

Enclosed is the December 15, 2004 report for our pretreatment evaluation of Chico. We ask that the City provide short written responses to each of the findings in Sections 2.0 to 8.0 of this inspection report by March 30, 2005.

We found your pretreatment program to be competently well run and very efficient and effective in regulating the many non-domestic wastewater contributions into the Chico treatment works. In particular, the Chico Water Pollution Control Plant consistently complies with its discharge and sludge limits, and we would not expect the WPCP to experience any pass-through, operational interference, or sludge contamination. In addition, the permits accurately convey the sewer discharge requirements to the industrial user and through the inspections and sampling work Chico demonstrates a thorough knowledge of the pretreatment program requirements. A small handful of minor corrections involve preparing permit fact sheets, revising the significant industrial user inventory and reissuing a few permits. All of the findings, requirements, and recommendations are outlined in the enclosed inspection report.

Thank you for your cooperation during and after this inspection. Please do not hesitate to call (415) 972-3504 or e-mail arthur.greg@epa.gov.

Sincerely yours,

Original signed by:
Greg V. Arthur

Greg V. Arthur
Clean Water Act Compliance Office

cc: Melissa Hall, RWQCB

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

PRETREATMENT PERFORMANCE EVALUATION INSPECTION REPORT

NPDES Permittee:	City of Chico 4627 Chico River Road, Chico, California 95927 Wastewater Treatment Plant (NPDES CA0079081) WDRs Order R5-2004-0073
Dates of Inspection:	June 10-11, and July 6, 2004
Data Review:	Influent and Effluent Conventional: 2003 – 2004 Influent and Effluent Toxics: 2001 – 2004 Sludge Toxics: 2000 – 2004

Inspection Participants:

US EPA:	Greg V. Arthur, CWA Compliance Office, (415) 972-3504
RWQCB:	No Representative
Chico:	Marc Sulik, Wastewater Treatment Supervisor, (530) 895-4965 Ron Manwill, Industrial Waste Inspector, (530) 895-4967
Industrial Users:	Wrex Products, Wayne Mullin, Safety Coordinator, (530) 895-3838 Lares Research, Larry McCulloch, Mfg Engr Mgr, (530) 345-1767 Aero Union, Jeff Parrish, Director Safety Envr & Fac, (530) 896-3000 Chico Drain and Oil, Michael Chiotti, Ops Mgr, (530) 345-9043 Sierra Nevada Brewery, Steve Strukan, Maint Suprvsr, (530) 893-3520 A/C Industrial Services, Darcy Auer, Business Mgr, (530) 343-5488

Report Prepared By:	Greg V. Arthur, Environmental Engineer December 15, 2004

Section 1

Introduction and Background

1.0 Scope and Purpose

In October 2004, EPA completed a performance evaluation of the regulatory control of non-domestic wastewaters discharged into the City of Chico's Water Pollution Control Plant (WPCP). This performance evaluation is one of a series of reviews of small publicly-owned treatment works that accept non-domestic contributions, many of which are not large enough to be mandated to operate EPA-approved pretreatment programs. Chico is large enough and received pretreatment program approval on June 11, 1999.

The scope of this performance evaluation comprised:

- Sampling inspection of the Chico water pollution control plant on July 6, 2004;
- Review of 12-months of Chico self-monitoring reports (June 2003 to May 2004);
- Review of the 2000-2004 influent and effluent sampling records for toxic pollutants;
- Inspections of 4 significant industrial users and 2 non-SIUs, of which 3 were sampled;
- Review of the 2000-2004 sampling records for the significant industrial users inspected;
- Interviews with City representatives on June 10-11, and July 6, 2004;
- Review of the responses by the industries to their inspection reports and follow-up visits.

The purpose of this evaluation was to determine if non-domestic discharges into the Chico sewer system are properly controlled. The evaluation findings were measured against two fundamental performance objectives. The first is the prevention of sewage treatment works pass-through, interference and sludge contamination as shown by compliance with the Federal sludge limits, the discharge permit limits, and any expected future Clean Water Act requirements. The second is the consistent compliance by the industrial users with their own Clean Water Act requirements, in particular with the Federal best-available-technology standards that apply to certain industrial categories, and any national prohibitions and local limits for pollutants associated with treatment works non-compliance.

This report covers the performance of the pretreatment program as it currently exists in Chico. Some pertinent findings from the industrial user inspections are also incorporated. The significant industrial users received individual reports. Arthur collected samples on June 11 and July 6, 2004 for delivery to the EPA Richmond Lab.

1.1 Chico Water Pollution Control Plant

The Chico WPCP nitrification/partial-denitrification plant that discharges by a 1½-mile long outfall to the Sacramento River or, in an emergency, to the M&T irrigation canal particularly

if it is in use during the summer growing season. The wastewater treatment plant has a dry-weather design capacity of 9.0 million gallons per day ("mgd") and a wet-weather design capacity of 22.5 mgd. The average and calculated peak flows were 6.96 and 9.55 mgd over the twelve-month period from June 2003 through May 2004. See Appendix 1.

- Primary Treatment – The headworks, which provide screening, aerated grit removal, and odor control through chemical addition, is followed by three primary sedimentation basins that together have a design capacity of 22.5 mgd. Primary effluent is then split between two parallel activated treatment plants.

- Secondary and Advanced Treatment – The older Plant 1, which has a design capacity of 3.5 mgd, consists of aeration basins followed by secondary clarification and chlorine contact disinfection. Plant 1 is operated in an extended aeration mode to provide nitrification and the side benefit of partial denitrification. The newer Plant 2, which has a design capacity of 5.5 mgd, consists of four oxidation ditch raceways followed by secondary clarification and chlorine contact disinfection. Plant 2 is operated at a constant feed rate, in an extended aeration mode to provide nitrification, and with anoxic dead zones to provide denitrification. In both Plant 1 and Plant 2, activated sludge returns to aeration at rates to support a mean cell residence time of between 6 to 8 days during the summer.

- Tertiary Treatment - There is no tertiary polishing of secondary effluent and, as a result, no capability to reuse treated wastewater off-site.

- Solids Handling - Waste secondary activated sludge and primary sludge are digested in two anaerobic digesters operated in parallel. Waste activated sludge is first conditioned through two dissolved air flotation units with the float further prepared through a sludge thickener before feeding into the digesters. Primary sludge is preconditions in the sludge thickener. Digested sludge is discharged through a storage equalization tank for application on sludge drying beds. Dried sludge, headworks grit, and screenings are hauled-off site to a landfill. Dissolved air flotation subnatant, and sludge thickener decant return to the flow splitter into Plant 1 and Plant 2.

- WPCP Sampling - The influent sampling point, located between the headworks and the primary sedimentation basins, is designated as IWD-CH1 for the purposes of this report. All return flows rejoin treatment downstream of influent sampling. The effluent compliance sample point, sited immediately before dechlorination in the outfall, is designated as IWD-CH2. The accumulation of digested sludge in an equalization tank before sludge drying is designated as the sludge sampling point, IWD-CH3, although dried sludge better represents the quality of the sludge hauled off-site for disposal. The receiving water sampling points upstream and downstream of the Chico outfall in the Sacramento River are designated in the permit as R-1 and R-2.

- Water Supply – The California Water Service Company provides well water to users in Chico. The water supply is more mineralized that the receiving waters for the sewage treatment plant, with the average total dissolved solids content of the ground water more than double the content downstream in the Sacramento River (199 versus 94 mg/l). The water supply is also signify-cantly much higher in zinc (10 versus 1 µg/l), copper (280 versus 2 µg/l), and nitrates (12 versus 0.2 mg/l), but lower in iron (2 versus 13 µg/l). Corrosion of household plumbing is the likely principal source of the increased copper and possibly zinc. Farm-related run-off and septic systems are the likely principal sources of the elevated nitrate levels found throughout Butte County. The elevated nitrate levels have precluded significant areas of Butte County in and around Chico from the installation and continued use of septic systems. See Appendix 2.

- Receiving Water Hardness - The USGS maintains stations on the Sacramento River at Colusa and near Red Bluff, respectively ~50 river miles downstream and ~50 river miles upstream of the Chico outfall. These stations and five others in the Sacramento River basin were extensively sampled under a full range of conditions for conventional, toxic, and pesticide related pollutants, as part of the 1995-1998 National Water Quality Assessment Program. The calculated 99th% minimum and sample minimum hardness for the Sacramento River stations were 37.7 and 40 mg/l as $CaCO_3$ upstream at Red Bluff and 35.1 and 40 mg/l downstream at Colusa. The calculated 99th% minimum and sample minimum hardness reported by Chico were 37.5 and 46 mg/l for the mixing zone around the outfall. The toxic metals limits in the WDRs were based on a minimum receiving water hardness of 46 mg/l. A lower minimum of hardness of 37.5 mg/l would not significantly lower the toxic metals limits in the WDRs.

1.2 Sewer Service Area

The Chico sewer service area comprises the incorporated area of the city and small parcels of unincorporated Butte County. The Chico WPCP does not accept septage. The regional disposal points for septage collected from Butte County are the Oroville Wastewater Treatment Plant and the ponds at the Neal Road Landfill. The service area has a population in 2000 of roughly 70,000 people, and roughly 500 commercial and industrial users, who together contribute 10% of the sewered wastewater. The largest industrial user contributes around 4% of the total flow and 10% of the total organic loadings. The inventory of industrial users includes at least seven considered as significant industrial users, who together discharged an average of 340,000 gallons per day into the sewers (5% of the total flow).

1.3 Discharge Requirements

Chico is authorized by the June 4, 2004 RWQCB Waste Discharge Requirements, Order R5-2004-0073, ("WDRs"), to discharge treated sewage from the Chico WPCP either to the Sacramento River or to the M&T Canal, an irrigation ditch. The WDRs also function as National Pollutant Discharge Elimination System ("NPDES") permit CA0079081. The

WDRs contain narrative prohibitions, effluent limits that implement the California Toxics Rule, receiving water limitations, monitoring requirements, pretreatment provisions, and sludge disposal requirements. The effluent limitations are for conventional pollutants, total coliform, residual chlorine, pH, acute biotoxicity, and a few selected toxic metals (copper, lead, zinc) and toxic organics (dibromochloro-methane and bromodichloromethane). The effluent limits for toxics are based on three sets of dilution credits for acute and chronic toxicity and human health that differ depending on the discharge point and time of year (M&T Canal – Apr 15 to Dec 15; M&T Canal – Dec 16 to Apr 14, Sacramento River – year round). The effluent limits for toxic metals are based on a receiving water hardness of 46 mg/l.

The receiving water limitations include narrative provisions against causing dissolved oxygen concentrations below 9.0 mg/l, detectible chlorine, a visible film, discoloration, objectionable growths, nuisance conditions, the bioaccumulation of toxics, bad tasting fish, increased temperatures over 5°F, increased turbidity, increased specific conductivity, high or low pH's, and any other adverse effect on the beneficial uses of the receiving waters.

1.4 Legal Authorities

Chico obtained approval of its pretreatment program in 1999. Chico operates under the authority of Title 15, Water and Sewers, Chapters 15.36 and 15.40 of its municipal code as adopted in March 2000. The current WDRs and the WDRs previously issued in 1999 imposed pretreatment provisions that require implementation of the regulatory controls necessary to enact all of 40 CFR 403. Requirements to implement an approved pretreatment program would include the following:

- The implementation of the general and specific national prohibitions in 40 CFR 403.5 for industrial users against the introduction of incompatible wastewaters;
- The requirement in 40 CFR 403.5 to develop locally-determined limits necessary to protect the treatment works from potential adverse impacts, such as operational interference, worker health and safety risks, the pass-through of pollutants to the receiving waters, and sludge contamination;
- The performance of the program functions set forth in 40 CFR 403.8, such as identifying industrial users, issuing permits, inspecting and sampling industrial users, providing adequate funding, and enforcing against violators;
- The requirement to enforce the prohibition against bypassing treatment necessary to comply with standards in 40 CFR 403.17 and against dilution as a substitute for treatment in 40 CFR 403.6(d);
- The implementation of an industrial users self-monitoring program under 40 CFR 403.12;
- The implementation of Federal categorical standards under 40 CFR 403.6; and
- The enacting of the local legal authorities necessary to operate an approved pretreatment program under 40 CFR 403.8.

This evaluation did not involve a review of the approved 1999 ordinance because there have been no changes in the Federal pretreatment regulations.

Section 2

Wastewater Treatment Plant Performance

The Chico WPCP must meet permit effluent limits for conventional pollutants, metals, toxic organics, pH, residual chlorine, and biotoxicity. 40 CFR 403.5(a,b,c) and 403.6.

Non-domestic wastewaters may not result in unpermitted releases, hazardous or explosive conditions with the sewers, or operational interferences in the collection system. 40 CFR 403.5(b).

2.0 Summary

The WPCP has the capacity and capability to handle the domestic wastewaters in the Chico service area. At current loadings, removal rates, and with current disinfection methods, the WPCP should continue to not experience any interference or pass-through, primarily because of dilution in the river mixing zone, and because there has been just one discharge to the M&T Canal over the past 20 years. Because of nitrification and partial denitrification, the WPCP is not expected to experience the pass-through of toxicity associated with ammonia.

See Appendices Nos. 2, 3 and 4 for wastewater and sludge summaries, 5 for a comparison of Chico with other selected Central Valley sewer districts with industrial contributions, 6 for the EPA sampling results, and 8 for the definitions of ‘pass-through’ and ‘interference’.

Requirements

- All process wastewaters from the Sierra Nevada Brewery must be thoroughly treated in its on-site BVF bioreactor prior to discharge to the sewer.

Recommendations

- The wastewater treatment plant influent should be regularly monitored for aluminum, chromium, copper, iron, lead, mercury, molybdenum, selenium, and zinc.
- The permit for the Sierra Nevada Brewery should specifically prohibit the bypassing of the on-site treatment or require prior notice and approval by the City of Chico.
- A newsletter should inform rate payers of the wastewater compliance status and the on-going need to fund the capital improvements, pretreatment, and operations to protect and maintain the public wastewater investment.

Section 2 – Wastewater Treatment Plant Performance

2.1 Conventional Pollutants

The WPCP produces high-quality secondary-treated wastewaters that are fully nitrified and partially denitrified. As a result, the WPCP consistently complies with its permit limits for conventional pollutants. The averages and calculated 99th% peaks are 4.6 and 9.0 mg/l BOD and 5.0 and 14.4 mg/l TSS. There were also no instances of the effluent pH below the lower 6.0 limit or above the upper 9.0 limit.

2.2 Ammonia Toxicity

The permit sets acute toxicity, and maximum pH limits, as well as temperature increase limits for the receiving waters, that together in effect limit effluent ammonia. The WPCP consistently meets permit limits for acute toxicity (single events and 3-sample medians) and for maximum pH. Compliance with the toxicity limits is the result of nitrification through extended aeration. Total ammonia concentration averages and calculated 99th% peaks were only 0.40 and 3.0 mg/l, which is well below the 10-40 mg/l found in un-nitrified effluent. Moreover, only a minute fraction of the ammonia, less than 5 µg/l, would be expected to be in the toxic un-ionized form since just one of the 366 pH measurements over the 12-month period from June 2003 to May 2004 exceed 7.5 s.u.

2.3 Nitrates Plus Nitrites

The WPCP nitrifies ammonia to nitrates and partially denitrifies nitrates to nitrogen. It does not denitrify enough to keep levels below the 10 mg/l threshold that could trigger adding nitrates as a pollutant of concern for the receiving waters. The two sample results from June 2003 to May 2004 for nitrate/nitrites as nitrogen were 13.8 and 19.9 mg/l. The dilution credits are high enough to ensure there is little potential to exceed 10 mg/l outside of the 250’ x 70’ mixing zone in the river. At the USGS stations on the Sacramento River, nitrate/ nitrites were well under the 10 mg/l threshold, with averages and calculated 99th% peaks of 0.12 and 0.23 mg/l upstream at Red Bluff and 0.16 and 0.34 mg/l downstream at Colusa.

2.4 Salts

The WDRs do not limit salts but requires monitoring for total dissolved solids, hardness, and electrical conductivity. The monitoring results for salts are all well below what could adversely impact reuse, water supplies, or in the case of sulfate, impart an acute toxicity.

2.5 Toxic Metals

At current loadings and removal rates, the WPCP would be expected to consistently comply with the WDRs limits for aluminum, copper, and zinc. The WDRs advance no limits for

other toxic metals. See Appendix 3 for a summary of toxics in the water supply, influent, effluent, and receiving waters and Appendix 5 for a comparison with selected Central Valley sewer districts.

The effluent averages for Chico were the highest of selected sewer districts for chromium, and mercury. The Chico averages also exceeded aggregate averages of the selected sewer districts for lead, selenium, silver, and zinc. The elevated levels in comparison for Chico can be explained by the fact that most of the other sewer districts perform advanced treatment of some sort, either full nutrient removal or tertiary filtration, and thus have higher removal rates. The effluent averages for Chico are also significantly higher than the receiving waters averages for aluminum, copper, iron, and molybdenum. Because of a lack of influent monitoring, definitive conclusions cannot be made ruling out non-domestic sources, the water supply, or household pipe corrosion as the significant causes of the elevated levels.

2.6 Toxic Organics and Pesticides

The WPCP would be expected to consistently comply with the WDRs limits for two chlorination byproducts (*bromodichloromethane, dibromochloromethane*). Numerous other toxic organics were detected in the influent at least once and a few were detected in the effluent. The WDRs advance no limits for any other toxic organics.

- Influent – 2.5 µg/l *1,4-dioxane*, 1.5 µg/l *chloroform*, 1.7 µg/l *toluene*, 0.36 µg/l *hepta-chlor*, 2.1 µg/l *1-4-dichlorobenzene*, 11 µg/l *2-methylphenol*, 58 µg/l *4-methylphenol*, 40 µg/l *phenol*, 11 µg/l *diethylphthalate*, 1.0 µg/l *di-n-butyl phthalate*, 2.3 µg/*l butyl benzyl phthalate*, 11 µg/l *bis(2-ethylhexyl) phthalate*, and 1.2 µg/l *di-n-octyl phthalate*.

- Effluent – 26-46 µg/l *chloroform*, 6-12 µg/l *bromodichloromethane*, 0.8-8.0 µg/l *di-bromochloromethane*, 0.10 µg/l *toluene*, and 0.5 µg/l *bis(2-ethylhexyl) phthalate*.

2.7 Federal Sludge Limits

The WPCP sludges consistently comply with the Federal sludge limits suitable for any reuse in Table 3 of 40 CFR 503.13.

2.8 WPCP Interference

The Sierra Nevada Brewery poses an operational risk to the Chico treatment works. There would be sharp increases in organics loadings at the WPCP if the BVF bioreactor at the brewery fails or is bypassed. Untreated wastewaters from the brewery would increase the influent BOD at the WPCP by as much as 150 mg/l or more, which is large enough to adversely effect the operation of the WPCP. See the September 30, 2004 EPA report of the inspection of the Sierra Nevada Brewery for a larger discussion.

Section 3

Local Limits

Pretreatment programs are required to develop local limits to prevent pass-through, interference, sludge contamination or other adverse effects upon the treatment works. 40 CFR 403.5(c).

3.0 Summary

The local limits are technically-based and cover all pollutants of concern with the possible exception of excessive BOD. The local limits were part of the program approval in 1999 and were enacted in the municipal code in 2000. There have been no changes to the Federal pretreatment regulations since approval of the ordinance. With the new WDRs now in effect, the local limits could be considered outdated, however, WPCP sampling shows that they remain protective against pass-through or interference and that Chico has achieved industrial user compliance with them. See Appendix 8 for a definition of 'local limits'.

Requirements

- None.

Recommendations

- Site-specific maximum BOD limitations should be applied to high-strength organics loaders in order to protect against adverse impacts upon the sewer system.

3.1 Sewer Use Ordinance

This pretreatment program evaluation did not include a new review of the sewer use ordinance. The ordinance was enacted in 2000 after approval by the RWQCB, and it was reviewed again as part of the September 2002 and April 2004 pretreatment compliance audits conducted by the State of California or the State's contractor, Tetra Tech.

3.2 National Prohibitions

The national prohibitions apply to every non-domestic discharge into the sewers nationwide to prevent harm to the treatment works. They consist of the general prohibitions in 40 CFR 403.5(a) against harm and the specific prohibitions in 40 CFR 403.5(b). In practice, local limits, covering a range of pollutants, and developed in accordance with 40 CFR 403.5(c), replace most of the effective span of the national prohibitions.

Section 3 – Local Limits

3.3 Pollutants of Concern

Violation Probability – The pollutants of concern are those related to non-domestic sources with a statistical chance of over 1% to cause a violation of the WDRs or the Federal sludge limits. The pollutants with a statistical chance over 1% are copper, lead, zinc, ammonia toxicity as measured by acute bioassay and effluent pH, dibromochloromethane, and bromodichloromethane. Of these, dibromochloromethane and dichlorobromomethane would not be pollutants of concern because they are chlorination by-products unrelated to influent quality. Ammonia toxicity also would not be a pollutant of concern because the effluent concentration of un-ionized ammonia is a function of the treatment plant operations.

Discernible Sources – Pollutants with a statistical chance below 1% to cause a violation from discernible sources, nevertheless, also are pollutants of concern. Arsenic, cadmium, chromium, molybdenum, nickel, and selenium were present or would be expected to be present in the discharges at the metals fabrication and finishing operations *(Lares, Wrex-MetalFinish, Wrex-DieCast, Prisma Colorcoat, Valley Industrial-out of business, Aero Union*). Selenium is associated with farm-related uses (*Mooney, possibly Knudsens*). Lead is scoured from boilers and radiators (*Sierra Nevada, Mooney, possibly Knudsens, radiator shops*). Mercury has non-domestic commercial sources (*dentists*). MTBE at aquifer clean-up sites are pollutants of site-specific concern throughout California. Oil & grease is a concern at commercial laundries (*Aramark, Mission*) and at some food processing facilities (*Mooney*).

Sewer Impacts – Pollutants with a potential to adversely impact the sewers also are pollutants of concern. Acidity as measured by pH is of concern because of sewer line corrosion. Excessive BOD is associated with the septic formation of sulfides which can degrade sewer lines and produce hazardous working conditions (*Sierra Nevada, Mooney, possibly Knudsens*). Oil & grease is associated with sewer line blockages and noxious odors (*Mooney*).

The ordinance advances local limits for many other pollutants that are not regulated by either the WDRs, the Federal sludge standards, or by the Federal regulations pertaining to the sewer system operations. These other pollutants include antimony, benzene, beryllium, carbon disulfide, chloro-ethane, chloroform, chloromethane, cyanide, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, dichloromethane, ethylbenzene, hexachloroethane, tetrachloroethylene, and toluene.

3.4 Maximum Allowable Headworks Loadings

The approved 2000 ordinance enacts local limits that are technically-based on the maximum pollutant loadings that Chico can accept into the sewers and still comply with its WDRs and the Federal sludge limits. The effluent limits in the newly issued WDRs necessarily change the maximum allowable headworks loadings ("MAHLs"), which form the technical basis for local limits. However, sampling indicates that the MAHLs as they currently stand would continue to be protective against adverse effects in the sewers and pass-through or operational interference at the WPCP. See Appendices 2, 3 and 4.

Section 3 – Local Limits

3.5 Allocation Method

Chico allocated the MAHLs for each of the pollutants of concern to the controllable sources using uniform concentrations. The MAHLs can be allocated in any fashion to the individual industrial and commercial sources, as long as the total allocation out to the domestic and non-domestic users does not exceed the calculated MAHLs.

3.6 Industrial User Compliance with Local Limits

The Federal regulations do not define how to determine regulatory success. Nevertheless, EPA considers Chico to be successful in achieving industrial user compliance as demonstrated by the following performance measures.

- Treatment Plant Performance - EPA Region 9 bases its primary determinations on the purpose of local limits and the national prohibitions to prevent pass-through, interference, sludge contamination, or potential worker safety risks. As a result, the best measure of a program's effectiveness is consistent compliance with the WDRs and Federal sludge limits. By this measure, Chico is successful.

- Cost Effective On-Site Treatment - Conventional pollutants can be treated at the sources and the sewage treatment plant. In general, primary treatment for solids and organics, pH adjustment, and gravity oil-water separation, are cost effective at the sources, while secondary treatment for dissolved organics, nitrification and denitrification are much more cost effective at the sewage treatment plant. On the other hand, toxics must be entirely controlled by the sources since sewage treatment plants are not designed to for toxics. By this measure, Chico would be successful. The operational risks of high-strength organics upon the sewers and the WPCP justify on-site secondary treatment for its high-strength organic wastewaters at Sierra Nevada.

- Significant Non-Compliance – EPA policy defines a pretreatment program to be in "reportable non-compliance" if more than 15% of its SIUs are in significant non-compliance during a year. Reportable non-compliance can become a factor in finding a pretreatment program in its own significant non-compliance status. By this measure, in 2003 and 2004, Chico would be successful, since there was only one instance of significant non-compliance over both years.

Section 4

Industrial User Compliance with Federal Standards

Pretreatment programs are required to be administered to ensure industrial user compliance with Federal categorical pretreatment standards. 40 CFR 403.8(b).

4.0 Summary

Best-available-technology ("BAT") treatment or its equivalent was not applied and in place at all of the identified Federally-regulated industrial process within the Chico service area.

Requirements

- The violations of Federal standards related to a lack or partial lack of the model BAT

Recommendations

- The operational and disposal procedures to ensure compliance with Federal categorical

4.1 Treatment In-Place

EPA Region 9 uses two performance measures that together reflect the purpose of the various Federal categorical pretreatment standards to bring about the nationwide use of model BAT treatment. The first measure is model BAT treatment across the industrial inventory. The Federal standards for each Federally-regulated industrial category were based on the statistical performance of model BAT treatment as it is separately defined for each category. For metal finishing, the model BAT treatment is metals precipitation, settling and solids removal, and if necessary, cyanide destruction and chromium reduction. For aluminum and zinc casting, the model BAT treatment is oil/water separation, metals precipitation, settling, media filtration, wastewater recycling, and solids removal.

Two of the four industrial users identified during this evaluation by EPA as a Federally-regulated user, were not found to comply with its Federal standards either through model BAT treatment or through facility configurations and practices to keep from discharging to the sewers.

Section 4 – Industrial User Compliance with Federal Standards

- Wrex-DieCast – This aluminum and zinc casting operation exceeds in design the model BAT treatment for total toxic organics and phenols. Not only were just three of the regulated toxics detected and at levels well below the standards, but the treatment in-place for toxic organics through oil/water separation is augmented by phenol reduction. However, Wrex-DieCast falls short in design to the model BAT treatment for metals. The treatment in-place for metals through the filter press removal of metals precipitates is not as efficient as settling, media (sand) filtration of decant, filter press dewatering of settled sludge, and the retreatment of return steams.

- Wrex-MetalFinish – This deburring and passivation operation is equivalent in design and performance to the model BAT treatment for metals with one slight modification. The treatment in-place through metals precipitation, settling, and sludge dewatering is compromised by the discharge of return streams without retreatment. Wrex-MetalFinish is not expected to generate cyanides or toxic organics.

- Lares Research – This metal finishing operations falls short in design to the model BAT treatment for metals. The treatment-in-place to remove metals-bearing suspended solids through various cartridge filters is not as efficient as chemically-aided settling, and sludge dewatering. Lares is not expected to generate cyanides nor levels of toxic organics that cannot be removed through the carbon filtration cartridges.

- Aero Union – This metal finishing operation exceeds in performance the model BAT treatment for metals, cyanide, and toxic organics because all process-related wastewaters are collected and off-hauled for disposal.

4.2 Comparison with Model IU Performance

The second measure, derived from statistical comparisons with the performance of model categorical industrial users, only applies to larger industrial user inventories.

Section 5

Industrial User Inventory

Pretreatment programs are required to develop a complete inventory of industrial users, as part of ensuring industrial user compliance. 40 CFR 403.8(b,f1iii,f2i).

5.0 Summary

The Chico inventory correctly identifies nearly all of its significant industrial users ("SIUs") and correctly classifies them by Federal category. However, the inventory did not include SIUs which qualify solely because of a "reasonable potential to adversely affect the treatment works", nor any zero-discharge categoricals who would be subject to Federal standards if they discharged. Chico maintains a current inventory of the unpermitted non-significant industrial users. See Table 7 for a list of identified SIUs and Table 8 for a definition of SIU.

Requirements

- The inventory must be re-evaluated to identify any SIUs that qualify because of a "reasonable potential to adversely affect the treatment works".

Recommendations

- The inventory should be maintained by non-domestic wastewater discharge point, with

5.1 Inventory Completeness

The inventory of the potential sources of non-domestic wastewaters to the sewers is substantially complete. The inventory includes categorical SIUs, non-categorical SIUs, commercial sources, small dischargers under 25,000 gpd, and facilities with multiple discharge points. Chico updates the inventory annually, field verifies new users identified through the building permit process, and performs plan checks. All of these are good and effective practices. The Chico inventory favorably measures up to three of the following four characteristics that EPA considers as good indications of a complete inventory. First, the inventory includes commercial sources, such as dentists, super-markets, restaurants, and automobile repair shops, none of which would be expected to pose a significant risk to the treatment works. Second, it includes commercial and industrial dischargers of less than

25,000 gpd designated by SIC code. Third, the industrial users with multiple non-domestic discharges to the sewers are identified and permitted by separate discharge points. The inventory does not meet a fourth characteristic of including zero-dischargers that would be categorical if they discharged.

5.2 Inventory Classifications

Chico correctly classifies its SIUs. EPA verified the classifications of three categorical SIUs *(Lares, Wrex-MetalFinish, Wrex-DieCast*), one non-categorical SIU (*Sierra Nevada*), one zero-discharging categorical (*Aero Union*), and two non-significant industries that did not discharge non-domestic wastewaters to the sewer (*Chico Drain & Oil, A/C Industrial*).

However, Chico does not have second tier permits for industrial and commercial users that do not qualify as SIUs. As a result, while the inventory is updated annually and is substantially complete, the classifications for the industrial users are not concurrently re-determined. EPA found one misclassified <25,000 gpd non-categorical discharger causing sewer line interferences that qualifies as an SIU with a "reasonable potential to adversely effect the treatment works" (*Mooney Farms*). EPA could not survey the entire inventory to determine if there were any other SIUs that would qualify under the same "reasonable potential" reason.

- Wrex-DieCast – This industry qualifies as a categorical SIU subject to the Federal standards in 40 CFR 464 Subparts A and D for aluminum and zinc casting.

- Wrex-MetalFinish, Lares Research – These qualify as categorical SIUs subject to the Federal standards in 40 CFR 433 for metal finishing.

- Sierra Nevada, Life Touch, and Mission Uniform – These qualify as a non-categorical SIUs because their non-domestic discharges average >25,000 gpd. Sierra Nevada also qualifies because its organic loads are >5% of the treatment plant capacity.

- Mooney Farms – This industry qualifies as a non-categorical SIU discharging <25,000 gpd because it poses a reasonable potential to adversely effect the sewer lines.

- Aero Union – This industry would qualify as a zero-discharging categorical SIU that complies with the Federal standards in 40 CFR 433 by not discharging regulated flows. Including zero-discharging categoricals in the inventory ensures the local regulatory control over those who could endanger the treatment works and would violate their Clean Water Act requirements if they discharged to the sewers.

- Other Possibles – These would include any other large organics loaders, categoricals, zero-discharge categoricals, or toxic loaders. Possibles: radiator shops, Knudsens, CSU Chico, Aramark, Patio Cruisers, Chico Aerial Applicators, Chico Enterprise Record.

Section 6

Industrial User Permits

Pretreatment programs are required to issue permits with standards and limits, sampling locations, self-monitoring requirements, and a 5-year or less expiration, as part of ensuring industrial user compliance. 40 CFR 403.8(b,f1iii,f2i).

6.0 Summary

The permits issued by Chico effectively convey the sewer discharge requirements. The permits are uniformly accurate (with a few exceptions), detailed, thorough, and clearly written. Just a handful of permits need to be issued to correctly re-apply Federal standards and to apply sewer discharge requirements to new SIUs once the inventory is re-determined.

Requirements

- The Wrex permit must be reissued in order to re-apply the Federal standards.
- A permit must be issued to Mooney Farms and any other identified SIUs that qualify because of a "reasonable potential to adversely affect the treatment works".

Recommendations

- Second-tier permits should be issued to selected non-significant industrial users of concern and zero-discharging categorical SIUs.
- Permits should not list just the "more stringent" of the Federal standards or local limits.
- Fact sheets should be prepared to document the basis for each SIU permit.

6.1 Permit Accuracy

For the most part, the permits accurately convey the sewer discharge requirements to the SIUs. They effectively advance the basic provisions covering the applicable Federal standards and local limits (with their regulatory citations), self-monitoring and reporting requirements, slug control plans, self-certifications in lieu of self-monitoring, effective duration, and the procedures for re-application. The permits also include other excellent provisions regarding city monitoring, sample collection/ preservation/chain-of-custody methods, analytical methods, and the general discharge prohibitions from the ordinance. The small number of permitting inaccuracies found as part of this evaluation follow below:

Section 6 – Industrial User Permits

- Wrex-DieCast – The Federal phenol standards cannot be determined without obtaining baseline flow rates for the wastewater sources. The permit should apply the Federal toxic organics standards and not the alternate oil & grease standards. The sampling protocols need to be applied to just the batch discharge of the Federally-regulated waste streams.

- Wrex-MetalFinish – The Federal metal finishing standards apply upon start-up of the passivation line. If the deburring line proves to be an existing source operating un-changed in configuration since 1983, then the existing source and new source standards for cadmium have to be flow-weighted averaged.

- Sierra Nevada – Either a bypass prohibition or an excessive BOD loading limit applies.

- Mooney Farms – Permits must be issued to any identified SIUs that qualify because of a "reasonable potential to adversely effect the treatment works".

- Aero Union - Zero-discharge permits should be issued to industries that comply with Federal standards by not discharging the Federally-regulated wastewaters. These permits would explicitly prohibit the discharge of Federally-regulated wastewaters and require bi-annual no-discharge certifications in lieu of self-monitoring. These permits strengthen enforcement against illegal dumping to the sewer because the establishment of violation depends only on whether a discharge occurred and not on surveillance sampling and the difficult arguments surround the representativeness of sampling.

- Second-Tier Industries – Permits establish an official regulatory relationship.

6.2 Permit Clarity

All of the permits are clearly written. In particular, they clearly delineate the sampling locations on a site map. The only minor shortcoming is listing of only the "more stringent" of the Federal standards and local limits since they are not directly comparable with different sampling statistics and compliance is determined with differing sampling techniques.

6.3 Fact Sheets

Fact sheets should be prepared to document the information and decisions behind the permit provi-sions, such as Federal category, production and flow rates, sample points, pollutants of concern, statistical analyses of sample representativeness, and self-certifications in lieu of self-monitoring, as well as whether treatment-in-place for each categorical SIUs is equivalent to or exceeds the model BAT treatment used in setting the Federal standards.

Section 7

Monitoring, Self-Monitoring and Inspections

Pretreatment programs, as part of ensuring industrial user compliance [40 CFR 403.8(b)], are required to:

- Cause industrial users to self-monitoring at least twice per year unless the program samples for them [40 CFR 403.8(f1iii), 403.12(e1,g10)];
- Inspect industrial users at least once per year;
- Sample industrial users at least once per year if they self-monitor or twice per year if they are not required to self-monitor [40 CFR 403.8(f2v), 403.12(i2,e1,g10)];
- Ensure that all sampling and self-monitoring is representative of the reporting period [40 CFR 403.12(g3)].

7.0 Summary

For the most part, Chico successfully obtains the minimum required self-monitoring as well as performs the minimum required inspections and city sampling necessary to determine compliance independent of the information submitted by the SIUs. Representative sampling points have been established and are clearly specified in the permits. However, the self-monitoring frequencies at some SIUs do not ensure representative sampling over the reporting period because the significant slug, batch and variable discharges, are not specifically required by the permits to be self-monitored (*Wrex-DieCast, Lares*).

Requirements

- The self-monitoring records for each SIU must be complete in the number of samples. Frequencies could increase beyond twice per year through statistical determinations of the sampling schedules that would account for all sources of day-to-day variabilities in wastewater generation, treatment and discharge.

Recommendations

- Inspection reports should include an analysis that the sampling is representative of both the sampling day and reporting period.

- Inspection reports should document the findings that establish the sewer discharge permit conditions and prompt any necessary revisions or enforcement actions.

Section 8

Enforcement and Compliance Assistance

Pretreatment programs, as part of ensuring industrial user compliance are required to enforce their permits following an enforcement response plan, and to publish annual significant non-compliance lists [40 CFR 403.8(b,f1ii,f2vii,f5)].

8.0 Summary

The Federal regulations do not define how to determine a program's success in enforcing permit limits. However, an evaluation of enforcement and the City's enforcement response plan is premature since the unresolved industrial user non-compliance identified in this evaluation was primarily the result of permitting, monitoring, and inspection errors.

Requirements

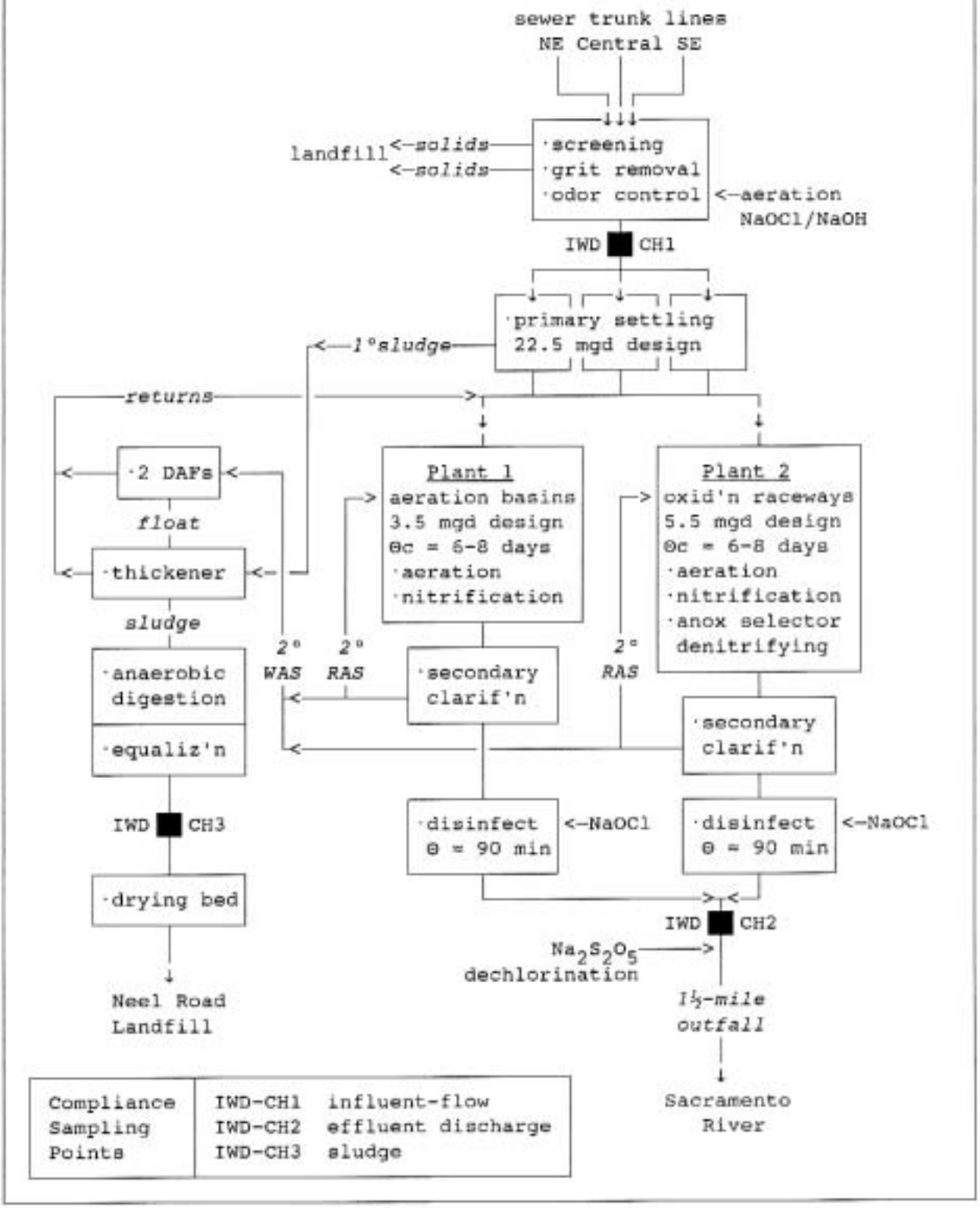
- None.

Recommendations

- None.

Appendix 1

Chico Water Pollution Control Plant
Schematic of the Wastewater Treatment



Appendix 2

Chico WPCP Wastewater Quality
Conventionals Pollutants, Nutrients, Other Non-Toxics
Jan-2003 to Jan-2004

Pollutants (mg/l)	influent mean	5th%	99th%	effluent mean	99th%	sample viol rate d-max	avgs	count
flow (mgd)	6.96	5.09	9.55		-	nr	nr	364
BOD	167.	112.	245.	4.6	9.0	0/95	0/12	95
TSS	236.	131.	384.	5.0	14.4	0/100	0/12	100
ammonia-N	0.20	0.08	0.36	0.40	2.97	nr	nr	88
nitrates-N	<0.3	<0.3	<0.3	16.4	25.0	nr	nr	2
phosphates-P	6.7	5.3	8.7		4.6	nr	nr	1
TDS	505.	470.	554.	470.	536.	nr	nr	2
alkalinity			-		140.	nr	nr	1
hardness			140.	125.	93.	nr	nr	9
hardness @ R-1	52.0	62.2	37.5			nr	nr	6
hardness @ SR a/	46.6	52.9	37.7			nr	nr	27
hardness @ SR b/	52.6	65.0	35.1			nr	nr	27
sulfates	11.0	6.2	17.7	46.	64.	nr	nr	2
chlorides	63.	61.	64.	62.	69.	nr	nr	2
sodium			82.	84.	92.	nr	nr	3
EC (µmhos/cm2)			-	698.	837.	nr	nr	50

Stat Measures	Median	95%th	99th%	Max	maxs	avgs	count
acute toxicity	pass	pass	pass	pass	0/12	nr	12
pH-min (s.u.)	<6.0 at least 0 times			6.9	0/366	-	cont
pH-max (s.u.)	>9.0 at least 0 times			7.9	0/366	-	cont

a/ USGS Sacramento River station upriver at Red Bluff
b/ USGS Sacramento River station downriver at Colusa
All USGS data from the 1996-1998 National Water Quality Assessment Program - Sacramento River Basin Study
nr no required permit limits
cont continuous pH meter reading

Appendix 3

Chico WPCP Wastewater Quality
Inorganic Toxic Pollutants, Toxic Organics, and Pesticides
Jan-2001 to Aug-2004

Pollutants (µg/l)	ws a/ mean	inf b/ 99th%	effluent c/ mean	effluent c/ 99th%	remo vals	upstream d/ mean	upstream d/ 99th%	downstream mean	downstream 99th	violation rate d-max	violation rate avg	violation rate count
aluminum		845.		42.	-	13.9	55.5	8.9	19.4	-	-	1
arsenic	<1.0	0.6	0.7	1.1	~0%	0.8	1.3	1.2	2.3	-	-	8
barium		32.0		9.8	80%	16.4	22.1	19.4	25.9	-	-	1
beryllium		<0.5	<0.5	<0.5	~0%	<1.0	<1.0	<1.0	<1.0	-	-	8
cadmium		<1.0	0.07	0.18	-	<1.0	<1.0	<1.0	<1.0	-	-	8
chromium	3.0	2.3	2.5	7.4	-	0.7	1.5	0.8	1.9	-	-	8
copper	280.	22.6	4.4	8.7	80%	1.7	3.3	1.7	3.2	0/8	0/8	8
cyanide			1.9	4.0	-					-	-	8
iron	2.0	850.		75.	90%	13.9	41.5	12.7	35.0	-	-	1
lead		1.6	0.7	1.9	55%	<1.0	<1.0	<1.0	<1.0	0/8	0/8	8
manganese		20.5		2.2	90%					-	-	1
mercury		0.50	0.025	0.084	95%	0.005	0.019	0.011	0.058	-	-	8
molybdenum		1.8		1.9	~0%	<1.0	<1.0	<1.0	<1.0	-	-	1
nickel		3.7	3.0	6.5	20%	1.2	2.3	1.1	2.2	-	-	8
selenium	50.	0.7	1.6	7.6	-	<1.0	<1.0	<1.0	<1.0	-	-	8
silver		9.0	0.3	0.6	-	<1.0	<1.0	<1.0	<1.0	-	-	8
zinc	10.0	87.0	58.9	123.	30%	2.3	6.4	1.0	2.3	0/8	0/8	8
bromodichloromethane		<1.0	5.6	15.7	-					0/7	0/7	7
dibromochloromethane		<1.0	2.7	8.0	-					0/7	0/7	7
MTBE		<1.0		<1.0	-					-	-	8
other tox organics		52.8	30.6	58.3	-					-	-	8

a/ Water supply data from California Water Service Company, 2003 Water Quality Report for Chico.
b/ WPCP influent results for toxics from single samples in 2003 DMRs and 2004 by EPA.
c/ WPCP effluent results for toxics include data from CTR survey and EPA data from 2001 through 2004.
d/ Receiving water data from USGS Sacramento River stations at Red Bluff ≈ 50 miles upstream, and at Colusa = 50 miles downstream.

Appendix 4

Chico WPCP Sludge Quality
Jan-2003 to Jul-2004

Pollutants (mg/kg)	Federal Standards ceiling	reuse	landfill	sample results mean	a/ 99th%	sample viol d-max	count
arsenic	75	41	73	<8.0	<8.0	0/2	2
cadmium	85	39	-	3.5	7.2	0/2	2
chromium	-	-	600	46.6	61.1	nr	2
copper	4300	1500	-	295.5	475.1	0/2	2
lead	840	300	-	37.9	44.2	0/2	2
mercury	57	17	-	3.6	3.9	0/2	2
molybdenum	75	-	-	8.6	10.4	0/2	2
nickel	420	420	420	23.9	30.9	0/2	2
selenium	100	100	-	9.4	16.4	0/2	2
silver	-	-	-	73.2	151.6	nr	2
zinc	7500	2800	-	537.9	841.4	0/2	2
% solids	-	-	-	73%	-	nr	2
total toxic metals				1040.1	1620.0		

a/ self-monitoring in 2003 not reported in mg/kg dry-wieght
nr no requirements

Appendix 5

Comparison of Wastewater Quality
Average Concentrations of Toxics Jan-00 to Jul-2004

Influent (µg/l)	Chico WPCP	Deer Creek	ElDor Hills	Grass Vally	Yuba City	Placr Co#1	Red Bluff	Stock -ton	norm a/
aluminum	845.				**1965**	820.			-0.6
arsenic	0.6	<1.0	1.4	<1.0	**6.1**	<1.0	1.33	**4.4**	-0.6
barium	32.0				98.6				
beryllium	<0.5				0.3			<0.5	
cadmium	<1.0	<1.0	<1.0	<1.0	0.5	<1.0	<1.0	0.4	
chromium	2.33	<5.0	5.5	<1.0	1.2	<5.0	7.6	**8.0**	-0.6
copper	22.6	83.0	**110.**	45.5	50.1	22.5	26.0	39.0	-0.9
iron	850.	430.	**1600**	510.	960.	1425			-0.2
lead	1.6	<5.0	<5.0	<5.0	2.7	10.4	<5.0	**10.9**	-0.7
manganese	20.5	24.0	**200.**	98.0	49.8	87.0			-0.9
mercury	0.21	0.26	0.43	0.26	**0.50**	<0.2	<0.2	0.30	-0.3
molybdenum	1.8				**10.3**			4.6	-0.9
nickel	3.2	3.3	5.5	4.6	3.7	5.1	5.0	**9.1**	-0.9
selenium	0.7	1.1	1.4	<1.0	**7.2**	<1.0	<1.0	<0.5	-0.4
silver	0.6	1.1	2.5	**3.7**	0.90	1.3	2.86	1.8	-1.2
zinc	87.0	120.	160.	**225.**	157.	110.	77.5	138.	-1.0

Effluent (µg/l)	Chico WPCP	Deer Creek	ElDor Hills	Grass Vally	Yuba City	Placr Co#1	Red Bluff	Stock -ton	norm a/
aluminum	42.0	39.0	36.4	26.8	**256.**	101.			-0.5
arsenic	0.28	0.4	0.50	1.29	**7.75**	0.43	1.44	3.6	-0.7
barium	9.8	4.05	2.02	4.04	**19.5**	4.82			-0.4
beryllium	<0.5	0.022	<0.003	<0.1	**0.44**	<0.02	<1.0	<0.5	
cadmium	0.07	<1.0	0.071	0.05	0.17	0.05	**0.39**	<0.1	-0.5
chromium	**2.53**	0.34	0.48	0.30	0.94	0.25	1.13	1.6	+2.0
copper	4.37	**20.4**	13.7	4.03	8.49	2.00	7.62	5.6	-0.6
iron	75.0	31.4	8.40	87.1	**164.**	79.2			+0.0
lead	0.68	0.50	0.061	0.41	**0.75**	0.73	0.45	<1.0	+0.7
manganese	2.2	1.58	2.57	35.9	**53.0**	34.7			-0.9
mercury	**0.025**	<2.0	0.002	0.005	0.017	0.004	<0.2	<0.2	+1.4
molybdenum	1.9				**10.5**			5.1	-0.9
nickel	2.99	**24.0**	3.28	4.15	1.78	2.62	1.55	7.1	-0.4
selenium	1.60	<1.0	0.28	0.45	**7.10**	0.15	0.57	<0.5	+0.1
silver	0.69	<1.0	0.006	<0.08	**0.76**	0.07	0.34	<0.4	+1.1
zinc	58.9	36.5	22.9	**60.7**	51.8	27.3	53.0	14.8	+1.0
Flow (mgd)	6.96	2.94	1.94	1.75	6.60	1.95	1.35	32.4	

bold highest sampling averages highlighted in bold

a/ calculated norm for Chico versus 8-city averages

$$\text{norm} = \frac{(x - \mu)}{\sigma}$$

x - Chico average
µ - 8-city averages
σ - 8-city std deviation

Appendix 6

Sampling Results
City of Chico Water Pollution Control Plant

Sample Number	CH009	CH010	CH011	CH014	CH013
Date	07/06/04	07/06/04	07/06/04	07/06/04	07/06/04
Type	4-hr	4-hr	4-hr	4-hr	grab
Location	WPCP	WPCP	WPCP	WPCP	WPCP
Point	Influent	Influent	Effluent	Effluent	Sludge
Units	mg/l	mg/l	mg/l	mg/l	mg/kg-dry
aluminum	0.810	0.880	0.042		21000
arsenic	0.00068	0.0008	0.00082		<13
cadmium	<0.0010	<0.0010	<0.0010		2.3
chromium	0.0021	0.0022	0.0009		51
copper	0.0082	0.011	0.0036		350
cyanide-total	<0.010		<0.010	<0.010	
iron	0.820	0.880	0.075		11000
lead	0.0025	0.0028	<0.0010		36
manganese	0.024	0.021	0.0022		290
mercury	0.00026	0.00037	<0.00030		3.5
molybdenum	0.0016	0.0020	0.0019		9.1
nickel	0.0031	0.0029	0.0016		26
selenium	0.00093	0.00089	<0.0010		7.1
silver	0.00080	0.0010	<0.0005		97
zinc	0.086	0.092	0.037		630
ammonia-N	30		<0.30	0.25	
boron	0.20	0.20	0.24		
chloride	63	62	63		
hardness	140	140	120		
nitrate-N	<0.30	<0.30	19		
total phosphate-P	6.1	7.3	4.6		
sodium	82	82	88		
sulfate	13	8.9	51		
TDS	520	490	490		
1,4-dioxane	0.0025		<0.0010	<0.0010	
phenol	0.040		<0.0050	<0.0050	
1,4-dichlorobenzene	0.0021		<0.0010	<0.0010	
2-methylphenol	0.011		<0.0050	<0.0050	
4-methylphenol	0.058		<0.0050	<0.0050	
diethyl phthalate	0.011		<0.0010	<0.0010	
di-n-butyl phthalat	0.0010		<0.0010	<0.0010	
butyl benzyl phthal	0.0023		<0.0010	<0.0010	
bis(2-ethylhex)phth	0.011		0.0005	<0.0010	
di-n-octyl phthalat	0.0012		<0.0010	<0.0010	
other VOAs/semiVOAs	<0.0010		<0.0010	<0.0010	
moisture (%)					62%

All samples collected, kept in custody, and delivered to the laboratory by Greg V. Arthur. Samples analyzed by EPA's Richmond Laboratory. Documentation including chain of custody and quality control results are attached.

Appendix 7

City of Chico Service Area 2004 Inventory

SIGNIFICANT INDUSTRIAL USERS ("SIUs")	FLOW in gpd	PRETREATMENT-IN-PLACE	FEDERAL CATEGORY	BAT
Sierra Nevada Brewery	234000	DRUM EQ BVF AIR	non-cat	n/a
Wrex Products - Die Cast	50	O/W SKIM FILT BATCH-P/COAG/FLOC/DH2O FILT PHENOL	464AD	BAT-
Wrex Products - Metal Finish	2900	EQ BATCH-P/S	433psns	BAT
Aero Union Corp	0	HAUL	433zero	BAT+
Lares Research	500	UF FILT EQ CARBON	433psns	BAT-
Mooney Farms	21000	SCREEN	non-cat	n/a
Lifetouch School Studios	28400	SILVER	non-cat	n/a
Mission Uniform and Linen	40600	FLOC SKIM PH	non-cat	n/a

Federal Category and Best Available Technology	
433psns	Metal Finishing - pretreatment new source
433zero	Metal Finishing - zero discharging
464AD	Metals Moulding & Casting - aluminum/zinc
non-cat	Non-Categorical Significant Industrial User
BAT	Best Available Technology treatment (equivalent to the treatment models used in setting the Federal standards)
BAT+	Exceeds BAT treatment
BAT-	Falls short of BAT treatment
n/a	Not applicable because the Federal standards are not based on treatment models

Treatment-In-Place			
AIR	Reaeration	P/	Metals Precip
BATCH	Batch Treatment	P/S	Precip/Settling
BVF	Bulk Volume Ferment	PH	pH Adjustment
CARBON	Activated Carbon	PHENOL	Phenol Redxn
COAG	Coagulation	O/W	Oil/Water Sep
DH2O	Filter Press	/S	Settling Only
DRUM	Rotary Screening	SCREEN	Solids Screen
EQ	Equalization	SILVER	Cementation
FILT	Cartridge Filter	SKIM	Skimming
FLOC	Flocculation		
HAUL	Hauling Off-site		

Appendix 8

Pretreatment Program Definitions

Pass-Through: A non-domestic discharge which exits the treatment works in quantities or concentrations which, alone or in conjunction with other non-domestic discharges, *is a cause of violation* of any requirement of the NPDES permit, 40 CFR 403.3(n).

Interference: A non-domestic discharge, including excessive or slug loads of conventional pollutants, which inhibits or disrupts the treatment with other non-domestic discharges, inhibits or disrupts the treatment works, its treatment processes or operations, or its sludge processes, use or disposal, *thereby causing a violation* of any requirement of the NPDES permit or any Federal, state or local sludge regulation, 40 CFR 403.3(i).

Local Limits: Specific limits developed and enacted by the local authority, designed to prevent pass-through, interference, sludge contamination, and potential threats to worker health and safety, and to ensure renewed and continued compliance with the NPDES permit or sludge use or disposal practices, 40 CFR 403.5(c).

Significant Industrial User: A non-domestic source that either (1) is subject to Federal categorical pretreatment standards, or (2) discharges an average of more than 25,000 gpd of process wastewater, or (3) makes up more than 5% of the flow or organic capacity of the treatment plant, or (4) is determined by the local authority or State to have a reasonable potential to adversely effect the treatment works, 40 CFR 403.3(t).