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

Jun 10, 2003

In Reply Refer To: WTR-7

Ane Deister
General Manager
El Dorado Irrigation District
2890 Mosquito Road
Placerville, California 95667

Re: 2003 Pretreatment Evaluation

Dear Ms. Deister:

Enclosed is the April 30, 2003 report for our pretreatment evaluation of the El Dorado Irrigation District. We ask that the District provide short written responses to each of the finding in Sections 2.0 to 8.0 of this inspection report by **July 30, 2003**.

The sewage treatment plants prove to be valuable assets to the District in providing quality reclaimed water and in meeting the discharge standards for local creeks. Since sewage treatment plants are not designed to accept toxic pollutants or high strength wastes, the Federal regulations require sewage districts with treatment design capacities over 5.0 million gallons per day to develop and implement an approved pretreatment program to regulate non-domestic contributions. This reality for the District is now reflected in the waste discharge requirements issued by the Regional Board for the Deer Creek sewage treatment plant. The waste discharge requirements did not set a schedule for the submittal of a pretreatment program for approval. As a result, EPA will follow this evaluation with an Administrative Order that contains a schedule to obtain an approved pretreatment program in a year.

Pretreatment is an important national program under the Clean Water Act for two good reasons: (1) sewage treatment works are not designed to handle non-domestic wastewaters particularly those that are corrosive, toxic or high strength, and (2) certain industries have category-specific technology-based Federal standards that apply uniformly nationwide thereby preventing anyone from polluting to their competitive advantage. In other words, pretreatment protects the public investment in sewage treatment and provides a level playing field. The responsibilities are rightly divided between the smaller districts, the States, and EPA, since the necessary technical resources are beyond the reach of most small districts. In larger districts over the threshold design capacity, the responsibilities rightly shift primarily to the local districts since the pretreatment program is primarily protective of the extensive local investment in sewage collection and treatment.

Much of the District's past efforts to regulate non-domestic contributions to the sewers will not have to be reconsidered or redone. In particular, the work done by the District to identify and maintain the inventory of non-domestic sources is very good. But the District will have to provide resources to do a number of required functions. First, the local limits will have to be

redetermined to be protective of the treatment works. Next, expanded permits will have to be reissued to the most significant industrial users. These permits would apply the redetermined local limits, any applicable Federal standards, and self-monitoring requirements. Finally, maintaining compliance with the permits will necessarily require the development and use of enforcement procedures, documentation in fact sheets, and the periodic reporting to the Regional Board regarding the compliance status of the industrial users. All of these requirements 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 at arthur.greg@epa.gov.

Sincerely,

Original signed by:
Greg V. Arthur

Greg V. Arthur
Clean Water Act Compliance Office

cc: Kyle Erikson, RWQCB

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

PRETREATMENT PERFORMANCE EVALUATION INSPECTION REPORT

NPDES Permittee:	El Dorado Irrigation District 2890 Mosquito Road, Placerville, California 95959 Water Reclamation Permit Order No.5-01-146 Deer Creek Wastewater Treatment Plant (NPDES CA0078062) WDRs Orders R5-2002-0210 and R5-2002-0211 El Dorado Hills Wastewater Treatment Plant (NPDES CA0078671) WDRs Order No.5-01-135
Date of Inspection:	August 12-13, 2002
Data Review:	effluent: January 2002 – March 2003 sludge: January 2002 – December 2002

Inspection Participants:

US EPA:	Greg V. Arthur, CWA Compliance Office, (415) 972-3504
RWQCB:	No Representative
El Dorado ID:	Eric Munz, Industrial Waste Inspector, (916) 933-6955 Terry Lindow, El Dorado Hills WWTP Supervisor, (916) 933-6953 Matt Brown, Deer Creek WWTP Supervisor, (916) 672-9044
Industrial Users:	Roger Redding, Owner, River City Chrome, (916) 939-9204 Jim Innes, Director of Engineering, Rippey Corp, (916) 939-4332 Sue Byers, President, Celebrity Plating, (530) 622-9387 Dave Christian, Envr Health and Safety, PW Pipe, (530) 672-5326

Report Prepared By: Greg V. Arthur, Environmental Engineer
April 30, 2003

Section 1

Introduction and Background

1.0 Scope and Purpose

In April 2003, EPA completed a performance evaluation of the regulatory control of non-domestic wastewaters discharged into El Dorado Irrigation District's ("EID") wastewater treatment plants. This performance evaluation was one of a series of reviews of the small Central Valley publicly-owned treatment works ("POTWs") that accept non-domestic contributions, but are not large enough to be mandated to operate EPA-approved pretreatment programs. EPA recognizes that the regulatory authority for pretreatment in small POTWs is shared with the Regional Water Quality Control Board ("RWQCB") and that the responsibilities for all aspects of the pretreatment program are not clearly delineated.

The scope of this performance evaluation comprised:

- Sampling inspection of the Deer Creek WWTP on August 12-13, 2002
- Sampling inspection of the El Dorado WWTP on August 12-13, 2002
- A review of EID's 2002-2003 self-monitoring record for wastewater discharges and the 2002 sample record for sludge
- Compliance sampling inspections of four significant industrial users
- Follow-up sampling inspections of two significant industrial users for toxic organics
- Interviews with representatives for EID on August 12-15, 2002.

The purpose of this evaluation was to determine if non-domestic discharges into the EID 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 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 the pollutants associated with treatment works non-compliance.

This report covers the performance of the pretreatment program as it currently exists in EID and the RWQCB. Some pertinent findings from the industrial user inspections are also incorporated. The significant industrial users received individual reports covering their own performance. Arthur collected samples on August 12-15, and September 11, 2002 for delivery to Sequoia Labs in Walnut Creek on August 15 and September 11.

Section 1 – Introduction and Background

1.1 El Dorado Hills Wastewater Treatment Plant

The El Dorado Hills WWTP is a nitrifying activated-sludge plant followed by media filtration for distribution into reclaim and for a minimum discharge of 0.5 million gallons per day ("mgd") to Carson Creek. The dry-weather design capacity is 3.0 mgd. See Figure 1.

Secondary Treatment - The headworks, which consists of bar screens and a grit vortex, is followed by primary sedimentation. Caustic is added to the primary effluent prior to introduction into two plug-flow aeration raceways which feed to secondary clarifiers. The raceways and secondary clarifiers are operated in extended aeration mode in order to provide nitrification ($2c$ ~ 11 to 12 days). They are not operated to provide denitrification. There is no pre-chlorination or anoxic zone selector to suppress filamentous growth. Secondary effluent is stored in a 66-million gallon reservoir that impounds winter wet-weather flows for metered withdraw during the summer.

Tertiary Treatment - The impounded secondary effluent is decanted through dissolved air flotation to remove algae and then through sand-media tertiary filtration operated at a pre-set feed rate of 3.0 mgd. Filter backwash returns to the primary sedimentation basin. The tertiary-grade wastewater is chlorinated and dechlorinated prior to discharge.

Solids Handling - Grit and bar screenings are hauled off-site to a landfill. All other solids (primary sludge, dissolved air flotation algal float, and waste activated sludge) are processed through a dissolved air flotation sludge thickener prior to feeding a mixed anaerobic digestor ($2c$ ~ 25 days). Digested sludge is dewatered in a filter press. Press filtrate and sludge thickener subnatant return to primary sedimentation. Dewatered sludge is hauled off-site to Synagro for land application.

Sampling - The influent sampling point, located just after the headworks is designated as IWD-EDH1 for the purposes of this report. All return flows rejoin the treatment downstream of influent sampling. The effluent compliance sample points, sited immediately after final dechlorination, are designated as IWD-EDH2 for the discharge to Carson Creek and IWD-EDH3 for the distribution into reclaim. The accumulation of filter cake for hauling off-site is designated as the sludge compliance sampling point, IWD-EDH4.

1.2 Deer Creek Wastewater Treatment Plant

The Deer Creek WWTP is a nitrifying activated-sludge plant followed by dual tertiary media filtration for distribution into reclaim and for discharge to Deer Creek. The dry-weather design capacity is rated at 3.6 mgd. See Figure 2.

Secondary Treatment - The headworks consists of bar screening, rotating screens to remove fines, and an undersized primary sedimentation basin that functions as a grit chamber. The primary sedimentation basins do not remove primary sludge but rather pass along degritted effluent to aeration raceways followed by secondary clarifiers with a design capacity of 5.0

mgd. The raceways and secondary clarifiers are operated in extended aeration mode in order to provide nitrification (2*c* ~ 17 days). They are also operated with anoxic zones to provide partial denitrification and selectively suppress filamentous growth. Lime is added to the return activated sludge.

Tertiary Treatment - Secondary effluent splits into dual tertiary filtration trains. An anthracite filter with a design capacity of 3.5 mgd produces tertiary-grade wastewater for distribution into reclaim. A smaller media filter with a design capacity of 1.0 mgd produces tertiary-grade wastewater for discharge to Deer Creek after chlorination/dechlorination. The reclaim water is chlorinated in the six-mile distribution line to a reclaimed water storage tank. Filter backwashes return to the primary sedimentation basin.

Solids Handling - Bar screenings, fines and grit are hauled off-site to a landfill. Waste activated sludge is processed through a gravity thickener prior to feeding an aerobic digestor (2*c* ~ 60 days). Digested sludge is dewatered in a filter press. Press filtrate and thickener decant return to primary sedimentation. Dewatered sludge is hauled off-site to Synagro for land application.

Sampling - The influent sampling point, located just after the headworks is designated as IWD-DC1 for the purposes of this report. All return flows rejoin the treatment downstream of influent sampling. The effluent compliance sample points, sited immediately after final dechlorination, are designated as IWD-DC2 for the discharge to Deer Creek and IWD-DC3 for the distribution into reclaim. The accumulation of filter cake for hauling off-site is designated as the sludge compliance sampling point, IWD-DC4.

1.3 Non-Potable Reclaim

EID reclaimed 600 million gallons of wastewater in 2002 which amounts to around 35% of the combined influent totals. Tertiary-grade effluent from the El Dorado Hills WWTP feeds into the 1-million gallon '960' Tank that services a lumber mill and a golf course. Excess from 960 Tank feeds into the 2-million gallon Village C Tank that provides reclaimed waste-water to a distribution system for home landscaping and a second golf course. Tertiary-grade effluent from the Deer Creek WWTP feeds into Bridlewood Tank, a 280-thousand gallon storage reservoir that services the second golf course. See Figure 3.

1.4 Sewer Service Area

The sewer service area comprises unincorporated western El Dorado County from the Sacramento County line to Placerville. The unincorporated areas include El Dorado Hills, Cameron Park, Diamond Springs, Shingle Springs, El Dorado, and the suburbs south and west of Placerville. The El Dorado Hills and Deer Creek WWTPs together serve a population of 45,000 and an inventory of 30+ industrial sources, of which at least 4 are onsidered to be significant industrial users. The WWTPs have a combined dry-weather

design capacity of 6.1 million gallons per day ("mgd") and accept an average of 4.9 mgd of wastewater for treat-ment. Total non-domestic contributions cannot be determined without a comprehensive inventory of non-domestic wastewater flow rates. The average and calculated peak flows of 2.94 and 4.45 mgd into the Deer Creek WWTP and 1.94 and 2.92 mgd into the El Dorado Hills WWTP are within their design capacities.

1.5 Discharge Requirements – Deer Creek WWTP

EID is authorized by the December 19, 2002 RWQCB Waste Discharge Requirements, Order R5-2002-0210, ("Deer Creek WDRs") to discharge treated sewage from the Deer Creek wastewater treatment plant into Deer Creek. The Deer Creek WDRs also function as the National Pollutant Discharge Elimination System permit CA0078662. The Deer Creek WDRs contain narrative prohibitions, effluent limits, receiving water limitations, monitoring requirements, pretreatment program provisions, and sludge disposal requirements. They set effluent limitations for conventional pollutants, total coliform, pH, residual chlorine, ammonia, nitrite, nitrates plus nitrites, copper, trihalomethanes, and acute biotoxicity, as well as receiving water limitations for turbidity, pH, dissolved oxygen, fecal coliform and temperature. The Deer Creek WDRs provide a compliance schedule to meet the limitations for copper and trihalomethanes by December 2006. The RWQCB concurrently issued a separate Cease and Desist Order, Order R5-2002-0211, ("Deer Creek CDO"), that required the completion of the corrective steps necessary to meet the Deer Creek WDRs for receiving water pH, temperature and turbidity by December 2003 and effluent trihalomethanes, nitrite and nitrates by December 2006.

1.6 Discharge Requirements – El Dorado Hills WWTP

EID is authorized by the June 14, 2001 RWQCB Waste Discharge Requirements, Order No.5-01-135, ("El Dorado Hills WDRs") to discharge treated sewage from the El Dorado Hills wastewater treatment plant into Carson Creek. The El Dorado Hills WDRs also function as the National Pollutant Discharge Elimination System permit CA0078671. They contain narrative prohibitions, effluent limits, receiving water limitations, monitoring requirements, pretreatment program provisions, and sludge disposal requirements. They set effluent limitations for conventional pollutants, total coliform, pH, residual chlorine, ammonia, nitrites, and acute biotoxicity, as well as receiving water limitations for turbidity, pH, dissolved oxygen, fecal coliform and temperature. The El Dorado Hills WDRs provide a compliance schedule to study compliance with the expected limitations derived from the California Toxics Rule by December 2003.

1.7 Reclaim Requirements

EID is authorized by the June 25, 2001 RWQCB Water Reclamation Permit, Order No.5-01-146, ("Reclaim WRP) to provide tertiary-grade treated reclaimed wastewater to a number of

non-potable sources. The Reclaim WRP prohibits the bypass of untreated or partially treated wastewater into the reclamation distribution system, overspray, run-off, overflow, ponding conducive to vectors, over saturation, or saturation near surface waters or water supply wells. The WRP also requires the recycled tertiary-grade water to be adequately oxidized, coagulated, filtered, and disinfected. The tertiary-grade requirements are fully incorporated into the numerical limits of the Deer Valley and El Dorado Hills WDRs.

1.8 Legal Authorities

The December 2002 Deer Creek WDRs require EID to implement an approved pretreatment program. This requirement is consistent with the definition in 40 CFR 403.8(a) that POTWs with design capacities above 5.0 mgd must obtain an approved pre-treatment program. However, the WDRs do not contain a compliance schedule for submitting and obtaining an approved pretreatment program. The WDRs also specifically require the implementation of the pretreatment regulations in 40 CFR 403, again without setting a compliance schedule. In particular, the applicable pretreat-ment regulations 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 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 pretreatment program evaluation did not involve a review of the sewer use ordinance in order to determine if EID has the legal authority to implement all aspects of an approved pretreatment program. Ordinance review by EPA or the RWQCB would be part of the approval process toward obtaining an approved pretreatment program. In any case, the RWQCB has the authority to assume the functions of the pretreatment program under 40 CFR 403.10(e,f).

Section 2

Wastewater Treatment Plant Performance

The Deer Creek and El Dorado Hills wastewater treatment plants 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

Both WWTPs experience the pass-through of copper. Otherwise, there is little expectation of any adverse impacts caused by non-domestic discharges into the sewers. Performance was determined through a review of the 2002 discharge monitoring reports, 2002 California Toxics Rule reports, 2002 sludge results, and the EPA sampling conducted in this evaluation. See Tables 1 - 6 for wastewater and sludge summaries, Tables 7 - 8 for the EPA sampling results, and Table 10 for the definitions of 'pass-through' and 'interference'.

Requirements

- None related to WWTP performance. See Section 3.0.

Recommendations

- EID should regularly inform the rate payers of the district's compliance status, and the on-going need to fund the capital improvements, pretreatment, and operations necessary to protect and maintain its public wastewater investment.

2.1 Conventional Pollutants

Both WWTPs produce high-quality, low-nutrient, tertiary-treated wastewaters. As a result, both consistently comply with their permit limits. The average and calculated 99th% peaks for both WWTPs are less than 3 and 6 mg/l BOD and 2 and 5 mg/l TSS.

2.2 Ammonia Toxicity

The permit sets acute toxicity, and maximum pH limits, and sliding-scale ammonia limits, in order to limit effluent ammonia toxicity. Both WWTPs consistently meet their permit limits for ammonia, pH and acute toxicity. The ammonia limits are most stringent when pH and

temperature are high. As a result, in the summer, the monthly-average and sample-maximum ammonia limits bottom out at 2.37 and 13.3 mg/l for Deer Creek and at 2.21 and 9.64 mg/l for El Dorado Hills. Against these minimum sliding-scale ammonia limits, both WWTPs consistently comply year-round, with their average and calculated 99th% peak ammonia concentrations all below 1 mg/l. Compliance with the ammonia toxicity limits is the result of full nitrification through extended aeration and consistent pH control.

2.3 Nitrates and Nitrites

Neither WWTP complies with the water quality standards for nitrates and would not be expected to do so until completion of upgrades that include denitrification. Every sample for nitrates at El Dorado Hills and all but one sample for nitrates at Deer Creek exceeded the 10 mg/l standard. The average and calculated 99th% peak concentrations for nitrates were 17.1 and 27.5 mg/l at Deer Creek and 24.2 and 34.7 mg/l at El Dorado Hills. These nitrate levels are unrelated to non-domestic contributions but rather are a function of treatment.

2.4 Salts

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

2.5 Toxic Pollutants

Metals - Copper appears to be the only toxic metal potentially related to non-domestic contributions that exceeds or could exceed the permit limits. The four-day average and sample-maximum limits for copper, which are a function of hardness, are 8.6 and 13.0 µg/l for Deer Creek and 6.4 and 9.3 µg/l for El Dorado Hills. The effluent average and calculated 99th% peaks are much higher at 20.4 and 41.6 µg/l for Deer Creek and 13.7 and 21.9 µg/l for El Dorado Hills. Both WWTPs are likely to continue to exceed their copper standards without reductions in influent loadings or increases in removals. The influent copper concentrations at both WWTPs are over twice those for similar unindustrialized California sewer districts (ex: *Red Bluff-26.0 µg/l, Nevada City-20.0 µg/l, Grass Valley-45.5 µg/l*). Removal efficiencies are typical for secondary treatment but slightly lower than typical removals by tertiary plants.

Other Toxics - A number of other toxic pollutants were detected but most of them did not or will not exceed the limits derived from the California Toxics Rule. The only exceptions were the long-term averages related to human health effects for dichlorobromomethane, dibromochloromomethane, and chloroform, all of which are chlorination byproducts. There is also a slight (<2%) possibility of exceeding the limits for lindane. However, consistent compliance with the acute toxicity and the chronic three-species toxicity limits using minnows, algae, and

ceriodaphnia confirms that there is no non-ammonia acute toxicity at either WWTP. Moreover, influent sampling indicates that the concentrations of toxic pollutants other than copper are essentially equivalent to background domestic levels.

2.6 Federal Sludge Limits

The Deer Creek and El Dorado Hills WWTP sludges comply with the Federal clean sludge limits suitable for any reuse in Table 3 of 40 CFR 503.13. However, the levels for arsenic, copper, lead, and zinc have been higher than typical levels for small California sewer districts (*typical dry-weight mg/kg's are <15 As, 150-300 Cu, 15-25 Pb, 300-500 Zn*).

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

EID has an ordinance to prohibit discharges that exceed local limits or could harm the treatment works. However, the technical basis behind the local limits is questionable since the WDRs now for the first time set effluent limits for toxic pollutants and because copper passes-through both WWTPs in concentrations that are expected to continue to exceed the permit effluent limits. There is little evidence of any other non-compliance related to non-domestic sources although there are a number of toxic pollutants found in the effluent or the sludge at untypically high levels. See Table 10 for a definition of 'local limits'.

Requirements

- Copper sources, both domestic and non-domestic, into the sewer systems must be quantified.
- EID must determine the maximum allowable headworks loadings for copper and enact new local limits or prohibitions or control strategies.

Recommendations

- EID should determine the maximum allowable headworks loadings for zinc, lead, arsenic, MTBE, formaldehyde, molybdenum, total dissolved solids, oil & grease, and any other pollutants the district intends to continue regulating under a local limit.
- EID should resample the effluent discharges in order to determine whether dieldrin and lindane at Deer Creek, and alpha-BHC, 4,4'-DDT, and bis(2-chloroethyl)ether at El Dorado Hills are present at levels over their detection limits.
- Deer Creek monitoring should include influent samples each month for arsenic, copper, lead, molybdenum, zinc, MTBE, and total dissolved solids.
- El Dorado Hills monitoring should include influent samples each month for copper, lead, zinc, formaldehyde, MTBE, and total dissolved solids.

Section 3 – Local Limits

3.1 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. EID has local limits but will need to re-develop them for the pollutants of concern to be protective of the treatment works.

3.2 Pollutants of Concern

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, lindane, and nitrates, as well as dichlorobromomethane, dibromo-chloromethane, and chloroform. The last three would not be pollutants of concern because they are chlorination byproducts unrelated to influent quality. Nitrates, and the trihalomethane precursors, also would not be pollutants of concern because their effluent concentrations are a function of the treatment plant operations.

For a number of other pollutants, the already existing local limits result in statistical chances of violation below 1%. In particular, the existing local limits for arsenic, lead and zinc have resulted in sludge levels that are below the Federal standards but nevertheless high for non-industrialized California sewer districts. Formaldehyde at Rippey Corp, molybdenum at P.W. Pipe, and MTBE at aquifer clean-up sites are pollutants of site-specific concern. Oil & grease is a concern in every sewer district. The build-up of salts as measured by total dissolved solids can limit the reuse of reclaimed wastewaters. All of these also should be pollutants of concern for the purpose of determining local limits.

It cannot be determined without further monitoring whether five detected toxic organics are pollutants of concern. Lindane, a long-banned pesticide, was detected at levels over the expected permit limits even though it should have no identifiable non-domestic or domestic sources. Its introduction into the sewers may be from unauthorized use. Four other toxic pollutants, detected at least once, have analytical detection limits over the expected permit limits (*4,4'-DDT, bis(2-chloroethyl)ether, dieldrin, and alpha-BHC*).

3.3 Maximum Allowable Headworks Loadings

Every sewer district must determine the maximum loading of pollutants it can accept and still comply with the permit requirements and Federal sludge limits. The maximum allowable headworks load-ings ("MAHLs") form the technical basis for determining local limits. New MAHLs are needed for copper. New MAHLs also would be of interest for arsenic, lead, molybdenum, zinc, oil & grease, formaldehyde, MTBE, and total dissolved solids. All this requires influent, effluent, and sludge monitoring under the range of conditions expected

during the year, in order to determine the WWTP removal efficiencies. EPA has a free spread sheet program called Prelim to assist in the calculations. WEF also has a fate and transport model available for purchase on its web-site.

3.4 Allocation Method

The MAHLs for each of the pollutants of concern must be allocated between uncontrollable and controllable sources. The uncontrollable sources comprise domestic sewage, and infiltration and inflow. The controllable sources are those that could be regulated under permits or best-management practices. This will require background monitoring of domestic sewage, and infiltration and inflow, in order to determine the pollutant loadings that cannot be allocated to the controllable sources. The remaining loadings can then be allocated in any fashion to the individual industrial and commercial sources across either the entire service area or specifically determined and applied by service area for each individual WWTP. For example, the district could set different local limits by WWTP service area, or by individual industrial discharge, or by flow-weighted average, or uniformily across the entire district for some pollutants but differentially set for others. The allocation method does not matter as long as the total allocation to the domestic and non-domestic users does not exceed the calculated MAHLs.

It is possible that the main sources of certain pollutants are non-domestic in nature and largely uncontrollable by ordinance through permitting or best-management practices. For example, significant copper loadings may come primarily from infiltration and inflow of mining contaminated wastewaters, or the household use of copper-based root killer, or from the application of copper-based algaecide by the water district, and total dissolved solids may come primarily from household water softeners. In these cases, the district would have to redetermine the MAHLs after the sources are mitigated through some other means.

3.5 Industrial User Compliance with Local Limits

The Federal regulations do not define how to determine regulatory success. Moreover, any conclusion regarding industrial user compliance with the local limits would be premature since they are not technically-based to protect the WWTPs from adverse impacts, and the sources of the pollutants of concern are not yet identified. Once the local limits are sound and implemented through industrial user permits, however, the following performance measures determine regulatory success in achieving industrial user compliance.

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 NPDES permit and sludge limits. By this measure, the district would not be successful if the pass-through of copper continues.

Section 3 – Local Limits

Cost Effective On-Site Treatment - Conventional pollutants can be treated at both the sources and the sewage treatment plants. 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 plants. On the other hand, toxics must be entireley controlled by the sources since sewage treatment plants are not designed to for toxics. The district does not rely on user charges to control conventional pollutants from industrial sources into the treatment plants. Instead, the district has set local limits for BOD and TSS at typical levels for domestic wastewater. This may overly favor the on-site installation of secondary treatment which is particularly costly at small sources due to the high energy costs of aeration and the need for constant close operator attention. One industrial user did install secondary treatment to meet BOD limits (*Rippey*), although now the treatment remains useful to assure compliance with newly applied Federal standards for toxic organics.

Significant Non-Compliance - Significant non-compliance will be based on industrial user compliance rates once the local limits are re-developed and implemented into the permits.

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 applied and in place at all identified Federally-regulated industrial process within the EID service area.

Requirements

- None.

Recommendations

- None.

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 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 that category. For metal finishing, BAT treatment is metals precipitation, settling and solids removal, and if necessary, cyanide destruction and chromium reduction. For thermoplastic resin production, BAT treatment is biological treatment for phenols, phthalate esters, and polynuclear aromatics, as well as, if needed, steam stripping to remove volatile and semi-volatile organics, hydroxide precipitation for metals, and alkaline chlorination for cyanide.

The following industries in the EID service area identified during this evaluation by EPA as Federally-regulated users were all found to comply with their Federal standards for discharge to the sewers either through BAT treatment or through facility configurations and practices to keep from discharging to the sewers.

Celebrity Plating - This metal finishing job-shop complies with the Federal new source metal finishing standards in 40 CFR 433 by not discharging any process-related wastewaters to the sewers. All rinses remain isolated within a series of dedicated cascading rinses per type of

solution. Dedicated ion exchange columns remove the contaminants from the final-stage rinses. The ion exchange columns for alkaline cleaning and acid activation steps are regenerated on-site. The other ion exchange columns are regenerated off-site. All spent solutions, regenerants and spent ion exchange columns are hauled off-site for disposal or handling.

Rippey Corporation - This polyvinyl alcohol ("PVA") sponge manufacturer complies with the Federal thermoplastic resins standards in 40 CFR 414D by providing biological treatment prior to discharging to the sewers. The reaction and injection molding steps discharge to the sewers through extended aerobic biological treatment and pH adjustment. The final product steps discharged wash waters to the sewers through pH adjustment although these will be rerouted to discharge through biological treatment. Sampling is expected to confirm that PVA sponge production does not generate metals or cyanide and that the extended aeration also degrades volatile and semi-volatile organics.

River City Chrome - This metal finishing job-shop complies with the Federal new source metal finishing standards in 40 CFR 433 by not discharging any process-related wastewaters to the sewers. Evaporation and solution make-up account for all rinsing losses. Off-site hauling accounts for all other losses comprising all spent solutions, polishing dust, floor scrapings taken from the secondary containment underlying the floor, spent nickel bath cartridge filters, and spent ion exchange columns.

Gist Silversmiths - This belt buckle manufacturer complies with the Federal new source metal finishing standards in 40 CFR 433 by not discharging any process-related wastewaters to the sewers. The metal finishing line involves closed-loop cascading DI rinses with all spent solutions and DI-columns hauled off-site for disposal. The polishing line discharged through metals precipitation and a cartridge filter to a septic system permitted under county guidelines. Gist was in the process diverting these polishing wastewaters to an evaporator.

Baker Art Foundry - Tin casting is not regulated under any Federal rule and the vibratory deburring of the castings is not regulated under the Federal metal finishing rule at facilities that also do not perform metal finishing on-site. At this pewter foundry, metal finishing is contracted off-site and the only process-related wastewater, vibratory deburring wash down, undergoes sedimentation and evaporation and does not discharge to the sewers.

P.W. Pipe - Polyvinyl chloride pipe extrusion and injection molding of pipe fittings are not regulated under any Federal rule.

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

EID appears to have effective methods of identifying and maintaining its inventory of industrial users. The inventory does not delineate who are the significant industrial users ("SIUs"), or categorical industrial users ("CIUs"), nor does it classify by sewer discharge point. However, the inventory does designate industrial users by treatment plant service area, and SIC code, and includes zero-discharging CIUs who would be subject to Federal standards if they discharged. See Table 9 for a list of identified SIUs. See Table 10 for a definition of SIU.

Requirements

- EID must field verify its industrial user inventory and institute formal documented procedures to continually identify additions, deletions and changes.
- EID must identify the SIUs and CIUs in it inventory and begin annual reporting on their compliance status.

Recommendations

- EID should maintain its industrial user inventory by non-domestic wastewater discharge point, with each discharge point characterized by Federal point source category, annual average discharge flow rate, type of wastewater, and owner or operator.

5.1 Inventory Completeness

EID has identified, visited, and permitted over 330 commercial and industrial users in its sewer service area. EPA could not field verify the inventory. However, there are good indications of completeness. First, the inventory includes hundreds of commercial sources, such as dentist, supermarkets, restaurants, and automobile repair shops, none of which would be expected to pose a significant risk to the treatment works. Second, the inventory includes numerous commercial and industrial dischargers of less than 25,000 gpd all designated by treatment plant service area and SIC code. Third, the inventory includes "zero-dischargers" that would be categorical if they discharged. All of these modifications to the basic definition in 40 CFR 403.3(t) of a significant industrial user show that EID successfully can identify

and has identified potential threats to its treatment works. One improvement would be identifying and permitting industrial users with multiple non-domestic discharges to the sewer by separate discharge point.

5.2 Inventory Classifications

EID has not delineated which of its industrial users qualify as SIUs. Approved pretreatment programs are required to report the compliance status of each SIU in an annual report usually due by the following February 28. EPA identified the seven SIUs listed in Table 9 during this performance evaluation but did did not perform a comprehensive review of the industrial user inventory. Based on SIC codes, the following industrial users also need to be evaluated to determine whether they qualify as SIUs.

Metal Finishing - Industrial users qualify as metal finishers subject to the Federal standards in 40 CFR 433 by performing electroplating, electroless plating, chemical coating, etching, anodizing, or printed circuit board manufacturing, irrespective of whether these six core operations discharge to the sewers. Chemical coating includes coloring, phosphating, conversion coating, and passivation. Etching includes pickling, acid preparation, descaling, desmut, and bright dipping. The standards apply to discharges from the core operations and from 40 other associated operations listed in 40 CFR 433.10(a), in particular, cleaning, deburring, painting, depainting, degreasing, and polishing. These might include metal fabrication shops, tool and dye, and machine shops (*Aerometals, Bendover Industries, Bravo Machining, Carlton Metal Craft, Cason Engineering, CNC Engineering, Columbine, Guts Racing Products, Endwave, Excalibur Machining, Krull, M&W Engineering, Medtec, Otto Tool, Reeg, Reidel, Sierra Prototype, Sierra Tool, Stealth Engineering, Streetman Precision, Sunol Prototype, Tentel, UOP Guided Wire*).

Metals Forming - Industrial users qualify under various Federal standards in 40 CFR 467, 468, 471, or 420, by rolling, drawing, extruding, forging, or atomizing metals, both ferrous and non-ferrous. This might include wire making (*UOP Guided Wire*).

Copper-Bearing Discharges - These might include metal finishers, metals formers, and radiator shops (*Eagle Radiator, Gilly's Radiator, Shingle Springs Radiator*).

High Flow Discharges Over 25,000 gpd – These might include large food processing plants (*RiceX*), and industrial laundries (*El Dorado Linen*)

High Load Discharges – These might include food processing plants (*RiceX, Brucia*).

5.3 Zero-Discharging Categorical Industrial Users

EID maintains the good practice of identifying and permitting industrial users that would qualify as CIUs if they discharged their Federally-regulated process-related wastewaters to

Section 5 – Industrial User Inventory

the sewers (*Celebrity Plating, River City Chrome*). In essence these industrial users comply with their Federal standards by maintaining the steps necessary to prevent the discharge of process-related wastewaters to the sewers. Including zero-discharging CIUs in the inventory ensures the local regulatory control over industrial users who would violate their Clean Water Act requirements and could endanger the operations of the treatment works if they discharged to the sewers.

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

EID has a functioning permitting program. However, many of the permits will have to be reissued once the local limits are re-determined, the SIUs are identified, and the Federal standards are applied.

Requirements

- Each SIU must be issued a valid permit authorizing discharge to the sewers.
- Each permit issued to an SIU must explicitly state all applicable Federal standards, national prohibitions, and local limits, as well as the self-monitoring and reporting requirements and sampling locations.
- Each permit issued to an SIU must explicitly state when the permit will expire and must not exceed five years in duration.

Recommendations

- Each permit issued to an SIU should list all standards, limits, self-monitoring and analytical requirements on one page, and the sampling location(s) on a site map.
- The information in the permit applications as well as any other information gathered to issue the permits, such as statistical analyses of sample representativeness, should be field verified and documented in fact sheets prepared for each SIU.

6.1 Permit Accuracy

EID will have to reissue all of its permits to its SIUs once the local limits are re-determined in order to be protective of the treatment works. Fact sheets should be prepared to document the information and decisions behind the permit provisions, such as Federal category, sample point, pollutants of concern, representative sampling, and self-certifications in lieu of self-monitoring.

Rippey Corp - A permit must be reissued to apply the Federal standards for thermoplastic resins manufacturing (40 CFR 414D), the re-determined local limits, and the applicable national prohibitions. The Federal standards, local limits and national prohibitions apply to both non-domestic discharges to the sewers. Sampling protocols set in the permit should reflect the variabilities associated with each sample point. Rippey is expected to consolidate the discharges through a single discharge point and limit discharge to the daily capacity of a final holding tank. Both modifications would simplify the sampling protocols.

P.W.Pipe - A permit must be reissued to apply the re-determined local limits and the applicable national prohibitions. The self-monitoring requirements should ensure that the sampling for pH, molybdenum, oil & grease, total dissolved solids and any other pollutants of concern statistically accounts for both the ultrafiltration unit backwash and the holding pit discharge of excess reclaim water.

Zero-Discharging CIUs - "Zero-discharge permits should continue to be issued to any industries found to comply with Federal categorical pretreatment standards by not discharging Federally-regulated process-related wastewaters. A zero-discharge permit should explicitly prohibit the discharge of the Federally-regulated wastewaters and require the industry to certify every six months to not discharging in lieu of self-monitoring. A zero-discharge permit would strengthen enforcement efforts against the 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.

6.2 Permit Expiration

EID issues 2-year and 3-year permits. Permits were in effect on the dates of this evaluation for three of the EPA-identified SIUs, two of which are zero-discharging CIUs (*P.W.Pipe, Celebrity, River City*). One other SIU, with two discharge points, had an expired permit although the facility plans to consolidate discharges into one and operate under a revised permit (*Rippey Corp*). The other EPA-identified SIUs are on septic systems and might not warrant permits even though they are within or close to the service area (*Gist Silversmiths, Baker Art Foundry*).

6.3 Permit Clarity

All of the permits issued to the SIUs should clearly communicate the applicable Federal standards, national prohibitions, local limits, sample type, sampling frequency, self-certifications in lieu of self-monitoring, analytical test methods and the associated detection limits, and, if necessary, the flow and production rates behind the Federal standards. All of this information can be presented in table form on a single page of the permit with one line per pollutant. The compliance sampling locations also could be more clearly delineated on a site map annotated with a description of the location.

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

EID performs routine inspections and some limited monitoring, and has required by permit some self-monitoring. The monitoring and self-monitoring requirements are expected to change in scope, type and frequency as the permits for the SIUs are reissued to incorporate applicable Federal standards, the re-determined local limits, and the statistical demands of representative sampling.

Requirements

- The self-monitoring records for each SIU must be complete in the number and type of samples, for all pollutants of concern. 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.

- Industrial users must be inspected annually to verify the permit conditions and to document findings. The inspection could also be used to satisfy the Federal requirement to obtain one sample per year for all of the regulated pollutants, and to make an independent determination of self-certified compliance.

- A representative sampling point must be established for each non-domestic discharge.

Recommendations

- Inspection reports should include an analysis that the sampling is representative of both the sampling day and reporting period. They should document the findings that establish the sewer discharge permit conditions and prompt revisions or enforcement actions.

- All self-certifications in lieu of self-monitoring should be explicitly stated in the permits.

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 is premature since the SIU inventory is not certain and their permits will have to be reissued.

Requirements

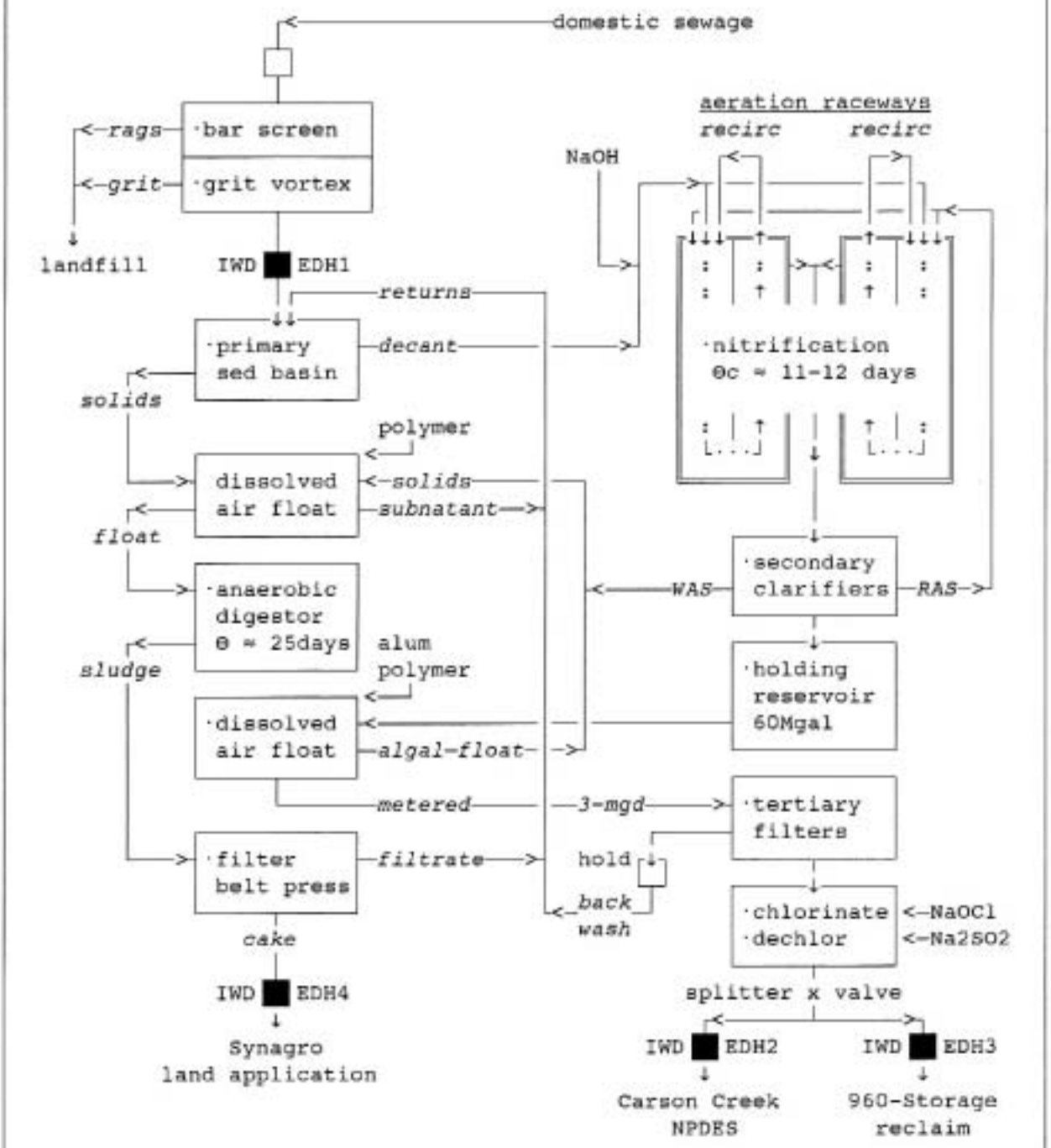
- None.

Recommendations

- None.

Figure 1

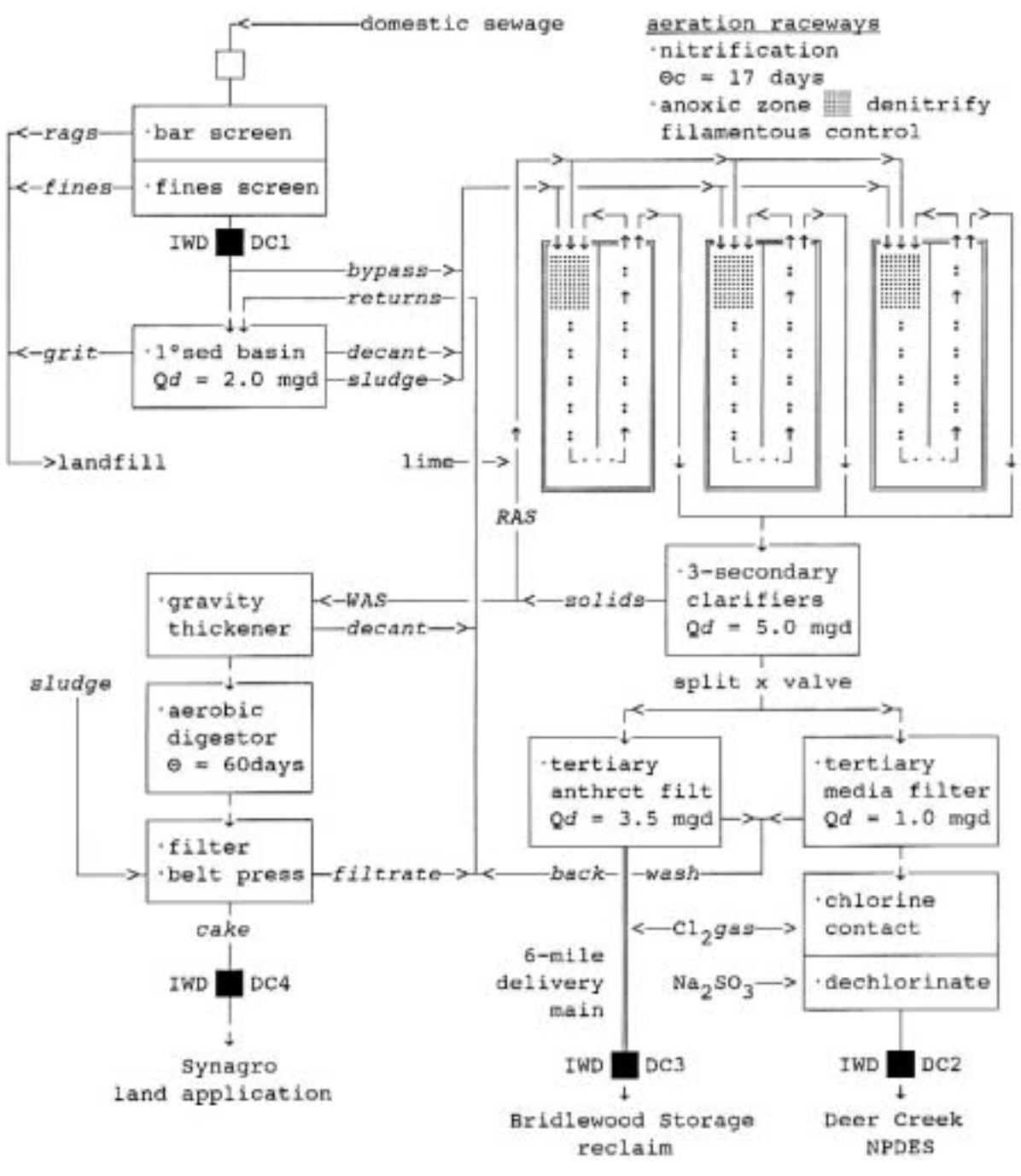
El Dorado Hills Wastewater Treatment Plant
Schematic of the Wastewater Collection and Treatment



Sampling Points	IWD-EDH1 influent-flow IWD-EDH2 effluent discharge	IWD-EDH3 storage reclaim IWD-EDH4 sludge

Figure 2

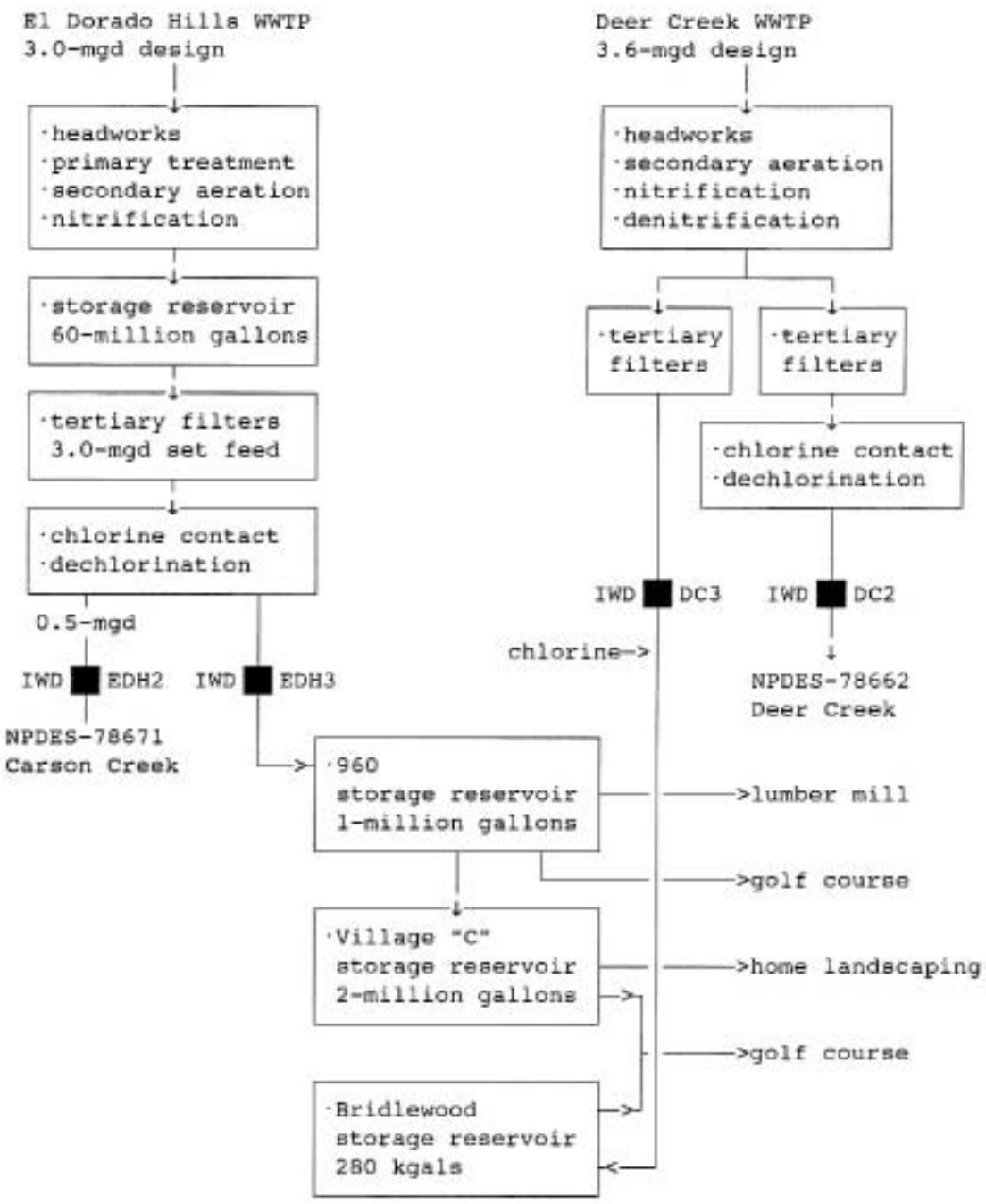
Deer Creek Wastewater Treatment Plant
Schematic of the Wastewater Collection and Treatment



Sampling Points	IWD-DC1 influent-flow IWD-DC2 effluent discharge	IWD-DC3 storage reclaim IWD-DC4 sludge

Figure 3

El Dorado Irrigation District
Wastewater Collection, Treatment and Disposal



Sampling Points	IWD-EDH2 creek discharge IWD-EDH3 reclaim	IWD-DC2 creek discharge IWD-DC4 reclaim

Table 1

Deer Creek WWTP Wastewater Quality - Non-Toxics

Pollutants (mg/l) Jan-2002 to Jan-2003	Influent Mean	Influent 5th%	Influent 99th%	ª Effluent Mean	ª Effluent 99th%	Violation Rate Sample	Violation Rate Period
Flow (mgd)	2.94	1.87	4.45	2.27		-	0/12
Biochem Oxy Demand	157	78	268	1.78	3.77	0/396	0/13
Total Susp Solids	254	104	465	1.39	3.95	0/396	0/13
Chlorine Residual				<0.01	<0.01	0/370	ns
Ammonia-N				0.32	0.86	0/376	0/13
Nitrates-N			<0.20	17.1	27.5	→12/13	ns
Nitrites-N				<0.10	0.12	ns	0/12
Sulfites				6.05	19.5	ns	0/12
Sulfides				1.69	6.67	ns	0/12
Phosphates-P			3.3	3.15	4.57	ns	ns
Total Disslvd Solids			330	495	617	ns	ns
Hardness				94	202	ns	ns
Sulfates			14	82	106	ns	ns
Chlorides			39	65	82	ns	ns
Sodium			42		84	ns	ns
EC (µmhos/cm2)				743	925	ns	ns

Statistical Measures	Median	95%th	99th%	Max	Sample	Period
Acute Tox (%survive)	100%	95%	95%	95%	0/4	0/4
Chronic (3-species)	pass	pass	pass	pass	0/4	0/4
pH-minimum (s.u.)		6.8 to 7.5			0/396	ns
pH-maximum (s.u.)					0/396	ns

ª Effluent results for salts/nutrients include data from 2002 CTR report

→ Computed Statistical Probability of Exceeding Limits

limits	mean	std dev	probability	percent
NO3-N (d-max)	μ = 17.08	σ = 4.562	$\alpha(10)$ = 0.9395	94%

Table 2

El Dorado Hills WWTP Wastewater Quality - Non-Toxics

Pollutants (mg/l) Jan-2002 to Jan-2003	Influent Mean	Influent 5th%	Influent 99th%	[a]Effluent Mean	[a]Effluent 99th%	Violation Rate Sample	Violation Rate Period
Flow (mgd)	1.94	1.24	2.91	0.96	3.31	-	0/12
Biochem Oxy Demand	236	65	478	2.71	5.50	0/396	0/13
Total Susp Solids	240	137	554	1.31	4.91	0/396	0/13
Chlorine Residual				<0.02	0.67	→1/229	ns
Ammonia-N				0.11	0.31	0/70	0/13
Nitrates-N			<0.20	24.2	34.7	→63/63	ns
Nitrites-N				0.10	0.23	ns	0/12
Sulfites				6.74	15.8	ns	0/12
Sulfides				2.24	7.97	ns	0/12
Phosphates-P			3.7	2.20	3.85	ns	ns
Total Disslvd Solids			270	480	609	ns	ns
Hardness				67	92	ns	ns
Sulfates			21	59	103	ns	ns
Chlorides			43	73	90	ns	ns
Sodium			45		84	ns	ns
EC (µmhos/cm2)				789	931	ns	ns

Statistical Measures	Median	95%th	99th%	Max	Sample	Period
Acute Tox (%survive)	100%	100%	100%	100%	0/4	0/4
Chronic (3-species)	pass	pass	pass	pass	0/4	0/4
pH-minimum (s.u.)		6.9 to 7.7			0/396	ns
pH-maximum (s.u.)					0/396	ns

[a] Effluent results for salts/nutrients include data from 2001 CTR report

→ Computed Statistical Probability of Exceeding Limits

limits	mean	std dev	probability	percent
NO3-N (d-max)	μ = 24.2	σ = 4.49	$\alpha(10)$ = 0.9992	100%

Table 3

Deer Creek WWTP Wastewater Quality - Toxics

Pollutants (µg/l) Jan-2002 to Jan-2003	Influent Mean	*Effluent Mean	99th%	Removal Rate	→Expected WQS D-max	4d-avg
Aluminum			39.0		200	-
Antimony			1.12		14	-
Arsenic	<1.0		0.4	-	340	150
Barium		4.05	7.63		-	-
Beryllium			0.22		-	-
Cadmium	<1.0		<1.0	-	4.3	2.2
Chromium	<5.0		0.34	-	550	180
Copper	83.0	20.4	41.6	~75%	13	9
Iron	430.0	31.4	110.4	~92%	-	-
Lead	<5.0		0.50	-	65	2.5
Manganese	24.0		1.58	~93%	-	-
Mercury	0.26		<2.0	-	0.050	-
Nickel	3.3		24.0	-	470	52
Selenium	1.1		<1.0	-	-	5.0
Silver	1.1		<1.0	-	3.4	-
Zinc	120.0	36.5	57.9	~70%	120	120
Atrazine		1.113	2.2		3	-
Dibromochloromethane		0.59	1.15		-	*0.401
Dichlorobromomethane		7.71	13.6		-	*0.56
æDieldrin		<0.010	0.007		0.05	*0.0014
Lindane (gamma-BHC)		<0.010	0.015		0.2	*0.019
MTBE		0.79	1.56		5	-
Tributyltin		<0.005	<0.005		-	-
Xylene		1.12	9.84		1750	-

ª Effluent results for toxics include data from 2002 CTR report
All samples below DLs for all other VOAs, semi-VOAs, pesticides, dioxins
→ California Toxics Rule, 40 CFR 131.38
* Long-term averages or medians of unspecified duration

→ Computed Statistical Probability of Exceeding Limits

limits	mean	std dev	probability		percent
Cu (d-max)	μ = 20.41	σ = 9.072	α(13)	= 0.7929	79%
Dichlorobromomethane	μ = 7.708	σ = 2.518	α(0.56)	= 0.9977	100%
Dibromochloromethane	μ = 0.594	σ = 0.241	α(0.401)	= 0.7883	79%
Atrazine	μ = 1.113	σ = 0.725	α(3.0)	= 0.0046	<1%
Lindane	μ = 0.0056	σ = 0.0063	α(0.019)	= 0.0167	2%

æ Detected at least once - unknown probability since DL exceed WQS

Table 4

El Dorado Hills WWTP Wastewater Quality - Toxics

Pollutants (µg/l) Jan-2002 to Jan-2003	Influent Mean	*Effluent Mean	99th%	Removal Rate	→Expected WQS D-max	4d-avg
Aluminum		36.8	71.7		200	-
Antimony		0.25	0.36		14	-
Arsenic	1.4	0.50	0.86	~65%	340	150
Barium		2.02	2.89		-	-
Beryllium		<0.003	<0.003		-	-
Cadmium	<1.0	0.071	0.15	-	4.3	2.2
Chromium	5.5	0.48	0.55	~91%	550	180
Copper	110.0	13.7	21.9	~88%	13	9
Cyanide		0.55	1.99		22	5.2
Iron	1600.	8.40	21.1	~99%	-	-
Lead	<5.0	0.061	0.09	-	65	2.5
Manganese	200.	2.57	6.45	~98%	-	-
Mercury	0.43	0.002	0.004	~99%	0.050	-
Nickel	5.5	3.28	9.12	~40%	470	52
Selenium	1.4	0.28	1.05	~80%	-	5.0
Silver	2.5	0.006	0.011	~99%	3.4	-
Zinc	160.0	22.9	39.1	~85%	120	120
æalpha-BHC		<0.010	0.013		-	0.0039*
æBis(2-chloroethyl)eth		<1.0	3.2		-	0.031*
Chloroform		64.5	143.6		100	-
Dibromochloromethane		1.19	2.44		-	0.401*
Dichlorobromomethane		11.0	31.4		-	0.56*
2,4-dichlorophenol		0.18	0.71		-	93*
Diethyl phthalate		<0.30	0.57		-	23000
Di-n-butyl phthalate		<0.40	0.74		-	2700
æ4,4'-DDT		<0.020	0.047		-	0.001*
Endrin		<0.010	0.017		-	0.036*
Ethylbenzene		<0.30	0.54		300	-
Phenol		<0.30	0.66		5	-
Toluene		<0.30	0.90		150	-
Tributyltin		0.004	0.016		-	-
Xylene		<0.50	1.65		1750	-

* Effluent results for toxics include data from 2001 CTR report
  All samples below DLs for all other VOAs, semi-VOAs, pesticides, dioxins
→ California Toxics Rule, 40 CFR 131.38
* long-term averages or medians of unspecified duration

→ Computed Statistical Probability of Exceeding Limits

limits	mean	std dev	probability		percent
Cu (d-max)	μ = 13.72	σ = 3.490	α(9.3)	= 0.8973	90%
Chloroform	μ = 64.50	σ = 33.96	α(100)	= 0.1480	15%
Dichlorobromomethane	μ = 11.02	σ = 4.375	α(0.56)	= 0.9916	99%
Dibromochloromethane	μ = 1.194	σ = 0.533	α(0.401)	= 0.9242	92%

æ Detected at least once - unknown probability since DL exceed WQS

Table 5

Deer Creek WWTP Sludge Quality

Pollutants-mg/kg* Jan02 to Dec02	Fed Standards Ceiling	Fed Standards Reuse	Sludge Samples Mean	Sludge Samples 99th%	Sludge Samples Max	Violations Per Sample
Arsenic	75	41	5.2	31.0	34.7	0/10
Cadmium	85	39	2.2	3.2	2.9	0/10
Chromium	-	-	34.5	53.3	44.0	ns
Copper	4300	1500	675.5	975.0	866.7	0/10
Lead	840	300	32.9	62.5	50.0	0/10
Mercury	57	17	3.2	4.6	4.0	0/10
Molybdenum	75	-	7.8	16.0	12.0	0/9
Nickel	420	420	27.3	36.4	33.0	0/10
Selenium	100	100	8.1	24.8	28.0	0/10
Silver	-	-			13.3	ns
Zinc	7500	2800	948.9	1276.3	1200.0	0/10
Total Toxic Metals			1740.4	2399.1	2241.0	

* dry-weight basis ns - no standard

→ Computed Statistical Probability of Exceeding Limits

limits	mean	std dev	probability	percent
As (reuse)	μ = 5.160	σ = 11.08	$\alpha(41)$ = 0.0006	<1%

Table 6

El Dorado Hills WWTP Sludge Quality

Pollutants-mg/kg* Jan02 to Dec02	Fed Standards Ceiling	Fed Standards Reuse	Sludge Samples Mean	Sludge Samples 99th%	Sludge Samples Max	Violations Per Sample
Arsenic	75	41	3.4	5.0	4.0	0/10
Cadmium	85	39	1.5	2.7	2.5	0/10
Chromium	-	-	38.2	58.3	51.0	ns
Copper	4300	1500	440.6	586.5	526.3	0/10
Lead	840	300	28.2	73.3	61.0	0/10
Mercury	57	17	1.4	2.1	2.2	0/10
Molybdenum	75	-	10.3	23.9	16.0	0/9
Nickel	420	420	34.8	57.9	53.0	0/10
Selenium	100	100	7.0	24.7	28.4	0/10
Silver	-	-			10.5	ns
Zinc	7500	2800	841.0	1045.7	1052.6	0/10
Total Toxic Metals			1403.9	1774.5	1700.0	

* dry-weight basis ns - no standard

Table 8

Sampling Results - El Dorado Hills Wastewater Treatment Plant
August 12-13, 2002

Sample Number	PL002	PL008	PL003	PL001
Date	08/13/02	08/13/02	08/13/02	08/12/02
Type	24-hr	24-hr	24-hr	grab
Location	Influent	Influent	Effluent	Sludge
Point	IWD-EDH1	Duplicate	IWD-EDH2	IWD-EDH4
Units	mg/l	mg/l	mg/l	mg/kg*
Arsenic	0.0014	0.0012	0.0011	<26.3
Cadmium	<0.0010	<0.0010	<0.0010	<2.6
Chromium	0.0055	0.0058	<0.0050	28.9
Copper	0.110	0.120	0.019	526.3
Lead	<0.0050	<0.0050	<0.0050	26.3
Mercury	0.00043	0.00032	<0.00020	1.4
Nickel	0.0055	0.0055	0.0040	25.8
Selenium	0.0014	0.0012	0.0013	28.4
Silver	0.0025	0.0024	<0.0010	10.5
Zinc	0.160	0.170	0.033	1052.6
Chloride	43	40	92	
Iron	1.60	1.90	<0.050	10000.
Manganese	0.20	0.36	0.032	1210.5
Nitrate-N	<0.20	<0.20	21.7	
Orthophosphate-P	3.70	3.80	3.20	
Sodium	45	41	190	
Sulfate	21	21	39	
TDS	270	nr	nr	
Moisture (%)				81%

All samples collected, kept in custody, and delivered to the laboratory by Greg V. Arthur. Samples analyzed by Sequoia Analytical. Sampling documentation including chain of custody and quality control results are part of this pretreatment program evaluation report for the El Dorado Irrigation District.

* dry-weight basis nr - invalid result

Table 9

El Dorado Irrigation District Service Area 2002 Inventory

SIGNIFICANT INDUSTRIAL USERS ("SIUs")	FLOW in gpd	PRETREATMENT-IN-PLACE	FEDERAL CATEGORY	BAT
Baker Art Foundry	0	/S EVAP HAUL	non-cat	n/a
Celebrity Plating	0	IX EQ RECYC HAUL	433zero	BAT+
PW Pipe	50000	-	non-cat	n/a
Gist Silversmiths	0	FLOC P/FILT SEPTIC HAUL	433zero	BAT+
Rippey - sponge prdxn	1000	PH BIOL EQ BATCH	414D	BAT
Rippey - clean room	1500	PH EQ BATCH	414D	BAT-
River City Chrome	0	FILT RECYC HAUL	433zero	BAT+

Federal Category and Best Available Technology

433zero	Metal Finishing - zero discharge
414D	Thermoplastic Resins Mfg
non-cat	Non-Categorical SIU
BAT	Best-Available-Technology treatment (equivalent to the model treatment used in setting the Federal standards)
BAT+	Exceeds BAT treatment
BAT-	Falls short of BAT treatment
n/a	No applicable Fed standards that are that are based on model treatment

Treatment-In-Place

BATCH	Batch Discharge
BIOL	Biol Degredation
EVAP	Evaporation
EQ	Equalization
FILT	Cartridge Filter
FLOC	Flocculation
HAUL	Disposal Offsite
IX	Ion Exchange
P/	Metals Precip
RECYC	Wastewater Reuse
/S	Gravity Settling
SEPTIC	Septic Disposal

Table 10

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).