

Ethanol vs. MTBE Presentation Outline

Speaker: Joe Creagh, Environmental Manager, Chevron El Paso Refinery

Subject: The advantages of Ethanol vs MTBE in oxygenated fuels in the El Paso, Texas-Ciudad Juarez, Mexico metropolitan area.

Audience: Joint Advisory Committee (JAC) for the Improvement of Air Quality in the Ciudad Juarez, Mexico, El Paso, Texas, and Dona Ana County, New Mexico Air Basin

Objective: To brief the JAC regarding discussions Chevron plans to have with PEMEX concerning oxygenated fuel use in Ciudad Juarez. Additionally, to request consideration by the JAC to support ethanol as the oxygenate of choice for Juarez.

Date/Location: August 27, 1998, Ciudad Juarez, Mexico.

- *Personal Introduction*
- *Summary of Chevron's recent discussion with PEMEX and Planned Sept. 1st Meeting*
 - The JAC recommendation regarding oxygenated fuel use in Juarez appears to be coming to fruition.
 - PEMEX contacted Chevron the week of August 17th to informally inquire what would be involved for Chevron to begin supplying PEMEX oxygenated gasoline beginning in early October of 1998.
 - During this discussion PEMEX informally proposed MTBE as the candidate oxygenate. PEMEX has prior experience with MTBE.
 - Chevron plans to meet with PEMEX on September 1, 1998, in Mexico City, to discuss in more detail the logistics of supplying oxygenated gasoline to Juarez.
 - At the Mexico City meeting, for product stewardship reasons, Chevron will advocate ethanol be the oxygenate of choice for Juarez. Ethanol has been the oxygenate of choice for El Paso's program.
- *Background Information on Ethanol and MTBE as gasoline oxygenates*
 - Both oxygenates are safe and benefit the environment and public health by facilitating a reduction in automobile tailpipe emissions of Carbon Monoxide and various hazardous air pollutants. Chevron uses both oxygenates in products we market. The selection depends on the individual needs of the regional oxygenate programs where our products are marketed.
 - MTBE has a logistical advantage over Ethanol in that it is fungible in a pipeline transportation setting. Because Ethanol is not permissible in pipelines it must be blended at the rack.
 - Due to a government tax credit Ethanol enjoys a price advantage in El Paso. Because the tax credit will not likely apply to fuels Chevron supplies to PEMEX, MTBE will likely enjoy a price advantage in Juarez.
 - Ethanol is well suited to "winter only" oxygenate programs such as the one in El Paso and the program proposed for Juarez. Because of its higher vapor pressure Ethanol is not suited for "summer" oxygenate use. Because of its lower vapor pressure MTBE can be used in "year round" oxygenate programs. However, due to price advantage in the USA, Ethanol is often used during the winter months in areas that have a year round oxygenate program.

- ***Comparison of Ethanol and MTBE as gasoline oxygenates (Continued)***

- In the unfortunate event of a spill/release, products that contain MTBE are significantly more problematic from a clean-up standpoint. MTBE is highly soluble in water. It is substantially more soluble than other petroleum compounds (i.e. BTEX) contained in gasoline. Because of its soluble properties MTBE migrates quickly in groundwater regimes, out distancing any dissolved BTEX components. Once released MTBE is extremely persistent, resisting biodegradation and other forms of natural attenuation. Even minute concentrations of MTBE can impart an objectionable odor and/or taste to drinking water rendering impacted water sources undesirable. All of the aforementioned factors substantially add to the complexity and expense of clean-up efforts in the unfortunate event of a spill/release. (Refer to handout provided to JAC members – “An Evaluation of MTBE Impacts to California Groundwater Resources”, Lawrence Livermore National Laboratory)

Chevron’s “Product Stewardship” basis for advocating the use of Ethanol as the oxygenate of choice in Juarez, Mexico.

- Groundwater is the primary source of drinking water for both Juarez, Mexico and El Paso, Texas. In the arid southwest this is a precious “nonrenewable” resource. Because Ethanol does not present the same remediation complexities in the unfortunate event of a spill/release it is more protective of this resource.
 - Ethanol has been the oxygenate of choice for El Paso’s “winter only” oxygenated gasoline program. The proposed oxygenate program for Juarez is also of a “winter only” nature. For the reasons previously discussed this type of program has full flexibility (i.e. vapor pressure not a constraint) in selection of an oxygenate to meet the programs air quality goals. Either Ethanol or MTBE will equally satisfy our oxygenated fuel program goal of reducing automobile tailpipe Carbon Monoxide emissions. However, in “balancing the ledger” of benefits and encumbrances of both oxygenates, MTBE carries an encumbrance not shared by Ethanol. That encumbrance is the substantial complexity and expense associated with clean-up efforts in the unfortunate event of a release. Additionally, this encumbrance is not offset by an added benefit.
 - In the United States, December, 1998 will be the final year of a ten-year regulatory program that has driven the replacement or removal from service of essentially every underground storage tank utilized in the retail distribution of gasoline. The program required replacement UST’s to meet the highest standards in corrosion resistance, double containment, and interspacial monitoring. In all honesty, during the implementation of this program, retailers discovered that a not insignificant portion of their underground storage tanks were leaking. Based on the inquiries I have made to date, it is my understanding that a similar UST regulatory initiative has not taken place in Juarez.
 - In summary, Chevron’s product stewardship concerns with MTBE usage as the oxygenate of choice in Juarez are based on the following factors: (1) The dependence on groundwater for the El Paso/Juarez regional water supply. (2) The added complexity and expense of protecting that water supply in the unfortunate event of a product release containing MTBE. (3) The current state of UST technology utilized in Juarez. (4) MTBE provides no additional air quality benefit over Ethanol for the “winter only” oxygenate programs in El Paso and Juarez. In brief, why accept the encumbrances of MTBE without a commensurate benefit? Ethanol has been the oxygenate of choice in El Paso. Chevron believes it is also a wise choice for Juarez and will recommend this to PEMEX.
- ***Closure and Solicitation of JAC Support for Ethanol***

- In closing I want to make one point clear. Chevron is not Anti-MTBE. We use MTBE in our products when the individual needs of regional oxygenate programs make MTBE the right choice. Chevron is Pro-Ethanol for the El Paso and Juarez regional oxygenate programs for all the aforementioned reasons.
- The JAC has been lobbying representatives of PEMEX and the Mexican environmental authorities for nearly a year now in an effort to bring cleaner burning fuels to Juarez. Chevron recognizes this will be an important step in improving the air quality of the El Paso/Juarez air basin. Based on Chevron’s recent discussions with PEMEX it now appears the JAC’s effort is close to fruition. Chevron requests that the JAC consider the Ethanol vs. MTBE analysis that has been provided. If based on this analysis the JAC concurs with our recommendation of Ethanol, then Chevron requests the JAC advocate this view in subsequent discussions with PEMEX.