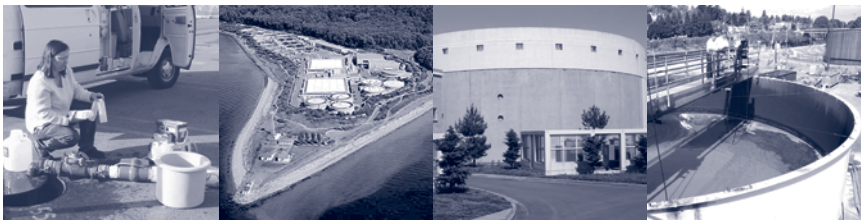
Industrial Pretreatment Quarterly

Published for industrial dischargers by the King County Industrial Waste Program (KCIW)



King County
Department of
Natural Resources and Parks
Wastewater Treatment Division
Industrial Waste Program

Volume XXXV: Issue 3 Fall 2008

Mission Statement

The mission of the Industrial Waste Program is to protect the environment, public health, biosolids quality, and King County's regional sewerage systems. We work cooperatively with our customers as we regulate industrial discharges, provide technical assistance, and monitor the regional sewerage system.

Industrial Waste Advisory Committee

Christopher Arfman, Skills, Inc.
Kevin Burrell, Environmental Coalition of South Seattle (ECOSS)
Eric Chapman, Exotic Metals
Ken Falcone, Cargill, Inc.
Ken Gross, GM Nameplate
Donna Hoskins, Bayer HealthCare
Bill Hughes, Bellevue Community College
Mark LaFata, Aerojet-General
Jed Rusyniak, Coca-Cola Co.
Steve Simacek, Hytek Finishes
Heather Trim, People for Puget Sound
Doris Turner, Boeing Commercial Airplane Group - Renton
Chris VanHoof, City of Kent
Scott Woerman, Landau Associates

2007 KCIW Rewards and Recognition Program

(Awarded in 2008 and listed here throughout that year)

Commitment-to-Compliance Award

Avtech Corp.
BP Products North America
Boeing Commercial Airplane - Renton
Glacier Northwest Inc. - Kenmore

2007 Gold Awards

Awarded in 2008 and listed here throughout the year

Acu-Line Corp.
Aero Controls Inc. - 20th Street NW
Alaskan Copper Works - 6th Avenue
Amgen Corp. - Bothell

(Continued on page 2)

The importance of accurate reporting

To help protect human health and enhance the environment, KCIW requires dischargers to document their compliance with their industrial wastewater discharge permits with periodic reports. Most dischargers are readily familiar with these self-monitoring reports, normally required monthly, quarterly, semi-annually or annually.

During a compliance inspection of a facility with an industrial wastewater discharge authorization or permit, a KCIW investigator may ask the facility to show him or her the documentation for data it has submitted. For each report a facility submits, it needs to keep the paperwork used to produce the report, including: laboratory reports; chain of custody forms for sample collection; pH wheels, or strip charts (or data, if data logger is used) and log books containing daily water meter readings. Dischargers are required by permit and King County Code to keep these records a minimum of three years. It is helpful for facilities to keep these records in one location that can be accessed during an inspection.

The person authorized to sign self-monitoring reports should thoroughly review the source materials for the reports when signing them. These individuals are responsible for the data submitted, and should understand that KCIW has legal requirements to issue enforcement actions and fines for inaccurate self-monitoring reports.

The program suggests that facilities spend a few minutes this month reviewing their documentation and the procedures they

(Continued on page 4)

Dental waste reduction program celebrates five successful years

Since July 2003, local dentists in King County have kept about 375 pounds of mercury out of the environment by complying with regulations. Dental offices are considered a significant source of mercury because of its presence in silver-colored amalgam tooth fillings.

KCIW compliance investigator and local dentist view amalgam separator.

To prevent mercury and other metals from going down drains, King County requires the 900 or so dental offices operating in King County to either install an amalgam separator or obtain a county permit and demonstrate compliance with discharge limits of 0.2 parts per million of total mercury.

In July, KCIW Compliance Investigator Patricia Magnuson was invited to provide testimony on the program and its outcome to date at a Domestic Policy subcommittee hearing, Assessing State and Local Regulations to Reduce Dental and Mercury Emissions.

To learn more, visit KCIW's dental waste program Internet pages: **http://dnr.metrokc.gov/wlr/indwaste/dentists.htm** *or see Contacts, page three.*

Local sewer agencies update

Fall workshop:

On October 15, KCIW will hold a workshop for local sewer agency staff. KCIW works closely with these local agencies, keeping them informed of the permitting and enforcement processes for all companies and facilities in their areas. Agencies have been mailed registration materials. The workshop site is wheel chair accessible. People who have disabilities or needs for which arrangements must be made in advance should contact KCIW. *(See Contacts, page three.)*

Group discussion at 2006 workshop held at West Point Treatment Plant.

KCIW to collect CISW sewer charges:

This fall KCIW will be working with local sewer agencies and contaminated industrial stormwater (CISW) dischargers to

(Continued on page 3)

*(**AWARDS**-Continued from page 1)*

A. O. Smith Water Products Co.
Avtech Corp.
BP Products North America
Ball Metal Beverage Container Corp.
Bayer HealthCare - Bothell
Bayer HealthCare - Seattle
Bayer HealthCare - Lynnwood
Boeing Commercial Airplane - North Field
Boeing Commercial Airplane - Renton
Carl Zapffe Inc.
Container Properties, LLC
Dawn Food Products Inc.
Exotic Metals Forming Co.
Express Finishing
Genie Industries - Bldg. 2 - Moosewerks Plant
Glacier Northwest Inc. - Kenmore
GM Nameplate Inc.
Hexcel Corp.
Honeywell International Inc.
Hytek Finishes Co.
Industrial Container Services
Interstate Brands Corp. - Hostess
Kenworth Truck Co.
King County Solid Waste Division-Cedar Hills Landfill
King County Wastewater Treatment Division - Brightwater Conveyance System
Magnetic and Penetrant Services Co.
Mastercraft Metal Finishing Inc.
Metro Transit South Base/ Component Supply Center
Mikron Industries
Oberto Sausage Co. - Kent
Pacific Iron and Metal
Pioneer Industries
Precor Inc. - Plant 1
Precor Inc. - Plant 2
Prototron Circuits Inc.
Quality Finishing Inc.
Rexam Beverage Can Co.
Safeway Inc. - Bellevue Beverage Plant
Seattle Barrel Co.
Seattle Solid Waste - Kent Highlands Landfill
Skills Inc. - Auburn Facility
Skills Inc. - Ballard Facility
Smith Fabrication Inc.
TOC Holdings Co.
Todd Pacific Shipyards Corp.
Tri-Way Industries

Universal Brass Inc.
Universal Manufacturing
Universal Sheet Metal Inc.
Vectra Fitness Inc.
Viox Corp.
Washington Technology Center
Weyerhaeuser Co.

2007 Silver Awards

Awarded in 2008 and listed here throughout the year

Aerojet-General Corp.
Amgen Corp. - Seattle
The Boeing Co. - Plant 2 Facility
Boeing Electronics Center
Burlington Environmental - Kent
Burlington Northern Santa Fe Railway - Interbay Facility
Cedar Grove Composting Inc.
Circuit Services WorldWide
Coca-Cola Bottling Co. of Washington
Crane-Eldec Corp. - Martha Lake Facility
Davis Wire Corp.
G & K Services
Genie Industries - Bldgs. 3 & 4
King County Wastewater Treatment Division - Brightwater Conveyance System II
Marine Vacuum Service
Pepsi-Cola Co.
Redhook Brewing Co.
Romac Inc.
WestFarm Foods/Darigold - Rainier

KCIW's Rewards and Recognition Program (above)

Every year, King County recognizes significant industrial users of the sewer system that have maintained an excellent record of compliance with the county's industrial waste discharge regulations for the previous calendar year. For awards criteria and more information, go to: **http://dnr. metrokc. gov/wlr/indwaste/Awards.htm.**

King County's industrial pretreatment regulations are designed to prevent businesses from discharging substances that can degrade the wastewater treatment process, harm workers, damage facilities or reduce water quality.

KCIW Updates

(Continued from page 2)

ensure a more consistent collection of sewer charges. Over the past 10 to 15 years there has been a dramatic increase in the number of KCIW-issued authorizations for groundwater remediation, contaminated industrial stormwater, and construction dewatering projects; defined as CISW. These projects can run for years with volumes of wastewater discharged to the county sewer system reaching well over several million gallons in some cases. The county's goal is solely to recover its costs for treating this wastewater.

For more information contact Compliance Investigator Douglas Hilderbrand at: 206-263-3032 or e-mail: douglas.hilderbrand@kingcounty.gov.

Apply for KCIW's 2008 EnvirOvation Award

KCIW encourages eligible companies to apply by Dec. 15. For more information go to: **http://dnr.metrokc.gov/wlr/indwaste/Awards.htm** or contact KCIW (below).

About the Industrial Pretreatment Quarterly

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Publication is available on the Internet at: http://dnr.metrokc.gov/wlr/indwaste/publicat.htm. For more information contact Doug Hilderbrand, KCIW Program Officer, at 206-263-3032 or TTY Relay: 711, or e-mail: douglas.hilderbrand@kingcounty.gov.

Contact information:

King County Industrial Waste Program (KCIW), 130 Nickerson St., STE 200, Seattle WA 98109-1658. PH: 206-263-3000 or TTY: 711.

http://dnr.metrokc.gov/wlr/indwaste

This material is provided in alternative formats upon request by calling 206-263-3000 or TTY relay: 711

(Continued from page 1)

have in place to ensure that the data they submit is accurate and complete.

KCIW encourages dischargers to contact their assigned compliance investigators with any questions regarding recordkeeping or reporting requirements. Staff will be glad to discuss protocols and answer questions. *(See Contacts, page three.)*

Pretreatment tip:

Self-monitoring reporting:

- Remember, self-monitoring reports are due the 15th day of the month following the reporting period.
- At the top of the report, those reporting should make sure they have entered the correct reporting period; company or agency name; current authorization number, and the applicable sample site number.
- Facilities need to deliver reports to KCIW only once per each report, using either fax, U.S. mail, or e-mail. For example, if sending via fax, there is no need to also send via postal mail.
- Please make sure that information provided on the report is either clearly written or typed using a standard font, no smaller than 10 point, and don't use boldface or italic type.
- Don't forget to have the delegated signatory authority check the report for accuracy and completeness and sign the form.

Facilities should contact their assigned KCIW compliance investigator with any questions concerning specific self-monitoring reporting requirements. *(See Contacts, page three.)*

Atmospheric Deposition Sampling in the Lower Duwamish Basin

Because of recontamination concerns for Lower Duwamish Waterway sediments, KCIW conducted atmospheric deposition sampling in the Lower Duwamish Waterway drainage basin from 2005 to 2007. Atmospheric deposition is the process by which particles suspended in the air are deposited to land or water bodies via precipitation (wet deposition) or dry fall of particles (dry deposition). KCIW sampled for polycyclic aromatic hydrocarbons (PAH), phthalates and polychlorinated biphenyls (PCBs).

KCIW Compliance Specialist Dana Heinz collects an air deposition sample at Washington State Department of Ecology's Georgetown rooftop sampling station with a newly-installed passive air deposition sampler.

The sampling measured a combination of dry and wet deposition in urban/industrial neighborhoods with the results being comparable to studies conducted in other urban/industrial areas. Based on the results from other atmospheric deposition networks, heavier semivolatile organic compounds are predominately deposited via dry and wet deposition. Therefore, total deposition results are believed to be reasonably accurate for the heavier phthalates (e.g., bis-(2-ethylhexyl)phthalate, butyl benzyl phthalate), carcinogenic PAH and Aroclors 1254/1260. These heavier chemicals tend to "stick" to particles and accumulate in sediments; therefore, they are of greater concern to Lower Duwamish Waterway sediments than lighter, more water-soluble, chemicals.

The results of the study indicate that atmospheric deposition in the urban environment is an important pathway to consider when evaluating the potential for sediment contamination in urban waterways.

To download the study, go to:
http://dnr.metrokc.gov/wlr/indwaste/docs/LDW_PDS_R1-R22_Monitoring_Report-Final.pdf.
For further information contact KCIW staff engineer, Bruce Tiffany, at bruce.tiffany@kingcounty.gov *or 206-263-3011.*

Thank you, 2007 Commitment-to-Compliance winners
for your help in protecting water quality and preventing water pollution!

Glacier Northwest Inc. - Kenmore

Glacier Northwest Inc.'s motto is "Expect More... We Deliver," and with a second Commitment-to-Compliance award its Kenmore Ready-Mix Plant is meeting that standard. Employees take environmental compliance seriously at this facility where operators apply environmental best management practices on a daily basis. The facility reuses the majority of its wastewater in its ready-mix process.

From l. to r.: Glacier's Chad Manring, Kenmore operations; Sean Fant, Glacier's Everett site superintendent; Scott Nicholson, aggregates general manager Washington division; Gerald Nielsen, Kenmore shop manager; Mike Brown, Kenmore operations; Zach Crawford, Kenmore operations; Mark Leatham, vice president/general manager of Washington operations; Brent Nordyke, Kenmore site superintendent; John Downes, Kenmore foreman; Greg Newborn, KCIW compliance specialist; Matt Hinck, environmental manager Washington division; Terry Anderson, Kenmore operations; Andy Sullivan, Kenmore operations; Jared Alseth, Kenmore operations; Mike Moore, safety manager Washington division; Jeff Zurcher, assistant superintendent, Pioneer Aggregates; Michael Wagy, concrete general manager Washington division.

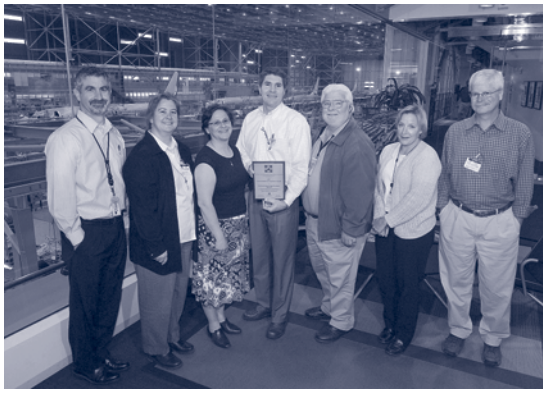
Avtech Corp., Seattle

Since 1969 Avtech Corp., Seattle has manufactured electronic systems for the aerospace industry, serving 450 customers in 49 countries. Nearly every part that the company fabricates goes through the chromate process to get a decorative finish, resulting in wastewater that the facility pretreats before sending to the county sewer system. Heng Tek, Avtech's chromate specialist, maintains a display of a series of KCIW Gold Awards confirming the facility's attention over the years to quality control.

L. to r.; Avtech's James Jennings, facilities supervisor; Barbara Badger, KCIW compliance investigator; Steve Kern, vice president of operations; Heng Tek, chromate specialist.

Boeing Commercial Airplane Group-Renton

The Boeing-Renton team has truly proven itself an environmental leader, winning two consecutive Commitment-to-Compliance Awards *(see back cover)*; KCIW's EnvirOvation Award in 2001 and a King County Green Globe Award in 2003.



Boeing and King County staff from l to r.: Mike Vehaar, environmental affairs manager; King County Wastewater Treatment Division Director Christie True; Despina Strong, KCIW environmental programs managing supervisor; Leslie Weige, director, safety , health & environmental affairs; James Inman, supervisor, shared services group; Doris Turner, Environmental Engineer and Greg Bush, King County Wastewater Treatment Division Environmental and Community Services section manager, proudly display the award presented to Boeing-Renton team. (Courtesy of the Boeing Company, Marian Lockhart photo)

Pretreatment tip:

Some types of industrial wastewater can contain high levels of sulfates and sulfides, including landfill leachate, rendering waste, metal finishing waste, and some food processing waste.

The threat of hydrogen sulfide (H2S) to sewer systems

KCIW requires some facilities to monitor sulfide levels in their wastewater discharges.

About hydrogen sulfide:

Hydrogen sulfide, the chemical compound with the formula H2S, is the most commonly known and prevalent odorous gas associated with domestic wastewater collection and treatment systems. It has a characteristic rotten egg odor and is extremely toxic and corrosive to metals. H2S is also a precursor to the formation of sulfuric acid, which is especially corrosive to the concrete pipe frequently used for sewers.

The conditions required for H2S corrosion are:

- Presence of dissolved sulfides in the wastewater.
- Release of H2S gas from the water phase to the gaseous phase.
- Biological oxidation of H2S to sulfuric acid above the wastewater surface in a pipe or basin.
- Acid attack on the moistened surfaces of cement or metallic surfaces exposed to the atmosphere.

Sulfur in amounts sufficient to cause problems is normally available in domestic wastewater in the form of inorganic sulfates and sulfides. If sewage is deficient in oxygen, a condition called anaerobic, it can cause bacteria that normally use atmospheric oxygen in their respiration to turn to sulfur bearing compounds (sulfates) for their source of oxygen. As a result the chemical reaction within the bacteria changes sulfates to sulfides (a chemical reaction called reduction), thus increasing the overall concentrations of dissolved sulfides in the sewage. The presence of sufficient turbulence will then liberate hydrogen sulfide into the atmosphere.

Most of the sulfate reduction to sulfide occurs in the biological slime layer on the pipe wall

Sulfides can corrode sewer pipe.

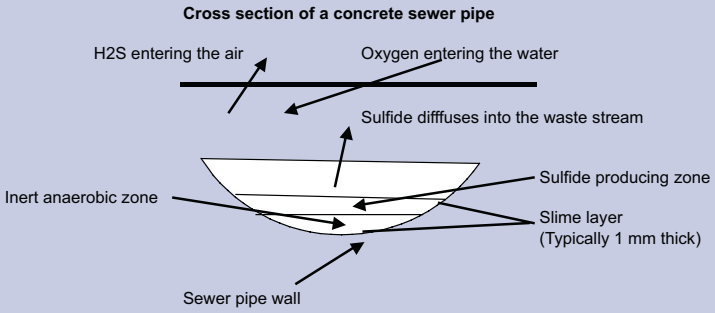
or in sludge and silt deposits on the bottom of the sewer pipe. The rate at which sulfide is produced in the slime layer depends on the following environmental conditions:

- Concentrations of organic material and nutrients
- Sulfate concentration
- Dissolved oxygen
- pH (acidity or alkalinity)
- Temperature
- Stream velocity
- Surface area
- Detention time

Hydrogen sulfide production:

Despite the number of variables involved, the phenomena of hydrogen sulfide production has occurred in numerous sewer systems, including King County's. Sewage force mains are frequently the site of H2S problems. Normally there is sufficient turbulence where the water emerges from the force main into a gravity-based sewer to create ideal conditions for hydrogen sulfide generation and resulting corrosion.

Some types of industrial wastewater can contain high levels sulfates and sulfides, including landfill leachate, rendering waste, metal finishing waste, and some food processing waste. KCIW requires known or suspected facilities that are sources of hydrogen sulfide to self-monitor for dissolved and atmospheric hydrogen sulfide.



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Controlling the formation and release of hydrogen sulfide in a sewer system:

There are a number of steps that facilities can take to control the formation and release of H_2S in a sewer system including:

- Improving the oxygen balance by using compressed air injection or pure oxygen injection.
- Chemical treatment, including the addition of: chlorine; hydrogen peroxide; nitrates; metallic ions and lime.

One preventative used by King County is to periodically dose a sewer line susceptible to hydrogen sulfide problems with sodium hydroxide.

Safety considerations:

The gaseous form of hydrogen sulfide is an extremely toxic gas and has been responsible for the death of a number of sewer system workers. As mentioned above a rotten egg smell normally signals the presence of hydrogen sulfide in the atmosphere.

However odor should not be the signal to be careful because hydrogen sulfide in high concentrations quickly deadens the olfactory nerves, causing death before the individual has a chance to smell it. Individuals should always follow proper confined space entry procedures when entering a confined space such as a wet well or manhole, where sewer gases might be encountered.

Meet an IWAC member

KCIW is presenting a series of profiles of its Industrial Waste Advisory Committee (IWAC) members.

Kevin Burrell

Kevin Burrell is the executive director of the Environmental Coalition of South Seattle (ECOSS). The non-profit organization provides environmental education and technical assistance to businesses and communities in the Puget Sound region. IWAC is a great way for ECOSS to participate in the arena of wastewater as well as a feedback mechanism for the organization and its members to provide program input.

The Industrial Waste Advisory Committee (IWAC)

With the goal of protecting the environment, public health, biosolids quality and King County's regional sewage system, IWAC meets to exchange ideas among representatives of industrial wastewater dischargers, sewer agencies, environmental groups, and KCIW staff.

See page 1 for committee members.

May 7 Meeting Topics

Announcements: Certificate of appreciation for Larry Petersen's service on the Industrial Waste Advisory Committee.

Seattle Climate Partnership: Director Charlie Cunniff on Seattle-area employers taking action to reduce their emissions.

KCIW studies: KCIW Engineer Bruce Tiffany gave a presentation on two studies in the Lower Duwamish Basin: characterization sampling (see article in Summer 08 edition); and atmospheric deposition sampling (see page four).

KCIW 2007-08: KCIW Program Supervisor Despina Strong gave an overview of the KCIW program accomplishments for 2007; goals and work for 2008.

KCIW Awards: Congratulations to IWAC members whose companies received awards from the program's Rewards and Recognition program for 2007.

Round Table Discussion: Members discussed recycling efforts.

For more information: contact KCIW Compliance Investigator Barbara Badger, e-mail: barbara.badger@kingcounty.gov*; phone 206-263-3024. Meeting summaries are available at:* **http://dnr.metrokc.gov/wlr/indwaste/Iwac.htm** *or by contacting KCIW, see page 3.*

Next Meeting: November 5. Special accommodations can be arranged by request by calling 206-263-3000 or TTY: 711.

King County
Department of Natural Resources and Parks
Industrial Waste Program
130 Nickerson Street, Suite 200
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Congratulations to the team from Boeing Commercial Airplane Group–Renton!

The Boeing-Renton facility has become one of only eight facilities to have won KCIW's Commitment-to-Compliance Award twice – and the second winner to achieve this level twice consecutively, demonstrating perfect compliance with industrial waste regulations for 10 years running! *(See page 5.)*

Holding the KCIW Commitment-to-Compliance Award presented to team members at the Boeing-Renton facility on June 2 are wastewater treatment plant operators (from l. to r.): Jim Absolor; Chad Kiehn; Terry Hoskinson; Brad Hedger and at top Dave Farnam. (Courtesy of the Boeing Company, Edward Turner photo)

Creating Resources from Wastewater