



INTERNAL CORRESPONDENCE

HEALTH, SAFETY & ENVIRONMENTAL AFFAIRS

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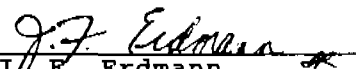
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Subject: Special Report on EPA's Renewed Activities for VCM
Enforcement

In recent months we have had considerable attention from the TACB and the EPA in connection with our activities to control and monitor for VCM emissions from our Solution Vinyl Resins Unit here at Texas City.

The attached one-page special report from BNA presents some of the major points involved in this recent emphasis on VCM NESHAPS compliance. I feel our production group has maintained a very high level of compliance in the last 2-3 years and that we are in complete compliance now, except for providing some additional data in one situation to prove it conclusively. This report is being circulated to provide each of you with some additional insight on the situation and to encourage continued good performance.

Sincerely,


J. F. Erdmann

JFE:IR:EPVCM
Attachment

UCC
050793



AIR POLLUTION CONTROL

A biweekly summary of industry practices, regulatory trends, and control techniques.

No. 106

April 11, 1984

Highlights . . .

Direct sorbent injection can reduce sulfur oxides emissions . . . p. 1

Offset policy may enable construction in non-attainment areas . . . p. 2

Consent decrees can be very expensive to ignore, firm finds . . . p. 3

Internal memo sheds light on federal enforcement of vinyl chloride rules . . . p. 4

Coal Cleaning And Cogeneration

Two major deterrents to a more widespread use of deep coal cleaning are costs to the coal industry and concerns over solid waste. With one fell swoop, an idea advanced by Leon Green, vice president of Clean Coal Coalition Inc., could set both deterrents back on their ears.

Green, who presented his idea at the Acid Rain Conference sponsored in Washington, D.C., by Power Magazine/McGraw Hill, notes that coal washing to remove pyritic sulfur from eastern coal is a least-cost method of achieving substantial reductions in sulfur dioxide emissions. To help the method pay for itself, Green advocates the use of circulating fluid bed combustion to capture the lost heat value of coal cleaning waste.

The refuse material, which includes large amounts of coal fines as well as sulfur and ash, is ideally suited to CFBC, Green observes. The heat derived from such combustion could be used to produce electricity to operate the cleaning plant, heat to fuel the coal dryer, and/or extra electricity to sell as auxiliary power. The waste stream from the Homer City preparation plant, for instance, contains enough energy to generate nearly 100 megawatts, Green says.

The author emphasizes that the appropriate technology for this application is the entrained-flow or rapidly circulating fluid bed, not the "obsolescent" bubbling design promoted by the U.S. Department of Energy or the slowly circulating variety used in a project sponsored by the Tennessee Valley Authority. Green asserts that only the CFB, with the high specific surface of its fine sorbent particles and its demonstrated combustion efficiency, can make a clean burn of the material rejected from a coal cleaning operation.

Physical coal cleaning is discussed in the *Air Pollution Control* binder, starting at p. 181:971. For more information on his suggestion or his coal cleaning advocacy program, contact Green in Washington, D.C., at (202) 483-8265.

Can't SO₂ Removal Be Easy?

Why all the complicated engineering? Couldn't sulfur dioxide emissions be reduced simply by dumping a load of sorbent right into the boiler along with the coal? Don't think this idea hasn't been tried. In fact, a series of experiments, dating back to 1973, has been devoted to the proposition that the simpler SO₂ removal can be made, the better.

Early experiments at the Tennessee Valley Authority's Shawnee Steam Plant were disappointing, resulting in SO₂ emissions reductions of about 20 percent. The concept was to pulverize limestone and inject it directly into the flame, flash-calcine it to lime, and wait for a reaction with sulfur dioxide and oxygen to produce calcium sulfite and/or calcium sulfate. The experiment showed, among other things, that a good reaction required ample residence time and that the limestone fouled the reheater and reduced the collection efficiency of the ESP.

Further experiments on Germany's brown coal were more successful, primarily because the fuel has a higher moisture content and lower heating value than the bituminous coal used at Shawnee. The combustion chambers also are sized for low heat release rates. Thus, reaction was aided by lower temperatures and longer residence times.

From these and other experiments, researchers learned the following about in-furnace SO₂ reduction:

- ▶ Dolomite is more resilient than limestone.
- ▶ Sorbent particles should be 50 percent less than 11 microns in size.
- ▶ Residence of the gases for at least two seconds at temperatures between 2,200 and 1,400 F is critical.
- ▶ Temperatures above 2,300 F will "deadburn" the sorbent.

In the binder . . . Revised chapters on stationary sources civil penalties, administrative orders, delayed compliance orders, limited life facilities, and an updated bibliography are among materials in binder supplement No. 50 with this issue.

- Heat transfer will be reduced in the furnace and the dust loading to the ESPs will increase.

- There are ways to increase sorbent surface area and hence sulfur capture.

- Burner design can affect sorbent surface area generation and activity.

If all of the above information had been known at the time of the Shawnee experiment, capture probably would have improved to 40 percent, according to a paper by Joseph A. Barsin, manager of fossil fuel systems at Babcock & Wilcox Co.

B&W has introduced a kicker into the limestone injection picture. The company advanced the idea that limestone injection can be combined with dry scrubbing to achieve cost-effective sulfur removal from high sulfur coal. The idea is to use inexpensive limestone to start the cleanup job. The SO₂ loading to the dry scrubber is reduced, the limestone is calcined into lime in the furnace, and the activity level of ash/sorbents in the dry scrubber is greatly enhanced.

Barsin presented these ideas at the Acid Rain Conference sponsored by Power Magazine/McGraw Hill in Washington, D.C. For more information or a copy of the paper, contact the author in B&W's Barberton, Ohio, office at (216) 753-4511.

Give Yourself Credit

Firms in many states are building, expanding or modifying facilities in nonattainment areas, where such activities normally are forbidden. Moreover, they're not doing it by hook or by crook but through perfectly legitimate means, thanks to EPA's offset policy.

In Wisconsin, a number of firms in the state's southeastern nonattainment area, which includes Milwaukee, have developed emissions credits by emitting less than their permits allow. Firms may reduce their emissions through process changes, more effective pollution control equipment, or shutdowns. A Sheboygan firm received 20 tons per year in emissions credits the hard way after an accidental fire destroyed its plant.

The credits are not given as an even trade, however. In the interest of improving air quality, Wisconsin's department of natural resources grants firms one ton of emissions credits in return for each 1.2 tons of reductions achieved.

While a firm may sell or lease its credits, such transfers must be individually approved by the state. In addition, credits are given for specific pollutants and no substitutions are allowed.

Spotting The Breaks

If it ain't broke, don't fix it. If it is, you'd better fix it in a hurry or pay the consequences—good advice when it comes to servicing baghouses, but hard to follow if you can't tell which bags are broken without examining a zillion and one dusty apartments.

Because it is so hard to detect where trouble lies, some managers routinely change bags whether they need it or not. Others let pinhole problems grow into abysses before finally taking action long overdue. Both attacks cost money.

A solution could be a multi-point broken bag detector, which sets off an alarm whenever emissions opacity increases above a preset level. Such detectors, manufactured by Andersen Samplers Inc., are simple transmissometers that can monitor up to seven separate ducts or breeches from one central control panel.

EPA has long recommended using specification transmissometers as indicators of control equipment performance as well as compliance with emissions standards. The problem, however, is that such units are very expensive and are installed at exit ducts serving many baghouse or electrostatic precipitator modules. The broken bag detectors, on the other hand, are less sophisticated, less expensive devices that do not pass federal specifications for compliance testing. They have one purpose alone, to sound an alarm pinpointing the baghouse or ESP module that is performing below par.

Andersen is located in Atlanta, Ga., and can be reached at (404) 691-1910.

Philadelphia's Toxics Program

When a city decides to develop an air toxics emissions regulatory program and uses a right-to-know law as its vehicle, what are the results? Can firms cooperate without exposing themselves to expensive new obligations or citizen outcries?

A good place to look for answers to these questions is Philadelphia, a city that pioneered in developing toxic emissions inventories, pinpointing potentially dangerous pollutants, and establishing guidelines for acceptable ambient air quality.

From the outset, Philadelphia's Air Pollution Control Board recognized that for such a program to work some compromise and cooperation with the regulated community would be necessary. The working committee included key representatives of business as well as community activist groups.

In developing the program, the city first selected a list of 99 toxic air contaminants that would be includ-

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ed in the inventory. (See p. 111:5321 in the Air Pollution Control binder.) The list was derived from other compilations, primarily the American Conference of Governmental Industrial Hygienists carcinogen lists A(1)(a), A(1)(b), and A(2).

Next 700 firms operating sources that emit more than one ton per year of any criteria pollutant, plus 50 other sources, were asked to submit data on their emissions of any of the listed toxics. More than 92 percent of the firms submitted the required information. Of these, 28 percent reported emissions of one or more toxic contaminants.

Further scrutiny of the information showed that only 45 of the 99 listed toxics actually are emitted in Philadelphia. The most common toxic components in Philadelphia's air are benzene, hexavalent chromium, ethylene oxide, formaldehyde, lead, manganese, nickel, methylene chloride, perchloroethylene, and trichloroethylene.

As determined so far, approximately 5 percent of industrial particulate and hydrocarbon process emissions are toxic as defined by Philadelphia. The city notes, in this regard, that a second stage in the survey will include common small sources such as gasoline stations and automobiles. Results of this survey may indicate that certain pollutants, such as benzene, are present in significantly larger quantities.

What does this mean in terms of added cost or obligations to industry? There have been numerous requests for information gained in the survey. Some, including the Public Interest Law Center of Philadelphia and the Chamber of Commerce, asked for complete copies of all sources emitting toxics.

Few if any new control requirements have been required. The agency has a methodology for evaluating the air quality effects of specific source emissions. The evaluation includes a look at worst case receptor effects, meteorological considerations, and interactions among pollutants. Using this method, the city has made determinations such as the following:

- ▶ A municipal incinerator's emissions cause an ambient air impact several orders of magnitude below the agency's guidelines—no action recommended.

- ▶ Even after construction of a new fluid catalytic cracking unit, antimony in the neighboring ambient air would be well within the guidelines—permit granted.

- ▶ Emissions of several chlorinated hydrocarbons from a pill-coating concern cause ambient levels approximately equal to the guidelines—more study needed.

For more information on Philadelphia's program, contact William Reilly of Philadelphia's air management services at (215) 686-7840.

Penalties With Punch

Renege on terms written into a consent decree and prepare to pay. Such decrees normally stipulate penalties that will ensue if terms are ignored. In a March 23 settlement with the LTV Corp. and its subsidiary, Jones & Laughlin Steel Inc., the Justice Department

imposed the largest single penalty ever assessed under the Clean Air Act—\$4 million. Revenue from the fines will be divided out, \$3 million to the federal government and \$500,000 apiece to the State of Pennsylvania and Allegheny County, Pa.

Payment of the fines will end LTV's liability for penalties stipulated in three consent decrees issued by U.S. District Courts in Pennsylvania, Ohio, and Indiana. The fines do not end the company's obligations, however.

In addition to paying up, LTV agreed to expend some \$30 million in pollution control cleanup costs. Included in this estimate are ongoing projects in Aliquippa and Pittsburgh, Pa., and in East Chicago, Ind., and Cleveland, Ohio. An additional \$10 million in fugitive emissions control expenditures will take place at other complying facilities.

LTV also agreed to share with other U.S. steel companies a confidential method of suppressing emissions from blast furnace cast houses. Interested persons are directed to contact LTV for the details.

The fines and control requirements are embodied in three new consent decrees, entered in the same three district courts. Among other things, the new decrees include further stipulated penalties, which would be exacted should the company again fall behind in its cleanup schedule.

A Permit? Who Needs It?

A prevention of significant deterioration permit can be a great thing to have, if you need it. If you don't, why retain a document whose stipulations may continue to cost money?

Tucked into the Aug. 7, 1980, amendments to the PSD regulations is a provision that firms may ask EPA to rescind a permit issued under the June 19, 1978, PSD regulations if such a permit would not be required under the new amendments. Before acting on a firm's request, however, EPA was required to publish notice in local newspapers and solicit comments.

The amendments, explained at p. 131:111 in the Air Pollution Control binder, shortened the reach of the PSD rules by redefining "potential to emit." Before 1980, emissions subjecting firms to PSD were calculated without regard to control equipment. The amendments changed "potential" to mean emissions that would emanate from the plant at design capacity, with all equipment in place.

On March 27 EPA published a list of firms that took advantage of the opportunity to shed some regulatory obligation. They literally gave back permits they already had received. The two most recent rescissions, both in May 1983, were the following:

- ▶ Uniroyal Chemical Co. returned a permit issued Jan. 14, 1980, to construct a para amino diphenylamine manufacturing facility at an existing complex in Geismar, Louisiana.

- ▶ The W-K-M Valve Division of ACF Industries, Inc. gave back a permit issued Feb. 22, 1980, for construction of a no-bake molding facility at an existing foundry in Richmond, Texas.

SPECIAL REPORT

Vinyl Chloride Enforcement Map

For firms trying to remain in compliance with a complex hazardous emissions standard affecting an equally complex operation, inside information on EPA's enforcement policy can be a help. In an internal memorandum directed to top level agency staff, Michael S. Alushin, Associate Enforcement Counsel for Air, outlines the history of EPA's vinyl chloride enforcement activities and criteria for initiating new enforcement actions, as well as presents a roster of erstwhile confidential reports of discharges and resolutions.

Relief Valve Discharge

So far EPA has directed the bulk of its regulatory energy on the relief valve discharge portion of the NESHAP regulation. Of the 11 vinyl chloride cases that have been referred to EPA, nine have been concerned only with discharge violations. The memorandum suggests the following factors that can be considered in determining whether legal action to enforce the relief valve discharge standard is warranted:

- Frequency and size of the discharge: EPA encourages enforcement only when one of these two factors is significant. For instance, one action concerned a total release of only 1,000 pounds of the substance but encompassed 21 violations. Another case entailed only two discharges but one of these amounted to 25,000 pounds.

- Length of time elapsed since the most recent exceedance: EPA has pursued action against isolated past violations but will direct most of its attention to sources with ongoing problems.

- Violations of the reporting requirement: Firms must report relief valve exceedances within 10 days, even when the discharge was unavoidable and thus not a violation. Because the vinyl chloride enforcement program depends on self-reporting for its success, EPA treats reporting violations very seriously.

- Identification of remedial measures: Even if a discharge is minor, EPA will consider enforcement action as a means to prevent future mishaps.

The memorandum notes that even after states assume delegation of the vinyl chloride standard, the federal agency retains concurrent enforcement authority. EPA defers to states as the primary line of action but will not hesitate to step in if states fall down on the job.

Firms have the burden of proving that a vinyl chloride discharge was unavoidable, the memorandum states. However, EPA also accepts its responsibility to show specific measures that should have been taken to prevent the accident. Among other things, the agency will look for instances when established operating procedures have been ignored.

What About Other Violations?

So far, EPA's enforcement effort has centered on the relief valve discharge standard. As a legal matter, the memorandum notes, a single excursion of the stripping or reactor opening loss requirement could constitute a violation. In actuality, EPA is not ready to offer guidance on the appropriate threshold for initiating enforcement of these portions of the standard. The agency has little information on the level of compliance throughout the industry and no record upon which to base an action.

The agency is soliciting from the regions summaries for each source on the percentage and magnitude of violations of the stripping and reactor opening loss standards as shown in semiannual reports.

Enforcement Actions, A Sampler

The memorandum includes summaries of relief valve violations that have come to EPA's attention. A glance at a few of these incidents shows what can go wrong and how it might be prevented.

1. During vinyl chloride monomer (VCM) product loading into a tank car, the liquid-full loading line and filter were blocked. The relief valve discharged when the isolated line underwent hydrostatic conditions. The company had verbally warned operators on the dangers of blocking in a liquid-full VCM line. EPA determined that the discharge was preventable. The company was ordered to revise its operating procedures to prevent such mishaps in the future.

Had the discharge emanated from the tank car itself, no enforcement action would have ensued. With regard to a later incident, EPA observed that rail tank cars are not subject to the vinyl chloride emissions standard.

2. A discharge occurred when a VCM rundown sphere was overfilled. An investigation showed that high pressure and high level alarms were on the sphere but failed to go off. The company's practice had been to perform maintenance only when needed. As a remedy, the company was told to revise its inspection/preventive maintenance program to ensure adequate and timely calibration of its alarm system. Operators also were told to learn how to use instrumentation to determine vessel liquid levels.

3. A power failure caused cooling water pumps and the propylene compressor to shut off. With no cooling water to control the pressure in the VCM column, pressure rose to the point of relief valve discharge. The power failure was caused by poor communication between plant personnel and electrical contractors, who failed to remove a capacitor bank prior to switching power feeders. Had correct operating procedures been followed, plant engineers would have known about the capacitors and their effect on electric power distribution. The remedy—revise operating procedures to assure that plant operators are aware of all process changes, and provide a secondary power supply or enough extra cooling water to allow a safe shutdown of the VCM column during disruption of the main power supply.

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