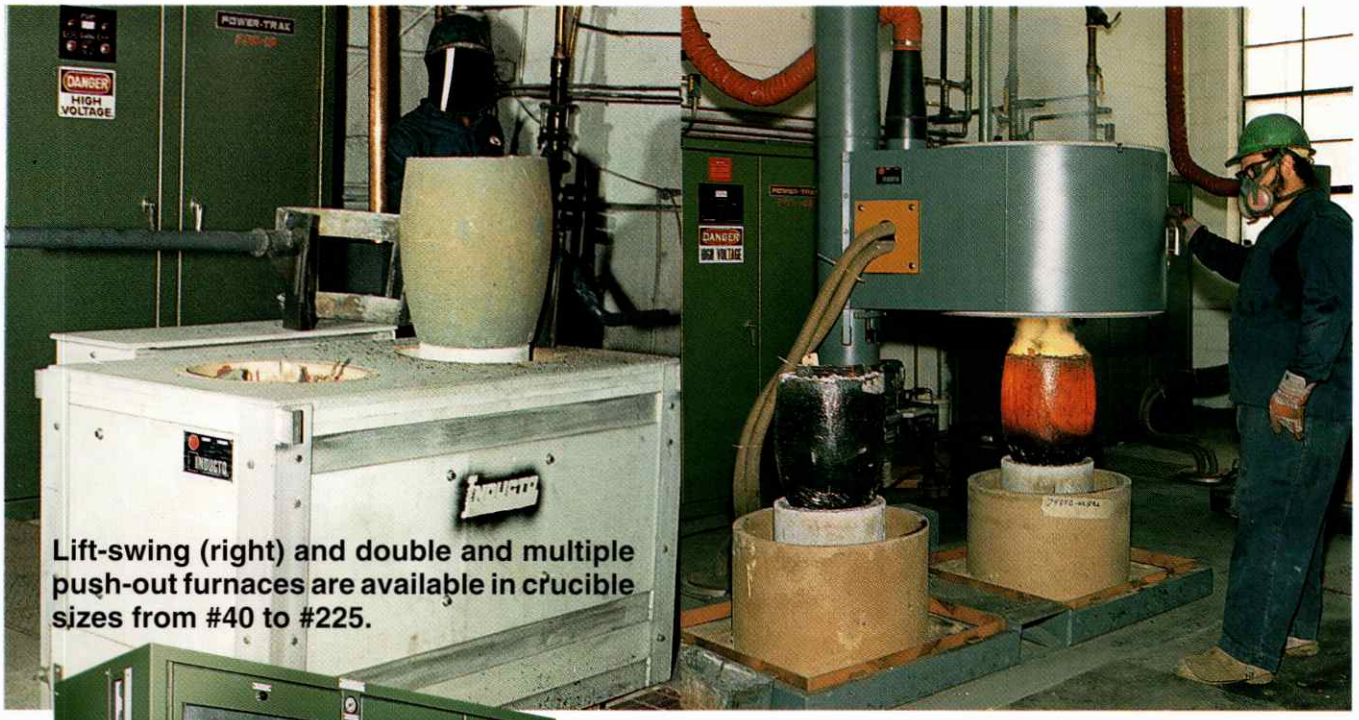
March/April 2001

THE CRUCIBLE

VOICE OF THE ALUMINUM AND BRASS CASTING INDUSTRY

Plug Those Profit Leaks!



Lift-swing (right) and double and multiple push-out furnaces are available in crucible sizes from #40 to #225.

We make alloy changes easier

Inductotherm's family of removable crucible melting systems for aluminum and copper-based metals offers you the productivity advantages you need to increase quality and output and the flexibility to make rapid alloy and crucible changes.

Double and multiple push-out and lift-swing furnaces are engineered to provide a constant supply of molten metal by melting in one crucible while the other is poured. And changing alloys is as easy as switching crucibles.

Compared to flame-based melters, Inductotherm induction melting systems reduce metal loss and produce higher quality metal. Induction melting means less gas pick-up and better alloy homogeneity thanks to inductive stirring. And the clay-graphite crucibles used with induction furnaces are typically cleaner, less expensive and last longer than the crucibles used in flame-based melters.

MASTERS OF NON-FERROUS MELTING

For larger operations, Inductotherm manufactures non-ferrous coreless furnaces with operating capacities to 50 tons of copper-based metal.

Contact Inductotherm for more information on induction melting systems used by non-ferrous founders worldwide.

Inductotherm offers VIP® induction power supplies from 15 kW to 12,000 kW, engineered for all non-ferrous melting applications. Most are available with Inductotherm's new Melt-Manager™ option. Melt-Manager units include a built-in computer able to automatically control key melt-shop operations to reduce man-hours, cut power usage and increase worker safety. Melt-Manager units also perform an extensive range of self-diagnostic tests both before applying full system power and during melting operations. These tests help protect the system by detecting problems before they cause damage.

ISO 9001 CERTIFIED

INDUCTOTHERM®
Your Competitive Edge - Worldwide

10 Indel Ave., Rancocas, NJ 08073
Toll Free (800) 257-9527 - Tel: (609) 267-9000 - Fax: (609) 267-3537

HEADQUARTERS
staff@nffs.org

EXECUTIVE DIRECTOR/EDITOR
James L. Mallory, CAE
jlm@nffs.org

CONTIBUTING EDITORS
Edward J. Kinghorn, Jr. - Gov't. Affairs
Kinghorn@ix.netcom.com

Jerrod A. Weaver - Quality
NQS9000@nffs.org

Ryan J. Moore - Member Services
ryanm@nffs.org

LAYOUT & DESIGN
Michael Barron
Barron Layout & Design
bldesign@ix.netcom.com

NFFScope

Eternal vigilance is the price of liberty. You might also say that it's the price of doing business in today's regulatory environment.

In 1997, EPA proposed new air quality regulations for ozone and fine particulate matter that would impose enormous new compliance costs on small businesses like non-ferrous foundries. Because of that, NFFS joined with 36 other organizations in challenging the rules in court. Over the next three years, NFFS and our fellow co-petitioners won every court decision, prompting EPA to appeal the case to the U.S. Supreme Court. NFFS appealed as well, because we felt the lower courts were wrong in not mandating that EPA take compliance costs into consideration when enacting new air quality standards. The Supreme Court heard arguments on both sides on November 7th.

While the PM/Ozone case was in the courts, EPA was busy enacting other new regulations. They created a new Secondary Aluminum MACT Rule, which wasn't supposed to cover aluminum foundries and diecasters, but did. NFFS, NADCA and AFS immediately filed another legal challenge – which in turn prompted EPA to begin negotiating with the industry associations to clarify who is – and who ISN'T – covered by the rule.

Last February, the agency announced that the in-process reuse of foundries sand was subject to RCRA Subtitle C jurisdiction. Again, the industry responded (though this time just short of a lawsuit). At the same time, in another lawsuit by another industry, the courts ruled that EPA could not regulate in-process materials. Waste means waste, and discarded means thrown away. The metalcasting industry quickly pointed out that this was exactly like the foundry industry's continuous reuse of sand and traditional foundry sand management practices, prompting the agency to visit several NFFS member foundries to view their sand-handling operations firsthand.

Last year, EPA announced its intention to lower the TRI reporting threshold for lead from 25,000 to 10 pounds while eliminating the de minimis exemption. NFFS and other groups filed comments with EPA, but the agency persisted and promulgated a lower TRI - though down to 100 pounds instead of 10. Lead in brass & bronze alloys were also temporarily exempted from the rule. That's not much relief, but neither concession would have happened had EPA stuck with its first plan.

In January, a new Administration took control in Washington, and with it came new personnel named to head the EPA. There is no time for celebration, though, because we must stay vigilant. Rules are often written at the lower echelons of government, and the heads of agencies don't always understand the why's and how's of the regulations they are responsible for.

Recently, the Supreme Court issued its ruling on the PM/Ozone legal challenge, unanimously siding with EPA and overturning the lower court decisions against the agency. In short, we lost. But in a way, we also won. Our victory comes in the fact that we've shown EPA that we won't allow them, or any regulatory agency, to run roughshod over the concerns and interests of non-ferrous foundries.

NFFS will continue to survey the regulatory landscape for new rules affecting its members and the industry, and to challenge those that we feel pose the greatest threats. We may lose some of those arguments, but will continue to make them nonetheless. And every now and then, we might win.

Eternal vigilance is the price of doing business in today's regulatory environment.
And it's also better to die on your feet than to live on your knees.

Sincerely,

The CRUCIBLE is published six times each year in February, April, June, August, October and December by the Non-Ferrous Founders' Society 1480 Renaissance Drive, Suite 310, Park Ridge, IL 60068 (847) 299-0950.

Plug Those Profit Leaks!

By John Martinka

That drip, drip, drip that annoys so many business owners is not the bad faucet in the restroom, it's profit leaking from the bottom line. Like the faucet, there are some easy fixes to stop the leaks.

Here are five of the top profit leaks. Plug these and your profit will increase.

Number one profit leak

In a workshop I give, I ask the audience what they think the number one business mistake is. The top two answers are between not enough money and no business plan. All the failed dot.com companies help prove that even plenty of money is not the answer if your plan is not solid.

A study published in USA Today (June 26, 1996) gave some amazing statistics. Companies with business plans had double the profit, more employees, faster growth, used credits cards for financing at a much lower rate and were twice as likely to offer employee benefit plans and bonuses than companies without a business plan.

So why wouldn't every business have a plan? The answers usually include there are too many fires to put out, someone I know did one and it didn't do anything, I don't know how, it's all in my head and, most commonly, I'm too busy.

The "I can't see the forest for the trees" cliché fits perfectly. Being busy may be true, especially in today's employment environment where quality employees are at a premium. Many owners find themselves doing double duty.

Here's what happens when it's done right. Dick and Kathie MacIndoe bought Fiberlay, Inc. in 1990. Fiberlay sells fiberglass repair materials. When Kathie left her job in 1998 the company was poised for growth. She took over the financial and administrative functions of the firm. Dick concentrated on operations and marketing. Having adequate management meant they could both do some planning in addition to their daily responsibilities.

The strategic decisions they made included:

- Setting up a website for marketing and for e-commerce. In an industry not known for being flashy or technologically advanced, they made some nice inroads and found they constantly reach new customers via the Internet (www.fiberlay.com).
- They enhanced their catalog from 16 to 56 pages and put it on the website.
- They made pricing decisions to increase market share. Noticing industry trends, they were able to capitalize on some favorable factors and grow sales at 50% per year or more for the last three years.
- Using the computer to track financial information and be the basis for pricing and other financial decisions. Having this system will allow them to hire a lower level financial person than if they didn't have a plan and the systems in place.

Their benefits from this commitment to planning include a faster growth rate, more employees, increased profit, a higher salary, increased local market share and a growing national client base. As an outside observer, there is not doubt in my mind that the key to this business taking off like a rocket was the devotion to planning and implementing systems. Having management skills is one thing. Using them is another (versus filling the day with tasks other employees can easily do).

A critical factor is that their plan is not a "shelf plan". Too often business owners think they have a business plan when all they have is a narrative. They buy some business plan software, answer the questions, print it out and put it in a binder up on their bookshelf.

For an ongoing business, your plan needs to give direction and document what worked, what didn't and why. It's a manual a new employee (or new owner) can use to get up to speed immediately.

Finance

Financial "mistakes" are wide and varied. Not understanding working capital is a major mistake. An integral part of a business plan is a budget. Until you track cash flow on a month-to-month basis for at least two years there is no way to forecast future cash needs.

Your budget lets you plan for new equipment, new employees, sales and marketing and much more. Good advice is to build a cash reserve. That's why I insist business buyers commit no more than 50% of profit to acquisition debt. They need the rest to grow the business. Manage your cash, don't let it manage you.

Other cash mistakes are costly also. You'll understand why I won't mention names as you read the following financial management blunders.

- The owner thought the job was over when the product went out the door. He often didn't invoice customers for months. He thought he was doing them a favor via an interest free loan. They wanted to see costs so they could budget, plan and determine return on investment. His bad debt was horrific and many customers left him.

- Another owner thought his greatest need was finding someone to loan him more money. He soon realized inventory, payables and working capital are connected. Our research found his inventory was at least three times the industry average. As he sold from inventory (even at sale prices), the cash crunch disappeared.

- Finally, two owners were fighting about excess cash in the business. One wanted to take it as bonuses. The other recognized they were their own bank. If they took out the cash, they would have to get a line of credit. The interest would reduce profit, and the bookkeeping and reporting would drain people from more profitable tasks.

Competition

One of our local papers just had a feature on the Society of Competitive Intelligence Professionals (www.scip.org). This is a trade group dedicated to "spying" on competitors. They promote the legal and ethical gathering of information.

What do you know about your competitors? What do they know about you? Stores have always used mystery shoppers to test their employees. They also use them to scout the competition.

It's a huge mistake not to know your competition. A (corporate) business buyer recently shared this with me. An acquisition candidate shared one product's pricing strategy. An employee did a cost analysis and determined they could price it at $65 per unit and be profitable. Their competitor (larger, better known and more successful) was charging $95 per unit for the exact same product. Imagine your prices being one-third under market. Not pretty is it?

Marketing starts with research. You must know who your main competition is, what their strengths and weaknesses are, their pricing strategies and style. Know this and you'll know how to beat the competition.

Not marketing to existing customers

I recently spoke with an attorney and a banker who both have the same customer strategy. They like to work with young firms and stay with them as they grow and need more services. Are you growing with your customers? Are your customers ecstatic about your service? If you offered them more products or services, would they buy without questioning or shopping?

It costs from six to ten times as much to secure a new customer as it does to do business with an existing customer. It's a huge profit leak to not maximize sales to existing customers.

There's been a shift in selling style over the last couple decades. Gone is the old-fashioned "close 'em hard" style. We now have relationship selling. If you build a relationship with your customer, you don't have an adversary, you have a teammate. Your teammate will tell you what problems they have, what solutions they need and how you can help them.

Ken Becker sells industrial products and supplies. People in his industry believe the only effective marketing is to be face to face with customers. When Ken asks suppliers to participate in marketing campaigns he often gets a lecture to forget marketing and get in the field more.

Ken realized he needed to be more efficient in sales. He started faxing (e-mail is next) regular notices announcing events such as pricing specials or inventory reductions.

Ken researched his customers so he knows exactly what to send them. This allows him to target whom to call and meet with. Sales efforts are now more concentrated, economical and there is increased repeat business.

Pricing strategy

The above example of pricing is just one error. Your starting point must be determining how you want to compete. Do you compete on price, quality, service or value (a combination)?

You may produce the exact same product as your competition. If the customer demands it on the fifth and you have it there no later than the third you are providing extraordinary service (especially if your competition is always late). If your product always meets or exceeds tolerance levels and your competition has a hard time meeting specifications you have an edge in quality.

Either of the above two scenarios allow you to charge more than the competition – because you're worth it. Pricing based on value means becoming part of your customer's team, determining what problems to solve and taking an active role in solving them. This requires you to provide the best quality, the best service and then some. It's what allows you to not compete on price. And not competing on price means more profit to you and to your customer, because they get the best product and the best service, which allows them to satisfy their customers (and charge more for it).

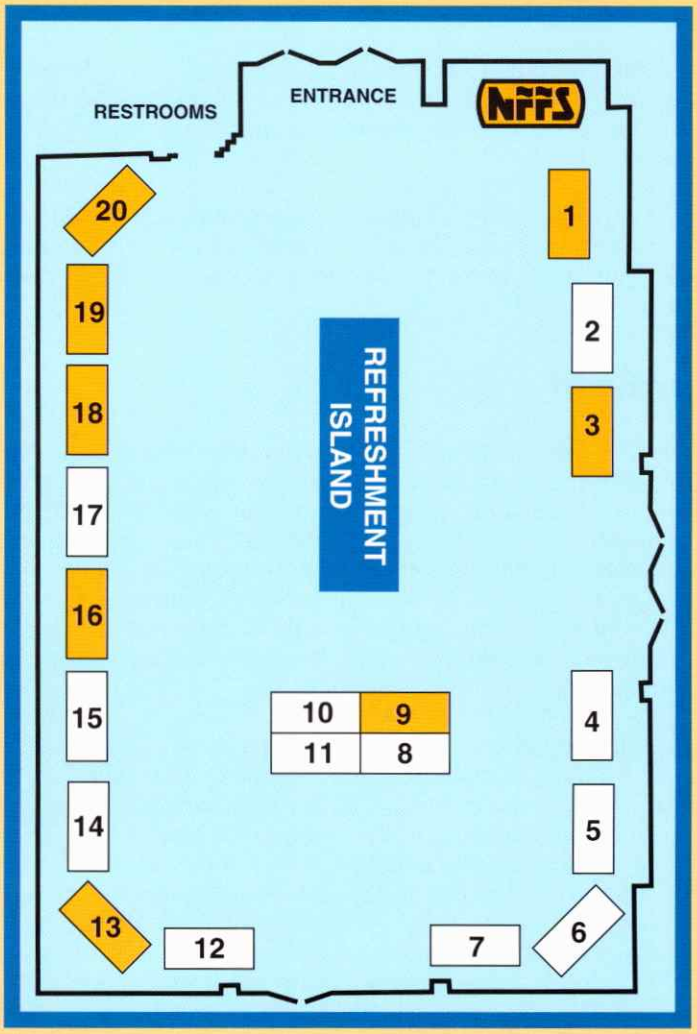
These are five of many profit leaks. If you would like our free brochure, "27 Common Business Mistakes," or a copy of our Business Vitality Check-Up, please call or e-mail.

John Martinka of Business Resource Group, Inc. in Bellevue, WA is a business consultant and speaker. He helps people buy, sell, grow and value businesses. You can reach John at 800-929-3132, via e-mail at john@johnmartinka.com or at www.johnmartinka.com. To receive his free, monthly, e-mail newsletter, "The Business Buy-Sell Advisor™" send an e-mail and put subscribe on the subject line.

4th ANNUAL NFFS TABLETOP EXPO

2001 NFFS Annual Meeting
LOEWS VENTANA CANYON RESORT
Tucson, Arizona
October 7th to 10th

Call Today to Reserve Your Space
847-299-0950



1. GMD Environmental	11.
2.	12.
3. Thermtronix Corporation	**13. Hunter Auto. Machinery**
4.	14.
5.	15.
6.	**16. Ervin Industries**
7.	17.
8.	**18. Ajax Magnathermic**
9. Spectro Analytical	**19. B&L Information Systems**
10.	**20. Inductotherm Corp.**

The Supreme Court Decision *on PM/Ozone: What Does It Mean?*

by:Jeffrey Marks,
Director of Air Quality
National Association
of Manufacturers

The Decision

On February 27, 2001, the United States Supreme Court issued its decision in Whitman v. American Trucking Associations, challenging the EPA's revised National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter. The Court, in a unanimous decision, held:

1. Section 109(b) of the Clean Air Act (CAA) prohibits the EPA from considering implementation costs when the Agency sets NAAQS;

2. Section 109(b)(1) of the CAA does not delegate legislative powers to the EPA; therefore, the EPA did not violate the non-delegation doctrine in issuing its revised ozone and particulate matter standards pursuant to this section; and

3. The EPA's implementation strategy was an unreasonable agency interpretation of an ambiguous statutory scheme, and is therefore unlawful; the issue is sent back to the EPA to develop a reasonable implementation strategy.

Background

In 1997, the Environmental Protection Agency (EPA) issued new National Ambient Air Quality Standards (NAAQS) governing ozone and fine particulate matter (dust and soot). Under the Clean Air Act (CAA), NAAQS serve as a national target for the concentration of a specific pollutant in the air. The new ozone standards are based on averaging air quality measurements over eight-hour blocks of time, instead of the current one-hour standard. The EPA also issued more stringent particulate matter standards by keeping the current 10-micron (PM10) standards and adding tough new PM2.5 goals for fine particulate concentrations.

Air quality has improved dramatically over the past 30 years, as communities and industry have complied with CAA rules. But, with one stroke, these new regulations would impose stricter standards for ozone and particulates based on incomplete science and no cost-benefit test. The EPA's new standards would have the effect of putting hundreds of communities back to non-compliance and establishing EPA authority over hundreds of additional counties. In addition, designation of "non-attainment" areas will create a "black mark" on communities in those areas. Businesses will fail to invest in those areas in non-attainment under the new 8-Hour Ozone Standard, reducing competitiveness among manufacturers and subjecting communities to economic loss. Governors are concerned about the ability of their regulatory agencies and many of their counties to meet the new requirements.

The DC Circuit Court Decision

On May 14, 1999, the U.S. Court of Appeals for the District of Columbia [hereinafter, DC Circuit] found that the EPA had improperly construed Section 109 by failing to set forth "intelligible principles" that could be used to meet the CAA's mandate - standards "requisite to protect the public health" with an "adequate margin of safety." As a result, the DC Circuit found that the EPA's interpretation of its authority to set primary

standards caused a violation of the delegation doctrine, which allows only Congress to exercise legislative powers. The DC Circuit sent the rules back to the EPA for further consideration. The Supreme Court reversed, stating that Section 109(b)(1) does not delegate legislative power to the EPA.

The DC Circuit also found that the EPA must implement and enforce its new ozone standards only through Subpart 2 of Title I, Part D of the CAA, not through the more general provisions of Subpart 1. However, the Supreme Court found a conflict between the two sections, as both can arguably apply to the new ozone standard: Subpart 1 gives the EPA wide latitude in setting requirements and deadlines for nonattainment areas, whereas Subpart 2 (enacted as part of the 1990 CAA Amendments) restricts Agency discretion and sets specific requirements and deadlines for areas not meeting the old ozone standard. The Supreme Court found ambiguity between the CAA sections and remanded the issue back to the EPA to develop a "reasonable" implementation strategy.

In addition, the DC Circuit found the EPA failed to consider all aspects of pollution, such as the beneficial effect of low-level ozone to filter harmful rays from the sun. The EPA did not appeal the benefits issue to the Supreme Court.

Finally, the D.C. Circuit Court ruled that EPA's decision to retain a PM-10 standard as a pollutant indicator for course particles was "arbitrary and capricious" in light of the Agency's decision to promulgate a PM-2.5 standard for fine particles. The PM-10 standard will necessarily include some component of fine particles. Therefore, the EPA had not justified its approach or explained why it could not have promulgated a PM-10-2.5 standard dealing solely with course particles.

The Supreme Court considered industry arguments that federal agencies must consider costs - in addition to health and safety issues - before issuing regulations under the CAA. The AEI/Brookings Joint Center for Regulatory Studies and more than 40 prominent economists echoed industry's views in a July 21, 2000, amicus brief. They argued for the Court to reconsider Lead Industries Assn. v. EPA, a 1980 DC Circuit precedent that has effectively barred the EPA from considering factors other than health (such as costs) when setting NAAQS. Unfortunately, the Supreme Court disagreed with industry's argument, finding that the CAA "unambiguously bars cost considerations from the NAAQS-setting process."

Next Steps

Although the Supreme Court disagreed with the lower court's ruling that the EPA's interpretation of its CAA authority created an unconstitutional delegation of legislative power, the Court did decide that the EPA exceeded its authority in attempting to impose the new ozone standard. The ruling directs the EPA to develop a "reasonable" interpretation of the statutory provisions after the conclusion of proceedings on the case in the DC Circuit. The opinion articulates that the EPA must set standards "requisite" to protect public health, but not "lower or higher than necessary." Therefore, the EPA must still revise its ozone rule. The NAM expects the new Administration to use an open process for resolving this issue, with the full involvement of all affected parties.

The Supreme Court ruling also allows the DC Circuit, to which the standards were remanded, to overturn the air quality standards on other grounds. For example, the EPA's choice of standards was ruled "arbitrary and capricious" by the DC Circuit. The EPA must still explain why they picked the standard levels that they did.

On the cost issue, the Court declined to depart from the 1980 D.C. Circuit Court's decision in Lead Industries Assn. v. EPA, finding that the CAA does not allow the EPA to factor in costs when setting health-based national air quality standards. However, Justice Breyer recognized in his concurrence that costs may be considered during the implementation process. Although states may now consider costs in formulating implementation plans, the NAM believes that the economic impact of a regulation must be considered prior to its implementation. In fact, a variety of factors should be weighed when issuing new air quality standards, such as health effects; sound science; technical feasibility; and costs.

The EPA estimates that the new NAAQS standards for ozone and particulate matter will cost over $47 billion each year to comply with, making the rules the most expensive environmental rules in history. Businesses in "non-attainment" areas under the new standards will have to install expensive pollution-control equipment, which is particularly burdensome to small and medium manufacturers. In addition, the particulate matter rule will make it even more difficult to site and operate electricity-generating facilities and gas pipelines, further exasperating the current energy supply crisis.

The NAM will work with lawmakers on potential legislation addressing costs and benefits in setting air quality standards. In the wake of the Supreme Court's decision, the Senate Committee on Environment and Public Works is contemplating legislation amending the CAA to direct the EPA to consider cost-benefit analysis as part of the process of establishing new or revised air quality standards. The U.S. House has also stated a willingness to introduce cost-benefit legislation.

Various industry groups have begun meeting to discuss possible cost-benefit legislation. In the meantime, the NAM will continue to litigate in opposition to the 1997 NAAQS standards and will be active in NAAQS legislative and regulatory issues during the 107th Congress and the new Administration.

Editors Note: NFFS was one of the 37 industry groups that challenged the 1997 NAAQS rules for ozone and fine particulate matter, and in fact ,the only foundry industry association to do so. We will continue to be involved in the post-ruling efforts to legislate changes to EPA's air standard-setting process, as well as to try and mitigate the effects of this rule on small businesses such as non-ferrous foundries.

ISO 9001:2000 STANDARD UPDATE

By Jerrod Weaver, Quality Services Manager

5 Management Responsibility

5.1 Management commitment

Top Management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by:

a) communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements

Communicate the importance by stating in your quality policy that it is important to meet customer, statutory, and regulatory requirements in order to retain your customers and to stay in business. Ensure the communication throughout your facility by posting copies of the quality policy in the office areas, in the lunchroom, in employee locker rooms, and any other spot that employees will likely frequent such as the time clock.

b) establishing the quality policy

The quality policy can contain anything you want, but at a minimum should include the following items: The commitment to continuous improvement, the establishment and review of quality objectives, the commitment to meet customer requirements, and the commitment that the policy will be communicated to and understood by all employees.

c) ensuring that quality objectives are established

Management must establish quality objectives at relevant levels within the organization. This particular section is a new requirement, and is discussed in more detail in section 5.4.1 Quality Objectives. It is redundant here because the same requirement is stated later in the standard.

d) conducting management reviews

A management review of the QMS is a requirement of both the 1994 and the 2000 revision of ISO9000. However, the 2000 standard is much more prescriptive about what items must form the input and output of the review process. Section 5.6 Management Review will detail exactly what additional requirements have been added to this section.

e) ensuring the availability of resources

Once again, the standard is redundant here because a whole section of the standard has been dedicated to Resource Management, and it describes in nauseating detail how to identify and ensure the availability of resources needed for effective QMS operation.

5.2 Customer Focus

Top management shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction (see 7.2.1 and 8.2.1)

This particular item is simply a restatement of similar requirements found in other sections of the standard. Management ensures that customer requirements are defined by enforcing the requirements of section 7.2.1 (Determination of requirements related to the product). According to section 8.2.1, the company must establish methodologies to monitor customer satisfaction levels. Management will ensure that customer requirements are consistently met and that customers are satisfied with the results by monitoring the customer satisfaction levels reported.

5.3 Quality Policy

Top management shall ensure that the quality policy

a) is appropriate to the purpose of the organization

If the quality policy complies with the ISO9001:2000 standard and is appropriate to the foundry, then you are all done with this requirement.

b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system

Self-Explanatory, be sure to review section 8.5.1 Continual Improvement for additional information on continuous improvement.

c) provides a framework for establishing and reviewing quality objectives

Simply state that quality objectives will be established at relevant levels and will be reviewed on a periodic basis.

d) is communicated and understood within the organization, and

Post the quality policy in several areas within the plant. Have each employee sign and return a copy of the new quality policy to management. You can use these signed copies of the quality policy to demonstrate that each employee is aware of the quality policy and understands its requirements.

e) is reviewed for continuing suitability

This review should be times to coincide with the periodic QMS management review meeting. If it is determined that the quality policy is insufficient or needs to be changed, the management must change the policy to ensure its continuing suitability. Be advised that the foundry gets to define suitable, so it is likely that the quality policy will not change much once it is issued.

5.4 Planning

5.4.1 Quality objectives

Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy

It appears that the intent of this particular section is to force the use of a 'management by objective' (MBO) system. The standard is requiring plant management to establish performance objectives at relevant levels, which means by department, for the foundry. It says that the objectives must be measurable and consistent with the quality policy. Unfortunately, MBO systems have been around for quite a while, and in large part are no longer used within most manufacturing operations.

Ultimately, the foundry will have to implement an MBO system. The easiest way to do this is to use something you are already tracking as your objective measurement. For example, if the foundry is presently tracking the number of dummied molds produced by day, it is only obvious to establish a quality objective that monitors dummied molds. The goal is to use existing information streams so that you can minimize additional work.

The MBO levels set for each department can be strategically linked to the continuous improvement function within the standard, keeping additional paperwork requirements to a minimum. Additionally, during the management review function, management should compare actual numbers back against the target values set for each department. This analysis may provide opportunities for corrective/preventive action and continuous improvement, as management sees fit.

5.4.2 Quality management system planning

Top management shall ensure that

a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives, and

Planning the quality management system is fairly simple. This process should focus on defining the processes needed to meet the foundry's MBO quality objectives. Inputs into the planning process may include internal strategies and production methodologies, customer's needs and expectations, and performance data on internal processes and products. The output of this planning function should define product realization processes necessary to achieve compliance with customer requirements and expectations. Additionally, management should periodically review the planning output to ensure the effectiveness of the planning function.

b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.

One of the changes in the new standard is that QMS internal auditors must not only audit the actual process against the documented procedures, but also must ensure compliance with ISO9001:2000. Therefore, assuming all internal auditors are competent (another new standard requirement), using the internal audit system to ensure the integrity of the QMS during internal audits and closure of corrective/preventive actions is a logical idea. When planned Corrective Actions are implemented, use the internal audit to demonstrate the effectiveness of the change, and also to demonstrate that the change has not affected the QMS integrity.

5.5 Responsibility, authority, and communication

5.5.1 Responsibility and authority

Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.

The easiest way to define responsibility and authority is with the use of an organizational chart defining the interrelation of key management staff and the departments they manage. Ensure that this document is communicated by posting a copy in the office and in the lunchroom or the company bulletin board.

5.5.2 Management representative

Top management shall appoint a member of management who, irrespective of other responsibilities, shall have responsibility and authority that includes

a) ensuring that processes needed for the quality management system are established, implemented and maintained,

b) reporting to top management on the performance of the quality management system and any need for improvement, and

c) ensuring the promotion of awareness of customer requirements throughout the organization.

The management representative must be identified by name. If you identify the management representative by job title, your organizational chart must show which person is appointed to that position. The management rep is the authority within the organization that is responsible for ensuring the QMS is implemented in accordance with ISO9001:2000 and that the QMS is enforced in daily operations. The number 2 man in the organization typically works best, as they have the authority to enforce QMS requirements.

The management representative is responsible for conducting the management review meeting with the top site management. They typically will collect the required inputs for management's review, and ensure that the meeting outputs are generated and any required corrective/preventive actions are issued and implemented.

The management representative also has a new requirement with the ISO9001:2000 quality standard. The management rep is now responsible for promoting awareness of customer requirements throughout the organization. Typically, customer requirements are detailed on the purchase order and the casting drawing. Therefore, the management rep is responsible for ensuring that the customer data on these documents are translated into the appropriate process control documents that are used during the product realization process. Be advised that though the management rep has the ultimate responsibility for ensuring that this process is carried out, it may be delegated to other employees under his/her direct supervision.

NOTE The responsibility of a management representative can include liaison with external parties on matters relating to the quality management system.

5.5.3 Internal Communication

Top management shall ensure that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system.

In order to comply with this requirement, the foundry must perform a couple of relatively minor functions. First, the foundry should identify a common area in the plant that employees are likely to frequent. (e.g. lunch room, locker room, front office, etc.) Once identified, management should post information regarding the QMS for the information of the employees. This information typically will include the quality policy, quality objectives, QMS performance, and possibly the minutes from the management review meeting if appropriate.

Additionally, the foundry should provide notice on how the employees can provide their input regarding the QMS and its operations. The foundry may decide that an employee suggestion program may make sense for its operations. The process for submitting suggestions or questions should be identified and posted as well.

5.6 Management Review

5.6.1 General

Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

Records from management reviews shall be maintained (see 4.2.4)

Clearly, management review records are required just as they were in the 1994 revision. It is easiest to have the management representative type minutes from the meeting, and then have everyone that was present at the review sign a copy of the minutes and keep those on file. This way it is easy to prove to the auditor that both he management rep and top site management were present at the meeting.

5.6.2 Review Input

The input to management review shall include information on

a) Results of audits,

A simple report detailing the number of audits conducted, which areas were audited, and the number of nonconformances discovered is sufficient here.

b) Customer feedback,

Any customer complaints or feedback and customer satisfaction data (section 8.2.1) should be summarized and reviewed during the meeting as well.

c) Process performance and product conformity,

Quality objectives, resulting from the MBO system, should be compared against actual performance data to determine process performance. Product conformity should be reviewed, especially data concerning product returns due to foundry quality problems.

d) Status of preventive and corrective actions,

A summary of the corrective/preventive action system should be prepared that outlines the number of open PCFs that are in the plant, and a summary of the results of closed corrective/preventive action. Management can

monitor the number of PCFs as an indication of how effective the QMS is in handling customer related issues.

e) *Follow-up actions from previous management reviews*

Since one of the outputs of the management review meeting is identifying opportunities to improve the QMS, it is logical for management to follow up on actions it directed taking as a result of the previous management review meeting. This follow up and accountability ensures that management's instructions regarding the QMS are not blown off.

f) *Changes that could affect the quality management system, and*

If changes are made to the facility's operations, they should be summarized at the management review meeting to ensure that the changes have not impacted the QMS. If the changes have impacted the QMS, the review should show that the impact was monitored and addressed to ensure the continuing suitability and effectiveness of the QMS.

g) *Recommendations for improvement*

A brief summary of improvement suggestions should be presented to management for their consideration. The sources of these recommendations will vary from foundry to foundry. Those foundries that have a formal employee suggestion program can use the data collected as the input for this requirement.

5.6.3 Review Output

The output from the management review shall include any decisions and actions related to

a) *Improvement of the effectiveness of the quality management system and its processes,*

b) *Improvement of product related to customer requirements, and*

c) *Resource needs.*

The output from the management review meeting should include any decisions that affect the QMS performance or effectiveness. This may include preventive actions, adjustments in quality objectives, changes to the QMS documentation, or other actions that can impact the effectiveness of the QMS. Don't forget that the review output forms a vital part of the management review minutes.

NEXT ISSUE: Section 6 Resource Management

PBT SCIENCE VS. POLICY EPA

by: Jane Luxton, Environmental Counsel to the Lead Industries Association

For more than two years, EPA has been considering a new set of programs to regulate persistent, bioaccumulative, and toxic ("PBT") chemicals. EPA originally developed the PBT methodology for synthetic organic chemicals, in an effort to identify which of the tens of thousands of chemicals on the market today represent the greatest hazard. Problems resulted, however, when EPA assumed it could use the same framework to determine hazard in substances that are fundamentally different from organics: metals and inorganic metal compounds.

The logic behind EPA's PBT program is that organic chemical compounds that persist for long periods of time before breaking down into less toxic substances and bioaccumulate in organisms or up the food chain warrant highest priority concern. The prototype for this approach was DDT, a substance that remains toxic over time and accumulates up the food chain, killing sensitive and protected species like bald eagles. Applied to synthetic organics, this reasoning makes sense, but EPA's attempt to stretch it to fit metals generated a scientific outcry.

To begin with, metals are inherently persistent, but persistence tells nothing about whether a metal is hazardous or not. Second, metals and inorganic metal compounds behave differently from synthetic organics with respect to bioaccumulation. For organics, bioaccumulation or bioconcentration factors (BAFs or BCFs) become larger as the concentration of the substance in the environment, particularly water, increases. But with metals and inorganic metal compounds, the opposite occurs: as concentration in the environment increases, BAFs and BCFs decrease, reflecting an inverse relationship. A regulation based on EPA's approach would end up imposing the most stringent standards on the lowest concentration of metals in the environment, a nonsensical result.

As EPA sought to use PBT concepts in more and more programs – a proposed PBT list, a PBT strategy, waste minimization initiatives, and TRI reporting threshold reductions – and as states began to show enthusiasm for adopting EPA's lists wholesale, a coalition of metals industry representatives formed, under LIA's leadership, to address common regulatory, legislative, and scientific issues. Scientists working on behalf of copper, lead, zinc, cadmium, and other metals industries raised serious questions about the validity of applying PBT criteria to metals. As a result of these efforts, EPA agreed to cosponsor with industry an Experts Workshop in January 2000, which produced a transcript that identified scientific problems with EPA's approach and suggested a path forward toward developing an alternative, scientifically valid hazard assessment framework for metals.

Despite this progress on the scientific front, EPA policymakers remained adamant in their insistence on including metals within PBT programs. The only concession to the questions that had been raised was a series of public statements suggesting that the Agency would focus on lead and cadmium, as well as the organometal mercury, an apparent effort to reduce opposition by dividing the metals coalition. Representatives of the other metals and interested customer groups in the metals coalition were unpersuaded, however, knowing that if EPA adopted unsound scientific approaches, nothing would prevent the Agency from expanding its lists or other programs to include any metal in the future.

The issue came to a head in the drawn-out battle over EPA's proposed rule to lower the TRI reporting threshold for lead, which was formally proposed in August 1999. Throughout the fall of 1999, vocal objections surfaced with respect to EPA's lack of small business outreach and gross underestimate of the cost impacts of the rule. Through his role as Chair of the Senate Small Business Committee, Senator Kit Bond of Missouri sent letters to EPA and threatened to hold a hearing on EPA's failure to observe the requirements of the Small Business Regulatory Enforcement Fairness Act (SBREFA). LIA Executive Director Jeff Miller, along with representatives of the small business community, was asked to testify, but the hearing was cancelled when EPA agreed to conduct three public meetings to solicit additional information on the impact of the rule.

Scientific concerns came to the forefront as the Experts Workshop took place and seemingly was ignored by EPA. Briefings conducted by metals industry scientists and attorneys for numerous EPA staff members likewise produced little response, and EPA sent its TRI lead rule to interagency review in July 2000, justifying the rule solely on the basis of EPA's assertion that lead should be classified as a PBT chemical. Concerned with EPA's disregard of mounting scientific evidence to the contrary, LIA's environmental counsel, organized a letter signed by 55 trade associations in July 2000 urging EPA to refer the question of the scientific validity of applying PBT criteria to metals to EPA's Science Advisory Board (SAB). A bipartisan letter signed July 26 by the Chairmen and Ranking Minority Members of the full Committee and relevant subcommittee of the House Science Committee urged EPA to do the same. Both letters referenced a statement in May 2000 by the SAB recognizing that the question of metals and PBT needed further review and was "problematic." EPA has to date responded to neither letter.

These concerns were echoed by federal agencies involved in the interagency review process. In an August 23 meeting at OMB, representatives of OMB, DOE, the Small Business Administration, and the White House Office of Science and Technology Policy asked well-informed questions of Craig Boreiko (ILMC), Bill Adams (Kennecott Copper), and Jane Luxton, indicating serious interest in the science issues raised by the metals industries. Later, a letter signed by the senior metals scientist at the National Science Foundation was made public, endorsing the need for SAB referral of EPA's plan to include metals within its PBT programs. In October, Congress echoed the point in report language accompanying the bill authorizing EPA's funding for the coming year; specifically, Congress expressed concern about the scientific foundation for EPA's intention to apply PBT methodologies to metals and urged EPA to refer the question to the SAB before including any metals in any PBT programs.

Parallel battles erupted internationally. An OECD document on Classification and Harmonization of Metals became politicized in September 2000 when EPA representatives sought to reverse previous positions taken by the U.S. delegation and undercut findings cited by the metals industries in various PBT initiatives. Ultimately, it appears EPA was unsuccessful in derailing the OECD effort, but the issue will not be finally settled until the end of the year. Meanwhile, other international efforts are underway to use PBT concepts for a variety of virtual elimination programs, underscoring the serious implications of inclusion on PBT lists, and the importance of ensuring that sound science is used in PBT classifications.

Controversy over the TRI lead rule was so substantial that EPA was not able to force publication of the final rule by November 1, 2000, its previously stated deadline for issuance. Pressure remains strong to send the issue to the SAB for review, but EPA continues to resist all calls for such a referral, and we do not know when the question will finally be decided. It is clear that without LIA's vigorous leadership and the active involvement of other concerned organizations on this issue, EPA would have swept aside scientific problems with its approach and classified a number of metals as PBT chemicals. Unfortunately, despite the overwhelming evidence that EPA's view is misguided, the battle is far from over.

Lead Industries Association, Inc.
13 Main Street
Sparta, NJ 07871
973-726-LEAD (5323)
fax: 973-726-4484
e-mail: miller@leadinfo.com
http://www.leadinfo.com

Industry Briefs

BIBLIOGRAPHICAL FOUNDRY DATABASE ON THE INTERNET

The "SESAMM" bibliographical database compiled by the Centre Technique des Industries de la Fonderie has opened up a real gateway to the foundries and metallurgy fields by going online through its Internet site, <http://www.ctif.com/version_us/html/sesamm.html>

For over 50 years the CTIF, the foundries' research and development center based at Sèvres near Paris has had a documentation center that is one of a kind in the foundry field. There, a team of information scientists and linguistic observers has been compiling a database specializing in foundries and metallurgy to meet the expectations of its trade members.

"SESAMM's" multi-criteria search engine will enable 33000 relevant bibliographical entries to be consulted in the fields of ferrous and non-ferrous alloys, metal molded parts, competing processes (plastic, forge..), innovations, markets, techniques and processes, and research and development. Document title display is free of charge, but there will be a charge for consulting detailed notes (references and abstracts). A subscription will pay for rights to access periodically published topic files that will enable subscribers to build up their own customized desk research.

Another welcome feature of this database is the trilingual glossary of specialist terms (in French, English, German), which will provide a helping hand with making bibliographical searches. SESAMM has been designed to be user-friendly and simple to use, and will be a boon to those wishing to keep abreast of technical events and find bibliographical references.

For more information, Contact: Christine Colliard, Information Service Manager,
Tel.: +33 1 41 14 63 54;
EMAIL: colliard@ctif.com.

TUCSON TO HOST 4TH ANNUAL NFFS TABLETOP EXPO

The 2001 NFFS Annual Meeting at the Loews Ventana Canyon Resort in Tucson, Arizona will host the Society's Fourth Annual Tabletop Expo from October 7th to 10th.. Once again, Annual Meeting attendees will have an excellent opportunity to meet and interact with key equipment and service companies supplying the non-ferrous foundry industry.

"Members who attend our annual meeting and our tabletop exhibitors have all agreed that this is an excellent way to meet and do business," said NFFS Executive Director Jim Mallory. "Our Annual Meeting attendees are typically owners and top management executives from aluminum and brass & bronze foundries located all across the United States and Canada, and they are exactly the type of people – with decision making responsibility – that industry suppliers want to reach."

NFFS designs the Annual Meeting program to give attendees ample opportunities to meet and interact with our tabletop exhibitors. "The Exhibit Fee for the NFFS Tabletop Expo includes one full meeting registration, including all planned meals and social functions, including our signature Monday Night event - but that's not all," Mallory noted. "The Expo offers several other value-added recognition features as well."

Each tabletop exhibitor automatically receives a complimentary link from the NFFS website from the time they sign up through the actual show dates, thus effectively extending the advertising benefit they receive from days to months. In addition, exhibitors are spotlighted in the Society's bi-monthly magazine, and are also featured in a special a/v presentation that takes place during the meeting's Opening Business Session.

A limited number of tabletop spaces are available on a first-come basis. Companies wishing to reserve exhibit space for the 2001 NFFS Tabletop Expo should contact the NFFS office for additional information and space reservation details.

GIANT NI-AL-BRONZE BUDDHA

An international team of designers and engineers plan to create a 50-story-tall statue of Buddha Maitreya. According to Buddhist belief, he is the next Buddha scheduled to appear. If it receives the necessary funding, it would be the largest on earth and expected to last 1,000 years.

The project team has chosen a recently developed Nickel-Aluminum bronze alloy similar to C95800 (which is commonly used in marine applications) for the skin. Funds would be drawn from the worldwide Buddhist community. If fund raising attempts are successful, construction is expected to begin in 2003 and be completed in 2005.

CONGRESS REJECTS OSHA'S ERGONOMICS RULE

On Tuesday, March 6th, the U.S. Senate voted 56-44 to pass a joint resolution of disapproval of OSHA's final rule on ergonomics. Just one day later, the House of Representatives followed suit, approving the resolution 223 to 206. Six Senate and sixteen House Democrats crossed party lines to vote to overturn the rule. President Bush signed the legislation into law on Tuesday, March 20th.

These actions marked the first use of Congress' powers under the Congressional Review Act. That law gave Congress the power to reject rules enacted by regulatory agencies within 60 legislative days of their enactment. The ergonomics rule had been finalized by OSHA on November 17th, just days after the 106th Congress had adjourned, and was took effect as of January 16th, just days before the new Republican Administration assumed control in Washington.

As a consequence of the CRA rejection of the ergonomics rules adopted by OSHA, the regulation will now have "no force or effect." No organization will have to comply with it. No state-plan states will be required to adopt any similar rule, and no further litigation over the validity of the rule will be required.

"This is a total victory over an unreasonable and oppressive regulation," said NAM Assistant Vice President & Deputy General Counsel Quentin Riegel. "We expect all business and labor petitions against OSHA to be withdrawn and/or dismissed in the next several weeks." Nam had filed a lawsuit challenging the ergonomics rule, which was joined by hundreds of other business organizations and trade associations, including the Non-Ferrous Founders' Society and AFS.

Commenting on what will come next, NFFS Executive Director Jim Mallory noted, "President Bush and Labor Secretary Chou have already announced that they will immediately seek to enact a new ergonomics rule. The NFFS Board is determined that the Society will continue (1) to work to assure that the interests and concerns of small businesses like non-ferrous foundries are fairly considered as this new rulemaking commences, and (2) to work with industry safety professionals to develop fair and manageable practices to address and reduce ergonomic exposures and injuries in foundries."

Industry Briefs

FLORIDA ALUMINUM CASTING PASSES ISO SURVEILLANCE AUDIT

Florida Aluminum Casting Co., located in West Palm Beach, FL, has successfully passed an ANSI/ISO/ASQC Q9002:1994 surveillance audit and continues its certification to the ISO 9002 quality standard. Florida Aluminum Casting Co. was the seventh foundry to receive ISO9000 registration issued by the Non-Ferrous Founders' Society.

For additional information on Florida Aluminum Casting Co., contact: Jay Jones, Florida Aluminum Casting Co., 2705 Division Ave., West Palm Beach, FL 33407, Phone: 561/655-3771, Fax: 561/655-3788

DIE CASTING INDUSTRY ON ECONOMIC SLOWDOWN

The economic bliss that continued throughout the first half of 2000 for the die casting industry, one which saw magnesium and aluminum shipment levels rise to a record high, came to an abrupt stop in the third quarter of the year. Many economists now say that this marks the end of the rapid growth in the industry and a slowing of the economy.

According to NADCA reports, third quarter shipments of aluminum die castings were 6.6 percent lower when compared to the second quarter. Even more staggering, the levels of the third quarter when compared to its 1999 counterpart mark a decrease of over 15.5 percent. The results are the first negative yr/yr growth in aluminum shipments since the early 1990s. Magnesium and zinc were not much better. Magnesium's fourth quarter index showed a drop for the first time since 1998, and zinc's levels were 4.9 percent below last year's totals.

This slowdown carried into those industries most affected by die casting trends, specifically Auto, Appliance, and Electronics. Although auto sales ended above 1999 at a record high of 17.4 million cars and light trucks sold, extremely **slow** third and fourth quarters have lowered projected 2001 sales to be less than 1999 totals. Similarly, appliance shipments were up over 6 percent in the first half of 2000, but slow third and fourth quarters resulted in a final total of only a 2 percent increase in sales. Sales are expected to fall slightly in 2001 and 2002.

According to Daniel Twarog, President of NADCA, this economic slow down is specifically that—a slow down. "When you evaluate the overall aluminum shipment forecast of the industry, you will see that 2001 and 2002, when compared with 1996, 1997 or 1998, will still require a large number of quality castings to be made and shipped," says Twarog. "It's important that they continue to be made in North America.

BROST FOUNDRY'S CLEVELAND AND MANSFIELD PLANTS PASS ISO SURVEILLANCE AUDITS

The Brost Foundry Company has successfully passed ANSI/ISO/ASQC Q9002:1994 surveillance audits at both its Cleveland and Mansfield, Ohio plants. Both facilities continue certification to the ISO 9002 quality standard.

The Cleveland plant was the second foundry to receive ISO9000 registration issued by the Non-Ferrous Founders' Society. The Mansfield plant, located in Mansfield, OH, was the third.

For additional information on the Brost Foundry Company, contact: Tim Gluntz, Brost Foundry Company, 2934 E. 55th Street, Cleveland, OH 44127, Phone: 216/641-1131, Fax: 216/641-0010

TRI-STATE ALUMINUM CASTING PASSES ISO SURVEILLANCE AUDIT

Tri-State Aluminum Casting Co, Inc., located in Muskegon, MI, has successfully passed an ANSI/ISO/ASQC Q9002:1994 surveillance audit and continues its certification to the ISO 9002 quality standard. Tri-State Aluminum was the sixteenth foundry to receive ISO9000 registration issued by the Non-Ferrous Founders' Society.

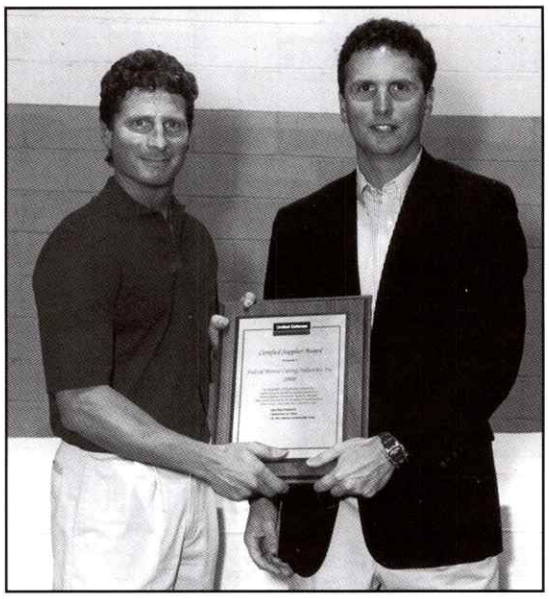
For additional information on Tri-State Aluminum Casting, contact: Rick Kurdziel, Tri-State Aluminum Casting Co., Inc., 1060 E. Keating Avenue, Muskegon, MI 49442, Phone: 231/722-7825, Fax: 231/728-0591

AFS SEEKS RESEARCH RELATING TO FOUNDRY CAST MAGNESIUM COMPONENTS

The American Foundry Society (AFS) Magnesium Committee is seeking research on all issues relating to the production of foundry cast magnesium components. AFS invites the magnesium industry, universities and national laboratories to submit pre-proposals for research in the areas of premium automotive and commercial nondie cast magnesium castings.

The committee is specifically looking for potential research in the areas of permanent mold, lowpressure permanent mold and lost foam casting. Of particular interest are casting process parameters such as hydrogen effects, grain refining, measuring of the thermophysical properties of magnesium and mold/metal temperature interface, foam characteristics and coatings, heat treat variables, and mechanical properties from optimized conditions.

Interested researchers should submit a one-page summary listing experience in magnesium casting, a summary of proposed research, a timeline of milestones and anticipated project costs. Committee personnel will respond to all submissions. Summit summary page by May 15, 2001 to: American Foundry Society Magnesium Committee, 505 State Street, Des Plaines IL 60016. Fax: 847-824-7848. E-mail: str@afsinc.org.



FEDERAL BRONZE CASTING GAINS UNITED DEFENSE AWARD

Federal Bronze Casting Industries, Inc. (Newark, NJ) has been given the Certified Supplier Award from United Defense LP. QA Manager John Reichard (left) and Vice-President Doug Reichard accepted the award on the company's behalf, one of only a few foundries to be so honored. Founded over 50 years ago, Federal Bronze pours bronze castings up to 5,000 pounds net shipping weight. The foundry makes bronze castings for United Defense's naval Deck Guns that it manufactures for the US Navy.

IN MEMORIAM

Roger J. Kelley, Jr., 1926-2001

On January 13, 2001, Bridesburg Foundry Company sadly announced the passing of its former President and CEO after a recent illness.

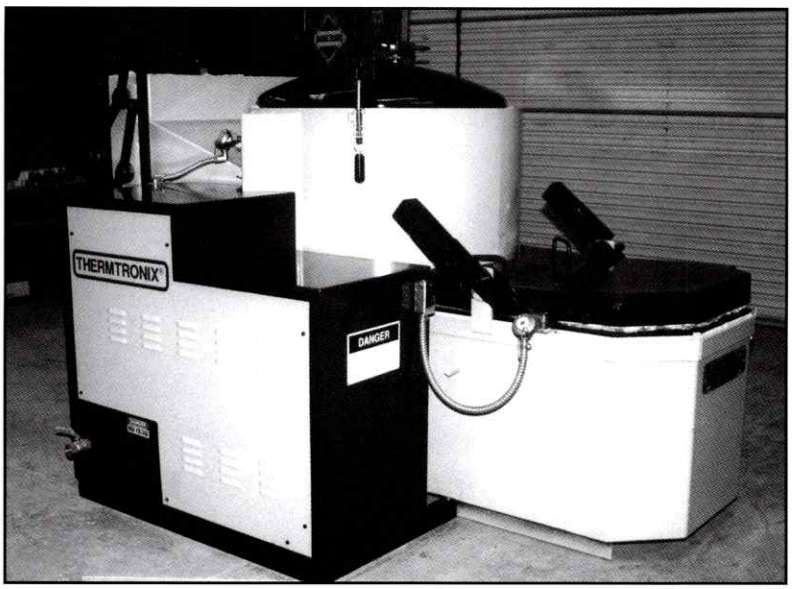
Born in Philadelphia, Roger received a bachelors degree in naval engineering rom the U.S. Merchant Marine Academy in 1947. He joined Bridesburg Foundry of Allentown PA in 1949, eventually becoming owner, CEO and Director of Sales for both Bridesburg and Manheim Foundries. Roger worked for the company for more than 50 years until retiring in November, 2000 due to poor health.

Roger was active in the metalcasting industry throughout his career, serving the local Pennsylvania associations and as a member of the NFFS Board. He was also active in various business and charitable organizations, including the Exchange Club of Northeast Philadelphia, the Juvenile Diabete Foundation, Catholic Charities, the National Alliance for the Mentally Ill, and the St. Edmond's Home for Children.

Roger is survived by his wife, Rita; sons Roger III, Brian, John, Mark, and Daniel; daughter Susan (Santore); and 11 grandchildren.

Product News

NON-CRUCIBLE ALUMINUM MELTING FURNACE



Thermtronix® Corporation of Adelanto, California, announces the release of the Cyclone'™ furnace. This new furnace was designed for both continuous and batch melting aluminum operations as a durable refractory lined furnace that does not use crucibles. Metal is charged into a dry hearth charging chamber. This unique feature on a small to medium size melting furnace eliminates the safety issue of operators placing cold, wet, or moisture bearing charge materials into a molten bath of aluminum. It substantially improves the operating efficiency by capturing exhaust energy to preheat and melt the new charge. It improves metal quality by leaving the slag, dross and residuals from the melt on the dry hearth where they can be easily removed. The result is less post melt processing because contaminates never enter the molten aluminum. Full access for cleaning is provided through a manually operated top access cover.

The Cyclone™ furnace uses a bonded particle vertical gate filter located between the melt chamber and dipwell that assures only clean, filtered aluminum enters the dip-well area. A factory installed inert gas pressure regulator with flow control supplies inert gas to a ceramic degassing device. This continuous. controlled degassing system operates at the metal entrance of the dip-well and assures superior quality aluminum is available when required. The new Cyclone™ furnace is also available with an optional factory installed Safety-Tap™. This mechanical metal transfer assembly is the same device used worldwide with the laner Thermtronix® High-Bay™ furnaces. It allows the operator to stand safely behind the flow of molten metal while transferring large quantities of aluminum from the dip-well directly to a pouring ladle. The Safety-Tap™ eliminates the need for a tilting style furnace and assures clean molten aluminum is withdrawn below the surface of the molten bath.

THERMTRONIX® CORPORATION Web Site: http://www.thermtronix.com, E-Mail: salesn@thermtronix.com, Toll Free 888-624-6358, Phone 760-246-4500, Fax 760-246-4550.

EXACTCALC™ FOUNDRY METHODING SOFTWARE

ExactCalc™ software an advanced, user-friendly tool that helps foundries design gating and risening systems, thereby producing greater consistency and maximum yield, has been created and introduced by the Foundry Products Division of Ashland Specialty Chemical Company.

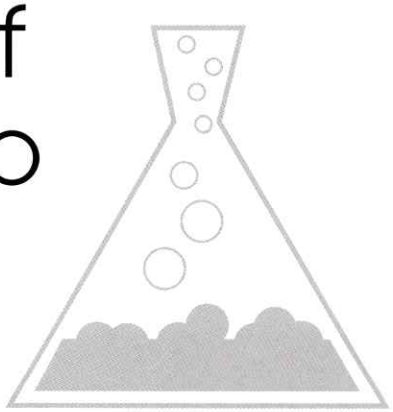
Offering benefits over other programs, ExactCalc™ software includes a "learn" function that enables methods engineers to incorporate their individual foundry best practices, experiences and quality systems when designing complete gating and risening systems. This feature enables the software to build and maintain an invaluable database of knowledge and procedures that is customized to each foundry.

ExactCalc™ software is a comprehensive tool that helps foundry operators optimize the design of their gating and nisering systems by incorporating their previous successes and applying those parameters to other jobs where they have traditionally been less successful. This can lead to greater consistency, improved yields, and a better understanding of the variables that exist within the foundry. The ExactCalc™ software offers a systematic and scientific approach to methoding in accordance with ISO 9000 standards and provides a custom solution for improving productivity, quality and profitability standards at foundries around the world.

ExactCalc™ software operates under the standards of WINDOWS* software and is compatible with WINDOWS 95 or later operating systems. It includes sub-programs for: Weight, Modulus, Feeding Distance, Feeding Rate, Filter Calculation, Horizontal- and Velocity-Based Running Systems, and an online help file.

NON-FERROUS PRODUCT SUPPLIERS

The Importance of Communication to Analytical Results



As we all know, communication is important in all areas of our lives, both personal and professional. Communication is just as important when it comes to submitting samples for chemical analysis.

When you submit a metal sample for chemical analysis, either to your own company laboratory or to a commercial laboratory, your purpose is to obtain certain information. Perhaps you have an unknown material that you would like to identify. Perhaps you have a known material for which you need quantitative data. Good communication between you and the laboratory personnel performing the analysis will result in more accurate results. The results will be more reliable when complete background information about the sample is provided to the laboratory.

Keep in mind the importance of time and money when you submit a sample for analysis. If you give only minimal background information about the sample, several preliminary tests may be required, resulting in a delay in analysis completion and additional costs. This is particularly true when samples are not analyzed in-house and laboratory personnel are not intimately aware of plant products. If the additional tests are not performed, the analysis results may be incorrect. If, to avoid running the additional tests, the laboratory personnel contact you to get the required information, analysis completion will be delayed.

It is especially important to include complete information when you submit samples to a commercial laboratory, even if only limited elemental analysis is needed. Suppose that your company works with nickel base alloys that might contain rhenium. If the laboratory's routine analytical procedures do not include a correction for this element, misleading data will result. If the rhenium is present at a significant level and a normalization technique is used for the quantification of the base element, not only will the rhenium content be missed, but also the reported concentrations of the other elements will be in error by a factor related to the rhenium concentration.

If you submit a superalloy containing niobium, tantalum, and tungsten for tungsten analysis and you do not indicate that niobium and tantalum are present, the laboratory might use a gravimetric method to analyze for tungsten. Without making a preliminary isolation of the tungsten, the niobium and tantalum will precipitate with the tungsten, resulting in an erroneously high reported tungsten concentration. Thus, if you provide the approximate composition of the alloy at the time of sample submission, the laboratory personnel will be able to determine which elements might interfere with their chosen method of analysis. If they realize that an interfering element is present, they can take steps to overcome the interference.

As you can see from these limited examples, communication is important in chemical analysis. It does not matter what type of material is being analyzed. The more information that you can provide when you submit a sample for analysis, the more useful the end result will be. You will receive more accurate results in a timelier manner, at lower cost.

Prepared by: Dr. Robert K. Gillette, Gillette Spectroscopy Services, Inc., 6234 W 100 N, Kokomo, IN 46901; toll-free: 1-877-950-4800; fax: 765-452-7494; e-mail: RGille6234@aol.com. *Gillette Spectroscopy Services, Inc. provides contract analytical chemistry services for primary and secondary metals producers and processors, at the customer's site using the customer's equipment, anywhere in the US.*

MIFCO

McEnglevan Industrial Furnace Company, Inc.

Aluminum Melters
Heat Treat Furnaces
Batch Sand Mullers
Foundry Accessories
Protective Clothing

MIFCO manufactures both Foundry and Heat Treating furnaces in a variety of sizes and styles, in both gas and oil-fired, and electric.

Melt Capacities:
Aluminum - 2500 lbs.
Zinc - 20,000 lbs. Lead - 30,000 lbs.
Kirksite - 20,000 lbs.

To find out more about our entire line of Melting and Heat Treating Furnaces, Batch Sand Mullers and Mixers, and the many other products that MIFCO offers, including a complete line of high-heat and flame resistant clothing, come visit us on the Web! **http://www.mifco.com**

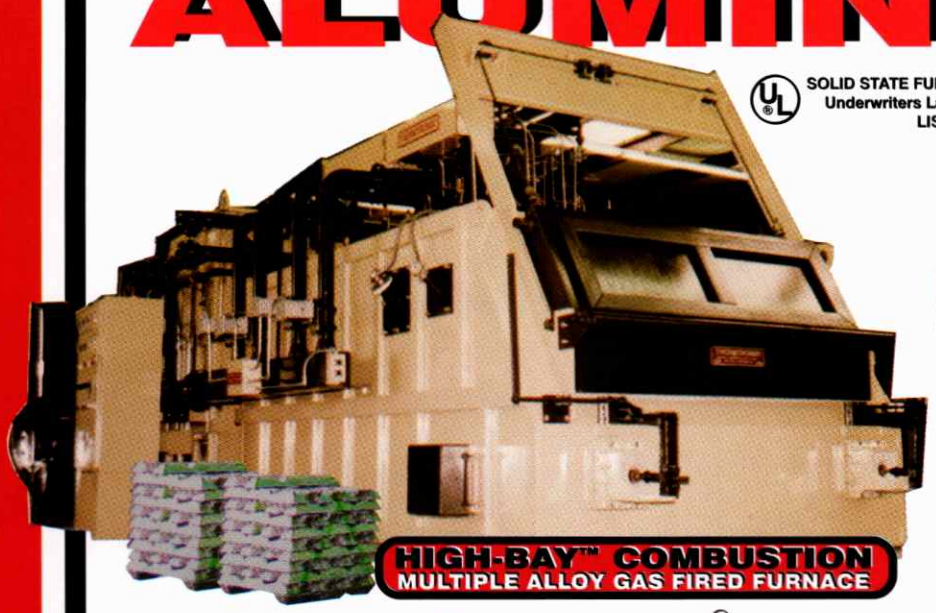
Email: sales@mifco.com

Phone: (217) 446-0941 ext: 112

WORLD LEADER IN SOLID STATE ALUMINUM MELTING

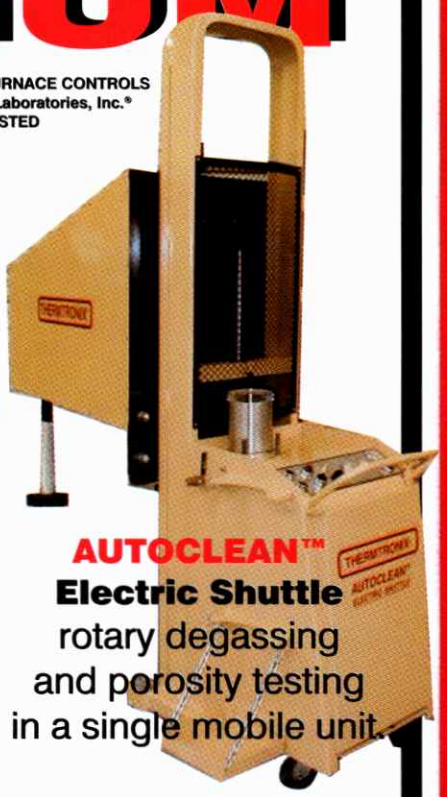
ALUMINUM

SOLID STATE FURNACE CONTROLS
Underwriters Laboratories, Inc.®
LISTED



HIGH-BAY™ COMBUSTION
MULTIPLE ALLOY GAS FIRED FURNACE

MULTIPLE ALLOYS, no problem, the Thermtronix® **High-Bay™ Combustion Furnace** allows you to sequentially melt and simultaneously hold and process multiple alloys.



AUTOCLEAN™
Electric Shuttle
rotary degassing
and porosity testing
in a single mobile unit.

Cyclone™

THERMTRONIX® furnace designed for both continuous and batch melting aluminum operations as a durable refractory lined furnace that eliminates the use of crucibles.

ENERGY SAVER

NO CRUCIBLES

CISA CASTING INDUSTRY SUPPLIERS ASSOCIATION

AFS AMERICAN FOUNDRYMEN'S SOCIETY, INC.

NADCA

CCMA California Cast Metals Association

(888) 624-6358

Visit our Web Site at http://thermtronix.com

(760) 246-4500 • FAX: (760) 246-4550

HEADQUARTERS & USA MANUFACTURING: 17129 MUSKRAT AVENUE, ADELANTO INDUSTRIAL PARK, ADELANTO, CA 92301

THERMTRONIX®

QUALITY ALUMINUM MELTING SYSTEMS