

Moving from Permitting Pollution to Preventing Pollution: What does the Environment Need from a Permit?

The Public Interest Perspective

**by Ann Hillyer
Barrister & Solicitor
Staff Counsel**

**West Coast Environmental Law Association
Vancouver, B.C.
Canada**

**for
Organisation for Economic Co-operation and Development
Workshop on
Environmental Requirements
for Industrial Permitting**

**May 9, 1996
Paris, France**

Today's environmental imperatives are propelling us into an era where we must rethink our approach to environmental protection. We are challenged to examine what protecting the environment means and to rigorously scrutinize the tools we use to ensure that protection. The need to achieve the greatest possible environmental benefits from environmental protection measures, such as the industrial permitting process, has never been greater.

In the words of the World Business Council for Sustainable Development,

Developed countries will have to cut their use of energy and other raw materials - and their impact on the environment -- more than 10 times over in little more than a generation, if the needs of the world's growing population are to be met without destroying the planet.²

Perhaps this stark conclusion would be less surprising if it had come from a deep ecology group. But today it is clear that addressing our grave environmental problems has become a priority for every quarter of society. We are even beginning to see that solving environmental problems can unearth significant economic opportunities.

For some time we have known that pollution prevention is a powerful concept which, when properly implemented, can dramatically shift the way we use resources and significantly limit our impact on the environment. To translate this opportunity into reality involves finding ways to transform permit system mechanisms to achieve pollution prevention more quickly and effectively.

This paper focuses on several themes essential to this transformation:

1. The importance of an appropriate legal framework to encourage preventing pollution rather than simply controlling it after it occurs
2. The need for tough standards that protect the environment, rooted in the principles of precautionary, preventative action, even if the technology does not yet exist to achieve the standards
3. The need to set legally enforceable standards far in advance of the date for compliance and phase them in where appropriate
4. The necessity of clear, accurate monitoring and compliance information that is routinely made available to all interested parties
5. The importance of meaningful public participation
6. The need to recognize and ambitiously pursue the economic benefits associated with pollution prevention

To illustrate these themes, the pulp mill effluent regulations in effect in British Columbia will be examined. These regulations have contributed substantially to moving the industry from being a heavily polluting industry to one achieving significant improvements in environmental performance.

LEGAL FRAMEWORK FOR POLLUTION PREVENTION

We need to establish a strong regulatory framework in order to "prompt" the necessary shift in thinking -- a regulatory regime that articulates the principles of pollution prevention and adopts the precautionary approach.

The appropriate legal framework for making the shift from permitting pollution to preventing pollution should take both a visionary approach and an evolutionary approach. The visionary approach requires us to decide on clear ambitious objectives for the future -- and then requires us to backcast to the present to understand the magnitude of the change we envision for the future. The evolutionary approach requires us to rigorously assess where we are now and identify the most promising opportunities for environmental improvement. We need to do both. It does not make sense to develop a vision and then not have a plan to guide us to achieving that vision. And it does not make sense to just start taking action without an idea of what we want to achieve.

Pollution prevention planning should adopt the visionary approach in at least two key areas:

- identifying regulatory parameters that need to be set far in advance of the date when compliance is required, allowing maximum time for innovation in achieving compliance, and
- setting legally enforceable targets for eliminating or sunseting classes of substances, such as persistent, bioaccumulative toxics.

The evolutionary approach thoroughly assesses the present performance of an operation and looks for every available opportunity to improve environmental performance. Examples of tools that employ the evolutionary approach include:

- using best available technology in setting permit requirements,
- using staged reduction standards that match steps to minimize polluting substances with predicted technological improvements, and
- ensuring compliance information is routinely made available to monitor the performance publicly.

An appropriate legal framework sets the stage for designing more specific legal instruments, such as industrial permits for individual facilities or sector-wide regulations, which foster innovative process and design changes that prevent and eliminate pollution at the source.³ The strength of the legal framework is significantly enhanced through ensuring that pollution prevention is properly defined to focus on preventing pollution before it happens. An appropriate definition of pollution prevention will define it as improving housekeeping, changing production processes, extended use and reuse in a process, reformulating or redesigning products, materials substitution (especially substituting non-toxic or less toxic substances for toxic chemicals) manufacturing modifications, and eliminating the use of specific targeted substances.⁴

TOUGH STANDARDS THAT PROTECT THE ENVIRONMENT

The primary reason for environmental standards is to protect the environment. There is no shortage of examples of situations where lax regulatory standards or regulatory gaps have led to environmental catastrophes, frequently resulting in huge clean-up costs. Achieving the dramatically reduced environmental impact reflected in the statement from the World Business Council for Sustainable Development will, among other things, require stringent environmental standards to govern permitting of industrial facilities, standards that are based on the precautionary, preventative approach and are strictly enforced.

Getting the maximum environmental protection from regulations and permits requires setting strict rather than lax standards. Current commentators argue that companies can handle lax regulation incrementally, often with only end-of-pipe or secondary treatment solutions. Legal standards, therefore, need to be stringent enough to promote real innovation.⁵ Put another way, if environmental quality standards are sufficiently stringent, appropriate technology will be developed to meet those standards.

One consequence of recognizing that standards should be driven by the need to protect the environment, not by the best currently available technology, is that we need to develop standards that reflect different approaches for pollutants associated with different levels of environmental concern. For substances with serious ecological impacts, such as bioaccumulative or persistent toxics, employing commercially proven best available technology (BAT)⁶ alone is not a satisfactory response, unless current BAT results in the elimination of those substances.⁷ Standards that require the elimination of persistent toxic substances according to an urgent and realistic timetable offer excellent opportunities to drive fundamental process changes rather than simply tightening up existing processes. Regulatory tools should drive the development of technology and processes that result in the elimination of classes of the most environmentally problematic substances. They should address the issue of scientific uncertainty squarely and prevent regulators and industry from engaging in endless rounds of intensive scientific debate on a substance by substance basis.

In setting standards, it is important to remember that end-of-pipe limits do not limit the response to end-of-pipe solutions. Tough end-of-pipe environmental standards are needed to motivate innovative, efficient environmental performance throughout an operation and give operators the opportunity to decide how to meet the standards most effectively.

As well as driving to an environmentally sound vision of the future, regulations need to set the minimum acceptable standards for present environmental performance. And current regulations need to be strictly enforced to adequately protect the environment and to maintain a level playing field among sector participants.

Further, it is clear that pollution prevention is not a substitute for environmental regulation -- it should be the outcome of effective regulation. Voluntary measures, often effective complements to regulations, also are not appropriate substitutes for legally enforceable standards. In discussing the need for complementary tools, a Vice President of Dow Europe points to the need for both incentives and regulations:

It is like the Tour de France. There you have a prize, an incentive to lead. But you also have a car at the back, picking up stragglers and disqualifying them. Governments need to have a set of carrots and incentives up front to entice the business community, but they also need to have the pick-up truck of minimum legal standards coming up behind.⁸

A recent survey involving Canadian businesses revealed that regulations continue to be cited as the leading motivator for taking environmental action -- and rank substantially higher than voluntary measures in governing behaviour.⁹

SET STANDARDS FAR IN ADVANCE OF COMPLIANCE

Properly conceived regulations can be powerful levers for effecting change. As noted above, regulations need to promote preventative design and foster innovation. This requires regulators to be much more proactive in setting stringent standards for the

future and also requires using the pollution prevention model to reach those standards. Regulators do not need to tell industry how to get there, but need to set clear regulatory requirements about the required outcomes.

Optimally, regulations should be employed to improve environmental performance in the future, not just to deal with existing environmental problems. Setting ambitious regulatory standards -- far in advance of the date they come into effect -- promotes innovation in technology and process design and allows for maximizing the environmental and other benefits. It allows operators the time to assess their operations holistically and discover opportunities for efficiencies that might otherwise go unnoticed. Sufficient time to redesign systems encourages a comparison of the costs and benefits of a number of options and promotes opportunities for making improvements in unregulated areas where change may be needed. And steps to prevent pollution frequently yield other environmental improvements, such as reducing consumption of raw materials.

Setting the standards far enough in advance allows for ample but well-defined phase-in periods that offer the potential of matching required reductions in discharges to emerging technological improvements. It also permits appropriate planning for capital investment cycles.

ACCESS TO MONITORING AND COMPLIANCE INFORMATION

The strength of pollution prevention initiatives can be enhanced through accountability to the community in which permitted facilities operate. We face a significant challenge in developing reliable, transparent and easily understood mechanisms to document and report on pollution monitoring and compliance data. Reporting on the state of compliance with environmental regulations is an excellent way of advertising the success of pollution prevention initiatives -- and of shaming laggards into compliance with permit standards.

British Columbia routinely releases a comprehensive environmental noncompliance report listing operations that failed to meet environmental protection standards in permits or regulations. It is the only province in Canada to do so. The province's Minister of Environment recognizes its value in effective enforcement of standards:

The noncompliance report is one of the most effective tools we have to get operations and individuals to adhere to B.C.'s environmental protection laws. No one likes to see their name in the paper for something as serious as harming the environment.¹⁰

British Columbia also routinely releases a publicly available report detailing the province's latest environmental charges and penalties, listing the total number of convictions and fines levied during the period covered by the report. Both reports are released directly to the media and to other interested parties every six months. The program is now in its sixth year. The routine release of this information, as opposed to requiring the public to make information requests, provides a strong incentive for

industrial permit holders to comply with environmental standards and contributes to a well-informed public less suspicious of environmental performance.

Today's consumers are demanding environmentally sound products as well as products that are manufactured without causing environmental degradation. In many cases consumers are willing to pay a premium for those products. Further, some consumers have displayed a distinct willingness to boycott products altogether when concerned about the environmental record of the producer. Purchasers large and small want to be able to verify environmental product claims with solid, quantifiable information, preferably information that is generated at arm's length from the producer. Environmental monitoring and compliance data offers a unique opportunity to support environmental marketing claims. This data is a matter of public record and removes some of the scepticism about a company telling only the good news about its environmental track record.

In addition to government initiatives, some companies have adopted innovative approaches to monitoring their progress toward environmental improvements. For instance, The Boeing Company has instituted a single, company-wide measure for rapidly gauging its progress in engaging pollution prevention: the hazardous waste generated per year per factory employee.

MEANINGFUL PUBLIC PARTICIPATION

There is a great deal to be gained by involving community and environmental organizations in permitting exercises involving pollution prevention planning and implementation. This will provide access to local expertise and build community support for pollution prevention initiatives. But this must be meaningful involvement based on full access to information and serious consideration of public input.

The public is entitled to participate in developing the means to meet environmental challenges, since it must live with the environmental impacts of production processes. Time and again a well-informed public has provided an invaluable driving force in accelerating environmental improvement.

ECONOMIC BENEFITS OF POLLUTION PREVENTION

There is a growing consensus regarding the positive links between a strong environmental record and strong economic performance, between pollution prevention and economic efficiency. In a recent paper published in the *Harvard Business Review*, Michael Porter and Claas van der Linde commented on the relationship between strong environmental programs and economic performance, stating that:

Properly designed environmental standards can trigger innovations that lower total cost of a product or improve its value. Such innovations allow companies to use a a range of inputs more productively -- from raw materials to energy to labour -- thus offsetting the costs of improving environmental impact and ending

the stalemate. Ultimately, this enhanced resource productivity makes companies more competitive, not less.¹¹

It is almost becoming trite to articulate the numerous benefits of adopting pollution prevention. The most obvious benefit is that it can lead to a cleaner environment and lower human health risk -- both have significant economic implications. However, many other benefits are available:

- reducing energy and resource use
- minimizing waste disposal costs
- reducing the need for pollution control equipment
- increasing productivity
- complying with regulations more easily
- reducing liability regarding environmental problems
- reducing liability for worker's health and safety
- improving the company's image in the community
- improving competitiveness through increased efficiency.¹²

The benefits exist. The challenge is finding the most effective way to realize them.

As well, the forces of the marketplace must be harnessed to accelerate the pace in adopting the pollution prevention ethic. Market forces -- such as the tax system and government and private sector procurement policies -- are extremely useful in promoting ecologically beneficial behaviour.

THE EXAMPLE OF BC'S PULP MILL REGULATION

The British Columbia pulp mill effluent regulation illustrates these themes. British Columbia has a large pulp and paper industry. Of the 26 mills in the province, 23 release effluent directly into the environment. 17 mills produce bleached pulp using chlorine compounds and all but one of those uses the kraft process.

The provincial pulp mill effluent regulation -- which continues to draw worldwide attention -- requires pulp mills that use chlorinated compounds to eliminate adsorbable organic halogens (AOX)¹³ produced in the bleaching process by December 31, 2002. This regulation became law on July 1, 1992, more than ten years prior to the date for compliance. At the time this standard was set, pulp mills in B.C. were subject to a variety of federal and provincial regulations, including an AOX limit of 2.5 kg per tonne of air dried pulp produced. This provincial limit was reduced to 1.5 kg per air dried tonne of pulp produced, effective December 31, 1995.

Pulp mills in Canada are also regulated by the federal government, whose standards were strengthened significantly in the last few years as well. The *Canadian Environmental Protection Act* prohibits mills from discharging detectable levels of dioxins and furans. The federal *Fisheries Act* governs the discharge of biologically oxygen demanding substances (BOD), total suspended solids and toxicity. It also requires mills to participate in an environmental effects monitoring program which is

aimed at determining whether or not the current regulatory standards are adequate to protect the environment.

The regulatory response followed what can only be described as an environmental catastrophe in British Columbia in the late eighties. Since late 1988, the Canadian government has closed hundreds of kilometers of British Columbia coastline to shellfish harvesting because of dioxin and furan contamination from pulp mills. These shellfisheries closures were accompanied by a number of health advisories warning people not to consume certain species of fish over set limits, some types of diving ducks and waterbirds, and a general advisory against eating the livers of any bottomfish caught near coastal mills. These closures and health advisories resulted in a groundswell of environmental concern in the province and demands that the government take steps to deal with the situation. Many shellfishers lost their source of livelihood due to the closures. Aboriginal peoples, many of whom live in the vicinity of pulp mills, lost a major food source.

Compounding these problems was the fact that the British Columbia pulp and paper industry had a history of routine non-compliance with existing regulatory standards. And at the time of the first shellfisheries closures, pulp mills in British Columbia were not subject to regulations governing chlorinated organic compounds, including dioxins.

Since the introduction of improved regulatory standards, the British Columbia industry has achieved dramatic improvements in environmental performance in a relatively short period. In many cases, the improvements have been better than expected and have occurred ahead of schedule.

The regulation requiring the elimination of AOX has been a significant driving force in cleaning up the industry and offers a useful model for regulating in other areas. Some of the obvious benefits of this approach include:

- incorporating the precautionary approach and the preventative approach principles into the regulation making process,
- using long term planning by setting the standard far in advance of required compliance and allowing the time for the development of appropriate technology involving solutions to other environmental problems associated with pulp mill effluent,
- targetting a legal limit of zero discharge of a class of substances, avoiding intensive debate and expensive regulation on a compound by compound basis, and
- taking advantage of emerging market opportunities.

Since the implementation of the AOX regulation, the pulp mill industry in the province has realized a number of specific environmental and other benefits⁴:

- reduced environmental impact from pulp and paper mills,
- maximization of environmental gains when process changes made to meet AOX limits yield improvements in discharge levels of other parameters,

- achieving regulatory compliance largely ahead of schedule,
- significant improvements in environmental performance in most parameters,
- some reopening of shellfisheries,
- reduced public pressure on the industry,
- well positioned to take advantage of emerging market opportunities for totally-chlorine free pulp.

In addition to these benefits, when the industry eliminates the use of chlorinated compounds as bleaching agents to meet the standard of eliminating AOX, it will make a significant leap toward being able to operate effluent free pulp mills. Current research into environmental problems associated with pulp mill effluent has unearthed other serious problems -- clearly pointing to the need to keep pulp mill effluent out of the environment altogether. The British Columbia AOX regulation moves the industry closer to that goal.

CONCLUSION

In conclusion, we need to remember that pollution prevention is a powerful concept and the industrial permitting process should be designed to maximize opportunities to prevent and eliminate pollution at its source. Pollution prevention is an important building block in transforming polluting, over-consuming societies to sustainable societies and in ensuring that industrialization in developing countries does not follow an unsustainable path.

Pollution control and waste management institutions, laws and regulations that were established over the past decades are still needed, but they cannot be relied upon to protect our ecology effectively by themselves. Our laws, policies and incentives need to move us to preventing pollution and environmental degradation, rather than trying to manage pollution or remediate damage after the fact. Environmental standards must drive permit setting to a system that is smarter, more efficient, more harmonious with our ecosystem, and makes more sense. The first step, as always, is to let go of outmoded thinking.

ENDNOTES

[1.](#) West Coast Environmental Law Association is a non-profit environmental legal organization that provides legal services to citizens and organizations concerned about threats to the environment. It aims to improve protection of the environment and to promote public participation in environmental decision making. It operates in conjunction with West Coast Environmental Law Research Foundation.

[2.](#) Fussler, Claude, "Shrinking the Human Footprint", (1996) Our Planet, Vol 7 No 6 at page 9.

- [3.](#) For numerous examples of where this approach has been applied, see Curtis Moore and Alan Miller, *Green Gold*, Beacon Press, Boston, 1994.
- [4.](#) For a discussion about the importance of an appropriate definition of pollution prevention, see the Final Report of the Pollution Prevention Legislative Task Force, September, 1993, Environment Canada and Great Lakes Pollution Prevention Bibliography, A Project of The Great Lakes Pollution Prevention Centre and The Canadian Institute for Environmental Law and Policy, March 1995, Part 1. Important waste minimization measures, such as out-of-process recycling, should be encouraged but are not included in the definition of pollution prevention.
- [5.](#) Porter, M.E. and C. van der Linde, *Green and Competitive: Ending the Stalemate*, Harvard Business Review, September-October 1995 at page 124.
- [6.](#) While there are a number of definitions for BAT in use, many incorporate the notion of commercially proven technology.
- [7.](#) See Ann Hillyer, Comments on Ministry of Environment, Lands and Parks Policy for Setting Criteria and Standards, West Coast Environmental Law Association, March, 1995.
- [8.](#) Fussler, Claude, *Shrinking the Human Footprint, Our Planet*, Vol 7 No 6 at page 11.
- [9.](#) KPMG Canadian Environmental Management Survey, 1994.
- [10.](#) Province of British Columbia News Release 330-20:ELP96/97-003, April 10, 1996.
- [11.](#) Porter, M.E. and C. van der Linde, *Green and Competitive: Ending the Stalemate*, Harvard Business Review, September-October 1995 at page 120.
- [12.](#) Great Lakes Pollution Prevention Bibliography, A Project of The Great Lakes Pollution Prevention Centre and The Canadian Institute for Environmental Law and Policy, March 1995, at page 1-3.
- [13.](#) AOX is the term used to describe a family of chemicals, including more than 300 that are produced in bleached pulp mill effluent when chlorinated compounds are used in the bleaching process. Many of these chemicals are highly toxic, remain in the environment for many years, and accumulate in the food chain.
- [14.](#) While it is not possible to attribute all the gains as resulting from one cause, the AOX regulation clearly has been an important factor in improving the environmental performance of the industry.