

PC-10 NCDT STATUS REPORT

ASTM HDEOCP

Pittsburgh, PA

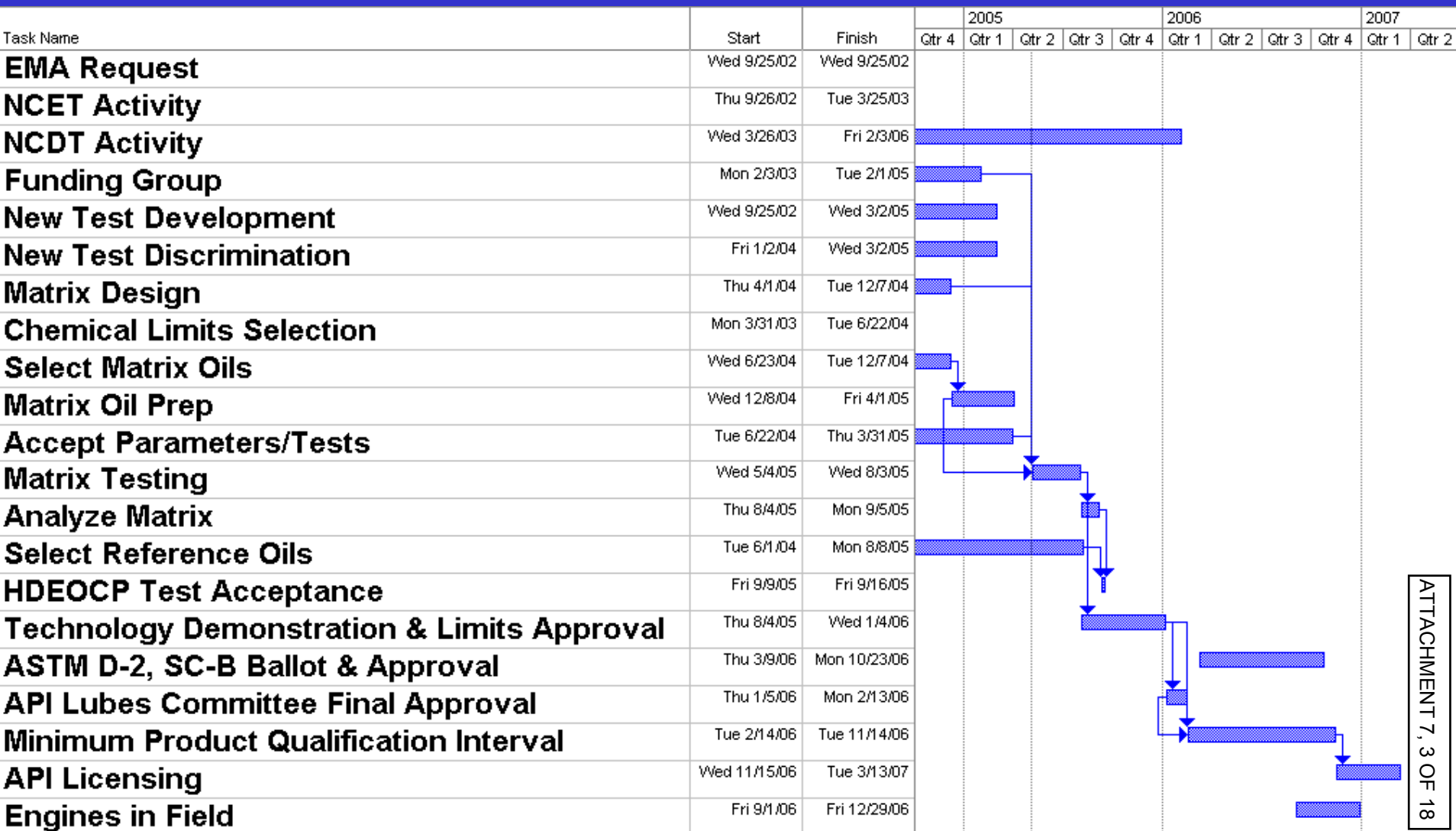
June 21, 2005

Category Timing

NCDT Conference Call

May 4, 2005

16 Week Matrix Timeline



Request to ACC

- Define Set of Assumptions for Technology Demonstration & Product Qualification Periods
 - Likely number of required tests
 - Estimated stand availability
 - Other factors
- Estimate Minimum and Maximum Time Requirements for Each Period

NCDT ACTION

- Review ACC Estimates
- Monitor Matrix Process
- Recommend Revised First License Date Based on These Criteria

PC-10 NCDT STATUS REPORT

API LUBRICANTS COMMITTEE

Houston, TX

May 10, 2005

PC-10 TEST MATRIX

PC-10 Tests	Total Test Runs	Sponsored Test Runs
Caterpillar C13	26	14
Cummins ISB	15	8
Mack T-12	16	8

	Caterpillar C13		Cummins ISB		Mack T-12	
Lab	Lab Financed Runs	ACC/API/EMA Financed Runs	Lab Financed Runs	ACC/API/EMA Financed Runs	Lab Financed Runs	ACC/API/EMA Financed Runs
PerkinElmer	3	4	3	4	2	2
SwRI	3	4	2	2	2	2
Afton Chemical	2	2	0	0	2	2
ExxonMobil	2	2	0	0	0	0
Lubrizol	2	2	2	2	2	2
Totals	12	14	7	8	8	8
	26		15		16	

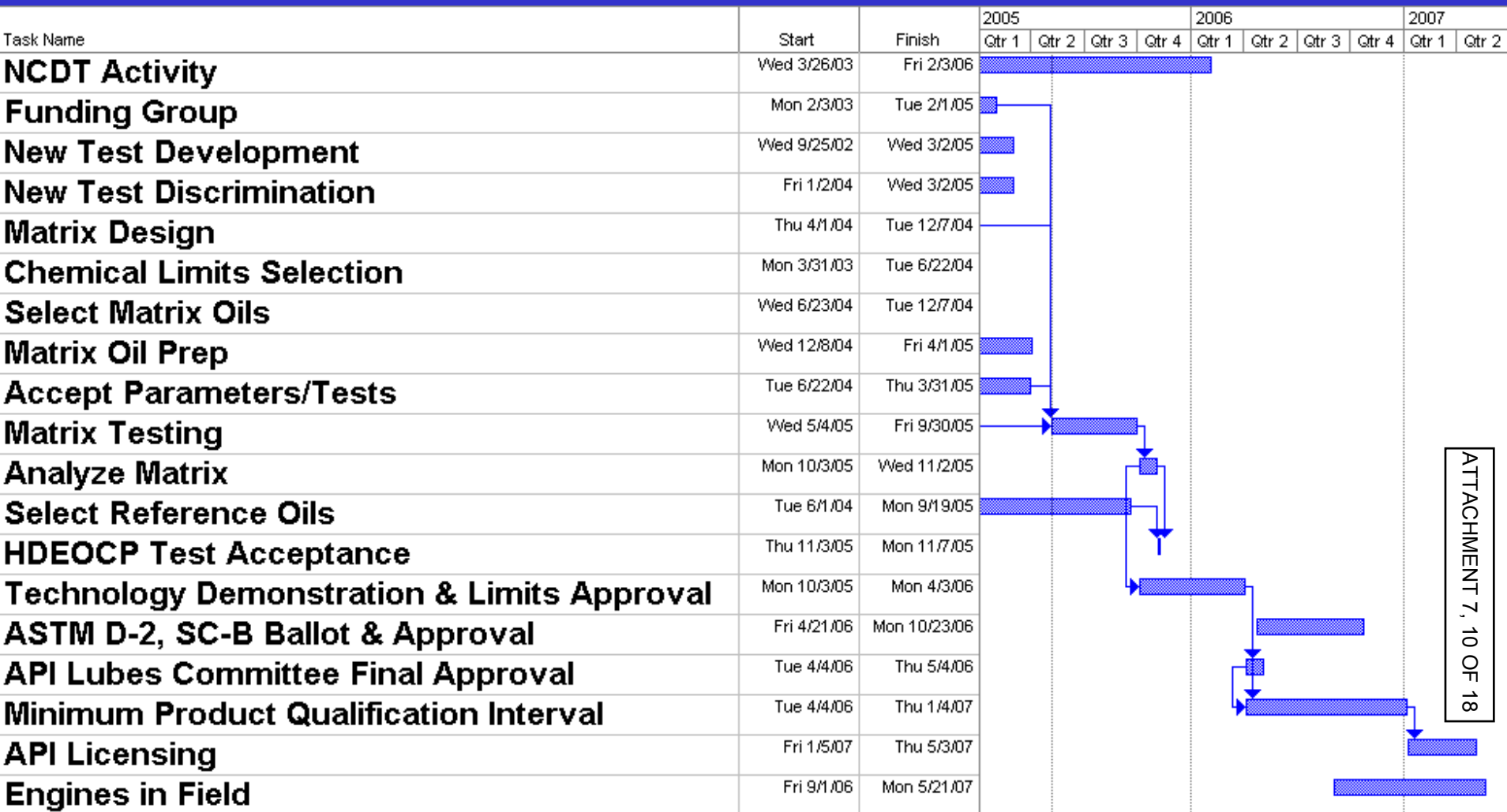
Attachment 1: PC-10 Matrix Summary

Test	Cummins ISB	Mack T-12	Cat C13
MDTF Design	B-1	C-1	D-1
Number of Stands	4	4	7
Number of Labs	3	4	5
Number of Oils	3	3	7
Oil Codes	TMC 830 PC-10B PC-10E	TMC 820 PC-10B PC-10E	PC-10A to F Oil D
Total Number of Tests	15	16	26
Calibration Tests	7	8	12
Sponsored tests	8	8	14
Number of Tests / Stand	4,3,4,4	4,4,4,4	4,3,4,3,4,4,4
Number of Tests / Oil	5,5,5	5,5,6	6,6,3,3,3,2 +3 on Oil D

PC-10 Timeline - 16 Week Matrix

Task Name	Start	Finish	2005				2006				2007			
			Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	
EMA Request	Wed 9/25/02	Wed 9/25/02												
NCET Activity	Thu 9/26/02	Tue 3/25/03												
NCDT Activity	Wed 3/26/03	Fri 2/3/06												
Funding Group	Mon 2/3/03	Tue 2/1/05												
New Test Development	Wed 9/25/02	Wed 3/2/05												
New Test Discrimination	Fri 1/2/04	Wed 3/2/05												
Matrix Design	Thu 4/1/04	Tue 12/7/04												
Chemical Limits Selection	Mon 3/31/03	Tue 6/22/04												
Select Matrix Oils	Wed 6/23/04	Tue 12/7/04												
Matrix Oil Prep	Wed 12/8/04	Fri 4/1/05												
Accept Parameters/Tests	Tue 6/22/04	Thu 3/31/05												
Matrix Testing	Wed 5/4/05	Wed 8/3/05												
Analyze Matrix	Thu 8/4/05	Mon 9/5/05												
Select Reference Oils	Tue 6/1/04	Mon 8/8/05												
HDEOCP Test Acceptance	Fri 9/9/05	Fri 9/16/05												
Technology Demonstration & Limits Approval	Thu 8/4/05	Wed 1/4/06												
ASTM D-2, SC-B Ballot & Approval	Thu 3/9/06	Mon 10/23/06												
API Lubes Committee Final Approval	Thu 1/5/06	Mon 2/13/06												
Minimum Product Qualification Interval	Tue 2/14/06	Tue 11/14/06												
API Licensing	Wed 11/15/06	Tue 3/13/07												
Engines in Field	Fri 9/1/06	Fri 12/29/06												

19 Week Matrix Timeline

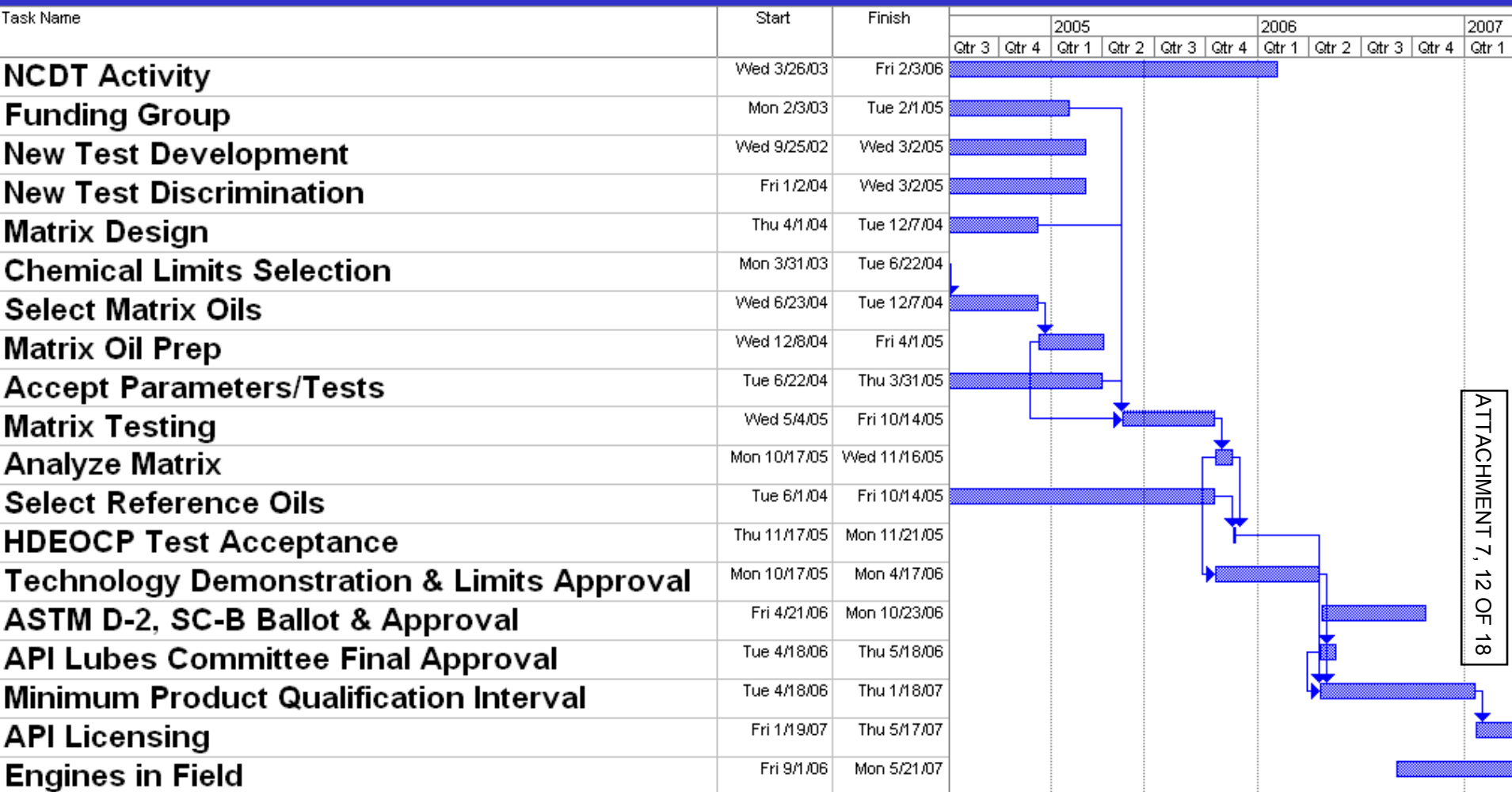


Category Timing

NCDT Conference Call

June 16, 2005

Current Estimated Timeline



From: Doug_Anderson@americanchemistry.com
Sent: Monday, June 13, 2005 9:33 AM
To: alex@chevrontexaco.com
Cc: wrunkle@ashland.com; greg.shank@macktrucks.com;
jiam@chevrontexaco.com; Kevin Ferrick; lawm@lubrizol.com;
christy_milstead@americanchemistry.com
Subject: PC-10 Technology Demonstration

Importance: High

June 13, 2005

To: West Alexander, Chairman API LC,

Dear West,

At the May 10, 2005 API LC meeting in Houston you requested that the ACC PAPTG provide an estimate of the time ACC needs for the technology demonstration and candidate approval period for our PC-10 programs. The basis for your request is the fact that industry is 5 months behind on the original PC-10 timeline due to delays in engine test development, and the NCDT and API LC need to determine if remaining steps in the PC-10 process can be shortened to allow first licensing on October 1, 2006 to meet the EMA's request. API LC requested the estimate of the time ACC needed to complete our testing programs so a revised PC-10 timeline and first licensing date can be established that is realistic and fair to all stakeholders. ACC PAPTG discussed the API LC request at our May 18, 2005 meeting and has agreed to respond in two phases.

Phase one, ACC PAPTG will estimate the total time required for the technology demonstration and candidate approval periods based on two recent past categories; CH-4 and CI-4. The estimated total time required is the time needed from the completion of the PC-10 precision and BOI matrix until first licensing by API of PC-10 oils. We will not estimate a date of first licensing but rather the time period needed from the completion of the matrix which is unknown at this time to first API licensing.

Phase two, ACC PAPTG will attempt to develop a methodology which can be used to estimate the time required for the technology demonstration and candidate testing period based on engine test availability, test length, pass/fail estimates, number of stands, and number of programs needed to cover all classes of oil marketers. To accomplish this, an ACC PAPTG statistical group will meet early this week to develop a common methodology all additive companies can use to estimate the time required. After the consensus methodology is developed, each individual PAPTG member will estimate the time needed. The PAPTG manager will consolidate the confidential individual estimates and prepare a draft ACC PAPTG consensus estimate. (The process set out in Phase two is necessary to protect the highly confidential information needed to estimate approval times. ACC PAPTG members cannot share information on the number or timing of our

individual programs.)

We will attempt to have the Phase one estimate done prior to the June 14 NCDT conference call on PC-10 timing. We are not in a position to respond to you on the timing of Phase two at this time, but will do so as soon as this is possible.

Please be assured that the ACC PAPTG is seriously considering the API LC request for this information and will attempt to respond in a timely way. However, to address the request we need to do so with appropriate procedural steps to manage and protect the underlying confidential business information. Please direct any comments and questions to the PAPTG manager, Doug Anderson at 703-741-5616 or by email at Doug_Anderson@americanchemistry.com.

Regards,

Lew Williams
PAPTG Vice Chair

Joan Evans
PAPTG Chair

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Product Approval Protocol Task Group (PAPTG) Manager
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Critical Considerations

- The CI-4 process was not satisfactory and resulted in CI-4 Plus
- There is higher complexity/greater uncertainty in PC-10
- Test capacity, pass/fail ratio, and invalid test frequency is unknown
- One more test in PC-10 than in CI-4
 - PC-10: Cummins ISM and ISB, Mack T-11 and T-12, Caterpillar C-13
 - CI-4: Cummins M-11 EGR, Mack T-8E and T-10, Caterpillar 1R
- Advent of PC-10 chemical box requires establishment of new core technology and limits formulating flexibility

Test Capacity Concerns

- Caterpillar 1R
 - 504 hours, two-day turnaround (ca. 23 days total)
 - Very high passing rate (>75%?)
 - 137 tests run in first 15 months, about 9/month
 - 75% passing rate, about 103 passes
- Caterpillar C-13
 - 500 hours, six-day turnaround (ca. 27 days total)
 - Passing rate unknown
 - With a 50% passing rate, 200 tests are needed
 - Assuming there are 10-13 C-13 stands in the industry, each runs about one test/month, about 15-20 months is required

ACC Viewpoint

- PC-10 is revolutionary (more challenging, more uncertainty), while API CH-4 and CI-4 were evolutionary (less challenging)
- API CI-4 required fifteen months
- Historical data and test differences for PC-10 indicate the current PC-10 process can not be compressed below that of API CI-4
- **PC-10 will take fifteen months from end of matrix**

NCDT ACTION

- Meeting June 30 – Embassy Suites, ORD
- Seek Way to Move First License Date
- Increase Test Capacity?
- Reduce Number of Tests Required?
- Interchange Requirements?
- Blanket Approvals for Chemistries?
- Other Ideas?