

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: Dec. 31, 2022

Lead Agency (FHWA or State DOT): Indiana DOT

INSTRUCTIONS:

Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project # <i>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i> <u>TPF 5-436</u>		Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input checked="" type="checkbox"/> Quarter 4 (October 1 – December 31)	
Project Title: Development of Criteria to Assess the Effects of Pack-out Corrosion in Built-up Steel Members			
Name of Project Manager(s): Tommy E. Nantung		Phone Number: (765) 463-1521 ext. 248	E-Mail tnantung@indot.in.gov
Lead Agency Project ID:		Other Project ID (i.e., contract #):	Project Start Date: 9/1/2019
Original Project End Date: 8/31/2022		Current Project End Date: 8/31/2022	Number of Extensions: None

Project schedule status:

On schedule On revised schedule Ahead of schedule Behind schedule

Overall Project Statistics:

Total Project Budget**	Total Cost to Date for Project	Percentage of Work Completed to Date**
\$560,000	\$417,196	68%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$42,190	7.5%	80%

**This total budget is based on funds that are shown as “committed” on the TPF website. However, it has been reduced at this time (4/22) since all commitments have not been realized to date.

Project Description:

This study proposes to:

- 1) To develop AASHTO ready specifications for the evaluation of the effects of pack-out corrosion in built-up steel tension, compression, and flexural members.
- 2) Provide guidance on the need for repairs and corrosion rates that can be expected in various environments in order to assist owners in programming when repairs may need to be made.
- 3) Identify the most effective methods of repairs and provide suggesting verbiage that could be used when preparing special provisions for repairs.
- 4) Develop several case-study examples, including calculations that will be used for training users on the methodologies to be developed. It is anticipated that the research team will host a number of webinars or on-site training sessions to ensure technology transfer and implementation.

Progress this quarter (includes meetings, work plan status, contract status, significant progress, etc.):

- Fatigue testing of the four girder specimens is approximately 90% completed. Some specimens were run for over 20 million cycles with no evidence of significant cracking observed. Data suggest that even severe pack-out corrosion alone does affect fatigue life when stress ranges are at or below the CAFL (7.0 ksi) for riveted members. Addition work is underway on data interpretation, but this is a promising result.
- Slides summarizing the fatigue testing and other project results are attached to this report.
- FEA parametric studies were initiated on flexural members with pack-out corrosion.
- The project update meeting was held on October 28th. Excellent feedback was received and it was agreed to allow a no-cost time extension to August of 2024. The project funding is strong and this extension is due to the delays due to COVID at the start of the project.

Anticipated work next quarter:

- Continue with the finite element parametric studies and based on the results of the prototype test, develop the detailed experimental program for compression flanges;
- Continue analytical and experimental studies on tension flanges with pack-out corrosion.
- Begin strength testing of flexural members with pack-out corrosion. These tests will evaluate the effects of pack-out corrosion on tension flanges on the ultimate strength of members.
- Obtain additional members with pack-out corrosions. **If a state has such members available or coming out of service in the near future, the RT requests that they contact Robert Connor to discuss the potential for obtaining the members for the research.**

Significant Results:

1. None to date

Potential Implementation:

None to date

