CAAP Quarterly Report

Date of Report: 6/23/2023

Project Name: Performance Evaluation and Risk Assessment of Excessive Cathodic Protection on Vintage Pipeline Coatings

Contract Number: 693JK32250008CAAP

Prime University: The University of Akron

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Reporting Period: 4/1/2023-6/23/2023

Project Activities for Reporting Period:

Here are the major project activities for each task:

a) Task 1. Identification of vintage pipeline coatings and influencing factors in coating cathodic disbondment (The University of Akron and Marquette University)

   Task 1 is in progress this quarter. The Ph.D. student, Yuhan Su, at The University of Akron, is working on literature reviews to understand pipeline coatings and the influencing factors in coating cathodic disbondment. The first objective of Task 1 has been completed, which is to classify pipeline coatings.

b) Task 2. Evaluation of coating cathodic disbondment considering key influencing factors through laboratory testing (The University of Akron)

   Task 2 starts this quarter. The Ph.D. student, Yuhan Su, at The University of Akron, is working on this task. One type of CP-compatible coatings and one type of CP shielding coatings are determined to be prepared and tested in the lab. Yuhan is contacting coating suppliers for the purchase.

c) Task 3. Numerical simulation of pipeline coating disbondment behavior and CP system (Rutgers University)

   Task 3 will start in the 5th quarter of this project.

d) Task 4. Probabilistic degradation model of coated pipe wall due to excessive CP (Marquette University)

   Task 4 will start in the 5th quarter of this project.

e) Task 5. Determination of recoating time using reliability-based approach (Marquette University)

Task 5 will start in the 9th quarter of this project.

Project Financial Activities Incurred during the Reporting Period:

No financial activity in this reporting period. The award budget was just generated at The University of Akron last quarter. The paperwork for subcontracts hasn't started this quarter due to short hands in the Research Office at The University of Akron. It should start next quarter.

Project Activities with Cost Share Partners:

No cost share activity during this reporting period.

Project Activities with External Partners:

Dr. Qixin Zhou and Dr. Qindan Huang (sub-university) have bi-weekly meetings to update the progress of each other and discuss the work of this project. Dr. Huang is hiring graduate students to work on this project. Contact information of external partners has been collected. Dr. Zhou will contact them individually in the next quarter.

Potential Project Risks:

No potential project risks during this reporting period.

Future Project Work:

The second and third objectives of Task 1 will be completed in the next 90 days. That needs to fully understand the influencing factors on the cathodic disbondment and cathodic disbondment conditions.

The coating samples of Taks 2 will be identified and prepared or known the resources in the next 90 days. The experimental design for coating cathodic disbondment characterization will be started in the next 90 days.

Potential Impacts to Pipeline Safety:

As knowing the types of coatings that have issues with excessive cathodic protection, it brings attention to the pipeline industry to replace these types of coatings in vintage pipelines.