

Gas Station Refueling/ Vapor Recovery Issues

Spokane Clean Air staff have observed that some gas station refueling deliveries have failed to hook up the Stage I vapor recovery equipment during gasoline tank filling. This is a concern because refilling underground storage tanks at gas stations is one of the major sources of volatile organic compounds (VOCs) emissions in Spokane County. These VOC emissions can be reduced by 95% with the proper use of Stage I vapor recovery systems.

Most gas stations in Spokane County (with throughput over 360,000 gallons or new 10,000 gallon tank) are required to have Stage I vapor recovery systems and ensure the systems are properly used during fuel delivery. When the fuel storage tanks are “empty,” they are actually full of gasoline vapors. When gasoline is added to the “empty” storage tanks, it displaces the vapors. Stage I vapor

recovery systems have a hose that returns the displaced gasoline vapors from the underground tank to the delivery truck’s cargo tank compartments.

There are two types of Stage I equipment used in Spokane County – dual point and coaxial.

Dual point systems have two ports. One is used to deliver gasoline from the truck to the tank, and the other is used to return vapors to the truck.

Coaxial systems utilize one port for both liquid gas and vapor transport.

Remember to properly hook up the Stage I equipment for each fueling and we’ll all breathe a little easier. If you have questions about air quality rules, please call 477-4727, or visit www.spokanecleanair.org.

In addition, Air Quality Specialists have noted that during inspections they are encountering frequent issues related to the lack of maintenance of vapor recovery systems.

Poor maintenance means the equipment doesn’t operate effectively, which substantially impedes the capture and collection of vapors from entire systems, resulting in higher emissions.

Gasoline dispensing facilities must regularly inspect equipment to check for, and promptly correct problems.

Continued: see Gas Stations, page 3

Sign Up Now! Pollution Prevention Consultation

Many commercial and industrial facilities could benefit from receiving a free pollution prevention consultation.

The Spokane Regional Clean Air Agency (Spokane Clean Air) is now offering free consultations to assist facilities meet and exceed air quality requirements.

There are many benefits for “going beyond” compliance and maximizing emissions reductions, such as decreased operating costs.

For example, some dry cleaning operators have voluntarily switched products and/or processes that have enabled them to reduce or eliminate emissions, resulting in lower registration fees.

“Spokane Clean Air’s pollution prevention consultation program was developed to help business meet and exceed current standards. Implementing pollution prevention practices has many benefits,” said Margee Chambers, Pollution Prevention Specialist at Spokane Clean Air.

The consultation service is available to businesses currently registered, except AOP and Synthetic Minor Sources. Enclosed is a flyer with a return postcard. Please complete and mail the card or call Margee Chambers at 477-4727, ext. 114.

Inside . . .

Controlling Emissions from Boilers 2

Meet our new Compliance Staff 3

Businesses Doing "Their Share for Clean Air" 4

Business Spotlight: Inland Empire Paper Company 5

Special Insert: Pollution Prevention Consultation - Sign up today

Compliance Staff Changes

A number of staff changes have occurred at our agency in recent months. In the Compliance and Enforcement Section, three new Air Quality Specialists were hired to fill vacancies. Here's a little about our new hires:

Brandy Ellis earned a Bachelor's Degree in Forest Resources from the University of Idaho. She also has Associate Degrees in Fish & Wildlife, Soils, Parks & Recreation, and Forestry. Most recently, she worked for the Washington State Department of Fish and Wildlife.

Russ Neumiller most recently worked as a project manager for a private environmental consulting company performing air monitoring, building inspections and overseeing industrial hygiene projects associated with asbestos, lead, mold and other regulated/hazardous materials.

Bennett Orton holds degrees in Parks Management/Conservation and Natural Resources/Environmental Sciences from Kansas State University. In his previous position with the Kansas Dept. of Health and Environment, he was responsible for the oversight of air pollution testing at industrial facilities.

Other Staff Changes:

Margee Chambers has worked as the Agency's Public Information Specialist for the last 7 years. In addition to continuing this role, she is the Agency's new Pollution Prevention Specialist.

Albert LePage retired after nearly 17 years with the agency as an Air Quality Specialist. Congrats, Albert!

Crystal Alford served as an Air Quality Specialist at Spokane Clean Air for nearly 10 years. Earlier this year, she accepted a position in the Air Program at the Washington State Department of Ecology. Best of luck, Crystal! ■

Boiler Emissions

Continued from page 2

Operation and Maintenance

An operation and maintenance plan must be developed to ensure that the boiler is operated properly and maintained in good condition. These plans generally:

- ✓ **describe** periodic maintenance activities to be performed
- ✓ **identify** the frequency for performing each maintenance activity
- ✓ **retain** record keeping forms to track maintenance activities
- ✓ **specify** corrective actions to take if any operating parameters are outside of normal ranges
- ✓ **perform** periodic combustion analysis to minimize emissions, optimize fuel efficiency, and ensure proper operation

Record keeping and Reporting

Boiler NOCs require that the following records be kept on site:

- ✓ **forms** used to document performance of maintenance activities
- ✓ **copies** of combustion test results
- ✓ **fuel usage records** and **records of sulfur content** for fuel oil fired equipment. Fuel usage must be reported annually for annual emission estimates.

For older, existing boilers currently registered (that were not required to obtain a NOC) it's strongly recommended that periodic combustion analysis, tuning, and maintenance be performed. This helps reduce emissions from older boilers and helps improve efficiency, saving money on fuel costs.

For more information, please contact Spokane Clean Air at 477-4727. ■

Gas Stations *Continued from cover page*

To assist gas stations, Spokane Clean Air distributed an illustrated guide to facilities a couple of years ago. If you would like a guide, call at 477-4727. Meanwhile, please review these areas and make needed repairs:

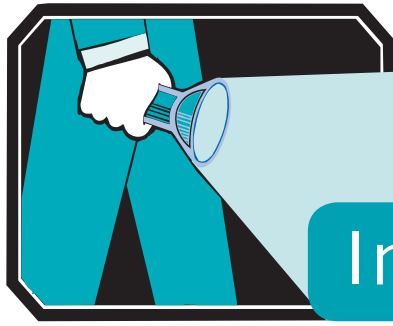
Stage I vapor recovery systems:

- ✗ loose/missing product or vapor caps
- ✗ missing or damaged product or vapor cap gaskets
- ✗ loose product or vapor adaptors
- ✗ inoperable springs or misaligned vapor poppets
- ✗ damaged/missing poppet gaskets
- ✗ damaged/missing fill tube gaskets
- ✗ open/leaking spill bucket drain valves

Stage II vapor recovery systems:

- ✗ missing latch coil or ring
- ✗ oversized boot holes or slits
- ✗ damaged/missing bellows faceplate
- ✗ defective boot insertion interlock
- ✗ hose has cuts or holes, or is flattened or kinked
- ✗ incorrect hose fuel flow direction
- ✗ visible gasoline leaks

For more information and assistance, please call 477-4727. ■



Business Spotlight

Inland Empire Paper Co.

For nearly 100 years, Inland Empire Paper Company (IEP) has been making paper products at their facility in Millwood, just east of Spokane. IEP is one of North America's most competitive paper mills, making 525 tons of newsprint and specialty paper products daily for distribution across the country.

One of IEP's corporate philosophies is to minimize its impact on the environment and surrounding community. To this end, the Spokane Regional Clean Air Agency (Spokane Clean Air) is spotlighting IEP for their efforts to reduce air emissions and odors.

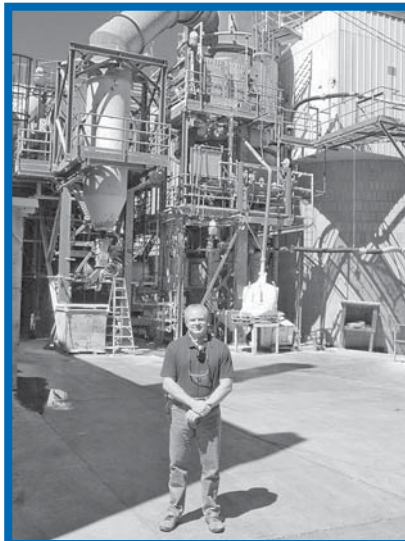
In 2001, IEP installed a modern, energy efficient paper machine which today remains the newest of its kind in North America. The machine uses heat recovery and water reuse to minimize energy and water usage.

Most of the paper made at IEP is from waste products. About half of the pulp used to make the paper is from recycled newsprint (100,000 tons per year!) The other half of the pulp is made from waste wood chips supplied by local sawmills. Using recycled newsprint and waste wood chips diverts a significant amount of waste from the local waste stream.

During the process of de-inking old newspapers, sludge is produced. Most of the sludge is burned in the fluidized bed combustor. IEP was the first company in North America to install and operate a fluidized bed

combustion (FBC) system consuming 100% paper sludge. The FBC system, installed over a decade ago, produces steam that is used as part of the paper making process.

The ash produced by the fluidized bed combustor is sent to a company that recycles it into concrete.



Doug Krapas stands near the Fluidized Bed Combustor at Inland Empire Paper Company's Millwood facility.

There is some overflow sludge that can't be burned and must be sent to a landfill for disposal. Previously, the sludge was stored in a 3-sided enclosure until it was hauled off, which resulted in odors from the open air storage and the loading of the sludge into trucks. Last summer, IEP installed a new sludge handling system. The system has an enclosed conveyance that deposits sludge directly into covered trucks. This eliminated the open air storage and "double handling" of the sludge.

Another aspect of IEP's process is handling large quantities of wood chips. In 2006, a new chip handling system was installed, including a new truck/railcar unloading station and enclosed mechanical conveyance system. The new chip gravity distribution system has virtually eliminated sawdust emissions associated with the previous pneumatic (forced-air) conveyance system.

"These two new systems have been extremely successful in addressing the dust and odor emissions," said Doug Krapas, IEP's Environmental Compliance Engineer. "Feedback from the local community has been very positive," he added.

In the near future, IEP plans to install a state-of-the-art pulping system that will replace the system originally installed in the 1960s. The proposed system recovers waste heat that exits the stacks of the older pulping systems. The recovered energy will provide significant environmental benefits, including a 77% drop in natural gas usage. This will result in an equivalent reduction in emissions from the combustion of natural gas currently used in the process.

IEP has established itself as an industry leader in environmental management. IEP has committed significant resources to reduce air emissions, many of which have not been mandated of them. Spokane Clean Air recognizes Inland Paper Company for their efforts, which benefit our entire community. ■

Controlling Boiler Emissions

Boilers are used to supply energy in many industrial and commercial applications, such as space heating, domestic hot water production, steam production, electrical cogeneration, and incineration. Fuels used to fire boilers include natural gas, propane, diesel or fuel oil, coal, wood waste, and municipal solid waste.

Most boilers in our area burn natural gas as the primary fuel. Some are equipped to operate on a back-up fuel, the most common of which is fuel oil (#1 or #2). The significant emissions from combustion of these fuels include Oxides of Nitrogen (NO_x), Carbon Monoxide (CO), and Sulfur Oxide (SO_x). In addition, smaller amounts of Particulate Matter (PM), as well as toxic and hazardous air pollutants are emitted. Air pollution control techniques for reducing NO_x, CO and SO_x from boilers firing on natural gas and fuel oil are as follows:

Oxides of Nitrogen (NO_x)

NO_x can be reduced from boilers either by limiting NO_x formation during fuel combustion or by later removing NO_x from the flue gas.

Low NO_x burners and Air Staging limit NO_x formation by optimizing fuel and air mixing. Low NO_x burners are effective in systems that burn gas or oil, while Air Staging is commonly used during combustion of solid or oil fuels. Flue Gas Recirculation (FGR) limits NO_x formation from natural gas and fuel oil combustion by lowering peak flame temperature, lowering the oxygen concentration in the flame, and reducing the rate of combustion.

Two common systems used to remove NO_x from flue gas are selective

catalytic reduction (SCR) and selective non-catalytic reduction (SNCR). NO_x removal is accomplished by spraying a reducing agent, generally ammonia (NH₃) or urea (CO[NH₂]₂) into the flue gas, removing oxygen from the NO and NO₂, and leaving behind nitrogen gas (N₂). The main difference between these systems is SCR systems must use an expensive catalyst bed, designed to be operated between 500° F and 850° F, while SNCR systems utilize high combustion temperatures (between 1400° F and 2000° F) to promote the reaction.

Carbon Monoxide (CO)

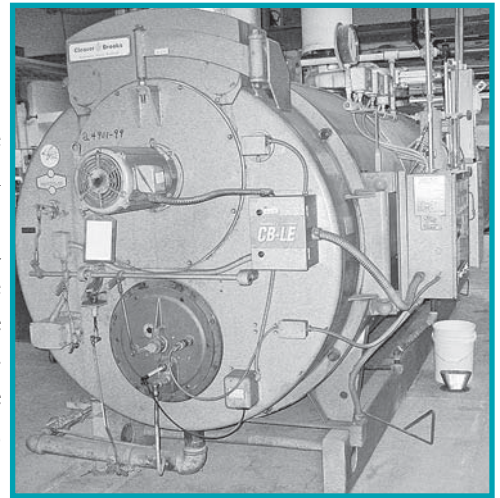
Significant CO emissions occur when boilers are operated improperly. Improper burner design, blocked/clogged flue vent and inefficient combustion (from poor air/fuel mixing or insufficient air) all increase the production of CO. Emissions are minimized by maintaining the burner system and periodically tuning the boiler to minimize incomplete combustion. Unfortunately, controls that limit NO_x formation also reduce combustion efficiency, resulting in higher CO emissions. A delicate balance needs to be achieved in reducing NO_x and controlling CO.

Oxides of Sulfur (SO_x)

Commercial natural gas generally contains minimal sulfur and therefore controls aren't required. However, fuel oils contain a higher percentage of sulfur. Low sulfur content fuels reduce the amount of sulfur available to react during combustion. Substitution from a higher sulfur content fuel to a lower content sulfur fuel is a key way to reduce SO_x emissions.

Notice Of Construction

Spokane Clean Air requires a Notice



This is a natural-gas fired boiler at Whitworth College, which produces approximately 8 MMBTU/Hr.

of Construction (NOC) approval prior to installation and operation of all new or modified natural gas fired boilers rated at 4 MMBtu/Hr or greater. For boilers that burn other fuels, a NOC is required for units rated at 500,000 Btu/hr using coal or used oil and 1,000,000 Btu/hr for units that use diesel. NOC conditions require testing to demonstrate compliance with emission limits, development/implementation of an operation and maintenance plan, and record keeping and reporting. Boilers over 10 MMBtu/Hr are also subject to federal New Source Performance Standards that specify additional requirements not covered in this article.

Emission testing is required to determine compliance with emission limits specified in the NOC for each fuel type burned in the boiler. Generally, testing is required for NO_x and CO. For larger boilers, more rigorous stack testing is required that conforms to EPA reference test methods. For smaller units, results from a portable combustion analyzer may be acceptable. On-going testing may be required as a NOC condition, to ensure that the boiler is properly operated and maintained.

Continued on next page

Businesses Doing Their Share for Clean Air

We are pleased to recognize these businesses that are part of our registration program, and have applied for and received recognition in the "Doing Our Share for Clean Air," recognition program. Every two years, a recognition form is sent to all currently registered facilities with the Annual Registration mailing. To receive recognition, which includes a spiffy window decal, businesses need to complete the form, sign and return it to Spokane Clean Air. A minimum of three criteria must be met in order to receive recognition: 1) their annual registration form is complete and submitted on time, 2) annual fees are current, and 3) the facility has not received a Notice of Violation from Spokane Clean Air in the last three years. Congratulations to these facilities for doing their share for clean air. ■



A Super Store
Accra-Fab, Inc.
ADM Milling Co., Cheney
ADM Milling Co., Trent
ADM Mix Plant
Alliance Machine Systems
American Way Auto Body
American Way Collision Ctr
American West Chrome
Animal Clinic of Spokane
Appleyway Collision
A-Pro Auto Body & Towing
Architectural Woodwork & Design Inc.
Argonne Food Mart
Artistic Body & Fender
Aslin-Finch Feed Company
Barton Collision Center
Beacon Services
Belair Composites
Boston's Body Shop
Burlingame Steel, Inc.
Busy Bee Landfill & Wood Recycling
C & C Auto Restoration
Can-Am Body Shop
Cascade Marble & Granite
Chevron Food Mart
CHS, Inc.
City of Cheney
City of Spokane
City of Spokane Wastewater Treatment Plant
City of Spokane, Fleet Svcs
City Service Valcon
Columbia Paint & Coatings
Comcast
Contemporary Fiberglass
Cooperative Supply Inc.
Cravens Coffee Company
Custom Painting, Inc.
Cylinder Head Service

D & D Body Shop, Inc.
Dave's Auto Body & Glass
Deer Park Cleaners
Deer Park Food Mart
Dishman Dodge
Diversified Wood Recycling
Divine Corporation
Driscoll One Stop
Extreme Customs
Five Mile Wash & Dry
Four Lakes Grocery
Four Seasons Coffee Co.
Fred Meyer Stores
Freeborn Tool Co.
GCR Truck Tire Center
Getchells Cleaners
Gobees Auto Body
Grand Blvd. Conoco
Grocery Boys
H&B Superior Metals Inc.
Half Moon Feeds, LLC
Harper Shell, Inc.
Hennessey-Smith (2 locations)
Holiday Stations (3 locations)
Impact Service Corporation
Itron
Jensen Auto Service
JJ's Auto Collision Inc.
Julien, LLC
K & M Unibody Works, Inc.
K & N Electric Motors, Inc.
Kasco Reconditioners, Inc.
Kiemle & Hagood Co.
Kimmel Athletic Supply Co.,
KOP Cabinets
L&M Truck Sales Inc.
La Farge North America
Les Schwab Tires
Liberty Lake Chevron
Litho Art Printers
Lloyd Industries, Inc.
Lyn-Tron Inc.

Metalite Industries, Inc.
Miller's One Stop Grocery
MoCo Engineering
Moon Rock Company
N.E.W. Castings
National Music Service
Navy Operational Support Ctr
Nelson's Autobody & Towing
Northtown Mall
Northwest Food Mart
Northwest Pea & Bean Co.
Northwest Sandblast & Paint
One Stop Conoco
PAML
Petrocard Systems Inc.
Pitney Bowes
Pristina Pine
Pro Sign, Inc.
Progress Auto Body
Proto Technologies, Inc.
Quality Millwork Inc.
R N R RV
Raja Market
Riverside School District
Riverside Service
ROI's Furniture Refinishing
Schellings Dry Cleaners
Scollards Cleaners
Shredfast Mobile Data Destruction
Sir Speedy Printing
Snow Peak Forest Products
Solid Waste Systems, Inc.
Sonderen Packaging
Spectrum
Spokane Arena
Spokane County Facilities
Spokane County Regional Animal Protection
Spokane Fire Dept/
Joint Comm. Bldg
Spokane Int'l Airport

Spokane Public Library
Spokane Regional Health
Spokane Transit Authority
Spokane Cleaners, Inc.
Sprint Communications
Sullivan Station Inc.
Sunset Food Mart
Swanson's Auto Body
T-2 Services Inc.
Target Media Northwest
The Gas Company
The Woodman
Thompsons Chevron
Thornhill Valley Chapel
Thunderbird
Tire Distribution Systems
Toby's Body & Fender
Towner & Towner
Tresko Monument Inc.
Triple Plate Chrome
Trumark Industries, Inc.
Unique Cabinets
U-Save Cleaners
Washington Auto Collision,
Watson Paint & Body Works
Waverly's Coffee Inc.
Wear-tek
West Plains Conoco
Western Concrete Products
Western Sys & Fabrication
White Block Co.
Wilcox Family Farms
XO Communications

Watch for the next round of recognition forms to be sent in the Annual Registration Packets Aug 2008 - Aug 2009.

UPDATE is published by the Spokane Regional Clean Air Agency (Spokane Clean Air) as part of its Compliance Assistance Program. Comments, suggestions and article ideas may be directed to Update Editor Lisa Woodard.



1101 West College, Suite 403
Spokane, WA 99201-2028
PHONE: (509) 477-4727
FAX: (509) 477-6828
Web Address:
www.spokanecleanair.org

Air Quality Calendar

Dec. 6: Board of Directors meeting, 9 a.m., lower level hearing room, Spokane County Public Works Bldg, 1026 W. Broadway Ave. Information about the Board, including meeting agendas and minutes, is at www.spokanecleanair.org/our_people.asp.

Jan. 1: Happy New Year!

Spokane Regional Clean Air Agency 2007 Board of Directors:

Jeff Corkill, City of Spokane Representative, Chair
Mike DeVleming, City of Spokane Valley, Vice Chair
Melissa Ahern, Member-at-Large
Bonnie Mager, Spokane County Commissioner
Matthew Pederson, Small Cities & Towns Representative

Advisory Council Members:

Peter G. Williams, Chair	Ray Kelleher
Tom Brattebo	John Livingston
Nancy Enz Lill	Jana McDonald
John Hjaltalin	Mark Roberge, PhD
Chester Jahns, Jr.	

This newsletter is available electronically at Spokane Clean Air's website. To add or remove names to the **UPDATE** mailing list, call 477-4727.

UPDATE

Spokane Regional Clean Air Agency
1101 W. College Ave., Suite 403
Spokane, WA 99201-2028

Pre-sort STD
U.S. Postage
PAID
Spokane, WA
Permit No. 28

working with you for clean air