

# Pipeline and Hazardous Materials Safety Administration

## 2007 - 2011 STRATEGIC PLAN

*“An Enterprise Approach to Achieving Safety”*



U. S. Department  
of Transportation





U.S. Department  
of Transportation  
**Pipeline and Hazardous  
Materials Safety  
Administration**

Administrator

1200 New Jersey Ave., S.E.  
Washington, DC 20590



August 8, 2007

**To all employees of the Pipeline and Hazardous Materials Safety Administration:**

I am pleased to share with you the final Strategic Plan for Pipeline and Hazardous Materials Safety. Strategic planning is all about a shared vision and alignment. We involved all of our leaders and managers in developing this plan, so I am confident that we have created a shared vision of the future. Next we have to ensure alignment in all that we do—in order to achieve the ambitious goals we have set for ourselves.

The Pipeline and Hazardous Materials Safety Administration is a small agency with a huge mission. We have extraordinarily talented people, and we have developed strong relationships with key stakeholders and the public. Over the past year, we have come a long way together. We accomplished a great deal, and at the same time we responded to major events with skill and poise. I am very proud to have been a part of this organization.

I ask that you use this plan as a touchstone in making decisions and carrying out your work over the next several years. Put it into action. Help us make sure we continue to protect people and the environment as the public has entrusted us. There are few goals more worthy than this.

  
Thomas Barrett



**A Strategic Plan  
for  
Pipeline and Hazardous Materials Safety  
(2007-2011)**

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# A Strategic Plan for Pipeline and Hazardous Materials Safety (2007-2011)

**E**nergy products and hazardous materials underpin the American economy and our way of life. We use oil and natural gas to heat and cool homes and businesses, produce electricity, transport virtually all of the commercial products we use, travel to work or recreation, and provide raw material for many other things we use (plastics, fibers, paints, etc.). We use a variety of chemicals to clean our water, fertilize crops, create medicines, and manufacture clothing and many other essential commodities. These chemicals and energy products are essential to our quality of life. They also introduce some inherent risk to the public, the environment, and property.

***Our mission is to protect people and the environment***  
from the risks inherent in transportation of hazardous materials—  
by pipeline and other modes of transportation.

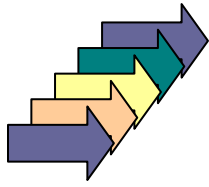
We are, above all, a safety agency, but in carrying out our mission  
we also play an important role in helping to ensure reliability  
throughout the system the American public depends on.

**The Pipeline and Hazardous Materials Safety Administration** is one of ten operating administrations within the U.S. Department of Transportation. We lead two national programs:

- **Hazardous Materials Safety**—we identify and evaluate safety risks, develop and enforce standards for transporting hazardous materials, educate shippers and carriers, investigate hazmat incidents and failures, conduct research, and provide grants to improve emergency response to incidents. We also work with other DOT operating administrations to help them administer their hazmat safety programs effectively.
- **Pipeline Safety**—we identify and evaluate risks; develop and enforce standards for design, construction, operations and maintenance of pipelines carrying natural gas or hazardous liquids; respond to accidents/incidents; educate operators and the public; conduct research on promising technologies; provide grants to states in support of their pipeline safety programs; and review oil spill response plans, with a special focus on protecting unusually sensitive areas. Pipelines are a major hazmat mode of transportation.



## Strategic planning drives our enterprise approach to safety



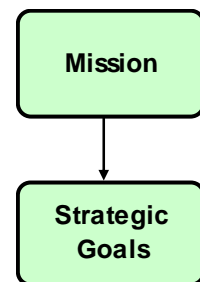
**Plans help drive alignment**, so that our decision making, our priorities, and our actions are all driven by *strategic intent*. For our programs, this is especially critical, since we're part of a much larger *enterprise*—with many other players, all focused on or affecting the safety of the transportation systems.

**The enterprise** includes other government agencies, industry, the public, and non-governmental organizations with a stake in pipeline and hazardous materials safety. We're all working toward some common objectives. We influence outcomes in different ways, but the results come from the collective efforts of all parties.

## Our strategic goals – What we aim to accomplish

From our mission, we will measure our success not in terms of activities but of *outcomes*.

**The public expects *safe, clean, and reliable* transportation** of hazardous materials by all modes—motor vehicle, rail, aircraft, vessel, *and pipeline*. While we aim to prevent failures from occurring, we know it is important to maintain a strong response capability as well to reduce the consequences of failures that do occur. High consequence events pose special risks and we make special efforts to prevent them. We also recognize that transportation operates in a global economy; the system works most safely and most efficiently when all work from common standards.



**These goals reflect the key results** that we have to get right to accomplish our mission effectively in a changing environment:

**Safety** – We protect people and their communities, focusing especially on preventing high consequence events. Our safety goal contributes directly to helping achieve the Secretary's goal—to enhance public health and safety by working toward the elimination of transportation-related deaths and injuries.

⇒ ***Our goal** is to reduce the risk of harm to people due to the transportation of hazardous materials by pipeline and other modes. Overall, we have cut the risk by about one third over the past 20 years. We intend to keep driving this trend over the next 20 years.*



**Environmental stewardship** – We protect the natural environment, focusing especially on unusually sensitive areas. Our environmental goal contributes to helping achieve the Secretary’s goal to promote transportation solutions that enhance communities and protect the natural and built environment.

⇒ *Our goal is to reduce the risk of harm to the environment due to the transportation of oil and hazardous materials by pipeline and other modes.*

**Reliability** – We help ensure delivery of critical energy supplies and other materials that support the economy and our way of life, by minimizing disruptions. In doing so, we help achieve the Secretary’s goal to reduce congestion and other impediments to using the Nation’s transportation system. A safe system, of course, helps reduce these bottlenecks, and effective response minimizes the effect of disruptions.

⇒ *Our goal is to help maintain and improve the reliability of systems that deliver energy products and other hazardous materials. We intend to maintain or improve our record without compromising safety.*

**Global Connectivity** – In setting requirements for moving hazardous materials through pipelines and other modes, we work to harmonize standards internationally, which supports the Secretary’s goal to facilitate an international transportation system that promotes economic growth and development. Common standards promote efficiency and reduce complexity, which together reduce the risk of failure.

⇒ *Our goal is to harmonize and standardize the requirements for pipeline and hazardous materials transportation internationally, to facilitate efficient and safe transportation through ports of entry and through the supply chain. We intend to reduce the number and impact of differing requirements.*

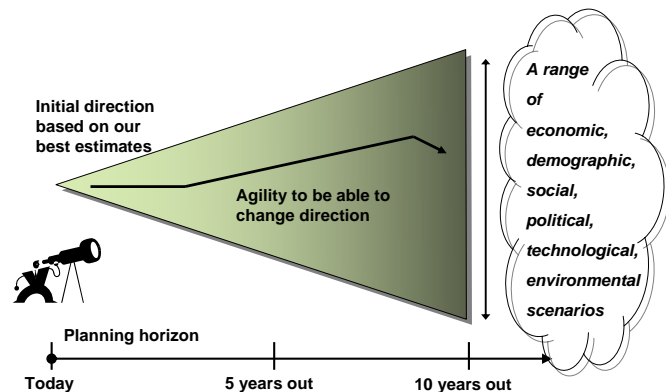
**Preparedness and Response** – One of the major ways we achieve our safety, environmental, and reliability goals is by reducing the consequences of failures that we can’t prevent. We work with many others (particularly industry and first responders), and in doing so, we help achieve the Secretary’s goal to balance security requirements with the safety, mobility and economic needs of the Nation and be prepared to respond to emergencies that affect the viability of the transportation sector.

⇒ *Our goal is to reduce the consequences (harm to people, environment, and economic impacts) after a pipeline or hazmat failure has occurred.*

## Challenges and opportunities

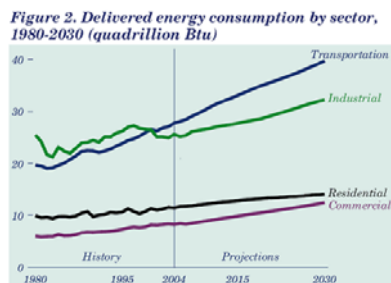
Many external factors will influence the outcomes we aim to achieve. While we cannot control them, we can anticipate them, adapt our strategies, and account for them in how we evaluate program performance. We also understand that the trends we see today are likely to change over time. Robust strategies and *agility*—the ability to change direction quickly—will be critical to responding effectively to these trends.

### Flexibility – Things may change



Some of the key challenges and opportunities we must address over the next 5-10 years:

**Consumption of oil and natural gas are rising steadily.** Transportation relies almost entirely on

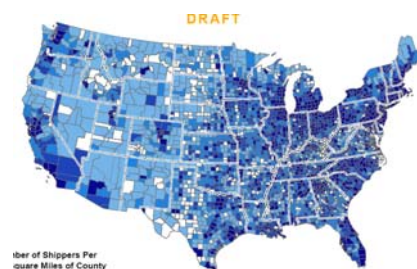


fossil fuels, and electricity production increasingly relies on gas supplies. Both transportation and energy consumption have been rising faster than U.S. population growth. At the same time, new infrastructure can be hard to site. People often resist building new transportation facilities, like LNG terminals or new pipelines. This means greater demand on existing facilities, which could increase risk and reduce the resiliency of the system.

**People perceive risk in ways that are different** from quantitative risk assessments. The public tends to be most concerned about high-consequence events—where there is significant loss of life, injury, environmental damage, or large-scale economic risk—disproportionate to the actual, calculated risk. People also expect risks to be reduced continuously over time.

**Natural or man-made disasters** will continue to pose very unpredictable risks. Large-scale events like Hurricane Katrina will present new challenges in emergency response. Many of the nation's critical systems—energy, electricity, water, communications, and transportation—are tied together and interdependent. This creates the potential for increasingly complex interactions that could increase risk and complicate response to accidents. Climate change—and the need to respond to it—could drive big changes in the energy industry and other sectors of the economy.

**A growing economy** brings new hazmat shippers and carriers into the market, introducing additional risks, and more commercial and residential development, increasing the risk of construction damage to pipelines. More people are exposed to risk, as the population grows and shifts geographically. A tighter economy, on the other hand, could make it harder for states to enforce safety measures and for local response organizations to



conduct needed training and exercises. Financial pressures on the industry can cut the resources companies spend for good operating and maintenance practices.

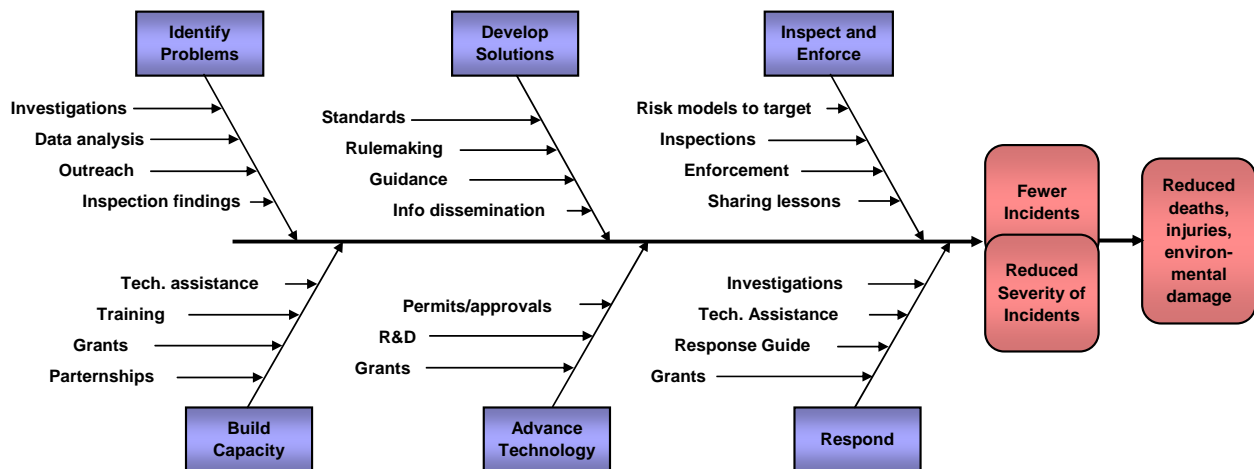
**Advances in technology**—particularly in materials, construction, and defect detection technologies—offer the potential for reducing risk. But there is also a potential downside: the temptation to rush with deployment of new technologies before knowing enough about them. Alternative fuels could pose unprecedented challenges in product delivery, safety, and environmental issues.

**Many others** share responsibility in affecting safety performance and system reliability. Companies, States, local response organizations, other Federal agencies, and the public, all have roles in this large *enterprise*. We have an important leadership role, but we can accomplish our goals only through collective efforts.

## How our programs work

**We reduce risk in two ways:** by *preventing failures* where we can, and by *reducing the consequences* of failures that do occur. We operate several programs, and we work with many others in the enterprise to accomplish this:

Major Elements and Outcomes of Our Programs

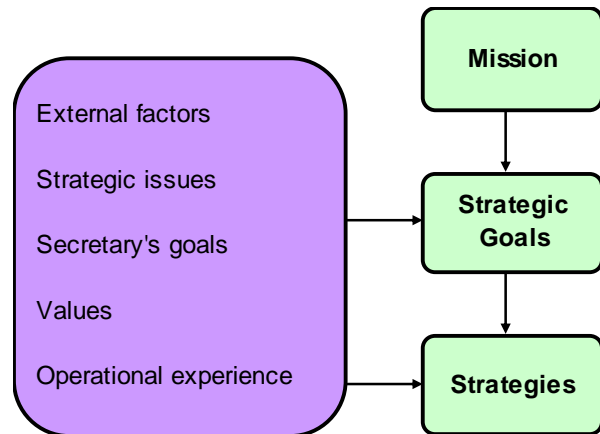


## General Strategies – How we will achieve our goals

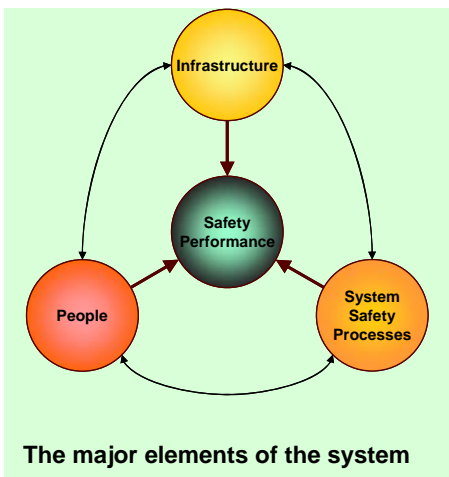
**We have made enormous gains in safety** over the past twenty years. We cut the risk of serious pipeline incidents in half and we maintained a low level of serious hazmat incidents, in the face of a growing economy. But it's a fact that we are achieving diminishing returns with our programs as we reach lower levels of risk. At the same time, the systems we oversee are very complex, and becoming more so, increasing both the *probability* of failure and the potential *consequences* of failure. Together,

these factors mean that we can't simply continue doing what we've been doing and expect to achieve our long term goals.

**To achieve our goals, we're going to build on our strengths.** Our goals are ambitious because we want to deliver what the public expects. While the challenges are great, we are making gains in safety. We make good use of information to help reduce risk. We are experts in our field. Our connections to our stakeholders are strong. As a small agency, we're agile. We have strong values. Together, these provide a strong foundation for our general strategies:



**1. Improve integrity of the system and reduce system risk** – This is fundamentally why we're in business. In virtually every decision we make, including in our administrative processes, we should ask: *how does this help reduce system operating risk?* When we evaluate risk, we want to understand all the system implications. There are several important elements to this strategy:



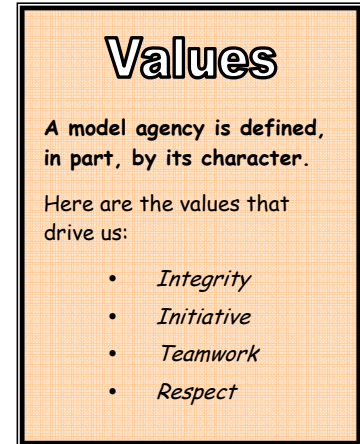
- Build a standing analytical capability to strengthen our understanding of risk based on sound data.
- Evaluate and improve our program data.
- Use data to help drive program priorities and resource decisions.
- Improve our ability to detect emerging risks, and target/focus our prevention activities.
- Evaluate the effectiveness of our programs to help improve them as a means of reducing risk.

- Strengthen our learning processes by expanding our accident investigations program, and developing processes and incentives for sharing lessons learned.
- Reinforce *prevention through people*—to minimize the impact of human error, and maximize the value of people in the system to help prevent accidents.

**2. Be a model safety agency—one our stakeholders and the general public both respect and trust** – To meet the public's high expectations, compete for scarce resources, and gain the confidence of all involved parties, we will:

- Build transparency into our programs in all that we do.

- Strengthen internal and external communications to improve the basis for, and understanding of, key decisions.
- Drive performance-based budgeting, integrating performance measures in how we set priorities, gauge challenges, allocate resources, and evaluate success.
- Systematically develop the capabilities of PHMSA people, and align their performance plans with our strategic goals.
- Focus our energy and resources on field operations, to ensure they have the resources, information, expertise, access, and flexibility for accomplishment of our objectives.
- Leverage information technology for greater program effectiveness.
- Improve our ability to respond to crises.



**3. Engage, lead, and help strengthen the capabilities of others who share in achieving our national goals.** A key to our success is leveraging. The private sector has the first and primary responsibility for the safety of their operations. State/local agencies provide a huge component of the overall national program, and they are stretched thin. Many other organizations and agencies, and the international community, play key roles as well. To implement this strategy, we will:

- Use an enterprise approach in defining issues, building consensus, and mobilizing stakeholders to solve shared problems and impact the mission.
- Strengthen the capabilities of our partners at the state and local levels, and in other operating administrations, in both prevention and response.
- Continue the shift in our focus from *basic compliance* to *safety performance*—changing the way we regulate to provide greater *flexibility* and greater *accountability* for the companies we regulate.
- Share with companies the information we have, to provide a standard of reference for safety performance, improve data quality, and motivate changes in behavior.
- Develop incentives for sharing lessons learned failures, close calls, and best practices—so individual learning becomes organizational, or enterprise learning.
- To the maximum extent, harmonize our standards with others domestically and internationally to simplify the transportation of hazardous materials—making it safer and more efficient.

#### 4. Anticipate future needs for transporting energy products and other hazardous materials.

- Systematically identify and evaluate trends, and actively monitor the development of new products, processes, and technologies that might affect the transportation of energy products or other hazardous materials.
- Bring research and development to bear on problems where a market failure, or inadequate market incentives, might prevent the private sector from investing adequately in technologies for public safety.
- Exercise a leadership role in anticipating the need for and developing standards for changes in the operating environment.
- Strengthen our adaptability through development of robust strategies, leading indicators, processes for continuous improvement, depth in the skills of our workforce, and effective communication channels.



### *Top Accomplishments in 2006-2007*

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <ul style="list-style-type: none"> <li>✓ Working with the Federal Aviation Administration, implemented a prohibition on transport of primary lithium batteries aboard passenger aircraft and developed a final rule to improve the testing, packaging and shipment of these batteries in all modes of transportation.</li> <li>✓ Responded to the two BP pipeline spills on the north slope of Alaska, directing a very aggressive plan of testing and restoration to keep the operation going.</li> <li>✓ With the Common Ground Alliance, introduced the new 8-1-1 number to provide a single, national call-in number aimed at preventing widespread digging accidents.</li> <li>✓ In partnership with the National Library of Medicine, produced the first electronic guidebook for emergency response to hazardous materials incidents—a pocket PC version available for free download.</li> </ul> | <ul style="list-style-type: none"> <li>✓ Published a proposed rule to increase safety on low stress pipelines.</li> <li>✓ Published a final rule on gas gathering lines, using discussions with the advisory committees to resolve issues with the protection of these lines.</li> <li>✓ Published a final rule to address the risks to air transportation associated with shipments of compressed oxygen, other oxidizing gases and packages of chemical oxygen generators.</li> <li>✓ Announced an agreement with the State of Alaska to provide stronger oversight over oil and natural gas production and transportation facilities in Alaska.</li> <li>✓ With the Federal Railroad and Transportation Security Administrations, published a rulemaking proposal to enhance the safety and security of rail shipments of certain high-risk hazardous materials.</li> </ul> |
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- ✓ Working with our State pipeline safety partners, developed a consensus standard on distribution integrity management as a companion to our regulatory efforts.
- ✓ Closed National Transportation Safety Board recommendations with “acceptable action” on hours-of-service, wrinkle bends, design to prevent internal corrosion, and emergency response planning.
- ✓ Finalized rules on infectious substances and harmonized domestic requirements with international standards for hazardous materials transportation, simplifying safety performance and reducing costs for U.S. industry.
- ✓ Adopted standards for design, construction, maintenance and use of cylinders and other pressure receptacles based on U.N. standards to permit the use of advanced technology, reduce the need for special permits, and facilitate international commerce without sacrificing safety.
- ✓ In a precedent-setting enforcement case, resolved a Corrective Action Order by negotiating a consent agreement with Kinder Morgan Energy Partners. This resulted in a timely investment by the company of \$90 million in immediate safety improvements in densely-populated areas near the pipelines, rather than a lengthy hearing and litigation process.
- ✓ Reduced the backlog of petitions by 73% and streamlined the process of approving special permits, consistent with regulatory reform goals, to increase program efficiency and lessened burden on the industry.
- ✓ Led efforts to define the terms of, and implement, a new annex to DOT’s Memorandum of Understanding with the Department of Homeland Security on enhancing the security of transportation systems.
- ✓ Concluded an agreement with Canada providing for the broad use of portable tanks, cargo tanks, and tank cars constructed to Canadian standards for transportation of hazardous materials in the United States.
- ✓ Established new criteria allowing for increased operating pressure for new and existing gas pipelines, while maintaining safety. These waivers to date will provide for increased capacity from Canada and the Rocky Mountains and will result in an increase of 6-7 percent in gas throughput.
- ✓ Assisted the Federal Energy Regulatory Commission in permitting many new natural gas energy projects and liquefied natural gas facilities, and the Department of Energy in establishing a plan for the review of the Alaska Gas project.
- ✓ Working with the National Association of Pipeline Safety Representatives, completed the report to Congress on operator qualification and controller certification.
- ✓ Concluded a Memorandum of Agreement with the Canadian National Energy Board promoting international cooperation in the harmonizing of standards and cooperation in advancing technology.
- ✓ Led Administration’s legislative proposal to reauthorize and improve pipeline safety, protect the environment and infrastructure reliability, leading to passage of the PIPES Act.
- ✓ Expanded the use of public workshops, which proved critical to defining the direction the agency would take on: implementing hazmat provisions of SAFETEA-LU; air packaging enhancements; prevention of loading and unloading incidents; battery safety solutions; pipeline operator qualification; raising pipeline operating pressure; technologies for detecting damage to pipelines; control room management; and protection of low stress transmission pipelines.



- ✓ Supported the formation of five new regional Common Ground Alliances (CGA) in the past year, bringing to 42 the number of new regional CGAs in 35 states which promote best damage prevention practices.
- ✓ Initiated development of the Compliance Partnership Review Program (CPRP), designed to achieve the agencies goals and objectives through alternative means of enforcement.
- ✓ Assisted over 14,000 individuals in the hazmat community—including state/local hazmat professionals, emergency responders, and law enforcement and transportation workers—through aggressive outreach to improve safety.
- ✓ Improved public education plan, including hosting workshops where pipeline operators could learn about the development of a consensus standard for public awareness, identifying gaps in the industry-wide effort and publishing a Final Rule requiring pipeline operators to create public awareness programs in accordance with a national consensus standard.
- ✓ Created a clearinghouse to review operators plans, addressing how well pipeline operators communicate directly with four stakeholder audiences -- the public, emergency officials, public officials, and excavators; target these audiences with specific tailored messages; use media to contact the audiences; and evaluate the effectiveness of their approach and make necessary adjustments.
- ✓ Deployed a new stakeholder communications web site, serving as a portal to statistics about the causes and consequences of incidents, State-level incident data, pipeline mileage in each State, and a variety of safety indicators and trends.
- ✓ With our State pipeline safety partners, educated communities facing technical issues relating to pipeline decisions on land use, encroachment and right-of-way clearing.
- ✓ With the Ethanol Emergency Response Coalition, revised and enhanced the Fire Safety Training Manual and the training curriculum for fire departments, ethanol processors, shippers and handlers, and a step-by-step Fire Safety training video.
- ✓ Granted public access via the Internet to certain pipeline information maintained in the agency's National Pipeline Mapping System (NPMS). This access, which had been more tightly restricted after 9/11, will enable members of the public to identify and locate pipelines on a county-by-county basis and obtain corresponding contact information for pipeline operators.
- ✓ Strengthened and improved oversight of pipeline through long term planning of the integrity management program (IMP). By 2006, PHMSA inspected 98 percent of liquid miles, 75 percent of high consequence gas miles, and reinspected all poor performing operators. As a result of PHMSA oversight, 25 percent of operators made substantial program improvements over their initial inspection results under the IMP program.
- ✓ Instituted an executive performance review as an intervention technique to use with poor performing operators.
- ✓ Redefined the functions of Hazmat inspectors, standards for training the inspectors, and revision of the operations manual which guides the enforcement process. Early work has begun to import concepts from the risk based pipeline enforcement policy to the hazmat program.
- ✓ Awarded 25 new pipeline research project awards totaling \$7.2 million in federal funds, matched by \$11.5 million of industry funds. Technology we have invested in is being commercialized for subsurface mapping, better smart pigging sensors, airborne gas leak detection, more accurate guided wave ultrasonics, and better inspection of welded steel.



We expect commercialization very soon of robotic platforms and sensors for unpiggable pipelines, sensors to detect third party intrusions, sensors on boring equipment to prevent damage, and imaging sensors to assess the joining of plastic pipe.

- ✓ Designed and implemented a paperless and online R&D management information system addressing pre- and post-award research on pipeline projects. This web site is getting over 42,000 hits per month, up 150 percent over last year.
- ✓ Awarded a contract to the National Academy of Sciences to begin a new cooperative hazmat research program, as mandated by SAFETEA-LU.
- ✓ Collaborated with the emergency response community to develop and deliver to the Nation's fire service fact-based information and a supporting video on LNG, and working on comparable materials dealing with other alternative fuels. Special focus is on addressing emergency responder concerns with lithium battery fires and the emergence of E85—an alternative fuel blend requiring new response tactics.
- ✓ Collaborated with the Fire Service to improve communication between pipeline operators, hazmat shippers, carriers and emergency responders through State meetings.
- ✓ With the International Association of Fire Chiefs, the National Association of State Fire Marshals, and the National Tank Truck Carriers, Inc., improved first responder ability to recognize and handle incidents involving cargo tank wetlines.
- ✓ Modified the cooperative agreement with the National Association of State Fire Marshals to protect and inform the fire service on matters relating to pipeline safety and hazardous materials in transportation.
- ✓ In conjunction with the Departments of Interior, Commerce, the Environmental Protection Agency and the Council on Environmental Quality, developed and tested an IT solution for mapping, processing and tracking best management practices for repairs of pipelines. Facilitating timely repair reduces the likelihood of supply disruptions.
- ✓ Established a new security and emergency preparedness organization in the office of the Chief Safety Officer and drafted an agency team charter for improving emergency preparedness capability both internal and external to the agency.
- ✓ Established and trained an emergency response team and upgraded our procedures and capability to deploy to deal with pipeline and hazmat issues during natural or manmade disasters.



## Awards and External Evaluations: *How Others See Us ...*

- Received the first ever *International Regulator of the Year Award* from the International Pipeline Conference for developing and implementing regulations which improved the integrity of pipelines in high consequence areas.
- The Common Ground Alliance, a 1,000 volunteer stakeholder organization, presented PHMSA with *The Hall of Fame* award in recognition of our lasting commitment to the shared responsibility in damage prevention to all underground utilities and dedication to the Common Ground Alliance.
- PHMSA received the *Norman Y. Mineta* award from the National Association of State Fire Marshals, for excellence in transportation safety, working jointly with the American Gas Association.
- The Hazardous Materials Safety Assistance Team received a Secretarial team award for its accomplishments in promoting safety and security through its outreach and compliance assistance program, which reached almost 10 percent more hazmat workers last year than the prior year and distributed 40 percent more educational materials than last year.
- Government Accountability Office audit of the gas integrity management program was very favorable and found that “the condition of gas transmission pipelines is improving as operators complete assessments and related repairs”.
- The DOT Inspector General audited the effectiveness of the hazardous liquid integrity management program and found favorable results, closing within the same report IG recommendations for improvement of data auditing, concluding that PHMSA had already implemented the few recommendations made.

## Safety Strategies

To help advance the Secretary’s safety priority, PHMSA will continue to work toward the elimination of deaths and injuries associated with the transportation of hazardous materials by pipeline and other transportation modes. We will use data to focus our efforts on the prevention of high-risk incidents, particularly those of high consequence to people and the environment. Using its “enterprise approach,” PHMSA will work closely with other DOT safety administrations and other federal, state and local agencies to bring together stakeholders who can contribute to safety solutions. PHMSA will seek effective non-regulatory solutions, leveraging enterprise relationships, and deploying other agency tools, including enforcement, outreach, public education, and training, to promote safety outcomes. Where new safety standards are necessary, we will encourage the development and adoption of consensus standards.

**Pipeline Safety:** With enactment of the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006 (PIPES Act), Pub. L. 109-468, the Administration and Congress agreed on an ambitious agenda for PHMSA’s Pipeline Safety Program, emphasizing improved safety and reliability. With the broad

support of the National Association of Pipeline Safety Representatives and the pipeline industry, the PIPES Act was one of the few pieces of legislation passed in the last weeks of the 109th Congress.

**Hazmat Safety:** As PHMSA considers opportunities to increase the effectiveness of the hazardous materials program, we will seek opportunities within the program reauthorization cycle to mirror the risk-based integrity management approach in a more systemic way across all modes of hazardous materials transportation. This could include enhancing data collection and analysis through use of the intermodal data portal; targeting reduction of undeclared hazardous materials shipments and high-consequence packaging failures; applying integrity management programs to large packagers and shippers, advancing electronic communication systems for communicating risk; and investigating other technologies for improving the assessment, detection and control of hazardous materials risks. Other opportunities PHMSA will consider in program reauthorization will focus on enhancing emergency capabilities for response to emerging products, alternative fuels and national emergencies; and increasing regulatory fairness and efficiency through national standards.

**Training:** As a risk-based, data-driven organization, PHMSA sees opportunities to improve safety performance and gain efficiency by consolidating and better focusing all training activities for employees who oversee the transportation of hazardous materials by all modes, including pipelines. These efforts aim to reduce both the frequency and potential consequences of accidents that cause harm to people and the environment.

To enhance the capability of DOT to deliver more effective management of the integrity of hazardous materials transportation, PHMSA is organizing training efforts for both pipeline and hazmat safety around the single concept of a virtual Center of Training Excellence.

As both federal and state inspector workforces have grown, and with the infusion of new staff to replace retiring staff, the workload of PHMSA and our state partners has

**The PIPES Act** reflects a strong endorsement of the agency's risk-based integrity management approach. Though relatively new, PHMSA's integrity management programs are driving significant reductions in the rate of failure incidents on gas and liquid pipelines, earning strong reviews from the Congress and PHMSA's oversight agencies, the Government Accountability Office and the National Transportation Safety Board. The PIPES Act directed PHMSA to extend similar protections to people living in urban and suburban areas along the Nation's 1.7 million miles of distribution pipelines, where up to 75% of the human consequences from all pipeline failures occur. In addition to the safety benefits, improving the performance of distribution pipelines will also reduce the likelihood of failures that often result in congestion-causing road closures and evacuations. Preliminary data indicate pipeline incidents were a likely factor in at least 3% of all highway congestion events between 2005 and 2006. About 58% of those incidents occurred on gas distribution pipelines.

The Act also incorporated the core safety reforms proposed by the Administration –increasing financial and technical support for state pipeline safety programs and establishing new grant programs designed to reduce excavation-related damage to underground pipelines. The PIPES Act authorizes PHMSA to increase the federal share of pipeline safety program costs by increasing the cap on state pipeline safety grants from 50 to 80 percent between FY 2007 and FY 2011. PHMSA also is authorized to award grants to states in order to encourage the development of effective damage prevention programs.

expanded, such that our training and qualifications classes are overcommitted and many inspectors must wait long periods for required training. At the same time, pipeline industry requests for agency expertise and training are increasing as the complexity of new business challenges and our regulatory program grow.

Our goal is to maximize efficiency by consolidating our two programs into one and to establish better linkage with modal and private sector efforts for better quality control. We plan to better identify the requirements for training and the performance objectives for all hazmat inspection personnel. We need to institutionalize the preparation of inspectors to deliver better oversight and consultation on the job; standardize the guidelines and preparation for inspection across the DOT through inspection protocols; and calibrate performance through periodic evaluation of the uniformity and effectiveness of hazmat inspections across all modes of transportation.

**Emphasis will be on systems approaches**, covering both the integrity of the infrastructure and human performance, and identifying opportunities for *people* to improve safety through prevention of accidents. We will introduce:

- non-regulatory approaches to improving the performance of industries we regulate;
- leading indicators of effective performance;
- application of national consensus standards;
- opportunities for mitigation beyond regulatory minimums; and
- effective emergency response, particularly to new products and technologies like high energy density batteries.

PHMSA will partner with private sector organizations to develop best practices and performance-based guidelines for hazardous materials training. We intend to improve quality control and raise the professional level of hazmat employees' performance, both in the public and private sectors.

## Key Safety Initiatives

PHMSA will focus safety efforts on resolution of the highest priority risks, including appropriately addressing statutory mandates and safety recommendations from oversight agencies. We plan to undertake the following specific projects:

### 1. **Setting standards for the safe transportation of hazardous materials by air.**

On an ongoing basis, PHMSA works with the Federal Aviation Administration (FAA) to identify and address the unique risks posed by hazardous materials in air transportation. We are committed to strengthening these efforts by developing comprehensive action plans for



addressing serious risks using an enterprise approach and deploying the most effective combination of agency tools.

- a. *Battery Safety*: PHMSA announced an action plan developed with input from a broad group of stakeholders – including manufacturers, carriers, employee organizations, and first responders – to reduce the risks posed by lithium batteries in all modes of transportation, with a special focus on the risks of fire aboard aircraft. The plan calls for data collection and sharing, public outreach, targeted enforcement, and development of industry standards, in addition to rulemaking.

We are moving forward with implementation of the action plan with the following milestones for agency action:

- PHMSA conducted a technical standards workshop to address data analysis and standards, including progress in establishing consensus standards for testing and manufacturing.
- We will propose enhanced packaging, hazard communication, and handling requirements for the transportation of batteries of all types, in order to reduce fire risk caused by short-circuiting or accidental activation of batteries contained in equipment. We plan to publish an NPRM by December 2007. To inform and refine our regulatory proposal, we are in active dialogue with stakeholder representatives.



- b. *Reducing failures of packaging used for transport of hazardous liquids*. By September 30, 2007, PHMSA and FAA will develop a comprehensive plan for improving the safety performance of air specific packaging.

## 2. **Setting standards for the safe transportation and handling of bulk hazardous materials shipments.**

- a. *Rail routing of high hazard materials*: In coordination with the Federal Railroad Administration (FRA) and Transportation Security Administration (TSA), PHMSA will prepare a final rule addressing safety concerns associated with routing of chlorine and other highly-hazardous materials. PHMSA plans a final rulemaking package in 2007.
- b. *Rail tank car design*: PHMSA is working with FRA to develop effective strategies for maintaining tank car integrity during rail incidents. This project will focus primarily on the containment of lethal compressed gases in high pressure tank cars. FRA's pending research on tank car survivability is expected to result in recommendations for a new performance standard to be incorporated into the Hazardous Materials Regulations. PHMSA is committed to working with FRA to finalize and submit an NPRM in 2007.



- c. *Safe loading/unloading of bulk shipments of hazardous materials.* PHMSA is supporting efforts to develop effective industry practices for safe loading and unloading of bulk hazmat containers. PHMSA is pursuing a consensus-based approach, with broad representation and equal access to all parties that have an interest in enhancing safety. This process may lead to regulatory changes. PHMSA held a public meeting in June 2007 to explore best practices and hear comments on the feasibility and effectiveness of a particular proposed standard.



- d. *Rollover crash prevention.* Rollover crashes involving tank trucks carrying gasoline and other flammable liquids are the leading cause of injuries and deaths from hazardous materials incidents, accounting for roughly 75% of gasoline-related fatalities. These incidents are more likely to be fatal to the driver of the vehicle than other crashes, and they can cause spills and lead to highway closures. PHMSA will work with the Federal Motor Carrier Safety Administration (FMCSA) and National Highway Traffic Safety Administration (NHTSA) to follow up on recent research validating the cost-effectiveness of electronic stability control systems in preventing tank truck rollovers. In 2007, we will develop a joint agency action plan, targeting an enterprise approach to engage key stakeholders, encourage voluntary industry action, and explore the feasibility and desirability of regulatory requirements.



### 3. Expanding application of integrity management approaches.

- a. *Distribution integrity management.* PHMSA will extend its flagship pipeline integrity management program to gas distribution systems – the largest segment of the US pipeline network and the operations in which most pipeline-related injuries and deaths occur. We plan to develop an NPRM in 2007.
- b. *Prevention through people (PTP).* PHMSA will address open National Transportation Safety Board recommendations and statutory mandates related to control room management by developing and adopting flexible standards for the management of human factors, including fatigue, in control room operations and integrating PTP programs, such as damage prevention, operator qualification, and public education, into integrity management plans. Following a public workshop on May 23, 2007, PHMSA plans to develop an NPRM in 2007.

### 4. Establishing safe land use standards for existing pipelines, new pipeline construction, and development in proximity to populated areas.

This is a non-regulatory project that will employ an enterprise approach to include representatives of local governments, real estate and development interests, insurers, environmental organizations, transmission pipeline operators, and other Federal agencies in the development of standards for safe and informed land use planning in the vicinity of transmission pipelines.

PHMSA convened the Pipeline and Informed Planning Alliance (PIPA), beginning with the establishment and designation of a PIPA Steering Committee. The inaugural PIPA Steering Committee meeting was held in August, 2007. After receiving input from the Steering Committee, PHMSA will establish technical work groups to develop the best practices. PHMSA plans to complete development of the best practices in 18 months.



### 5. Preventing Excavation Damage to Pipelines and Underground Facilities.



Following up on the Administration's legislative proposals (as adopted in the PIPES Act of 2006), PHMSA is participating in a nationwide campaign, along with State pipeline safety representatives; the pipeline industry; excavators; telephone, cable, and electric utility operators; and insurance companies, to educate state officials about the importance of effective one-call programs, promote the new nationwide 811 telephone number for preventing damage to pipelines and other underground infrastructure, and highlight the need for states to adopt legislation enacting civil

enforcement authority to prosecute violators of damage prevention laws. This prevention campaign addresses the leading cause of pipeline-related fatalities and will also contribute to reducing non-recurring congestion. PHMSA provided guidance materials to the stakeholder enterprise group in the summer of 2007 and will begin state level visits to senior officials in the fall of 2007.

## 6. Enhancing use of risk-based inspection protocols.

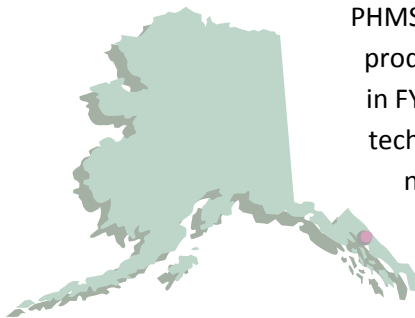
PHMSA is revising its business strategy to focus resources in a risk-based manner for both safety programs. The pipeline and hazardous materials programs are developing and implementing new guidelines for targeting risk, with emphasis on poor-performing operations. We are in the process of an extensive review and analysis of internal and external data and are using these data to focus inspection resources. PHMSA's inspection programs are targeting serious risks, considering likelihood and consequence of incidents as well as infrastructure criticality. PHMSA's Office of Hazardous Materials Enforcement is working with its DOT modal partners to integrate and extend this approach to all DOT hazardous materials inspections and enforcement.

## Environmental Stewardship Strategies and Initiatives

PHMSA's renewed commitment to focus resources in a risk-based manner also helps protect the environment from oil and other hazardous liquid pipeline spills. The pipeline program is applying new guidelines for targeting risk, with emphasis on poor-performing oil pipeline operations. We are in the process of an extensive review and analysis of internal and external data and are using these data to focus inspection resources.



### 1. Stepping up our Focus on Alaska



PHMSA recognizes the strategic importance of Alaska's oil and gas production and transportation systems to the Nation's energy supply, and in FY 2007 we expanded Alaska operations to help address serious technical challenges associated with declining oil field production, the need for quality assurance in management and oversight of maintenance of existing infrastructure, and planning to meet new demands. We are working with other federal and state agencies to take a "system of systems" approach to integrate, strengthen and prioritize oversight activities of the Alaska oil and gas production and transportation system—while actively protecting the environment. Activities include: planning for the new Alaska



Gas Pipeline project, signing a letter of intent with the Alaska Department of Natural Resources to coordinate risk assessment and oversight activities, working with Alaska's new Petroleum System Integrity Office to develop a detailed work plan to assess and review operators' quality assurance programs, and increasing our personnel in Alaska working with the Joint Pipeline Office on development of a unified plan for oversight of the Trans-Alaska Pipeline System infrastructure and operations.

## 2. Enhancing Permit Efficiency

PHMSA will advance development, testing, and implementation of its Pipeline Repair and Environmental Guidance System (PREGS), an internet-based, one-stop resource designed to facilitate the permitting of time-sensitive pipeline repairs. Timely completion of pipeline repairs enhances safety, protects the environment, and minimizes supply disruptions and constraints associated with precautionary pressure reductions. Pipeline industry groups recently have expressed strong support for PREGS as a tool for facilitating permitting of new pipeline construction projects, and we believe the system can be readily adapted to use in connection with other infrastructure development projects.

Full implementation of PREGS will require the strong support of other participating agencies (including Fish and Wildlife Services) and the President's Council on Environmental Quality (CEQ). PHMSA will work with the Office of the Secretary, other DOT agencies and other Federal and state agencies that share our interest in permit streamlining to build support for the system as a possible Departmental platform for permit streamlining. We will explore cost-sharing options to organize meetings in the Fall of 2007 to gauge and build support for PREGS among other federal agencies. Subject to the participation and support of the Fish and Wildlife Service and other resource agencies, PHMSA plans to complete the pilot phase of PREGS in FY 2008, with the objective of preparing for full implementation in late FY2008 or early FY 2009.

## 3. Protecting Low Stress Pipelines

As a next step in our extension of IM requirements throughout pipeline systems, we issued a supplemental notice of proposed rulemaking for applying pipeline safety requirements, including integrity management, to rural low-stress lines. This action is consistent with past Congressional



direction and new requirements in the PIPES Act. The proposed rule is phase one of a two-phased approach that will extend pipeline safety requirements to previously unregulated rural low-stress pipelines. The first phase applies to higher-risk, larger diameter rural low-stress hazardous liquid lines. This proposal addresses accidents like those that recently occurred on Alaska's North Slope. The second phase will focus on all remaining unregulated rural low-stress pipelines.

#### 4. Advancing Technology Applications for Environmental Protection

PHMSA leverages its resources to focus on new research technologies supporting energy reliability and independence, while protecting the environment. PHMSA will accelerate research to better understand and manage technical issues associated with the transportation of ethanol and other biofuels. In August 2007, PHMSA issued a notice announcing that we are stepping up these and other efforts in support of the President's goal for increasing U.S. energy independence. We are building the capability of first responders to address pipeline incidents involving biofuels and other new emerging technologies. PHMSA is also facilitating new technologies for unmanned aerial surveillance of pipeline rights of way.

#### 5. Establishing Land Use Guidelines

PHMSA's work to establish safe land use standards for existing pipelines, new pipeline construction, and development in proximity to populated areas will benefit the environment as well. We are using an enterprise approach—working with local governments, real estate and development interests, insurers, pipeline operators, other Federal and state agencies and others to develop standards for safe and informed land use planning in proximity to pipelines. We convened the Pipeline and Informed Planning Alliance in August 2007 and are targeting development of best practices within 18 months.

### System Performance and Reliability Strategies

While PHMSA historically has been directed to protect the safety of people and the environment, recent events – including the hurricanes of 2005 and the failures of BP pipelines on the North Slope of Alaska – have highlighted the direct link between pipeline integrity and the reliability of energy supply. The United States is growing increasingly dependent on an energy pipeline system network that itself is growing increasingly fragile as it ages and as demand outstrips capacity. While PHMSA is directing significant safety improvements in high consequence areas, we can and will focus on increasing the performance and reliability of the most critical pipeline systems, recognizing their strategic importance to all other transportation systems and to the Nation's energy supply.

**Targeting critical systems:** The PIPES Act broadened PHMSA's pipeline oversight and responsibilities, and mandates a corresponding increase in the numbers of pipeline safety and enforcement personnel. In addition to focusing on safety and the environment, the inspectors will prioritize inspections on a risk basis to address new and emerging threats to the national energy supply, particularly lines of strategic importance and pipeline operators whose poor performance could lead to disruptions in supply.

**Applying technology:** Recognizing the continued importance of domestic petroleum products to our Nation's energy security, PHMSA's research and development agenda will continue to focus on technological solutions and integrity management. We are working with numerous stakeholders to

support continued supply of energy from North America's aging fields and pipeline systems through better engineering and new technology, and to expedite completion of the new Alaska Gas Pipeline.

**Focusing on the critical role Alaska plays in energy supply:** In addition to being concerned about greater environmental performance, we are stepping up our presence in Alaska to better cooperate with the State of Alaska on the new gas pipeline, and maintaining seamless oversight over all oil and gas operations to improve reliability of energy supply. Working with the private sector and the State, PHMSA must consider how best to improve the efficiency of pipelines that transport crude oil from declining production basins.

As the production from the Greater Prudhoe Bay on the Alaska North Slope declines, we must pay special attention to the integrity and efficiency of the Trans Alaska Pipeline System (TAPS), which delivers 16 percent of the nation's oil. Pipelines that operate at reduced pressure (from their optimal design) are subjected to unique stresses that must be monitored. Climate change and gradual loss of the permafrost in the Arctic Circle can result in unequal settlements, which could result in failure. To prevent introduction of flaws that will compromise the integrity of TAPS and other Arctic pipelines, PHMSA will work with the pipeline industry to determine what mechanisms to use to strengthen the pipelines and extend service life to maintain performance for energy reliability.

**Increasing throughput with new and flexible approaches:** PHMSA will continue to oversee compliance with safety conditions that the agency placed on pipeline operators who take advantage of new regulatory flexibility to increase the operating pressure (and therefore capacity) on certain new and existing gas transmission pipelines. PHMSA is initiating a rulemaking to allow pipeline operators satisfying certain safety conditions, including state-of-the-art design standards, to increase operating pressures, thereby increasing the performance of the existing pipeline infrastructure. Addressing the related safety concerns will require stepped-up inspection and oversight of pipeline design and construction, in addition to review and inspection of enhanced life cycle maintenance requirements for these pipelines.

Under the PIPES Act, PHMSA also was granted new authority and authorized resources to analyze the Nation's oil pipeline network and to identify capacity restrictions that could cause shortages or price disruptions in the event of failures. PHMSA plans to conduct this study jointly with the Department of Energy.

**Managing the technical issues with new energy sources:** To reduce domestic dependence on foreign energy sources, the United States is aggressively developing alternative forms of energy that may also depend on new pipeline designs to economically transport product from production to consumption centers. PHMSA recognizes the need for accelerated research to ensure energy reliability and independence, and to understand and manage the technical issues associated with transporting new alternative fuels.

We expect new pipelines will be built to transport regional production of biofuels, and these new pipelines must be designed and constructed to address technical challenges. For example, overcoming the challenges associated with fuel grade ethanol and more potent ethanol blends will require PHMSA to conduct significant long-term, cooperative (government-industry-academic) research. PHMSA and its stakeholders need to better understand the risks, and identify risk management measures, for the transportation of ethanol products through existing pipeline systems and new pipeline designs. We will need to determine if products not practically moved in existing systems could be moved in specially designed new transmission or distribution systems. PHMSA must also develop standards and technology for the safe transportation of alternative energy products.



**Expediting pipeline repairs:** PHMSA designed a Pipeline Repair and Environmental Guidance System (PREGS) to expedite the environmental permit repair process for pipeline inspection and repair activities. We are proposing to expand the program in FY 2009 to facilitate new pipeline replacement and construction projects, including construction of alternative fuel pipelines. PHMSA is actively exploring opportunities for this program to benefit others within the DOT and other federal departments and agencies with an interest in infrastructure development.

## Key Initiatives in Improving System Performance and Reliability

PHMSA will advance the Secretary's priority of improving system performance and reliability by minimizing regulatory barriers to the development and efficient use of transportation infrastructure and systems, strengthening public confidence in the oversight of U.S. oil and gas operations, and building emergency response capabilities for safer and more efficient response to hazardous materials incidents.

Over the coming year, we will advance the following specific projects:

### 1. Adopting regulatory standards for safely increasing the capacity of new and existing natural gas transmission pipelines

Regulatory program changes to allow natural gas transmission pipelines to operate at increased pressure can increase energy capacity by as much as ten percent, increase the efficiency of pipeline operations, and, with proper safety controls in place, do so without diminishing safety standards. Beginning in 2006, PHMSA has granted special permits on a case-by-case basis to operators proposing to build new pipelines for higher pressure operation and those proposing to increase operating pressure on existing pipelines that meet certain modern design specifications. Conditions imposed on these permits have satisfied safety concerns associated with higher pressure operations. By incorporating these standards into PHMSA regulations, we will ease regulatory

burdens, encourage the development of new infrastructure, and reduce the agency workload associated with reviewing and approving individual applications. We expect to publish a final rule by September 2008.

## **2. Increasing reliability of Alaska oil and gas operations**

Recognizing the strategic importance of Alaska's oil and gas production and transportation systems to the Nation's energy supply and the serious technical challenges associated with changing conditions in declining oil field production, PHMSA is expanding its Alaska operations. Managing change is essential to continued reliable transportation through the Trans-Alaska Pipeline System (TAPS) and avoiding intermittent shutdown which would cause significant spikes in gasoline prices. PHMSA is upgrading its oversight presence in Alaska, working with other federal and state agencies to take a "system of systems" approach to integrate, strengthen and prioritize oversight activities of the entire oil and gas production and transportation system. We are beginning the next stages of planning for the new Alaska Gas Pipeline project, following the passage of state legislation favoring the project in early May.

On May 14, 2007 PHMSA signed a letter of intent with the Alaska Department of Natural Resources to coordinate risk assessment and oversight activities involving Alaska pipelines and other oil and gas infrastructure. PHMSA will be working with Alaska's new Petroleum System Integrity Office (PSIO) over the coming months to develop a more detailed work plan, with particular focus on PSIO's plan to commission an independent, system-wide risk assessment and to review operators' quality assurance programs. PHMSA is hiring personnel in Alaska to strengthen our presence in the state and is working with the Joint Pipeline Office on the development of a unified plan for coordinated oversight based on a prioritized risk assessment of TAPS infrastructure and operations.

## **3. Facilitating seamless multi-modal movement of hazardous materials**

PHMSA is working with several large stakeholder groups, including the Vessel Operator's Hazardous Materials Association (VOHMA), the Dangerous Goods Advisory Council (DGAC), and the International Air Transport Association (IATA), to minimize unnecessary operational impediments to the multi-modal transportation of hazardous materials. Facilitating paperwork and other transfer requirements will reduce shipment delays and reduce corresponding congestion at ports and other inter-modal facilities. As part of this effort, PHMSA is investigating ways to enhance the ability of shippers and carriers to use electronic documentation to enhance hazard communication and emergency response. This project will target obstacles and impediments to the efficient multi-modal transport of hazardous materials, focusing on the inter-modal interface, consistent enforcement practices and improving the communication of information to emergency responders. We will begin by assessing the problem through fact-finding and consultation with DOT agencies and stakeholders, followed by development of a more comprehensive action plan by October 2007.

#### 4. Expediting hazardous materials event management

Some analysts estimate that 50 percent of all highway congestion is attributable to nonrecurring events, including traffic accidents. PHMSA believes it can contribute to the reduction of congestion following such incidents through the safety initiatives outlined above and by improving response to hazardous materials incidents. We know that



inadequate training and information can lead to unnecessarily cautious road closure, evacuations, and other incident response activities. PHMSA will support the Federal Highway Administration (FHWA) in efforts to reduce highway congestion associated with nonrecurring events.

#### 5. Fostering new technologies for improved transportation systems

- a. *High technology pipe materials.* PHMSA is developing a rulemaking proposal to lift regulatory barriers to the use of new plastic compounds in pipelines in 2007.
- b. *Unmanned aerial inspection and monitoring.* PHMSA will work with industry and the Federal Aviation Administration (FAA) to facilitate use of new technologies for unmanned aerial surveillance of pipeline rights of way, permitting safer, more efficient detection of pipeline incidents and threats to pipeline integrity. PHMSA will be establishing a new Interagency Agreement with the National Aeronautics and Space Administration to facilitate joint funding of emerging sensor or unmanned aerial systems technology in 2007.
- c. *Emerging Technologies Applicable to Hazardous Materials Transportation Safety and Security.* PHMSA is sponsoring a pilot of the Hazardous Materials Cooperative Research Program to: (1) develop a list of near-term (less than 5 years) and longer-term (5–10 years) technologies that are candidates for use in enhancing the safety and security of hazardous materials transportation, as applied by shippers, carriers, emergency responders, or government regulatory and enforcement agencies; (2) identify emerging technologies that hold the greatest promise of being introduced during these near- and longer-term spans; and (3) identify potential impediments to and opportunities for their development, deployment, and maintenance.

#### 6. Facilitating the transportation of new energy sources and other emerging technologies.

- a. *Portable fuel cells.* PHMSA is leading an international effort to develop standards for the safe transport of fuel cell cartridges and systems – an essential step in the widespread commercialization of these emerging alternative fuel technologies. PHMSA is drafting an NPRM to permit airline passengers to hand-carry small, consumer application fuel cell systems aboard passenger planes in the U.S. PHMSA plans to publish the NPRM in 2007.

We are also working with the International Civil Aviation Organization (ICAO) Dangerous Goods Panel, the FAA, and TSA to address remaining technical issues (including safety testing) for the bulk transportation of these items in commerce. We expect to finalize necessary amendments to the ICAO Technical Instructions in the November 15, 2007 meeting of the ICAO Dangerous Goods Committee and to adopt the standards in U.S. regulation thereafter, to be effective January 1, 2009.

- b. *Safe and efficient transportation of alternative fuels.* Given the agency's relationships in the energy and hazardous materials industries and expertise in understanding and managing the risks associated with transportation of hazardous liquids, PHMSA is in a position to support the President's energy agenda by promoting the development of suitable infrastructure and packaging; standards for the transportation of alternative fuels, including ethanol, ethanol blended fuels, biodiesel, hydrogen and other alternatives; and the preparation of communities to accept new transportation and facilities associated with these new products.

Working with other federal agencies and stakeholders, PHMSA proposes to use an enterprise approach to guide the assessment of risks posed by the transportation of alternative fuels in different transportation modes; identify and lead any necessary cooperative research projects concerning technical requirements; facilitate the sponsorship of such research; and develop best practices and consensus standards for addressing risks and managing technical issues. Recognizing that pipeline transportation is the safest and most cost-effective mode for moving large quantities of flammable liquids, PHMSA published a policy statement declaring our jurisdiction over the transportation of biofuels by pipeline, seeking comments on appropriate modification of existing pipeline safety standards.

- c. *Easing regulatory barriers to the marketing of new hazardous materials.* PHMSA will work with FAA and industry stakeholders to consider development of a standard to assist in the evaluation of hazards associated with the air transportation of new materials or articles. Such a standard could include a series of test criteria or a list of questions that must be resolved before a new commodity could be authorized for transport on a cargo or passenger aircraft as cargo, or when carried by a passenger.

## **7. Leveraging technology for better performance in risk identification and risk-based enforcement**

The Intermodal Portal (HazMat Data Warehouse and Business Intelligence tools) is a cross-modal initiative that, when fully implemented in FY 2010, will facilitate:

- sharing of information, eliminating duplication, and improving efficiency within DOT's multimodal hazardous materials program;
- identification and assessment of high-risk and problem shippers across the modes;
- targeting of high risk and high consequence activities;



- development of a multimodal “scorecard” of violations of the Hazardous Materials Regulations, penalties, incidents and inspections to assist in inspection prioritization;
- better coordination of outreach and enforcement activities;
- data-driven, risk-based decisions and leverage enterprise risk reduction strategies; and
- enhanced emergency response preparedness.

PHMSA plans phased implementation (FY2008-2010) for deployment of the Intermodal Portal. Once the infrastructure is established, the use of an iterative, rapid development methodology will allow new and emerging requirements to be incorporated and deployed quickly. Key milestones for project phase I are listed below:

- Establish governance and funding model or investment; negotiate partnership agreements with the Federal Railroad Administration, Transportation Security Administration, and United States Coast Guard; and use pilot system to solidify requirements in CY 2007.
- Automate data transfers from modal source systems to the Hazardous Materials Data Warehouse and award a contract for systems integration services in 2008.

## Global Connectivity Strategies and Initiatives

By virtue of our participation in international standards-setting organizations, PHMSA has an opportunity to promote the safe transportation of hazardous materials under uniform international standards. PHMSA is committed to enhancing the transparency of its international activities, with the objectives of promoting U.S. leadership, expanding enterprise approaches, maintaining high safety standards, and improving departmental alignment.

PHMSA will review and improve its international harmonization activities, in consultation with the Office of the Secretary, FAA, and others as needed by undertaking the following projects:

### 1. Performing Harmonization Assessment

PHMSA will perform a comprehensive assessment comparing the U.S. Hazardous Materials Regulations to those regulations applicable to international transport. These include the United Nations Model Regulations, the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, and the International Maritime Organization’s Dangerous Goods (IMDG) Code. This assessment will allow us to identify differences between international





and domestic hazardous materials regulations, and prioritize proposed amendments. PHMSA will complete this assessment by November 30, 2007.

## **2. Developing an International Five Year Plan**

To ensure transparency, stakeholder participation, and accountability, PHMSA is developing a five-year agenda to establish priorities for our work with international standards-setting organizations. PHMSA published a draft agenda in the summer of 2007.

## **3. Going Global with the Safe Battery and Fuel Cell Enterprise**

In our top safety priority internationally—transport of hazardous material in international aviation—we will broaden our domestic battery enterprise project to the international stakeholder community, with the objective of leading global safety improvements, including improvements in design, testing, and packaging standards for battery manufacturers, assemblers, and distributors. PHMSA will work with FAA and international stakeholders to convene a working group meeting in October 2007, in preparation for ICAO and United Nations meetings in November and December 2007.

## **Preparedness and Response Strategies**

Up to one million shipments of hazardous materials pass through communities in the U.S every day. The Nation's increased energy dependency and demand for alternative energy products create new risks that must be managed actively. American business is bringing forward to the marketplace new technology with ever more complex chemical compounds and products. As these new materials, consumer goods, and industrial and energy products are introduced, the implications and capabilities of emergency responders, community planners, and citizens must be considered.

Incidents involving these materials pose the greatest challenges for the emergency management community and the state transportation and highway officials who must understand the risks and respond appropriately. The emergency response community needs to be prepared to address these new technologies (e.g. hydrogen or lithium battery-powered vehicles and equipment) through the development of emergency response plans, training and outreach materials.

**Improving management of hazardous materials incidents:** PHMSA also believes there are opportunities to reduce congestion through training of emergency officials in improved management of road closures, evacuations, traffic congestion, and other economic disruptions caused by releases of hazardous materials. This initiative will help to minimize significant "non-recurring congestion" associated with response activities by improving the preparedness of responders to identify and respond appropriately to incidents involving hazardous materials transportation.

PHMSA and the emergency response community are assessing the needs of emergency responders for training to respond safely to new and changing hazardous materials products in transportation. We are

refocusing existing programs, modifying training curricula, developing cooperative agreements with emergency responder organizations, and sponsoring cooperative research to build the capability of emergency responders to respond to transportation incidents involving hazardous materials.

Essential new services to the emergency response community will include:



- assistance to states and local communities in developing more comprehensive emergency response plans,
- coordination among contiguous jurisdictions in planning and training activities,
- continuous focus on trends, emerging technologies,
- continual assessment of the capabilities of the response community to meet these dynamic challenges.

#### **Improving communications and tools for planning and response:**

Through these focused initiatives, we will enhance information sharing among responders from rural small towns to large cities to implement best practices that are generated through response to incidents and exercises. We will improve the tools and capabilities of Local Emergency Planning

Committees (LEPCs) and local communities to conduct commodity flow analysis studies and capture the commodity flow data in a centralized data base that can be used to generate a better picture of hazardous materials transportation both at the community level and throughout the Nation. This information will be instrumental in targeting training and guidance.

PHMSA's new initiatives will enhance the quality of the information available to responders at the scene of an event, and will foster industry/community enterprise solutions to enhance overall safety, improve emergency response capabilities, better protect the public and responders, improve efficient transportation, and reduce congestion through improved accident response.

### **Key Preparedness Initiatives:**

#### **1. Enhancing Community Preparedness through better Guidance and Curriculum**

PHMSA will work with communities to prepare plans to respond to incidents, and train response personnel to ensure these plans can be effectively implemented. By providing funds that might not otherwise be available for training and planning for hazardous materials incidents, PHMSA significantly improves hazardous materials planning and emergency response at all levels of government and in the private sector. To keep current with changes in the hazmat goods and

products being moved through communities, curricula and guidance need updating. PHMSA is modifying existing training curricula and guidance materials and will continue this process on an ongoing basis to address response to alternative fuels and other new or emerging technologies.

## **2. Improving Decision Support**

PHMSA plans to work with the International Association of Fire Chiefs Data Fusion Center, a decision-support system available nationwide to provide critical response guidance at the scene of hazardous materials incidents, and a new initiative to train emergency responders on upcoming emergency response guidelines and to develop targeted training DVDs and web based broadcasts to focus on high consequence and high probability events, emerging technologies, and alternative fuels. PHMSA has modified an agreement with the National Association of State Fire Marshals to achieve these goals and will execute a new agreement with the International Association of Fire Chiefs in 2008.

## **3. Assessing Effectiveness of Existing Grant Programs**

Through a Federal Register notice, PHMSA has identified areas of interest in evaluating the extent to which existing programs and funding are meeting emergency responders' needs for preparedness and training today and in the future. We will assess the effectiveness of the Hazardous Materials Emergency Preparedness grant program and consider ways to target grant funds to specific emergency preparedness needs and priorities in 2008.

## **4. Better Informing Communities and Preparing for Pipeline Incidents**

To improve response to pipeline accidents, the PIPES Act authorized PHMSA to promote the adequacy of emergency responder training. PHMSA's program with the National Association of State Fire Marshals has been the focal point for the development and distribution of a curriculum on response to pipeline incidents and preparing for living safely with new pipeline



facilities. The PIPES Act also provided for community information grants to help the public live more safely with and near energy pipelines. These grants are designed to make key information on these pipelines readily available to communities and promote both the reliability of the energy pipeline system and the safety of the communities growing rapidly around them.

## How we'll manage our work

**We will develop annual Business Plans** to translate our strategic direction into actions. The Business Plans will guide our programs, projects, and activities based on the resources we have in our budget, progress in achieving our goals and implementing major initiatives, and the current conditions *on the ground*.

**Executive performance plans** will include commitments to the outcome goals for the organization. Every executive's work will be tied to these outcomes.

**All employees' performance plans** will be tied explicitly to outcomes; *accountability* will be based on an individual's:

- focus on, and monitoring of, important outcomes,
- ability to develop logical priorities to affect these outcomes based on data and other information,
- monitoring the effects of actions taken and adjusting during the year,
- continuously improving processes and developing creative solutions,
- understanding the external factors that might also influence results, and
- explaining the results at the end of the year, including evidence of how the priorities and actions affected the outcomes.

## How we'll measure performance

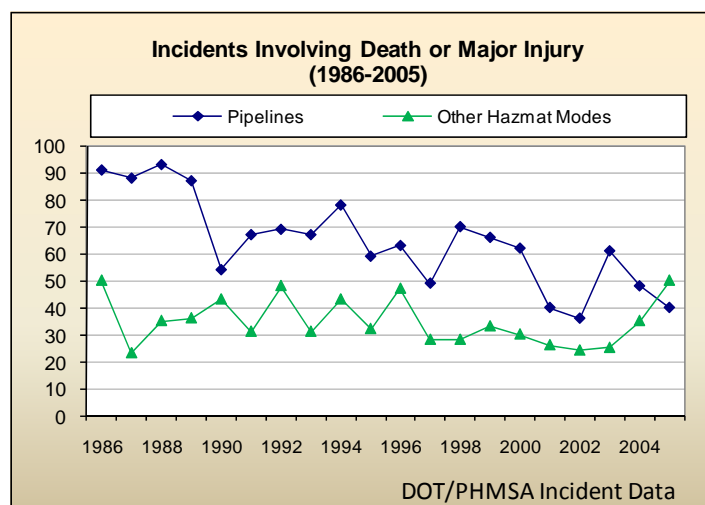


Measures help drive performance. That is both an opportunity and a risk. Measures that capture the essence of what we want to accomplish can align efforts and motivate people in a powerful way. Measuring the wrong things can distort priorities. A strong outcome focus and transparency in the process are critical to ensuring we move in the right direction. We will continue to experiment with performance measures, aiming at continuous improvement.

**Measures help drive performance.** That is both an opportunity and a risk.

Measures that capture the essence of what we want to accomplish can align efforts and motivate people in a powerful way.

Measuring the wrong things can distort priorities. A strong outcome focus and



<p><b>Safety Goal:</b></p> <p><b>Reduce the risk of harm to people</b> due to the transportation of hazardous materials by pipeline and other modes.</p>	<p><b>We want to measure:</b></p> <ul style="list-style-type: none"> <li>• <i>The number of incidents involving death or injury.</i></li> <li>• <i>A risk index to estimate the real changes in risk over time.</i></li> <li>• <i>Estimated risk of very low probability, high consequence events.</i></li> <li>• <i>The economic cost of incidents.</i></li> <li>• <i>Number of high consequence events.</i></li> <li>• <i>Public (environmental risk) vs. worker (occupational risk) breakouts.</i></li> <li>• <i>System-caused vs. accident-caused incidents.</i></li> <li>• <i>Changes in risk exposure, and rates—numbers normalized for changes in exposure.</i></li> <li>• <i>Leading indicators of risk.</i></li> </ul>
<p><b>Environmental Goal:</b></p> <p><b>Reduce the risk of harm to the environment</b> due to the transportation of oil and hazardous substances by pipeline and other modes.</p>	<p><b>We want to measure:</b></p> <ul style="list-style-type: none"> <li>• <i>The number of releases of oil and hazardous substances into environmentally sensitive areas.</i></li> <li>• <i>Amount spilled per million tons shipped.</i></li> <li>• <i>Net volume spilled (after accounting for cleanup/recovery)</i></li> <li>• <i>A risk index to estimate the real changes in risk over time.</i></li> <li>• <i>Estimated risk of very low probability, high consequence events.</i></li> <li>• <i>Number of high consequence events.</i></li> <li>• <i>Changes in risk exposure, and leading indicators of risk.</i></li> </ul>
<p><b>Reliability Goal:</b></p> <p><b>Help maintain and improve the reliability of systems</b> that deliver energy products and other hazardous materials to support the U.S. economy and public safety.</p>	<p><b>We want to measure:</b></p> <ul style="list-style-type: none"> <li>• <i>Number of interruptions in transportation due to a pipeline or other hazmat incident.</i></li> <li>• <i>Capacity lost due to incidents and corrective action orders.</i></li> <li>• <i>Number of high consequence events.</i></li> <li>• <i>Estimates of capacity/efficiency benefits from special permits and approvals, approvals for increased MAOP on pipelines, and permits for new construction of pipelines and LNG facilities.</i></li> </ul>
<p><b>Global Connectivity Goal:</b></p> <p><b>Harmonize and standardize</b> requirements for pipeline and hazardous materials transportation internationally, to facilitate efficient and safe transportation through ports of entry and the supply chain.</p>	<p><b>We want to measure:</b></p> <ul style="list-style-type: none"> <li>• <i>Amount and percent of total international hazmat shipments that are subject to different requirements from other countries.</i></li> <li>• <i>Percent of hazmat proposals in which the U.S. prevails in international organizations.</i></li> </ul>
<p><b>Preparedness and Response Goal:</b></p> <p><b>Reduce the consequences</b> (harm to people, environment, and economic impacts) after a pipeline or hazmat failure has occurred.</p>	<p><b>We want to measure:</b></p> <ul style="list-style-type: none"> <li>• <i>Deaths and injuries occurring after first responders arrive on scene.</i></li> <li>• <i>Environmental damage after first responders arrive on scene.</i></li> <li>• <i>Total time to return the system to normal after an incident.</i></li> <li>• <i>Aggregate training level of first responders nationwide.</i></li> <li>• <i>First responder capabilities.</i></li> </ul>

**Program evaluation** can help determine what works and what doesn't, as well as why our programs work well or not. We have committed to several program evaluations over the next several years:

- An outcome evaluation of the benefits and impacts of the pipeline safety operator qualification regulations – completed in 2007.
- A process evaluation of the current information technology program to identify overlapping and redundant IT investments, systems and services – to be completed in 2007.
- A process evaluation of our outreach and training programs – to be completed in 2008.
- An outcome/process evaluation of the pipeline State grants program – to be completed in 2009.
- A process evaluation of the processing of pipeline and hazmat enforcement cases – to be completed in 2009.
- A process evaluation of readiness of emergency responders – to be completed in 2009.
- An impact evaluation of the effectiveness of the pipeline safety integrity management program – to be completed in 2011.

**The R&D program** collaborates and coordinates with U.S. government agencies (Federal & State), industry trade organizations and research organizations within and throughout the following five step process that systematically addresses improved performance:









For more information about

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