National Transportation Safety Board

Washington, D.C. 20594

Office of the Chairman

APR 1 8 2001

Honorable Edward A. Brigham
Acting Deputy Administrator
Research and Special Programs Administration
Washington, D.C. 20590

Dear Mr. Brigham:

Thank you for the April 24, 2000, letter signed by former Administrator Kelley S. Coyner updating the status of action being taken to implement the 31 safety recommendations, stated below, that were issued to the Research and Special Programs Administration (RSPA) by the National Transportation Safety Board between 1987 and 1999. This letter will address the safety recommendations by issue topic areas in the order they were addressed in the RSPA letter of April 24, 2000. Before doing that, I wish to apologize for the delay in responding to Ms. Coyner's letter.

Damage Prevention:

P-97-14

Conduct at regular intervals joint government and industry workshops on excavation damage prevention that highlight specific safety issues, such as full participation, enforcement, good marking practices, the importance of mapping, and emergency response planning.

P-97-15

Initiate and periodically conduct, in conjunction with American Public Works Association, detailed and comprehensive reviews and evaluations of existing State excavation damage prevention programs and recommend changes and improvements, where warranted, such as full participation, administrative enforcement of the program, pre-marking requirements, and training requirements for all personnel involved in excavation activity.

P-97-16

Sponsor independent testing of locator equipment performance under a variety of field conditions.

P-97-17

As a result of testing outlined in Safety Recommendation P-97-16, develop uniform certification criteria of locator equipment.

P-97-18

Once locator equipment performance has been evaluated and defined by certification criteria as outlined in Safety Recommendation P-97-17, review State requirements for location accuracy and hand-dig tolerance zones to determine that they can be accomplished with commercially available technology.

P-97-19

Develop mapping standards for a common mapping system, with a goal to actively promote its widespread use.

P-97-20

Develop and distribute to pipeline operators written guidance to improve the accuracy of information for reportable accidents, including parameters for estimating property damage resulting from an accident.

P-97-21

As part of the comprehensive plan for the collection and use of gas and hazardous liquid data, revise the cause categories on the accident report forms to eliminate overlapping and confusing categories and to clearly list excavation damage as one of the data elements, and consider developing categories that address the purpose of the excavation.

P-97-22

In conjunction with the American Public Works Association (APWA), develop a plan for collecting excavation damage exposure data.

P-97-23

Work with the one-call systems to implement the plan outlined in Safety Recommendation P-97-22 to ensure that excavation damage exposure data are being consistently collected.

P-97-24

Use the excavation damage exposure data outlined in Safety Recommendation P-97-22 in the periodic assessments of the effectiveness of State excavation damage prevention programs described in Safety Recommendation P-97-15.

P-99-1

When reviewing pipeline operator safety programs, ensure that the operators' damage prevention programs include actions to protect their facilities when directional drilling operations are conducted in proximity to those facilities.

The Safety Board appreciates the update on actions to implement Safety Recommendations P-97-14 through -24 and P-99-1. The Safety Board notes that on June 30, 1999, RSPA co-sponsored a public meeting in Washington, D.C., to present a report on best practices for damage prevention. This report was developed by over 160 volunteers representing a broad spectrum of damage prevention stakeholders who worked for almost a year to produce a report on best practices in damage prevention, known as the *Common Ground Study*. This report covered many aspects of damage prevention, from design and planning through locating and safe excavation practices. In addition, RSPA is facilitating the establishment of a non-profit organization to advance underground damage prevention, consistent with the cooperative spirit of the Common Ground team. RSPA held a public meeting on October 28, 1999, to elaborate the elements of an effective non-profit organization, including possible mission statements, goals, functions, guiding principles, and organizational structure.

RSPA states that, with the support of Congress and the U.S. Department of Transportation (DOT), it can provide the necessary resources to initiate the creation of a self-sustaining private-sector, non-profit organization and ensure the participation of all affected stakeholders, and that this organization will provide an effective forum for information sharing among all stakeholders in damage prevention. This will include regular interaction with the affected industries in the damage prevention community, contributions by the organization to creative solutions to underground damage prevention issues, and responsiveness to such recommendations as P-97-14 through 24.

In addition, RSPA has been deploying a national damage prevention public education campaign, known as the *Dig Safely Campaign*, an effort dating back to October 1996, when RSPA formed the Damage Prevention Quality Action Team (DAMQAT). This team included a broad spectrum of representatives: professional excavators, one-call centers, insurance, telecommunications, operators of hazardous liquid, natural gas transmission, and distribution lines, as well as state pipeline safety agencies and RSPA's Office of Pipeline Safety (OPS). The DAMQAT conducted an extensive examination of the problem, including a nationwide survey of 1,500 respondents from the excavator, facility operator, and public works communities, as well as the general public.

RSPA states that the DAMQAT used the results of the national survey to develop a "tag line," a message, and a design for education campaign materials. These materials included a safety video, print ads for trade publications, a radio public service announcement, brochures, and bill inserts. These were field-tested for 6 months in three states: Virginia, Georgia, and Alabama. Pre-pilot and post-pilot surveys enabled the team to judge the effectiveness of the materials. Data collected from the three states indicate a sharp increase in recognition of the four basic messages of the campaign: call before you dig, wait the required time, observe the marks, and dig with care. Following the field-testing, three states reported a decline in excavation-related damage to underground facilities. In addition, the DAMQAT commissioned a training manual for those who want to use the campaign materials that contains general information on how to conduct a damage prevention campaign, the safety video, and 2 CD ROMS containing all the campaign artwork. The DAMQAT team members conducted over 30 *Dig Safely* training sessions nationwide, with another 6 scheduled and more being planned. Recently, the DAMQAT was renamed the *Dig Safely Team*; it is expanding its membership and hopes to include other interested parties such as locators, cable TV, electricity, water, and sewer. Some of the materials will be translated into Spanish for distribution in areas with a significant Spanish-speaking population.

The Safety Board understands that the *Dig Safely Campaign* has been officially endorsed by the DOT, the American Petroleum Institute, One Call Systems International, the Association of Oil Pipelines, and the National Telecommunications Damage Prevention Council, and that the National Energy Board of Canada is considering recommending to the Canadian Government that they adopt the campaign.

The Safety Board is encouraged by RSPA's efforts, as outlined above, and we would appreciate further periodic updates, including a discussion of activities that relate specifically to the actions called for in the Board's recommendations.

With respect to P-97-14, the Board believes that the intent of this recommendation has been met based on the information above and in view of previous communications. Accordingly, Safety Recommendation P-97-14 is classified "Closed—Acceptable Action." As you are aware, three of the above safety recommendations (P-97-14, -15 and -19) appear on the Safety Board's "Most Wanted" list of safety recommendations; therefore we would appreciate an expedited update on activities related to P-97-15 and -19 during the past year. Safety Recommendations P-97-15 and -19 remain classified "Open—Acceptable Response."

With respect to the three recommendations above that address locator equipment (P-97-16 through -18), the Safety Board is unaware from either written correspondence or meetings with RSPA, of any activity that has been undertaken as called for in these recommendations. Consequently, we are reclassifying these recommendations "Open—Unacceptable Response," pending further information from RSPA on the action taken to implement these recommendations. With respect to Safety Recommendations P-97-20 through -24, which relate to accident reporting and the collection and use of data the Safety Board notes that your letter did not provide specific information on actions being taken in response to these recommendations.

Pending an update from RSPA on these issues, Safety Recommendations P-97-20 through -24 will remain classified "Open—Acceptable Response."

With respect to P-99-1, the Safety Board notes that on October 27, 1999, based on information provided in the RSPA letter of August 6, 1999, Safety Recommendation P-99-1 was classified "Closed—Acceptable Action."

Pipeline Integrity Management:

P-87-4

Require operators of both gas and liquid transmission pipelines to periodically determine the adequacy of their pipelines to operate at established maximum allowable pressures by performing inspections or tests capable of identifying corrosion-caused and other time-dependent damages that may be detrimental to the continued safe operation of these pipelines, and require necessary remedial action.

P-87-5

Establish criteria for use by operators of pipelines in determining the frequency for performing inspections and tests conducted to determine the appropriateness of established maximum allowable operating pressures.

P-87-23

Revise 49 *Code of Federal Regulations* (CFR) Parts 192 and 195 to include operational-based criteria for determining safe service intervals for pipelines between hydrostatic retests.

P-87-26

Obtain sufficient data on low frequency Electric Resistance Weld (ERW) pipe and determine if its continued use presents an unreasonable hazard to public safety and take appropriate regulatory action for identified deficiencies.

P-90-29

Develop and implement, with the assistance of the Minerals Management Service (MMS), the U.S. Coast Guard, and the U.S. Army Corps of Engineers, effective methods and requirements to bury, protect, inspect the burial depth of, and maintain all submerged pipelines in areas subject to damage by surface vessels and their operations.

P-91-1

Define the operating parameters that must be monitored by pipeline operators to detect abnormal operations and establish performance standards that must be met by pipeline monitoring systems installed to detect and locate leaks.

P-95-2

Develop toughness standards for new pipe installed in gas and hazardous liquid pipelines, especially in urban areas.

P-98-34

Require that Koch Pipeline Company LP (Koch), evaluate the integrity of the remainder of its highly volatile liquid (HVL) pipeline, including the condition of the coating, and rehabilitate the pipeline as necessary.

P-98-35

Require pipeline operators to determine the condition of pipeline coating whenever pipe is exposed and, if degradation is found, to evaluate the coating condition of the pipeline.

P-98-36

Include performance measures for the adequate cathodic protection of liquid pipeline.

The Safety Board is aware of the reported action that has been taken on these issues and appreciates the RSPA update. Specifically, RSPA reports that in accordance with its risk-based regulatory philosophy, it intends to incorporate a process into its regulations to validate pipe integrity, especially in high-consequence areas. RSPA staff provided a briefing to Safety Board staff on a new initiative to examine effective methods to maintain pipeline integrity in high-consequence areas. In addition, RSPA has issued a *Notice of Proposed Rulemaking* (NPRM) concerning pipeline integrity management for pipeline operators who operate 500 or more miles of hazardous liquid pipelines. On September 13, 2000, the Safety Board provided its comments regarding this NPRM. On December 1, 2000, RSPA issued its rule for operators who operate 500 or more miles of hazardous liquid pipelines. The Board is also aware that RSPA plans to issue NPRMs covering the balance of operators of hazardous liquid pipelines, as well as operators of natural gas transmission pipelines.

The Safety Board is also aware that on December 8, 2000, RSPA issued a NPRM to address P-98-35 and -36. The Safety Board is reviewing the NPRM and expects to provide comments in the near future.

The Safety Board appreciates this update and the periodic staff briefings on these issues and encourages RSPA to complete its action to implement the recommendations. Because action on these recommendations has taken so long, Safety Recommendations P-87-4, P-87-5, P-87-23, and P-91-1 will remain classified "Open—Unacceptable Response," pending completion of action by RSPA on each issue. The Board notes that your April 24, 2000, letter did not provide specific information on Safety Recommendations P-87-26, P-90-29, P-95-2, and P-98-34 through -36. We are aware, however, through staff contact of some ongoing activity with respect to these recommendations; these recommendations are currently classified "Open—Acceptable Response." The Safety Board would appreciate specific information on actions taken by RSPA to meet these safety recommendations so that RSPA's progress on these issues can be evaluated.

Remote Control Valves:

P-95-1

> Expedite requirements for installing automatic- or remote-operated mainline valves on high-pressure pipelines in urban and environmentally sensitive areas to provide for rapid shutdown of failed pipeline segments.

Given the timeframe since issuance of the recommendation and the little information provided on action undertaken, Safety Recommendation P-95-1 is classified "Open—Unacceptable Response."

Public Education:

P-90-21

> Assess existing gas industry programs for educating the public on the dangers of gas leaks and on reporting gas leaks to determine the appropriateness of information provided, the effectiveness of educational techniques used, and those techniques used in other public education programs and that RSPA, based on its findings, amend the public education provisions of the Federal regulations.

P-98-37

> Revise 49 *Code of Federal Regulations* Part 195 to include requirements for the content and distribution of liquid pipeline operators' public education programs.

P-98-38

> Revise 49 *Code of Federal Regulations* Part 195 to require that pipeline operators periodically evaluate the effectiveness of their public education programs using scientific techniques.

The Safety Board understands that RSPA, on February 13, 2001, held a public meeting to cover how the public can gain improved access to information about how pipelines are being operated and how pipeline risks can be controlled. Further, the Board notes that RSPA is actively encouraging the industry to improve public education about pipeline safety, especially through its damage prevention efforts. RSPA is working with the pipeline industry to assess public education efforts beyond those dealing with damage prevention to underground facilities, is evaluating industry approaches to use in educating the public by working with the American Petroleum Institute and other pipeline industry trade associations, and is also considering a survey of pipeline companies to review and evaluate the effectiveness of their public education programs in enhancing pipeline safety in local communities.

The Safety Board encourages RSPA to continue its efforts on these issues, and pending notification that these efforts have been completed, Safety Recommendations P-98-37 and -38 remain classified "Open—Acceptable Response." Given the 10-year timeframe since its issuance and the lack of positive action by RSPA, Safety Recommendation P-90-21 remains classified "Open—Unacceptable Response."

Fatigue:

P-98-30

> Assess the potential safety risks associated with rotating pipeline controller shifts and establish industry guidelines for the development and implementation of pipeline controller work schedules that reduce the likelihood of accidents attributable to controller fatigue.

P-99-12

> Establish within 2 years scientifically based hours-of-service regulations that set limits on hours of service, provide predictable work and rest schedules, and consider circadian rhythms and human sleep rest requirements.

The Safety Board understands that RSPA is reviewing previous pipeline accidents and research on fatigue and rotating work schedules and has met with representatives of pipeline trade associations to discuss the issue of fatigue in the pipeline industry. RSPA is working cooperatively with the industry to determine the role of fatigue as a factor in pipeline incidents and to gather information on existing fatigue guidelines in pipeline operations. The RSPA is also monitoring the progress of a multi-year human factors research initiative by the American Petroleum Institute to develop industry guidelines covering, among other human factors, fatigue and successful mitigation and intervention techniques, which RSPA will closely monitor.

The Safety Board further understands that RSPA is participating both on the DOT's effort to address fatigue issues across all modes of transportation and on the DOT Human Factors Coordinating Committee, which provides a mechanism to enhance planning, implementation,

and education related to human factors research within the transportation community. RSPA advises that the goals of the committee are to assist in the development and implementation of a national strategic agenda for intermodal human factors research and applications in transportation; the committee also seeks to be a human factors information resource to the transportation community.

Accordingly, because RSPA is making progress on the fatigue issue in pipeline safety, both Safety Recommendations P-98-30 and P-99-12 remain classified "Open—Acceptable Response," pending our receipt of further information on this issue. Specifically, the Board would appreciate being informed of the timeframe for issuing the advisory bulletin to the owners and operators as discussed in the April 24, 2000, letter.

Operator Qualifications:

P-97-7

> Complete a final rule on employee qualification training, and testing standards within one year. Require operators to test employees on the safety procedures they are expected to follow and to demonstrate that they can correctly perform the work.

The Safety Board notes that RSPA's final rule on operator personnel qualification was published on August 27, 1999 (64 FR 46853). However, RSPA's final regulations do not require operators to test employees on the safety procedures they are expected to follow and to demonstrate that they can correctly perform the work, as requested. Accordingly, Safety Recommendation P-97-7 is classified "Closed—Unacceptable Action," and despite RSPA's request for a change in status, P-87-2 remains classified "Closed—Unacceptable Action."

The Safety Board encourages RSPA to continue providing periodic updates regarding action being taken to implement these safety recommendations. Thank you for your commitment to pipeline safety.

Sincerely,

Carol J. Carmody

Carol J. Carmody
Acting Chairman

cc: Mr. Robert Clarke, Safety and Health Team Leader
Office of Transportation Policy Development

U.S. Department
of Transportation

**Research and
Special Programs
Administration**

The Administrator

400 Seventh Street, S.W.
Washington, D.C. 20590

APR 24, 2002

The Honorable Marion C. Blakey
Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

Dear Chairman Blakey:

This letter updates the Research and Special Programs Administration's (RSPA) response to the National Transportation Safety Board (NTSB) Recommendations P-98-30 and P-99-12. These recommendations address pipeline controller fatigue and hours-of-service requirements:

P-98-30 **Assess the potential safety risks associated with rotating pipeline controller shifts and establish industry guidelines for the development and implementation of pipeline controller work schedules that reduce the likelihood of accidents attributable to controller fatigue.**

P-99-12 **Establish within 2 years scientifically based hours-of-service regulations that set limits on hours of service, provide predictable work and rest schedules, and consider circadian rhythms and human sleep and rest requirements.**

RSPA has been participating in the Department of Transportation Human Factors Coordinating Committee (HFCC) to assess approaches to the control of human fatigue in transportation, including pipeline operations. HFCC has sponsored several research studies and conferences on transportation fatigue issues at which RSPA engineers and pipeline industry representatives made presentations on the pipeline worker fatigue issues.

As a result of the NTSB recommendations and the work of the HFCC, we recognized the need to evaluate how rotating controller schedules in the pipeline industry may be related to human fatigue and safety outcomes in the pipeline industry. Fatigue and work-rest patterns are a continuing concern for all modes of transportation. Fatigue is a particular issue in transportation given the preponderance of night work, concentrated/compressed schedules, overtime and rotating work, etc. Concerns include job critical safety-related performance, worker safety during their commute, and general health effects.

RSPA recently tasked the Volpe National Transportation Systems Center (VNTSC) to develop information about work-rest cycles, fatigue measurement, and fatigue management for pipeline controllers. We will use this information, and, if upon review we conclude measures need to be taken, we will provide industry and labor with tools and techniques to manage the problem. In this project RSPA is approaching these concerns by examining the actual scope of the fatigue problem and applying the new Organizational Fatigue Management (OFM) technologies and procedures developed by the HFCC.

The initial step in the study is to collect pipeline operator work and other fatigue-related scheduling data from selected companies and unions. This data will be used to identify existing and potential fatigue problems and develop a comprehensive work plan to address them. RSPA will analyze the data and the resulting plan will be provided as an initial report. The report will guide further work in this area and address issues raised by NTSB. The plan will chart a course of work focused on implementing the planned research and providing the pipeline enterprise with fatigue management tools tailored to its needs.

In addition, RSPA will soon issue a second Broad Agency Announcement (BAA), to invite proposals for pipeline safety research, including research on fatigue-related problems, fatigue measurement, and fatigue management. The RSPA BAA is a two-step process: Step one is the submission of a "White Paper/Pre-Proposal" by interested offerors. Each submission is evaluated by a technical panel. Step two is the submission of full proposals by those offerors deemed to have the most technically promising projects. Full proposals are evaluated by the same technical team and projects are selected for funding.

Following the assessment of human fatigue in pipeline operations and the results of the research and standards efforts now underway, RSPA will evaluate the need for further development and application of guidelines to reduce the threat of pipeline incidents attributable to operator fatigue. RSPA believes these efforts will provide the necessary information for an assessment of the need for further regulatory action.

Action Requested: RSPA requests that NTSB Safety Recommendations P-98-30 and P-99-12 continue to be classified as "Open - Acceptable Action" while we continue to pursue the actions described above.

If we can be of further assistance, please contact me or Suzanne Te Beau, Associate Administrator for Policy and Congressional Affairs, at (202) 366-4831.

Sincerely yours,

Ellen G. Engleman