The Dow Chemical Company
Midland, Michigan 48674

2030 Dow Center
January 15, 1996

RECEIVED
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U. S. Environmental Protection Agency
401 M Street SW - Mail Code 4101
Attention: Jonathon Kessler
Regulatory Reinvention Pilot Projects
FRL-5197-9, Water Docket
Washington, DC 20460

RE: THE DOW CHEMICAL COMPANY'S PROJECT XL APPLICATION

Dear Jon:

The Dow Chemical Company (Dow) respectfully submits the enclosed application for Project XL. This proposal responds to each of the criteria set forth in EPA's solicitation, 60 Fed. Reg. 27282 (May 23, 1995).

This application proposes three distinct projects at Dow facilities in Midland, Michigan, Freeport, Texas and Plaquemine, Louisiana. The Midland project is considered a "multi-media concept" which contains reductions in waste and emissions at that facility. The Plaquemine project involves air equipment leaks. The Freeport, Texas facility section focuses on wastes managed in Boilers and Industrial Furnaces (BIFs).

It is our intention to develop alternative compliance agreements at these sites and transfer the concepts within the participating Dow locations.

We urge you to accept this application for enhanced environmental performance and regulatory flexibility. If you have any questions, please do not hesitate to call me at 517-636-2135. Specific questions related to the Michigan Division component should be directed to Jan Whitfield at 517-636-9707. The contact for the Texas BIF component is Sandy Henderson at 409-238-4132. Specific questions on the equipment leak component should be directed to David Gustafson at 517-636-2953.

Sincerely,

Rich Olson

Richard A. Olson
Senior Environmental Associate
Environmental & Health Regulatory Affairs
517-636-2135

THE DOW CHEMICAL COMPANY - PROJECT XL APPLICATION

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I. INTRODUCTION

This is The Dow Chemical Company's (Dow's) Project XL application. The application describes Dow's institutional environmental goals, and proposes three components to develop and implement more environmentally productive and cost-effective compliance programs. Each component, having specific goals and needs, will respond to a separate stakeholder group. The purpose of this XL project is to partner with governmental agencies, special interest groups, and the locally engaged public to develop an alternative regulatory strategy which will result in enhanced environmental performance that is more cost- effective for Dow. This is an experiment to help determine how to establish and implement a new environmental regulatory framework through the XL program. The fundamental premise of the XL program is that regulated entities can meet or exceed existing environmental requirements at substantially less cost if they are given the flexibility to design compliance programs as opposed to being required to adhere to the existing regulations. Commitments to enhanced environmental performance with pollution prevention will be a key element for gaining this compliance flexibility.

This application was designed to contain three components, the Michigan Division "multi-media" component, the Texas Operations Boiler and Industrial Furnace (BIF) component, and the Louisiana air equipment leak component.

Dow anticipates that as each of these components is developed and implemented in its respective location, the concepts will be expanded to the other Dow locations participating in the XL process.

II. DOW'S INSTITUTIONAL ENVIRONMENTAL GOALS

Dow is committed to continuous improvement in environmental performance. The facilities in the XL application have specific goals in this area. Dow is committed to the waste management hierarchy, focusing first on source reduction, then on recycling or reuse, next on treatment, and finally on disposal in secure facilities. Dow is committed to implementing waste reduction activities that are cost effective, and will prioritize the activities based on risk-management principles. Dow believes in the principles of sustainable development, which recognize the tie between economic prosperity and environmental improvement. Dow recognizes the value of a transparent regulatory process which addresses the concerns of the stakeholders and the importance of good relations with our public. Dow is committed to working with our stakeholders in the XL process to develop understandable, reasonable, and enforceable goals.

III. PROJECT XL CRITERIA

NOTE: These criteria will be discussed in more detail for each site's component. This section provides a brief overview.

1. Environmental Results

Dow's Project XL will be implemented at our three largest manufacturing facilities, which are located in Texas, Louisiana and Michigan. Each facility will achieve greater environmental results than would occur within the existing regulatory framework. The Michigan component proposes a multi-media concept which makes commitments for reductions in emissions, solid waste to the incinerator and waste to the wastewater treatment plant. The Texas component focuses on the reduction in the ratio of incinerated halogenated wastes per pound of product. The Louisiana component reduces emissions from equipment leaks. Each component will develop an environmental agreement in coordination with a stakeholder advisory committee . Dow believes greater environmental results can be accomplished in a timely fashion if existing regulatory barriers are relaxed and alternative regulatory strategies used. These sites have already had significant emission reductions. This project will continue to build on those accomplishments.

2. Cost Savings and Paperwork Reductions

Dow's XL Project will minimize the redundant recordkeeping currently required. The Louisiana component will also reduce the cost of monitoring equipment such as valves and flanges. The focus will be performance-driven activities, such as reducing emissions and wastes, with the goal to reduce administrative costs. This project will allow dollars to be spent not just to comply with current rules, but rather to improve environmental protection and reduce emissions at least at par with and often exceeding current regulatory performance requirements.

Cost savings will naturally follow reducing regulatory redundancies. Expedited permitting at the facilities will save employees time, both to Dow and the regulating agencies.

3. Stakeholder Support

Dow will partner with regulatory agencies, the local communities, and special interest groups to develop and implement this XL Project. Preliminary discussions with the state regulatory agencies have indicated a willingness on their part to support this concept. Additional involvement by the regulatory agencies and communities, including Dow's Community Advisory Panels, is expected as this project moves closer toward negotiation. We are currently exploring support of this concept with a national environmental interest group. This XL Project will help in the development of an effective stakeholder process.

4. Innovation/Multimedia Pollution Prevention

Projects identified by this Project XL will reduce emissions and/or wastes. The projects combined will consider all media and many sources at the facilities. Innovation will occur by providing incentives to develop and implement new technologies not encouraged under current rules and processes. The implementation of these new solutions will occur more rapidly without the burden of step-by-step regulatory approval. More specifically, the Michigan Division component will take a multimedia focus and use pollution prevention to achieve the reductions in emissions and waste. The Texas project will reduce the ratio of incinerated halogenated wastes per pound of product by incorporating pollution prevention techniques, including source reduction. The Louisiana component will provide an incentive to decrease "equipment leaks" beyond current requirements.

5. Transferability

The pollution prevention techniques, regulatory flexibility and stakeholder involvement could be transferred between the three facilities, to other Dow facilities, and used broadly by regulatory agencies at other locations. Technological improvements may come from a wide array of areas, such as new more efficient processes, process optimization, or analytical procedures. Regulatory improvements such as expedited permits and reduced compliance costs could also be transferred. Dow intends to share the experiences gained in the three locations among the participating facilities. The site-specific XL projects will flesh out the concepts, and transferring the concepts to the other Dow XL locations is desired. This project can provide the model for a new regulatory system which better aligns resources with environmental opportunities.

6. Feasibility, technically and administratively

Previous projects and permits have provided an opportunity for parties to see the need for and benefit of regulatory flexibility. Most would agree that the greatest environmental opportunities at a site are not necessarily the focus of the existing regulatory requirements. Dow continues to work with state agencies and other stakeholders to resolve many complex regulatory issues and environmental challenges. This track record bolsters the probability of this project's success. Some aspects such as reducing "equipment leaks" have already been demonstrated at some process units. XL will provide the opportunity to explore and establish even more innovative and effective options for environmental management and help set standards for future work practices and regulation.

7. Monitoring, reporting and evaluation

As part of the development of the Final Project Agreement, specific goals will be delineated, as well as the process or processes to measure, evaluate, and report progress toward these specified goals to stakeholders . Progress will be reviewed with stakeholders periodically.

An improved and more effective monitoring and recordkeeping program will be developed. Only data relevant to the project goals will be collected and managed in this alternative regulatory approach. The positive results from this new approach to environmental management could include the development of faster and cheaper analytical methods and techniques for waste streams and their environmental impact; better understanding of key operation variables and improved efficiencies of traditional waste treatment and disposal processes, resulting in long-term improved performance; and improved communication systems for faster data transfer.

8. Shifting of risk burden

By the nature of the emission and waste reduction projects, little shifting of risk will result. Since emissions are being reduced, the risk of transfer of risk from one medium to another will be minimal and highly unlikely to exist. Additionally, the emission reductions will occur on site as opposed to transferring the emission to an alternative location.

IV. THE DOW CHEMICAL COMPANY - MICHIGAN DIVISION PROJECT XL COMPONENT

INTRODUCTION

Project XL is one product of President Clinton's "Reinventing Environmental Regulation" initiative, released on March 16, 1995. Through Project XL, The Environmental Protection Agency (EPA) will select and implement a limited number of pilot programs to demonstrate environmental eXcellence and Leadership. The selected projects will be given flexibility from existing regulations to develop alternative strategies which will produce greater environmental benefits. In exchange for increased flexibility, regulated entities will be held to a higher standard of accountability for demonstrating project results.

The Michigan Division of The Dow Chemical Company is one of the oldest and largest manufacturing facilities in the State of Michigan and continues to be one of the states' largest employers. The Division competes in a global marketplace and strives to effectively supply specialty chemical products while continuing to improve its environmental performance. As the century ends, it faces many challenges; one of the most critical being further improvement in systems to enhance environmental compliance and performance. We view Project XL as an opportunity to achieve the next level of environmental performance by providing flexibility and incentives to the regulated community and the regulating agencies for the establishment of more effective and efficient environmental management processes and programs.

The Michigan Division Project XL will focus on elimination of waste, reducing emissions, addressing of historical environmental issues, and the continued development of new and improved environmental management systems and technologies. The proposed reductions of waste and emissions would not be driven by regulatory requirements but by our own efforts toward environmental excellence. Continuing in our tradition of voluntary reductions, such as the 33/50 program emissions reduction, the majority of the reductions we propose are not required by law or regulations. These reductions would be voluntary. As reduction opportunities are evaluated, special attention will be given to take advantage of opportunities to reduce bioacculmulative chemicals of concern (BCC's). The core mission of the project is to use a common-sense approach that will produce the optimum environmental results in a cost effective manner in partnership with key stakeholders.

FACILITY DESCRIPTION

The Michigan Division Midland Plant Site of The Dow Chemical Company was founded in 1897 and has evolved into a large production complex consisting of approximately 70 manufacturing plants producing hundreds of product families, including specialty chemicals and polymers, performance products such as brake

fluids, plastics, and consumer specialties which include agricultural, pharmaceutical, and consumer products. Due to the wide variety of production and waste management activities conducted within the Michigan Division, compliance with a myriad of existing environmental regulations and rules is required. The Division is regulated under federal and state laws including the Resource Conservation and Recovery Act (RCRA),the Clean Water Act (CWA), the Clean Air Act (CAA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Michigan's Natural Resources and Environmental Protection Code (Act 451). The administration of all the appropriate regulations and rules for this site require many resources from the regulating agencies as well as Dow.

The waste management hierarchy at Dow's Michigan Division is to eliminate waste by source reduction, to recycle and reuse when possible, treat and destroy waste utilizing the best available technologies, and dispose of any remaining waste in well designed and operated land disposal facilities. Dow's commitment to the environment and to a total site containment program has resulted in the development of efficient waste management programs. The Michigan Division has operated for years with what is called an integrated waste management system, and the vast majority of the waste streams generated on site can be managed internally at one of our four major waste management operations. These waste management operations consist of an incineration complex which includes two rotary kiln incinerators with associated rail and truck unloading stations, container staging areas and a liquid storage tank farm. The second unit operation is a biological waste water treatment plant system which is similar to most municipal and industrial bioxidation plants. The Michigan Division also owns and operates a 152 acre hazardous and non-hazardous solid waste landfill. The fourth integrated waste management unit is a revetment groundwater intercept system. This system is designed to capture groundwater and potential contamination that otherwise may migrate from the Midland plant site to adjacent surface water bodies and return it to the waste water treatment plant for biological treatment.

Additionally, each production facility on the site coordinates its own waste management program and identifies air emission, water emission and waste reduction opportunities. At Dow, we have formalized our waste elimination thrust through the 'Waste Reduction Always Pays' , or WRAP, program, which began in 1986. Through the WRAP program, production facilities are encouraged and recognized for identifying and implementing waste minimization and pollution prevention opportunities. For the Michigan Division, WRAP projects have saved close to $5,000,000 per year, while reducing, on the average, 5 million pounds of waste per year over the last five years! As an example, for 1994, 24 projects were nominated for WRAP recognition. Combined, these 1994 projects reduced waste to air, wastewater, landfill and incineration by 5.5 million pounds and saved almost $4,000,000 last year alone. The savings were realized through

raw material and product savings, increased yields, and treatment cost reductions. Other years have achieved similar significant results.

Lastly, the Michigan Division of the Dow Chemical Company is looking ahead to the year 2000 and determining what environmental infrastructure maintenance and improvement projects will be necessary to keep the Michigan Division a viable entity in the next century from both a global marketplace and environmental performance perspective. Our "Environmental Services 2000" (EVS 2000) strategy defines projects for upgrading our wastewater treatment plant, incinerator complex, landfill, revetment groundwater intercept system, and addresses historical environmental issues, such as soil contamination, present from nearly 100 years of chemical manufacturing at this site. Historical environmental issues may be addressed through a number of ways, including upgrading the revetment groundwater intercept system, capping or recapping certain areas of soil contamination, and addressing tertiary pond solids. It is anticipated that the EVS 2000 strategy will involve major expenditures for these upgrades and improvements of our environmental services systems over the next five years, as the Michigan Division is committed to continued environmental excellence into the next century.

MICHIGAN DIVISION PROPOSAL

The Michigan Division proposal for Project XL involves a multimedia approach to waste management, emphasizing waste minimization and pollution prevention . The proposal entails specific performance objectives that will be finalized in the project agreement, resulting in over all reductions of emissions to all environmental media over an established time period with relevant performance measurements. Specifically, the implementation of the Michigan Division Project XL will result in a reduction of emissions to the air, a reduction of waste streams to the waste water treatment plant, and a reduction of routine Dow hazardous waste managed at the incineration complex and Salzburg landfill by the year 2000 when compared to waste and emissions numbers generated for the baseline year of 1995. It must be recognized that these proposed reductions are not, generally speaking, required by law or regulations, but would be above and beyond reductions required by law and represent Dow Chemical's commitment under the Project XL proposal. It is anticipated that the reductions to each media or waste will be in the order of 25-30%, but this will be more clearly defined in the Final Project Agreement phase. In order to achieve these goals, more effective alignment of work processes and resources with flexibility in the application of environmental rules and regulations will be needed. To accomplish these goals, expedient, performance-based permitting is critical. These goals can be achieved in a timely fashion only if existing regulatory barriers are addressed.

The Michigan Division Project XL will utilize the Total Quality Management (TQM) approach to gain continuous improvements, breakthroughs and standardization in environmental management programs within the Michigan

Division. Existing environmental monitoring systems will be evaluated to optimize how data should be generated and utilized for the purpose of improved environmental performance. Results from tools such as environmental and health risk assessments and cost benefit analysis will become more important in the establishment of more effective and efficient environmental management programs. Opportunities to minimize duplication and redundancy of environmental monitoring efforts across environmental media will be evaluated and pursued to improve efficiency.

There are several areas in the regulatory framework that have the potential for work process streamlining, performance-based permitting, minimizing redundancy, or other alternative strategies to achieve environmental improvements, while resulting in cost savings and greater resource efficiency. It is anticipated that the selection of these flexible environmental management strategies will be accomplished by Dow and the Michigan Department of Environmental Quality (DEQ), with input from stakeholders during the development of the Final Project Agreement. Examples of potential candidates for regulatory flexibility include:

1. Allow operating flexibility at permitted facilities (incinerator, wastewater treatment plant) to test innovative or superior performance techniques.

2. Shut down the older hazardous waste incinerator while expediting permitting of capacity increase of the new hazardous waste incinerator to allow it to operate at its optimal efficiency level, emit less to the environment, and reduce total amounts of waste going to the incinerator complex as a whole.

3. Provide regulatory flexibility to handle tertiary pond solids utilizing the most environmentally sound and cost effective manner.

4. Reduce and eliminate whenever possible inefficient, duplicative, or unnecessary record keeping requirements in CWA, CAA, or RCRA regulations.

5. Streamline the air permitting process, allowing for rapid production or product changes, which will provide a competitive advantage in the global marketplace.

Other potential opportunities for regulatory flexibility that provide cleaner, cheaper, smarter results are listed in Appendix A.

This project will be defined in four distinct phases, which will be embodied in a Project XL Final Project Agreement:

- A memorandum of understanding will define the operating charter, the groundrules, roles of stakeholders, the degree of regulatory flexibility and a dispute resolution process.

• Secondly, commitments will be defined and supported that will improve environmental performance.

• Appropriate measurements will be selected to assess, with regularity, the degree of progress being made towards the environmental targets.

• In the final phase, a communication process will be defined that addresses communication needs of all parties.

FULFILLING PROJECT XL CRITERIA

1. Environmental Results

As stated earlier in this proposal, implementation of the Michigan Division Project XL will result in improvements in environmental performance which, for the most part, are not required by and would not be accomplished by law or regulations. It is anticipated that reductions in the order of 25-30% of to the wastewater treatment plant and incinerator complex will be achieved. These waste reductions will be more clearly defined in the Final Project Agreement. Improvements in environmental performance will be accomplished by:

• a 30% reduction of VOC emissions to the air by the year 2000 (1995 baseline), including Toxic Release Inventory (TRI) compounds such as toluene, as well as volatile compounds not on the TRI. This would be a reduction beyond the almost 50% air emission reduction already achieved by Dow's Michigan Division in TRI compounds since 1988. This reduction will be achieved primarily through source reduction techniques.

• a significant reduction of waste and/or wastewater to the waste water treatment plant by the year 2000 from a 1995 baseline.

• a significant reduction of Dow routine hazardous waste managed at the incineration complex and Salzburg landfill when compared to waste and emissions numbers generated for the baseline year of 1995.

• continuation of efforts to address contamination from historical activities

Implementation strategies include installing a recycle system at one of our plants which will extract toluene, condense and recycle that toluene in the process, significantly reducing toluene emissions. Another plant on the Midland site is investigating yield improvement and recycle technologies, which reduce the amount of waste this plant discharges to our wastewater treatment plant. A global waste minimization manager has been named who will be identifying waste minization opportunities in the research and manufacturing facilities in Dow.

The WRAP process will be expanded to identify and develop priorities for waste reduction. Reductions will utilize the waste management hierarchy and prioritization process. Throughout this effort in looking at all waste streams,

specific attention will be given to identifying and pursuing opportunities to reduce the release of bioaccumulative chemicals of concern.

These goals can be successfully accomplished in a timely fashion only if existing regulatory barriers are identified and addressed. For example, the installation of a new environmental treatment or disposal process or the expansion of existing treatment or disposal processes needed for important environmental improvements may require licensing or permitting under several agencies' programs which is a slow and time consuming process. A streamlined, well-coordinated permitting process would allow these important environmental projects to proceed in a timely fashion. By empowering the DEQ and Dow personnel to find the most direct route to effect the most positive change, energies will remain focused on achieving the most environmental benefit.

2. Cost Savings and Paperwork Reductions

Michigan Division project XL will minimize the redundancy of record-keeping currently required by regulations. One example is current RCRA and Air rules which are applicable to similar, if not identical, emission points. These two could be consolidated into one program, resulting in cost savings for both parties. Also, expedited permit amendments for construction activities would facilitate environmental improvements, saving resources for the Company and the regulatory agencies and improving environmental performance. Innovative, more flexible approaches for environmental permitting would facilitate environmental improvements.

Administrative costs will be reduced due to the performance driven activities. This project will allow dollars to be spent not just to comply with current rules but rather to result in improved environmental protection and emission reductions which will exceed current regulatory performance requirements.

Likewise, minimizing duplication and redundancy in reporting requirements would free up company resources for environmental projects. Expedited permitting will result in valuable time savings, both on the part of Dow and the regulating agency.

3. Stakeholder Support and Participation

Dow is committed to broad based stakeholder involvement and support for this project. Additional involvement by the community through the Dow Community Advisory Panel, which has existed to give input to this site since 1990, will ensure local involvement in this project. Discussions are already underway with the state DEQ and key public interest groups. This XL Project will help in the development of an effective stakeholder process. We are developing the concept of working with a smaller, stakeholder advisory group, that would include members from the medical/health community, labor community, public interest group community, high school or higher academic community, city management, and perhaps others.

4. Innovation/Multimedia Pollution Prevention
Projects identified by Project XL will reduce emissions to all media from many sources at the facility. Innovation will be experienced by providing the incentive to develop and implement new technologies that are not encouraged to be tried under current rules and program processes. The implementation of these new solutions can occur more rapidly without the burden of step-by-step regulatory approval. More specifically, by addressing and streamlining permitting, an entity can develop the best control technology or work proactively to reduce the emission or potential for the emission.

5. Transferability
This process can be readily transferred to other large facilities, including older locations. Dow's Michigan Division employs many manufacturing techniques and innovative emission reduction solutions that can be applied to other facilities with similar technologies. This includes a wide array of areas ranging from analytical procedures to permitting approval processes. This process can provide the model for a new regulatory system which better aligns resources with environmental opportunities.

6. Feasibility, technically and administratively
It is felt that previous projects and permits have given all parties some experience with this type of approach. Dow continues to work with the state agency and other stakeholders in this capacity to resolve many complex regulatory issues and environmental challenges. This track record bolsters the probability of success to this project. XL will provide the opportunity to explore and establish even more innovative and effective options for environmental management. This will help set the standards for future work practices and regulation.

7. Monitoring, reporting and evaluation
As part of the development of the Final Project Agreement, specific goals will be delineated, as well as the process or processes to measure, evaluate, and report to stakeholders on progress towards these specified goals. Progress will be reviewed with stakeholders on a regular basis.

An improved and more effective monitoring and record keeping program will be developed in this cooperative and trusting environment. Emphasis will be placed on collecting and managing data truly relevant to project goals. The positive results from this new approach to environmental management could include such elements as: the development of new analytical methods and techniques for the measurement of waste streams and their environmental impact, in a faster and more cost effective manner; better understanding of key operation variables and improved efficiencies of traditional waste treatment and disposal processes, resulting in long term improved performance; and improved communication systems for faster data transfer. The current ambient monitoring system network will be assessed to assure that we are using environmental monitoring resources in the most effective way.

8. Shifting of risk burden

Throughout this project Dow will take actions to assure there is no shifting of risk to local populations or workers, continuing in the Dow tradition of championing worker safety. By the nature of the emission and waste reduction projects, no shifting of risk is expected. Since emissions are being reduced, the transfer of risk from one media to the other will be minimal and highly unlikely to exist. Dow will use the public participation process in this project to get feedback on this issue.

CONCLUSIONS

The Dow Chemical Company, Michigan Division , Midland Plant Site submits this document as application for selection as a Project XL pilot in accordance to President Clinton's Reinventing Environmental Regulation effort. Through the development and implementation of the Michigan Division Project XL, Dow expectations are to improve environmental performance in a timely and cost effective manner. Dow views Project XL as an opportunity to optimize resource utilization for both Dow and the regulating agencies while improving pollution prevention practices with reduced emissions to the environment.

APPENDIX A TO SECTION IV
OPPORTUNITIES FOR REGULATORY FLEXIBILITY THAT PROVIDE CLEANER, CHEAPER, SMARTER RESULTS

1. Allow increased operating flexibility at permitted facilities (incinerator, wastewater treatment plant) to test innovative or superior performance techniques.

2. Shut down the older hazardous waste incinerator while expediting permitting of capacity increase of the new hazardous waste incinerator to allow it to operate at its optimal efficiency level, emit less to the air, and reduce total amounts of waste to the incinerator complex as a whole.

3. Provide increased regulatory flexibility to handle tertiary pond solids utilizing the most environmentally sound and cost effective option.

4. Eliminate inefficient, duplicative, or unnecessary record keeping requirements in CWA, CAA, or RCRA regulations.

5. Streamline the air permitting process to allow rapid entry into business opportunities, which will provide a competitive advantage in the global marketplace.

6. Provide increased regulatory flexibility to address revetment system soil in most cost effective, efficient way.

7. Provide increased regulatory flexibility to define compliance with current and future MACT (NESHAP/NSPS) standards by reduction of overall emissions and the requirement that all new and modified plants will meet/exceed Michigan Air Toxics Rules.

8. In the context that we will commit to a major reduction in air emissions for the total Midland site, allow minor sources to build or modify plant construction using innovative, more flexible approaches to air permits.

9. Improve waste management at incinerator complex by removing liquid storage capacity limits.

V. TEXAS OPERATION'S BOILERS AND INDUSTRIAL FURNACES (BIF) PROJECT XL COMPONENT

INTRODUCTION
TEXAS OPERATIONS FACILITY

Dow's Texas facility (TF) is the largest chemical complex in the USA. It operates more than 70 production plants and numerous market development and research plants occupying more than five thousand acres in the Freeport, Texas area. The site manufactures and supplies more than 1800 chemical intermediates and products, including organic and inorganic chemicals and performance products, plastics, hydrocarbons and energy. Dow produces over 30 billion pounds per year of products and directly employs around 6,300 people. Three new world-scale production plants were brought on-line over the past two years with additional production plants to be built in the future. This site represents a major part of the State's chemical manufacturing industry.

POLLUTION PREVENTION

TF is committed to pollution prevention and has reduced TRI releases and transfers by 55% (1988 base). TF has also reduced the ratio of releases per unit of production by 55% (1988 base) and there has been a 72% reduction in the 33/50[1] program chemicals. In 1994 alone, TF reduced emissions to the air, land, water and transfers off-site by 10 percent. This marks the sixth consecutive year that TF has reduced TRI emissions and transfers. This was accomplished by initiating a number of pollution prevention projects and implementing Dow's waste management policy. One project was a simple yet effective device, developed by plant operators, which holds the covers on magnesium cells more securely in place. This significantly reduced the amount of hydrochloric acid and chlorine emissions to the atmosphere. Another good example of how emissions were reduced can be found in a team that worked together to reduce the use and emissions of chlorofluorocarbons (CFCs) by over 70 percent in their area. TF has also invested over $100 million in a state-of-the-art wastewater treatment plant, reducing VOC emissions to the atmosphere by over 400 tons.

TF also has a program in place to reduce dioxin concentrations in our NPDES outfalls. Since 1990, TF has made significant process improvements that total about $11 million to reduce dioxin released to the Brazos River. These efforts have reduced dioxin released by 90%. Dow has recently formalized a global goal of reducing dioxin and furan emissions to air and water by 90% by the year 2005 and has committed $250 million to this effort. This TX BIF XL component will assist in meeting Dow's global dioxins and furans goal.

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[1]These chemicals are benzene, carbon tetrachloride, chloroform, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, perchloroethylene, toluene, 1,1,1-trichloroethane, trichloroethylene, and xylenes.

The goals of Dow's waste reduction program (WRAP) are to (1) reduce waste and emissions to the environment, (2) recognize those making significant contributions to waste and emission reductions, and (3) emphasize the need for continuous improvement in waste and emission reduction. Source reduction is Dow's first waste reduction priority. The next priority is to recycle material into the production process. If recycling is not possible, Dow treats or destroys waste. The final option is to place the waste in a secure landfill. Dow prefers to manage its wastes in company-owned and operated facilities.

TF is an active member of Clean Industries 2000 (a State of Texas voluntary pollution prevention program) and has been since its inception. TF has committed to develop a pollution prevention plan that sets a goal of 60% reduction in toxic releases by the year 2000 (1988 base). This commitment focuses on reducing atmospheric TRI releases. This component of Dow's Project XL goes beyond the C.I. 2000 goal since its focus is on an overall reduction in liquid halogenated wastes burned per pound of associated product produced as well as a reduction in boiler and industrial furnace (BIF) units.

Dow actively supports Responsible Care* which is a chemical industry initiative making continuous improvements in health, safety, and environmental operations. Pollution prevention is a key objective of this program. Dow is also an active member of the President's Council on Sustainable Development and has committed to systematically conducting and evaluating environmental opportunity assessments associated with our facilities, technologies and businesses. In this manner, Dow can better align its resources to provide economic incentives for superior environmental performance.

BIF COMPLIANCE ACTIVITIES

TF was inspected for BIF compliance by an EPA contractor in January, 1994. The Texas Natural Resource Conservation Commission (TNRCC) conducted a duplicate inspection in April 1995. Since the EPA inspection and in response to some of the preliminary findings, TF has initiated significant changes in its BIF compliance program. These have included: enhancement of waste analysis plans for each BIF unit, correction of paperwork related to product recovery for our halogen acid furnaces, corrections to automatic waste feed cutoffs (AWFCOs), and direct transfer recordkeeping where needed. In addition, TF has developed a compliance manual for BIFs and is monitoring its implementation by the BIF operators. These efforts will ensure consistent compliance of its BIF units in the future.

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* Service mark of the Chemical Manufacturers Association

SCOPE OF THE BIF XL COMPONENT

TF has 23 BIF units with 16 associated emission points, which may be required to permitted under RCRA on a time schedule to be set by TNRCC. Significant parts of the permitting process are trial burns and Part B applications. Trial burns for all 23 units could take as long as six years. TF feels that it would be best to establish a schedule to allow adequate time for BIF permitting. Other opportunities for BIF regulatory flexibility should also be seized as described below. The additional time and regulatory flexibility would be justified based on specific environmental commitments by TF which would begin in 1996.

These specific commitments involve reductions in liquid halogenated wastes burned per pound of associated product produced, reductions in the number of BIF units in liquid service, and a commitment to complete a sampling program for dioxins and furans to identify reduction opportunities. To meet these commitments, TF will develop and implement alternatives to combustion, construct new production processes, and improve BIF units. The BIF XL component would establish an alternative enforceable agreement covering these BIF units, associated reductions, and regulatory flexibility.

SPECIFIC ELEMENTS OF THE BIF XL COMPONENT

TF will initiate significant environmental improvements beginning in 1996 by implementing a program to achieve the following:

> A 25% reduction in the unit ratio of liquid halogenated wastes burned per pound of associated product. The specific ratio goal and base year will be formalized in the project agreement. This ratio will include material incinerated at the RCRA-permitted Texas Operation Kiln. TF will meet the specific ratio goal by the end of 2005 and will report on progress during the intervening years.

> A 20% reduction in BIF units in liquid service. The base year will be formalized in the project agreement. Interim status will be terminated for those units removed from liquid service.

> Completion of a sampling plan for dioxins and furans (D/F) and establishment of a baseline by year-end 1996. A commitment to a specific reduction in D/F emissions would be included in the progress report for the year 1996.

TF would like to pursue through the BIF XL component the following opportunities for regulatory improvement:

> Approval of a schedule of trial burns that would extend four to six years beyond initial TNRCC Part B call-in. The schedule would begin when TNRCC requests Part B applications.

> Active participation in development of future technical standards and strategies for BIFs by submitting data and providing comments on regulatory proposals. This data will be valuable in establishing dioxin and furan emission limits.

> Creation of a mechanism for TNRCC to evaluate alternative technologies needed to attain the commitments for alternative RCRA compliance for this and other Dow locations.

> A significant reduction in the frequency and scope of BIF recordkeeping.

> Consolidated air/RCRA permits for each BIF unit.

> The ability to avoid risk assessments if BIF technical standards are met. Alternatively, waive BIF technical standards for units passing risk assessments.

> Modification of the three year BIF recertification.

> Compliance flexibility (allowed under EPA's Environmental Leadership program) for audits of BIF units.

> Extension of time for compliance with technical standards, if needed.

> Extension of permits for TF's Rotary Kiln to 2002, to be consistent with the requirements to meet new technical standards.

PROJECT CRITERIA

1. Environmental results

This XL project will provide environmental reductions that are superior to what might be required with anticipated future regulations. Environmental benefits will include:

> A 25% reduction in the unit ratio of liquid halogenated wastes burned per pound of associated product.

> A 20% reduction in BIF units in liquid service.

> Completion of a sampling plan for D/F and establishment of a baseline by year end 1996.

> A significant reduction by the year 2005 in the amounts of waste that would otherwise be combusted at Dow.

> Assistance to EPA and TNRCC in establishing the new technical standards for BIF units.

Dow believes that the ratio of waste incinerated to product produced is an important measure of environmental progress. This ratio provides a mechanism to demonstrate true pollution avoidance since pollution prevention must be implemented to reduce the ratio. A stable ratio generally indicates that either (1) no waste reductions are occurring, or (2) production has increased but so has associated waste. An increasing ratio generally indicates that (1) the amount of wastes have increased, or (2) production has increased but associated waste has increased disproportionately. A decreasing ratio indicates that (1) pollution prevention activities are occurring to reduce the amount of wastes, or (2) the amount of production has increased but pollution prevention projects have been implemented to significantly reduce the amount of wastes that would otherwise be disposed of.

A decreasing ratio demonstrates that pollution prevention is occurring even if new production capacity is added. Use of the ratio allows a facility to increase production (which is important both for Dow and the economy) but ensures that pollution prevention activities are on-going. This is sustainable development.

2. Cost saving of paperwork reductions

The cost savings associated with this BIF XL component are substantial. These benefits are extremely important since TF will be committing to spending millions of dollars in order to meet the goals of the BIF XL component. TF will conduct extensive process research, build new processes, upgrade some BIF units, replace others with cleaner, more efficient units, take some out of liquid service, and close some. This BIF XL component will provide the following specific benefits:

> Only units operating long term will be upgraded, thus, limited funds will be spent more appropriately elsewhere. This would potentially result in a cost savings in the millions of dollars per BIF unit taken out of liquid service.

> Eliminate the need for trial burns on units which will not be operated in liquid service long-term. This could potentially result in a cost savings of $150,000 per BIF unit taken out of liquid service for a total of $750,000 to 1 million. TNRCC will benefit by not having to commit resources to review trial burns.

> Eliminate need for Part B Permit applications for units which will not be operated in liquid service long-term. Manpower and cost savings have not been calculated but could be as high as $50,000 per unit for a total of $250,000-$500,000. TNRCC could realize similar cost savings since personnel would not have to review the Part B applications.

3. Stakeholder support

> Preliminary stakeholder support has already been expressed by TNRCC, EPA Region VI, and EPA Headquarters. Further discussions will be held to formalize support.

> Discussions have been initiated with Natural Resources Defense Council at the national level. Further dialogue will occur.

> The TF Community Advisory Panel has been given a brief overview and written summary of the project. A more formal review will be provided in January, 1996.

> Other potential stakeholders are the Texas Parks and Wildlife, local environmentalists, and local legislative officials. Dialogue will begin soon to gain their support.

4. Innovation/multimedia pollution prevention

In order to meet the BIF XL component commitments, pollution prevention under CAA, CWA and RCRA jurisdiction will be implemented through pollution prevention projects. TF is aggressively pursuing alternative technologies through active research and development both internally and with outside companies. These projects are actual process changes or additions rather than retrofitting of equipment. The pollution prevention projects being evaluated include the following:

> new chemistry or new processes to reduce RCl waste generation

> process improvements of existing technologies to reduce RCl waste generation

> new processes to use RCls as raw materials to make valuable products

> new process to take existing products/raw materials and make valuable products (create additional value)

> new processes to use RCls and separate them into distinct saleable products

> alternative technologies to incineration

One project will be on-line mid-96 (~$50 million in capital). Six additional projects are being evaluated for 1997-2002 time frame ($60 million in capital subject to company approval). Other projects will be developed past the year 2002. There is currently technology that has been approved for implementation in 1996 at Dow Europe BIF units that should significantly reduce D/F emissions and that may be suitable for US BIF units. Additional technologies are being studied in the US and Europe that will be just as effective and less costly. The details of these projects and technologies are confidential business information. These projects will provide Dow a competitive advantage in terms of efficiency, waste minimization, and value added source reduction and recycling, therefore, Dow does not want competitors to know the extent nor content of these projects.

5. Transferability

Dow operates 42 incineration units in the United States, including 35 BIF units and 7 incinerators. There is a great potential to transfer these concepts related to BIF regulatory improvement, extended BIF permitting, new technologies, alternative non-RCRA technologies to incineration, dioxin/furan reduction technology, etc. within Dow.

These same concepts could be transferred to other companies operating BIF units. BIF permitting flexibility will be transferable once its benefits are demonstrated. New technology developed for reducing dioxin and furan

emissions should be transferable when properly protected by patent or license. Also, any process modifications or innovative pollution prevention technology may be transferable once they are protected by patent or license.

Any mechanism for providing RCRA regulatory improvement for new or innovative technology that is developed through Project XL could be used as a template for granting similar regulatory improvements elsewhere. This BIF XL component's paradigm shift in regulatory implementation and enforcement could be incorporated as formal changes to existing EPA BIF regulatory requirements.

6. Feasibility, technically and administratively

Dow is committed to pollution prevention and the goals of this BIF XL component and has the financial ability to complete projects that are found to be cost-effective and viable. Although all details have not yet been developed, the commitments are attainable. TF will confirm the optimum process modifications, alternative technology, etc. Administratively, this TF BIF component can be managed through mechanisms already in place at the site: permitting, engineering, project oversight, etc. Appropriate agency administrative resources are critical to the success of this component.

7. Monitoring, reporting, and evaluation

The BIF XL component will include progress reports on process modifications, alternative technologies, unit ratio, number of BIF units in liquid service, and sampling for D/F emissions from BIF units.

TF will track:

> the amount of chlorinated wastes burned

> total amount of associated products produced

> a unit ratio of pounds of liquid halogenated wastes burned per pound of associated product produced. (Note: Until waste minimization and source reduction technologies are implemented, unit ratios may increase in the short term with the final ratio commitment being met by 2005.)

TF will report annually:

> the initial base year ratio, each subsequent year's ratio, and the final year goal. This will probably be done in a chart format similar to TRI reporting. The report will be filed subsequent to the RCRA annual report. Note: The ratio may not show straight line reductions, but the goal will be met by 2005.

> the number of BIF units in service each year and highlight the reductions.

For dioxins and furans:

> TF will complete the ongoing dioxin/furan sampling program so that a baseline for the site can be developed by the end of 1996. Using the baseline, TF will make a commitment for a percentage reduction in air emissions from BIF units and will include that commitment in the 1996 progress report (submitted in 1997). Biannually thereafter, TF will report progress on reductions to the baseline. The baseline will be established and subsequent reductions quantified through stack sampling of selected units. The data will be reported in a graph showing the baseline, the percentage reduction commitment, and the progress made during each two-year period.

Compliance with this BIF XL component will be met as long as TF can demonstrate progress is occuring and regular status reports and communications are maintained. Compliance with the enforceable agreement must constitute compliance with existing regulations. Also, the Executive Director may extend various provisions of this component beyond the terms of this agreement as needed including any non-RCRA determinations.

8. Shifting of risk burden

There would be no shifting of the risk burden. In fact, any existing risk would be alleviated through the reduction in D/F emissions. TF anticipates any net environmental risk will be significantly lessened both for the surrounding community and TF workers.

TEXAS BIF XL SUMMARY

TF's BIF XL component is a bold step to allow the TNRCC and EPA to develop a model to move from command and control approaches toward a more flexible, performance standard approach. This will result in better environmental performance, certainty, flexibility, and efficiency in compliance requirements and will provide numerous benefits for the public, TNRCC, EPA, and Dow.

This embodies a model for better control of combustion facilities in a more cost-effective manner which is consistent with the EPA's combustion strategy.

TNRCC will be able to make early progress on commitments to the Texas Legislature to streamline and reform environmental regulations for Texas businesses. This project will also enhance the already excellent working relationship between TF, EPA, TNRCC, and the environmental community through a cooperative process which will help all stakeholders better understand concerns and build the trust which is necessary for regulatory improvements.

V. LOUISIANA DIVISION'S EQUIPMENT LEAK PROJECT XL COMPONENT

BACKGROUND

Existing equipment leak regulations require routine monitoring of potential leak locations on all valves, pumps, connectors, compressors, etc., that meet the applicability criteria. Many of these equipment leak programs allow for a reduced monitoring frequency in situations where a pre-defined percentage of non-leaking components is achieved. However, all of the components still require monitoring. The burden of the continuing monitoring requirements can be significant for a typical plant that contains several thousand components. Although the monitoring burden may remain essentially the same over time, the percentage of leaking components may be significantly reduced if a leak detection and repair (LDAR) program is well designed and implemented.

In addition, a single production plant may be subject to several different equipment leak programs. Separate, and different, federal and state requirements may exist for the control of volatile organic compounds (VOC) and hazardous air pollutants (HAP). All of these overlaps create unnecessary burden and result in a waste of resources.

PROJECT SCOPE SUMMARY

A new approach is described as part of this Project XL pilot effort. This pollution prevention project would greatly reduce the burden of monitoring and recordkeeping, as an incentive for operating equipment with a lower leak rate than required by regulation. In order to qualify for the reduced burden approach, a plant would have to demonstrate a higher level of performance by achieving a higher percentage of non-leaking components than currently required. The ability to achieve this higher performance level would be greatly influenced by the plant's operating system to manage and prevent equipment leaks. Once the higher performance level is achieved, the plant would be allowed to monitor a smaller percentage of the components and reduce the frequency of monitoring. The plant would be accountable for maintaining the standard that has been achieved. This concept provides a great incentive for plants to achieve and maintain the higher level of performance, which translates to reduced emissions.

Those familiar with EPA's HON rule are well aware of the QIP (Quality Improvement Program) requirement for owners or operators of poorly performing equipment that leak in excess of EPA's target levels. The QIP requirements involve rigorous efforts at identifying new equipment, different materials of construction or control techniques to reduce the percentage of

1. Environmental Results

Environmental benefits from the PIQ project would result from a reduction in leaks from equipment in VOC and hazardous air pollutant (HAP) service. The success of most equipment leak programs is measured by the number of non-leaking components (e.g., valves, pumps or connectors). The PIQ project would apply to plants that achieve and maintain a lower percentage of leaking components than required by regulation. A lower percentage of leaking components translates into less emissions. For example, current EPA methods estimate that a plant with 2,000 valves will have 7,440 lbs./year of emissions, (based on the stratified factors for light liquid valves at a leak rate of 1500 ppm), when using a 2% leak rate (i.e., 2% of the components are leaking in excess of the acceptable leak definition.) By reducing the number of leaking valves by a factor a four, from 2% to 0.5%, the emissions are reduced by an estimated 5,580 lbs./year. The emission reductions become more significant as additional plants achieve this excellent level of performance. Although the numbers generated by the EPA methods are estimates, it is clear that reducing the number of leaking components in a process will result in an actual reduction of emissions.

Plants may achieve the lower percentage of leaking components by implementing good work practices which are <u>not</u> required by regulation. For example, these work practices may included a statistical failure analysis of leaking components to determine if a particular component type, or material of construction, is the source of a recurring problem. Another approach might involve pre-testing components for integrity and leaks prior to placing them into service. The work practices can vary greatly between plants, and are usually designed to meet the needs of that particular process.

The PIQ project would also provide incentive for plants that are close to meeting the PIQ requirements to put forth the necessary effort to achieve the lower percentage of leaking components that is needed to qualify for the program.

Key Concepts:

- The leak definition will be as low as the lowest value in the applicable regulations. For example, if a 10,000 ppm and a 500 ppm leak program are combined, the leak definition will be 500 ppm for the PIQ project.
- The allowable leak rate (percent leaking components) will be lower than the lowest value in the applicable regulations.

2. Cost Savings and Paperwork Reductions

The PIQ project will result in a significant cost savings and a decrease in paperwork burden. The total program cost associated with existing recordkeeping, reporting and system administration can easily reach $5 to $10 for each component. Multiply this total costs by an average of 5,000 to 10,000 components for each plant, and it is easy to see the cost savings that can be obtained by reducing monitoring as a reward for excellent performance. Only a percentage of the components will be monitored, and a single annual report would satisfy the reporting requirements of the program.

The PIQ project would also allow for the combination of several equipment leak regulations into one program. By pooling all of the affected equipment into a single program, the owner or operator can focus resources on achieving and maintaining excellent performance instead of trying to determine how to best comply with several different regulations.

Key Concepts:

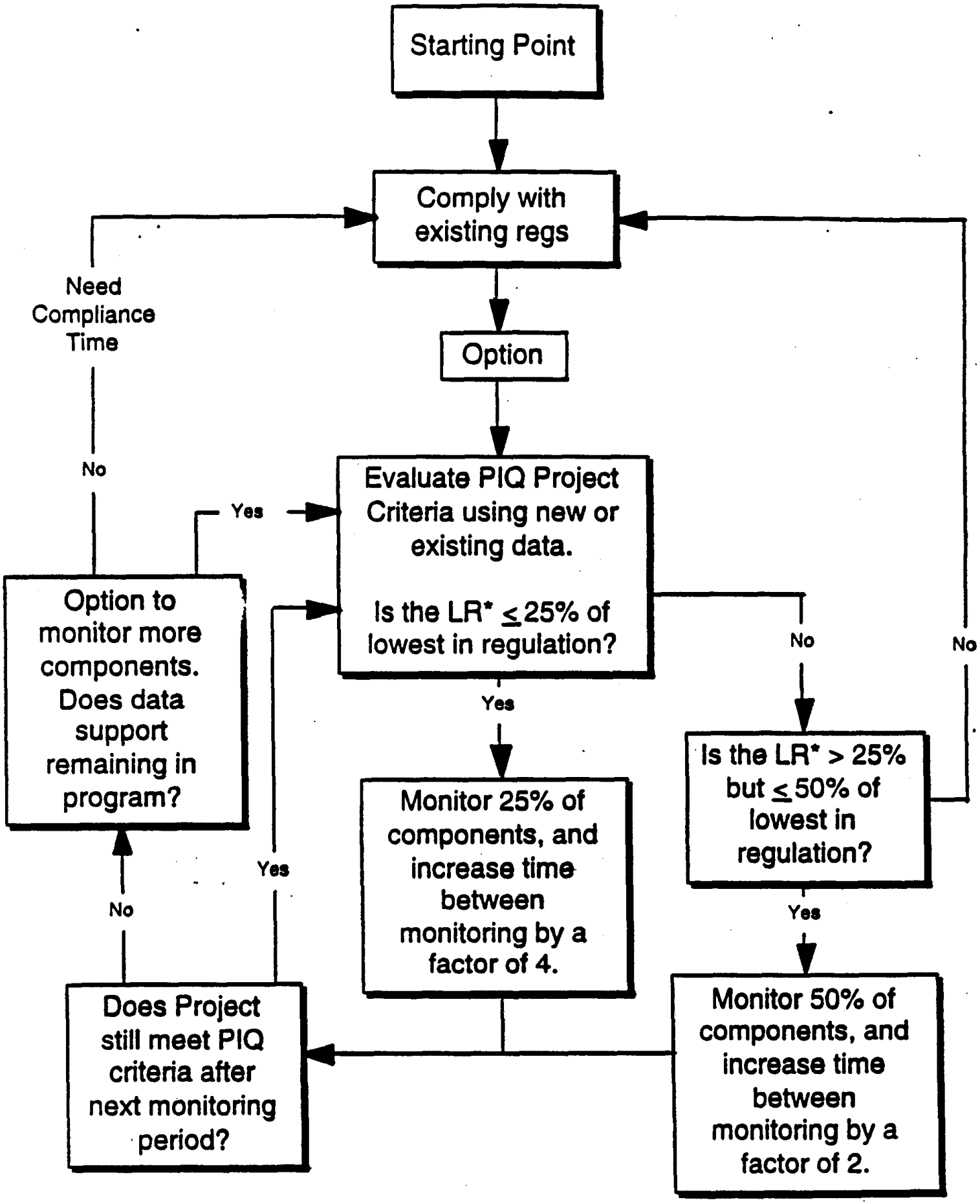
- Achieving 50% of the lowest applicable leak rate would result in a reduction in the number of components that are monitored by 50% and would increase the time between monitoring by a factor of 2. Achieving 25% of the lowest applicable leak rate would result in a reduction in the number of components that are monitored by 75% and increase the time between monitoring by a factor of 4.
- Existing data may be used to enter the PIQ project.
- The owner or operator determines whether to meet the PIQ criteria on a process unit, plant or site basis.
- The owner or operator determines whether or not to combine different programs (e.g., VOC or HAPs) into a single program.
- The PIQ project will describe which components (e.g., pumps, connectors, valves) are included.

3. Stakeholder Support and Participation

In general, support for the PIQ project will be solicited from the state or regional EPA, and a local Citizens Advisory Panel (CAP). The Louisiana Department of Environmental Quality has agreed to be a negotiator in the stakeholder process. Also, since many of the equipment leak regulations originated at the EPA's Office of Air Quality Planning and Standards (OAQPS), an OAQPS technical resource will be available on an as-needed basis. Once the overall Project XL application is approved, negotiations would proceed to help define the requirements and expectations of the project. The majority of the negotiations to develop the details of the PIQ project are expected to occur at the Louisiana site. A single negotiation helps to ensure the development of a consistent program, prevents three separate simultaneous negotiations at the same time, and helps the Michigan and Texas stakeholders focus on the other two Dow projects. Communications would occur with each of the three stakeholder groups prior to

ATTACHMENT: SUPPORT LETTERS

The Progress In Quality (PIQ) Project Overview



*Leak Rate (% Leakers)

11/95

beginning the details of the program. Also, the other stakeholders would be in the communications loop at key points of the process.

Contacts:

State - (Stakeholder)
Louisiana Department of Environmental Quality, Bliss Higgins, 504-765-0219

EPA
David Markwordt, EPA Office of Air Quality Planning and Standards, 919-541-0837 (technical resource)

4. Innovation/Multi-Media Pollution Prevention
The PIQ project is an example of improved management practices, and in some cases, it will encourage the application of improved technology. The PIQ project provides an incentive by reducing monitoring requirements and the recordkeeping burden of existing regulations. At the same time, the PIQ project challenges plants to improve work practices, and in some cases to improve technology, in order to achieve an excellent level of performance. Participation in this project will allow plants to concentrate on reducing emissions from equipment leaks as their ultimate goal.

5. Transferability
The design of the PIQ project makes it capable of being applied at any regulated facility. The program will be more attractive to plants with low operating pressure, low vapor pressure chemicals, and typically newer equipment. This should not preclude others from pursuing it, however. The attractiveness will also be present for plants currently covered by a variety of differing regulations that apply to the same equipment.

6. Feasibility
The PIQ project is potentially feasible for any facility currently required to comply with equipment leak regulations. However, as noted above, some facilities would find it easier to attain the PIQ criteria.

7. Monitoring, Reporting and Evaluation
The reduction in the percentage of leaking components from the PIQ project is measurable and provides the key to determining the success of the project. This information will be presented in a form that is easy to understand, and it will be communicated in annual reports. The continued effectiveness of the program can be demonstrated in the annual report.

Key Concepts:

- Significant reduction of existing recordkeeping requirements.
- Summary of monitoring activity:
  - Date, number of components monitored and number of leakers.
  - Log of leaks with date detected and repaired
  - Results of test to determine if criteria were met.
- Reporting Concepts:
  - Initial notification the XL criteria will be used.
  - Annual report of the program status related to the XL criteria.
  - Notification if XL is discontinued.

8. Shifting of Risk Burden

This project would have a positive impact on worker safety and the local community, resulting in a lower risk to workers and to the local community by reducing emissions. It would not be unjust or create a disproportionate environmental impact.

9. Enforcement Mechanisms

Due to the overlap of regulations, EPA would need to write a short regulation explaining that compliance with the terms of the final project agreement constitutes compliance with other relevant regulations (e.g., state equipment leak rules, RCRA equipment leak rules, federal Clean Air Act equipment leak rules).