AGENDA

AVIATION TECHNICAL COMMITTEE MEETINGS of the
Coordinating Research Council, Inc.

Hyatt at Olive 8
Seattle, Washington

May 2-5, 2011

Charter Members

API
The Boeing Company
DLA Energy
Federal Aviation Administration

Shell Aviation & Shell Global Solutions
United States Air Force
United States Navy

Contributing Members

Air BP
Air Total
Chevron Global Aviation
ConocoPhillips
ExxonMobil Research & Engineering
Flint Hills Resources

GE Aviation
IATA
Innospec Fuel Specialties
NASA
Pratt & Whitney
RollsRoyce Plc
Sasol Technology

Sponsor Members

Facet International
Gammon Technical Products

Rev.4/25/2011
Policy for Attendance at CRC Meetings and Participation in CRC Projects

By attending CRC technical committee meetings and participating in CRC activities each attendee/recipient of CRC information agrees to the following:

1. **CRC Project Information and Data**

   Attendance at CRC technical committee meetings and participation in CRC projects is by invitation only at the discretion of the meeting chairperson(s) or project leader.

   It is understood that the major purpose of the work performed under the auspices of CRC is to develop information that may be made available to industry and the public through final publications only after the responsible CRC technical committee has reviewed the information and given its final approval for public release.

   Meeting attendees and project participants agree that any announcement or publication of data, information, or works in progress discussed in CRC meetings shall not be disclosed to anyone other than (i) CRC personnel, (ii) CRC members, or (iii) attendees at the meeting unless and until said information is approved by CRC.

2. **Intellectual Property**

   CRC meeting attendees and project participants agree that any and all intellectual property (including but not limited to patents, trade secrets, know-how, trademarks and copyrights) developed in connection with or during the course of any CRC sponsored research, as between CRC members and CRC, is the property of CRC and not the property of any CRC member or participant. CRC retains the right to place any such intellectual property in the public domain or to retain all rights thereto as described in CRC’s bylaws.
### MEETING SCHEDULE
#### 2011 CRC AVIATION MEETINGS
May 2-5, 2011

#### Monday, May 2, 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>1:00 PM - 3:00 PM</td>
<td><strong>Aviation Gasoline &amp; Piston Fuels Group</strong>&lt;br&gt;Roger Gaughan, Chair, &amp; Dave Atwood, Vice-Chair</td>
<td>Ballroom ABC</td>
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<tr>
<td>3:00 PM - 3:30 PM</td>
<td><strong>BREAK</strong></td>
<td>Ballroom Foyer ABC</td>
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<tr>
<td>3:30 PM - 6:00 PM</td>
<td><strong>Aviation Gasoline &amp; Piston Fuels Group</strong> (continued)&lt;br&gt;Roger Gaughan, Chair, &amp; Dave Atwood, Vice-Chair</td>
<td>Ballroom ABC</td>
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<tr>
<td>6:00 PM - 7:00 PM</td>
<td><strong>Hosted Reception</strong></td>
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#### Tuesday, May 3, 2011

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>7:00 AM - 8:00 AM</td>
<td><strong>Breakfast Buffet</strong></td>
<td>Ballroom Foyer ABC</td>
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<tr>
<td>8:00 AM - 8:30 AM</td>
<td><strong>CRC Introduction &amp; Overview</strong>&lt;br&gt;Joanna Bauldrey, Chair, and Tim Edwards, Vice-Chair</td>
<td>Ballroom ABC</td>
</tr>
<tr>
<td>8:30 AM - 9:45 AM</td>
<td><strong>Fuel Handling &amp; Contamination Group</strong>&lt;br&gt;Haydee Carlton, Chair, and Jack Buffin, Vice-Chair</td>
<td>Ballroom Foyer ABC</td>
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<tr>
<td>9:45 AM - 10:05 AM</td>
<td><strong>BREAK</strong></td>
<td>Ballroom Foyer ABC</td>
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<tr>
<td>10:05 AM - 11:05 AM</td>
<td><strong>Operability Group</strong>&lt;br&gt;John Rhode, Chair, and Rob Midgley, Vice-Chair</td>
<td>Ballroom ABC</td>
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<tr>
<td>11:05 AM - 12:35 PM</td>
<td><strong>LUNCH ON OWN</strong></td>
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<td>12:35 PM - 1:50 PM</td>
<td><strong>Production &amp; Delivery Group</strong>&lt;br&gt;Fred Cornforth, Chair, and Ron Osman, Vice-Chair</td>
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<td>1:50 PM - 2:20 PM</td>
<td><strong>Low Temperature Group</strong>&lt;br&gt;Don Phelps, Chair, and Dennis Hoskin, Vice-Chair</td>
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<td>2:40 PM - 4:40 PM</td>
<td><strong>Emerging Fuels Group - Session 1</strong>&lt;br&gt;Joanna Bauldrey, Chair, and Tim Edwards, Vice-Chair</td>
<td>Ballroom ABC</td>
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<tr>
<td>5:40 PM - 9:30 PM</td>
<td><strong>Dinner Cruise aboard Royal Argosy</strong>&lt;br&gt;Meet at 5:40 pm in lobby to walk down to pier as a group. Boarding 6:00-6:25; cruise departs at 6:30.</td>
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*Monday 10:30 am - 12:30 IASH Board of Directors (Not CRC meeting; IASH members and invited guests only)*
### Wednesday, May 4, 2011

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| 8:00 AM - 10:30 AM | Fuel Stability Group  
Chris Lewis, Chair, and Steve Zabarnick, Vice-Chair | Ballroom ABC |
| 10:30 AM - 10:50 AM | BREAK                                                                | Ballroom Foyer ABC |
| 10:50 AM - 12:20 PM | Properties & Emissions Group  
Edwin Corporan, Chair, and David Abdallah, Vice-Chair | Ballroom ABC |
| 12:20 PM - 1:50 PM | LUNCH ON OWN                                                         | Cobalt         |
| 12:20 PM - 1:50 PM | CRC Aviation Steering Committee Working Lunch  
Joanna Bauldreay, Chair, and Tim Edwards, Vice-Chair  
(Members and Invited Guests Only) | Cobalt         |
| 1:50 PM - 3:20 PM | Emerging Fuels Group - Session 2                                      | Ballroom ABC |
| 3:20 PM - 3:40 PM | BREAK                                                                | Ballroom Foyer ABC |
| 3:40 PM - 5:40 PM | Emerging Fuels Group - Session 3                                      | Ballroom ABC |
| 6:00 PM - 7:00 PM | Hosted Reception                                                      | Ballroom Foyer ABC |

### Thursday, May 5, 2011

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| 8:00 AM - 9:00 AM | Advanced Research & Test Methods Group  
Robert E. Morris, Chair, and Jim Kinder, Vice-Chair | Ballroom ABC |
| 9:00 AM - 10:00 AM | Publications Group  
Tedd Biddle, Chair, and Melanie Thom, Vice-Chair                | Ballroom ABC |
| 10:00 AM - 10:20 AM | BREAK                                                                | Ballroom Foyer ABC |
| 10:20 AM - 11:05 AM | Fuels System Safety Group  
Mark Orr, Chair, and Nathan Diedrich, Vice-Chair               | Ballroom ABC |
| 11:05 AM - 11:35 AM | CRC Aviation Technical Committee  
Bill Taylor, Chair, and Chi-Ming Lee, Vice-Chair               | Ballroom ABC |
| 11:35 AM - 11:50 AM | CRC Aviation Committee Meeting Wrap-up & Discussion  
Joanna Bauldreay, Chair, and Tim Edwards, Vice Chair             | Ballroom ABC |
| 11:50 AM        | End of meetings                                                      |                |
| 12:40 PM - 6:00 PM | Meet in front of hotel to board buses for optional Boeing Tour  
(preordered ticket required)  
Bus leaves at 12:45 pm |                |
Meeting Agenda

CRC Activity: Aviation Gasoline & Piston Fuels Group
Roger Gaughan, Chair, and Dave Atwood, Vice Chair

Date: Monday, May 2, 2011
Time: 1:00 - 6:00 pm
Place: Hyatt at Olive 8
Seattle, Washington
Ballroom ABC

Agenda:
EPA update on Leaded Avgas
Glenn Passavant

G100UL Fuel Testing
Tim Roehl, GAMI Inc.

Swift Fuels Testing
Jon Ziulkowski, Swift Enterprises

Materials Compatibility Testing
Nathan Diedrich, Cessna Aircraft Company

BREAK 3:00 - 3:30 PM

Lean Boost-Operating Turbo Engines on Lower Octane Fuels
Robert Midgley, Shell

Standard Guide for Evaluation of New Fuels…ASTM TF Update
Melanie Thom, Baere Aerospace

100VLL ASTM Ballot Update
Ron Wilkinson, AvSouth

FAA Technical Center Aviation Fuel and Engine Test Facility (AFETF) Update
Dave Atwood, FAA Technical Center

Superabsorbent Polymer Contamination of Avgas
Linda Gallaher and Thomas Smagala, Chevron Global

New Business
Adjournment
Meeting Agenda

CRC Activity: **CRC Introduction & Overview**  
Joanna Bauldreay, Chair, and Tim Edwards, Vice-Chair

Date:  Tuesday, May 3, 2011  
Time:  8:00-8:30 AM  
Place:  Hyatt at Olive 8  
Seattle, Washington  
Ballroom ABC

Agenda:  **Opening of the 2011 CRC Aviation Meeting**  
Joanna Bauldreay, Shell Global Solutions Downstream  
Welcome  
Call to Order  
Introduction  
Op

**Meeting Items of Interest**  
Jan Tucker, Coordinating Research Council  
Activities  
CRC Group/Panel Memberships

Membership and Information Exchange/ Ownership  
Brent Bailey, Coordinating Research Council

Aviation Committee Status / Current Activities  
Brent Bailey, Coordinating Research Council

Open Forum - Member Issues
| CRC Activity: | **Fuel Handling & Contamination Group**  
*Haydee Carlton, Chair, and Jack Buffin, Vice-Chair* |
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<td>Time:</td>
<td><strong>8:30 - 9:45 AM</strong></td>
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| Place: | **Hyatt at Olive 8**  
Seattle, Washington  
Ballroom ABC |

**Agenda:**

  
  **Marlin Vangsness**

- *Development of Quantitative Real-Time PCR Assays for Characterization of Microbial Fuel Contamination*
  
  **Oscar N. Ruiz**

- **Adjournment**
CRC Activity: Operability Group
John Rhode, Chair, and Rob Midgley, Vice-Chair

Date: Tuesday, May 3, 2011
Time: 10:05 - 11:05 AM
Place: Hyatt at Olive 8
          Seattle, Washington
          Ballroom ABC

Agenda: USAF Conversion from JP-8 to Jet A-1 OCONUS (Outside Continental US)
          Mel Regoli, Air Force
          Aquarius
          Vic Hughes, Consultant
          Resolver
          Vic Hughes, Consultant
          Adjournment
## Meeting Agenda

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<th>CRC Activity:</th>
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| Date:        | Tuesday, May 3, 2011       |
| Time:        | 12:35 - 1:50 PM            |
| Place:       | Hyatt at Olive 8           |
|             | Seattle, Washington        |
|             | Ballroom ABC               |

**Agenda:**  

### Ultra Low Sulfur and Lubricity Issues  
**Ron Osman**

### Phenols in Jet Fuel  
**Roger Gaughan**

### Sample Cans and Particulate Testing  
**Michael Lam**

### Follow Up Discussion - Distribution Tracking  
**Fred Barnes**

**Adjournment**
CRC Activity:  Low Temperature Group
   Don Phelps, Chair, and Dennis Hoskin, Vice-Chair

Date:  Tuesday, May 3, 2011
Time:  1:50 - 2:20 PM
Place:  Hyatt at Olive 8
        Seattle, Washington
        Ballroom ABC

Agenda:  FSII Reduction Program
   Don Phelps

   Overview of Project AV-11-09 on Aviation Fuel Cold Flowability Test
   Garry Rickard

   Adjournment
Meeting Agenda

CRC Activity: **Emerging Fuels Group - Session 1**
*Joanna Bauldreay, Chair, and Tim Edwards, Vice-Chair*

**Date:** Tuesday, May 3, 2011
**Time:** 2:40 - 4:40 PM
**Place:** Hyatt at Olive 8
Seattle, Washington
Ballroom ABC

**Agenda:**
- *Opening remarks*
  - Joanna Bauldreay and Tim Edwards

- **Overview of ASTM Alternative Aviation Fuel Certification Task Forces**
  - George Wilson, Sierra

- **CAAFI Cert/Qual Update**
  - Mark Rumizen, FFA

- **ASTM Task Force on Synthesized Kerosene with Aromatics (SKA)**
  - Cliff Moses, Consultant

- **Questions**

- **Sasol IPK with Alkylated Benzene for Semi-Synthetic Jet Fuel**
  - Cliff Moses, Consultant

- **Update on GTL R&D Projects**
  - Joanna Bauldreay, Shell

- **Navy Alternative Fuel Research**
  - Sharon Beerman-Curtin, U.S. Navy

- **AF Alternative Fuel Certification**
  - Betty Rodriguez, U.S. Air Force

- **Questions**

- **Adjournment**
Meeting Agenda

CRC Activity: **Fuel Stability Group**  
*Chris Lewis, Chair, and Steve Zabarnick, Vice-Chair*

**Date:** Wednesday, May 4, 2011  
**Time:** 8:00 - 10:30 AM  
**Place:** Hyatt at Olive 9  
  Seattle, Washington  
  Ballroom ABC

**Agenda:**  
*The Validity of Using Anti-Oxidant Post Processing*  
  **Bob Morris,** NRL, **George Wilson,** SwRI, and **Pam Serino,** DLA Energy  

*Breakpoint Stability Over Time and Distance*  
  **George Wilson,** SwRI

*Thermal Stability Work at University of Sheffield*  
  **Chris Wilson,** U. of Sheffield

*Assessment of m-Toluidine as a Valid Method for Accelerated Thermal Stability Testing*  
  **Brad Wall,** Rolls Royce

*Thermal Stability of Endothermic Fuels*  
  **Tim Edwards,** AFRL

**Adjournment**
Meeting Agenda

**CRC Activity:** Properties & Emissions Group  
*Edwin Corporan, Chair, and David Abdallah, Vice-Chair*

**Date:** Wednesday, May 4, 2011  
**Time:** 10:50 AM - 12:20 PM  
**Place:** Hyatt at Olive 8  
Seattle, Washington  
Ballroom ABC

**Agenda:**
*Progress Report on the Sulfur Survey Update (CRC Project AV-1-10)*  
**Bill Taylor**

*EASA SULPHUR Study: Reduction of Sulphur Limits in Aviation Fuel Standards*  
**Edwin Corporan for Erika Herms**

*NASA Low Emissions Fuel Flexible Combustor Development*  
**Chi-Ming Lee, NASA**

*Filtration Characteristics of HRJ Fuels*  
**Mel Regoli, AFPET**

*Air Force Alternative Fuels Emissions Evaluations*  
**Edwin Corporan, AFRL/RZPF**

*Adjournment*
CRC Activity: **Emerging Fuels - Sessions 2 and 3**  
*Joanna Bauldreay, Chair, and Tim Edwards, Vice-Chair*

**Date:** Wednesday, May 4, 2011  
**Time:** 1:50 pm - 5:40 pm  
**Place:** Hyatt at Olive 8  
Seattle, Washington  
Ballroom ABC

**Agenda:**  
*DLA Energy Update*  
**Pam Serino, DLA Energy**

*AlfaBird Project Update*  
**Joanna Bauldreay**

*Progress Report on CRC Project AV-10-09 (aromatics/distillation)*  
**Cliff Moses, Consultant**

*Update on Alcohol-to-Jet Task Force (SPK)*  
**Josh Taylor, Gevo**

*Update on Alcohol-to-Jet Task Force (SKA)*  
**Kevin Weiss, Byogy**

**BREAK 3:20 - 3:40 PM**

*Virent Catalytic Renewable Aviation Fuel Technology*  
**Paul Blommel, Virent**

*Alternative Fuel / Material Compatibility*  
**John Graham, UDRI**

*Rentech Update*  
**Bob Freerks, Rentech**

*Purdue Industry Collaboration on Fuel System Testing*  
**Denver Lopp, Purdue University**

*Renewable Aromatics & Cycloparaffins for Aviation Fuel via the Catalytic Hydrothermolysis (CH) Process*  
**Ed Coppola, ARA**

*Non-CO₂ Combustion Effects*  
**Russ Stratton, MIT**

Adjournment
Meeting Agenda

CRC Activity: Advanced Research & Test Methods Group
Robert E. Morris, Chair, and Jim Kinder, Vice Chair

Date: Thursday, May 5, 2011
Time: 8:00 AM - 9:00 AM
Place: Hyatt at Olive 8
Seattle, Washington
Ballroom ABC

Agenda: Call to Order
Robert Morris
Adoption of 2010 minutes
Jim Kinder
Update on Dielectric Constant Measurement and Impact on FQIS
Jean-Phillipe Belieres, Boeing Commercial Airplanes
Update on the US Army's Fuel Contamination Detection Efforts
Joel Schmitigal, US Army TARDEC
New Business
Discussion
Adjournment
Meeting Agenda

CRC Activity: **Publications Group**  
*Tedd Biddle, Chair, and Melanie Thom, Vice Chair*

**Date:** Thursday, May 4, 2011  
**Time:** 9:00 AM - 10:00 AM  
**Place:** Hyatt at Olive 8  
Seattle, Washington  
Ballroom ABC

**Agenda:**  
*Call to Order*  
**Tedd Biddle**  
Approval of 2010 minutes  
**Melanie Thom**  
**Tedd Biddle**  
• Air Solubility Plots  
**Melanie Thom**  
• Surface Tension Measurements  
**Bob Morris**  
• Specific Heat Measurements  
**Jim Kinder / Tim Edwards**  
• Plots  
**Cliff Moses**  

*New Business*  
• CRC AV-12-10 Russian Fuel Data  
**Cliff Moses**

*Adjournment*
Meeting Agenda

CRC Activity: Fuel Systems Safety Group
Mark S. Orr, Chair, and Nathan Diedrich, Vice-Chair

Date: Thursday, May 5, 2011
Time: 10:20 AM-11:05 AM
Place: Hyatt at Olive 8
Seattle, Washington
Ballroom ABC

Agenda: Welcome

EI Study into Conductivity Requirements for the Safe Ground Handling of Jet Fuel
Rob Midgley, Shell

IP583 FAME in Jet Method (FIJI)
Paul Spitteler, Stanhope-Seter

Adjournment
Aviation Technical Committee

Bill Taylor, Chair and Chi-Ming Lee, Vice-Chair

Date: Thursday, May 5, 2011
Time: 11:05 -11:35 am
Place: Hyatt at Olive 8
Seattle, Washington
Ballroom ABC

Agenda:

- Call to Order
- Adoption of May 2010 Minutes
- Membership
- Group Reports - Action Item Summary
- New Business
- Action Items
- Next Meeting / Adjournment

Aviation Committee Meeting Wrapup & Discussion

Joanna Bauldreay, Chair and Tim Edwards, Vice-Chair

Date: Thursday, May 5, 2011
Time: 11:35 - 11:50 AM
Place: Hyatt at Olive 8
Seattle, Washington
Ballroom ABC

12:40 PM Meet in front of hotel to board buses for optional Boeing Tour
(preordered ticket required)
Bus leaves at 12:45 pm