

**Supporting Statement
for
Marine Occupational Health and Safety Standards
for Benzene – 46 CFR 197 Subpart C**

A. Justification

1. Circumstances that make the collection necessary.

Benzene is a highly dangerous chemical that is commonly carried by ship and or barge in bulk, both by itself and in hydrocarbon mixtures. Benzene has long been known for its short-term health effects, and its cancer-causing nature was suspected for many years. Since exposure to even low concentrations of Benzene vapor is dangerous, the Coast Guard issued rules to help to reduce the levels to which marine workers are exposed. Title 46 USC 3703 and 49 CFR 1.46 authorize the Coast Guard to issue regulations dealing with handling and storage of cargo and the protection of life and property in the marine area.

Title 46 CFR 197 subpart C requires certain companies to perform Benzene testing and monitoring. This includes testing all U.S.-flag Coast Guard inspected vessels for the Benzene vapor concentration while carrying or transferring any cargo containing 0.5% or more Benzene by volume. Also, this involves providing medical surveillance, training, and other protective measures for those employees exposed to Benzene vapor in excess of the action level of 0.5 parts per million (ppm).¹ Vessel operators must gather and keep records that are subject to Coast Guard inspection. Records are required for all vessels carrying bulk liquid cargoes that have Benzene concentration of 0.5% or more. Recordkeeping topics include—

- Exposure monitoring – determination of personal exposure
- Program to reduce personal exposure
- Respiratory protection – fit testing
- Medical surveillance – medical records
- Provision of a Benzene Materials Safety Data Sheet

Since it is not practical for Coast Guard personnel to monitor each company's compliance with these requirements, the regulations require each company to keep records showing that they meet each requirement. Periodically, Coast Guard personnel review these records to determine compliance. These companies will not send records to the Coast Guard.

This information collection supports the following strategic goals:

Department of Homeland Security

- Prevention
- Protection

Coast Guard

- Safety
- Protection of Natural Resources

Prevention Policy & Response Policy Directorates (CG-5P & CG-5R)

- Reduce crewmember deaths and injuries on U.S. commercial vessels

2. Purpose of the Information Collection.

¹ Permissible exposure limits (PEL) –Time weighted average: 1 ppm; PEL – Short Term Exposure Limit: 5 ppm.

The regulations require each vessel owner, charterer, managing operator, or agent (referred to as “company”) to collect information on Benzene vapor concentrations, on the health of its employees, and on the effectiveness of its exposure reduction programs. This information will not be routinely transmitted to the Coast Guard, but will be available for inspection by Coast Guard personnel, who will then be able to determine whether there is effective compliance with the regulations. Additionally, operators will inform those personnel whose exposures exceed allowable limits. Operators will give personnel copies of their health records and provide them with safety and health data so that they are aware of the potential hazards in the workplace.

The purpose of these information collection requirements is to ensure compliance with the Benzene regulations. If this information is not collected, there will be no way for the Coast Guard to determine whether the company is complying with the requirements. Also, personnel will not have the information required for informed consent, and the company will not be able to effectively carry out their Benzene reduction/control program. Since the Coast Guard inspects each vessel at least annually, the records review is at least annually. Additionally, if the Coast Guard has reason to believe that a company is in violation of the rules, the Coast Guard will review the facility records.

To date, the Coast Guard has used the information collected to determine compliance with the Benzene regulations.

3. Consideration of information technology to reduce burden.

We have made the burden as small as possible. The required information is the minimum necessary for determining Benzene exposure levels, planning for reducing human exposure to within safe limits, ensuring effectiveness of respirators, monitoring personnel health, and providing health and safety information to personnel. For example—The fit test report ensures that the fit test was performed successfully, and Coast Guard personnel ask for the report to check that the test was performed successfully. In general, these information requirements are similar to those that companies already voluntarily use to implement these safety and health measures. Without records of these measures, neither the companies nor the Coast Guard can be certain that the regulations are being carried out. Furthermore, without such requirements, personnel would not know if their health is at risk and would not have the safety and health information available they need for informed consent.

Since companies do not transfer information to the Coast Guard, the form of information collection is each company’s responsibility. Records may be maintained in paper or electronic format. Each company determines what type of recordkeeping is best for that company. We estimate that 100 percent of the recordkeeping requirements can be done electronically. At this time, we estimate that 60 percent of the responses are collected electronically.

4. Efforts to identify duplication.

Among its many responsibilities, the Coast Guard is charged with ensuring the health and safety of marine workers aboard inspected vessels, and is the only Federal agency charged with this responsibility, so the Coast Guard’s recordkeeping requirements do not duplicate those of any other Federal agency. Some companies already perform many of the proposed safety and health measures, and most of these prepare written records as any Benzene exposure reduction program requires extensive recordkeeping. To the extent that these company records exist, they will satisfy the Benzene recordkeeping requirement. Since the Coast Guard does not specify the form of the required recordkeeping, any records a company maintains containing the

required information will satisfy the Coast Guard's requirements. In effect, due to the way the regulations are drafted, information collection duplication is impossible.

5. Methods used to minimize burden to small business if involved.

The information requirements are the minimum necessary to ensure a healthy marine environment. To a great extent, without these recordkeeping measures, the company would find it difficult or even impossible to implement a Benzene reduction program. The Coast Guard periodically reviews these requirements to be certain that they are neither insufficient nor excessive.

The Coast Guard has minimized the burden on small as well as large entities by the following:

- a. Keeping the required recordkeeping to the absolute minimum to ensure compliance;
- b. Not requiring record submission to the Coast Guard; and
- c. Not specifying the form or format of the recordkeeping.

6. Consequences to Federal program if the collection were not conducted or conducted less frequently.

With less frequent data collection, the program will not accomplish its goal of protecting health. Through our work with industry, other agencies, and our trial implementation of the rules, we determined that it is not possible to collect the required information less frequently and still determine whether companies are in compliance with the regulations; without the ability to determine compliance, the Coast Guard will not be able to protect the safety and health of marine terminal and vessel personnel. In particular, the recordkeeping intervals are tied to the testing intervals, so reducing the collection frequency will prevent personnel from determining whether a company is in compliance with the requirements. We will periodically review these requirements to be certain that the information collection requirements are neither insufficient nor excessive.

Clearly, without information collection the Coast Guard will not be able to determine compliance at all. Furthermore, companies need to keep records to efficiently operate their Benzene exposure reduction programs.

7. Special circumstances that require collection to be conducted in an inconsistent manner.

This information collection is conducted in manner consistent with the guidelines in 5 CFR 1320.5(d)(2).

8. Consultation.

A 60-day Notice (See [USCG-2013-0164], April 1, 2013, 78 FR 19502) and 30-day Notice (July 16, 2013, 78 FR 42534) were published in the Federal Register to obtain public comment on this collection. The Coast Guard has not received any comments on this information collection.

9. Provide any payment or gift to respondents.

There is no offer of monetary or material value for this information collection.

10. Assurances of confidentiality provided to respondents.

There are no assurances of confidentiality provided to the respondents for this information collection.

11. Additional justification for questions of a sensitive nature.

There are no questions of sensitive language.

12. Estimated hour and cost burden.

- The estimated number of respondents is 200.
- The estimated number of annual responses is 28,017.
- The estimated annual hour burden is 38,165 hours.
- The estimated annual cost burden is \$2,490,355.

The hour burden and costs to industry are based in part on experience from trial implementation of the SouthWest Research chemical exposure program.

Estimated hour burden

a. Initial exposure monitoring: Each company must determine whether the Benzene exposure level is sufficiently high to require reduction/control measures for each Coast Guard inspected vessel involved in the carriage of Benzene or Benzene-containing bulk cargoes. This assessment must be performed initially and whenever there is a major change in vessel design or operation. We estimate that—

- an assessment will be valid for ten years. Companies will not have to assess exposures on each vessel, but rather will assess typical ones they use.
- 200 companies will have to perform the assessment, and
- each assessment will require three weeks (120 hours) for an industrial hygienist to perform. This assessment includes time for industrial hygienists to purchase, test, and calibrate equipment; time to familiarize themselves with the marine environment, equipment, and operations; time to take a statistically valid series of Benzene-vapor concentration measurements and analyze the measurements; and time to prepare the report.
- an industrial hygienist wage rate is equivalent to a GS-13 (out-of-gov't rate) ².

For the estimated annual hour and cost burden, see Appendix A.

b. Periodic exposure monitoring: After the initial assessment, each company must monitor Benzene exposures annually on each vessel where initial exposure monitoring has indicated exposure above limits. The initial exposure monitoring determines whether there is danger from Benzene vapors. Industry uses this data, if above the PEL's, to formulate their personal exposure reduction plan. The periodic exposure monitoring is necessary to determine if there have been any changes in the worker exposure over time. If so, the personal exposure reduction plan may have to be changed to reflect the change in personal exposure. An exposure greater than the PEL's Benzene triggers the preparation of a personal exposure reduction plan. We estimate that 100 companies will initially find vapor concentrations to be above allowable limits, and that an industrial hygienist will require one week (40 hours) to perform each annual assessment and prepare a short report. This time estimate is based on

² All hourly wage rates referenced in this document are based on COMDTINST 7301.1(series).

the fact that the industrial hygienist will be familiar with the marine environment and with the Benzene-measurement equipment. Furthermore, the company will need to take only a limited number of measurements rather than the large number needed for the initial assessment. The industrial hygienist wage rate is equivalent to a GS-13 (out-of-gov't rate).

For the estimated annual hour and cost burden, see Appendix A.

c. Additional exposure monitoring: After the initial assessment, each company must evaluate the personnel exposures to Benzene whenever there is a change in vessel operations, to determine whether the exposure has increased or decreased. This covers non-major changes such as changes in the cargo transfer rate or use of different barges, as opposed to the major changes that require entirely new initial assessments (see item a), such as installation of a vapor recovery system. We estimate that on average 20 companies will change their operations each year and will have to monitor their exposures and prepare a short report. We further estimate that an industrial hygienist will require one week (40 hours) to perform each assessment. This time estimate is based on the fact that the company will need to take only a limited number of measurements rather than the large number needed for the initial assessment. The industrial hygienist wage rate is equivalent to a GS-13 (out-of-gov't rate).

For the estimated annual hour and cost burden, see Appendix A.

d. Notification of exposure monitoring: After the initial assessment, each company for which the initial exposure monitoring showed above limit exposures must notify affected personnel annually. Notification is required for all Benzene monitoring. If the PEL are exceeded, the notification must contain a description of the measures taken to protect the worker. We estimate that 100 companies will initially find Benzene-vapor exposures above the PELs and so must notify their employees. We estimate that for each company, an industrial hygienist will require one hour to prepare a written notification (the same notification to each employee) to all of that company's affected workers, and clerical workers will require three hours to prepare, copy, and distribute the written notifications. The industrial hygienist wage rate is equivalent to a GS-13 (out-of-gov't rate) and the clerical time wage rate is equivalent to GS-05 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

e. Written exposure reduction programs: After the initial assessment, each company for which the initial exposure monitoring showed Benzene-vapor exposures above the PELs must prepare a written program to reduce/control exposures. We estimate that 100 companies will initially find exposures above the PELs and will need to prepare a program, and that on average each program will be valid for five years. This program should be only a few pages in length. We estimate that for each company, an industrial hygienist will require one week (40 hours) to prepare a written program, and clerical workers will require two hours to type up the program. The industrial hygienist wage rate is equivalent to GS-13 (Out Gov't) and the clerical time wage rate is equivalent to GS-05 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

f. Written respiratory protection programs: In addition to the written exposure reduction program (see item e), most companies will choose to reduce personnel exposures by requiring respiratory protection be worn. Those companies that choose this option will be required to prepare a written program. Of the estimated 100 companies with above limit exposures, we

estimate that 90 will prepare a respiratory protection program, and that on average each program will be valid for five years. This program should be only a few pages in length, and should vary little from company to company. We estimate that for each company, an industrial hygienist will require 24 hours to prepare a written program, and clerical workers will take two hours to type up the program. The industrial hygienist wage rate is equivalent to GS-13 (Out Gov't) and the clerical time wage rate is equivalent to GS-05 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

g. Fit to wear respirator: Prior to issuing a respirator to an employee, each company must have a physician determine that the employee can safely wear a respirator. This determination will probably be made during the employee's first (baseline) annual medical monitoring, and should require thirty minutes of the physician's time and thirty minutes (0.5 hour) of the employee's time. We estimate that on average an employee will work for the same company for about five years, meaning that about 20 percent must be undergo the respiratory fit test each year. The physician wage rate is equivalent to O-4 (Out Gov't) and the employee time wage rate is equivalent to GS-03 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

h. Respirator fit testing records: In addition to a written respiratory protection program, each company using negative pressure respiration protection for compliance must test the respirator fit annually for each employee and maintain a written record. We estimate a safety and health technician will require twenty minutes (0.33 hour) for test preparation for each employee, two hours for each fit test, and twenty minutes (0.33 hour) for each test record preparation. Furthermore, each employee will spend about two hours in the fit test, with about 2,000 employees being tested annually. The safety and health technician wage rate is equivalent to the GS-04 (Out Gov't) and the employee time wage rate is equivalent to GS-03 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

i. Medical Monitoring: If the initial exposure assessment demonstrates that the Benzene-vapor level exceeds certain levels, each company will have to provide annual medical examinations (i.e., medical surveillance) for each exposed employee. For example—All employees exposed to Benzene vapor at a concentration of greater than or equal to the Action Level ppm on at least 30 calendar days or at a level above the PEL's on at least 10 calendar days during the coming year. Even if employees wear respiratory protection, they will still need to have a medical exam. The medical exam determines whether the worker has been injured despite the personal exposure reduction plan. The medical exams look for changes in blood and the liver that are precursors to leukemia. The regulations require that the all results of the medical tests be provided to the employee. Benzene is unusual in that the damage it does to the blood and liver at the beginning can be found in routine medical tests, before the onset of cancerous Leukemia. And also unusual is the fact that if the medical tests prove positive for these noncancerous precursors of Leukemia, removal from further exposure to Benzene results in the elimination of these blood and liver changes, and no onset of leukemia. For that reason medical tests are imperative. Since the medical examination level for Benzene exposure is below the reduction/control level, we estimate 150 companies (2,500 affected employees) will have to provide medical examinations, and must prepare an examination report for each employee. Each employee spends time in the examination room, waiting room (both waiting and filling-out forms), and blood lab. Finally, a safety and health technician spends time

scheduling, filling-out forms, and assisting employees in filling-out forms. Since companies do not normally provide annual physical examinations, the entire charge represents a new burden on the industry. We estimate that each physical, including physician's time to review the medical history, examine the employee, interpret test results, and write the report, will require one hour. Each employee will spend about four hours in the process, and a safety and health technician will spend about one hour per employee tested. Additionally, each test will involve sending blood samples to an outside laboratory. We estimate that this will cost \$220 per employee. The physician wage rate is equivalent to the O-4 (Out Gov't), the employee time wage rate is equivalent to the GS-03 (Out Gov't), and the technician wage rate is equivalent to GS-04 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

j. Information for physicians: Prior to each medical examination, each company must provide the physician with occupational exposure and medical information for each employee. We estimate that a safety and health technician will spend one hour preparing data for each employee, and that 2,500 employees will be affected. The industrial hygienist wage rate is equivalent to GS-13 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

k. Material safety data sheets: Each company must provide personnel with information on the hazards of the cargoes carried and the Benzene contained in the cargo. This must be placed on the vessel for the crew's use. This information consists of data sheets prepared from information supplied by companies producing the cargoes; alternatively, for pure Benzene, the company can use the information provided in 46 CFR 197 Appendices A and B. Once this information is prepared, the only burden is selecting, duplicating, and supplying them to each tank ship and tow boat as needed. We estimate that a clerk will require about 15 minutes (0.25 hour) to select, copy, and locate the appropriate information sheet on each tank ship or tow boat. (It is not necessary to post the data sheets on each vessel, only that they be available to the crew). Furthermore, we estimate that on an annual basis there are 700 vessels that carry 10 different cargoes of interest for a total of 7,000 listings each year. The clerical wage rate is equivalent to a GS-05 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

l. Employee training: Each company must annually train all employees that may be exposed to Benzene or Benzene-containing vapors, in the hazards associated with Benzene and the need for safety measures and health monitoring. In order to document that they have trained their workers, they must record the fact that they have done so. We estimate 3,300 employees will be trained annually, and that recording their names will require five minutes (0.083 hour) of a technician's time per employee. The technical time wage rate is equivalent to a GS-04 (Out Gov't).

For the estimated annual hour and cost burden, see Appendix A.

Estimate of hour and cost burden--Summary: The total average annual hour and cost burden are presented by category in Appendix B.

13. Annual estimate of capital and startup cost to respondents.

There are no capital, start-up or maintenance costs associated with this information collection.

14. Estimates of annualized cost to the Federal Government.

Coast Guard personnel review benzene records during periodic inspections and post-casualty investigations. The incremental burden to the Government is negligible, and thus not calculated.

15. Reasons for change in the burden.

The change in the burden is an ADJUSTMENT. There is no proposed change to the recordkeeping requirements of this collection. The recordkeeping requirements, and the methodology for calculating burden, remain unchanged.

The following items listed below are changes to the collection:

- Decrease in burden (i.e., burden hours) is due to the correction of an error in the calculations. We have moved the burden calculations from the text of this Supporting Statement to an Appendix (Excel sheet). Thus, a historical calculation error was uncovered and corrected.
- Increase in responses is due to a revision in the way we calculate responses. Previously, responses were equal to the number of respondents. We have revised that to responses equal to the number of annual IC activities.
- Updates are provided for cost burden associated with this collection of information.
- The Coast Guard has updated printable instructions for this collection of information.

16. Plans for tabulation, statistical analysis and publication.

This information collection will not be published for statistical purposes.

17. Approval to not display the expiration date.

The Coast Guard will display the expiration date for OMB approval of this information collection.

18. Explain each exception to the certification statement.

The Coast Guard does not request an exception to the certification of this information collection.

B. Collection of Information Employing Statistical Methods.

This information collection does not employ statistical methods.