INFORMATION COLLECTION
SUPPORTING JUSTIFICATION
Railworthiness Directive for Certain Railroad Tank Cars Equipped with Bottom Outlet Valve Assembly and Constructed by American Railcar Industries and ACF Industries
OMB No. 2130-0616

Summary of Submission

- This submission is a revision and a request for **regular** OMB approval for the collection of information associated with FRA's Railworthiness Directive for Certain Railroad Tank Cars Equipped with Bottom Outlet Valve Assembly and Constructed by American Railcar Industries, Inc. and ACF Industries, LLC (RWD No. 2016-01 [REVISED]; Revised Directive), which OMB cleared under Emergency processing procedures on **October 18, 2016**, which expires on **April 30, 2017**.

- FRA published the required 60-day **Federal Register** Notice on December 21, 2016. See 81 FR 93725. FRA received one comment (from American Railcar Industries, Inc. (ARI)) in response to this Notice, and FRA addresses this comment in its answer to question number 8 of this document. ARI submitted an additional comment to OMB by letter dated May 22, 2017. FRA addresses this additional comment in FRA's answer to question number 8.

- The total number of burden **hours requested** for this collection of information is **144,804 hours.**

- The total number of burden **hours previously approved** for this collection of information is **68,953 hours.**

- Total number of burden **responses requested** for this information collection is **150,590**.

- Total number of burden **responses previously approved** for this information collection is **44,293**.

- Total burden increased by **75,851 hours** and by **106,297 responses**.

- **Adjustments** increased the burden by **67,981 hours** and **responses** by **106,082**

- **Program change(s)** increased the burden by **7,870 hours** and **responses** by **215**.

- **The answer to question **number 12** itemizes the hourly burden associated with

each requirement of the Directive (See pp. 19-27). The answer to question number 15 itemizes all changes in cost and hourly burden due to program changes and adjustments (See pp. 28-30).

1. Circumstances that make collection of the information necessary.

Background

On May 9, 2014, Canadian Pacific Railway (CP) notified FRA of tank car CTCX 736177, leaking denatured alcohol (ethanol) in CP's Bensenville Yard in Franklin Park, Illinois. Tank car CTCX 736177 is a 30,000-gallon specification DOT 111A100W-1 non-coiled, non-insulated, general purpose tank car manufactured for the transportation of Class 3 flammable liquids and owned by The CIT Group/Equipment Financing Inc. (CIT). ARI manufactured the tank car in its Marmaduke, Arkansas facility in May 2012, to the company's ARI 300 stub sill design.[a] CP contacted an environmental response company, SUNPRO, Inc., who applied an epoxy patch to stop the leak. On May 10, 2014, FRA personnel inspected the car and found the patched area between the cast sump and bottom outlet valve (BOV) skid halves on the bottom of the tank. At CIT's direction, on May 29, 2014, SUNPRO transferred tank car CTCX 736177's lading into another tank car and CP moved tank car CTCX 736177 to the Greenbrier Rail Services' (Greenbrier) Atchison, Kansas, repair facility for further inspection. Greenbrier inspected the sump and BOV skid groove attachment weld joints using liquid penetrant, ultrasonic, and visual inspection nondestructive testing (NDT) methods. During the inspection at Greenbrier's facility, representatives of CIT, ARI, FRA, and Greenbrier identified defects in the groove attachment welds at the sump and BOV skid, including small pinholes (porosity), incomplete joint fusion, incomplete joint penetration, and cracks.

The applicable Federal regulations and design drawings require the groove attachment welds joining the tank shell plate, the cast sump, and the cast BOV skid, to be full penetration and full fusion (i.e., the junction between the tank shell plate, skid casting, and BOV flange must be completely fused (melted) together, creating a solid barrier capable of holding the contents of the tank). The defects FRA detected ranged from 2-1/2-inches to over 17-1/2-inches long and up to 3/8-inch deep.

Subsequently, CIT sent the tank car to ARI's repair facility in North Kansas City, Missouri. There, ARI removed the segment of the weld containing the defects and additional tank shell material containing the sump casting, the BOV skid casting, and the groove attachment welds, and sent the section to ESI in Aurora, Illinois, for metallurgical analysis.
ESI's analysis identified large pockets of trapped oxides (slag) starting just below the interior weld surface and extending almost completely through the weld thickness. For the failed welds on tank car CTCX 736177, the only way slag pockets (or slag inclusions)

[a] The 300 designation is a stub sill design style classification the AAR Tank Car Committee assigned to certain ARI and ACF manufactured tank cars.

could form is if a welder does not follow appropriate welding practices during welding by failing to thoroughly clean and visually inspect every weld pass before depositing the next weld pass as the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180)[b] and the Association of American Railroads' (AAR) Tank Car Manual[c] require. The slag pockets prevented the complete fusion of the joint between the tank plate and the castings and produced the porosity and lack of fusion observed. Over time, these defects initiated and propagated cracks in the welds resulting in the tank leaking.

The HMR require all weld joints on tank car tanks to be fusion-welded in compliance with the requirements of the Tank Car Manual. For attachment welds to the tank, the Tank Car Manual requires the welder producing the welds to visually inspect the first pass and each layer of multi-pass welds to ensure each pass is free from cracks, overlap, incomplete fusion, and slag inclusions before depositing the next pass. To perform the required visual inspections properly the welder must thoroughly clean and inspect each pass before depositing the next pass. The presence of the slag pockets ESI identified in the groove attachment welds on tank car CTCX 736177 demonstrates the welder who deposited them did not follow these requirements.

Based on this incident, using ultrasonic testing techniques, CIT voluntarily inspected 386 additional tank cars in its fleet constructed to the same ARI 300 and ACF 300 design and equipped with a two-piece cast sump and BOV skid (sister cars). Approximately 15 percent of the sister cars inspected had the same defects as those identified in CTCX 736177, ranging from ½-inch to 22 inches long and from 1/8-inch to 0.39-inches deep. The approved tank car arrangement design drawings require welds to be either 7/16-inch or ½-inch thick at these locations. In other words, the slag pockets in the sump and BOV skid groove attachment welds of some sister cars were almost as deep as the welds were thick, resulting in less than full fusion of the weld joint (and meaning the welds were almost hollow). Welds with such extensive amounts of slag and incomplete fusion are not likely to withstand the design stresses and in-train forces they will encounter. Over time, these conditions will initiate and propagate cracks, either partially or completely through the weld, as occurred with tank car CTCX 736177.

FRA's review of CIT's inspection and test records of the sister cars revealed similar defects to those found in the attachment groove welds of tank car CTCX 736177 in cars welded by six other welders, not just the welder of CTCX 736177. Therefore, FRA concluded other welders assigned to make the attachment groove welds did not properly clean and inspect the welds during the manufacturing process. FRA also believes the single bevel groove weld joint design for these welds that allowed the slag to accumulate at the root of the welds and along the walls of the tank plate, sump, and BOV skid castings made cleaning and inspecting the welds more difficult, and contributed to the defects in the welds.

[b] See 49 CFR 179.200-10.
[c] AAR Manual of Standards and Recommended Practices, Section C-III, Specifications for Tank Cars (November 2014) (Tank Car Manual), at Appendix W.

Based on information provided by ARI, FRA understands between 2009 and 2015, ARI and ACF together manufactured approximately 14,800 general purpose tank cars to the same 300 stub sill design with the same two-piece cast sump and BOV skid weld design.[d] Accordingly, FRA believes the defects causing the leak in CTCX 736177 are likely to be in many of the 14,800 tank cars produced.

As specification DOT-111 tank cars, the ARI-300 and ACF-300 cars are authorized to transport a wide array of hazardous substances, including hazardous materials such as ethanol, molten phenol, and toluene. See Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 2016 Emergency Response Guidebook (Guidebook) https://phmsa.dot.gov/hazmat/outreach-training/erg. Ethanol is highly flammable and can present serious health risks. See id., Guide 127 at 192-93. Molten phenol may cause severe injury or death if it is inhaled, ingested, or contacts an individual's skin. See id., Guide 153 at 244. Toluene is a highly flammable material easily ignited by heat, sparks or flame. Additionally, toluene is toxic if it is inhaled or absorbed through the skin. See id., Guide 130 at 198.

FRA issued the Directive based on its finding that, as a result of non-conforming welding practices, DOT-111 tank cars built by American Railcar Industries, Inc. (ARI) and ACF Industries, LLC (ACF) between 2009 and 2015 to the ARI- and ACF-300 stub sill design and equipped with a two-piece cast sump and BOV skid may be in an unsafe operating condition and could result in the release of hazardous materials. Due to non-conforming welding practices, FRA concluded these cars may have substantial weld defects at the sump and BOV skid groove attachment welds, potentially affecting each tank's ability to retain its contents during transportation. Further, FRA found using the tank cars with the defective welds identified violates the requirements of the HMR. See 49 CFR § 179.200-10. A more detailed background discussion is in the original Directive FRA issued on September 30, 2016 and the Revised Directive, FRA issued on November 18, 2016.

The Revised Directive requires tank car owners to: (1) identify tank cars in their fleet manufactured by ARI or ACF to the ARI 300 or ACF 300 stub sill design and equipped with a two-piece cast sump and BOV skid (covered cars); (2) of the covered cars in an owner's fleet, identify the cars in hazardous materials service; and (3) of each owner's covered cars in hazardous materials service, identify the top 15% highest mileage cars. The Revised Directive also requires owners and offerors of covered cars to implement specific inspection and testing procedures to ensure no flaws exist in each tank car's sump and BOV skid groove attachment welds which could result in the loss of tank integrity. Specifically, this Revised Directive requires offerors of covered cars, before offering those cars into transportation, to visually inspect the BOV saddle and sump area to ensure there is no visible leak from those areas. This Revised Directive also requires

[d] ARI changed the sump and BOV skid groove attachment weld design in 2015 as a result of the incident with CTCX 736177.

each tank car owner to identify covered cars in hazardous materials service as of the issuance date of this Revised Directive and of those cars, ensure a 15% sample are inspected and tested by qualified personnel at tank car facilities within 12 months. The Revised Directive requires tank car facilities to use both volumetric inspection methods (ultrasonic testing) and surface inspection methods (e.g., liquid penetrant, magnetic particle or visual inspection) to ensure the welds at issue are completely examined. The Revised Directive also requires the nondestructive testing (NDT) methods used to be able to locate, interpret, evaluate, and size cracks, incomplete penetration, incomplete fusion, and slag inclusions to a level of sensitivity and reliability of 90% probability of detection (POD). This Revised Directive also modifies certain recordkeeping requirements of the original Directive.

In total, owners had 861 tank cars inspected prior to the Revised Directive with 14.52% of them found to have rejectable weld defects (i.e., weld defects exceeding the acceptance criteria of Appendix W of the Tank Car Manual and thus, noncompliant with Federal regulations). As of July 19, 2017, FRA is aware of 339 ARI-built cars that owners have inspected using the procedures mandated in the Revised Directive. Of these, 20.65% were found to have rejectable weld defects. Seventy-six of those cars were part of the 861 cars previously inspected prior to the Revised Directive. Of these reinspected cars, some of which required repairs, 17.11% had rejectable weld defects. FRA is also aware of 60 ACF-built cars that have been inspected using the procedures mandated in the Revised Directive. Of these, 23.33% were found to have rejectable weld defects.

Had FRA failed to direct tank car owners to perform inspections and tests of the ARI-300 and ACF-300 tank cars for similar weld defects, it would have been exposing the public at large to the possibility of a catastrophic, and preventable, disaster.

2. <u>How, by whom, and for what purpose the information is to be used.</u>

This is a request for regular clearance for this collection of information that was previously approved under Emergency processing procedures. The collection of information is used – and will continue to be used – by FRA to ensure that tank car owners comply with the requirements of this safety Directive. Specifically, tank car owners must identify tank cars in their fleet manufactured by ARI or ACF to the ARI 300 or ACF 300 stub sill design and equipped with a two-piece cast sump and BOV skid and provide the reporting mark and number of each car to FRA and of each owner's covered cars in hazardous materials service, and of those in hazardous materials service, the top 15% of cars with the highest mileage. FRA inspectors review these reports to verify that tank car owners are identifying those tank cars with this particular design and are carrying out the necessary inspections in compliance with this Directive.

Further, tank car owners must inspect and test the sump and BOV skid groove attachment welds of the top 15% highest mileage covered cars in hazardous materials service. All inspections and tests required by this Directive must be performed by tank

car facilities – defined at 49 CFR 179.2 – certified by AAR consistent with Appendix B of the Tank Car Manual. (Appendix B provides the requirements for tank car facilities to obtain AAR certification.) A pre-trip visual inspection of the sump weld area must be performed on all tank cars identified under this Directive. All inspection and test results must be documented, including re-inspections of repairs. The documentation must include the information described in Appendix T, paragraph 1.20 of the Tank Car Manual, including the additional reporting requirements of Appendix T for the applicable NDT method(s) chosen. In particular, a separate record must be completed for each inspection and test performed on each tank car. Moreover, the results of ultrasonic testing inspections must be recorded digitally and maintained with the inspection and test record. FRA will review these records to ensure that the necessary inspections, tests, and corrective repairs are done by properly qualified mechanics. In the event of an accident or incident involving tank cars transporting hazardous materials which are released, these required records will be an extremely valuable resource in ascertaining the cause(s) and any contributing factor(s) that may have led to the event. It should be noted that, under this Directive, tank car owners must retain all records and documentation required for 10 years following the completion of the inspections and tests.

Additionally, the information collected will be used by FRA to verify that mechanics performing tank car inspections, tests, and corrective repairs are trained in the prescribed procedures. Under this safety Directive, all personnel, including subcontractor personnel, reviewing and approving NDT procedures and reports, including visual inspections, must be qualified and certified to Level II or Level III consistent with Appendix T of the Tank Car Manual and tank car facility's written practice. Furthermore, all personnel performing NDT on these welds, and reviewing procedures and reports, including subcontractor personnel, must be trained and tested on the procedures to be used and samples representing the welds to be inspected consistent with 49 CFR Part 172 Subpart H and Appendix T of the Tank Car Manual. FRA will examine the required record(s) to ensure the training and testing criteria are met and necessary work is performed at tank car facilities certified by the AAR. The inspections and tests required by this Directive must be done within the scheduled timeframe stipulated in the Revised Directive.

Owners of tank cars subject to the Revised Directive must report specific inspection, test, and repair information to FRA, including the following: (1) Tank car reporting mark(s) and number(s) of tank cars in an owner's fleet identified under paragraph (1) of this Directive; (2) Planned inspection and test schedule for each tank car identified under paragraph (1) of this Directive, by reporting mark and number; (3) Tank car facility (station stencil) that performed the inspection(s) and test(s); (4) Date(s) the test(s) and inspection(s) were performed; (5) Inspection and test method(s) and procedure number(s) used: (6) Name(s) of inspector(s) performing the inspection(s) and test(s), level(s) of certification, and method(s) certified; (7) Inspection and test results; (8) corrective (repair) action(s) taken; and (9) The type and date of any accidents, incidents, or releases from the tank car related to the welds that are subject to the

directive. FRA's assigned Hazardous Materials engineer will carefully scrutinize these reports to ensure that they are completed for each affected tank car with all the stipulated information; that required tests and inspections for these tank cars are scheduled as prescribed; and that the required tests and inspections are performed at AAR approved facilities using the inspection and test procedures.

Information may also be voluntarily submitted to request an exemption of some cars from the Directive's inspection and testing requirements. The Revised Directive provides that if a representative sample of ACF-manufactured tank cars and/or tank cars ARI and CIT voluntarily inspected prior to the Revised Directive are inspected and the results of the inspections are provided to FRA for review, then FRA may grant relief from the Revised Directive if the results provide sufficient evidence to warrant such an exemption.

After completion of the inspections the Revised Directive requires, FRA will continue to monitor the performance of tank cars built to the ARI/ACF-300 design and FRA will use the data collected under the Directive and its ongoing monitoring of the cars to inform future decisions of the potential safety-risks posed by continued use of the cars. Any future decisions by FRA will be informed by the severity and frequency of defects identified under the Directive and the safety risk such defects pose.

3. <u>Extent of automated information collection.</u>

In its October 14, 2016, letter, ARI asserted "there is no way to physically store" an electronic ultrasonic test. FRA disagrees. FRA believes most ultrasonic testing is done using electronic devices capable of digitally downloading the results of the tests and, where devices do not have that capability built in, the same data can be captured and recorded using digital photos and recordings of indications found (e.g., variances from the baseline reading). However, FRA also recognizes requiring digital images of inspections, or portions of inspections, that do not reveal indications is unnecessary and burdensome.

Accordingly, the Revised Directive specifically provides that digital images (e.g., digital photographs) of indications may be used to meet the Directive's requirement to record the results of UT inspections. Further, the Revised Directive provides that digital recordings or images are not required to be included in the record of the inspection when the inspection does not produce indications. FRA recognizes digital images or recordings alone are not sufficient, but digital images/recordings with proper records of the equipment used for the testing, the equipment type and settings (e.g., calibration data), and the written procedure used would provide adequate context for digital images or recordings.

FRA highly endorses and strongly encourages the use of the latest information technology, particularly electronic recordkeeping, by the railroad industry to improve efficiency and reduce burden. FRA believes that all records required by this Revised

Directive will be kept electronically and believes that all the required reports will be provided electronically to FRA by tank car owners. Since this Revised Directive took effect upon issuance, FRA believes that 100% percent of responses will be electronic.

4. Efforts to identify duplication.

The collection of information pertains to a critical safety Directive FRA issued regarding tank cars built to the ARI and ACF 300 stub sill design and equipped with a two-piece cast sump and bottom outlet valve (BOV) skid. Therefore, the proposed information collection is unique and not currently available.

This information to our knowledge is not duplicated anywhere.

5. Efforts to minimize the burden on small businesses.

There are approximately 20 tank car owners (100 Lessees and Sub-Lessees) that own cars subject to the Revised Directive. This safety Directive primarily affects ARI and its subsidiaries. A couple of small businesses/entities may be affected by this Directive, but ARI is not a small business/small entity. Thus, FRA firmly asserts that the proposed collection of information will not have a significant impact on a substantial number of small entities.

6. Impact of less frequent collection of information.

If this information were not collected or collected less frequently, rail safety throughout the United States could be significantly jeopardized by tank cars carrying hazardous materials – such as denatured alcohol, crude oil, and ethanol, among others – releasing such materials. Such releases could result in accidents/incidents with corresponding injuries, fatalities, and property damage as well as possible environmental harm to surrounding communities. As noted in the background information of the original Directive, an FRA investigation identified a certain design of specification DOT-111 general purpose tank cars ARI and ACF built between 2009 and 2015 to the ARI 300 and ACF 300 stub sill design and equipped with a two-piece cast sump and bottom outlet valve (BOV) skid that were not manufactured using welding practices in conformance with Federal regulations and AAR welding specifications and, thus, may be in unsafe operating condition and present an increased risk of a hazardous materials release. The Revised Directive seeks to ameliorate such risk.
Within 30 days of the Revised Directive, tank car owners must: (1) identify the reporting mark and number of all covered cars; (2) identify all covered cars in the owners' fleet in hazardous materials service as of the issuance date of this Revised Directive; and (3) of the identified covered cars in hazardous materials service, identify the top 15 percent with the highest mileage. To understand the risk associated with the defects identified in the attachment welds of this specific design of cars, it is imperative that those tank cars in hazardous materials service and with the most likelihood of having defects develop or

grow (the top 15% highest mileage cars in each owner's fleet) be tested and inspected within 12 months of the issuance of the Revised Directive.

Without this collection of information, FRA would have no way to be assured that tank car owners are complying with the requirements of the Revised Directive, particularly identifying tank cars with the potentially flawed welds and performing the stipulated inspections, tests, and repairs. To ensure rail safety, it is essential that tank car owners identify to FRA the reporting mark and number of each car in their fleet manufactured by ARI or ACF to the specific design at issue. Without this identifying information and without the required reports and records stipulated in the Revised Directive, FRA inspectors would be unable to verify that tank car owners are performing all the necessary tests and inspections, including the pre-trip visual inspections of the BOV saddle and sump weld areas of the affected tank cars before allowing them to be used for transportation. Also, without the information to be collected, FRA would be unable to confirm that inspections and NDT are performed by mechanics properly trained in the correct NDT procedures. Without the required training, it is likely that leaking tank cars carrying hazardous materials would be placed into service by improperly or poorly trained tank car mechanics, thereby significantly increasing the risk of serious accidents/incidents and corresponding injuries, fatalities, and property damage as well as possible environmental harm to surrounding communities.

Further, without the notification requirement of proposed collection of information, tank car facility operators servicing tank cars covered by this Revised Directive and lessees and/or sublessees would not know the terms of this Directive. In particular, they would not know of these cars potential substantial safety risk due to weld defects at the sump and BOV skid groove attachment welds, and tank car facilities would not know proper conforming welding practices to use. The likely result of such lack of knowledge would be more tank cars placed into service leaking hazardous materials. Tank cars leaking hazardous materials, pose greater risks of catastrophic consequences should an accident or incident occur with the corresponding risk of increases in injuries, fatalities, and property damage. Further, without the notification requirement by tank owners of the terms of this Revised Directive, other parties under contract to the tank car owner, including lessees and sub-lessees, would not know the mandated inspection and testing schedule. Without this knowledge, such other parties would be unable to perform the required inspections and tests in the stipulated time frames and might set different servicing priorities for tank cars in hazardous materials service, again increasing the risks of accidents/incidents.

Finally, without the required reports and records, FRA would have no way of knowing whether thousands of tank cars built to the ARI and ACF 300 stub sill design and equipped with a two-piece cast sump and BOV skid have been identified. Lack of identification would enable these cars to operate without the heightened attention they warrant to ensure rail safety. Also, without the required records, FRA inspectors would not be able to determine whether tank car facility operators and/or offerors of covered cars carried out the mandated tests, inspections, and repairs, where necessary, according

to the stipulated schedules and employing qualified tank car mechanics properly trained in NDT procedures and techniques, including procedures for visual inspection. Under the provisions of this Revised Directive, tank car owners must retain all records and documentation for 10 years following the completion of the inspections and tests. In the event of an accident/incident involving a hazardous materials leak from a covered car, these records and documentation will prove an invaluable resource for FRA inspectors investigating the cause(s) of the accident and the tank car owner's compliance history.

In sum, the proposed collection of information is essential and assists FRA in its primary mission of promoting and enhancing rail safety throughout the United States by allowing FRA to monitor and enforce this safety Directive.

7. Special circumstances.

In addition to the record retention periods required by Chapter 1 of the Tank Car Manual for tank car facilities, the tank car owner must retain all records and documentation required by this Directive for 10 years following the completion of the inspections and tests.

All other information collection requirements relating to this Directive are in compliance with this section.

8. Compliance with 5 CFR 1320.8.

As required by the Paperwork Reduction Act of 1995, Pub. L. No.104-13, § 2, 109 Stat. 163 (1995) (codified as revised at 44 U.S.C. §§ 3501-3520), and its implementing regulations, 5 CFR Part 1320, FRA published a notice in the Federal Register on December 21, 2016, soliciting public comments on these information collection requirements. See 81 FR 93725. On February 21, 2017, FRA received one comment in response to the 60-day notice from Mr. Jeffrey S. Hollister, President and CEO of ARI. By a letter dated May 22, 2016 directed to OMB, ARI reiterated and expanded its previous comment to FRA.

Many of ARI's comments focus on the substantive merits of the original Directive and the Revised Directive and FRA's authority to issue the Directives. FRA is not responding to those comments as they are outside the scope of the Paperwork Reduction Act (PRA) burden analyzed here. Consistent with the PRA, however, FRA is addressing each of ARI's comments on the accuracy of FRA's estimates of the burdens of the information collection activities associated with the RWD.

In its February 21, 2017 comments, ARI expresses the view "FRA dramatically underestimates the burdens created by the information collection activities required by the Directive." Specifically, ARI alleges FRA's burden estimates are too low in the following eight instances:

(1) To identify the 14,800 tank cars subject to the Directive, FRA estimated the total annual burden as 80 hours, but ARI estimates 900 hours because "the time calculated to respond to 100 lessees at 4 hours each is 400 hours, plus FRA failed to account for 500 hours ARI already has invested in supporting customer requests for information on the application of the Directive to their cars";

(2) To visually inspect the 14,800 tank cars prior to each loaded trip, FRA estimated the total annual burden as 7,400 hours, but ARI estimates 98,667 hours. ARI estimates an average of 20 railcar loadings and 20 minutes for each inspection and the associated documentation requirements;

(3) To inspect and test the sump and bottom outlet valve (BOV) skid groove attachment welds and maintain record results for over 2,200 tank cars, FRA estimates the total annual burden hours as 6,600 hours, but ARI estimates 83,600 hours based on the assumption that each inspection and test will take 38 hours;

(4) FRA estimated no total annual burden hours for removal of tank linings to perform visual inspections on 0 percent of the cars to be inspected. ARI estimates 2 hours per car or an additional 1,320 total annual burden hours;

(5) To train and test tank car mechanics who are not qualified on non-destructive testing (NDT) procedures and record qualification, FRA estimated the total annual burden as 132 hours, but ARI estimates 640 hours. ARI asserts FRA did not take into account the need to train 100 inspectors, develop the NDT procedures, or prepare specimens and training procedures;

(6) For tank car notification to all parties of the terms of the Directive and inspection/testing schedule, FRA estimated the total annual burden as 100 hours, but ARI estimates 8,800 hours. ARI notes that "FRA estimates only 100 notices at one hour each while ARI assumes this task requires the development of over 2,200 plans at 4 hours per car to get each car to a shop, develop a freight plan, shop schedule, and out-of-service time";

(7) For reports of inspection, test, and repair to FRA, ARI states FRA estimated the total annual burden hours as 3,300 hours, but ARI estimates 6,600 hours. (FRA notes that, in its approved Emergency Clearance submission to OMB, it previously estimated this burden at 33,600 hours, not the erroneous 3,300 hours in its 60-day December 21, 2016, Federal Register notice which ARI cited in its comments.) ARI explains it estimates 3 hours per car/report "in order to include the time ARI spends to review the reports, correct factual errors, store results, update the database and provide summaries to the FRA"; and

(8) For tank car facility requests to tank car owners for written permission and approval of

qualification and maintenance programs, FRA estimated the total annual burden as 7 hours, but ARI estimates 660 hours for 330 cars (15%) which will require owner's approval and instructions prior to repair which will require 2 hours per car.

After careful consideration of ARI's comments and estimates, FRA reviewed its own estimates and either validated its initial estimates or adjusted its estimates in light of ARI's comments. FRA provided notice of the outcome of its review and consideration of ARI's comments in a notice published in the Federal Register on April 21, 2017. 76 FR 18822. As explained in that notice, FRA adjusted its total annual burden estimate to 83,440 hours (above the 68,953 hours originally approved by OMB on October 18, 2016, in FRA's Emergency Clearance submission).

On May 22, 2017, ARI provided additional comments to OMB on FRA's burden estimates outlined in the April 21, 2017 Federal Register notice. In its May comments, ARI reiterated many of its previous comments and additionally recommended that FRA (1) allow industry to "utilize the currently accepted industry inspection methodology" instead of the Directive's 90% POD requirement; (2) remove the Directive's requirement to document pre-trip inspections since visual inspections are already required by regulation; and (3) remove the visual inspection requirement from the Directive.

In response to ARI's May 22, 2017 comments and the additional information provided in those comments, FRA has once again reviewed its burden estimates and ARI's additional recommendations. The results of FRA's review are below.

(1) To identify the railroad tank cars subject to the RWD, FRA previously estimated there would be 20 identifications/reports – one report for each of the estimated 20 tank car owners/100 lessees (5 lessees per tank car owner are included/incorporated in each identification/report) – totaling 80 hours (4 hours per identification/report). Tank cars built to the ARI or ACF Industries, LLC (ACF) 300 stub sill design and subject to the Revised Directive are easily identifiable based upon their certificates of construction which all tank car owners are required to retain. Based on the information in the certificate of construction, the necessary drawings for each tank car can easily be pulled up to confirm if the tank cars in question are covered by the Revised Directive. Since most of the cars share the same designs, this process only needs to be repeated when the certificate of construction contains a different drawing number, not for each car. Some extra time may be needed to parse out which cars are in hazardous materials service and which are in the top 15% highest mileage in each owner's fleet. While FRA still believes ARI's estimate of 900 hours is excessive, in the interest of being extra conservative, FRA is adjusting its burden estimate to ARI's suggested 900 hours.

(2) To visually inspect the tank cars prior to each loaded move, as noted in FRA's April 21, 2017 notice, FRA previously revised its initial estimate of 7,400 total annual burden hours to 14,529 total annual burden hours. FRA based its 14,529-hour estimate on 6 annual loaded moves per year and each visual inspection taking no longer than 10

minutes. ARI estimates there are 20 annual load moves per year and each visual inspection/record takes 20 minutes to complete, and arrives at a total burden of 98,667 hours. To arrive at its estimate ARI doubles FRA's estimates of the number of annual load moves (20 moves instead of 10 moves) and doubles the time to complete each visual inspection/record (20 minutes instead of 10 minutes). However, ARI provides no objective support for doing so, except to allege that "FRA's estimates do not account for the additional time required for operators to log pre-trip inspections into a separate database and file storage time to assure record retention for the required ten years."

In its May 22, 2017 comments, ARI also recommends that FRA remove the Revised Directive's requirement to document pre-trip inspections since the regulations already require visual inspections. Indeed, as ARI's comments note, the HMR require a visual pre-trip inspection. See 49 C.F.R. § 173.31(d). While § 173.31(d) does not require documentation of the inspection, industry practice is to document all pre-trip inspections. FRA is unaware of any tank car offeror that does not, in some way, already document their pre-trip inspections. Requiring an additional notation (simple as checking a box or, at most, writing a sentence), presents a minimal burden. Even if an entity is not already documenting pre-trip inspections, the burden of simply noting that no issues were found following the pre-trip inspection required in the RWD requires a minimum of documentation.

The utility of the requirement to document the required pre-trip inspection is that if there is a specific defect or flaw that leads to a leak in the BOV sump/skid area of a car, the car owner and FRA will be made aware of the defect, enabling the car owner to take corrective action and FRA to monitor the issue. A leak will not necessarily manifest itself right at the BOV but in the larger sump/saddle area. Those conducting pre-trip inspections need to be specifically looking at this area and having the documentation requirement calls greater attention to it and reduces the chance that it will be skipped or only given a cursory examination. The pre-trip inspection § 173.31(d) requires is a general requirement that all, presumably non-defective, tank cars must be visually inspected prior to being offered in transportation. This is a general requirement for all tank cars, not a specific response to a known issue for tank cars that are potentially in an unsafe operating condition. The requirement in the RWD that pre-trip inspections be documented is therefore warranted.

Nevertheless, in ARI's May 22, 2017, comments and after further evaluation of the issue, FRA believes the best estimate of the number of annual loaded moves is 10 and FRA continues to believe each visual inspection/record should take no longer than 10 minutes to complete, which equates to a total annual burden of 24,167 hours. FRA's revised estimate of 10 annual loaded moves per car is based on U.S. Energy Information Administration statistics demonstrating that the real number is approximately 8 carloads annually.[e] While the volume of hazardous materials shipped in DOT-111 cars such as the

[e] See https://www.eia.gov/dnav/pet/PET_MOVE_RAILNA_A_EPC0_RAIL_MBBL_M.htm.

ARI-, ACF-300 cars the Revised Directive covers, varies based on a variety of factors (particularly the price of oil), these statistics represent a good approximation of current conditions. In the interest of being conservative, FRA is, however, assuming 10 car loads annually. Completing the required visual inspection/record is not a time-consuming process and should take significantly less than 20 minutes. Indeed, a FRA tank car expert conducted a sample visual inspection in under 3 minutes. This sample inspection was conducted by physically inspecting, while being timed, the BOV sump/skid area and filling out a sample form documenting the inspection. In the interest of being conservative, and allowing for variability in inspections, conditions, and individual recordkeeping practices, FRA estimates 10 minutes per inspection.

(3) As noted in the April 21, 2017 Notice, to inspect and test the sump and BOV skid groove attachment welds and maintain record results, FRA previously revised its initial estimate of 6,600 total annual burden hours to 41,325 burden hours to reflect the 2,175 cars subject to this requirement (15 percent of the estimated fleet of 14,500 cars subject to the Directive)[f] and increased its estimate of the average time it takes to complete this requirement from 2 hours to 19 hours (i.e., 4 hours for cleaning, inbound inspection, and estimating (write-up), plus 3 hours for inspection, testing, records preparation for visual and ultrasonic testing, plus 12 hours for car repairs). The 4 hours for cleaning and inbound inspection comports with industry practices and is the average time to clean a car (there is a large amount of variance in the time it takes to clean cars based on design, linings, car's previous contents, etc.).[g] As evidenced by ARI's own UT procedures, a UT inspection itself takes less than 20 minutes (assuming an appropriate scanning speed is used, the length of the welds and appropriate scan width is accounted for, and assuming15 minutes for setup and report writing time). Thus, FRA believes that a total annual burden of 41,325 hours is closest to the true burden. However, to be conservative and account for the wide variance in industry practices for cleaning cars, FRA is adjusting its burden estimate for this requirement to ARI's asserted total burden of 83,600 hours (38 hours per car).

Related to this burden estimate, in its May 22, 2017 comments, ARI recommended that FRA allow industry to "utilize the currently accepted industry inspection methodology" instead of the Directive's 90% POD requirement. FRA notes the inspection methods the Directive requires are the same methods and technologies industry already uses. The nondestructive testing prescribed (ultrasonic testing, etc.) is already required by Federal regulation and is prevalent in the rail industry. 49 C.F.R. § 180.509(e)(4). The Directive is more specific than Federal regulations, however, because it specifies the measure of sensitivity and reliability of the inspection methods required (i.e., the 90% POD

[f] FRA recognizes the total fleet of cars subject to this RWD is approximately 14,800, but based on written and verbal reports provided to FRA to date, FRA understands that 300 cars have already been inspected under terms meeting the RWD.

[g] See https://www.gbrx.com/press-room/perspectives-updates/the-basics-of-railcar-cleaning-re-lining/.

standard).

Federal regulations require tank car facilities (including manufacturers such as ARI) to have quality assurance programs in place that, among other things, include "procedures for evaluating the inspection and test technique employed, including the accessibility of the area and the sensitivity and reliability of the inspection and test technique and minimum detectable crack length." 49 C.F.R. § 179.7(b)(10). Federal regulations also require tank car facilities' quality assurance programs to (1) ensure the finished product conforms to the requirements of the applicable DOT specification and regulations; (2) have the means to detect any nonconformity in the manufacturing, repair, inspection, testing, and qualification or maintenance program of the tank car; and (3) prevent non-conformities from recurring. 49 CFR § 179.7(a). Since the defects identified in FRA's Directives escaped ARI's detection during the manufacturing process, ARI failed to meet the performance requirements of § 179.7(a) and, either ARI did not have the required procedures to evaluate the sensitivity and reliability of its inspection and test techniques, or those procedures were inadequate. FRA is now requiring inspection and testing to a specific sensitivity and reliability standard to ensure the defects ARI's processes failed to identify during the manufacturing process are detected and addressed.

By May 20, 2016, months before the Directive, ARI had already developed and successfully tested an ultrasonic testing procedure meeting the 90% POD standard. Thus, in the Directive, FRA is merely requiring ARI to use its existing procedure to inspect and test welds that it would not normally have to inspect once a car is completely manufactured. Because ARI's quality assurance program failed to detect the nonconformities in the welds at the time of manufacturing, inspections are now required to ensure the defects are identified and corrected.

FRA notes requiring ARI inspect to a 90% POD imposes no additional costs compared with the ultrasonic inspection methodologies referenced by ARI above. The 90% POD only means that tank car facilities will need to do high quality inspections, not that they need to use different inspection methods or technologies.

(4) For removal of the tank lining as part of the visual inspection/testing/repair requirement, in its comments, ARI estimates it will be necessary to remove the tank lining in 660 cars (approximately 30 percent of the cars required to be inspected under this RWD). FRA believes that actual number is closer to 435 tank cars (20% of the 2,175 cars to be inspected under the RWD) but to be conservative, FRA is adopting ARI's estimate of 660 cars. Both FRA and ARI estimate this process will take an average of 2 hours per car to complete. FRA's revised burden total is the same as ARI's, amounting to 1,320 hours.

In its May 22, 2017 comments, ARI also asserted that "because visual inspection has never detected any flaw of any size in the over 400 inspections that ARI has performed, removing an intact lining and reapplying a patch is time consuming unproductive, and

creates unnecessary risks" FRA should "remove the visual inspection requirement from the Directive." FRA notes that by requiring surface inspection methods (of which visual inspection is one method) in conjunction with volumetric inspection methods, FRA is requiring a comprehensive inspection of the welds at issue to ensure that any existing defects in the welds are caught. This level of caution is necessitated by the hazardous materials hauled in these tank cars and the dangers even a small leak can pose. No one inspection method is perfect and 100% successful in leading to the identification of weld defects. FRA intends surface inspections performed in conjunction with volumetric inspections to provide a level of redundancy in inspections to ensure no defects go undetected. Visual surface inspections can identify conditions which may mask or be confused with volumetric inspection indications such as surface corrosion, scaling, blisters, slivers, pits, and lack of fill between weld passes, and surface laminations. These conditions must be investigated and remediated prior to conducting volumetric inspections. That ARI has found no flaws in their surface inspections so far is not dispositive of the safety benefit of this requirement or its utility going forward.

In addition, the Revised Directive provides for several surface inspection methods, including liquid penetrant and magnetic particle, not just visual inspection. Some of these methods, such as magnetic particle, can be used on cars with interior coatings without needing to remove those coatings. Thus, the Revised Directive provides ARI several surface inspection options, including some that do not require that interior coatings be removed. What method a car owner wishes to employ on its cars is the owner's decision, but the Revised Directive does not require the removal of interior coatings for a visual inspection. None of these methods, however, can be used on rubber-lined cars without first removing the lining so ARI is correct that a rubber lining would need to be partially removed and later patched in order to conduct a surface inspection.

(5) To train and test tank car mechanics who are not qualified on NDT procedures and record qualification, FRA previously revised its original estimate that 33 individuals would need to be trained and tested to 90. In light of ARI's estimate that 100 individuals would require training, FRA has now again revised its estimate of the total number of individuals who will need such training to 100, the same as ARI's estimate. The amount of training required is subjective and FRA believes its estimate of approximately 2 hours to train each person (for a total annual burden hours of 200 hours) is practical and justified. However, to be conservative and to recognize the varying training practices of industry, FRA is adjusting its estimate of the amount of time it will take to train each individual to ARI's estimate of 6.4 hours (for a total annual burden of 640 hours).

(6) For tank car notification to all parties of the terms of the Directive and inspection/testing schedule, FRA originally estimated 100 notifications to the affected parties (i.e., tank car lessees) and 1 hour to complete each notification. As noted in FRA's April 21, 2017 Notice, after further consideration, FRA doubled its estimated average time to complete each notification to 2 hours (for a total burden of 200 hours). ARI calculates the

estimated burden of this requirements as 8,800 hours to include 2,200 cars and 4 hours to complete each required notification. However, ARI misinterprets the requirement and applies the notifications to **cars** rather than **all parties under contract to tank car owners**. Consequently, it vastly overestimates the number of notifications. ARI's average time estimate of 4 hours per notification is double FRA's revised estimate and because it is based on cars, not parties under contract to the tank car owners, it is not based on facts and is unrealistic.

(7) For reports of inspection, test, and repair information to FRA, FRA already accounted for this burden in its earlier 19-hour estimate in (3) above for inspection, testing, repair, and corresponding records that totaled 41,325 hours. ARI estimated this burden at 83,600 hours as explained in (3) above, but then includes an additional burden here of 6,600 hours. Thus, ARI has mistakenly double-counted this burden.

(8) For tank car facility requests to tank car owners for written permission and approval of qualification and maintenance programs, FRA stands by its original total annual burden estimate of 7 hours (20 written requests plus 20 written permissions at 10 minutes each). FRA believes ARI's estimate of 660 hours misinterprets the requirement. ARI includes a written permission by the tank car owner for 330 cars (15% of 2,220 cars) rather than for the qualification and maintenance program operated by the tank car facility. FRA does not believe it will take triple the time (60 minutes as opposed to 20 minutes) to complete each written request and triple the time to complete each written permission (again 60 minutes as opposed to 20 minutes). FRA also understands that in most, if not all cases, tank car owners use the same, or a limited number of, facilities that they have granted block or blanket approval to. This obviates the need to obtain permission for individual cars each and every time. Thus, FRA maintains its previously-stated estimate for this requirement.

(9) For reports by tank car facilities to tank car owners of all work performed and all observed damage, deterioration, failed components, or noncompliant parts under 49 CFR 180.513, FRA estimates there will be 2,175 repair reports/records and it will take approximately 12 hours to complete each weld defect repair and associated report/record for a total annual burden of 26,100 hours. ARI estimated 330 cars would need repairs at an average of 3 hours per repair for a total burden of 990 hours. FRA believes ARI underestimated the time necessary to complete repairs for weld defects and the corresponding report/record and, thus, the true burden. FRA is therefore maintaining its burden estimate of 26,100 total annual burden hours for this requirement.

(10) Regarding the exemption provision of the Revised Directive (paragraph 2.i), FRA estimates 10 tank car owners will request exemptions and that it will take 2 hours to complete the initial part of each exemption/relief petition and 6 hours to complete the analysis part of each petition for a total of 80 hours (10 petitions times 8 hours per petition) and 38 hours per car (as laid out in number 3 above) to re-inspect 205 cars for

7,790 burden hours for a grand total of 7,870 burden hours. In ARI' their latest round of comments ARI estimated 20 hours for the petitions and 45 hours per car to re-inspect the 205 cars for a total of 9,245 hours. FRA stands behind it's above estimate of 19 hours per car (i.e., 4 hours for cleaning, inbound inspection, and estimating (write-up), plus 3 hours for inspection, testing, records preparation for visual and ultrasonic testing, plus 12 hours for car repairs) but, as previously noted, has agreed to be conservative and use ARI's estimate of 38 hours per car (as noted in 3 above).

Overall, FRA's modified estimates amount to 144,804 hours. For the reasons outlined above, FRA believes this revised total is more accurate and more reasonable than its original estimates[h] and ARI's estimate of 211,422 hours.

9. Payments or gifts to respondents.

There are no monetary payments or gifts made to respondents regarding the proposed information collection requirements resulting from this emergency order.

10. Assurance of confidentiality.

No assurances of confidentiality were made by FRA.

Information collected is not of a private nature.

11. Justification for any questions of a sensitive nature.

There are no questions of a sensitive or private nature involving the proposed collection of information associated with this Revised Directive.

12. Estimate of burden hours for information collected.

Note: FRA believes that 300 tank cars have already been inspected and thus estimates that approximately 14,500 additional tank cars will be subject to this Revised Directive. Additionally, FRA estimates that there will be ten (10) load moves per year of these cars. Further, FRA estimates the respondent universe to be 20 tank car owners and 100 Lessees or Sub-Lessees who use their tank cars and 10 tank car facility operators.

[h] FRA notes its December 21, 2016, 60-day Federal Register notice contained an error in math. The total burden in that notice should have been 30,240 hours higher (for a total burden of 53,164 hours). See 81 FR 93725.

Railworthiness Directive 2016-01 (Revised) – Provisions:

Upon the date of issuance of this Directive, tank car owners must:

1. Identify the railroad tank cars in their fleet manufactured by ARI or ACF to the ARI 300 or ACF 300 stub sill design and equipped with a two-piece cast sump and BOV skid (covered cars) and provide to FRA within 30 days of the issuance of this Revised Directive, the reporting mark and number of: (1) all covered cars; (2) all covered cars in the owner's fleet in hazardous materials service as of the issuance date of this Revised Directive; and (3) of the identified covered cars in hazardous materials service, identify the top 15% of cars with the highest mileage. If 15% of the covered cars in hazardous materials service results in a decimal, then the decimal value must be rounded up (e.g., 15% of 10 tank cars results in a value of 1.5 and thus must be rounded up to 2 tank cars).

   a. Before offering a tank car for transportation under the conditions of this Revised Directive, the tank car owner or other offeror of the car, must ensure there is no visible leak from the BOV saddle and sump weld areas, the car complies with all applicable regulatory requirements, and is in a safe condition for transportation.

   b. The person performing the inspection must document the inspection and must make the results of the visual inspection available to FRA upon request. If a leak is identified, the results of the inspection must be documented and forwarded to the tank car owner and to FRA via email. Email notifications to FRA must be sent to: HMASSIST@DOT.GOV .

   Of the estimated fleet of approximately 14,500 tank cars potentially affected by this safety Directive, FRA estimates that tank car owners will complete approximately 100 reports identifying covered cars. It is estimated that it will take approximately four (4) hours to identify these tank cars, and complete the necessary report with the required information. It is estimated that it will take approximately 500 hours to identify cars covered by the directive. Total annual burden for this requirement is 900 hours. (*Note: In calculating this burden estimate, FRA factored in that owners may have to consult the drawings referenced on cars' certificates of construction and the time it may take to parse out which cars are in hazardous materials service and which are the top 15% highest mileage cars in each owner's fleet*.)

Respondent Universe:	20 Tank Car Owners (100 Lessees/Sub-Lessees)
Burden time per response:	4 hours per report, 500 hours for identifying covered cars
Frequency of Response:	On occasion
Annual number of Responses:	100 identifications/reports
Annual Burden:	900 hours

Calculation: 100 identifications reports/records x 4 hrs. = 400 hours

400 hours + 500 hours to identify cars covered by this directive = 900 hours

Additionally, FRA estimates that approximately 14,500 tank cars will have the sump weld area visually inspected prior to movement in transportation under the above requirement. As stated above in the summary for question number 12, FRA calculates that there will be ten (10) load moves per year or approximately 145,000 inspections/ records completed each year (14,500 cars x 10 load moves). It is estimated that it will take approximately 10 minutes to complete the inspection and required record. Total annual burden for this requirement is 24,166.67 hours.

Respondent Universe:	100 Shippers
Burden time per response:	10 minutes
Frequency of Response:	On occasion
Annual number of Responses:	145,000 pre-trip visual inspections/ records
Annual Burden:	24,167 hours

Calculation: 145,000 pre-trip visual insp./records x 10 min = 24,167 hours

Total annual burden for this entire requirement is 25,067 hours (900 + 24,167).

2. Inspect and test the sump and BOV skid groove attachment welds as follows:

a. Facilities. All inspections and tests required by this Revised Directive (other than the visual inspection required by paragraph 1 above) must be performed by tank car facilities (defined at 49 CFR § 179.2) certified by the AAR consistent with Appendix B of the AAR Tank Car Manual (Tank Car Manual). (Appendix B provides the requirements for tank car facilities to obtain AAR certification.)

b. Procedures. Due to the subsurface location of the identified slag inclusions and related cracks, volumetric inspection methods (ultrasonic testing) must be used in conjunction with surface inspection methods (e.g., liquid penetrant, magnetic particle or visual inspection) to ensure the welds are completely examined.

i. All non-destructive testing (NDT), including visual inspection, must be performed consistent with written procedures described in Appendix T, paragraph 1.18 of the Tank Car Manual and approved by an individual qualified and certified as a Level

III in the NDT method. (Appendix T provides the requirements for qualification and certification of NDT procedures and personnel for tank cars.)

ii. All surface (liquid penetrant, magnetic particle and visual inspection) methods must be able to detect indications 0.188 (3/16) inches long by 0.016 (1/64) inches wide (maximum values) to a 90% probability of detection (POD). Volumetric NDT methods (e.g., ultrasonic testing (UT)) must be able to detect indications of major dimension 0.188 (3/16) inches by 0.125 (1/8) inches deep (maximum values) to a 90% POD. UT methods and techniques used must allow for clearance around internal attachments adequate to
perform longitudinal and transverse wave scanning, including procedures for phased array UT, if used.

FRA estimates that all 2,200 tank cars (15 percent of the affected 14,500 tank cars rounded up to match ARI) will undergo inspections/testing by qualified/certified personnel under the above requirement. It is estimated that it will take approximately 38 hours to perform the required inspections/tests and complete the obligatory record (broken down as follows: 8 hours for cleaning, inbound inspection, and estimating (write-up) plus 6 hours for inspection, testing, and records preparation for visual and ultrasonic testing plus 24 hours per car for repairs). Total annual burden for this requirement is 83,600 hours.

Respondent Universe:	20 Tank Car Owners (100 Lessees/Sub-Lessees)
Burden time per response:	38 hours
Frequency of Response:	On occasion
Annual number of Responses:	2,200 inspections/records
Annual Burden:	83,600 hours
Calculation:	2,200 records x 38 hrs. = 83,600 hours

For removal of the tank lining as part of the visual inspection/testing/repair requirement FRA estimates that these activities would involve 660 tank cars (i.e., 30 percent of the 2,200 tank cars) and would take approximately two (2) hours per car to complete. Total annual burden for this requirement is 1,320 hours.

Respondent Universe:	20 Tank Car Owners (100 Lessees/Sub-Lessees)
Burden time per response:	2 hours
Frequency of Response:	On occasion
Annual number of Responses:	660 inspections/tests/repairs/records
Annual Burden:	1,320 hours

Calculation: 660 inspections/tests/repairs/records x 2 hrs. = 1,320 hours

c. Personnel. All personnel, including subcontractors, reviewing and approving NDT procedures and reports, including visual inspections, must be qualified and certified to Level II or Level III consistent with Appendix T of the Tank Car Manual and the tank car facility's written practice.

i. In addition to the requirements of Paragraph 2c, all personnel performing NDT on these welds, and reviewing procedures and reports, including subcontractor personnel, must be trained and tested on the procedures to be used and samples representing the welds to be inspected consistent with 49 CFR Part 172, Subpart H, and Appendix T of the Tank Car Manual.

Regarding the requirement under paragraph (c) above, personnel reviewing and approving NDT procedures and reports, including visual inspections have already been qualified and certified to Level II or Level III consistent with Appendix T of the Tank Car Manual and tank car facility's written practice. Thus, no checks are necessary and there is no burden associated with this requirement.

Regarding 2(c) above, FRA estimates approximately 100 mechanics will be affected by this requirement. Further, the agency estimates that approximately 100 mechanics are not/have not been trained/tested on the procedures to be used. These mechanics will be performing NDT on these tank car welds (or will be reviewing procedures and reports) and thus will need to be trained and tested. It is estimated that it will take approximately six and four tenths (6.4) hours to train and test these employees and complete the necessary record. Total annual burden for this requirement is 640 hours.

Respondent Universe:	10 Tank Car Facility Operators
Burden time per response:	6.4 hours
Frequency of Response:	On occasion
Annual number of Responses:	100 trained mechanics/records
Annual Burden:	640 hours

Calculation: 100 trained mechanics/records x 6.4 hrs. = 640 hours

e. Records. All inspection and test results must be documented, including re-inspections of repairs. The documentation must include the information described in Appendix T, paragraph 1.20 of the Tank Car Manual including the additional reporting requirements of Appendix T for the applicable NDT method(s) chosen.

i. A separate record must be completed for each inspection and test performed on each tank car.

ii. The results of UT inspections must be recorded and digital recordings or images of indications (i.e., any variance from the baseline reading) found must be maintained with the inspection and test record.

iii. In addition to the record retention periods required by Chapter 1 of the Tank Car Manual for tank car facilities, the tank car owner must retain all records and documentation required by this Directive for 10 years following the completion of the inspections and tests.

The burden for this requirement is already included above (under 2(b)). Consequently, there is no additional burden associated with it.

f. Schedule. The inspections and tests required by this Revised Directive must be performed according to the following schedule:

i. Within 12 months from the date of issuance of this Revised Directive, 15 percent of each owner's fleet of covered cars in hazardous materials service with the highest total mileage must be tested and inspected;

ii. Tank car owners must include the results of the inspections and tests required by this Directive in the analysis of its qualification and maintenance program at the intervals required by 49 CFR §§ 180.501 and 180.509;

iii. Within 60 days of the issuance of this Revised Directive, each owner of a tank car subject to this Revised Directive must notify all parties under contract to the car owner, including its lessees and/or sub-lessees, using the cars covered by the Revised Directive of the terms of this Revised Directive and the inspection and testing schedule.

FRA estimates that approximately 100 notifications will be sent by tank car owners to all parties under contract to the car owner, including its lessees and/or sub-lessees, using the cars covered by the Directive of the terms of this Directive and the inspection and testing schedule. It is estimated that it will take approximately two (2) hours to complete each notice and send it to the appropriate party. Total annual burden for this requirement is 200 hours.

Respondent Universe:	20 Tank Car Owners (100 Lessees/Sub-Lessees)
Burden time per response:	2 hours
Frequency of Response:	On occasion
Annual number of Responses:	100 notifications
Annual Burden:	200 hours

Calculation: 100 notifications x 2 hrs. = 200 hours

iv. After receiving the notification required by paragraph 2.f.iii, a lessee or other offeror of a tank car subject to this Revised Directive must document each pre-trip inspection required under paragraph 1 of this Revised Directive.

The burden for this requirement is already included under that for the burden of the 14,500 cars depicted in Item 1 (paragraph 1) above. Consequently, there is no additional burden associated with this provision.

g. Reports. Owners of tank cars subject to this Revised Directive must report the inspection, test, and repair information to FRA as follows:

i. Tank car reporting mark(s) and number(s) of tank cars in an owner's fleet identified under paragraph (1) of this Revised Directive;

ii. Planned inspection and test schedule for each tank car identified under paragraph (1) of this Revised Directive for inspection (i.e., 15% of the tank car fleet in hazardous materials service with the highest mileage), by reporting mark and number;

iii. Tank car facility (station stencil) that performed the inspection(s) and test(s);

iv. Date(s) the test(s) and inspection(s) were performed;

v. Inspection and test method(s) and procedure number(s) used:

vi. Name(s) of inspector(s) performing the inspection(s) and test(s), level(s) of certification, and method(s) certified;

vii. Inspection and test results;

viii. Corrective (repair) action(s) taken; and

ix. The type and date of any accidents, incidents, or releases from the tank car related to the welds that are subject of this Revised Directive.

The information must be submitted in written hardcopy format or sent electronically to: Larry Strouse, General Engineer, Hazardous Materials Division, Office of Technical Oversight, FRA, 200 West Adams Street, Suite 310, Chicago, Illinois, 60606, (312) 353-6203, e-mail: Larry.Strouse@dot.gov. FRA must receive initial reports within 30 days from the date of issuance of the Revised Directive and subsequent updates every 90 days until a tank car owner has met the inspection and testing requirements in paragraph f.1.

FRA already accounted for this burden in its earlier 19-hour estimate in 2b(ii)

above for inspection, testing, repair, and corresponding reports/records that totaled 41,325 hours. Consequently, there is no additional burden associated with this requirement.

Additionally, FRA estimates that approximately 2,175 cars (i.e., 15 percent of the affected fleet of 14,500 tank cars) will have corrective action taken (repairs performed) and the required report/record completed under the above requirement. It is estimated that it will take approximately 12 hours to complete the necessary repairs for weld defects and send the required report/record to the tank car owner. Total annual burden for this requirement is 26,100 hours.

Respondent Universe:	10 Tank Car Facility Operators
Burden time per response:	12 hours
Frequency of Response:	On occasion
Annual number of Responses:	2,175 repair reports/records
Annual Burden:	26,100 hours

Calculation: 2,175 repair reports/records x 12 hrs. = 26,100 hours

h. Repairs. Prior to initiating any repairs, a tank car facility must obtain the tank car owner's written permission and approval of the qualification and maintenance program the tank car facility will use consistent with 49 CFR 180.513 and Appendices D, R, and W of the Tank Car Manual.

FRA estimates that approximately 20 written permissions will be obtained from tank car owners by tank car facility operators under the above requirement. It is estimated that it will take approximately 10 minutes to request the written permission via e-mail by the tank car facility operator and approximately 10 minutes for the tank car owner to respond with the written permission via e-mail. Total annual burden for this requirement is seven (7) hours.

Respondent Universe:	10 Tank Car Facility Operators
Burden time per response:	10 minutes + 10 minutes
Frequency of Response:	On occasion
Annual number of Responses:	20 written requests + 20 written permissions
Annual Burden:	7 hours

Calculation: 20 written requests x 10 min + 20 written permissions x 10 min. = 7 hours

A tank car facility must report all work performed and all observed damage, deterioration, failed components, or noncompliant parts to the owner under 49 CFR

180.513.

The burden for this requirement is included directly above under that of 2(g). Consequently, there is no additional burden associated with it.

i. Exemption. Notwithstanding the scope of this Revised Directive, FRA may grant relief from this Revised Directive for ACF-manufactured tank cars and/or for tank cars that ARI and CIT voluntarily inspected prior to November 15, 2016, if: (A) a representative sample is inspected consistent with this Revised Directive; (B) the results of the inspections are provided to FRA for review; and (C) the results provide sufficient evidence to warrant FRA exemption of that group of tank cars from this Revised Directive. The required sample sizes to request exemption are as follows: (**New Requirement under Revised Directive**)

(A) ACF tank cars manufactured to the ACF 300 design: 125

(B) Cars voluntarily inspected prior to November 15, 2016: 80

FRA estimates that approximately 10 petitions for exemption/relief will be submitted by Tank Car Owners to FRA under the above requirement. It is estimated that it will take two (2) hours to complete the initial part of each exemption/relief petition and it will take approximately six (6) hours to complete the analysis portion of each exemption/relief petition. Further, it will take 38 hours to inspect each car. Total annual burden for this requirement is 7,870 hours.

Respondent Universe:	20 Tank Car Owners (100 Lessees/Sub-Lessees)
Burden time per response:	8 hours per petition, 38 hours per car
Frequency of Response:	On occasion
Annual number of Responses:	10 exemption/relief petitions, 205 cars
Annual Burden:	7,870 hours

Calculation: 10 exemption/relief petitions x 8 hrs. + 205 cars x 38 hours = 7,870 hours

Total annual burden for provision/item 1 requirement is 25,067 hours (900 + 24,167).

Total annual burden for provision/item (2(a)-(i)) is 119,737 hours (83,600 + 1,320 + 640 + 200 + 26,100 + 7+ 7,870).

Total annual burden for this entire information collection is 144,804 hours (25,067 + 119,737)

13. Estimate of total annual costs to respondents.

Besides the burden hours listed in the answer to question number 12 above, tank car owners will incur costs for the following: transportation and switching of tank cars (inbound and outbound); cleaning and residue; ultrasonic testing and retesting; weld repair; post-weld heat treatment, lining touch-up (if required); collateral repairs; and leak testing repaired cars. These costs are as follows:

COST ESTIMATES PER CAR:

1. Transportation and switching (inbound and outbound) - $2,600
2. Cleaning and residue disposal - $1,200
3. Ultrasonic testing and re-testing - $400 per car.
4. Weld repair, Post Weld Heat Treatment, lining touch-up (if required) - $1,000. Estimating 15% of 14,800 cars amortized over 14,800 cars equals $150 per car.
5. Collateral repairs - $1,000
6. Leak testing repaired cars - $50 per car.

Total = $5,400 per car

TOTAL COST = **$1,620,000** (Calculation: 300 tank cars x $5,400 p/car)

14. <u>Estimate of Cost to Federal Government</u>.

FRA estimates that one staffer (program specialist/general engineer) at the GS-14-6 level will spend approximately eight (8) hours per year working on overseeing the required reports submitted by tank car owners. Thus, a cost of **$840** will be incurred by FRA.

<u>Calculation</u>:

8 hours x $105 = **$840**

Note: The hourly labor rate of $105 is derived from 2015 OPM Federal Salary Table (salary of GS-14-6 in Washington, DC burdened by 75% overhead costs).

15. <u>Explanation of program changes and adjustments</u>.

The total burden for this information collection has <u>increased</u> by *75,851* **hours**. The change in burden is due to one (1) **program change** and to several **adjustments** that FRA has made to its previously approved estimates after carefully considering and evaluating ARI's burden estimates submitted to the agency in its public comment dated February 21, 2017. FRA believes its revised estimates are reasonable, and realistic.

The following table presents the one (1) **program change**:

TABLE FOR PROGRAM CHANGE(S)

RWD Provision	Responses & Avg. Time (Previous Submission)	Responses & Avg. Time (This Submission)	Burden Hours (Previous Submission)	FRA Burden Hours (This Submission)	Difference (plus/minus)
i. Petitions for exemption from requirements of revised Directive; inspections of 125 ACF tank cars + 80 tank cars voluntarily inspected by ARI/ CIT	0 petitions 0 hours	10 exemption petitions; 125 ACF tank car inspection + 80 tank cars voluntarily inspected	0 hours	7,870 hours	+ 7,870 hours + 215 resp.

Program change(s) above increased the burden by *7,870 hours* and increased the number of responses by *215*.

The table below depicts all **adjustments**:

TABLE FOR ADJUSTMENTS

RWD Provision	Responses & Avg. Time (Previous Submission)	Responses & Avg. Time (This Submission)	Burden Hours (Previous Submission)	FRA Burden Hours (This Submission)	Difference (plus/minus)
1. Identify covered tank cars and report	20 reports 4 hours each	100 reports 4 hours each 500 hours to identify covered cars	80 hours	900	+ 820 hours + 80 resp.

1.Pre-trip visual inspection of BOV saddle and sump weld area	14,000 insp./ records 10 min. ea.	145,000 inspections /records 10. min. ea.	2,333 hours	24,167 hours	+ 21,834 hours + 131,000 resp.
2a. Inspections and tests required in addition to pre-trip visual inspection	14,000 insp./ records 2 hours ea.	2,200 inspections/ records 38 hours ea.	28,000 hours	83,600 hours	+ 55,600 hours -- 11,800 resp.
2b. Cleaning tank cars, inbound inspection/ examination, AAR interchange repairs, bubble leak testing, airbrake test, final inspection, record preparation	0 insp./test / records 0 hours	660 inspections/ tests/records 2 hours ea.	0 hours	1,320 hours	+ 1,320 hours + 660 resp.
2c. Training/testing of mechanics on necessary procedures	33 trained mechanics/ records 2 hours	100 trained mechanics/ records 6.4 hours	66 hours	640 hours	+ 574 hours + 67 resp.
2g. Reports of tank car inspections/tests to FRA - Repairs and reports/ records	14,000 reports 20 min. ea. 2,100 repair reports/records 16 hours	0 reports 0 hours (covered in 2b(ii)) 2,175 repair reports/records 12 hours	4,667 hours 33,600 hours	0 hours 26,100 hours	-- 4,667 hours -- 14,000 resp. -- 7,500 hours + 75 responses

Adjustments above increased the burden by *67,981 hours* and increased the number of responses by *106,082*.

The current OMB inventory shows a total burden of *68,953 hours* and *44,293 responses*, while the present submission exhibits a total burden of *144,804 hours* and *150,590 responses*. Hence, there is a total increase of *75,851 hours* and *106,297 responses*.

FRA has revised the cost to respondents to reflect an increase of **$540,000** from the last approved submission. The increase in cost is due to an **adjustment**. Specifically, in the previous submission, FRA accounted for only 200 of the tank cars that have already been inspected and the associated cost ($1,080,000) instead of the actual 300 tank cars that have already been inspected. The cost for the additional 100 cars is $540,000 (100 x $5,400) raising the total cost to respondents to **$1,620,000** from the previous **$1,080,000**.

16. Publication of results of data collection.

FRA does not have any plans to publish the results of this collection of information

17. Approval for not displaying the expiration date for OMB approval.

Once OMB approval is received, FRA will publish the approval number for these information collection requirements in the Federal Register, and will take necessary steps to obtain a regular OMB Clearance.

18. Exception to certification statement.

No exceptions are taken at this time.

Meeting Department of Transportation (DOT) Strategic Goals

This information collection supports the top DOT strategic goal, namely transportation safety. If this information were not collected or collected less frequently, rail safety throughout the United States could be significantly jeopardized by tank cars carrying hazardous materials – such as denatured alcohol, crude oil, and ethanol, among others – releasing such materials. Such releases could result in accidents/incidents with corresponding injuries, fatalities, and property damage as well as possible environmental harm to surrounding communities. As noted in the background information of this Directive, a recent FRA investigation identified a certain design of specification DOT-111 general purpose tank cars American Railcar Industries, Inc. (ARI) and ACF Industries, LLC (ACF) built between 2009 and 2015 to the ARI 300 and ACF 300 stub

sill design and equipped with a two-piece cast sump and bottom outlet valve (BOV) skid that were not manufactured using welding practices in conformance with Federal regulations and Association of American Railroads (AAR) welding specifications and thus may be in unsafe operating condition. To avoid release of their contents, it is imperative all tank cars with this design specification be immediately identified and those tank cars placed in hazardous materials service be tested and inspected within 12 months of the date of the issuance of this Directive. Furthermore, all such tank cars placed in non-hazardous materials service must be tested and inspected within 18 months of the date of the issuance of this Directive. Additionally, tank cars returning to service or withdrawn from storage and placed in hazardous or non-hazardous materials service prior to loading must have the required tests and inspections performed within 24 months from the date of issuance of this Directive. To further ensure safety, tank cars not inspected and tested according to this Directive may not be loaded and/or offered into transportation until they are inspected and tested in accordance with the requirements of this Directive.

Without the proposed collection of information, FRA would have no way to be assured that tank car owners are complying with the requirements of this Directive, particularly identifying tank cars with the potentially flawed welds and performing the stipulated inspections, tests, and repairs. To ensure rail safety, it is essential that tank car owners provide the reporting mark and number of each car in their fleet manufactured by ARI or ACF to the stub sill design and equipped with a two-piece cast sump and bottom outlet valve (BOV) skid to FRA. Without this identifying information and without the required reports and records stipulated in the Directive, FRA inspectors would be unable to verify that tank car owners are performing all the necessary tests and inspections, including the pre-trip visual inspections of the BOV saddle and sump weld areas of the affected tank cars before allowing them to be used for transportation. Also, without the information to be collected, FRA would be unable to confirm that inspections and non-destructive tests (NDT) are performed by mechanics properly trained in the correct NDT procedures. Without the required training, it is likely that leaking tank cars carrying hazardous materials would be placed into service by improperly or poorly trained tank car mechanics, thereby significantly increasing the risk of serious accidents/incidents and corresponding injuries, fatalities, and property damage as well as possible environmental harm to surrounding communities.

Further, without the notification requirement of proposed collection of information, tank car facility operators servicing tank cars covered by this Directive would not know the terms of this Directive. In particular, they would not know of these cars potential substantial safety risk due to weld defects at the sump and BOV skid groove attachment welds, and would not know proper conforming welding practices to use. The likely result of such lack of knowledge would be more tank cars placed into service with leaking materials. Tank cars leaking materials, particularly hazardous materials, pose greater risks of accidents/incidents with corresponding increases in injuries, fatalities, and property damage. Further, without the notification requirement by tank owners of the

terms of this Directive, tank car facility operators would not know the mandated inspection and testing schedule. Without this knowledge, tank car facility operators would be unable to perform the required inspections and tests in the stipulated time frames and might set different servicing priorities for tank cars in hazardous materials service, again increasing the risks of accidents/incidents.

Finally, without the required reports and records, FRA would have no way of knowing whether thousands of tank cars built to the ARI and ACF 300 sub sill design and equipped with a two-piece cast sump and bottom outlet valve skid have been identified. Lack of identification would enable these cars to operate without the heightened attention they deserve to ensure rail safety. Also, without the required records, FRA inspectors would not be able to determine whether facility operators carried out the mandated tests, inspections, and repairs, where necessary, according to the stipulated schedules and employing qualified tank car mechanics properly trained in NDT procedures and techniques, including procedures for visual inspection.

In sum, the proposed collection of information is essential and assists FRA in its primary mission of promoting and enhancing rail safety throughout the United States by allowing to FRA to monitor and enforce this safety Directive.

In this information collection and indeed in all its other information collection activities, FRA seeks to do its utmost to fulfill DOT Strategic Goals and to be an integral part of One DOT.