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THE ISO 14001 FALLACY: CERTIFICATION IS NOT COMPLIANCE

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“Appearances are often deceiving” Aesop, 550 B.C.

ABSTRACT

Increasing numbers of companies are requiring their industrial facilities to obtain ISO 14001 environmental management system (EMS) certification with the expectation of improved environmental performance and regulatory compliance. However, some senior managers are observing that ISO 14001 certification does not ensure regulatory compliance. In fact, evidence suggests that EMS programs with ISO 14001 certification are only as good at environmental regulatory compliance as their inputs, implementation, and independent third-party oversight.

This paper discusses some important compliance assurance limitations of ISO 14001 certification with respect to EMS programs that should be recognized by senior managers at industrial facilities. This includes a case study that highlights the key issues associated with reliance on an ISO 14001 EMS system for environmental regulatory compliance. The lessons learned from existing research and the case study example are instrumental in the improvement of environmental compliance assurance at industrial facilities with ISO certified EMS programs.

INTRODUCTION

A few years ago I received a call from a client at an industrial facility that had just received a lengthy Notice of Violation (NOV) from the United States Environmental Protection Agency (USEPA). The facility was a major Title V source under the Clean Air Act (CAA) and USEPA had alleged a number of significant air emission compliance issues. Naturally, company management wanted to meet right away, so I went to the facility the next morning.

While waiting in the facility's reception area I made an interesting observation. On the wall was a certificate proudly announcing that just weeks before a leading U.S. "registrar firm" had issued a certificate stating that the facility's environmental management system (EMS) program conformed to the ISO 14001 standard. Knowing this fact in advance, the first question from the "corporate officer" responsible for overall facility operations (including environmental) during the meeting was not a surprise.

The corporate officer's question was simple: How could significant environmental compliance issues have occurred at the facility when these issues were never raised before, and the facility's EMS program was just certified under ISO 14001? Good question?

My answer at the time highlighted what I now believe to be a growing misconception among senior corporate managers. Namely, that ISO 14001 certification is a "seal of approval" for a facility's environmental regulatory compliance status. In reality, both empirical and anecdotal evidence suggests that this type of conclusion is often untrue and clearly unwise.

By the very nature of their design and operation EMS programs have a number of important limitations in ensuring a facility's environmental regulatory compliance. Adherence to the ISO 14001 standard (including obtaining a "certificate") does not eliminate those limitations. The key for corporate managers is to recognize these inherent limitations and then take a few simple additional steps that will further ensure ongoing compliance with federal, state, and local environmental regulations.

SO WHAT IS ISO 14001?

The ISO 14001 standard was first established by the International Organization for Standardization (ISO) in 1996. It is a standard designed to ensure that EMS's established at facilities across the world meet a minimum level of proficiency.¹ The standard's foundation is based on the quality management system (i.e., ISO 9001) plan-do-check-act (PDCA) structure.

The ISO 14001 certification process is a systematic method used to verify that an EMS program has policies and procedures implemented for the oversight and management of its identified environmental aspects.² Certification under ISO 14001 means that a facility's EMS program conforms to the specific components and requirements contained within the standard.

Key Components of the Standard

Fundamentally, the ISO 14001 standard requires that an EMS program identify a facility's various environmental aspects (i.e., emissions, wastes, energy usage, legal responsibilities) and then establish policies, procedures and controls for these aspects with the ultimate goal being to minimize adverse impacts to the environment and improve a facility's environmental performance. The five key elements of the ISO 14001 standard are:

- Environmental Policy
- Planning
- Implementation & Operation
- Checking and Corrective Action
- Management Review

Based on its design and purpose, the ISO 14001 standard focuses on the EMS "process" not necessarily the results.

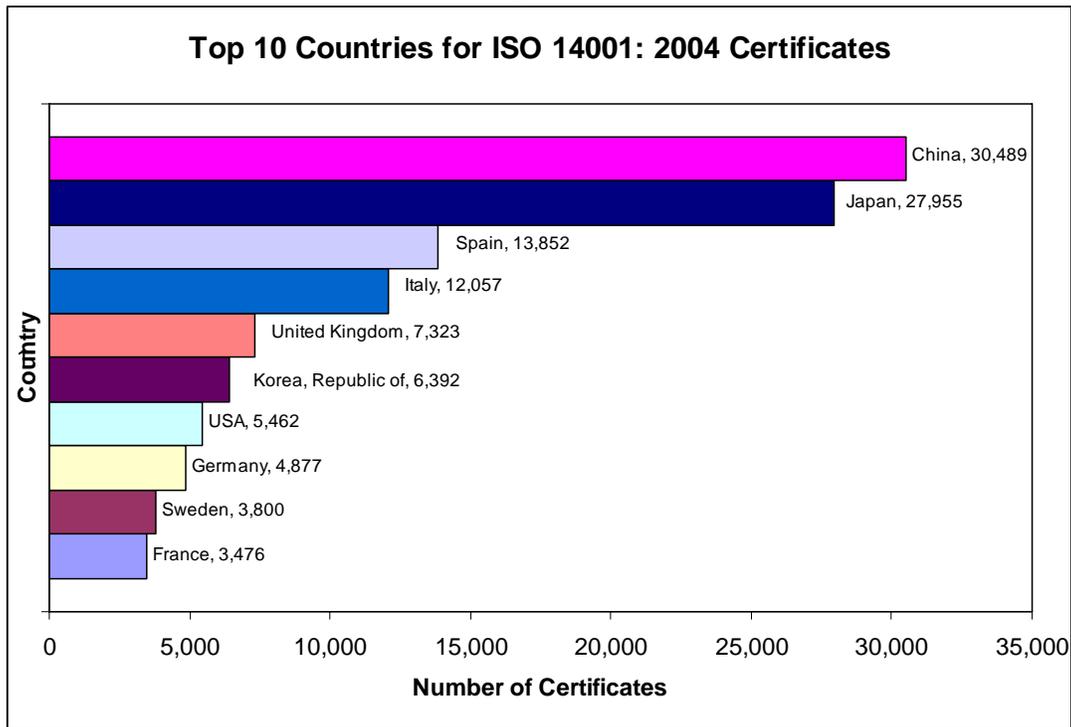
To its credit, the ISO 14001 standard was revised in 2004 to include a stronger focus on demonstrating a facility's environmental compliance. However, as noted in Annex A.5.5 of the revised ISO 14001 standard, "Environmental compliance audits are not covered by this International Standard. Therefore, the third-party certification audits for the ISO 14001 standard and required internal facility EMS program audits do not directly address the environmental regulatory compliance status of a facility. Based on the author's experiences, many senior executives at industrial facilities do not know or fully understand this fact.

The Growth in ISO 14001 Certification

For more than a decade, increasing numbers of private and public entities have adopted formal EMS programs. The number of facility EMS programs also taking the extra step to obtain ISO 14001 certification continues to increase every year. According to the International Organization for Standardization data, a total of more than 154,000 ISO 14001 certificates had been issued to facilities around the world by the end of 2007.³ As shown in Figure 1, the US was ranked 7th in the world for the total number of certificates in 2007.

Although the US is ranked 7th in total ISO 14001 certificates, if adjusted for total population or manufacturing output the relative number of certificates issued would not even rank among the top 20 countries. One reason for the relatively low rate of US ISO 14001 certification could be that US stakeholders have traditionally placed more of an emphasis on environmental regulatory compliance than on overall environmental performance (i.e., waste generation, air emissions, water usage, energy consumption).⁴

Figure 1



Source: International Organization for Standardization

Increasing empirical evidence indicates that EMS programs can improve overall facility environmental performance in many ways that also improve financial performance and provide competitive advantages.⁵ Based on these benefits, the number of facilities in the US establishing some form of an EMS program is expected to continue to grow in the future. The question remains, however, whether new EMS programs should be required or even encouraged to obtain ISO 14001 certification.

A number of studies have reported that the ISO 14001 certification process, including paying for third-party EMS auditors, can cost a facility from \$25,000 to more than \$100,000, depending on the size and complexity of the facility.⁶ This cost does not even reflect internal company costs for employee time and other resources. USEPA has estimated that large industrial facilities spend an average of about \$1 million in total costs to pursue an ISO 14001 certification.⁷

Given such a large commitment of scarce financial resources, senior corporate managers might rightfully expect that ISO 14001 certification ensures environmental regulatory compliance. Unfortunately, all too often this is not the case.

CERTIFICATION IS NOT COMPLIANCE

As noted earlier, increasing empirical evidence from independent studies indicates a positive link between the presence of an EMS program and an individual industrial facility's environmental performance. However, the additional benefit associated with a facility obtaining ISO 14001 certification for that EMS program is less clear. Many critics even refer to ISO 14001 certification as "greenwashing".⁸

Greenwashing is defined by the Dictionary of Sustainability as: "any form of marketing or public relations that links a corporate, political, religious or nonprofit organization to a positive association with environmental issues for an unsustainable product, service, or practice."⁹ Clearly, some industrial facilities could be viewed by third-parties as using the ISO 14001 certification of their EMS programs as a form of greenwashing (see the BP Texas City Refinery experience discussed below). However, the more pertinent question this paper seeks to address is whether ISO 14001 certification actually improves a facility's environmental regulatory compliance status?

Based on empirical evidence, the link between ISO 14001 certification and improved environmental regulatory compliance is far less clear than the link with environmental performance measures, such as wastes generated, air pollutants emitted, or energy used. Moreover, important anecdotal evidence suggests that any link between ISO 14001 certification and a facility's environmental regulatory compliance is clearly weak. One of the most dramatic examples of this weak link is provided by the USEPA's settlement of CAA Violations at BP's Texas City Refinery.

On March 23, 2005, BP's Texas City Refinery had a huge explosion that killed 15 people and injured 170 others. At that time, the Texas City Refinery had been operating an ISO 14001 certified EMS program for a number of years.¹⁰ However, subsequent investigation found that facility personnel routinely failed to follow written operating procedures required by an ISO 14001 certified EMS program.¹¹

In October 2007, BP agreed to pay a total criminal fine of \$50 million and plead guilty to felony violations of the CAA at the Texas City Refinery that had occurred prior to the explosion.¹² In February 2009, BP also agreed to pay an additional \$12 million penalty and spend more than \$173 million on air pollution controls and supplemental environmental projects to settle additional noncompliance issues with CAA regulations as well as violations of provisions in a 2001 USEPA consent decree.¹³ Again, these violations occurred before the explosion, during the time when the Texas City Refinery was operating with an ISO 14001 certified EMS program.

What might have caused these major environmental compliance deficiencies at a Fortune 100 company's facility that was operating an ISO 14001 certified EMS program? As highlighted by the case study below, the ISO 14001 certification "compliance gap" appears to result from focusing too much on the EMS "process" and not enough on specific facility and employee actions, environmental activities, and operational results.

CASE STUDY – INDUSTRIAL FACILITY CAA COMPLIANCE

One afternoon a large industrial products manufacturing facility owned by a Fortune 500 company was randomly inspected for CAA compliance by staff from a USEPA Regional Office. The industrial facility was a Major Source of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) with an existing Title V operating permit for a number of air emission sources. Normally, facility manager might be worried about this type of “random” environmental inspection. However, this was not the case in this instance.

The facility had been operating under a detailed ISO 14001 certified EMS program for a number of years. In addition, an ISO 14001 renewal certificate had been issued just a few weeks earlier. The State-delegated Local Air Pollution Control Agency (LAPC) had also been conducting annual Title V inspections at the facility for more than 6 years. The facility had been diligently performing the various monitoring and record keeping activities required under its Title V permit. In addition, the LAPC had never noted any Title V permit or other air emission compliance deficiencies at the facility during the prior 6 years.

Therefore, it came as a huge surprise to senior management when USEPA issued a major NOV based on the results of the inspection. The NOV cited the use of “non-compliant” coatings for more than 5 years on three production lines at the facility. Based on the potential number of days of non-compliance and excess air emissions cited in the NOV, the company was facing the possibility of a seven figure penalty.

Non-Compliance Issues

The three production lines at the facility referenced in the NOV included booths where a liquid VOC-based adhesive was sprayed on steel subsequently used for making other industrial parts in a separate manufacturing process. All three production lines (i.e., emission units) were included in the existing Title V permit.

At the time of the inspection, the emission units were operating (based on facility monitoring data at the time) in compliance with the Title V permit’s terms and conditions, including VOC emission limits. However, USEPA disagreed with the State Agency’s regulation of the adhesive application lines as general operations using liquid organic materials. USEPA took the position that the production lines were classified as surface coating of miscellaneous metal parts and products. As a result, the adhesive “coatings” used on the production lines were actually subject to the State (and federal) “as applied” limit of 3.5 lbs of VOC per gallon, excluding water and exempt solvents.

It became clear that USEPA’s position was solid on the technical and legal merits after conducting an initial technical and legal review of the existing state regulations on surface coating, miscellaneous metal parts coating (MMPC) operations, and general operations using liquid organic materials. As a result, we performed an extensive review of historical files at the LAPC and State Agency was conducted to obtain some additional insight. The results of these file reviews were very telling.

As part of historical air permitting activities dating back to the early 1980s, prior owners of the facility had conducted extensive negotiations with LAPC and State Agency staff regarding the regulatory classification of the adhesive application lines. As part of these efforts, the State Agency was provided with even older USEPA information dating back to 1978 that indicated adhesive coatings were, at that time, considered by USEPA to be separate and distinct from the surface coating of miscellaneous metal parts. Therefore, the prior owners argued that the state's restrictions on the VOC-content of coatings used for MMPC operations were not intended to be cover adhesive coatings.

Based on this additional information, the State Agency accepted the prior owner's position and agreed to permit the oldest adhesive application line as a "general operation" using liquid organic materials. It is important to note that the prior owners had indicated that the line (and the employee jobs with it) could very well be forced to move to another state if ruled as a surface coating operation subject to the VOC-content restrictions.

Furthermore, as a result of the initial (old) state ruling, a precedent was established for the next two adhesive application lines to be installed at a much later date at the facility. These adhesive application lines were also permitted as "general operations" using liquid organic materials even though State Agency file records contain numerous references to staff questioning the regulatory classification.

To make matters worse, the State-issued Title V operating permit for the facility, which the current company assumed was accurate, incorporated the historical individual air permit's applicable federal and State rule references, which were in error. In addition, even though the Title V operating permit was sent to USEPA for comments, no detailed USEPA review was conducted as is commonly the case. Therefore, USEPA had actually not signed-off on the Title V permit terms and conditions. Ultimately, USEPA ruled that the State Agency had issued the Title V permit terms and conditions for the adhesive application lines in error and that the current company "should have known better."

Finally, during the course of responding to USEPA's NOV, the company's consultant discovered that a number of additional facility environmental monitoring activities were being conducted in error. For example, emission unit operating hours were not being properly recorded for use in calculating average hourly VOC emissions and VOC containing solvent used for various cleaning purposes was not being recorded. There were also additional emissions units at the facility that included baghouses for particulate control. These baghouses had pressure drop gauges, but daily readings were not being taken as required in the Title V operating permit.

These were just some of the facility-wide environmental compliance issues the third-party consultant noted as part of a comprehensive regulatory compliance review conducted at the facility shortly after the USEPA NOV. Others were present in hazardous waste management, SARA Form R reporting, and wastewater discharge. How had so many compliance issues been missed when the facility's EMS program had been recertified under ISO 14001 just shortly before the USEPA inspection?

Certification Audit Insights

Notes from the ISO 14001 certification audit provide a number of insights regarding how the significant environmental compliance deficiencies might have been missed while the facility's EMS program continued to operate "effectively," according to the auditor. First, as expected, the certification report noted that "compliance to regulations was not examined as part of the audit. Rather, the purpose has been to confirm that systems are in place to manage the company's environmental aspects."

The auditor noted that the facility's environmental aspects had been identified and addressed in a variety of ways, including: "historical knowledge", systematic reviews, and internal environmental evaluations. Legal and other requirements were noted as obtained through the "maintenance of applicable permits" and periodic review of regulations. In addition, a procedure was in place for annual review of the environmental aspects to keep them up-to-date with legal requirements.

Regarding operational control, the EMS program was noted to have extensive policies and procedures for the control of potential impacts associated with identified environmental aspects. The production processes and various environmental operations (i.e., wastewater treatment) were noted as controlled by a large number of work instructions that included environmental aspects, as applicable. A strong system of well structured planned and preventative maintenance was also viewed as contributing to an effective EMS program. In addition, extensive facility monitoring and record keeping of environmental information for various permits was noted as evidence that the facility meets the requirement for recording of information to "track performance, operational controls, and conformance with objectives."

The facility was also noted to maintain records that "gave attention to detail and chronological order" to records. The auditor specifically noted "well controlled" and "extensive organized files" maintained by the environmental manager and on the facility's computer network. The auditor noted that external and internal environmental reporting is conducted "on a regular basis." Procedures were in place for handling nonconformance issues and the job description for the environmental manager and other responsible employees included discussion of responsibility and authority in situations requiring corrective action.

Finally, management reviews were accomplished by corporate staff, onsite inspections and annual internal facility environmental team reviews. However, aside from periodic State Agency inspections, no internal or external third-party environmental compliance audits or reviews were conducted at the facility.

All's Well that Ends Well

The company responded to USEPA's initial NOV and subsequent ICR letters over the course of the next 2 years. During this time period, negotiations with USEPA were also being conducted regarding (1) coming into compliance with the "compliant" coating limitations at the adhesive application lines and (2) ensuring that the facility maintained future environmental compliance.

Fortunately, the facility was able immediately bring one adhesive application line into compliance. The company was also able to highlight that the facility maintained an ISO 14001 certified EMS program that, in fact, had been demonstrating compliance with the State-issued Title V permit emission limitations (even though erroneous) for the adhesive application lines. As a result, the existing EMS program could be used to monitor and track the schedule for meeting all the remaining requirements for the facility to be fully compliant with the CAA.

In this case, the company surprisingly avoided any penalty as part of the facility's settlement of the USEPA NOV. No doubt, at least a small part of this was due to some excellent outside environmental consultant assistance and legal representation. Having an ISO-certified EMS program at the facility also clearly helped but not enough to avoid non-compliance.

LESSONS LEARNED - EMS PROGRAM FOIBLES & FOLLIES

Existing literature and the case study above clearly show that there are some key short-comings and hidden limitations in EMS programs and the ISO 14001 certification process' ability to ensure environmental regulatory compliance. We have grouped these critical short-comings and limitations into the five broad categories:

- Tunnel Vision
- Junk In – Junk Out
- Buddy Bias
- Time Changes Everything
- Rogue Employees

Some of these shortcomings and limitations are interrelated. None of them are completely avoidable. However, by being aware of their presence, environmental managers can take corrective action to minimize negative impacts on their EMS programs.

Tunnel Vision

Tunnel vision is a limitation that keeps a facility from fully considering the wide array of environmental regulations and legal requirements that could apply to processes and operations. Sometimes this may be the result of facility staff viewing themselves as having "expert, inside industry knowledge." Other times, it may creep into a facility's EMS by the integration of longstanding practices and historical information such as highlighted in the case study.

Regardless of the cause, the only sure cure for tunnel vision is to look long and hard at all the technical details of a facility's environmental aspects and the universe of environmental regulations. Environmental regulatory agencies have employees with differing levels of knowledge, experience, and motivation. Just because a facility was at one time able to obtain an environmental permit with certain conditions or convince an agency inspector that a process is OK, does not mean that ongoing environmental compliance is assured. Recognition of this limitation is the first step in ensuring ongoing environmental compliance.

Junk In-Junk Out

Remember, an EMS program is a “management system” and ISO 14001 certification only recognizes that an EMS meets specific system standards. As with any management system, if the system is improperly designed, tracking the wrong data, or compiling incorrect information, then the system is going to monitor and report worthless information. Thereby, the mantra: “Junk In-Junk Out” truly is applicable to even ISO 14001 certified EMS programs.

This is a major failure that all too often occurs with EMS programs with respect to environmental compliance. I cannot count how many times during third-party environmental compliance audits at industrial facilities with ISO-certified EMS programs that I have observed specific permit operating conditions, emission limitations, and monitoring or record keeping provisions that have not been specifically integrated into an EMS program. At smaller industrial facilities, employees responsible for environmental management may not even fully read the environmental permits or applicable regulatory requirements.

As commonly paraphrased, the devil is always in the details. Broad-based EMS programs are not always good at the details of environmental compliance.

To address this limitation a facility should invest upfront in having a third-party environmental compliance expert (not management system expert) review all its processes, operations, and facilities to identify their environmental aspects. Based on this information, the compliance expert can then assist in identifying all applicable environmental rules and requirements for incorporation in the EMS program.

Buddy Bias

The effect of “Buddy Bias” can be all too pervasive in ISO-certified EMS programs. Company employees participating in internal reviews will likely know and may well be friends with the key facility employees responsible for various aspects of the EMS program and facility compliance. As a result, these employees will have a whole host of internal disincentives to look too closely at environmental compliance issues.

Identification of environmental compliance issues may reflect poorly on their own or a friend’s performance. In addition, compliance issues often create additional work for the same employees that might identify them. Finally, raising some serious environmental compliance issues can entail considerable “political risk.” An internal employee identifying an issue may also have been involved in developments that resulted in the issue occurring in the first place. For all these reasons, even ISO 14001 certified EMS programs are still essentially “weak swords” in assuring environmental compliance.¹

Buddy Bias can also extend to interactions with local and state regulatory agency personnel. Facility employees often have had ongoing working relationships with these personnel that has lasted for decades. It is also increasingly common that facility employees and regulatory agency personnel have had various professional and networking interactions that can and do result in friendships developing. These time and friendship aspects clearly flavor any local and State regulatory agency personnel’s review of a facility’s compliance status. Based on actual experience, this author would also say that these relationships often result in far less rigorous

environmental compliance inspections than those conducted by an unattached reviewers such as USEPA or third-party environmental consultants.

Time Changes Everything

In creation of an EMS program, environmental aspects are identified early on in the development process. These aspects include a facility's applicable environmental legal and regulatory compliance requirements. Based on the environmental aspects, detailed EMS procedures, monitoring systems, recordkeeping programs, and reporting policies are developed. However, these can quickly become out-dated in the fast-paced external and internal world we all work in today.

New environmental regulations, agency interpretations, and guidance are being issued every day in the US. An ISO 14001 EMS program is required to demonstrate that facility employees have a procedure for and ability to access updated information on environmental regulatory changes. However, access does not ensure that the employees will have the time to review or ability to fully understand new regulatory requirements.

A typical industrial facility's manufacturing processes, chemical usage, and operational activities are also subject to change frequently. At industrial facilities, the reality is that new chemicals are often ordered, production processes changed, and changes made to equipment installed without prior notice to the facility environmental team. These situations have occurred all too often at the industrial facilities with ISO 14001 EMS programs that I have audited during the past 15 years.

For example, I recently audited an ISO 14001 certified facility that had installed a diesel fuel-fired back-up electrical generator. The facility was a Major Source of SO₂ and the back-up generator was not an insignificant or permit-by-rule source. Therefore, prior to installation an air permit was obtained. However, the manufacturer of the generator was changed and size slightly increased by operational employees after the air permit was issued. As a result, the air permit for the generator contained hourly and annual emission limitations that were significantly lower than the actual manufacturer estimated emissions. The facility did not identify this issue because nobody had checked the nameplate information on the back-up generator with the emission unit information in the air permit.

When the changes are not identified, even an ISO 14001 certified EMS program cannot function effectively for the management of that change. ISO 14001 certification does not ensure or act to reconfirm that changes are identified and evaluated for their environmental implications only that there is a "process" for "management of change."

Rogue Employees

Whenever a process or procedure is a fundamental component of a system, the system can be gamed. An ISO 14001 certified EMS program is not any different. Employees that are willing to deviate from written procedures and potentially even enter incorrect or false information during environmental monitoring and recordkeeping will not be identified by an EMS program.

This limitation was shown most dramatically in the case of the BP Texas Refinery. According to the post-explosion investigative report, employees regularly “failed to follow written standard operating procedures” and various alarms “were ignored.” These high risk actions went on for a number of years and were not restricted or identified by the ISO 14001 certified EMS program or extensive corporate safety and risk management procedures.

I am sure many industry veterans can remember at least a few less dramatic cases of the rogue employee effect at facilities. This can occur when employees simply do not fully understand the implications of their actions or believe their performance evaluations will be adversely impacted by environmental compliance issues. In all these situations, the only way to truly ensure the environmental compliance status is to obtain direct evidence of the environmental compliance elements not policies or procedures used to manage them.

SUMMARY AND CONCLUSIONS

The shortcomings and limitations in EMS programs means that ISO-certification does not ensure environmental compliance at an industrial facility. Environmental managers and staff would be wise to remember this when talking with senior operational managers and company executives.

True compliance assurance can only be obtained by conducting facility-specific environmental compliance audits. These compliance audits must be conducted by independent, objective auditors with technical and regulatory subject expertise.

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KEYWORDS

ISO, 14001, environmental, management, systems, compliance, auditing, performance
