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-NEW

Summary of Submission

- This submission is a new collection of information requesting **Emergency processing** and 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 and ACF Industries, which was issued on the FRA Website on **September 30, 2016**. FRA published a Notice in the **Federal Register** on **October 3, 2016**, informing railroads, the public, and other interested parties of the issuance of this Directive and the address of the agency Web site where they may access it. See 81 FR 68100.

- FRA is requesting OMB **Emergency** processing/approval of this collection of information **seven (7) days** after publication the **Emergency** Clearance **Federal Register** Notice on **October 11, 2016,** see 81 FR 70256**,** because FRA cannot reasonably comply with normal clearance procedures on account of use of normal clearance procedures is reasonably likely to disrupt the collection of information. The Directive took effect immediately upon issuance. Under the Directive, tank car owners must take immediate action to identify, inspect, and repair certain tank cars built by American Railcar Industries, Inc. (ARI) and ACF Industries, LLC (ACF) using welding practices not in conformance with Federal regulations and Association of American Railroads (AAR) welding specifications. FRA must receive required initial reports by **October 30, 2016**, and subsequent status updates every 90 days thereafter. Consequently, FRA cannot wait the normal 90 days of public comment. Additionally, in light of recent tank car accidents/incidents carrying crude oil and other hazardous materials, FRA believes safety is an issue.

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

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

- **The answer to question **number 12** itemizes the hourly burden associated with each requirement of this rule (See pp. 9-16).

1. Circumstances that make collection of the information necessary.

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 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.
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) 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 AAR's 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

[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.
[b] See 49 CFR 179.200-10.

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 cars 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 concludes 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.

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 bottom outlet valve (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.

[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 the above discussion, and acting under the authority granted in 49 CFR 180.509(b)(4), FRA finds that the specification 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 BOV skid may be in an unsafe operating condition. FRA finds that use of tank cars of this design could result in the release of hazardous materials. Further, the use of tank cars with the defective welds identified violates the requirements of the Hazardous Materials Regulations (49 CFR 179.200-10).

FRA is issuing this Directive to ensure public safety, to ensure compliance with the applicable Federal regulations governing the safe movement of hazardous materials by rail, and to ensure the railworthiness[e] of all general purpose tank cars built to the ARI 300 and ACF 300 stub sill car design equipped with a two-piece cast sump and BOV skid. This Directive requires owners to: (1) identify tank cars in their fleet covered by this Directive; and (2) ensure appropriate inspection and testing of each tank car's sump and BOV skid groove attachment welds to ensure no flaw exists which could result in the loss of tank integrity.

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

This is a new collection of information. The proposed collection of information will be used by FRA to ensure that tank car owners comply with the requirements of this Safety Directive. Specifically, tank car owners must identify and inspect 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. FRA will 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. All inspections and tests required by this Directive must be performed by tank car facilities – defined at 49 CFR 179.2 – certified by the Association of American Railroads (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

[d] ARI changed the sump and BOV skid groove attachment weld design in 2015 as a result of the incident with CTCX 736177.
[e] 49 CFR 180.503.

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 this Directive.

Finally, owners of tank cars subject to this 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 and every 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.

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

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

4. Efforts to identify duplication.

The proposed collection of information is new and pertains to a critical Safety Directive that FRA is issuing 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 will be affected by this Safety Directive. This Safety Directive will primarily affect the American Railcar Industries, Inc. (ARI) and its subsidiaries. A couple of small businesses/entities may be affected by this Directive. American Railcar Industries, Inc., however, (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 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 (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 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. Under the provisions of this 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 leakage of a tank car's contents, particularly one carrying hazardous materials, these records and documentation will prove an invaluable resource for NTSB and 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 to 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.

FRA's Railworthiness Directive for Certain Railroad Tank Cars Equipped with Bottom Outlet Valve Assembly and Constructed by American Railcar Industries and ACF Industries, was issued on September 30, 2016, on the FRA Web site. FRA published a Notice in the **Federal Register** on **October 3, 2016**, informing railroads, the public, and other interested parties of the issuance of this Directive and the address of the agency Web site. See 81 FR 68101.

FRA is requesting OMB **Emergency** processing/approval of this collection of information **seven (7) days** after publication the Emergency Clearance **Federal Register** Notice on **October 11, 2016,** see 81 FR 70256**,** because FRA cannot reasonably comply with normal clearance procedures on account of use of normal clearance procedures is reasonably likely to disrupt the collection of information. The Directive took effect immediately upon issuance. Under the Directive, tank car owners must take immediate action to identify, inspect, and repair certain tank cars built by American Railcar Industries, Inc. (ARI) and ACF Industries, LLC (ACF) using welding practices not in conformance with Federal regulations and Association of American Railroads (AAR)

welding specifications. FRA must receive required initial reports by **October 30, 2016**, and subsequent status updates every 90 days thereafter. Consequently, FRA cannot wait the normal 90 days of public comment. Additionally, in light of recent tank car accidents/incidents carrying crude oil and other hazardous materials, FRA believes safety is an issue.

Upon OMB approval of its emergency clearance request, FRA will follow the normal clearance procedures for the information collection associated with this Directive.

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 Railworthiness Directive.

12. Estimate of burden hours for information collected.

Note: FRA estimates that approximately 14,000 tank cars will be potentially subject to this Directive. 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.

Railroad Worthiness Directive – 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 and provide to FRA within 30 days of the issuance of this Directive, the reporting mark and number of each car. Before offering a tank car for transportation under the conditions of this Directive, the tank car owner or other offeror of the car shall ensure that there is no visible leak from the BOV saddle and sump weld areas, the car complies with all applicable regulatory requirements, and is in safe condition

for transportation. Each time a car subject to this Directive is offered in transportation, this visual inspection of the BOV saddle and sump weld area must be performed to ensure that there is no visible leak from the BOV saddle and sump weld areas. The person performing the inspection must document the inspection and provide a copy of the inspection results to the tank car owner within 30 days of the inspection. Tank car owners must maintain records of these inspections for 10 years.

Of the estimated fleet of approximately 14,000 tank cars potentially affected by this safety Directive, FRA estimates that tank car owners will complete approximately 20 reports identifying tank cars equipped with Bottom Outlet Valve (BOV) Assembly and constructed by American Railcar Industries and ACF Industries. 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. Total annual burden for this requirement is 80 hours.

	Respondent Universe: 20 Tank Car Owners (100 Lessees/Sub-Lessees)
Burden time per response:	4 hours
Frequency of Response:	On occasion
Annual number of Responses:	20 identifications/ reports
Annual Burden:	80 hours

Calculation: 20 identifications reports/records x 4 hrs. = 80 hours

Additionally, FRA estimates that approximately 14,000 tank cars will have the sump weld area visually inspected prior to movement in transportation under the above requirement. It is estimated that it will take approximately 10 minutes to complete the inspection and required record. Total annual burden for this requirement is 2,333 hours.

	Respondent Universe: 100 Shippers
Burden time per response:	10 minutes
Frequency of Response:	On occasion
Annual number of Responses:	14,000 records
Annual Burden:	2,333 hours

Calculation: 14,000 records x 10 min = 2,333 hours

Total annual burden for this entire requirement is 2,413 hours (80 + 2,333).

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

a. Facilities. All inspections and tests required by this 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 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 (liquid penetrant, magnetic particle and 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 NDT procedures and techniques used, including procedures for visual inspection, must be capable of locating, interpreting, evaluating, and sizing cracks, incomplete penetration, incomplete fusion, and slag inclusions to a level of sensitivity and reliability of 90% (90% probability of detection).[f] Ultrasonic testing methods and techniques used must allow for clearance around internal attachments adequate to perform longitudinal and transverse wave scanning, including procedures for phased array ultrasonic testing, if used.

FRA estimates that all 14,000 tank cars will undergo inspections/testing by qualified/certified personnel under the above requirement. It is estimated that it will take approximately two (2) hours to perform the required inspections/tests and complete the obligatory record. Total annual burden for this requirement is 28,000 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:	14,000 inspections/records
Annual Burden:	28,000 hours

[f] Probability of detection is a quantitative measure of the likelihood of finding defects of a specific type and size resulting from statistics-based detection experiments using actual or engineered flaw sets, see *Department of Defense Handbook Nondestructive Evaluation System Reliability Assessment MIL-HDBK-1823A* (2009).

Calculation: 14,000 records x 2 hrs. = 28,000 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 c above, 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 (c)(i) above, FRA estimates approximately 100 mechanics will be affected by this requirement. Further, the agency estimates that approximately a third or 33 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 two (2) hours to train and test these employees and complete the necessary record. Total annual burden for this requirement is 66 hours.

	Respondent Universe: 10 Tank Car Facility Operators
Burden time per response:	2 hours
Frequency of Response:	On occasion
Annual number of Responses:	33 trained mechanics/records
Annual Burden:	66 hours

Calculation: 33 trained mechanics/records x 2 hrs. = 66 hours

e. Records. All inspection and test results must be documented, including re-inspections of repairs. The documentation must be 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 ultrasonic testing inspections must be recorded digitally and 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 Directive must be performed according to the following schedule:

i. Within 12 months from the date of issuance of this Directive for tank cars in hazardous materials service;

ii. Within 18 months from the date of issuance of this Directive for tank cars in non-hazardous materials service;

iii. Within 24 months from the date of issuance of this Directive for tank cars returning to service or withdrawn from storage and placed in hazardous or non-hazardous materials service prior to loading;

iv. 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 this Directive;

v. 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;

vi. Within 60 days of the issuance of this Directive, each owner of a tank car subject to this Directive must notify 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.

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

g. Reports. Owners of tank cars subject to this 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 Directive;

ii. Planned inspection and test schedule for each tank car identified under paragraph (1) of this Directive, 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 to the directive.

FRA estimates that approximately 14,000 reports of tank car inspections and tests will be completed by tank car owners and sent to FRA under the above requirement. It is estimated that it will take approximately 20 minutes to complete the inspection/test and the required report. Total annual burden for this requirement is 4,667 hours.

Respondent Universe:
20 Tank Car Owners (100 Lessees/Sub-Lessees)

Burden time per response:	20 minutes
Frequency of Response:	On occasion
Annual number of Responses:	14,000 reports
Annual Burden:	4,667 hours

Calculation: 14,000 reports x 20 min = 4,667 hours

Additionally, FRA estimates that approximately 15 percent of the affected tank fleet of 14,000 tank cars or approximately 2,100 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 16 hours to complete the necessary repairs and send the required report/record to the tank car owner. Total annual burden for this requirement is 33,600 hours.

Respondent Universe:
10 Tank Car Facility Operators

Burden time per response:	16 hours
Frequency of Response:	On occasion
Annual number of Responses:	2,100 repair reports/records
Annual Burden:	33,600 hours

Calculation: 2,100 repair reports/records x 16 hrs. = 33,600 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 Appendices D, R, and W of the Tank Car Manual and 49 CFR 180.513.

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.

Total annual burden for this entire requirement (2(a)-(h)) is 66,540 hours (28,000 + 66 + 200 + 4,667 + 33,600 + 7).

Total annual burden for this entire information collection is 68,953 hours (2,413 + 66,540)

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 = **$1,080,000** (Calculation: 200 tank cars x $5,400 p/car)

14. Estimate of Cost to Federal Government.

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. **Calculation**:

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. Explanation of program changes and adjustments.

These are new information collection requirements. By definition, this entire submission is a **program change**. As stated in the Summary provided on page 1 of this document, the total number of hours that FRA is requesting for approval by OMB for this Emergency Processing submission is **68,953 hours** and the total number of **responses** requested is **44,293**.

Further, as noted in the Summary on page 1, upon OMB's Emergency Clearance for 180 days, FRA will initiate necessary steps to obtain regular Clearance of this proposed information collection.

The cost of **$1,080,000** to respondents is also a **program change**.

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 (BOV) 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.