



**U.S. Department
of Transportation**

Under Secretary for Policy

1200 New Jersey Avenue, SE
Washington, DC 20590

Office of the Secretary
of Transportation

August 17, 2017

The Honorable Robert L. Sumwalt
Chairman, National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

Dear Chairman Sumwalt:

I am writing to transmit information that meets recommendations P-12-1 and -2, which were issued as a result of the National Transportation Safety Board's (NTSB) investigation of the July 25, 2010, Enbridge, Incorporated hazardous liquid pipeline rupture and release near Marshall, Michigan. With this transmittal we request closure of these recommendations.

P-12-01: Audit the Pipeline and Hazardous Materials Safety Administration's onshore pipeline facility response plan program's business practices, including reviews of response plans and drill programs, and take appropriate action to correct deficiencies.

The audit was conducted by an independent evaluator within the Pipeline and Hazardous Materials Safety Administration's (PHMSA) Office of the Chief Safety Officer—which was outside the Office of Pipeline Safety (OPS)—following Program Evaluation Standards and was reviewed by my staff. I have enclosed a copy of the final audit report, which includes an addendum update by PHMSA that describes the actions taken to address the deficiencies identified in the report. Since the Marshall, Michigan, oil spill, PHMSA has improved the business practices of the program, and the U.S. Department of Transportation (DOT) believes OPS adequately responded to the findings of the audit. We request closure of this recommendation.

P-12-02: Allocate sufficient resources, as necessary, to ensure that the Pipeline and Hazardous Materials Safety Administration's onshore pipeline facility response plan program meets all of the requirements of the Oil Pollution Act of 1990.

The audit determined that PHMSA is responsible for the review and approval of oil spill response plans for onshore pipeline facilities; PHMSA may carry out response plan exercises (drill programs) as a policy choice, but is not required by law to carry out response plan exercises. At the time of the audit PHMSA had a large backlog of plans that needed review and approval. That backlog has been addressed. Since the NTSB accident report was released, PHMSA has increased the number of staff devoted to the review of pipeline facility response plans to 7.5 full-time equivalents as of Fiscal Year 2016, and OPS has been able to successfully manage the 523 active response plans in its inventory with this augmented staffing level.

The Honorable Robert L. Sumwalt

The addendum to the above audit provides further details. DOT believes PHMSA has allocated sufficient resources to ensure that the onshore pipeline facility response plan program meets all of the requirements of OPA 90, and we request closure of this recommendation.

We look forward to continuing to work with you and the NTSB on pipeline safety improvements.

Sincerely,

A handwritten signature in blue ink, reading "Finch Fulton". The signature is fluid and cursive, with the first name "Finch" and last name "Fulton" clearly distinguishable.

Finch Fulton
Deputy Assistant Secretary for Transportation Policy

Enclosure

Audit Report

AN ASSESSMENT OF THE OFFICE OF PIPELINE SAFETY'S ONSHORE
PIPELINE FACILITY RESPONSE PLAN PROGRAM

U.S. Department of Transportation

June 19, 2017

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Executive Summary

On July 25, 2010 an Enbridge hazardous liquid pipeline ruptured and released 843,444 gallons of crude oil into the Talmadge Creek and the Kalamazoo River near Marshall, Michigan.

Environmental costs of the spill are estimated at \$1.2 billion.^{1,2} The National Transportation Safety Board (NTSB) Accident Report, issued in July 2012, concluded that “PHMSA’s limited oversight of pipeline emergency preparedness led to the approval of a deficient facility response plan...”³ The NTSB further concluded that this “contribut[ed] to the severity of the environmental consequences...” The NTSB recommended the Secretary of Transportation:

1. Audit PHMSA’s onshore pipeline facility response plan program’s business practices, including reviews of response plans and drill [response plan exercise] programs, and take appropriate action to correct deficiencies (P-12-01); and
2. Allocate sufficient resources as necessary to ensure that PHMSA’s onshore pipeline facility response plan program meets all of the requirements of the Oil Pollution Act of 1990 (P-12-02).

The U.S. Department of Transportation’s (DOT) responsibility as a safety regulator is specific: save lives, prevent injuries, and protect property and the environment. PHMSA takes environmental protection seriously, and this audit is meant to foster continuous improvement in how DOT and PHMSA carry out our mission. The DOT, on behalf of the Secretary of Transportation, conducted an audit of the Office of Pipeline Safety (OPS)’s Onshore Pipeline Facility Response Plan Program’s business practices, including the review of response plans and response plan exercise programs, and examined whether sufficient resources have been allocated to meet the requirements of the Oil Pollution Act of 1990 (OPA 90).⁴ The findings of the audit

¹ Nat’l Transp. Safety Bd., DOT, Rep. NTSB/PAR-12/01 PB2012-916501, Enbridge Incorporated Hazardous Liquid Pipeline Rupture and Release Marshall Michigan July 25, 2010 at 19 (2012). (estimating that the costs for emergency response equipment, resources, personnel, and professional and regulatory support in connection with the cleanup of the discharged oil were \$767 million as of October 31, 2011).

² Enbridge Energy Partners, U.S. Coast Guard, Dep’t of Homeland Sec., Oil Pollution Act Liability Limits in 2016. (2017).

³ A facility response plan outlines procedures on how to respond to a large release of oil, which operators of onshore pipelines submit to PHMSA for review and approval. Facility response plans are referred to as response plans in this report.

⁴ Response Plans for Onshore Pipelines, 49 C.F.R. § 194 (1993) <http://www.ecfr.gov/cgi-bin/text-idx?SID=890bc2db5ebfe25944db0b5fcc070884&node=pt49.3.194&rgn=div5> (last visited Apr. 18, 2017) (explaining the required regulatory responsibilities associated with the Onshore Pipeline Responses Plan Program, referred to as “the Program,” including the review and approval of response plans and other activities associated with regulatory enforcement).

are intended to improve OPS program activities related to oil spills, and helps inform future rulemaking actions that are recommended by NTSB.⁵ Background research for the audit was conducted in fall of 2013, and the analysis was performed in the fall of 2013 through the spring of 2014. As such, the findings and recommendations resulting from the audit reflect the status of the Onshore Pipeline Facility Response Plan Program as of fall 2013.

DOT appreciates the opportunity to guide practice improvements to address NTSB's recommendations. Since the time the audit was conducted, OPS has taken a number of steps to improve the business practices of the program. The Secretary of Transportation recognizes the improvement efforts OPS has done to date, and will encourage PHMSA to continue to implement practice improvements in the future. At the end of the audit report, an addendum further describes the actions PHMSA has taken since the audit was conducted in fall 2013.

Since NTSB report was released, additional resources were added to the pipeline program to ensure OPS's ability to meet its Oil Pollution Act of 1990 (OPA 90) requirement to review and approve facility response plans for pipelines. By sufficiently staffing the program, the audit found that sufficient resources were allocated to ensure that PHMSA's onshore pipeline facility response plan program meets all of the requirements of the Oil Pollution Act of 1990.

Summary of Audit Findings

PHMSA is responsible for the review and approval of oil spill response plans for onshore pipeline facilities, and may carry out response plan exercises. The OPA 90 gives the President these authorities and they are delegated to the Secretary of Transportation through *Executive Order 12777 – Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as Amended, and the Oil Pollution Act of 1990*⁶ (EO 12777). The Secretary delegated the responsibility for reviewing and approving onshore pipeline facility response plans to PHMSA. EO 12777 delegates response plan exercise requirements to the Environmental Protection Agency and the U.S. Coast Guard, but not to the Secretary of Transportation. While not a requirement in EO 12777, response plan exercises may be conducted as part of PHMSA's regulatory authority; therefore, PHMSA is not required by law to carry out response plan exercises, but could conduct response plan exercises as a policy choice.

⁵ In Nat'l Transp. Safety Bd., *supra* note 1 (recommending that PHMSA amend Part 194 to harmonize onshore oil pipeline response planning requirements with those of the US Coast Guard and the US Environmental Protection Agency for facilities that handle and transport oil and petroleum products to ensure that pipeline operators have adequate resources available to respond to worst case discharges (recommendation P-12-9, pg. 123).

⁶ Exec. Order No. 12777, 56 Fed .Reg. 54757 (1991), <https://www.nrt.org/sites/38/files/eo12777.pdf> (last visited April 19, 2017).

The PHMSA began a review of the program in 2012 and, upon the availability of resources, began the process of re-designing and improving its response plan review and approval process to address the backlog of response plans in the fall of 2013. Based on the OPA 90 responsibilities delegated to PHMSA,⁷ it appears that OPS allocated sufficient resources to carry out the response plan review and approval process.

In this report, business practices are defined as the programmatic activities that execute OPA 90 requirements through the implementation and enforcement of 49 U.S.C. pt. 194 (Part 194), with Part 194 serving as the foundation for the program and its activities. As part of PHMSA's review and approval of response plans, review criteria are used to approve response plans and ensure Part 194 compliance. PHMSA has no discretion as to whether it approves response plans meeting the statutory and regulatory requirements.⁸ This audit found that the program's 2013 criteria for reviewing and approving response plans generally reflected the response plan regulatory requirements contained in Part 194. If a response plan complies with Part 194, PHMSA will approve the plan per § 194.119(d). Additionally, a comparison of the program's 2013 response plan review criteria found that they generally reflected the six components outlined in OPA 90, as codified in Navigation and Navigable Waters, 33 U.S.C. § 1321(j)(5)(D)(i-vi)⁹. The audit sampled and then evaluated eleven response plans that were reviewed and approved by the program, and found that program officials almost always applied and followed program guidance during the review and approval process.

Regulatory Requirements and Review Criteria

While the regulations and the response plan review criteria generally reflected the OPA 90 components as codified in § 1321(j)(5)(D)(i-vi), the audit identified issues with the regulations and the 2013 review criteria that were applied by the program to approve response plans. These issues are in two categories:

⁷ By OPA 90 responsibilities this audit report is referring to 33 U.S.C. § 1321(j) or the Clean Water Act as amended by the Oil Pollution Act of 1990.

⁸ Part 194 regulations distinguish between response plans that are expected to cause substantial harm, and response plans that are expected to cause significant and substantial harm in § 194.101 and § 194.103. Substantial harm plans only need to be 'reviewed', while significant and substantial plans need to be 'reviewed and approved'. For the purposes of applying the review criteria examined during the audit there was no review and approval distinction.

⁹ 33 U.S.C. § 1321(j) (2012), <https://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap26-subchapIII-sec1321.pdf> (last visited Apr. 18, 2017).

1. Issues with how the regulations are written; and
2. Issues with the review criteria and the approval process.

Clearer regulatory requirements could improve the program's ability to ensure that pipeline operators' oil spill response plans provide adequate planning and preparation to effectively mitigate environmental damage from oil spills. In this report, program effectiveness is defined as the extent to which programmatic activities are able to achieve compliance with OPA 90 and achieve the purpose outlined in § 194.1, which is to reduce the environmental impact of oil discharged from onshore oil pipelines.

Regulatory requirements could be improved by increasing clarity and specificity. Improved regulatory criteria would enable PHMSA to develop and implement review criteria that further improve plan quality and effectiveness. The audit found that:

- The regulations do not specify the appropriate quantity or type of response resources;
- The regulatory requirements for when response resources must arrive do not expressly indicate which time "tiers" apply to what level of resource equipment required;
- The regulatory requirements do not specify how operators must demonstrate response resources can arrive within the required times;
- The regulatory requirements for calculating worst case discharge amount do not provide a minimum time period for "maximum shut down time," nor does the required calculation require consideration of any leak detection capacity; and
- The regulations lack specificity for the level of detail required for identifying environmentally and economically sensitive areas listed in Area Contingency Plans (ACPs).

Partially as a result of unclear regulatory requirements, the audit identified issues with the review criteria and the approval process. The report found that:

- The review criteria could be improved by further confirming the ability of response resources to arrive to an oil spill within the regulatory time requirements, and verifying the locations of response resources;
- The review criteria for verifying ACPs could be improved by more comprehensively ensuring that operators have identified all environmentally and economically sensitive areas listed in Area Contingency Plans; and
- There was no review criterion to identify whether a pipeline is in a high volume area.

The auditors believe the review criteria issues could be partially remedied without promulgating new regulations.

Response Plan Exercises

The program's response plan review and approval process is designed to verify compliance of response plans with the regulations. Beyond ensuring regulatory compliance, and in order to effectively mitigate environmental harm from a worst case oil spill, a response plan must work in practice. The review and approval process alone does not fully assess whether the response plans can be successfully executed. The use of response plan exercises can serve as a mechanism to provide oversight and validate plan effectiveness by testing their operability. While the use of response plan exercises by the program is a programmatic choice and not required by OPA 90, this audit found limited use of response plan exercises to assess response plan operability.

The program does not assess response plan operability by using response plan exercises and PHMSA has not initiated a government-led response plan exercise since 2006. While OPS has participated in some operator-led response plan exercises, the lack of standard operating procedures, formal inspector training on how to assess operator-led response plan exercises, and an agency-wide strategy to prioritize OPS's role in exercise attendance limit the program's ability to gauge whether response plans can be successfully executed. PHMSA does not systematically collect feedback and results from response plan exercises. PHMSA could provide further information to operators about the practical effectiveness of response plans if it increased its involvement in response plan exercises collected and provided feedback on drills to operators.

Program Integration

The program's response plan review and approval process is the principal regulatory mechanism through which it verifies and enforces compliance with Part 194. The implementation of Part 194 also involves other program activities within OPS such as inspections and enforcement. Each activity plays a different role, and in an effective regulatory program the various activities complement each other and are integrated into a holistic regulatory program.

The report identified programmatic choices and opportunity areas that could increase the effectiveness of the program by further integrating the review and approval process with other OPS activities and subject matter experts. Pipeline inspectors are not formally trained on Part

194. While there are informal interactions between pipeline inspectors and review and approval staff when necessary, there have been no formalized procedures or processes in place for response plan reviewers to leverage technical expertise from pipeline inspectors in areas such as worst case discharge assumptions and calculations. The information technology system used by OPS for processing enforcement cases is not set up to process non-compliance cases for Part 194.

Audit Recommendations

Based on the findings of this audit, OPS should consider the following recommendations:

1. Amend Part 194 to improve the clarity and specificity of the regulations by developing:
 - i. Specific requirements in § 194.115(a) for the quantity of response resources needed to respond to a worst case discharge;
 - ii. Additional regulatory language that further defines the meaning of the response resources time tiers in § 194.115(b), and what level of resources corresponds to each tier;
 - iii. Specific requirements to confirm the capability of response resources to arrive within the times required in the regulations in § 194.115(b);
 - iv. To improve worst case discharge calculations required in § 194.105(b) establish a minimum leak detection and shutdown time, or institute some other regulatory measure to ensure realistic shut down times for the calculation of worst case discharge amounts; and
 - v. Clear requirements on the specificity needed for identifying environmentally and economically sensitive areas for § 194.107(b)(2).
2. Consider revising the review criteria and approval processes, which includes:
 - i. Further verify that the response plan has identified a sufficient, quantified amount of response resources;

- ii. Improved confirmation that the response resources are able to arrive in the required times in § 194.115(b), and verification of specific response resource locations;
 - iii. Review criteria that ensure response plan spill detection and shutdown times used to calculate worst case discharges are reasonable;
 - iv. Develop improved verification that plans are consistent with applicable Area and Regional Contingency Plans, particularly the identification of environmentally and economically sensitive areas required in § 194.107(b)(2); and
 - v. Create an additional review criterion for identifying high volume areas to inform the time requirements in § 194.115(b).
3. Identify future actions to improve OPS's ability to validate response plan operability through response plan exercises. This could include improving program involvement in operator-led response plan exercises, aggregating lessons learned and identifying best practices, and increasing participation in government-led response plan exercises. The program should consider developing standard operating procedures for attending operator-led response plan exercises, training employees on how to assess response plan exercise effectiveness, and developing a strategy for prioritizing OPS participation in response plan exercises based on environmental and other risk factors.
4. Identify future actions to improve the integration of OPS activities related to implementing Part 194. This could include formal pipeline inspector training, developing formal procedures or processes for pipeline inspectors to verify response plan compliance in the review and approval process, and incorporating Part 194 into OPS's enforcement information technology systems and processes.

Table of Acronyms List

ACP – Area Contingency Plan

BSEE – the Bureau of Safety and Environmental Enforcement, located in the United States Department of the Interior

CFR – The United States Code of Federal Regulations

CSO – Office of the Chief Safety Officer, located in the Pipeline and Hazardous Materials Safety Administration

DOI – United States Department of the Interior

DOT – United States Department of Transportation

EO – Executive Order (such as Executive Order 12777)

EPA – United States Environmental Protection Agency

ESA – Environmentally and economically sensitive areas

ESSD – Emergency Support and Security Division, located in the Office of Pipeline Safety

FTE – Full-time equivalent

IT – Information Technology

NCP – The National Oil and Hazardous Substances Pollution Contingency Plan, or Title 40 Code of Federal Regulations Part 300. Also referred to as the National Contingency Plan

NTSB – National Transportation Safety Board

OPA 90 – The Oil Pollution Act of 1990

OPS – Office of Pipeline Safety, located in the Pipeline and Hazardous Materials Safety Administration

OSLTF – Oil Spill Liability Trust Fund

PART 194 – Response Plans for Onshore Oil Pipelines, 49 CFR pt. 194 PDM – Pipeline Data Mart

PHMSA – Pipeline and Hazardous Materials Safety Administration

PREP - National Preparedness for Response Exercise Program guidelines

RCP – Regional Contingency Plan

RRI – Resource Response Inventory, which is managed by the United States Coast Guard

USCG – The United States Coast Guard

U.S.C. – United States Code, or U.S. Code

Introduction

On July 25, 2010 an Enbridge hazardous liquid pipeline ruptured and released 843,444 gallons of crude oil into the Talmadge Creek and the Kalamazoo River near Marshall, Michigan. Environmental costs of the spill are estimated at \$767 million.¹⁰ The NTSB accident report, issued in July 2012, concluded that “PHMSA’s limited oversight of pipeline emergency preparedness led to the approval of a deficient facility response plan...”¹¹ The NTSB further concluded that this “contribut[ed] to the severity of the environmental consequences...” The NTSB recommended the Secretary of Transportation:

1. “Audit PHMSA’s onshore pipeline facility response plan program’s business practices, including reviews of response plans and drill [response plan exercise] programs, and take appropriate action to correct deficiencies;” and
2. “Allocate sufficient resources as necessary to ensure that PHMSA’s onshore pipeline facility response plan program meets all of the requirements of the Oil Pollution Act of 1990.”

The DOT, on behalf of the Secretary of Transportation, conducted an audit of the Office of Pipeline Safety (OPS)’s Onshore Pipeline Facility Response Plan Program’s business practices, including review of response plans and response plan exercise programs, and examined whether sufficient resources have been allocated to meet the delegated requirements of the Oil Pollution Act of 1990 (OPA 90). Background research was conducted in fall of 2013, and the analysis was performed in fall of 2013 to spring of 2014. The audit reviewed the law, regulations, executive orders, published guidance, and the Onshore Pipeline Facility Response Plan Program’s (the program) review criteria and associated guidance used to evaluate and approve on-shore transportation-related facility response plans (response plans).¹² This information was supplemented by interviews with relevant OPS employees, Federal agencies, and external stakeholders. The audit also assessed program reviewers’ adherence to their response plan review criteria on a sample of eleven approved response plans by searching for inconsistencies

¹⁰ Nat’l Transp. Safety Bd., *supra* note 1, at xii.

¹¹ A facility response plan outlines procedures to respond to a large release of oil, which operators of onshore pipelines submit to PHMSA for review and approval. Facility response plans are referred to as response plans in this report.

¹² The Onshore Pipeline Responses Plan Program, referred to as “the Program,” is considered to be the activities to carry out the regulatory responsibilities in 49 CFR § 194, which includes the review and approval of response plans and other activities associated with regulatory enforcement.

between the review criteria instructions and actual program approval procedures. In this report, business practices are defined as the programmatic activities that execute OPA 90 requirement through the implementation and enforcement of Part 194.¹³ Business practices of the program were examined by assessing the effectiveness of program procedures and processes used in both the reviews of response plans and for the program's use of response plan exercises. This audit defines program effectiveness as the extent to which programmatic activities are able to achieve compliance with OPA 90 and the purpose outlined in § 194.1, which is to reduce the environmental impact of oil discharge from onshore oil pipelines. See Appendix A for more detailed information on audit methodology.

Background

This section provides an overview of the provisions of OPA 90 and the Executive Order, and the involvement of executive agencies in its implementation.

The Oil Pollution Act of 1990

The OPA 90, which amended the Federal Water Pollution Control Act and is codified in 33 U.S.C. § 1321, provides the legislative authority to require response plans from operators who handle oil.¹⁴ The OPA 90 states that the President shall issue regulations which require an owner or operator of either a tank or non-tank vessel, an offshore facility, or an onshore facility that could cause substantial environmental harm by discharging oil into or on the navigable waters or adjoining shorelines, to prepare and submit a facility response plan for a worst case oil discharge.

The OPA 90 requires the President to promptly review the response plan, require amendments to any response plan that does not meet the statutory requirements, approve any response plan that meets the statutory requirements for approval,¹⁵ and review each response plan periodically. If a facility response plan is required to be reviewed, the facility is generally prohibited from handling, storing or transporting oil unless its response plan is reviewed and approved. OPA 90 also requires the President to periodically conduct response plan exercises without prior notice to

¹³ Response Plans, *supra* note 4.

¹⁴ 33 U.S.C. § 1321(j), *supra* note 9 (showing that the United States Coast Guard is the only agency that the law specifically delegates the responsibility of promulgating regulations for noxious liquid substances in bulk; while the Department of Transportation is responsible for oil only).

¹⁵ Per OPA 90, if a facility could be reasonably expected to cause 'significant and substantial' harm to the environment by discharging into or on the navigable waters or adjoining shorelines, it must be reviewed and approved. Facilities that could reasonably cause 'substantial' harm need only to be reviewed.

test oil removal capabilities, and these response plan exercises may include Federal, State, local, and private entities. The President can also periodically inspect oil removal equipment.

The OPA 90 as codified in 33 U.S.C. § 1321(j)(5)(D)(i-vi)¹⁶ states that facility response plans shall have the following components:

- i. Response plans are consistent with the National Contingency Plan and applicable Area Contingency Plans;
- ii. Response plans identify an individual with full authority to implement removal actions in the case of a worst case oil discharge (referred to as the qualified individual). This individual is required to immediately notify Federal officials and the persons providing personnel and equipment to respond to the discharge;
- iii. Response plans identify, and ensure by contract or other means, private personnel and equipment to remove a worst case oil discharge to the maximum extent practicable and to mitigate or prevent a substantial threat of such a discharge;
- iv. Response plans describe the training, equipment testing, periodic unannounced drills, and response actions of persons on the vessel or at the facility;
- v. Response plans must be updated periodically; and
- vi. Response plans must be resubmitted for approval after each significant change.

Executive Order 12777 – Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as Amended, and the Oil Pollution Act of 1990.

The OPA 90 gives the authority to carry out the law to the President, who delegated those tasks in EO 12777 to the Administrator of the Environmental Protection Agency (EPA), and the Secretaries of the Department of the Interior (DOI), DOT, and the Department in which the U.S. Coast Guard (USCG) operates. The USCG was part of DOT at the time the EO was issued, but is now within the Department of Homeland Security (DHS). Certain revisions of EO 12777 occurred in EO 13286 after the USCG was placed under DHS. The EPA, USCG, and DOI's Bureau of Safety and Environmental Enforcement (BSEE) are other agencies outside of DOT who carry out the law and promulgate regulations.

Generally, EPA and USCG have primary responsibility over broad implementation of the law's components, with EPA responsible for the inland zone and USCG responsible for the coastal

¹⁶ *Id* at 422.

zone. The EPA maintains and revises the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) – which is the Federal Government’s blueprint for responding to oil spills – and also is responsible for inland planning that cascades from the NCP via regional and local response blueprints called Regional Contingency Plans (RCPs) and Area Contingency Plans (ACPs).¹⁷ The Coast Guard maintains and revises the RCPs and ACPs for coastal areas. If an oil spill occurs, either EPA or USCG will provide Federal On-Scene Coordinators who are responsible for federal oversight of the response.

PHMSA is responsible for the review and approval of oil spill response plans for onshore pipeline facilities. The Secretary of Transportation delegates EO 12777¹⁸ responsibilities to PHMSA in 49 CFR § 1.97(c).¹⁹ A provision in the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 amended 33 U.S.C. § 1321(m) to state that DOT can inspect facilities and equipment as well as access OPA 90 related operator records, and reaffirmed the DOT’s ability to assess civil penalties for failure to comply with 33 U.S.C. § 1321(j). The regulations governing the submission, review, and approval of response plans for onshore pipeline facilities are codified in Part 194.²⁰ Part 194 serves as the foundation for the program and its activities. PHMSA has no discretion as to whether it approves response plans meeting the statutory and regulatory requirements.

PHMSA is not required to carry out response plan exercises, but could conduct response plan exercises as a policy choice. For response plan exercises, EO 12777 delegates responsibility for periodic exercises of response capability under relevant response plans at facilities in the inland zone to the Administrator of the EPA, and to the Secretary of the Department in which the USCG is operating (DHS) for facilities located in the coastal zone. While response plan exercise requirements are specifically given to the EPA and USCG, EO 12777 does not specifically delegate those responsibilities to PHMSA. However, PHMSA has the authority to conduct unannounced response plan exercises as a policy choice, and may do so whenever necessary. This is reflected in the National Preparedness for Response Exercise Program (PREP) guidelines, which serve as non-regulatory guidelines on how operators can consistently comply with the

¹⁷ *National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Overview*, EPA, <http://www2.epa.gov/emergency-response/national-oil-and-hazardous-substances-pollution-contingency-plan-ncp-overview> (last visited Apr. 19, 2017).

¹⁸ Exec. Order No. 12777, *supra* note 6.

¹⁹ Delegations to the Pipeline and Hazardous Materials Safety Administrator, 49 CFR § 1.97 (2012), http://www.ecfr.gov/cgi-bin/text-idx?SID=80a71a095ef79a3ecd9c267a21a9e661&node=se49.1.1_197&rgn=div8 (last visited Apr. 18, 2017).

²⁰ The program per OPA 90 and § 194.103 distinguishes between pipelines that could cause substantial harm, and pipelines that could cause significant and substantial harm. Plans for pipelines that cause substantial harm are only reviewed, while plans for pipelines that cause significant and substantial harm are both reviewed and approved.

response plan exercise requirements for federal agencies.²¹

Findings Related to Program History and Design

Beginning in 2012, the Office of Pipeline Safety re-designed and improved the response plan review and approval process, allocated additional resources to the review and approval process, and addressed a backlog of response plans.

From 2006 to 2012 resources dedicated to the program were inadequate, there were insufficient procedures to track response plans requiring review, and there was a considerable backlog of submitted response plans awaiting review.

From 1994 to mid-2006, contractors performed PHMSA's response plan review and approval process, as well as indexed and maintained the collection of response plans. After 2006 the contract to conduct response plan reviews was canceled and the review process was conducted by a single Federal employee. The person's review process consisted of a review questionnaire with regulatory and other criteria, which was completed by the operator and submitted with the response plan. The reviewer used expert judgment to decide whether a response plan should be approved, or required corrections. The questionnaire included questions related to both Part 194 regulations and the items listed in Appendix A of Part 194.

After 2008, as response plans were approved by OPS, a chronological log was kept as a Microsoft Word document that noted when response plans were scanned into electronic format and placed in a shared network computer folder. Operators are required to resubmit response plans every 5 years for review and approval, or within 30 days of a significant change as outlined in the regulations in § 194.121. The log did not track when response plans should be submitted, or approximately how many operators should be submitting plans.²² Between 2006 and 2012, a considerable backlog developed as more response plans were coming in than being reviewed and approved. At the time the NTSB investigation of the Marshall, Michigan oil spill was completed in 2012, there were 1.5 full-time equivalents (FTEs) dedicated to the response plan review process: one response plan reviewer, and a director who spent half time on the program. Both were located in the Emergency Support and Security Division (ESSD) within OPS, which was

²¹ Dep't of Homeland Sec., EPA, DOT & Dep't of Interior, National Preparedness for Response Exercise Program (PREP) Guidelines (2016), https://www.bsee.gov/sites/bsee_prod.opengov.ibmcloud.com/files/final_2016_prep_guidelines.pdf (last visited Apr. 18, 2017).

²² The number of operators who must submit plans changes as some pipelines are retired and new pipelines are built. Additionally, the regulations permit flexibility in how operators combine or divide pipeline systems for the purposes of response planning, which also makes the number of response plans an approximate number.

created in late 2010.

Beginning in 2012, the Emergency Support and Security Division carried out a re-design of the response plan review and approval process, created a uniform protocol for conducting the review process and archiving approved response plans, organized and catalogued the collection of response plans, and drafted standard operating procedures.

The ESSD re-designed the response plan review and approval process, and modified the criteria for conducting reviews of response plans. From 2012 to 2013, the response plan review criteria went through a series of iterations. The review criteria use questions that directly tie to the regulations for determining whether or not a response plan should be approved (see Appendix B for the 2013 review criteria assessed in this audit and the corresponding regulatory citations).

In order to keep track of response plans that needed approval, the program created a uniform protocol for conducting the review process. Using a shared internal drive and Sharepoint® software,²³ response plans moving through the approval process were placed in various folders and then moved from folder to folder based on where the response plan was in the review process. A database was created to organize and catalog the response plans. The database also tracked response plans going through the program's processes and document reviews. Response plans were reviewed and approved, then archived and posted onto PHMSA's public website. In 2013, review and approval protocols were documented in draft *Standard Operating Procedures for the Review and Approval of Oil Spill Response Plans*.²⁴

The Emergency Support and Security Division identified which pipeline operators were required to submit a response plan, developed performance metrics for the approval process, and determined the extent of the backlog.

The ESSD determined the number of response plans that were pending review by conducting an inventory of response plans and listing those response plans in a master Microsoft Access database. In 2013, the No Plan Project was initiated to identify pipeline operators who may be subject to Part 194 but had not submitted a response plan. The initiative compared operators who submitted annual reports required by PHMSA regulations in 49 CFR § 195.49 to those operators

²³ Note the Sharepoint system was being adopted during the midst of the audit.

²⁴ Pipeline Safety and Emer. Support and Sec. Div., DOT, DRAFT Standard Operating Procedures for the Review and Approval of Oil Spill Response Plans (2013).

who had submitted response plans. Approximately fifty-five operators were identified in the No Plan Project as not having a response plan. Further assessment found approximately 20 operators were not required to submit response plans because of the submission requirements in § 194.101. The remaining operators either submitted response plans or were contacted by OPS's regional offices for further investigation. A separate initiative correlated hazardous liquid pipelines in the National Pipeline Mapping System to the response plans received to ensure all jurisdictional pipelines had response plans.

In the summer of 2013, PHMSA decided to complete the review of all response plans submitted within six months. Accordingly, ESSD created response plan performance metrics for the review and approval process, and began to collect:

- The overall number of response plans submitted;
- The number of primary and secondary reviews completed; and
- The number of response plans that are either approved or deficient and need corrections before approval.

These metrics were based on information from the master Access database. The establishment of performance metrics along with the identification of response plans that required approval allowed the program to measure the extent of the backlog. In late November 2013, a status report identified 373 response plans, of which 303 still needed to go through the review process based on this new directive.

Additional resources were allocated to the review and approval process.

Additional personnel were hired into ESSD from 2012 onwards. From fall of 2013 to spring of 2014, five FTEs, the Director, two contracted FTEs from Volpe National Transportation Systems Center, and supplemental regional inspector assistance carried out the review process. Training was conducted for response plan reviewers that outlined the requirements of Part 194 and the review and approval process. As of October 2014 there were eight FTEs in ESSD, which include a director, a general engineer, three compliance specialists, a training exercise specialist, an administrative assistant, and two contractor paralegals. In addition to carrying out reviews and approvals, ESSD manages emergency response and security operations, and coordinates continuity plans for OPS. Consequently, some ESSD personnel may only be partially dedicated to the activity of reviewing and approving response plans, while also focusing on other office

activities.

The backlog of response plans needing review was effectively addressed.

As of September 4, 2014, operators were required to file a total of 386 response plans with PHMSA. Out of the 386 required response plans, 343 were reviewed and approved; 35 response plans had been reviewed and required corrections before they could be approved; and eight were still going through the review and approval process.

Findings Related to the Regulatory Requirements for Response Plans, and the 2013 Response Plan Review and Approval Process

The review criteria generally reflect the response plan requirements in Part 194 and the response plan components outlined in the OPA 90 as codified in 33 U.S.C. § 1321(j)(5)(D)(i-vi).

The program re-visited and amended the review criteria and procedures to execute Part 194 regulations.

Review criteria were re-visited and amended by OPS in the summer of 2013 to execute the regulations. The 2013 review criteria were applied in a checklist format, with 39 criteria directly relating to Part 194 regulations. Each criterion had associated program guidance and instructions for the government reviewer. Many review criteria were virtual restatements of the regulations. Note that this audit focused on the review criteria used in the Fall of 2013, and since that time some changes have been made by the program to incorporate lessons learned for reviewing and approving response plans. See the Appendix A for details on the methodology and how the audit was conducted in relation to these changes.

The review criteria generally reflect the response plan components outlined in the OPA 90.

The OPA 90, as codified in 49 U.S.C. § 1321(j)(5)(D)(i-vi), outlines six required components for compliant response plans. A comparison of the program's 39 response plan review criteria found that they generally reflected the six OPA 90 components outlined in § 1321(j)(5)(D)(i-vi). Thus, the review criteria are compliant with the components in § 1321(j)(5)(D)(i-vi). See Appendix B for a table that identifies the relationship of the 2013 review criteria to Part 194 regulations to the

response plan requirements in § 1321(j)(5)(D)(i-vi).

Reviewers almost always applied the instructions in the review criteria for approving response plans.

The audit assessed eleven response plans already approved by the program to confirm whether the questions in the review criteria were adequately applied by the program's reviewer. Almost all the review criteria were adequately applied by the response plan reviewers and confirmed as being addressed in the response plans. Reviewers generally followed the guidance outlined in the review criteria. Opportunities for improvement are discussed below.

PHMSA could improve program performance and effectiveness by updating certain regulations, the review criteria, and the approval process.

The previous section provided a comparison of the review criteria, Part 194 regulations, and the OPA 90 response plan components in § 1321(j)(5)(D)(i-vi). The comparison found the regulations and 2013 review criteria generally reflected the components outlined in the OPA 90 as codified in 33 U.S.C. § 1321(j)(5)(D)(i-vi). While each of the agencies with plan review and approval authority were obligated to promulgate regulations pursuant to the OPA 90, the agencies have some discretion in the development of their own regulations, which dictate how that agency will verify that each plan it reviews contains the required plan components, as listed in § 1321(j)(5)(D)(i-vi). Since Part 194 regulations are the basis of the program's activities and the review criteria execute the enforcement of the regulations, it is important that both are structured in such a way as to maximize program effectiveness. The following section considers how the regulations and the review criteria were used in the response plan review and approval process in order to identify opportunities for continuous improvement in program effectiveness. These issues are presented in two categories:

1. Issues with how the regulations are written; and
2. Issues with the review criteria and the approval process.

Issues with How the Regulations Are Written

Part 194 should specify the appropriate quantity of response resources to provide more certainty in the response review and approval process.

Response plan holders are required in § 194.115(a) to “...identify and ensure, by contract or other approved means, the resources necessary to remove, to the maximum extent practicable, a worst case discharge and to mitigate or prevent a substantial threat of a worst case discharge.” Appendix A to Part 194 explains that USCG’s “Guidelines for Determining and Evaluating Required Response Resources for Facility Response Plans”²⁵ may be used to assist in preparing response plans. However, operators are not required to use the formula in the USCG guidance to quantify the exact amount of response resources necessary to comply with § 194.115(a). Beyond Appendix A to Part 194, which is non-mandatory, there are no clear regulatory requirements on how to calculate the amount of resources necessary to respond to a worst case discharge. This differs from USCG and EPA oil spill response plan regulations, which require the use of formulas based on effective daily recovery rates.²⁶ The lack of specific resource quantity requirements was cited in the NTSB report on the Marshall, Michigan spill, which found that the lack of specificity in the regulations led to Enbridge incorrectly interpreting the amount of response resources required. The NTSB concluded that the lack of specificity contributed to the severity of the oil spill. Part 194 should specify the quantity of response resources required by providing a formula to calculate the required quantity of resources.

The regulatory requirements do not specify what level of resource equipment is required at each time tier.

The regulations in § 194.115(b) require response resources to arrive within times defined by three tiers in § 194.115(b) (see Table 1: Response Resource Time Requirements). The regulatory requirements do not further mention what these tiers actually mean, nor do they describe what tier applies to which situation. According to the NTSB report, the lack of clarity of the tiers in § 194.115(b) led to Enbridge misinterpreting which tier – and therefore which time frame – was required for the dispatched response resources. What the tiers mean and how operators should interpret them is ambiguous based on the regulatory requirements alone.

²⁵ Guidelines for Determining and Evaluating Response Resources for Facility Response Plans, 33 CFR § 154, App. C (2012).

²⁶ *Id.* at sec. 6 (determining the effective daily recovery capacity for the USCG should be based on the type of equipment and that equipment’s ability to collect and separate the oil from the environment on a daily basis). See also Determination and Evaluation of Required Response Resources for Facility Response Plans, 33 CFR § 112, App. E at sec. 6 (2001) (using similar language in describing how to determine the effective daily recovery capacity for the EPA).

Table 1: Response Resource Time Requirements, from Title 49 CFR § 194.115(b)²⁷

	Tier 1	Tier 2	Tier 3
High volume area	6 hours	30 hours	54 hours
All other areas	12 hours	36 hours	60 hours

A 2014 PHMSA Advisory Bulletin²⁸ states that the § 194.115(b) table corresponds with the tiers established by the USCG for a worst-case discharge in the USCG guidance referenced in Appendix A to Part 194. While OPS has provided additional clarity to the regulations through guidance and advisories, the fundamental regulatory requirements in § 194.115(b) are not clear and self-explanatory by themselves.

The regulations do not specify how operators must demonstrate response resources can arrive within the required times.

As mentioned previously, the regulations in § 194.115(b) require response resources to arrive within times defined by three tiers in § 194.115(b). Depending on whether the pipeline is located in a high volume area²⁹ or not, response resources are required to arrive within a 6 or 12 hour time frame. While the times are specific, the regulations do not specify how a plan should demonstrate whether response resources can arrive within the tiers set in § 194.115(b). In contrast, the USCG assumes a response resource land speed of 35 miles per hour unless the operator can demonstrate otherwise.³⁰ As mentioned above, Appendix A to Part 194 explains that the USCG guidance may be used in preparing plans, which includes the assumptions on response equipment speeds. However, adherence to this guidance is not mandatory. Plan quality could be improved if operators were required to confirm their ability to arrive within the time requirements set in § 194.115(b) to mitigate a worst case discharge oil spill. This lack of specificity manifests itself in the review criteria, which are discussed in the next section on the

²⁷ Response Resources, 49 CFR § 194.115 (2015), http://www.ecfr.gov/cgi-bin/text-idx?SID=5cb41c20651c0e4785ef1b6ed7bc27d1&node=pt49.3.194&rgn=div5#se49.3.194_1115 (last visited Apr. 18, 2017).

²⁸ Pipeline & Hazardous Materials Safety Admin., DOT, Improvements in Preparing Oil Spill Facility Response Plans Advisory Bulletin, 79 Fed. Reg. 4532 (Jan. 28, 2014), <http://www.regulations.gov#!documentDetail;D=PHMSA-2013-0226-0001> (last visited Apr. 18, 2017).

²⁹ A high volume area is an area which an oil pipeline having a nominal outside diameter of 20 inches (508 millimeters) or more crosses a major river or other navigable waters, which, because of the velocity of the river flow and vessel traffic on the river, would require a more rapid response in case of a worst case discharge or substantial threat of such a discharge.

³⁰ Guidelines for Determining, *supra* note 25, at sec. 2.6.

review criteria and the approval process.

The regulatory requirements for determining spill detection and shutdown time have no established minimum threshold.

In order to plan for a major release of oil, § 194.105 requires that operators calculate a worst case discharge amount. As part of that calculation, § 194.105(b)(1) requires that each operator provide “the maximum release time in hours, plus the maximum shutdown response time in hours (based on historic discharge data or in the absence of such historic data, the operator’s best estimate).” Operators that have not had large releases have no historic data. Thus, those operators must provide a “best estimate” to identify their system’s maximum shutdown time because Part 194 does not establish a minimum “maximum shutdown time” allowed for in calculating the worst case discharge. Without an established minimum “maximum shutdown time,” operators could underestimate the amount of time it would take to shut down their system. In contrast, other OPA 90 agencies have a specific minimum shutdown time; the minimum shutdown time threshold set by BSEE for an offshore oil rig in 30 CFR § 254.26(d)(1)³¹ is 30 days.

Of the response plans audited, six out of the eleven assumed it would take less than 20 minutes to identify a pipeline spill and shut down that section of pipe. The Enbridge Plan, one of the response plans audited, states the spill detection and shutdown time is 13 minutes for the entire Line 6B segment of pipeline. Yet the NTSB found that it took more than 17 hours to identify the release and shut down Line 6B during the 2010 Marshall, Michigan pipeline oil spill despite the fact that control room instrumentation indicated a leak almost immediately. The pipeline release and subsequent alarms consistent with a ruptured pipeline were ignored by Enbridge employees due to the failure of Enbridge’s pipeline control center staff to recognize abnormal conditions related to a pipeline rupture.³² Worst case discharges are low probability, high consequence events that rarely occur, making them distinctive and incomparable to other less catastrophic historical incidents. This makes historical data on spill detection and shutdown less useful in determining worst case discharges.

While operators often have sophisticated equipment and methods to detect a release, the Marshall Michigan spill demonstrates that pipeline operators still can have difficulties in detecting a spill, even very large releases. Potential underestimations of leak detection and shutdown times diminish the effectiveness of operator response plans because they assume the

³¹ Mineral Resources, 30 CFR § 254.26(d)(1) (2013).

³² Nat’l Transp. Safety Bd., *supra* note 1, at. xiii..

volume – and thereby the resources needed to respond to that volume – is less than it actually might be in a worst case discharge. The difference between the Enbridge response plan’s maximum detection and shutdown time and actual shutdown time for the Marshall, Michigan spill highlights the need for a re-examination of whether PHMSA should consider establishing a minimum leak detection and shutdown time, or institute some other regulatory measure to ensure reasonable shut down times for the calculation of worst case discharge amount.

The regulations should be more specific with respect to the identification of environmentally and economically sensitive areas listed in Area Contingency Plans.

Section 194.107(b) requires oil spill response plans to be consistent with the National Contingency Plan (NCP)³³ and applicable Area Contingency Plans (ACPs). The ACPs specify and list areas that are designated as environmentally and economically sensitive areas, which can include areas such as parks, wildlife habitats, and drinking water intakes. EPA maintains the NCP, and EPA and USCG jointly maintain Regional Contingency Plans (RCPs) and ACPs. While PHMSA is required to ensure response plans are consistent with the NCP and applicable ACPs, it does not have statutory responsibility over maintaining and revising these plans.

The regulations state in § 194.107(b)(2) that “[a]s a minimum, to be consistent with applicable ACPs the response plan must... identify environmentally and economically sensitive areas (ESAs).” The regulations do not specify the level of detail required to identify ESAs in order to meet the regulatory requirements. The definitions section in § 194.5 also does not provide further specificity beyond defining an environmentally sensitive area as an area of environmental importance which is in or adjacent to navigable waters. Economically sensitive areas are not defined at all in Part 194. While response plans must identify ESAs contained in ACPs, the regulations are unclear as to the extent to which that detail must be captured within a response plan or if a reference to the page numbers of the relevant ACP’s ESA maps is sufficient. In contrast, the definitions section in the EPA regulations in 40 CFR § 112.2 lists specific types of ESAs under *Fish and Wildlife and Sensitive Areas* that must be included in a response plan. The Part 194 regulations could have further specificity to ensure a plan contains an adequate level of ACP and response information related to ESAs.

³³ *National Oil and Hazardous Substances*, *supra* note 17.

Adverse weather conditions could be further defined to account for additional types of weather pipeline worst case discharge responses may encounter.

Adverse weather conditions can contribute to the severity of oil spills by hindering response efforts or quickening the dispersal of oil. In order to reflect the role weather plays, the definition of a worst case discharge as defined in § 194.5 is “the largest foreseeable discharge of oil, including a discharge from fire or explosion, in adverse weather conditions.” Adverse weather is defined in § 194.5 as “the weather conditions that the operator will consider when identifying response systems and equipment to be deployed.... Factors to consider include ice conditions, temperature ranges, weather-related visibility, wave height... and currents...”

The regulatory definition of adverse weather in Part 194 does not capture all relevant weather-related conditions. Heavy rain and flooding were contributing factors that worsened the environmental damages of past releases in the Marshall, Michigan oil spill and the 2011 Yellowstone River release in Montana, but are not included as part of the adverse weather conditions that should be considered.³⁴ The regulations in § 194.5 could improve response preparations for weather by including additional weather conditions to consider such as flooding and heavy rain.

Issues with the 2013 Review Criteria and Approval Process

The review criteria could be improved by further confirming the ability of response resources to arrive to an oil spill within the regulatory time requirements, and verifying the locations of response resources.

As mentioned in the previous section, the regulations do not specify how operators must demonstrate response resources can arrive within the required times. The lack of clarity affects the program’s review criteria related to that regulatory requirement. To determine whether response resources can arrive within the time tiers set in § 194.115(b) the program developed review criteria based on a system used by the USCG. One of the review criteria is “Does the

³⁴ Nat’l Transp. Safety Bd., *supra* note 1, at 108 (“...NTSB concludes that had Enbridge implemented effective oil containment measures for fast-moving waters, the amount of oil that reached Talmadge Creek and the Kalamazoo River could have been reduced”).

Pipeline Safety: Potential for Damage to Pipeline Facilities Advisory Bulletin Notice, 80 Fed. Reg. 19,114, (Apr. 9, 2015), <https://www.federalregister.gov/articles/2015/04/09/2015-08148/pipeline-safety-potential-for-damage-to-pipeline-facilities-caused-by-flooding-river-scour-and-river> (last visited Apr. 18, 2017) (communicating the potential for damages to pipeline facilities caused by severe flooding in an April 2015 Advisory Bulletin published in the Federal Register).

operator identify the response resources that are available to respond to an incident scene, within the WCD1 (6/12 hour) time?” In order to verify whether operators have adequately addressed this criterion, the program instructional guidance directed the reviewer to confirm whether the third party response resources typically contracted by the operator, known as oil spill response organizations (OSROs), are classified and listed in the USCG’s Resource Response Inventory (RRI).³⁵ Of the OSROs that are listed in the RRI, only OSROs able to respond to an RRI “facility worst case discharge tier 1” in the USCG regional sector(s) where the pipeline is located were sufficient for satisfying the review criterion. If the OSRO was listed under the applicable region(s) as having that level of response capability, the review criterion had sufficiently determined that the response resources will be able to arrive within the time requirements in § 194.115(b). The program encouraged operators to use USCG-classified OSROs in a January 2014 Advisory Bulletin as part of their effort to ensure operators identify sufficient response resources.³⁶

At the time of the audit in 2013, the review criterion and instructional guidance did not require that reviewers verify whether the response resources are able to arrive to any point on the pipeline within the tier time requirements in § 194.115(b), and where response resources were located.³⁷ The arrival time was assumed to be acceptable by confirming that an OSRO is able to respond to a facility worst case discharge tier 1 according to the USCG RRI. This leads to questions as to whether the Response Resource Inventory standard appropriately ensured all locations near a pipeline, even in remote areas far from coastal zone navigable waters under the Coast Guard’s jurisdiction, could be reached within the required time frames.

At the time of the audit, EPA and USCG had begun addressing this issue through an “alternative classification – cities” designation for inland areas, but coverage gaps remained in the U.S. interior. Since USCG focuses on ports and navigable waters in the coastal zone, their standards may not provide sufficient coverage for pipeline in areas far from a port or major navigable waterway. In 2013, the review criteria did not require independent verification of response resource locations because it relied solely on USCG RRI to confirm that response resources could arrive within the times specified in § 194.115(b). This may have hindered plan reviewers from verifying adequate operator preparation for a worst case discharge any place on a pipeline.

The ESSD program officials stated that they reviewed response times and used available

³⁷ See Appendix B - Response Plan Review and Approval Criteria.

information such as the Pipeline Data Mart (PDM, OPS's data system), and information in the response plan to determine whether response resources were available within the specified time. However, in 2013, these steps were not included in the review criteria or the standard operating procedures, and no documentation of additional steps was found in the audit of the sampled response plans. The review criterion to confirm whether response resources were adequate is the result of unclear regulatory requirements that does not specify how operators shall confirm response resources can arrive within the tiers set in § 194.115(b). Consequently, the program used USCG RRI standards to clarify how operators can demonstrate their ability to arrive within the required times, but the RRI standards were developed to ensure coverage to port areas or major navigable waterways.

The review criteria for verifying ACP consistency could be improved by more comprehensively ensuring that operators have identified all environmentally and economically sensitive areas listed in ACPs.

As mentioned previously, the regulations lack specificity for the level of detail required for identifying environmentally and economically sensitive areas listed in Area Contingency Plans. The lack of specificity in the regulations manifests into issues with the review criteria. In 2013, one review criterion question related to ACPs stated: "Does the Plan certify that the operator has reviewed each applicable ACP and that the Plan is consistent with each applicable ACP?" The threshold for the acceptable identification of environmentally and economically sensitive areas (ESAs) in the review criteria was to verify that the response plan mentions the applicable ACPs and certify the response plan is consistent with each applicable ACP. Additionally, there are certain aspects that were checked in the review criteria to ensure consistency such as in-situ burning, which is controlled burning of spilled oil.

In 2013, the review criteria did not specifically explain how reviewers should affirm that plans have identified specific areas of environmental or economic sensitivity beyond confirming response plans identified applicable ACPs. The review criteria also did not specifically require reviewers to confirm ACP consistency by checking whether the response plan included the ESA information identified in applicable ACPs. The sample of response plans audited found that operators provided various levels of information on ESAs, with some response plans missing information important to include when identifying ESAs. Three examples highlight how the review criteria did not direct reviewers to obtain sufficient information to verify ACP consistency:

- A shorter pipeline next to a large river provided a generic map in the response plan but failed to label the river as being the “North Platte River,” and did not specifically identify a water intake or a state park listed as environmentally sensitive areas in the Regional Contingency Plan even though they were downstream and within close proximity to the pipeline.
- A regional network of pipelines compiled into one response plan did not contain ESA information for 12 different pipelines within the response plan, and incorporated the mapping by reference into the response plan. A copy of the incorporated by reference ESA information was not provided for the review and approval process.
- A multi-state pipeline response plan with four different response zones contained an extensive section called “Environmental Sensitive Area Information” that identified and counted 14 ESA categories, but only one of the four response zones received this level of detail. The other three zones did not receive a similar level of identification and only had a very limited amount of ESA information.

The above examples and the lack of specificity in the 2013 review criteria raised questions as to whether the threshold of verifying ACP consistency in the review criteria was sufficiently specific to ensure operators have identified all environmentally and economically sensitive areas listed in ACPs. All three examples above listed applicable ACPs and certified NCP/ACP consistency, and thus met the review criteria, but this is because the threshold in the review criteria provided limited verification that ESAs have been identified in the response plan. These examples illustrate how the review criteria may not have provided enough specificity as to what level of detail is required to sufficiently identify environmentally and economically sensitive areas. The limited verification that response plans were consistent with applicable ACPs may have reduced the program’s ability to ensure that operators mitigate the harmful effects of a worst case discharge in sensitive areas.

The review criteria lacked a criterion to identify whether a pipeline is in a high volume area.

The definition of a high volume area as defined in § 194.5 is a pipeline with a diameter greater than 20 inches that crosses a major river or other navigable water, which, because of the velocity of the river flow and vessel traffic on the river, would require a more rapid response. The identification of a high volume area is necessary in order to determine the time requirements in which response resources must arrive to an oil discharge. The table in § 194.115(b) has two different response time requirements, one for “high volume areas” and another for “all other areas.” For each area where a 20-inch diameter pipeline crosses a major river or other navigable water that fits the high volume area definition in § 194.5, the regulations require a quicker

response. The program’s 2013 review and approval criteria did not instruct the reviewer to identify or verify whether the plan identifies points or segments along a pipeline that cross a waterway that meets the definition of a high volume area (or high volume areas). PHMSA could improve the 2013 review criteria by ensuring proper identification of high volume areas and adequate operator preparations and response resource arrival times.

In 2013, some response plans were approved without worst case discharge calculations and figures for a pipeline release or a breakout tank release.

One of the fundamental components of ensuring adequate preparation for a worst case discharge is properly estimating the worst case discharge. This estimate serves as a basis for ensuring sufficient resources are available and the proper response strategies have been planned. Section § 194.105 states that “each operator shall determine the worst case discharge for each of its response zones and provide the methodology, including calculations, used to arrive at the volume.” The regulations state that the worst case discharge is the largest volume of the following:

- A pipeline release;
- A breakout tank release;³⁸ or
- The maximum historic discharge.

While the corresponding review criteria correctly instructed the reviewer to review the presence, methodology, and calculations of all the worst case discharge types, the audit found three examples of plans from 2013 that exhibited problems with worst case discharge calculations. The audit examined approved response plans to assess whether reviewers correctly applied the review criteria for worst case discharge calculations, and found reviewers in some instances deviated from the review criteria instructions on how to assess whether sufficient information was provided. Three of the eleven approved response plans did not contain a calculation required by the criterion, including:

- Two response plans mentioned that the breakout tank discharges were reviewed, but no worst case discharge figure or calculations for the breakout tanks were provided; and

³⁸ Worst Case Discharge, 49 CFR § 194.105 (2010), http://www.ecfr.gov/cgi-bin/text-idx?SID=9d6fe93830dcdead5a48e87b942b77c6&mc=true&node=pt49.3.194&rgn=div5#se49.3.194_1105 (last visited Apr. 18, 2017) (stating that a breakout tank is a tank used to either relieve surges in an oil pipeline system or receive and store oil transported by pipeline for reinjection and continued transportation by pipeline).

- Another response plan was approved without a pipeline release worst case discharge figure. Program officials stated that the response plan was approved because an associated breakout tank's worst case discharge was much greater than the assumed worst case discharge from the pipeline release.

Four of the eleven response plans did not contain information on the historic discharge but had the phrase “the maximum historic discharge is not applicable for WCD [worst case discharge] covered by this plan.” Program officials stated that this phrase, along with confirming the lack of a spill through OPS's historical data on releases, was sufficient information on the historical discharge.

These instances from 2013 highlight where the program did not follow its review criteria, and approved response plans with missing worst case discharge calculation information. Program officials stated in 2013 that § 194.105 had been interpreted to mean that an operator does not need to provide all calculations to be approved, only the calculations for the largest discharge.³⁹ This was in contrast to the review criteria instructions. Without all three figures, it may be difficult to clearly affirm what the largest worst case discharge actually is in some response plans. The practice of approving response plans without verifying all three calculations diminishes the ability of the review process to clearly confirm the largest of the three component worst case discharge calculations.

To increase program effectiveness, PHMSA should update the regulations, the review criteria, and the approval process to further improve plan quality and enforceability.

While the review criteria for the approval of response plans generally reflected the regulations and OPA 90 responsibilities, both the regulations and the review criteria could be improved. The previous paragraphs identified issues with the regulations, and with the 2013 review criteria and approval process. The purpose of a response plan is to reduce the environmental impact of oil discharge from onshore oil pipelines, and resolution of the issues identified could improve the program's effectiveness in ensuring preparedness to mitigate a worst case discharge.

Regulatory requirements could be updated to provide improved clarity and specificity. The regulations do not specify the quantity of response resources required, are based on time tiers,

³⁹ Program officials noted that in many instances a worst case discharge from a large breakout tank is consistently 4 to 10 times larger than any pipeline worst case discharge calculation.

and do not specify how operators must demonstrate response resources can arrive within those time tiers. For the calculation of worst case discharge amount, there is no minimum threshold for accounting for the time it takes for an operator to detect a leak and then shut down time the pipeline so that oil stops flowing. The regulations lack specificity for the level of detail required for identifying environmentally and economically sensitive areas listed in Area Contingency Plans, and do not specify requirements to identify response strategies described in ACPs to protect those areas. Additional weather conditions could be included in what response plans should consider.

There were also issues with the 2013 review criteria and approval process that could be revised to increase program effectiveness. The review criteria could be improved by further confirming the ability of response resources to arrive to an oil spill within the regulatory time requirements, and verifying the locations of response resources. Verifying ACP consistency by more comprehensively ensuring that operators have identified all environmentally and economically sensitive areas listed in ACPs could also improve the review criteria. There was no review criterion to identify points along a pipeline that cross a waterway that meet the definition of a high volume area.

The findings and suggestions about the regulations, review criteria, and approval process are intended to ensure further improved response preparedness, response resource identification, and environmental protection. The auditors believe the review criteria and approval process issues could be partially remedied without promulgating new regulations. Addressing issues with the regulations identified by this audit may require a rulemaking effort to amend Part 194. Table 2 presents a summary of the issues in the regulations and the review criteria highlighted in the preceding paragraphs.

**Table 2: Summary of Suggested Revisions to the Regulations and Response Plan Review
Criteria to Improve Program Effectiveness**

Issue areas and opportunities for improvement (and associated regulatory citation).	Could the response plan regulations be improved through a rulemaking?	To what extent could the review criteria be revised to resolve the issues found? Can the program revise the response plan review criteria with the current regulations?
No specific resource quantity required in § 194.115(a).	Yes.	Partially resolvable through revisions. The operator per §194.115 shall ensure the resources necessary to remove a worst case discharge. While the regulations do not have a regulatory requirement for specific quantity amounts plan holders should demonstrate evidence that supports their claim that they have ensured sufficient resources. The program ensures adequate resources are available by using the USCG RRI criteria.
There is no established regulatory minimum for spill detection and shutdown times when calculating a worst case discharge in § 194.105(b)(1).	Yes.	Partially resolvable through revisions. While established minimum time requirements would require regulatory changes operators should demonstrate evidence that supports their claim is valid and reasonable.
The regulations could consider additional adverse weather conditions responses may encounter.	Yes.	No, regulatory changes would be required to add specificity to what to consider for adverse weather conditions.
The regulations do not specify how operators must confirm response resources can arrive within the tiers set in § 194.115(b). The review criteria did not verify whether response resources are able to arrive within the time requirements in § 194.115(b), and where response resources are located.	Yes.	Partially resolvable through revisions. The regulations have required response times. The program could require operators to demonstrate response resources can arrive within the time requirements.

The regulations do not specify the level of detail required for identifying ESAs in § 194.107(b)(2). The review criteria for verifying area contingency plan consistency did not comprehensively ensure operators have identified ESAs.	Yes.	Partially resolvable through criteria revisions. More could be done to ensure ACP consistency using the regulations, particularly by further confirming that response plans adequately identify ESAs listed in ACPs.
There are no review criteria to identify whether a pipeline, or part of a pipeline, is in a high volume area, which determines the response times required in § 194.115(b).	No.	Resolvable through criteria revisions.

Findings Related to the Resource Allocation for the Review and Approval of Response Plans

Based on the delegated Oil Pollution Act of 1990 responsibilities to PHMSA and the allocation of resources, sufficient resources appear to have been allocated within OPS to carry out the response plan review and approval process.

Pursuant to OPA 90 and a series of delegations, PHMSA is responsible for the review and approval of response plans for onshore pipelines. Within PHMSA, OPS conducts the review and approval of response plans for onshore pipelines.

Limited information was found on the resources allocated to the review and approval process.

The OPS receives a portion of its budget from the Oil Spill Liability Trust Fund (OSLTF),⁴⁰ which funds efforts designed to minimize oil spills into water and ESAs. Part of the funds from the OSLTF goes towards the review and approval process. However, program officials provided limited information on the financial expenditures specifically associated with the response plan review and approval process, and no evidence of a comprehensive financial breakout of the review and approval expenses was made available nor found during the course of the audit.

Program officials did provide a financial document outlining an August, 2013 temporary contract with the Volpe National Transportation Systems Center, an in-house DOT agency funded by

⁴⁰ The Oil Spill Liability Trust Fund (OSLTF), U.S. COAST GUARD, http://www.uscg.mil/npfc/About_NPFC/osltf.asp (last visited May 10, 2015).

sponsor projects, for \$282,290. The purpose of the contract was to carry out the review and approval process after PHMSA decided to complete a review of all response plans submitted within six months in the summer of 2013. The Volpe contract ended after the backlog was mostly addressed. Additionally, PHMSA budget estimates provide some information related to the OPA 90. A review of PHMSA's FY 2012 to FY 2014 Budget Estimates to Congress⁴¹ contain a line item under programs that shows around \$1 million was spent on "implementing OPA 90" during those fiscal years. This could possibly be related to the review and approval process, but it was unclear if the \$1 million figure is associated with the activities of the review and approval process or not.

Beyond specific financial information on the review and approval process, other information provides some context as to the resources expended. There were eight FTEs in ESSD as of October 2014. During the time period this audit was conducted, the program staff were expected to complete three response plan reviews a week, which was determined through an ESSD analysis of response plan reviews conducted by staff. In addition to the 386 response plans that need to be submitted and approved every five years, an undetermined number of operators resubmit their response plans for re-approval per the requirements in § 194.121(b) due to a major change in the response plan. Since the program was not at a steady state during the audit, and there was uncertainty as to the number of response plan re-submissions due to § 194.121(b), this audit was unable to definitively determine what future resources would be required based on this information.

The FTE allocation to the Emergency Support and Security Division appears comparable to review and approval programs in other Federal agencies.

The number of personnel versus response plans at ESSD can be compared to response plan review programs at EPA, USCG, and BSEE, who are responsible for carrying out similar processes as part of their delegated responsibilities. Considering similar review and approval resources at other OPA 90 agencies using data from a 2010 draft report (see Table 3),⁴² the allocation of FTEs to the number of response plans requiring review and approval appears

⁴¹ Pipeline & Hazardous Materials Safety Admin., DOT, U.S. Department of Transportation Budget Estimates Fiscal Years 2012 to 2014, <https://www.transportation.gov/mission/budget/dot-budget-and-performance-documents> (follow "DOT FY Budget Estimates" hyperlink for the given year; then follow "Pipeline & Hazardous Materials Safety Administration (PHMSA)" hyperlink) (last visited May 10, 2015).

⁴² VOLPE Nat'l Transp. Sys. Ctr., DOT, Attachment 48- Draft VOLPE Center Report on Office of Pipeline Safety Business Process Review, (2010), <https://dms.nts.gov/public/49500-49999/49814/484943.pdf> (last visited Apr. 18, 2017).

generally comparable to other agencies carrying out response plan reviews. However, due to distinctive agency response plan requirements and work processes, differing levels of response plan complexity, and multiple responsibilities beyond the review and approval process for response plan staff, the exact extent to which these are comparable could not be determined by this audit.

Table 3 Response Plan Review Resources Allocated at Other Government Agencies, 2010⁴³

Approving Agency	Number of Response Plans	Number of Staff Involved	Max Interval Between Response Plan Submissions
PHMSA – OPS 2014	386	8	5 years
EPA Region 5 (Great Lakes)	500	33-38 On-Scene Coordinators*	5 years
EPA Region 6 (South Central)	1700	5 plus 22 On-Scene Coordinators*	5 years
USCG Vessel Response Program	3000	18	5 years
USCG Sector Boston	45	3	5 years
BSEE (formerly a part of BOEMRE)	190	5	2 years

Sufficient resources appear to have been allocated to carry out the response plan review and approval process.

Based on the delegated responsibilities, the comparable number of FTEs in the ESSD to other OPA 90 agencies for the review process, and the successful response to the backlog, OPS appears to have allocated sufficient resources to carry out the response plan review and approval process. Resource requirements in the future will depend on subsequent OPS activities. For activities that go beyond the review and approval of response plans, OPS will need to weigh the costs and benefits of incorporating complementary programmatic activities with the required OPA 90 responsibilities.

⁴³ On-Scene Coordinators normally have a number of duties beyond reviewing response plans, which include directing response efforts and coordinating all other efforts at the scene of a discharge or release.

Findings Related to Response Plan Exercises

The review and approval of response plans is a requirement delegated to PHMSA, and the preceding findings focused on the effectiveness of the systems in place to carry out that particular responsibility. This audit found that while there are opportunities for improving the regulations, review criteria, and the approval process, OPS is executing the responsibilities delegated from OPA 90.

This section examines programmatic choices that could be made to increase the effectiveness of the program in relation to response plan exercises. It should be noted that while OPS has no discretion as to whether it approves response plans meeting the statutory and regulatory requirements, it does exercise discretion over the implementation of its other programmatic activities. As stated earlier, PHMSA is not required to carry out response plan exercises. At the same time, programmatic modifications in how the program uses response plan exercises could improve the program's ability to efficiently and effectively meet the desired ultimate outcome of the program described in § 194.1: "...reduce the environmental impact of oil discharged from onshore oil pipelines." This section describes how programmatic changes could improve program effectiveness.

The limited use of response plan exercises may be reducing the program's ability to assess response plan operability. To supplement the review and approval process, the use of response plan exercises can further validate response plan operability.

The response plan review and approval process verifies compliance but does not fully assess whether the plan can be successfully executed. The use of response plan exercises can assess response plan operability.

Analogous to a fire drill for pipeline operators, response plan exercises test whether the planned response can mitigate a large unintentional release of oil. There are a variety of response plan exercises that can be conducted, and response plan exercises can range from relatively simple checks of selected response plan components to large scale response plan exercises involving operators, response organizations, and government stakeholders.

The response plan review and approval process focuses on compliance, and response plans are approved based on whether the response plans meet the regulatory requirements. The review

process does not measure response plan operability beyond whether it meets the minimum regulatory requirements. While this verifies compliance, it does not comprehensively confirm that the response plan works in practice and the operator can effectively mitigate a worst case discharge. In addition to having a well thought out written response plan in place, the effectiveness of a response plan is based on whether it is executable, meaning that the resources in the plan are actually available and can arrive on-scene quickly, that staff are adequately trained and prepared to swiftly take the planned actions, and that the planned actions will be effective in mitigating an oil spill. Consequently, the response plan review and approval process alone cannot adequately assess whether response plans are workable and will be effective in practice.

In order to assess the operability of a response plan, it must be tested so that an operator can identify what worked well, and what deficiencies are evident. The most conclusive validation of a response plan is when it is effectively executed during an actual large oil spill such as a worst case discharge. However, testing whether a plan works in practice by waiting for an undesirable event such as a worst case discharge to occur is short-sighted. If a response plan cannot be executed when it is actually needed, the insufficient response could lead to significantly worse environmental outcomes.

OPS has participated in operator-invited response plan exercises, but there were no operating procedures, formal inspector training on assessing operator-led response plan exercises, or agency-wide strategy for PHMSA's role in response exercises. These shortcomings limit the program's ability to assess operability.

49 CFR § 194.107(c)(1)(ix) requires operators to conduct regular response plan exercises by either following the National Preparedness for Response Exercise Program (PREP) Guidelines,⁴⁴ or an equivalent program, in order to comply with the regulatory requirement. PREP guidelines for pipeline operators require response plan exercises be conducted by the response plan owners. In recent years, OPS had participated by invitation in some operator-led response plan exercises. OPS program officials stated that some operators notified OPS and ESSD when they are conducting an upcoming response plan exercise. When possible, regional pipeline inspectors attended those exercises. In 2013, pipeline inspectors spent 123 workdays traveling to and attending approximately 40 response plan exercises that operators invited PHMSA to observe.

⁴⁴ Dep't of Homeland Sec., EPA, DOT & Dep't of Interior, *supra* at note 21.

While OPS had been observing some operator-led response plan exercises, there were no standard operating procedures in place to assess the effectiveness of the response plan through PREP exercises. The inspectors attending operator-led response plan exercises were also not formally trained in how to effectively assess operator-led response plan exercises or how to affirm operator adherence to their approved response plan or to the PREP guidelines. Assessing response plan exercises requires a certain set of competencies such as knowledge of response strategies, and pipeline inspectors may not have the response background required to critically examine how well a response plan is operating in practice. The lack of standard operating procedures on how to examine response plan operability and the lack of inspector training on how to assess response plan exercises could be limiting OPS's ability to validate response plan operability in practice, provide operators with recommendations to improve their response plans, and oversee PREP compliance. This reduces the ability of the program to effectively ensure response plan operability.

There was no apparent strategy at an agency-wide level to prioritize certain operator-led response plan exercises over others beyond whether the program was invited to attend by the operator. There could be ways in which the program could prioritize response plan exercise attendance and balance OPS's safety activities with response plan activities. For example, pipelines located in particularly sensitive environmental areas such as major river crossings, operators with poor accident or release histories, or the quality of the response plans are potential risk factors that could make attending a response plan exercise beneficial. Based on the information provided by the program, this did not appear to be happening. Out of the 40 response plan exercises attended in 2013, two thirds came from only one of the five regional offices. One regional office attended one response plan exercise, and one regional office did not attend any response plan exercises. While this may be due to the fact that the high-risk operators are located in the one region, it is possible that one region prioritized operator-led response plan exercise participation more than other regions. The lack of a strategy to prioritize response plan exercise attendance could be limiting OPS's ability to target high-risk pipelines and validate response plan operability.

The lack of feedback from response plan exercises may be limiting the program's ability to assess response plan effectiveness.

As part of the PREP guidelines, operators are required to describe lessons learned after each response plan exercise conducted. The lessons learned are a source of information about any shortcomings or challenges in a response plan's execution and can highlight how to improve its

effectiveness. No evidence was found that OPS systematically collected PREP after action reports from operator response plan exercises. Additionally, the program was not aggregating the information from lessons learned to develop best practices or identify common deficiencies. The lessons learned in these reports could provide insights into the features of an effective response plan, but operator reports produced after a response plan exercise were not used by OPS to validate response plan effectiveness, aggregate lessons learned, or disseminate best practices to operators. These efforts could be done by the program itself, or in close collaboration with relevant government and emergency response partners, or industry associations. The lack of feedback from response plan exercises could be limiting the program's ability to validate and improve response plan operability.

The OPS had limited involvement in government-led exercises.

Beyond operator-led response plan exercises required by PREP, another option to validate response plan effectiveness is through government-led response plan exercises. In the past, PHMSA sponsored some response plan exercises; however, PHMSA had not initiated a government-led response plan exercise since 2006 after OPS discontinued a contract to carry out response plan exercises. This is in contrast to other Federal agencies with EO 12777 responsibilities that do carry out government-initiated response plan exercises on oil facilities under their agency jurisdictions, and incorporate exercises into the review and approval of response plans. For example, some regional EPA offices make response plan approval contingent on satisfactorily responding to a government-led response plan exercise.

The EPA and USCG are also a government source that could conduct response plan exercises for PHMSA-approved pipeline response plans. In 2013, an ESSD employee attended two USCG-sponsored response plan exercises at complex facilities that contained pipelines, and received after action reports detailing the exercise and the lessons learned. Since both agencies provide the primary Federal oversight of oil spill response and have response strategy expertise, this could be a potentially useful method in which to validate pipeline operator's response plan effectiveness. It could also serve as an oversight mechanism to ensure insufficient response planning and execution are corrected by the operator. For example, USCG and EPA both use government-initiated exercises to assess the operability of a response plan.

It should be noted that response plan exercises sponsored by a government agency would require additional government resources, and if used to validate response plan operability the program would need to identify the circumstances in which a government-led response plan exercise

should be conducted. One alternative to maximize the efficiency of limited resources would be to prioritize operators so that government involvement in assessing response plan execution is with potentially high risk pipelines.

Summary of findings related to response plan exercises.

The response plan review and approval process generally verifies compliance but does not fully assess whether the response plan can be successfully executed. The use of response plan exercises can serve as a mechanism to provide oversight and assess plan operability. While OPS had participated in some operator led response plan exercises, there was limited evidence that the program systematically validates response plan operability through response plan exercises. More could be done by the program to ensure attending operator-led response plan exercises provide useful information to improve response plan effectiveness, including: training inspectors on response plan exercise assessment; use information from response plan exercise lessons learned; and prioritize response plan exercise attendance based on risk factors. Additionally, employing government-led response plan exercises to validate response plan operability may be beneficial in certain circumstances. These actions could require additional resources, and PHMSA will need to weigh its programmatic options to determine the most effective way to carry out its responsibilities. While the use of response plan exercises by the program is a programmatic choice versus an OPA 90 delegated responsibility, PHMSA could provide further information to operators about the practical effectiveness of response plans if it increased its involvement in response plan exercises collected and provided feedback on drills to operators.

Observations on OPS's Implementation of Part 194 Activities

The review and approval process is one part of a set of regulatory activities that verify and enforce compliance with Part 194. More broadly than the specific activity of approving response plans, the implementation of Part 194 involves other program activities within OPS such as inspections and enforcement. Each activity plays a different role, and in an effective regulatory program the various activities complement and reinforce each other. This section examines programmatic choices that could be made to increase the effectiveness of the program implementation, and enforcement of, Part 194. This section suggests opportunities to use OPS discretionary authority for continuous improvement.

OPS oversight and enforcement could be improved by formally training inspectors on Part 194, developing formal procedures for inspectors to verify response plan compliance in the review and approval process, and incorporating response plan compliance into OPS's IT systems for processing enforcement cases.

Pipeline inspectors verify operator compliance with the regulations, but were not formally trained on Part 194.

The response plan review and approval process confirms operator compliance. Beyond the review and approval process that verifies response plans are compliant with the regulations, requirements in Part 194 such as response plan location and retention (§ 194.111), training records and location (§ 194.117), and adherence to the operator-led response plan drill regime described in the National Preparedness for Response Exercise Program (PREP) guidelines (§ 194.107(ix)) require additional verification. This role is carried out by pipeline inspectors from regional offices. Data from the OPS information technology (IT) software system Inspector Assistant (IA) for 2013 show that pipeline inspectors documented 37 instances where they observed operator-led response plan drills to confirm PREP operator compliance, or conducted inspections related to Part 194; however, inspectors were not formally trained on Part 194 compliance through OPS's training program, which is administered through OPS's Division of Training and Qualifications. If pipeline inspectors are not trained in Part 194 it may reduce the ability of inspectors to identify and rectify issues related to Part 194 compliance. Formal training on Part 194 could improve the program's ability to verify compliance, and could increase program oversight and enforcement effectiveness.

While response plan reviewers consulted informally with regional inspectors about response plans when necessary, there were no formal procedures in place for pipeline inspectors to verify compliance in the review and approval process.

The skills for reviewing response plans are different than the skills required by a pipeline inspector. Pipeline inspectors typically have engineering rather than emergency response backgrounds. Interviews with response plan reviewers found that they periodically consulted with regional pipeline inspectors when there were questions about the underlying assumptions and information provided; for example, whether a worst case discharge calculation was realistic or not. While there was informal interaction between response plan reviewers and pipeline inspectors, there was no formalized mechanism to receive input from pipeline inspectors to

confirm operator compliance with the regulations. Pipeline inspections have unique expertise related to the operations and maintenance of pipelines, and could validate response plan information such as pipeline and breakout tank worst case discharge calculations, and leak detection and shutdown times. The lack of formal mechanisms in place to share information and receive additional confirmation the response plan is compliant with regulations may be reducing the review and approval process's ability to verify the information provided by operators is reasonable, and affirm response plan information makes sense from a pipeline inspector's perspective. Formalizing connections between response plan reviewers and pipeline inspectors could improve the effectiveness of the response plan review and approval process.

The OPS has an IT system in place to process enforcement cases to carry out legal action for operator non-compliance, but the system was not set up to process 49 CFR Part 194 non-compliance cases.

The response plan review and approval process verifies regulatory compliance, and if an operator is unable to have its response plan approved, the issue would be turned into an enforcement case of non-compliance against the operator required to submit the response plan. The Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 reinforced OPS's authority to carry out enforcement of the Clean Water Act (which OPA 90 amended), and a 2013 final rule⁴⁵ incorporated Part 194 enforcement language into the regulations.

Enforcement cases and legal actions are processed through the Enforcement Division within OPS and PHMSA's Office of Chief Counsel. The OPS used an IT system called 'SMART' to track legal actions such as civil and criminal penalties for non-compliance of the regulatory parts under PHMSA's purview, which included Title 49 CFR Parts 190-199. While SMART had processes in place to track legal action for other parts of the regulations, SMART had no process in place to enforce Part 194 cases. In other words, if a Part 194 enforcement case occurred it could not have been processed in the same manner as other instances of non-compliance. If the SMART IT systems incorporated Part 194 enforcement cases into its processes it would streamline future enforcement cases and could improve the program's ability to efficiently carry out legal actions related to response plan non-compliance.

⁴⁵ Pipeline Safety: Administrative Procedures; Updates and Technical Corrections, 78 Fed. Reg. 58,897 (Sept. 25, 2013) (codified at 49 CFR 190, 2-3, 5, 9), <http://www.regulations.gov/#!documentDetail;D=PHMSA-2013-0226-0001> (last visited Apr. 19, 2017).

Recommendations

Audit Recommendations

Based on the findings of this audit, OPS should consider the following recommendations:

1. Amend Part 194 to improve the clarity and specificity of the regulations by developing:
 - i. Specific requirements in § 194.115(a) for the quantity of response resources needed to respond to a worst case discharge;
 - ii. Additional regulatory language that further defines the meaning of the response resources time tiers in § 194.115(b), and what level of resources corresponds to each tier;
 - iii. Specific requirements to confirm the capability of response resources to arrive within the times required in the regulations in § 194.115(b);
 - iv. To improve worst case discharge calculations required in § 194.105(b) establish a minimum leak detection and shutdown time, or institute some other regulatory measure to ensure realistic shut down times for the calculation of worst case discharge amounts; and
 - v. Clear requirements on the specificity needed for identifying environmentally and economically sensitive areas for § 194.107(b)(2).
2. Consider revising the review criteria and approval processes, which includes:
 - i. Further verify that the response plan has identified a sufficient, quantified amount of response resources;
 - ii. Improved confirmation that the response resources are able to arrive in the required times in § 194.115(b), and verification of specific response resource locations;
 - iii. Review criteria that ensure response plan spill detection and shutdown times used to calculate worst case discharges are reasonable;

- iv. Develop improved verification that plans are consistent with applicable Area and Regional Contingency Plans, particularly the identification of environmentally and economically sensitive areas required in § 194.107(b)(2); and
 - v. Create an additional review criterion for identifying high volume areas to inform the time requirements in § 194.115(b).
3. Identify future actions to improve OPS's ability to validate response plan operability through response plan exercises. This could include improving program involvement in operator-led response plan exercises, aggregating lessons learned and identifying best practices, and increasing participation in government-led response plan exercises. The program should consider developing standard operating procedures for attending operator-led response plan exercises, training employees on how to assess response plan exercise effectiveness, and developing a strategy for prioritizing OPS participation in response plan exercises based on environmental and other risk factors.
4. Identify future actions to improve the integration of OPS activities related to implementing Title 49 CFR Part 194. This could include formal pipeline inspector training, developing formal procedures or processes for pipeline inspectors to verify response plan compliance in the review and approval process, and incorporating Part 194 into OPS's enforcement information technology systems and processes.

See the addendum below for programmatic updates to the pipeline response plan program.

PHMSA Addendum to the Audit Report

The information below provides an update of PHMSA's programmatic activities and changes since the audit report analysis was conducted.

Introduction

The Pipeline and Hazardous Materials Safety Administration's Office of Pipeline Safety (OPS) has taken numerous steps over the past several years to improve and standardize its oil spill response plan (OSRP) program. OPS was in the midst of evaluating and re-engineering the program as the audit was being conducted in the fall of 2013 and was in the process of eliminating a large backlog of plans needing review and approval. At the same time, OPS worked to address recommendations made by NTSB in its report on the Marshall, Michigan pipeline failure, supported a National Academies of Science study on responding to spills involving diluted bitumen, hired and trained additional full-time staff to review OSRPs, and became more engaged with Federal agencies and industry groups with oil spill preparedness and response responsibilities. This addendum highlights many of the programmatic improvements that have been made since the audit was conducted.

As of March 2017, PHMSA maintains 523 active OSRPs in its inventory. This represents an increase of approximately 35% in the past 3 ½ years. The increase is primarily attributed to new operators, acquisitions, and operators restructuring their plans. 81% of the plans that were in PHMSA's inventory at the time of the audit have been revised/replaced due to plans requiring updates or operators restructuring their plans. Those that have been revised/replaced have been or are in the process of being reviewed using improved review criteria and reviewer guidelines. The table below depicts the status of the plans that were examined during the audit.

Operator	Response Plan Title	Plan Status
BP Products U.S. Logistics	Chicago Terminal	Archived - Divestiture
Cook Inlet Pipe Line Company	Oil Discharge Prevention and Contingency Plan	Revised/Updated
Enbridge (U.S.) Inc.	Chicago Region	Revised/Updated
ExxonMobil Oil Corporation - Terminals	Lockport Terminal	Revise/Updated
ExxonMobil Pipeline Company	Corsicana Response Zone	Revised/Updated

Florida Power & Light Company	Martin Terminal Facility	Revised/Updated
Genesis Crude Oil, L.P.	Port Hudson Facility Response Plan	No change
Hawaii Electric Light Company, Inc.	HELCO Pipeline Response Plan	Revised/Updated
Phillips 66 Company	Missouri and Illinois Response Zone	Archived – Plan Restructure
Thunder Basin Pipeline, LLC	Thunder Basin Pipeline System	Revised/Updated
Trans Mountain Pipeline (Puget Sound) LLC	Puget Sound Response Zone	Revised/Updated

1. Regulatory Recommendations

PHMSA agrees with the audit’s assessment that the regulations meet the legislative requirements in OPA90 and that additional clarity in these regulations may improve compliance and oil spill preparedness. PHMSA is evaluating the benefits and costs of changing Part 194. PHMSA has implemented policy and review criteria changes that achieve similar outcomes as some suggested regulatory changes.

1.1 Clarify Requirements for Response Resources

The following is an excerpt from PHMSA’s review criteria for Response Resources:

Citation: §194.107(c)(1)(iv) , §194.115(b)

Are the Oil Spill Response Organizations (OSROs) identified and available to respond within WCD1 Tier 1 time frames for the entire response zone?

The operator can use the resources of (1) a USCG classified OSRO, (2) a non-classified OSRO, (3) operator-owned resources, or (4) a combination of all of these..

1. For USCG classified OSRO resource:
 - a. The OSRO name, address (should be OSRO staging location and not corporate headquarters address), and telephone number must be provided.
 - b. Evidence of a non-expired contract or service agreement must be included.
 - c. Check [USCG RRI](#) to determine if OSRO is WCD1 designated for “facility” or “inland/river” within the appropriate COTP zone ([Coast Guard Sector Map](#)).
 - d. Determine if resources can respond within WCD1 timeframe (6 hours for [High Volume Areas](#), 12 hours for all other areas) by dividing total miles by 35 mph to calculate response time.
 - e. In comments, note OSRO name and contact information and location of contract/agreement.
2. For non-classified OSRO resources:
 - a. The OSRO name, address (should be OSRO staging location and corporate headquarters address), and telephone number must be provided.
 - b. Evidence of non-expired contract or service agreement must be included.
 - c. A comprehensive equipment and personnel list must be included.
 - d. Use the [USCG Planning Volume Worksheet](#) and [33 CFR 154 Appendix C](#) to determine if available response resources are appropriate.
 - e. Determine if resources can respond within WCD1 timeframe (6 hours for [High Volume Areas](#), 12 hours for all other areas) by dividing total miles by 35 mph to calculate response time. The reviewer must note in the comments section whether a 6 or 12 hour response time is needed.
 - f. In comments, note OSRO name and contact information, location of contract/agreement, and appropriateness of equipment list.
3. For operator-owned resources:
 - a. Must include a comprehensive equipment and personnel list.
 - b. Use the [USCG Planning Volume Worksheet](#) and [33 CFR 154 Appendix C](#) to determine if available response resources are appropriate.
 - c. In comments, note appropriateness of equipment list.

- PHMSA adopted a policy of using the USCG’s “Guidelines for Determining and Evaluating Required Response Resources for Facility Response Plans” (found in 33 CFR pt.154, Appendix C) and the Response Resource Inventory (RRI) to assess and verify the adequacy of response resources in OSRPs. This policy was adopted before the audit was conducted, but was explicitly included in plan reviewer guidance and plan reviewers were trained in using the guidance.

- The RRI is a national database of response resources that is maintained by the USCG, as required by the Clean Water Act, as amended. The RRI includes data received from companies that wish to have their equipment listed in a publicly-accessible system, as well as data generated from the Oil Spill Removal Organizations (OSRO) classification program. Participation by private industry is voluntary, except for classified OSROs whose participation becomes mandatory when they apply for a classification.
- EPA regulations at 40 CFR pt. 112, Appendix E, reference the USCG regulations and have similar resource calculation worksheets as USCG.
- OPS will publish a “Good Practices” guide to assist operators in the preparation of OSRPs. The guide will include more detailed information for operators in determining appropriate response resources, consistent with the policy noted above.

Conclusion: PHMSA’s use of USCG standards achieves much of benefit of the outcomes sought by the audit’s recommendations pertaining to clarifying response resource requirements and the NTSB recommendation to harmonize 49 CFR Part 194 with the USCG regulations.

1.2 Improve Worst Case Discharge Calculations.

The following is an excerpt from PHMSA’s review criteria for Worst Case Discharge calculation:

Citation: §194.105(a)

Are the calculations and methodology used to determine the worst case discharge (WCD) included for each response zone?

- The plan must show all three components (pipeline, breakout tank, historic) for each response zone.
- There must be a statement if any of the components are not applicable. PDM can be used to cross-reference consistency of operator's claim about breakout tanks and/or historical discharges associated with the pipeline system.
- Calculations must be correct and logical. Verify pipeline volume through calculator. Recommend providing values used for the calculations in the comments section. Computer modeling is acceptable, but the Plan still needs to describe the methodology.
- Note the sum of the “response time” and “shutdown time” in the comments section.
- Note the source (i.e. breakout tank, pipeline, historic) and page number where the WCD can be found in the comments section.

- Based on PHMSA's review of plans and familiarity with OSROs, most operators have contracts with USCG classified OSROs, which have sufficient resources to respond to spills that are much greater than the calculated WCD.
- OPS' incident data reveals only one instance where a spill exceeded the relevant plan's WCD calculation. In this instance, the spill was approximately 50 barrels more than the calculated WCD.
- OPS uses its plan review and inspection authority to verify WCD calculations. PHMSA commonly requires correction of plans due to errors in worst case discharge calculation.
- OPS will examine other options for addressing this recommendation, but notes that there is no standard in detection and shutdown time and capabilities vary widely across the industry.

Conclusion: OPS achieves much of the outcome sought by the audit's recommendations pertaining to WCD without regulatory change.

1.3 Specificity Needed for Identifying Environmentally and Economically Sensitive Areas.

The following is an excerpt from PHMSA's review criteria for Environmentally and Economically Sensitive Areas:

Citation: §194.107(b)(2)(ii)

Are environmentally and economically sensitive areas (ESA) identified?

- A list or map showing the locations of the ESA's is required.
- A working link to online lists, detailed ACPs, and maps are acceptable.
- ESAs are land and water areas containing natural features or ecological functions significant to people and the environment. Examples include marshes, beaches, drinking water intakes, threatened/endangered fish and wildlife, etc.

- The purpose of requiring operators to identify environmentally and economically sensitive areas is to demonstrate that an OSRP is consistent with applicable Area Contingency Plans (ACPs). EPA and USCG have issued regulations dictating certain information that each ACP must include, but there is no national standard format, template or architecture for ACPs. This lack of uniformity makes the documents less accessible for use in verifying consistency with OSRPs.

- In some areas of the country, Regional Contingency Plans (RCPs) serve as ACPs. In other areas of the country, ACPs are further subdivided into very detailed Sub-ACPs. These differences contribute to accessibility issues caused by lack of uniformity. Finally, some ACPs and RCPs are inadequate because they do not fully consider spills from all modes of transportation, including pipelines.
- The National Response Team (NRT) has recognized this issue and has established an interagency workgroup, ACPlanning, to “Develop NRT guidance which provides nationally consistent architecture to improve ACPs and facilitate alignment of all plans across the National Response System (NRS).” PHMSA is an active participant in this workgroup and will assess this recommendation once the workgroup has achieved its goals. The workgroup has the following goals:
 1. Complete a baseline assessment outlining issues, gaps, or inconsistency among current ACPs.
 2. Achieve national consistency while affording flexibility at the local level.
 3. Promote synchronization and alignment of all plans across the NRS (e.g., OSRPs, ACPs, RCPs).
 4. Develop a modern national architecture that supports tactical, accessible, and field friendly ACPs for all end users (industry and government).
 5. Provide clarity on the RCP and ACP domains.
 6. Ensure better alignment with other national planning frameworks (e.g., National Response Framework [NRF]).

Conclusion: OPS ensures consistency with plans to the extent practicable, but improvements in the ACPs and RCPs will further facilitate the process.

2. Review Criteria and Approval Processes Recommendations

Since the audit was conducted, PHMSA has completely revamped its review criteria to provide explicit reviewer guidance for plan reviewers to improve the quality and consistency of reviews.

2.1 Verify Response Resources

- As stated above, plan reviewer guidelines were expanded to explicitly verify the operator has current contracts with USCG classified oil spill response organizations (OSRO).

- If an operator does not have a contract with a USCG classified OSRO, PHMSA checks operator equipment lists with the USCG response resource calculator to ensure it has adequate equipment to respond to a spill.

Conclusion: OPS's current review criteria accomplish the audit's recommendation for verifying response resources.

2.2 Verify Response Time

- PHMSA uses the USCG RRI to identify OSRO locations and uses the 35 miles per hour rate of advance over land to determine whether required response times can be met, and determine whether a pipeline is in a high volume area to verify response time requirements.
- An excerpt of the review criteria and reviewer guidelines were provided above.

Conclusion: OPS's current review criteria accomplish the audit's recommendation for verifying response times.

2.3 Reasonable Spill Detection and Shutdown Times.

- An OSRP must show all three calculations to determine the worst case discharge (pipeline, breakout tank, historic) for each response zone. If the detection and shutdown time appear unreasonable (e.g., less than 15 minutes or greater than 2 hours), the plan approver examines accident/incident reports for the operator and consults with the region office where the pipeline is located. If the detection and shutdown times are determined to be unreasonable, a letter of correction is issued to the operator.
- OPS verifies WCD calculations to find errors. OPS can also inspect facilities to ensure accurate accounting for secondary containment capacity. Below is an excerpt from the OPS Inspector Assistant (IA) that provides guidelines for verifying WCD calculations.

Citation: § 194.105

Question: Do the records reflect that the operator correctly determined the worst case discharge for each response zone?

Considerations:

1. Verify that a worst case discharge is calculated for each response zone. Calculation variables include: maximum release time, maximum shut down time, maximum flow rate, maximum response time, and drain down volume.
2. Verify pump shut down time and valve closure times.
 - a. Do these match historic data? Check recent releases.
 - b. If shut down times are greater than what is in the plan or recent release data exceed the WCD, the plan needs updated.
3. Verify drain down volume based on distance between valves and diameter of pipe (note: topography can be considered, if the methodology is provided).
4. Are there breakout tanks in the response zone that should be considered?
5. If breakout tanks are included in the response plan, verify the tank capacity and any prevention credit taken. A maximum of 75% prevention credits can be taken for:
 - a. Secondary containment > 100% - 50% credit
 - b. Built to API standards – 10% credit
 - c. Overfill protection standards – 5% credit
 - d. Testing/cathodic protection – 5% credit
 - e. Tertiary containment/drainage/treatment - 5% credit

Conclusion: OPS's current review criteria and inspection protocols accomplish the audit's recommendation for verifying reasonable detection and shutdown times.

2.4 Improve Verification that Plans are Consistent with Applicable ACPs and RCPs, Particularly the Identification of Environmentally and Economically Sensitive Areas.

- OPS cannot fully address this recommendation until the lack of uniformity of ACPs is addressed. Further, there is no requirement for OSRPs to be consistent with RCPs.
- Below is an excerpt from the review criteria with reviewer guidelines pertaining to Environmentally and Economically Sensitive Areas.

Citation: §194.107(b)(2)(ii)

Are environmentally and economically sensitive areas (ESA) identified?

- A list or map showing the locations of the ESA's is required.
- A working link to online lists, detailed ACPs, and maps are acceptable.
- ESAs are land and water areas containing natural features or ecological functions significant to people and the environment. Examples include marshes, beaches, drinking water intakes, threatened/endangered fish and wildlife, etc.

Conclusion: OPS ensures consistency with plans to the extent practicable, but improvements in the ACPs and RCPs will further facilitate the process.

3. Oil Spill Exercises Recommendation

PHMSA has taken a more proactive role in oil spill planning and preparedness activities. It fully participates on the National Response Team (NRT), participates in industry led spill working groups, and has participated in or observed Government Initiated Unannounced Exercises, Area Committee Exercises and industry-led exercises.

PHMSA actively participated in updating the National Preparedness for Response Exercise Program (PREP) Guidelines in coordination with the USCG, EPA, and Bureau of Safety and Environmental Enforcement (BSEE) under the Department of the Interior (DOI). The updated guidelines were published in April 2016 and encourage pipelines operators to conduct exercises at varying locations based on risk, not just the location of the WCD.

Conclusion: OPS agrees with many of the exercise recommendations in the audit report and will assess the resource implications for implementing them.

4. Inspection and Enforcement Integration Recommendation

Contrary to the audit's finding, OPS's enforcement information technology systems and processes had incorporated Part 194. However, in 2013 legislation further clarified PHMSA's authority to enforce response plan regulations. The Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (Pub. L. No. 112–90) reinforced PHMSA's authority to carry out enforcement of the Clean Water Act, as amended by the Oil Pollution Act of 1990. This authority was codified in 49 CFR pt. 190 in October 2013.

Following this regulatory change, OPS revisited questions in OPS' Inspector Assistant software system to provide additional questions and guidance to OPS inspectors for verifying information in OSRPs. Inspectors can verify detection and shutdown times, location of operator owned response equipment, examine an operator's exercise and OSRP training records, and determine whether updated plans should have been submitted as a result in changes of operating conditions.

In addition, using the enforcement authorities and procedures outlined in 49 CFR pt.190, PHMSA can issue warning letters, notices of proposed violations and corrective action orders. PHMSA has issued Corrective Action Orders following actual spills that require operators to review and assess the effectiveness of the applicable OSRP and to amend their plans, if necessary, to reflect the results of their review.

Conclusion: OPS agrees that additional improvements can be made with formal training for OSRPs and is exploring effective and efficient methods to address this element of the recommendations.

Continuing Improvements

On April 12, 2016, PHMSA hosted and live-streamed a public workshop to share knowledge and experiences with oil spill response planning and preparedness and discuss practical ways onshore oil pipeline operators can better plan and prepare for an oil spill. During the public workshop, PHMSA discussed our review procedures and how we use the USCG guidelines and RRI to determine whether pipeline operators have sufficient resources to respond to a worst case discharge. Further, we highlighted that an operator must have resources available to respond to a spill anywhere within a response zone that is determined by the operator. Over 200 individuals participated either in-person or via the Internet, including NTSB investigators and members of the NRT.

PHMSA is taking the lessons learned from our studies and the workshop to develop a "Good Practices" guide for completing oil spill response plans for onshore oil pipelines and to address mandates in the Protecting Our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2016.

Finally, PHMSA is developing a new work management system (WMS) for conducting reviews of OSRPs, document the results of the reviews, and tracking OSRPs throughout their life-cycle. The WMS will facilitate improved integration with other OPS activities.

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Appendix A - Audit Methodology

This audit was delegated from the Office of the Assistant Secretary for Transportation Policy (OST-P), on behalf of the Secretary of Transportation, to the Office of the Chief Safety Officer (OSCO) within PHMSA. The OSCO, which was separate from OPS and ESSD, conducted an independent audit. The research and analysis was performed by OSCO staff, and the finalization of the report was managed by OST-P due to staff and organizational changes within the OSCO. The audit solicited information, comments, and feedback from officials within PHMSA during data collection, and factual accuracy checking. The report was written independently from the OPS. The auditors of this report confirm the audit was both independent and objective, was designed to respond to NTSB recommendations, and assessed how PHMSA programs could be operating more effectively.

A methodological research design with accompanying questions was created and shared with the Office of Pipeline Safety for feedback before formally conducting the audit. This research design, which was based on Program Evaluation Standards, was used as a basis for addressing the NTSB recommendations. To address NTSB recommendation P-12-001, business practices of the program were examined by assessing the effectiveness of program activities as they relate to the procedures and processes used in both the review and approval of response plans and for the program's involvement with response plan exercises.

Background research was conducted in fall of 2013, and the analysis was performed in fall of 2013 to spring of 2014. The audit reviewed the law, regulations, published guidance, and the response plan review criteria used to evaluate and approve response plans. This information was supplemented with over two dozen interviews with relevant OPS employees, Federal agencies,⁴⁶ and external stakeholders⁴⁷.

As part of the audit, an evaluation to confirm adherence to the review criteria was performed on a sample of eleven response plans that had already gone through the program's review and approval process. The evaluation process of the approved response plans is described below:

Approved Response Plan Audit Process

1. Response Plan selection process: A sample of response plans were chosen to be reviewed for

⁴⁶ Federal agencies interviewed include EPA, USCG, and BSEE.

⁴⁷ External stakeholders interviewed include the American Petroleum Institute and the Pipeline Safety Trust.

the evaluation. The sample was selected from an Access database provided by the program on November 21st, 2013 that is used to keep track of the review and approval process. Response plans must have received a primary and secondary review. For the first selection round only response plans that had a secondary review in October or November of 2013 were selected due to modifications in the program's review process that were being developed and implemented in September 2013. This criterion narrowed down the selection to twenty-seven response plans. Out of the twenty-seven response plans, fifteen had completed the process and the operator had received a letter of review or a letter of approval (which completes the review process). The other twelve were in the final stages of completion, or letters of deficiency were sent out to the operator. Using an Excel random number generator six response plans were chosen out of the fifteen response plans that met these requirements:

Operator	Response Plan Title	OPID
BP Products U.S. Logistics	Chicago Terminal	32044
Florida Power & Light Company	Martin Terminal Facility	26039
Hawaii Electric Light Company, Inc.	HELCO Pipeline Response Plan	31083
Genesis Crude Oil, L.P.	Port Hudson Facility Response Plan	32492
Cook Inlet Pipe Line Company	Oil Discharge Prevention and Contingency Plan	2767
Phillips 66 Company	Missouri and Illinois Response Zone	31684

In addition to those six, two additional response plans were selected for review because of major oil spills in Marshall, Michigan and Mayflower, Arkansas.

Operator	Response Plan Title	OPID
ExxonMobil Pipeline Company	Corsicana Response Zone	4906
Enbridge (U.S.) Inc.	Chicago Region	11168

After choosing these eight response plans, the list was presented to the then Acting Director of the Emergency Support and Security Division, who recommended that reviewed or approved response plans that initially had letters of correction sent also be incorporated into the review. Program staff provided a list of approved response plans that initially received letters of correction and were later revised to meet program requirements. Out of that list, eleven response plans received a secondary review in June-September of 2013 and were sent a letter of correction, followed by a letter of review or approval in October or November after revisions were submitted. Out of those eleven, three response plans were chosen using an Excel random number generator:

Operator	Response Plan Title	OPID
ExxonMobil Oil Corporation - Terminals	Lockport Terminal	32009
Thunder Basin Pipeline, LLC	Thunder Basin Pipeline System	38894
Trans Mountain Pipeline (Puget Sound) LLC	Puget Sound Response Zone	19585

2. Review of response plan review criteria: The response plan review criteria documentation from the eleven identified response plans was obtained in order to audit how the reviewer carried out the review criteria instructions. Using this documentation, each portion of the review criteria and supporting evidence for every identified response plan was audited to confirm adherence to the review criteria. Areas where the response plan reviewer, or approval process, deviated from the review criteria instructions were noted. Note that the program was developing new iterations of the review criteria during the period of analysis, and the June-September review criteria were slightly different than the October and November review criteria.
3. Confirmation of findings: After the audit to confirm adherence to the review criteria was completed the findings were presented to ESSD, and staff knowledgeable of the process reviewed the deviations to confirm their factual accuracy, and provide any explanations.

Coordination with program officials.

The data research and analysis was compiled into a set of draft findings that were provided PHMSA for review and comment. This permitted the confirmation of factual accuracies and the correction of inaccuracies. Additional context was provided by the program, when necessary. The information gathered during this exchange informed the development of the findings and recommendations of this report. A draft of the final report was provided to relevant stakeholders for comments and feedback before the finalization of the report.

Appendix B - Response Plan Review and Approval Criteria

The review criteria below are from the Fall 2013 iteration of the program's review criteria.

Review Criteria	Corresponding Regulatory Citation (from the 49 CFR)	Corresponding U.S.C. Citation (From U.S.C. Title 33)
Is the pipeline described in the Plan jurisdictional to PHMSA's Part 194 jurisdiction?	§194.103(a)	
Does the Plan include the name and address of the operator?	§194.113(a)(1)	
What general Type of Plan is this? (State approved, ERAP, FRP, ICP, etc.)	§194.109(a)	
Does the submitted plan indicate that it is a State approved plan submitted in lieu of one required by 194.103?	§194.109(1)	
Does the Plan describe the operators' review and update procedures for this plan?	§194.107(c)(x)	§1321 (j)(5)(D)(v-vi)
Does the Plan certify that the operator has reviewed each applicable ACP and that the Plan is consistent with each applicable ACP?	§194.107(b)	§1321 (j)(5)(D)(i)
Does the Plan certify that the operator has reviewed the National Contingency Plan (NCP) and that the Plan is consistent with the NCP?	§194.107(b)	§1321 (j)(5)(D)(i)
Does the Plan include a signed certificate authenticating its acceptance by the operator?	§194.119(e)	
Does the Plan include a list of State(s) and County(s) for each response zone that contains one or more line sections that meet the 'sig and sub' harm criteria?	§194.113(a)(2)	
Does the Plan include a list of line sections for each pipeline contained in response zone, identified by milepost, or survey station number, or other operator designation?	§194.113(b)(4)	
Does the Plan include the name or title and 24 hour telephone numbers of the operator's Qualified Individual	§194.113(b)(1)	§1321 (j)(5)(D)(ii)

(QI) and at least one Alternate QI?		
Does the Plan claim to be a substantial (only) harm plan?	§194.103(a)	
Does the Plan include the basis for the operator's determination of significant and substantial harm?	§194.113(b)(5)	
Does the Plan list the type of oil transported in the pipeline and the volume of the worst case discharge in the information summary?	§194.113(b)(6)	
What is the Worst Case Discharge for the Plan?	§194.105a(b)(2)	§1321 (j)(5)(D)(iii)
Does the Plan show the methodology and calculations the operator used to determine the pipeline component of the Worst Case Discharge for each Response Zone in the Plan?	§194.105(b)(2)	§1321 (j)(5)(D)(iii)
Does the Plan show the methodology and calculations the operator used to determine the Worst Case Discharge, based on the pipeline, breakout tank, and historic discharge components, for each Response Zone in the Plan?	§194.105(a)	§1321 (j)(5)(D)(iii)
Does the operator claim or certify in the Plan that he has identified and ensured, by contract or other approved means, the resources necessary to remove, to the maximum extent practicable, a worst case discharge?	§194.115(a)	§1321 (j)(5)(D)(iii)
Does the Plan include procedures and a list of resources for responding, to the maximum extent practicable, to a worst case discharge?	§194.107(a)	§1321 (j)(5)(D)(iii)
Does the Plan include incorporations by reference instead of procedures for response?	§194.107(a)	
Does the Plan include response activities?	§194.107(c)(1)(v)	§1321 (j)(5)(D)(iv)
Does the Plan demonstrate the operator's clear understanding of the Federal response structure?	§194.107(b)(1)	§1321 (j)(5)(D)(i)
Does the operator incorporate ICS positions into their spill response management procedures?	§194.107(c)(3)	§1321 (j)(5)(D)(i)
Does the Plan establish provisions to ensure the protection of safety at the response site?	§194.107(b)(1)(ii)	§1321 (j)(5)(D)(iv)

Does the plan address use of alternate response strategies?	§194.107(b)(1)(iii)	§1321 (j)(5)(D) (i and iv)
Does the operator identify the response resources that are available to respond to an incident scene, within the WCD1 (6/12 hour) time?	§194.115(b)	§1321 (j)(5)(D)(iii)
Does the Plan note any exception to their operator's ability to address WCD1 response within the Tier 1 6 or 12 hour timeframe?	§194.115(b)	§1321 (j)(5)(D)(iii)
Does the Plan address or describe immediate notification procedures?	§194.107(c)(ii)	§1321 (j)(5)(D)(ii)
Does the Plan require that an immediate notification be made to the National Response Center of any failure that resulted in pollution of any stream, river, lake, reservoir, or other similar body of water that violated applicable water quality standard?	§195.52(a)(4)	§1321 (j)(5)(D)(ii)
Does the correct telephone number for the National Response Center (18004248802) appear in the Plan?	§194.107(b)(1)(i)	§1321 (j)(5)(D)(ii)
Does the plan have the names and telephone numbers of appropriate Federal, State, and local agencies?	§194.107(c)(vi)	§1321 (j)(5)(D)(ii)
Does the plan list the name and contact information (e.g., address, and telephone number) of the oil spill response organization?	§194.107(c)(1)(iv)	§1321 (j)(5)(D)(iii)
Does the plan indicate that the operator has spill response training procedures for its employees?	§194.107(c)(vii)	§1321 (j)(5)(D)(iv)
Does the Plan state that all operating personnel will be trained in the contents of this Plan?	§194.117(a)(3)	§1321 (j)(5)(D)(iv)
Does the Plan state that training records must be maintained as long as the individual is assigned duties under the response plan?	§194.117(b)	
Does the Plan state that the operator follows the National Preparedness for Response Exercises (PREP) guidelines?	§194.107(c)(ix)	§1321 (j)(5)(D)(iv)
Does the Plan discuss (pollution control) equipment testing?	§194.107(c)(viii)	§1321 (j)(5)(D)(iv)
Does the Plan identify environmentally and economically	§194.107(b)(2)(ii)	§1321

sensitive areas?		(j)(5)(D)(i)
Does the Plan describe or address spill detection methods and procedures?	§194.107(c)(1)(iii)	