What REACH can teach us about TSCA: Retrospectives of America's Failed Toxics Statute

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I. Introduction

Comparative risk assessments in the chemical safety field sometimes adopt a lofty view of the purposes of legislation. This personal essay is not lofty, and it is not just another professor's comparison of the purposes of the European Union's REACH[1] with American regulatory programmes. I write today as an individual, as the last active remaining participant of the small group of industry players in 1975–76 who helped to negotiate the details of the 1976 US Toxic Substances Control Act ("TSCA")[2]. As advocates for industry we won the key arguments over the law's terms and conditions, but the decades since have not shown TSCA to be a triumph for anyone.

The US chemical control law, TSCA, has proved to be a disappointment in the hindsight of three decades of experience. The reason why TSCA did not produce the results that had been desired was that during the law's period of formation, the chemical industry worked effectively to place controls and qualifications on the powers that the US Congress was giving to the regulatory bureaucracy, the Environmental Protection Agency (EPA). There is no surprise at the news that the affected companies were effective advocates against new controls. The American public, including the great majority of environmentally conscious consumers, has chosen not to become involved with the intricate details of drafting new laws on issues like toxics regulation. Chemical regulation as a vehicle for policy implementation is exceedingly complex and fact-specific, making the words used in new laws very important to the success of those laws. The complexity of defining control systems is deep, defying simple schemes and regimes for its control. Today, environmentally conscious non-governmental organisations (NGOs) provide the intellectual and tactical leadership to rebut industry, a leadership they lacked in the mid-1970s during TSCA's creation.[3]

A quick summary of TSCA may be offered at the outset. The "TSCA Inventory" of all chemical substances in US commerce was completed in 1982, as required by the 1976 law. Those "existing" chemicals could have been regulated by testing requirements, manufacturing limits or other regulatory controls adopted through the complexities of federal administrative rules, if the EPA had a sufficient level of concern to satisfy the TSCA threshold for action against existing chemicals.[4] TSCA provides that EPA can require the submission of extensive environmental and health safety information[5]. "New" uses of those chemicals can be addressed by a regulation if other criteria are met for the rulemaking.[6] Post-inventory "new" chemicals are subjected to an evaluation that may take months of detailed review. Data submissions cannot be made public if the company asserts that the data is "confidential business information".[7]

1. Looking behind the 1976 US legislation

In 1975, the US chemical industry assembled a team of lobbyists, lawyers and chemical experts who were able to use the complexity of detailed work concerning chemical regulation to blunt the impact of the proposed TSCA law. We used a set of procedural restraints, imposing these limitations on actions that could be taken under that law by the US EPA. After our work was done in 1976 and the votes were counted in Congress, the passage of the1976 TSCA law was hailed in the press as the capstone on the US environmental programme. That capstone of

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1 EU Reg. 1907/2006.

2 15 United States Code 2601 et sqq., hereinafter "TSCA". The section numbers used in this article such as section 8 can be found within the text of the Act online, www.gpoaccess.gov.

3 Although several labour unions and two environmental NGOs had a small presence, the actual work on the wording was largely that of industry team members and the professional staffs of elected officials.

4 15 U.S.C. 2605.

5 15 U.S.C. 2607.

6 15 U.S.C. 2604.

7 15 U.S.C. 2613.

chemical regulation would augment the number of controls of water, solid waste and air pollution that prior laws had imposed.

What most people did not recognise at the time was that the defensive efforts of the chemical industry had left Americans with a weak law on chemicals which produced a mere façade of effective environmental action. Industry in the US had avoided most of the pain that could have been imposed on the marketing of then-existing chemicals. Data sharing and data disclosure were restrained. New uses for existing chemicals were not controlled in the way the original sponsors had wished. In retrospect, TSCA did not produce the depth or scope of controls in the 1970s that the EU's REACH programme of chemical regulation has introduced for chemical producers in the 21st century.

If today's European regulators know little about the US TSCA, that is not a surprise. The chemical industry's 1976 lobbying efforts resulted in a law that is today recognised as a failed effort to achieve lofty regulatory goals. A dozen years after its adoption, the US Congress held a hearing entitled, "Whatever Happened to the Toxic Substances Control Act?" Just to ask that question is to suggest recognition by Congress of the failure of its sponsors' intentions. The same question has been asked for two decades since. The question today is, "Will a 2011 version of TSCA learn from the European experiences with REACH?"

While the professional administrators within the US Environmental Protection Agency have done their best with what they were given, TSCA has been tied down so much by the procedural "safeguards" which our industry team installed that it is now ineffective. During 2011–2012, the US Congress will be considering bills to make TSCA more robust, and many environmental advocates are looking towards the EU's REACH chemical regulatory programmes. The debate will be intriguing to Europeans as a reflection on American perceptions of REACH, and to Americans as a reflection on the chemical industry's perceived value in the American economy of today. Recession, job losses, environmental waste revelations, uncertainties about safety, cancer alarms, and other perception issues will make for a far less pro-industry climate than was seen in 1976 while the TSCA was being completed.

8 42 U.S.C. 11023, 11044.

II. Lessons from REACH

Do Americans know that our high volume chemicals are adequately tested? Do we know that the test results on those chemicals are adequately disseminated for evaluation by scientists? No, we lack that information under TSCA, just as most of the EU nations did under the systems which predated the 2007 REACH Directive. The effort needed for the gathering of detailed chemical safety data generation methods from the REACH directive has been a challenging task. The data process, to be accomplished by EU leaders over a decade, overcame strong opposition. Other sources cover REACH in detail, so its requirements will not be explored again in this article. The forthcoming REACH implementation deadlines in 2010–2012 make it timely for us to consider, in hindsight, why the American TSCA system failed.

What REACH contains – and what TSCA lacks – are gap-filling tools. Information gaps about toxicity of industrial and consumer chemicals will probably be filled in the "new TSCA" by means of rules that will force data sharing, and will use compulsory collective efforts to identify and disclose detailed risk data. Standards will be developed, caps or alternatives may be used, and disposal measures may be prescribed. The volume of accessible safety data will explode in size, which should be helpful in some cases to prevent an actual explosion within a densely populated vicinity around a chemical facility. In the U.S., the 1976 TSCA law and the 1986 Toxic Release Inventory legislation[8], even when used together, would not yield the participative knowledge base that REACH creates.

In the American political system, opponents of changes proposed in our Congress often assert "we have plenty of laws, just not enough enforcement" done by existing authorities. Observation of the power of the new EU REACH programme disproves this assertion in the context of hazardous chemicals. The rise of REACH awareness is a living sign to Americans that we do yet not have the laws that will inform the public about chemical risk data, like those the Belgians and Greeks and other EU residents will soon enjoy. It would be true to observe that the US Congress has funded the enforcement of toxic chemical controls in great depth and detail, since we have had budget limitations and deregulatory pressures. But at the core of the problem in the US system lie the flaws in TSCA that inhibit its effective deployment against potential problem chemicals.

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– A higher regulatory "overhead" for testing would have deterred some risky entrepreneurs from investing in the specialised chemicals field;
– The intensity of chemical regulation by individual states inside the USA, such as California Proposition 65's chemical label warnings, adopted in 1986,[13] would never have been needed;
– More toxicology and exposure work on more chemicals would have been funded by chemical firms to add to the public knowledge base; and
– The specific toxicology of the growing number of specialised chemical additives would have been more widely studied and understood at the time they were entering the marketplace.

So why did the climate in 1976 not support a US law as rigorous as today's REACH? A budgetary price and a political burden would have been experienced by the Congressional advocates if they had wished to push for a stronger TSCA. Critics of "Big Government" would have been hostile to more regulation. Then, as now, the budgetary conservatives disliked spending federal funds from the domestic discretionary budget[14]. Those funds would have been needed in order to hire sufficient scientists to credibly oversee the process of safety scrutiny of chemicals and their environmental and human health effects. The pro-environment voters were a vocal minority under Presidents Ford and Carter, but the political burden of advocating tighter controls on business became virtually impossible during the pro-business climate of the Reagan and George H. Bush administrations, 1981–1993. In 1988 was held the congressional hearing titled "Whatever Happened to the Toxic Substances Control Act?". That title alone sent a message. For these reasons, TSCA was not made stronger as a regulatory programme, and has remained a small part of EPA's work during the recent years.

IV. Regulatory cost issues

No one denies that TSCA could have been much more costly. An EPA budget in the 1980s that would have supported aggressive rulemaking (and defended TSCA more vigorously against industry challenges in court) would have had to be far larger than it actually was. If TSCA had been strengthened by further legislation, a hidden consumer price effect would have been felt. Since TSCA placed the costs of data development on the upstream chemical suppliers, and not so heavily on the makers of articles who were exempted[15], American consumers had virtually no awareness that regulatory testing and review charges had (indirectly) increased the purchase price of their toys, cleaners, furniture and other end products. The problem was not unique to American chemical control statutes. Within the context of other US legislation in the 1970s for consumer product safety, medical device safety and pesticide controls, one can see a similar pattern of budgetary deregulation, causing a reduction in standards-writing and new programmes, and also a reduction of zeal among the pro-environment, pro-regulation forces from which the impetus for TSCA arose.

In the recent world recession, some would assert that the closure of chemical facilities in the US and the resulting employment losses could be linked to American regulatory costs, and to the higher costs of developing chemical products under the US regulatory system. That assertion is not sound. It is more likely that the loss of employment in chemicals production occurred in parallel to losses in employment in factories making metals, mechanical equipment and with other labour-intensive production methods, each of which migrated from unionised American factories toward the lower labour costs in distant nations with weaker constraints and fewer costs. Once the recession has subsided, economists will probably find that few if any of the jobs lost in US chemical sector companies had been lost because of the regulatory controls of TSCA.

V. Could TSCA have succeeded?

If history had been different, there would have had to be several significant changes for TSCA to be counted as a legislative "success":
– EPA's budget would have needed to grow significantly during the Reagan era (1981–1993) but in-

13 California Health & Safety Code 25249.

14 The US budget spends most of its funds on "entitlement" social spending, debt repayment and other non-discretionary allocations, as well as a large fraction on war and defense issues; the leftover remainder are discretionary domestic and non-domestic expenditures.

15 40 C.F.R. 704.5.

stead the TSCA programme was starved for resources to implement its concepts;
- Fewer high-tech plastics might have been available for creative uses;
- Novel packaging materials would have been more expensive to develop, as their costs would have needed to cover higher research expenses;
- American nanotechnology innovation of the last decade might have been constrained;
- Some of the chemistry within today's telecomm devices might not exist on the market today; and
- Costs of today's Asian exporters for competing in the US specialised chemicals import market would have been significantly greater, with perhaps a protectionist benefit to chemical producers and US-based chemical exporters.

After its hopeful start in the Carter years, 1977–1980, TSCA and other efforts for innovative environmental programmes withered during the era of deregulatory retrenchment in 1981–1992. Under the Carter Administration the growth of the Environmental Protection Agency's staff and resources needed to create the TSCA inventory of existing chemicals had been substantial. Those investments of government resources plummeted after the Reagan Administration's deregulatory forces had cut back the EPA staff. Funding for chemical research and evaluation was reduced, the creation of new rules was restricted, and the EPA TSCA programme was left mostly with the role of responding to reports of safety data suggesting chemical risks as reported to EPA under section 8(e)[16]. This was a reactive role, a far cry from the affirmative role planned by the original TSCA sponsors aiming at more rules and standards to be adopted.

The weakness of TSCA follows a familiar pattern for many US regulatory professionals: alarm in the news media heralds the need for adoption of a tough new regulatory law; the law is passed and hailed as a great achievement; the news media and public attention then turn to other issues; then, lacking budget resources, the under-funded regulators find themselves unable to enforce the new law effectively. The willingness of some companies to comply reluctantly with a public protective measure is correlated to their government's budget for enforcement. A strong law that is weakly executed will fail. Too few regulators, stretched too thinly, cannot satisfy the need for nationwide protection from possibly adverse chemical effects. During the 1980s, EPA enforcement resources were cut, rules were adopted less frequently with fewer controls, and the pressure on chemical processors was reduced, so attention to TSCA faded accordingly. If the law had been a success, Congress would not have held its hearing, 12 years after adoption, titled "Whatever Happened to the Toxic Substances Control Act?"

VI. Four failures

Structural weaknesses in the 1976 TSCA language compounded the deregulatory drought for TSCA in the 1980s. I will highlight four outcomes of our industry team's defensive work on the drafting of the legislation that became the TSCA. The chemicals industry made a long-term strategic choice in advocating the compromises that led to those failures. Society might have been better served by stronger controls if our 1976 effort had been rebuffed by Congress. The attributes of TSCA that we impacted are:
- the weakness of TSCA for controlling risks in connection with existing chemicals,
- the complexity of the Significant New Use rule (SNUR) mechanism for monitoring of changes to expanding patterns of chemical exposure,
- the obligation to defer, when dealing with workplace and consumer exposures, to the powers available in other federal regulatory agencies, and
- the rigid procedural handcuffs we placed on public transparency of safety data.

VII. Existing chemical controls

Firstly, the TSCA sections 6 and 8 providing for controls on existing chemical controls and safety data reporting,[17] are weak and very conditional. The import certification controls are significantly less robust than their EU equivalents.[18] Existing chemicals were listed on the TSCA Inventory[19] (a massive project which was itself a study in regulatory confusion, expense and, some would say, failure to reach

16 15 U.S.C. 2607(e).

17 Available on the Internet at http://frwebgate.access.gpo.gov/cgi-bin/usc.cgi?ACTION=RETRIEVE&FILE=$$xa$$busc15.wais&start=9656327&SIZE=22866&TYPE=TEXT.

18 19 C.F.R. 12.123; 40 C.F.R. 707.20.

19 40 C.F.R. 710.4.

objectives). But the statute did not equip EPA with the effective tools to control fears of harm from these materials. Such powers were called for in the April 1971 Council on Environmental Quality (CEQ) report that first offered an architecture for this proposed chemical control legislation[20]. The post-Watergate era of deep mistrust of federal bureaucrats worked in favour of our chemical industry team. Section 6 of TSCA, for example, allowed existing chemicals to be controlled by several mechanisms. But the industry drafting team tied that power up with a series of inherent constraints that made it cumbersome and slow to respond.[21] The CEQ's 1971 ambitious road map was not the end product that emerged from Congress five years later. Qualifications, limitations and conditions won by the industry lobby made for a less responsive chemical regulatory system.

Likewise, chemical regulation and information could have been a help to residential areas located near factories. The neighbours of chemical plants expected reporting under TSCA section 8(c) to be robust and to empower neighbours to urge tougher emission controls.[22] And the critics of some existing chemicals wanted more attention to be paid to section 6 controls and section 8 data disclosures. Neither received what they wanted from TSCA, because of its conditions and qualification clauses.

Also inhibiting TSCA plans were the exclusions and exemptions in the statutory definitions, like the "mixture" exemption[23], which I co-authored:

(8) The term "mixture"' means any combination of two or more chemical substances if the combination does not occur in nature and is not, in whole or in part, the result of a chemical reaction; except that such term does include any combination which occurs, in whole or in part, as a result of a chemical reaction if none of the chemical substances comprising the combination is a new chemical substance and if the combination could have been manufactured for commercial purposes without a chemical reaction at the time the chemical substances comprising the combination were combined.

Yes, the obtuse wording defies understanding. After leaving industry for an academic role, I once offered this TSCA "mixture" wording as a discussion handout to my administrative law class. These otherwise bright students showed as much confusion as EPA has shown over the years about how it could regulate chemical "mixtures".[24]

In hindsight of more recent developments, it seems ironic that the US private sector is partially filling TSCA's omissions, driven to do so by commercial requirements from the retail customers. In 2010–2012, Wal-Mart Stores will roll out its version of the EU's programme on RoHS (Reduction of Hazardous Substances). This will be made mandatory for its vendors of electronics at first, and later for more categories. Companies will have to disclose their use of chemicals, the hazard potential of those chemicals and the alternative safer chemicals that could be utilised. Each supplier will submit extensive data to a testing company, which firm will be hired by Wal-Mart but paid by each supplier for the service of reviewing their product. As a huge customer, Wal-Mart will bring its economic force to induce changes in chemical utilisation. We can predict that such privately imposed constraints upon the companies who use chemicals in making their products for retail sale will probably have more impact on cutting consumer chemical exposures than all the effects that TSCA could have had in three decades. Wal-Mart competitors are likely to follow its lead. Some of today's largest retailers understand the chemicals and toxics issues; they are willing to assert a quality-driven demand for chemical safeguards that will shake the prior complacency of the specialised chemicals marketplace. So the TSCA informational and regulatory provisions were a start, and the retail sector will expand on their effectiveness.

VIII. New use controls

A second constraint arising from the 1976 industry effort was upon the regulation of the existing chemicals that did not have to undergo "new chemical" review. Over these past 34 years, a stronger TSCA existing chemical power could have used more frequent regulatory actions to control exposure to existing chemicals. Both labelling for risks and an outright ban on the hazardous chemical were little-used options under section 6 remedies and "signifi-

20 See discussion in H.R. Rept. xxx.

21 15 U.S.C. 2605(c)(2).

22 15 U.S.C. 2607(c).

23 15 U.S.C. 2602(8).

24 40 C.F.R. 710.3(d).

cant new use" rules (SNUR). These SNURs are final regulations, adopted under a programme that was intended to mandate more testing and more reporting of risk information. It had been intended that screening for safety would occur, upon a change in the use and exposure patterns for an already-marketed chemical. Industry did not want that to occur very often, and industry prevailed.

The limited impact on new uses of "older" chemical substances was not the product of the CEQ report or of the TSCA law's proponents. Chemical industry's efforts succeeded. The ability of EPA to utilise TSCA on pre-1976 "old" chemicals was held back by constraints on the operation of sections 5 and 6 of the Act. The text of the law was heavily influenced by the 1976 industry team's skills in shaping the specific clauses and conditions.

IX. Required passing of jurisdiction

One industry addition to TSCA, accepted over objections raised by several pro-environment members of Congress, has had a large impact. Industry argued that, since other laws were already able to regulate exposures, the newer TSCA should step back and allow the other law to control that exposure. The Congress agreed, and specifically added a mandate for EPA regulators to pass control of a chemical safety issue to another federal agency such as the workplace safety controls of the Occupational Safety & Health Administration (OSHA). This mandate to transfer control authority undercut the potency of TSCA, and it was cited in a 1991 court case which required EPA to pass on a proposed TSCA regulatory project for asbestos, that could have been carried out by the workplace safety agency. The language our industry group added to TSCA had not gone unnoticed; several of the more liberal House members protested that our process steps added to section 6 were "likely to delay effective action by [EPA] because it imposes unnecessary and time-consuming requirements for findings as to the relative efficiency of the proceeding under this act or another statute." They were correct. Workplace exposure to chemicals and consumer exposures to chemicals were to proceed through agencies other than the EPA because of that obscure clause in section 6. Likewise, consumer product controls were to be passed to the weakest of the safety agencies, the Consumer Product Safety Commission. So the concept that TSCA would be a "capstone" on other existing laws proved to be a mirage; weaknesses in TSCA allowed issues to languish at other agencies.

X. Chemical secrecy

A fourth industry victory came with the secrecy provisions of the 1976 TSCA. When people complain that TSCA is too secretive, I blame myself for negotiating the terms of confidentiality in section 14. Chemical-related data from EPA is far less available than the sponsors of TSCA had expected. Industry won in this obscure corner of the legislative drafting project, while bigger headlines on other sections drew lots of attention. We prevailed because we argued that cooperative sharing of detailed data with government agents would be stopped if the agents disclosed the private company documents to their competitors. Pro-industry House members observed that: "If it becomes painfully apparent to the business community that these valuable [chemical identities] will not be safeguarded, we believe that this climate of cooperation will seriously deteriorate."[25] The earliest dispute over secrecy of chemical use was lost by EPA in 1978. The camera film maker Polaroid successfully sued EPA and won. Public disclosure advocates lost their efforts for more community involvement. Handling of the actual business submissions became tightly controlled, like the process of security over the bomb-making secrets of the military (whose classified document security measures were copied by EPA after the Polaroid court decision against EPA).[26] So the "iron curtain of CBI" (confidential business information) was preserved in the 1976 law as a pro-industry accommodation. As a long time scholar and advisor on public disclosure issues, I can categorically say that TSCA has the most protective system for commercial data that I have encountered in this field, in decades of writing and teaching about openness in government programmes.[27]

The protection for TSCA chemical data submissions that emerged from the Polaroid case severely curtailed the EPA staff's desire for early and broad

25 House Report 94-1341, US House Committee on Interstate & Foreign Commerce, at 141 (1976).

26 40 C.F.R. 2.306.

27 40 C.F.R. Part 2.

public awareness of possible risks from chemicals. If the reader has time and patience, please attempt to read the provisions that control TSCA disclosures[28]. Qualifiers and conditional clauses in the intricacies of section 14, as we helped to draft it, have precluded much of the sharing of data that the EPA staff desired to make, because the staff lacked the legal means and resources to rebut claims of secrecy. The "lockdown" of physical security controls upon the designated EPA employees who were handlers of the incoming paperwork containing CBI, the tight controls required for its release to other governments, and the mutual distrust among regulators and innovators, made TSCA far less transparent than its sponsors had originally intended. EPA has acknowledged that reality.[29]

The 1976 sponsors' vision of broader public awareness of risk information was closer to what the EU has achieved today in REACH. Contrasted to US air and water pollution statutes, the CBI shield that we built into TSCA was substantially more of a concrete and steel dam to block the stream of data on such issues as chemical impurities, exposures, alternatives and byproducts.

XI. Cracks in the capstone

Proponents in 1975–1976 called TSCA the "capstone" with reference to earlier environmental laws dealing with water, air and waste pollution.[30] Why TSCA proponents "lost out" through compromising its design right from the outset is a story best seen in its political context. The 1975–1976 Members of Congress and Senators were in the ascendant mood of triumphant legislative power: the Watergate scandal and resignation of President Nixon had weakened presidential powers. For the pro-environment handful among the Congress members, the TSCA was promoted as the "capstone" passage of a law on chemicals that would bring other environmental pollution laws into a coordinated whole. The news media told Congress that the public wanted action on toxic materials exposures. The news media were full of frightening revelations of asbestos deceptions and persistence of PCBs. In the 1970s pre-internet era there were no bloggers and very few people ready to leak stories, and it was easier to control press relations. To congressional candidates in the 1976 election year, passing a pro-environment chemical control law was seen as a laudatory achievement.

Behind the political posturing, proponents of the early versions of the proposed statutory language did not have any strong institutional players with a depth of specialist participants readily available on their side to counteract industry. The sponsors and their advocates tried to get their statutory terms accepted, but industry had more ready access to skilled drafting teams for negotiations on the key wording. Today's environmental NGOs do have that depth, so a future TSCA replacement will most likely look very different from the 1976 compromise.

What went "wrong" for chemical control advocates in 1975–1976 resulting in a weaker TSCA? The loss for the long-term interest of the workers or product users or neighbours downstream of the chemical plant was in the fine details. Administrative process minutiae are boring; the so-called "policy wonks" who love these details, as I do, know from experience that most young legislative staff workers hate having to explore such mundane "paperwork" details. The 1976 crop of congressional subcommittee staff members handling the competing drafts accepted language from industry maybe without recognising the consequences of several strategic subclauses.

Looking back now, after many years as a law teacher, I find the history of negotiations of the TSCA very instructive. An American aphorism about legislation is that the "devil is in the details". My decades of teaching administrative procedures since that era have confirmed that well organised drafting teams of experts could, and did, bedevil the law by fine-tuning its detailed terms to suit the experts. TSCA was not unique. The industry expert who is explaining a proposed amendment soon sees the boredom setting in for junior legislative committee staff members once the discussion comes down to fine legal details such as implied federal preemption, standards of court review of "arbitrariness", inter-agency coordination, rights to cross examination in administrative penalty hearings, etc. If a policy advocate for industry was able to write the detailed phrasing of administrative processes, as they allowed us to do then, the normally enthusiastic staff members were

28 40 C.F.R. 2.306.

29 US EPA, Office of Inspector General report-10-P-0066, "EPA Needs a Coordinated Plan" (Feb. 2010).

30 House Report 94-1341, US House Committee on Interstate & Foreign Commerce, at 7 (1976).

likely to utter words of disdain for the details before accepting the subclause or conditional qualified sentence. Upon 34 years' retrospection, I am mildly amused that the congressional staffs of the sponsors of this legislation had allowed us to install so many traps for the unwary. The procedural hurdles for the unsuspecting EPA implementers resulted in administrative delays and so the costs of TSCA implementation were well above what had been expected by TSCA's advocates.

XII. Ignoring hazardous waste

But as TSCA moved along in the summer of 1976, we too were missing a bigger event. The same committees whose staff members bragged about TSCA as the putative "capstone of environmental legislation" were also scheduled in a subsequent month of 1976 to vote on a rather more obscure bill, after accomplishing the visibly important passage of TSCA. This was a "solid waste" bill whose name evokes a vision of the beneficial recycling of resources, so no one could possibly oppose such legislation: the 1976 "Resource Conservation & Recovery Act". Fast forward to today: RCRA is famously complex and difficult[31]. Many of the US industry managers who lack any awareness of TSCA deeply dislike the controls adopted under RCRA. They despise its cumbersome strictures, forms and penalties. Had we foot soldiers of industry's army known where the pain to industry really would emerge, perhaps we could have allowed TSCA to pass and instead could have helped to rationalise the RCRA hazardous waste system, which is a badly written law which struggled for years before its flaws were revisited by Congress.

XIII. TSCA'S 2011 sequel?

Much has happened in industrial chemical production and exposures over the past 34 years. What goals can the 2011 revised version of TSCA accomplish, if a critical mass of legislative votes could be acquired for its passage in the more favourable climate of a non-election year?

Firstly, the drafters will have opportunities to study the initial effects of REACH. Opponents of a US adoption of REACH will magnify the problems that chemical firms in the EU nations will claim to exist. If one of the national regulatory authorities does not implement REACH effectively, or if the European Chemicals Agency is too slow to respond to news media reports of problems with a chemical, these news media reports will be cited to the US Congress as a reason why the US should not follow Europe.

Secondly, the NGOs arguing for protective measures will present REACH as the source of the well-informed community opposition to a "dirty" factory or company, and they will assert that US communities need protection through greater access to data on the higher volume chemicals. "Europeans get the answers they need, why don't we get the same?"

Thirdly, liaison work between the US EPA and the European Chemicals Agency will be used by the career staff members of the EPA to assert to Congress that the US system would function more efficiently, and industry cost-sharing would replace some of the costs now incurred by US federal agencies for safety testing. Smart civil servants in each of these agencies understand that if public costs are reduced, and industry has to absorb the "internalised" costs for safety data that previously were borne by taxpayers, the altered system will appeal to fiscal conservatives and environmental liberals alike. As an official matter, EPA cannot lobby for a specific outcome unless the Obama White House says that they can do so. But behind the scenes, staff members of the elected officials listen carefully to EPA staff members who have career-long knowledge of chemical safety issues.

XIV. China's important impact

The task of achieving legislative consensus on US chemical safety laws is certainly going to be impacted by the huge "off-shoring" of US specialised chemical production. The 1976 TSCA was drafted while many US chemicals were being made here, processed here, and formed into articles for sale here. The influence of West Virginia chemical entrepreneurs, Texas oil refiners and of Delaware chemical product producers was an important part of TSCA's history. The industry has changed. Industry's 1976 leader on TSCA issues came from Union Carbide;

31 O'Reilly, James T. and Buenger, Caroline, *RCRA & Superfund Practice Guide 3d* (2009 Supp.).

this company is gone, having been sold off amid the aftershocks from its 1984 Bhopal disaster in India.

China will have a subtle but significant impact on 2011 chemical legislation in the US China's graduate students nowadays fill many seats in top US chemical engineering and toxicology programmes. Excellent work is still being done here in America on innovative chemical developments, but more of the innovating in chemical production today seems to occur in other areas with large-scale production situated in Asia. In 2011 China will have a lot to say, through its lobbyists, if the new US legislation would impact on the environmental conditions of chemical manufacturing sites making products for export to the US (The 2009 reaction of other nations to Congress giving an extraterritorial outreach in US food safety legislation[32] gives us a foretaste of the probable Asian rebuttal of any similar approach in TSCA's 2011 sequel.). We can expect China's lobbying efforts on details of the next version of TSCA to be far more extensive than Congress has seen from China in the past.

Also in 2011, chemical innovation firms' intellectual property experiences with enforcement of patents in India and certain developing nations will impact on how readily some proposed revisions to commercial confidentiality may be accepted. The current American sensitivities to public benefits of data disclosure and public participation, unlike those in 1976, will probably switch the standards in the new TSCA from rigid security to almost total web-posting of risk and exposure data, from which many new insights could be drawn about cumulative exposure and consequences of use as well as disposal methods. The economic consequences of data sharing have been revolutionary and remarkable in some industries. Whether the value of chemical "trade secrets" remains universally strong is quite debatable. When the US chemical industry is pushed, its lobbyists will decry any diminished protection for commercial data as a loss of our "critical technology" to Asia.

American observers do not know how close the global environmental NGO advocacy efforts could push the 2011 TSCA amendments toward European volume-based information needs, in a manner comparable to Europe's REACH. Americans may compare and contrast what activists in EU nations know about certain plastics, with the same material's relative lack of data inside the US communities where it is made or disposed.

Of course, any prognosis for American legislative politics in a 2011 TSCA is speculative. The dynamics of environmental advocacy are in flux as the 2010 congressional elections loom ahead. The recently vocal "Tea Party" right wing of American reactionary conservatism might find a foothold in opposition to new environmental legislation, if it were to challenge loudly "Big Government" regulatory demands on the remaining US chemical innovators. Disclosure of financial support of the conservative populist movement might reveal that the industry has opted to shield its opposition to a new TSCA behind "no new taxes" assertions. Both sides of the coming TSCA debates, pro-environment and pro-industry, will be vocally energised by the prospect of additional regulatory controls.

XV. Conclusion

If we ask many educated Europeans about their view of TSCA, you may expect them to confuse TSCA with the tragic opera *Tosca*. This is a tale of tragedy, mistakes and suicide. Operas are of course written for smaller audiences than legislative proposals, but the tragedy of TSCA was also a tale of intermingled tragedies. Chemical safety problems made some legislative response inevitable. TSCA's 1976 compromises left the EPA constrained by industry's desired limitations. Its complexity aided advocates of deregulation. Its sponsors never achieved what they expected, so that the overall programme never reached its proponents' desired goals. By 2011, when the newer version of TSCA is likely to be debated for adoption, sophisticated environmental advocates, squads of lobbyists representing foreign chemical interests, lawyers for US chemical producers, state environmental control officials, and anti-regulation zealots will be singing different songs about what to do with TSCA.

Looking back at one's past work from later life is a mixed blessing. We were given a task and we did it well for our employers at the time. Congress could have changed this direction and could have made TSCA more like REACH. It did not do so. The language of conditions, exceptions, constraints and oth-

32 Pending S. 510, 111th Cong. 2d Sess. (2010).

er nuances that I helped produce will probably be retired from the statute books as I too retire. America's next iteration of chemical controls is likely to follow EU examples like REACH. With that greater international harmony and better stage direction for the audience of the general public, societies around the globe will be better equipped to regulate chemicals more effectively in the future. The world has heard enough of tragedies, and the newest TSCA should not be another dramatic production.