

**Fundamentals of Working with State Regulators –
Charles (Charlie) Carter,
Troutman Sanders, LLP**

A number of new regulations and limits are either proposed or enacted or anticipated which will require compliance. Neither SO₂ nor NO₂ have been a significant air quality issue for over 40 years. The new short term, 1 hour standards are approaching background levels. There was just a revised ozone standard and another more stringent one is being proposed. In the Southeast, the background level is 65 ppb, while the proposed national standard is 60 ppb. Although ozone levels have been reduced by more than 25% since 1980, asthma levels continue to rise. The North Carolina Dept. of Air Quality sent a strong letter to EPA reminding them that losing your job or your house has a serious impact on people's health. Coal is the original "whipping boy". Natural gas is coming under regulatory pressure over fracking and gas production. Even solar and wind projects are seeing opposition in many areas. Obtaining a permit is a difficult process on both sides.

In working with regulators, the goal is to get along. It is necessary to be patient, keep it simple, repetitive, respectful, maintain a sense of humor, and expect delays. If that doesn't work, more resources may be necessary. Law suits and legislative action should be used as a last resort.

Targets need to be selected carefully for the greatest likelihood for success. Court cases take an extraordinarily long time and are very expensive. The state regulators are under tremendous pressure from all sides. There are so many groups involved including advocacy groups, political pressures, federal requirements, court orders, law suits, NGOs, etc. Congressional action would be needed to change the rules.

What Have I Heard this Week? - Panel

The panel consisted of **Vince (Vince) Albanese, Fuel Tech, Inc.; John C. deRuyter, E.I. Dupont de Nemours; Robert (Bob) Fraser, ERM; Catherine (Cathy) Beahm, New Hampshire DES; and Norbert (Norb) Wright, Consultant.** Vince Albanese was asked to speak on things that "keep him up at night". Vince Albanese is a member of ICAC, representing environmental equipment supplier. Questions from Congress have been about whether equipment can be supplied to meet standards in the required time frame. Asking the suppliers is asking the question to the wrong group. The sources have different requirements for outage planning and maintenance that will impact the actual schedule. Further as each plant has different requirements and may have different ability to meet the standards. The environmental equipment business tends to run in cycles driven by rule changes. When there is a change in the rules with a compliance date, there is a surge in demand for equipment. Once the compliance date is past, the demand abates. Companies survive by maintaining their core competencies during the slack periods. Networking is critical. When the time comes to ramp up demand, partnerships and alliances are formed.

Outage schedules are planned several years in advance. Planning and partnerships are key to getting the work done on time. The next issue is the Utility MACT. The proposed limits for existing units seem to have been more reasonable (ie achievable and measurable), so that suppliers can provide equipment with a meaningful guarantee. The new unit standards look to be

more problematical. To measure and make guarantees at the proposed extreme low levels for new units challenges the uncertainty levels of the measurements (ie uncertainties greater than the emission limit). There is going to be a substantial amount of comment on the measurement uncertainties back to EPA.

John deRuyter addressed some of the compliance issues with respect to how to keep coal in the industrial and commercial arena. The cost of coal has gone up for good grades of coal. Now there are additional specifications on coal which add to the cost. Operator experience and staff expertise are disappearing at a time when additional equipment, requirements, and rules are being added. The uncertainty surrounding these new rules just adds to the problem of using coal. Alternatively, natural gas could be a solution. However, there are now additional proposed regulations on gas drilling and transportation. Utilities have announced some major switching to gas. Price arbitrage will tend to drive LNG gas exports to Europe and Asia. These trends will tend to drive the price of gas up. It was not that long ago that gas prices were over \$10/MMBTU.

The new NAAQS requirements are impacting even small gas fired units. Compounding factors include varying permitting approaches and requirements by states. GHG BACT will only add to the complications. Dioxin/furans remain a major concern for the Boiler MACT rule. Most of the industrials don't really know what their D/F emissions are. Existing units will need to establish where they are with respect to the various HAP emissions. While there are potential equipment solutions, there are physical limitations at the plant, load/flue gas/temperature variations, fuel quality variations, performance variations, interactions between the various techniques, and residence time issues. If dry sorbent injection proves to be a potential solution, what will be then impact on the price and availability of the sorbents? Combustion modifications will likely be the first thing to do. The rules for compliance require testing at the "worst case" conditions.

With regard to mercury and chlorides, these may not be the same fuel. Ongoing compliance will likely require routine fuel analysis. Another issue could call into question the estimated EPA benefits which included a substantial amount for collateral SO₂ capture, which would not occur if dry sorbent injection were to dominate the solution space.

Bob Fraser also focused on the question of compliance. Once the law is finalized, we will have no choice. Ultimately, this becomes a matter of money. Given enough time and money, a unit can be made to comply. It may not be economical, but it could comply. Historically, checks and balances tend to prevail. However, the time it takes to change and recover may cause collateral damage along the way. With these complex issues, multiple delays can be expected. Early compliance is rarely rewarded. American ingenuity can be amazing when money is to be made. "It can't be done." is a challenge to "make it work". All price forecasts are wrong. Thus, it's not a "train wreck", it's a "roller coaster". There is already a difference between the first two years of the current administration and now. At the present time, we need to bracket the risk. Every boiler is different. A longer planning horizon is needed. Scenario analysis (best case, worst case) and projected impacts need to be identified. Compliance dates and expenditures can be estimated.

All components of regulation need to be addressed (air, water, ash, etc.). Documentation is an absolute necessity. A hypothetical view of a “viable solid fuel” boiler will likely be a unit with low Nox burners with advanced overfire air and an SCR. A fabric filter with membrane bags will be needed for particulates. An acid gas scrubbing system of some kind will be needed. For liquid fuels, very low sulfur distillate will be the fuel with low NOx burners with FGR. For gas units, a 9 ppm Low NOx burner will be required. Taking a 20 year view on energy cost for a facility, the various scenarios can be evaluated. Capital and operating costs need to be estimated. Fuel costs and electricity costs need to be projected. Gas availability would have to be evaluated. An on-site gas combined cycle could also be evaluated. Another consideration is that once the coal plant is lost, it will never come back. One tool that is available is CUECost. This is available from the EPA web site (giving it credibility with EPA). This tool is based on utility industry data. The system can be tuned with actual data so that a +/- 20% estimate can be realized. The system can be supplemented with actual vendor data on fuels, equipment costs, and labor costs.

There are limitations and refinements such as cooling towers and ash ponds that need to be accounted for. Layered systems (low Nox burners plus SCRs) need to be adjusted. Some modules do not yet exist (dry sorbent injection, ESP upgrade, polishing systems, etc.). There is also a retrofit factor that escalates the capital cost for difficult sites (space limitations, high cost regions, etc.). Capacity, reliability, and fuel diversity need to be considered. At the end of the day, the law of the jungle will prevail. The best boilers will survive. Others may not.

Cathy Beahm substituted for Jeff Underhill. In New Hampshire, there is a fuel switching rule. When a unit changes fuels, it is treated as a new unit. There is a requirement for 30 day notification for fuel switching. There are issues associated with being a dual fuel unit. If the unit burns gas and oil, which fuel should the unit tune up on? EPA has not provided an answer. Many states have not taken delegation on these rules. That means that permit applications have to go to the regional EPA.

Norb Wright pointed out that these rules need to be looked at in parts. The tune up requirements will provide some benefits to those that have not been doing them. The malfunction rules will require a change of mind set. Root cause analysis will be required to minimize problems. With regard to compliance, the problem will be keeping these units running with their layered, sophisticated systems operating reliably over time.

Pat Dennis, ADM and **Andy Bodnarik**, OTC lead the discussion leading to the open general discussion this afternoon. Issues that have been identified include gas availability and price, coal availability and price, regulatory incentives (rather than penalties), timing and scheduling of compliance, T's & C's/guarantees, dioxin/furans, simultaneous compliance, “Frankenboiler”, “processed fuels”, traditional fuels qualification, dioxin data, qualified energy assessor, experienced personnel, and can a new coal boiler really be permitted?

Additional questions/suggestions included being able to afford the additional equipment that will be required and still remain competitive, using the EPC/partnership model that is more prevalent in the utility industry, data availability, the uniqueness to each plant (will this solution work for me?), new regulations are not following the traditional development path, lack of a true energy

policy, existing units at a major source vs a 3rd party plant at a new source that is not part of a facility, small businesses will not be able to build a boiler, get more push from state and local regulators and politicians on Congress to change the laws to something more reasonable, conflicting regulations, permit limits vs achievable reductions and incentives, focus on new ozone standards, government vs industry quality watchdog, operating & maintenance practices and emissions, small owners worried about staying in business, coordinated rule making, more reasonable rule making, start up and shut down plans, inclusion of ICI boilers in future CSPAR, should NSR continue to exist?, variable load and ammonia slip, emergency generators and conflicting rules, additional training and personnel, death of interruptible gas, repeatable and reliable measurements, temporary hiatus in rule changes, unintended consequences, and litigation impact on compliance.

Data sharing: more common database formatting and availability, confidential business information is a concern, developer data not likely to be available without a funded program with publication requirements,

Annual emission limit: Cap and trade, local “hot spots”, impacts on other states, existing units, eliminating “spikes.

Compliance strategy: planning ahead can avoid problems as the deadline nears, testing to determine the baseline, scenario planning, litigation can still mess things up

Source vendor partnership: seems to working well in the utility industry, gets the supplier and owner on the same side of the table, works well under cap and trade, would work better if the regulations in new areas like mercury, dioxin/furan, etc.

Operator training/key personnel: good training provides better performance, need “know why” as well as “know how”

Competition for fuels driving up the price: petcoke example, is biomass similar to petcoke? Materials that were not fuels that can now become fuels will jump in price. Supply and demand will eventually determine fuel price for traditional fuels. Biomass has a local price determined by the cost to collect and transport the fuel. Exemptions for such fuels might be one approach to providing incentives.

Natural gas pricing: price spike issue, volatility, scenario considerations, longer term price averaging, pipeline capacity and location, pipeline permitting, Southeast current target for pipelines

How can we affect change?: stable targets are needed, 10 year rule cycle?, put all on the same cycle, get Congress to change the requirements, do we need NSR? Why a 3 year compliance period? If we don't push for change, who will? Legislation is needed.

Barriers for entry for small businesses: the length of time to get a permit for a start up. Gas1 units and Area Source boilers should be able to get a permit in a reasonable amount of time.

Limits on alternative fuels: process the fuel, work to meet the standards,

CO on bark units: no access to gas, can't meet the CO, remote location

All bags are not the same: QA/QC on bags and suppliers, membranes and pleated bags

Variable load operation: plant process operations impacting boiler, seasonal units, rolling averages, 1 hour standard is overkill, ammonia slip, O₂ measurement, CO standard is required 24/7, reliability of the measurement, CO monitor for reliability of meeting the standard, 3 hour average for spikes

Modeling requirements: assumes maximum potential to emit, can model a violation when there isn't one.

Start up shut down: better to have a plan than to try to meet the limits during start up and shut down.

New ozone NAAQS: don't know the number, how do we plan, searching for NO_x reduction possibilities, look at opportunities as we plan for MACT