

## AQRP Monthly Technical Report

<b>PROJECT TITLE</b>	Evaluating Methods for Determining the Vapor Pressure of Heavy Refinery Liquids	<b>PROJECT #</b>	17-007
<b>PROJECT PARTICIPANTS</b>	UT Austin	<b>DATE SUBMITTED</b>	August 6, 2017
<b>REPORTING PERIOD</b>	<b>From:</b> July 1, 2017 <b>To:</b> July 31, 2017	<b>REPORT #</b>	09

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15<sup>th</sup> of the month following the reporting period shown above.

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### **Detailed Accomplishments by Task**

During the month of July, the project team (PT) made progress on the following activities:

#### **Task 4.2 Project reports and presentation**

The June Monthly Technical Report was prepared and submitted.

#### **Task 4.3 Purchase and receipt of Automated Mini-method Instrument**

After the Grabner instrument third failure, the unit was returned to Grabner. After some consideration, they agreed to send a replacement, which arrived in late July. Samples on this unit will be run after the AQRP Workshop. The Eralytics EV10 was used to begin making measurements of the five sample materials. The data from these measurements is still being quality assured. This task is now complete.

#### **Task 4.4 Identify labs to conduct the ASTM D2879, E1719, and D323 testing**

Purchase orders were issued, accepted by the respective labs, and material samples sent to each lab. All labs confirmed receipt of the samples without damage. No results of lab measurements were submitted before the end of the reporting period. This task is now complete.

#### **Task 4.5 Obtain Materials for testing and Material Safety Data Sheets**

All sample materials to be used have arrived and sent to the commercial labs or retained for measurement by UT. This task is now complete.

#### **Task 4.6 Remove Identifying and VP Information from MSDSs, Prepare Samples, and Send First Stage Samples with “Sanitized” MSDSs to Labs for Testing**

Final preparation of samples to send to labs was conducted early in the month of July prior to issuance of the purchase orders to all labs. This task is now complete.

**Task 4.7 For first stage of samples, UT Austin measures VP of materials using Automated Mini-method and reports results; Commercial labs conduct their sample measurements of first stage samples and report results**

UT Austin began conducting vapor pressure measurements using the Eralytics EV 10 instrument in late July. All labs confirmed receipt of the samples without damage and began scheduling these measurements in their workload. No results of lab measurements were submitted before the end of the reporting period.

**Task 4.8 Conduct study of activity model binary interaction parameters to gain insight into the applicability of using light end composition and Raoult's Law to estimate the vapor pressure of heavy refinery liquids**

No additional work was performed on this task during the reporting period.

**Task 4.9 Analyze and Assess the VP Measurements for First Stage Samples**

The initial VP measurements of the five materials whose VP are being measure were made middle to late July. These data were reviewed and questions related to understanding the measurements formulated and sent to Eralytics. These discussions were ongoing at the end of July.

**Task 4.10 Remove Identifying and VP Information from MSDSs, Prepare Samples, and Send Second Stage Samples with "Sanitized" MSDSs to Labs for Testing**

No work was performed on this task during the reporting period.

**Task 4.11 For the Second Stage of Samples, Test Samples Using an Automated Mini-method Designed to Measure the VP of Low Volatility Materials (e.g., the Grabner MINIVAP VPXpert-L); Commercial Labs Conduct their Sample Measurements of First Stage Samples and Report Results**

No work was performed on this task during the reporting period.

**Preliminary Analysis**

None performed during the report period.

**Data Collected**

Initial VP measurement data were obtained using the Eralytics EV10 instrument. It had not been final QCed at the end of the reporting period.

**Identify Problems or Issues Encountered and Proposed Solutions or Adjustments**

One of the mini method instruments failed a third time in June. A replacement unit was received in late July. It will not be used until after the AQRP workshop, possibly as late as mid August.

**Goals and Anticipated Issues for the Succeeding Reporting Period**

Make successful vapor pressure measurements with both instruments.

**Detailed Analysis of the Progress of the Task Order to Date**

**Do you have any publications related to this project currently under development? If so, please provide a working title, and the journals you plan to submit to.**

Yes       No

**Do you have any publications related to this project currently under review by a journal? If so, what is the working title and the journal name? Have you sent a copy of the article to your AQRP Project Manager and your TCEQ Liaison?**

Yes       No

**Do you have any bibliographic publications related to this project that have been published? If so, please list the reference information. List all items for the lifetime of the project.**

Yes       No

**Do you have any presentations related to this project currently under development? If so, please provide working title, and the conference you plan to present it (this does not include presentations for the AQRP Workshop).**

Yes       No

**Do you have any presentations related to this project that have been published? If so, please list reference information. List all items for the lifetime of the project.**

Yes       No

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Submitted to AQRP by

Principal Investigator Vincent M. Torres