

SPECIAL PERMITS AND APPROVALS

**DATA COLLECTION AND ANALYSIS
PLAN OF ACTION AND RESOURCE
ASSESSMENT**

November 4, 2009

(Revised March 4, 2010)

Introduction

Both the U.S. Department of Transportation's (DOT) Office of the Inspector General (OIG) and the House Transportation and Infrastructure Committee (T&I Committee) identified significant problems in the way the Pipeline and Hazardous Materials Safety Administration (PHMSA) has administered its special permits program. Many of the concerns involve the lack of an integrated process for considering appropriate safety information during the special permits review process. For example, the OIG found that: (1) applicants' fitness and safety performance are not considered as part of the evaluation of special permit applications; (2) PHMSA and the other DOT operating administrations do not share safety information before a special permit is issued; and (3) PHMSA has not addressed safety issues identified in investigations of accidents involving operations under special permits. More broadly, both the OIG and the T&I Committee have suggested that PHMSA needs to strengthen its oversight of the special permits program to ensure that special permits provide an equivalent level of safety as that provided under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) and that permit holders comply with the terms of the special permits and, indeed, all applicable HMR requirements.

The OIG and the House T&I Committee also identified concerns with PHMSA's oversight of its explosive classification approval process and, more generally, with PHMSA's overall administration of the approvals program. PHMSA's own evaluation of the approvals program concluded that it shares many of the problems PHMSA is addressing in its special permits program: (1) applicants' fitness and safety performance are not considered as part of the evaluation of approval applications; (2) PHMSA and the other DOT operating administrations do not share safety information before an approval is issued; and (3) PHMSA has not addressed safety issues identified in investigations of operations authorized by approvals.

A major part of the solution to the problems identified in the special permits and approvals programs involves enhancing the way PHMSA utilizes data and information in its review process. The information system that supports the special permits and approvals programs has reached the end of its useful life and no longer effectively supports the business requirements. The system needs to be upgraded to enable the agency to more effectively synthesize safety information about companies applying for special permits and approvals including the safety performance of holders. PHMSA needs to ensure that data provided by applicants, together with data generated by the agency through its incident reporting and enforcement programs, will enable sound safety decisions concerning whether applications should be approved or denied. Thus, PHMSA is modernizing the information technology (IT) system that supports the work flow and processing of applications to enhance productivity, accountability, and overall management of the special permits and approvals programs, with a particular emphasis on its safety responsibilities.

The data deficiencies that affect PHMSA's oversight of the special permits and approvals programs are symptomatic of the agency's broader challenge to more effectively manage data and utilize it to support its safety mission. Thus, addressing data issues associated with the special permits and approvals programs must be accomplished as part of PHMSA's broader effort to enhance its ability to strengthen the agency's efforts to identify and use data to inform all of its safety decisions.

PHMSA's multi-year Data Management and IT Modernization Roadmap identifies resource, process, and technology initiatives that are required to overcome deficiencies associated with PHMSA's ability to manage data and leverage IT to support its safety mission. PHMSA recognizes its data and IT deficiencies are an agency-wide challenge requiring an agency-wide approach that will take some time to complete. However, PHMSA understands that, in the interim, business services must continue and improvements to current capabilities must be provided. Therefore, as described in the Roadmap, PHMSA will leverage an iterative approach, implementing short- and long-term solutions. Immediate benefits will be realized in 120–180 day increments, allowing PHMSA to constantly re-evaluate strategies based on current and future business needs. The first year of the Roadmap specifically addresses the modernization of the information technology systems that support the special permits and approvals programs. Years 2 and 3 address the remaining business areas of the Office of Hazardous Materials Safety (i.e., enforcement, incidents, registration, etc.). Years 4 and 5 focus on refining, maturing, and maintaining the processes and capabilities developed in years 1 through 3 as a basis to execute an agency-wide IT modernization strategy.

Current Challenges

PHMSA must address a number of significant issues related to the quality and analysis of its safety data. An IT program review in 2008 identified gaps in data architecture and management, technical system architecture, organization, and the set of standards, processes and procedures PHMSA uses for managing data. A Data Quality Assessment in 2009 concluded that there are a number of opportunities to enhance PHMSA's data and analyses capabilities to provide a more accurate and effective basis for decision-making. The OIG and T&I Committee reviews support these conclusions.

IT Program Review

PHMSA's IT program review identified several business and technology gaps that affect the agency's ability to effectively execute mission activities. PHMSA's business model focuses on analytical process and analysis, and that focus is not reflected in the current design of its IT systems. The review concluded that PHMSA should begin leveraging analytical processing systems to support the requirements necessary for data-focused analytical decision-making and recommended a series of projects to strengthen PHMSA's information and architecture in four general areas:

- ✓ *data governance* (to develop common standards, processes, and procedures);

- ✓ *data architecture and management* (to include how PHMSA will define and access data, control changes to data, identify common services and standards for data, apply risk models, measure the data, etc.);
- ✓ *organization* (roles and responsibilities, rules of engagement); and
- ✓ *technical architecture* (establish data repositories, enhance capabilities to dissect data, dynamically generate reports, automate analysis of data, apply risk models, provide enterprise-wide consistency in analysis, and increase program analyst efficiencies).

Data Quality Assessment

The data quality assessment examined the life cycle of PHMSA’s major safety systems from the definition of program requirements for information through system design and data collection/processing to the interpretation and use of analytical results. The aim was to identify shortcomings in the data or its use. That assessment identified several problems in our processes, including gaps in the scope of what we collect, particularly concerning emerging risks; incomplete risk and resource allocation models; and a less-than optimal organizational capacity and focus for risk analysis and program evaluation. In short, the review found that PHMSA has a substantial investment in data collection and processing, but needs to improve systems for turning data into useful program information.

DOT OIG and the House T&I Committee Reviews

Recent independent reviews of PHMSA by DOT’s OIG and the House T&I Committee support the conclusions of the IT program review and data quality assessment. Both the OIG and the House T&I Committee concluded that PHMSA’s analytical capability is inadequate and decentralized; as a result decisions are based on fragmented data and sometimes faulty assumptions. The OIG and T&I Committee reviews identified several critical vulnerabilities, including:

- Absence of dedicated resources for conducting strategic and operational analysis, establishing business rules and processes, applying consistent data quality standards, and reporting and executing program and performance evaluations and reviews.
- Multiple IT systems supporting the organization with no common standards in place for how data elements within these systems should be defined (business owners set standards that are disparate); the data quality standards that should be applied; or policies and repeatable processes for use, accessibility, and reporting. This has resulted in data and system level stove-pipes and data integrity and quality challenges.

- IT cannot be leveraged as a strategic business enabler due to the ad-hoc approach of its data practices and business processes.

While OIG and T&I Committee reviews focused on the special permits and approvals program, PHMSA recognizes that these findings apply and must be addressed across the entire agency.

Data Management and IT Modernization Roadmap

PHMSA's focus on analytical processing and analysis requires a significant change in the way PHMSA designs and supports its IT systems. The IT program review established that PHMSA should begin leveraging analytical processing systems to support the requirements needed for analytical decision support and to improve its transactional systems. The IT program review concluded that the benefits gained through a strong Information Management framework include providing PHMSA the ability to quickly make tactical and strategic decisions regarding its systems' functionality and business requirements. An Information Architecture built with the information sharing needs in mind provides multiple channels for information dissemination and facilitates PHMSA's ability to effectively analyze and use information to quickly and efficiently make strategic safety decisions and to prioritize actions and assign resources for completion of those actions. This strategy will allow PHMSA to turn data into information, information into knowledge, and use that knowledge to make sound business decisions that strengthen the safety program.

Based on the results of the IT program review, data quality assessment, and the conclusions of the OIG and T&I Committee, PHMSA has developed a five-year strategy to guide data management and IT modernization. The first year of the roadmap specifically addresses the near and midterm modernization activities of the IT systems that support the special permits and approvals programs.

With specific applicability to special permits and approvals, PHMSA will implement short- and long-term solutions that will result in immediate enhanced productivity, accountability, and overall management of the safety functions assigned to that office. Short term goals include the analysis and cleansing of existing data; development of a common database with common data definitions and data quality rules to support special permits and approvals; and development of on-line application capabilities with a focus on requiring applicants to submit the data needed to make a safety determination and improved data quality through the use of standardized (automated) forms.

Longer term efforts include a more advanced and integrated on-line application that heavily leverages the components of existing PHMSA data systems for such things as pre-population of these forms with existing data; developing specific reporting and query capabilities; provision of early warning indicators (example: did a shipper or carrier just get inspected and is now applying for an emergency special permit); sending advanced renewal notifications to shippers and carriers; and automated collaboration with enforcement and modal partners before a special permit is approved.

PHMSA will leverage existing resources to complete the short term actions. For the mid-term actions, PHMSA plans to reprioritize funding to support the vital modernization activities. Longer term funding strategies will be included as part of the budget process.

Short Term - PHMSA will execute the following near term activities designed to improve current services while the modernization efforts are underway.

- Stabilize the current Hazardous Materials Information System (HMIS) platform – on-going. Efforts have been very successful thus far.
- PHMSA will lead an effort with its modal partners to identify requirements and options to the common identifier challenge. – proposed plan by April 2010
- Finalize the Business Process Re-engineering (BPR) of special permits and approvals. This effort is scheduled to be completed in April 2010.
- Establish an on-line application capability for special permits and approvals to enforce data collection standards. – May 1, 2010.
- In preparation for IT Modernization, PHMSA initiated a data cleansing effort for Approvals data. Using HIP as the authoritative source erroneous and inconsistent company information in the Approvals database will be corrected. - May 15, 2010

- As a temporary patch to the collaboration gap, leverage HIP to generate analytical reports (i.e., target fitness inspections, support the analysis of which special permits to codify, development of early warning indicators as special permits near expiration, etc.) – ongoing.

Completed activities:

- Implement Special Permit evaluation forms (i.e., party status) – December 2009
- Automatically generate and send letter to special permit holder if renewal application has not been received within 60 days of expiration – December 2009.
- Modify the HMIS workflow to facilitate modal reviews (and allow access to modal partners) – December 2009
- Provide an Itinerary Planner (IP) function in the Hazmat Intelligence Portal (HIP) (planned capability) – December 2009. The IP is an automated inspection scheduling tool that uses the current enforcement risk model, called the National Business Strategy, to identify the perceived highest risk companies. The IP requires an inspector to select the highest risk company from the list. In addition, the system forces the inspector to select other high and moderate level risk companies as the inspection week is planned. Investigators will create itineraries which will be made available to other Investigators for review. Managers will be able to review itineraries, approve them or reject them. More efficient planning will result using geographic information system (GIS) and calendaring capabilities to view trips and inspection overlap will be avoided enabling PHMSA Enforcement offices to direct limited resources toward the events posing greatest risk.
- Prepare a detailed statement of work for the IT modernization services. Contract award is expected to occur in February 2010.

- PHMSA has developed multiple automated utility programs to facilitate the reduction of backlog for Special Permits and Approvals. In addition to these utilities, PHMSA has established metrics and Key Performance Indicators to track its progress in reducing the backlog. Reporting capabilities include a performance monitoring dashboard which enables PHH leadership to monitor progress. (On-going)

Mid Term - In addition to the near term projects referenced above, PHMSA plans to complete the following activities in CY 2010, contingent on the availability of funding:

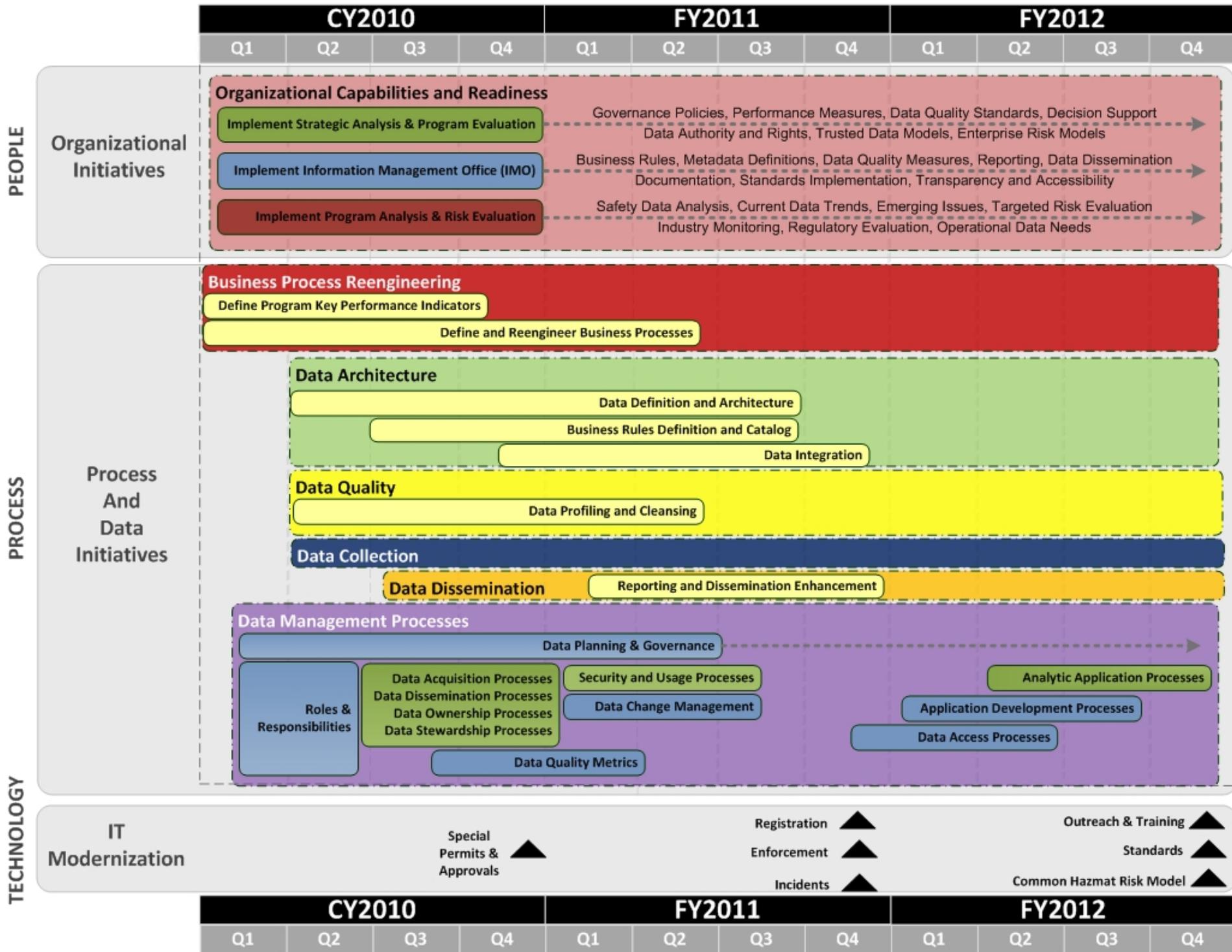
- Review, validate and establish new performance measures for special permits and approvals.
- Establish a risk model for special permits and approvals.
- Establish and implement common data attributes, definitions, meta-data, and data quality rules in support special permits and approvals.
- Establish and implement policies and processes governing the collection, use, storage, and dissemination/reporting of data and information.
- Implement the required infrastructure to support the modernization efforts (i.e., single sign-on, portals, new technologies and development tools, etc.).
- Implement a common database in support of both special permits and approvals. This database will be the foundation to leverage all other modules (enforcement, incidents, registration, etc.) will leverage.
- Clean the current data to the extent practical.
- Using the target state Business Process Reengineering document as a baseline, a detailed systems design and requirements document will be prepared that translates the business and data requirements into an IT blueprint that application developers will use to construct the new special permits and approvals module.

Long Term - In FY 2011, PHMSA will repeat the steps defined under FY 2010 for Registration (common hazmat identifier), Enforcement, and Incidents. For FY 2012, PHMSA plans to modernize Outreach and Training, Standards, and implement a common hazmat risk model. In FYs 2013 and 2014, PHMSA plans to further mature the transactional and analytical services by establishing and providing GIS capabilities, providing the analytic support platform to support predictive analysis, developing content and information management portals, enhanced reporting and presentation of information to make analysis efforts more efficient, and to help fund operations and maintenance of the new systems.

Summary

This document serves as an executive level summary of PHMSA's plans for modernizing the agency's IT systems, with a particular focus on the special permits and approvals programs. Detailed background and process descriptions covering organizational roles and responsibilities; resources, business Process reengineering; data architecture, quality, acquisition, reporting and management; and technology may be found within PHMSA's

Data Management and IT Modernization Roadmap. Additional information may also be found in PHMSA's Data Collection and Analysis Plan (*attached*). It must be emphasized that PHMSA is addressing the special permits and approvals issues as part of a multi-year Agency-wide plan for improving data and modernizing IT systems. While the special permits and approvals part of the plan will be completed within the next year, PHMSA will continue to focus on refining maturing, and maintaining the processes used and capabilities developed to ensure continued alignment of business, data, and technology throughout the agency.



Data Collection and Analysis Plan

<p>to modal partners)</p> <ul style="list-style-type: none"> ○ Provide an Itinerary Planner (IP) function in HIP. The IP is an automated inspection scheduling tool that uses the current enforcement risk model, called the National Business Strategy, to identify the perceived highest risk companies. ○ Prepare a detailed statement of work and award contract for IT modernization services. <p>Mid Term – IT Modernization of Special Permits and Approvals (contingent on the availability of funding and resources)</p> <ul style="list-style-type: none"> ○ Using the target state Business Process Reengineering document as a baseline, a detailed systems design and requirements document will be prepared that translates the business and data requirements into an IT blueprint that application developers will use to construct the new Special Permits & Approval module ○ Establish and implement common data attributes, definitions, meta-data, and data quality rules in support Special Permits & Approvals. ○ Clean current data ○ Implement a common database in support of both Special Permits & Approvals. This database will be the foundation that all other modules (Enforcement, Incidents, Registration, etc.) will leverage. ○ Develop and implement the new Special Permits & Approvals application 	<p style="text-align: center;">CIO</p> <p style="text-align: center;">CIO</p> <p style="text-align: center;">CIO/PHH</p>	<p style="text-align: center;">Dec. 31,2009</p> <p style="text-align: center;">Feb. 05, 2010</p> <p style="text-align: center;">Dec. 31,2010</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>
<p>3. Data quality assessment – Evaluate the quality of PHMSA’s safety data as a sound basis for risk-based decision making. <i>(Draft Findings completed 10-19-09)</i></p>	<p style="text-align: center;">CSO (PH-3)</p>	<p style="text-align: center;">Nov. 10, 2009</p>	<p style="text-align: center;">✓</p>
<p>4. Organizational structure – Develop a proposed organization for data collection, analysis, and data management – for review/approval by OST.</p>	<p style="text-align: center;">CSO (PH-3)</p>	<p style="text-align: center;">Apr 15, 2010</p>	
<p>5. Resource commitments – Allocate and/or reprogram resources based on FY 2010 appropriations (anticipated in December).</p>	<p style="text-align: center;">CSO (PH-3)</p>	<p style="text-align: center;">May. 15, 2010</p>	