WSPA Comments on Predictive Model Update

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Overall Schedule

- Time is short, schedule is very condensed
  - Schedule and work plan are not defined fully
    - Difficult for stakeholders to comment effectively
  - Many interlocking issues
    - Inventory, Predictive Model, CO reactivity
- WSPA concerned that some important issues will not get adequate analysis and technical review
  - Major disconnect between EMFAC finalization and Predictive Model adoption dates
Important Inventory Issues

- Number of vehicles on road
- Evaporative emissions model
- Temperatures for inventory calculation have major effect on
  - Relative contribution of exhaust and evaporative emissions
  - Impact of ethanol on evaporative emissions including permeation
- Need to finalize inventory at beginning of effort
  - Open process with full discussion of assumptions
Effect of Ethanol on Permeation

- CRC data is limited: 10 vehicles, E6
  - E10 results hopefully available in June
- CARB had to make a number of untested assumptions to model permeation
  - Augmentation Ratio
  - Permeation contribution to each evaporative emissions process: diurnal, resting, hot soak, running
  - Tank temperatures
**Assumption on Augmentation Ratio**

<table>
<thead>
<tr>
<th>Emitter Category</th>
<th>Diurnal Emissions (g/day)</th>
<th>Augmentation Ratio</th>
<th>Increased Permeation (g/day)</th>
<th>Basis for Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>1</td>
<td>2.55</td>
<td>1.55</td>
<td>CRC Data</td>
</tr>
<tr>
<td>Moderate</td>
<td>5.4</td>
<td>1.20</td>
<td>1.08</td>
<td>CRC Data</td>
</tr>
<tr>
<td>High</td>
<td>49</td>
<td>1.05*</td>
<td>2.45</td>
<td>Assumption</td>
</tr>
<tr>
<td>High</td>
<td>49</td>
<td>1.02</td>
<td>1.08*</td>
<td>WSPA Proposal</td>
</tr>
</tbody>
</table>

* ASSUMED VALUE
Assumption on Permeation Contribution

- CARB assumes that 90% of resting losses are due to permeation.
- This is not unreasonable, but needs supporting data.
- Small changes can affect overall ethanol contribution.
Overall Ethanol Contribution

- Two different daily temperature profiles considered for South Coast EMFAC modeling

<table>
<thead>
<tr>
<th>Low Temperature</th>
<th>High Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>+6.5 %</td>
<td>+12.8 %</td>
</tr>
</tbody>
</table>

Increase in Evaporative Emissions due to ethanol

- Why does ethanol contribution double?
  - Augmentation ratio is constant with temperature
  - Other processes (hot soak, running loss) should increase in importance
Conclusions

- Predictive Model update will have a major impact on California gasoline and the extent to which ethanol can be blended

- Important to get it right

- Technical steps should set the schedule not the other way around