

NRC
REGULATORY
IMPACT
SURVEY

PP&L

October 27, 1989

8911060465 891025
PDR ADOCK 05000387
P PNU

NRC REGULATORY IMPACT SURVEY

INTRODUCTION

As a result of industry feedback, NRC has embarked on a two-month Regulatory Impact Survey to determine if any changes are warranted regarding NRC's regulatory approach to enhancing the safe operation of nuclear power plants.

BACKGROUND

A similar survey was conducted in 1981. The results of that survey are interesting. Some of the concerns expressed by licensees then do not appear to be significant concerns today. However, most remain significant. The primary recommendation of that report (NUREG-0839) was that NRC take prompt action to bring the issuance of requirements under better control. Notable progress was made in the months that followed. However, about 1985, it appears that NRC began to lose or relax that control.

SUMMARY ASSESSMENT

If the current survey is to have lasting results, NRC must focus on attacking the root of the problem. We believe that the many concerns industry has can be traced back to three key issues.

- o NRC's goals are not clear either to industry or to NRC staff. NRC needs to step back and decide what its overall goal for nuclear regulation is, then to ensure that lower level goals are coordinated to support this goal. Every new initiative that NRC considers needs to be measured against NRC's goal. NRC should not proceed to impose a new requirement unless it can be clearly shown that it supports that goal and contributes significantly to improved safety.
- o Utility resources are finite. Even without new NRC initiatives, tough choices must be made. Every manhour and dollar expended on NRC mandated activities displaces equivalent work that the utility wants to do. This displaced work has already been determined to be highly beneficial by the utility. Through self-improvement of operations, maintenance, and design, challenges to the plant can be minimized. This results in direct benefits to safety. It is this kind of "optional" work which gets

displaced. NRC has taken control of utility resources and set priorities without comparing the benefits and costs of the displaced activities. Is everything NRC mandates really more important than anything the utility would like to do? NRC acts as if this is so.

- o NRC can set standards but should not be prescriptive. NRC should ask what we are doing and determine if this is acceptable before directing new action. We should work together to best define appropriate responses to perceived problems. Most of us can manage quite well. Prescriptive guidance should be reserved for use at a facility that has a demonstrated need for such guidance. NRC should not take every problem experienced at every plant and lay prescriptive preventative requirements on all other plants. NRC has taken "lessons learned" too far. NRC should explain the problem, then let the utilities determine what action is needed and on what schedule.

These are the main issues NRC needs to face if permanent progress is to be made in effectively regulating the nuclear industry.

NRC'S GOAL

"Isolated events should not receive the attention they currently receive. The focus should be on breakdowns in programs." (Nureg-0839)

Looking at the variety of regulations, bulletins, generic letters, and other initiatives imposed by NRC over the past few years, it is difficult to imagine what NRC is trying to accomplish. Each initiative is designed to solve a specific problem, but nowhere is the problem demonstrated to support some overall goal. No one is coordinating these myriad requirements to evaluate their relative priorities or importance. One can easily conclude that NRC's goal is perfection -- a goal that obviously can never be achieved.

What is the net safety benefit to the industry of reacting to an isolated failure? In the case of service water systems (Generic Letter 89-13), NRC has taken a problem experienced at a few plants and used this to now require a premier program of absolute assurance at all facilities. In our search for perfection, have we reached the point of diminishing returns? What safety benefit did we reap from a "small" effort such as Bulletin 88-05? Is the public measurably safer now that we have shown that flanges didn't need to be replaced? What was the cost to the industry to achieve this added measure of assurance? What work were we forced to defer or sacrifice that may have yielded real safety or operational benefits?

Take an example such as MOVs. Generic Letter 89-10 requires that each utility determine the worst case design conditions for each MOV, determine appropriate switch settings, and test each MOV using this new design basis and switch settings. This is a monumental effort involving tens of thousands of manhours with direct impacts on outage times and ultimately on generation. The industry has been designing systems with MOVs for years. In general, they work quite well. What does this new effort achieve? Do we believe that we will see significant valve failures without this work? Are we seeking absolute conviction that every valve will perform under every imaginable adverse condition? Isn't reasonable assurance adequate? Doesn't defense-in-depth tell us that some number of failures under highly unusual conditions may occur from time to time, but our ability to compensate for such failures makes the risk acceptable? Have we evaluated the impact on equipment of being tested under conditions which stretch its capabilities? Are we endangering the public through excessive testing of components or testing components under conditions they would probably never experience? In our effort to determine if equipment can perform under "worst imaginable" circumstances, are we detracting from the ability of the equipment to perform under "practical" conditions?

Licensees are now conducting IPE's. One outcome of the IPE process will be a better understanding of what equipment is most critical to success in severe accident mitigation. Will NRC permit utilities to use this information when implementing a generic letter like 89-10 on MOV's? Or will NRC require action for all affected components regardless of safety significance as demonstrated by the IPE?

If NRC would define an appropriate goal, then its future, present, and past activities could be measured against that goal. Those that do not measure up should be abandoned or modified so that they support the goal. We are encouraged that NRC is taking a hard look at the existing body of regulations with the intent of reducing unnecessary requirements.

FINITE RESOURCES

"The potential for a negative safety impact caused by the number and scope of requirements has become very real to both NRC and the nuclear industry. The full significance of this issue may have been underestimated by the NRC staff." (MUREG-0839)

NRC must understand that nuclear utilities do not have an open checkbook. In today's financial environment, only so much money can be spent in any given year before the facility is no longer economically justifiable. Work that a licensee wants to do must compete with NRC mandated work on a dollar for dollar basis.

Utilities are not opposed to spending money for safety; its just a matter of how well those finite dollars get used. PP&L has expended about \$40 million on Appendix R work during the past few years. Does this represent the wisest use of our resources? With less prescriptive requirements, could an equivalent safety benefit have been achieved for much less? Would equivalent expenditures on other efforts have yielded a greater benefit to public health and safety?

We are continuously faced with difficult choices. Much of real value gets deferred or eliminated each year. Every action NRC imposes "today" displaces highly valuable work that has already been budgeted. There is no significant cushion for unbudgeted work. When we discover new work that needs to be done, we must evaluate everything that is planned and decide what work is best deferred or eliminated. But when NRC mandates work, it is generally exempt from consideration for deferral or elimination. All NRC mandated activities become "sacred" leaving a smaller and smaller scope of work within the utility's discretion to prioritize. At times, overlapping NRC work squeezes out nearly everything else a licensee is trying to do. Attachments 1 and 2 show graphic evidence of the cumulative impact of NRC generic initiatives. Does NRC really think that every NRC requirement is of higher importance to public safety than anything the licensee is trying to accomplish on its own?

This problem is reflected in nearly every facet of our operation. There are only a given number of hours our shift personnel can spend in training. If NRC controls too large a slice of this pie, other valuable training must get squeezed. Extensive training on low probability events is conducted at the sacrifice of training for routine evolutions and expected transients. Have we achieved the proper balance? Nearly every NRC initiative eventually impacts the operator either through training or by requiring his attention on shift. Some of these become permanent and require his time and attention for the life of the facility. The operator's time and attention are highly valuable commodities. NRC appears to have little appreciation for the potentially negative impacts that NRC initiatives are having on the operators. Similar arguments can be made for maintenance, design, and nearly every other discipline and function. The explosion of new NRC initiatives is a safety concern of unknown but very real dimensions. It is difficult to estimate the magnitude of this problem because the individuals affected day-to-day are often unaware that the source of these demands on their time and energies originated with NRC.

PROBLEM SOLVING

"Many mandated NRC staff upgrades created to address specific technical concerns have not been effectively integrated to achieve efficiency in design, installation and operation."

"NRC does not live in the real world of planning and scheduling." (NUREG-0839)

As NRC reviews isolated events across the industry, greater restraint is needed. NRC is trying to solve too many problems. Does every problem need to be fixed? As NRC evaluates root causes and looks for trends and generic applicability, does NRC consider that notifying licensees of a problem and leaving the solution up to licensee discretion will often lead to establishment of appropriate priorities? By mandating prescriptive actions, NRC often appears to ignore or downplay the significant cascading effects that the required actions have. Has NRC considered the safety significance of removing the system from service? NRC may estimate that disassembly of a valve will require so many hours; but what of the LLRT, system flushes and hydros that follow? What about the cumulative delay in critical path work that extends an outage? What about the resources expended in developing procedures and in planning and staging the work? What about the potential safety consequences of integrating these activities into an already complex outage plan?

NRC lacks an appreciation for the serious impacts that their imposed schedules have on licensee resources. By permitting only 30 or 60 days to respond, resources must be rapidly marshalled causing other efforts to be temporarily abandoned and often straining a licensee's ability to adequately evaluate the best approach to solve a problem. This leads to inefficiencies and less than optimum action.

NRC also fails to appreciate the impacts they have on a licensee's ability to plan and organize its work. There seems to be no recognition that licensees plan and budget on an annual cycle; that the work we are planning today will begin a year or more in the future; that the final product may not be completed for several years. Routine scoping, evaluating, approval and engineering of a major project typically takes about a year and a half. Installation can take from a few months to several years depending on outage schedules and priorities. In our SALP, NRC has commended us for our detailed long range planning. Our five-year plans and Managing for Excellence programs are significant contributors to our long range success. These programs recognize that the planning cycle typically takes 3 to 4 years, whereas NRC initiatives often require action in a year or less. By requiring quick turnaround on responses and implementation, NRC bypasses the entire planning and budgeting process. All utility-initiated work goes through this process. Does everything NRC initiates deserve to be exempted from this process? Does the health and safety benefit of an ERDS justify an accelerated implementation?

SELF-CONTROL

"Licensees consider the NRC system of imposing requirement to be 'out of control'" (NUREG-0839)

Clearly, NRC demonstrated significantly improved restraint in imposing generic requirements following the last Regulatory Impact Survey. However, that restraint has all but disappeared. Although the backfit rule has been very effective in reducing unnecessary plant-specific backfits to-date, generic backfits are again out of control. NRC is considering regulations on maintenance that will affect all licensees when only a few are known to have significant problems. NRC is misusing 10CFR50.54(f) information requests to impose backfits of huge proportions. Other Bulletins and Generic Letters are being issued with totally inadequate backfit evaluations and the industry has little recourse but to comply. Taking more than minor exceptions to a bulletin or generic letter would bring significant NRC forces to bear and could lead to lower SALP ratings. Just as reported in 1981, NRC is still "regulating by intimidation".

CONCLUSION

In summary, NRC needs to exert better self-control. NRC needs to establish an appropriate framework for future regulatory activities that measures NRC initiatives against a well-established standard or goal, that recognizes industry's limited resources, and that allows licensee's more say in planning, scheduling and prioritizing future initiatives.

RMH:tah(WP)
RIS.RMH

CUMULATIVE IMPACT OF NRC INITIATIVES

The attached graph shows the cumulative impact of significant NRC generic initiatives during 1988 and 1989. These rules, bulletins and generic letters had immediate impacts on key PP&L resources. As the graph shows, these impacts overlap, and, when added to the existing body of work, have caused significant cascading impacts on other work efforts.

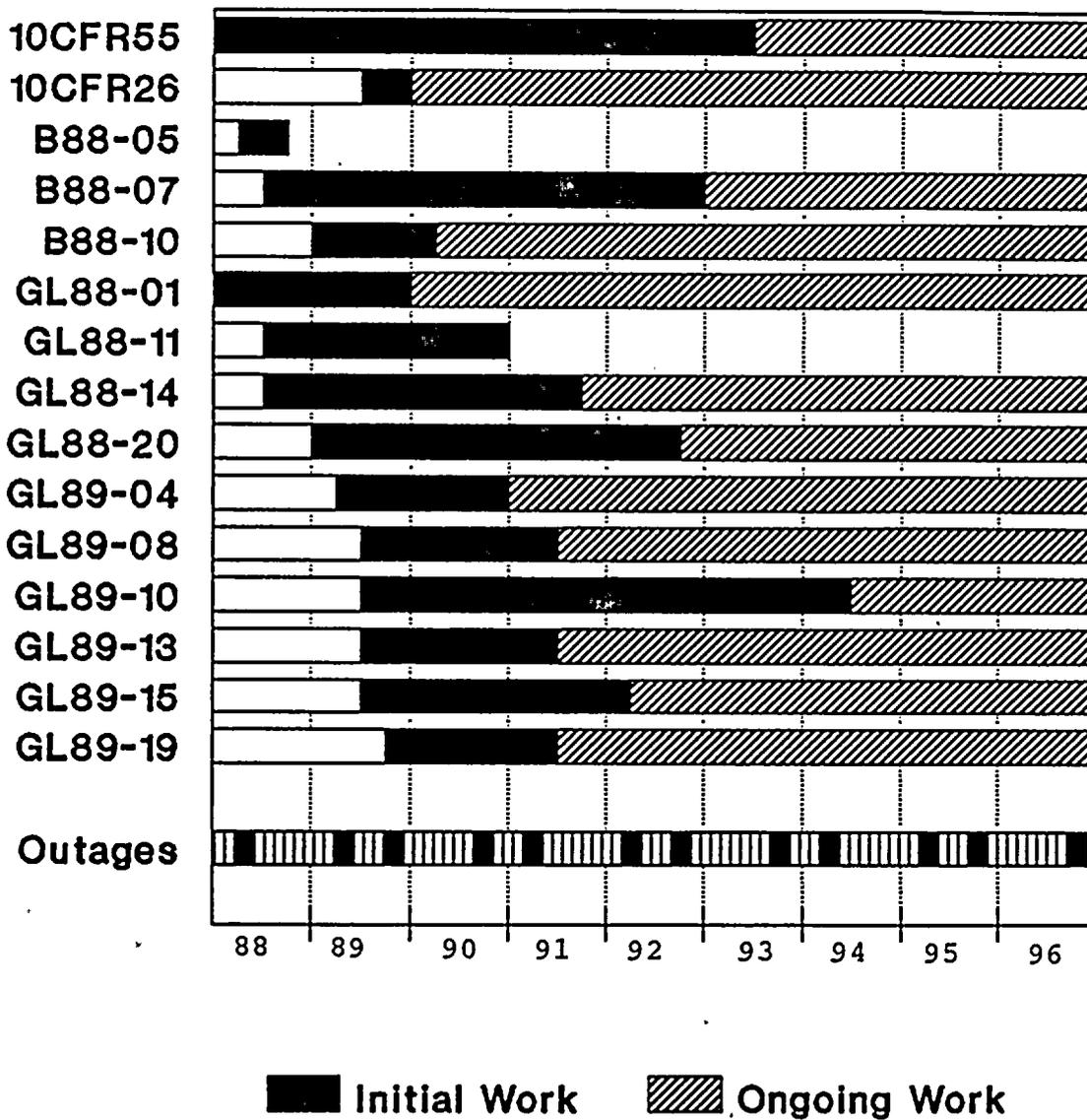
Examining the impacts of just these few initiatives on resources in 1990 clearly demonstrates the point. In addition, most of these initiatives involve some level of new work that must be carried forward forever; new surveillances, additional maintenance or inservice inspections, new tests, additional complexities in operator actions and training, etc.

Every year, new initiatives are piled on top of the existing body of work. In some cases, new NRC initiatives have required key individuals and work groups at PP&L to devote their entire efforts toward these new activities to the near exclusion of any other work.

Some of these initiatives had clear benefits to safe operation. Others did not. Activities with marginal benefits should not have been imposed generically on all licensees.

NRC Initiatives

Cumulative Impact



SIGNIFICANT NRC INITIATIVES IN 1988 AND 1989

10CFR55:

Operator Licensing & Training

To fully meet the ANSI STD referenced in the rule, PP&L must upgrade the existing simulator or procure a new one. There are many advantages to procuring a new simulator and this has been mentioned for expediting in the recent SALP report (Cost = \$20 million). PP&L's training for operators has received very high marks from INPO and NRC. Compliance with the new rule will result in a marginal improvement in safety.

10CFR26:

Fitness for Duty

As mandated by Congress, NRC has issued FFD rules that will require random testing of employees and contractors. The cost will approach \$1 million per year. Random testing probably would have been necessary eventually without a rule. The cost is probably justified by the potential safety benefit.

Bulletin 88-05:

Nonconforming Flanges

PP&L expended significant resources (\$150,000) to address this concern. No flanges were found unacceptable. No real safety benefit resulted. Had NUMARC not successfully convinced NRC to halt this effort, additional work would have cost considerably more.

Bulletin 88-07:

BWR Stability

Initial prompt actions were required and were appropriate. This is an example where public health and safety were clearly benefited for minimal cost.

Continuing efforts to devise and implement plant modifications to replace administrative controls and procedures are expected to cost about \$1 million per plant. Little if any additional benefit to the public will result from installing automatic reactor protection.

Bulletin 88-10:

Nonconforming Breakers

PP&L expended significant resources (\$100,000) to address this concern. Five installed breakers and about one hundred in the warehouse were determined to be "untraceable". Most of the warehouse breakers had been removed from the plant and were originally installed equipment. Since this could not easily be proved, all had

to be discarded (another \$50,000). The safety benefit from this bulletin was marginal since few if any of the breakers appeared to have been refurbished and none were procured from suspect companies.

Generic Letter 88-01: IGSCC

This generic letter significantly impacted key engineering resources. Reviews and changes to PP&L's ISI programs represented a moderate safety benefit. About \$75,000 were expended on the initial work.

Generic Letter 88-11: RPV Radiation Embrittlement

SSES Unit 2 was licensed with the new operating limitations. This generic letter requires PP&L to bring Unit 1 into conformity with Unit 2. This will have minor impacts on flexibility of operation for Unit 1 which will be compensated by eliminating differences between the units. Overall benefits will be marginal. However, PP&L would have pursued this eventually anyway.

Generic Letter 88-14: Instrument Air Problems

Efforts in response to this concern are underway and are expected to cost several hundred thousand dollars. These efforts include testing and modifications which are expected to improve the reliability of instrument air systems. Safety benefits appear to justify the expense.

Generic Letter 88-20: IPE

Development of an IPE will cost PP&L about \$600,000. The results will be useful in improving public safety and in evaluating the benefits of future activities. The results will demonstrate Susquehanna's defense in depth and flag areas where improved defense in depth is achievable and reasonable.

Generic Letter 89-04: Inservice Testing

Depending on the need for modifications to the plants to facilitate testing, the eventual impacts of this generic letter will range from moderate to very significant. Ongoing evaluations and analysis are absorbing substantial key resources. There will be some measurable safety benefits, but we cannot yet say if these will outweigh the costs.

Generic Letter 89-08: Erosion/Corrosion

The increased work above what PP&L had already planned is minimal. However, reporting on our activities significantly impacted the individuals responsible for implementing the program and detracted from our overall capability to proceed. The safety benefit of the NRC initiative was negligible at best since PP&L's program was well developed.

Generic Letter 89-10: MOVs

This activity is a monumental effort involving tens of thousands of manhours and directly impacting outages over the next five years. The safety benefits of much of the work is marginal. NRC is requiring the full scope of work for every safety-related MOV regardless of its importance. Even BOP valves are targeted. There is no recognition by NRC that most of the benefit could be achieved by addressing a few critical valves. These will be evident following the IPE. Cost effective actions should have awaited the IPE results.

Generic Letter 89-13: Service Water Systems

This effort is just getting underway but will clearly involve significant efforts and resources. NRC has been overly prescriptive in requiring specific actions. PP&L should have been permitted to evaluate the perceived problem and propose reasonable activities to provide adequate assurance that safety would not be significantly degraded over time.

Generic Letter 89-15: ERDS

This is a case where cost clearly exceeds any possible benefit to the public. NRC cost estimates are much too low. We do not believe that ERDS will ultimately aid PP&L emergency personnel in responding to an emergency. In fact, ERDS may degrade safety depending on how much discipline NRC maintains once it has direct data. NRC must not be tempted to take over or overly interfere with PP&L's emergency team.

Generic Letter 89-19: Vessel Overfill Protection

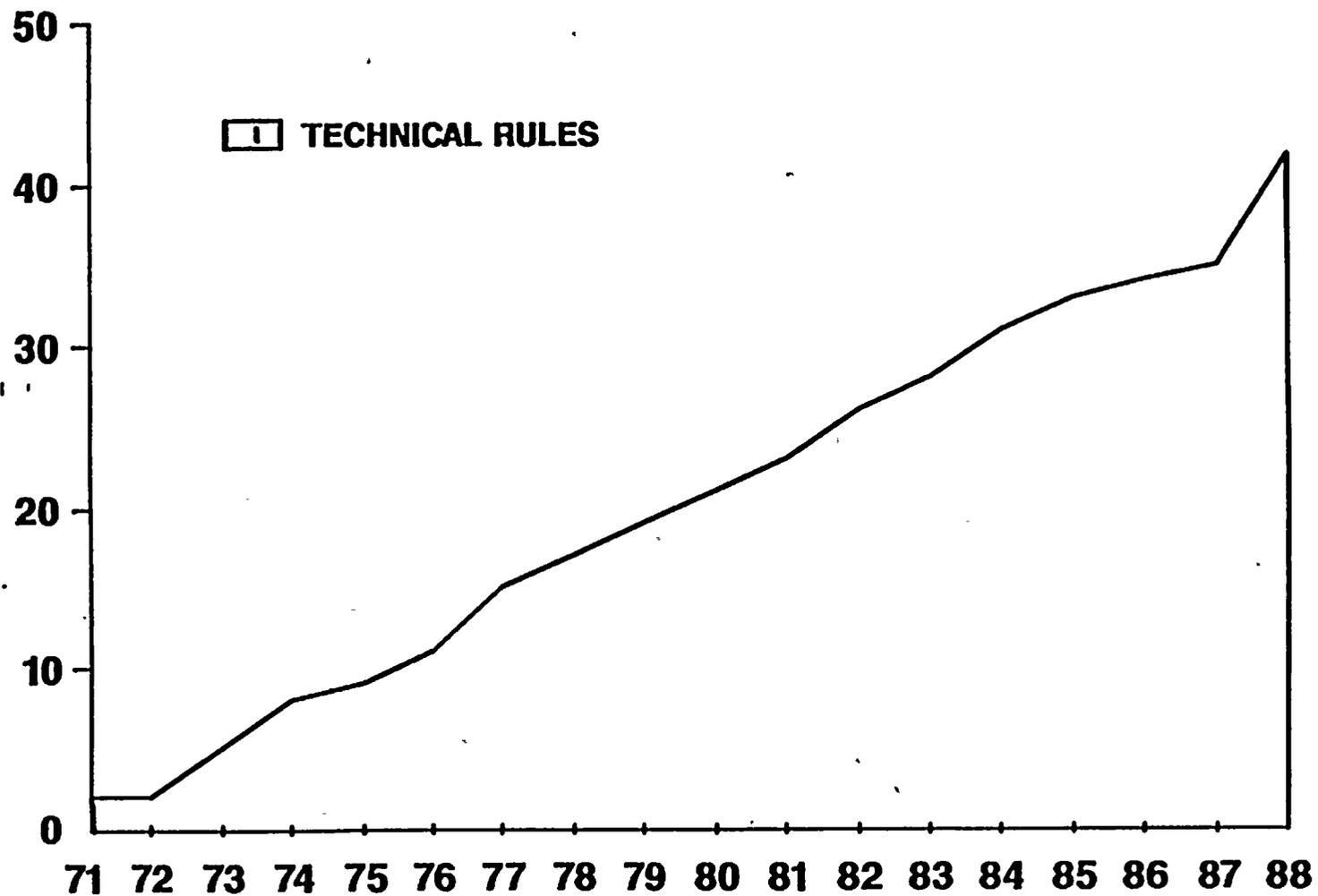
PP&L's efforts on this are just getting underway. The effort will apparently require significant resources and modifications that will have very marginal safety benefits for Susquehanna.

RMH:tah(14)
rmhmej113a

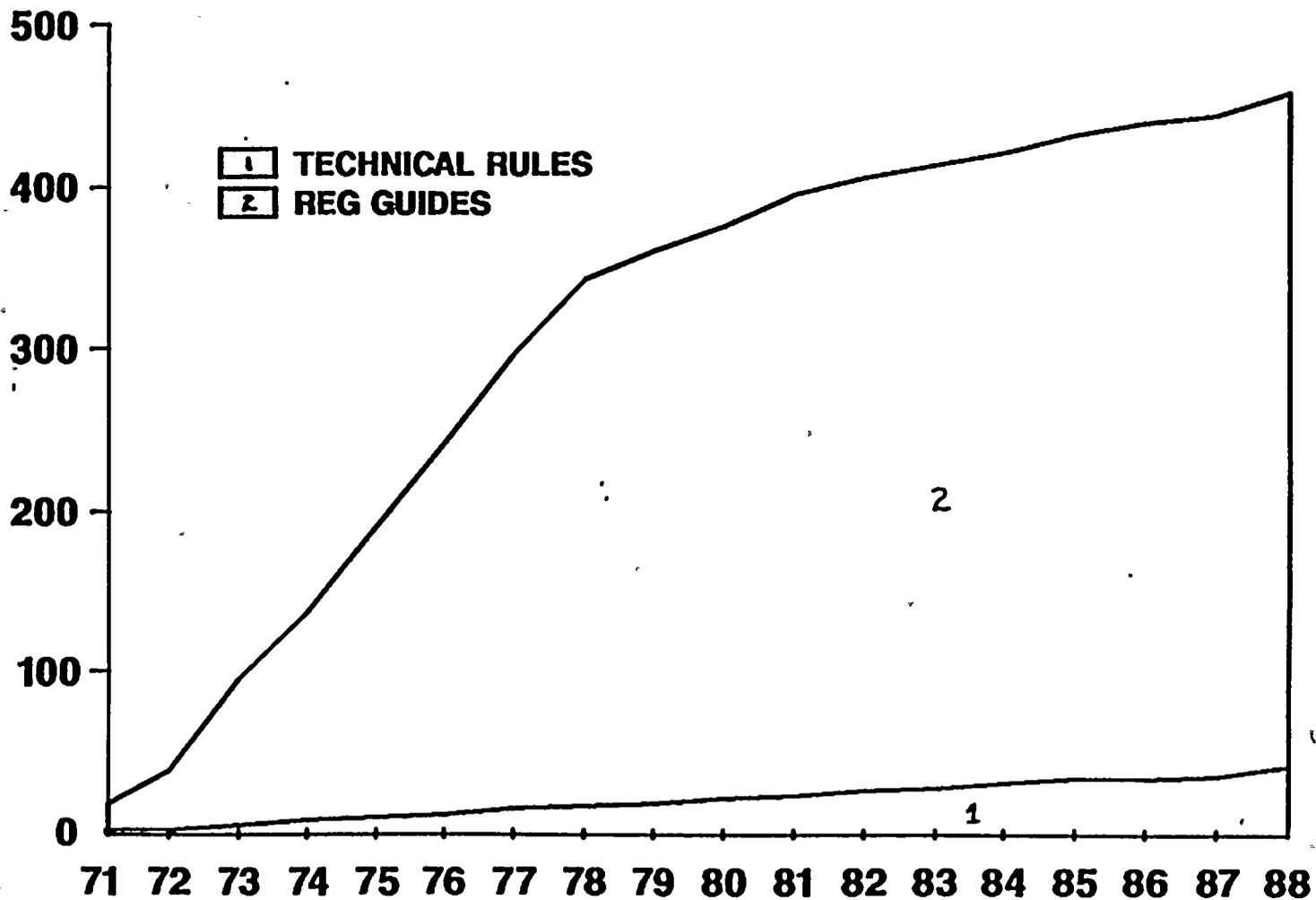
**Cummulative
Impact
Of NRC
Regulatory
Initiatives**

**From An Analysis
For Rate Case By
Texas Utilities**

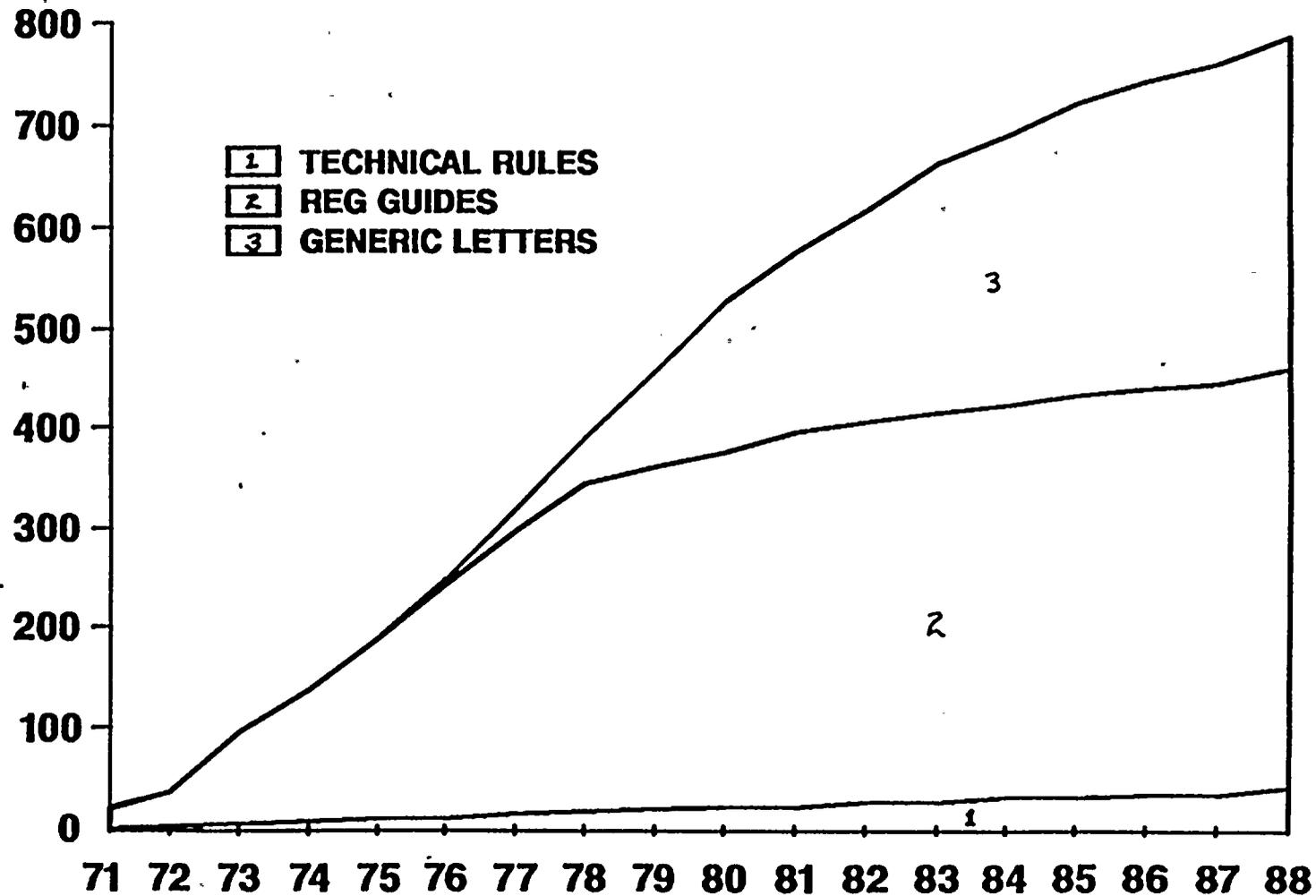
CUMULATIVE REGULATORY REQUIREMENTS



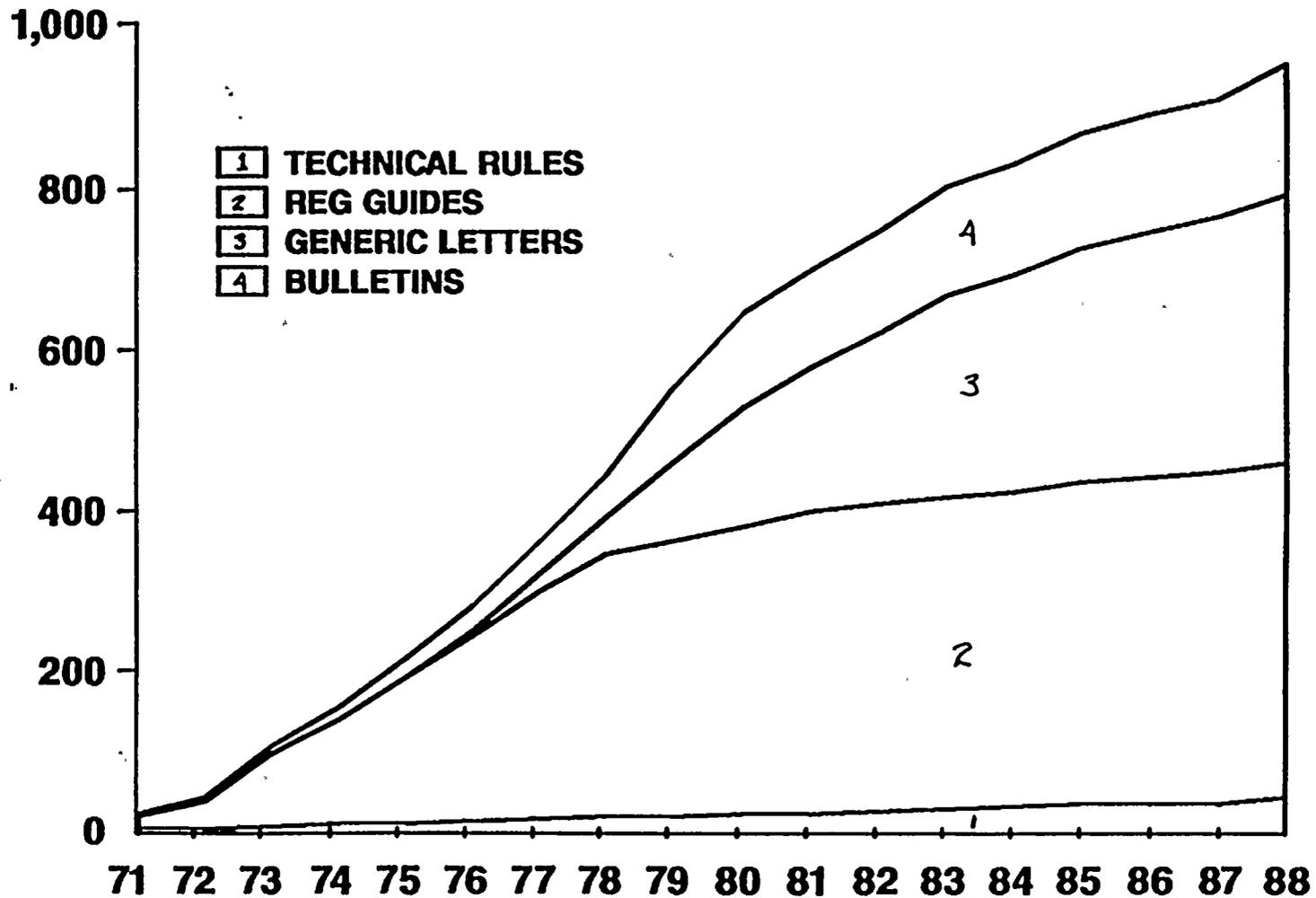
CUMULATIVE REGULATORY REQUIREMENTS



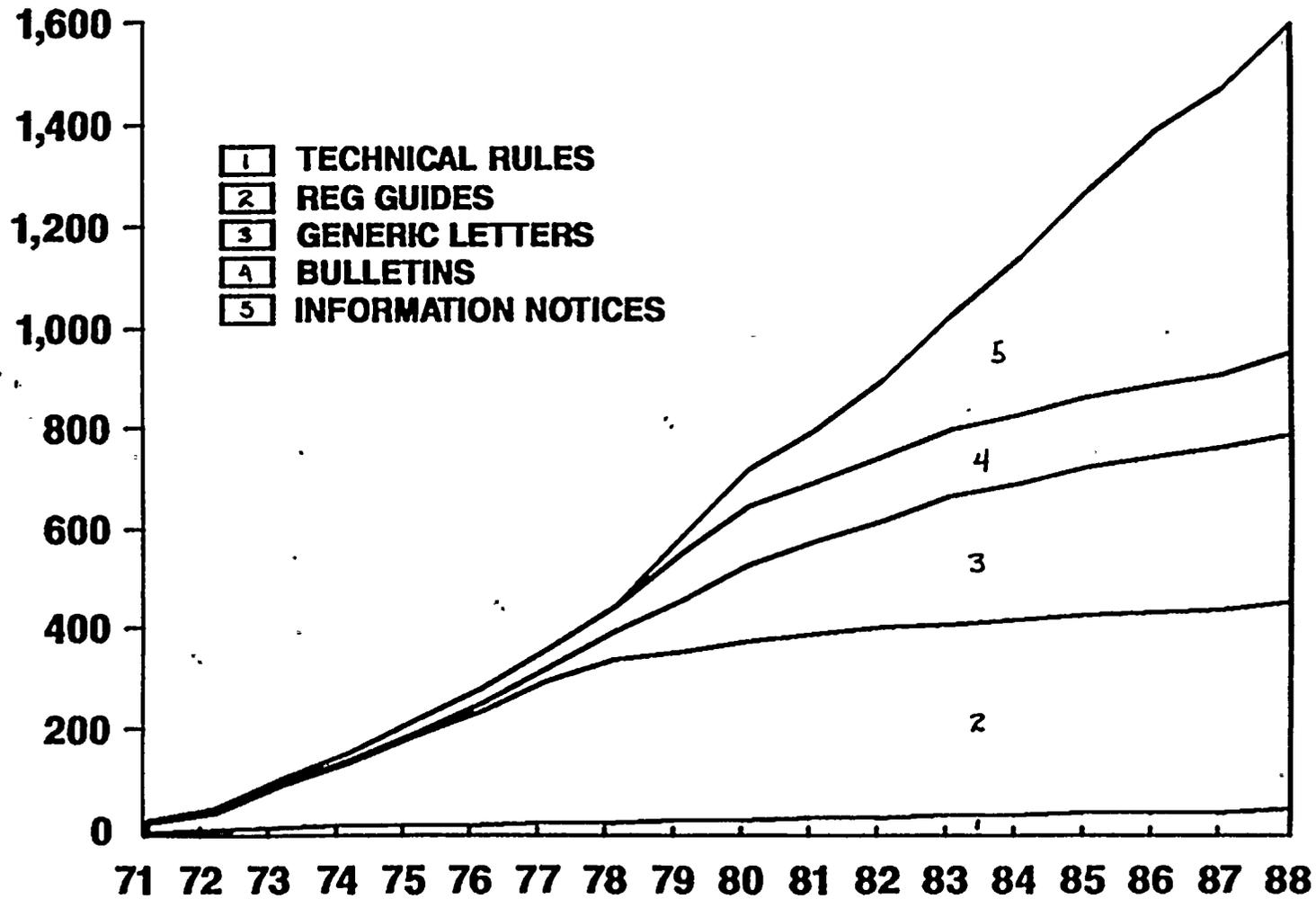
CUMULATIVE REGULATORY REQUIREMENTS



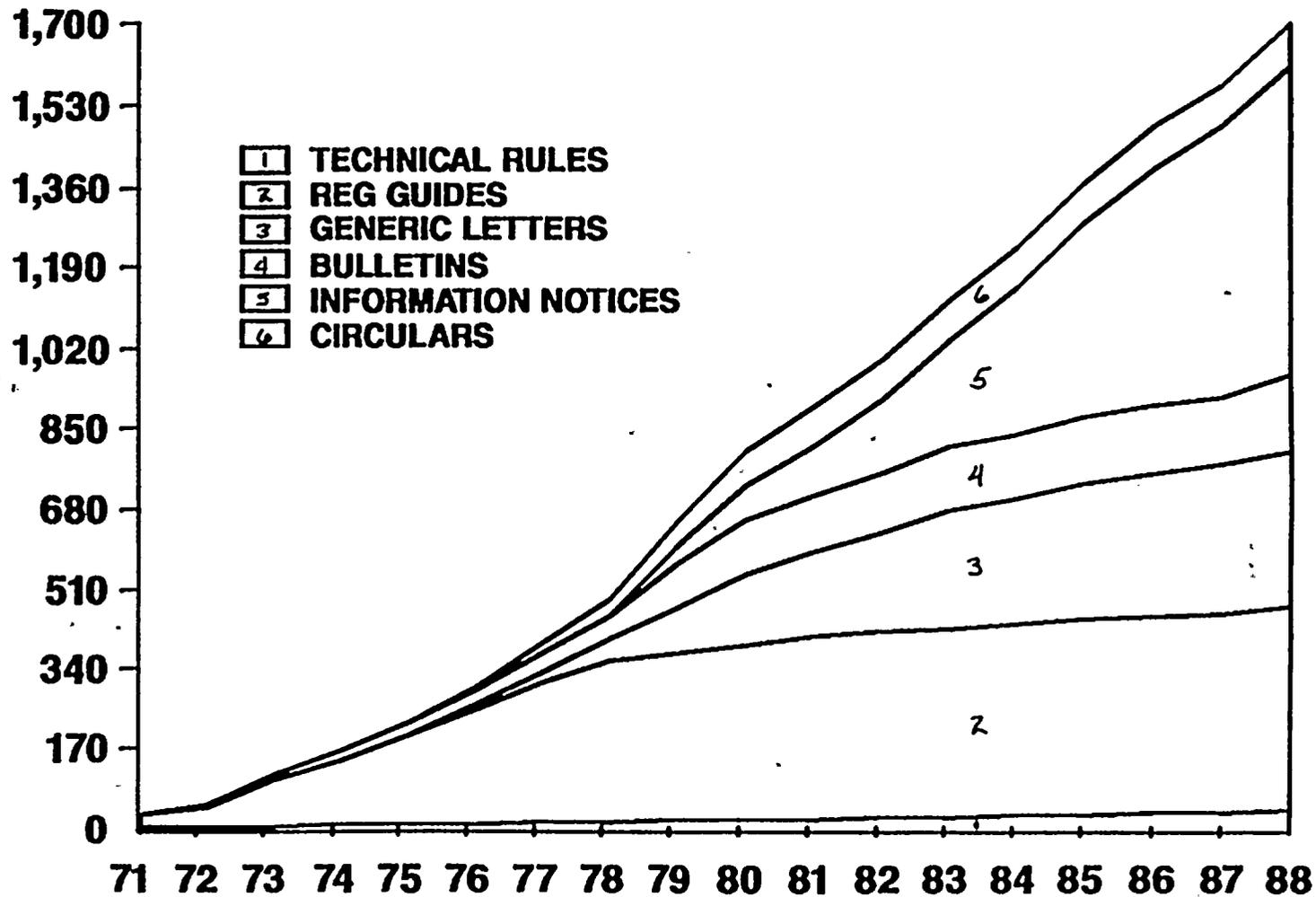
CUMULATIVE REGULATORY REQUIREMENTS



CUMULATIVE REGULATORY REQUIREMENTS



CUMULATIVE REGULATORY REQUIREMENTS



CUMULATIVE REGULATORY REQUIREMENTS

