Attachment A

Corn Ethanol Refineries Recommendations
We believe corn based ethanol, in all its ramifications, will be more negative than positive in its effects, and should have no place as part of the Low Carbon Fuel Standard. It is highly questionable whether the fossil fuel energy used to produce the ethanol is less than the energy gained. The land use issues are also a huge negative. The ethanol plants currently proposed for the San Joaquin Valley will add to the pollution burden already faced by low income communities. Finally, using food to make fuel is a misguided, tax-payer subsidized sham, helping to increase food prices worldwide, and contributing significantly to world starvation.

- **Great precaution must be exercised in the assumptions of total energy inputs and outputs in the growing of the corn and the production of the ethanol.**

In the Energy 2020 Model assumptions by ICF Jones & Stokes Climate Change Focus Group and elsewhere in the corn ethanol refinery industry, the conclusion is made that corn ethanol would emit 21% fewer GHG emissions than motor gasoline. This is based on a national average for ethanol production from corn and is using a full cycle emission factor on the low side of all the emissions estimates that are available. If emission values from the middle up to the maximum of all the emissions estimates are used, corn ethanol shows a 6 to 42% greater GHG emission total compared to motor gasoline. This leaves a very good chance that corn based ethanol would actually be negative in helping to reduce GHG. Even when using the figure of a 21% gain in GHG emissions, California would only gain a 1% reduction in fuel carbon going from a 5% ethanol mix to 10%. Doing more than that is extremely unrealistic given the general shortage of viable land in which to grow the extra corn needed. Unfortunately, the supporters of ethanol plants, in the San Joaquin Valley (“SJV”), are using this 21% and higher figures for emission reductions from ethanol. They are claiming to be an integral part of the Low Carbon Fuel Standard based on the unrealistic emissions factors. Given the need to get real reductions in the carbon content of our fuel it is prudent to not use emission estimates that may be too low. It is better to error on the high side.

- **Because of the high prices for grain crops caused, at least in part, by the demand for corn to make ethanol, there must be the inclusion of the conversion of permanent grass land and conservation land to corn and other crops in the Midwest in the full cycle emission factors for GHG.**

Two million acres were removed from conservation in the past year. Other millions of acres of grass land have been plowed for the first time in over 20 years. These land use conversions in the United States alone show the release of more GHG emissions than could ever be gained from using corn based ethanol in the next 40 years, even using the most optimistic figures for the reduction of GHG in the corn to ethanol scheme. This is one of the biggest direct reasons why corn ethanol should never be considered part of the Low Carbon Fuel Standard.
• Consider strongly the fact that corn is being diverted from food use to fuel.

There is a shortage of food world wide. With fuel prices increasing, the cost of growing food is increasing also. This combination of shortages and higher prices is not being offset by cheaper fuel as more ethanol is being made. There is at least some positive effect on increasing food prices from the demand for corn to produce ethanol. These considerations should be strongly considered as ARB attempts to justify using corn ethanol as part of the LCFS.

• Corn ethanol refineries are not mitigating all of the air pollution they create in the San Joaquin Valley. Also, the use of ethanol in gasoline is adding to ozone pollution in the summertime and should not be used at all.

The added pollution in the SJV from corn ethanol plants is not being fully mitigated. This must also be considered when making a decision about using corn ethanol as part of the LCFS. The SJV cannot afford more pollution from an industry that is doing little or nothing, on a full life cycle basis, to reduce total GHG emissions. The added ozone pollution, from the use of ethanol as a gasoline additive, also needs to also be considered in the formulas for benefits and disadvantages of corn based ethanol. Furthermore, if ethanol plants in California are required to offset their GHG emissions from the refineries and associated activities, they should be required to perform the offsets in California, preferably in the SJV where co-benefits of reduction of other air pollutants could also take place.

• The transportation of the wet distillers grains (“WDG”) to dairies and the emissions of VOC’s and perhaps GHG emissions from the wet distillers grains itself must be included somewhere in the total analysis.

The ethanol plants in the SJV are claiming greater efficiency because they do not dry the wet distillers’ grains before transporting them to dairies or feedlots. But, the transportation of the WDG is very inefficient due to all the useless moisture being transported. The type of trucking used to transport the WDG must be considered since the ethanol plants in the SJV are not proposing to have their own, up-to-date, latest technology, trucking fleet. Rather they are all proposing to use independent trucking to transport the WDG and the ethanol itself. If they were required to use the latest technology in truck engines, and other potential energy saving methods with their trucking fleet, they could mitigate some of their emissions. If they were to dry the WDG with solar energy when feasible they could also reduce emissions. Furthermore, ethanol refineries in the SJV are ideally suited to use photo-voltaic electrical generation for the vast majority of their electricity needs due to the amount of space where most of them are being located and the obvious amount of sunshine received. PV installation should be required before any credits are given for the corn ethanol as a renewable bio-fuel.

• The amount of water to produce the ethanol and local land uses must be considered in the full analysis of ethanol produced in California and elsewhere.

Ethanol refineries must find better ways to conserve water. All ethanol plants should be required to use BACT in water savings processes as well as mitigate all emissions from the energy used in
pumping this groundwater. Using over one million gallons per day in a 60 million gallon per year ethanol plant is not satisfactory. This is wasting scarce and precious water in the SJV and wasting energy as all the water is being pumped from underground. Since some of the refineries in California are stating they will potentially receive 20% of their corn from local sources, then the irrigation water and pumping energy needed to grow this corn should be accurately considered. To make one gallon of ethanol could require as much as 2000 gallons of irrigation water for the corn if it is grown in the San Joaquin Valley. The benefits of using this irrigation water for food versus using it for fuel should be carefully weighed. At the same time, the 700 to 800 acre feet of water used by a 60 million gallon ethanol plant should be balanced against the fact that 300 acres of farmland could be farmed with this same water. Some ethanol plants are also removing 160 acres of prime farmland from production for the space needed for the plant and the railroad siding.

- **Instead of trying to use corn ethanol to lower the carbon content of fuel, encourage reductions in gasoline consumption through an aggressive marketing strategy and whatever other means are possible and reasonable.**

According to recent figures, California may have reduced its gasoline consumption by 3% over the past two years because of higher prices. The effect of even higher prices on consumption is yet to come. This decrease in consumption, if sustainable, is more than the quantity and energy of the ethanol that could be produced from a dozen new ethanol plants in the San Joaquin Valley. Therefore, efficiency in gasoline use easily goes a lot further in lowering GHG emissions than trying to find some small credit by producing ethanol from corn at such great costs to society.

- **Finally, consider the cost to the consumer and taxpayer from the production of corn ethanol in California and the USA.**

Besides higher food prices and more pollution in places like the SJV, the consumer and taxpayer is subsidizing corn ethanol at rates well over $1.30 per gallon. The import tariffs, tax credits, blender subsidies, corn growing subsidies, and other incentives that people like Bill Jones are able to get from the state, must be considered as negatives to balance against any supposed positives in using corn ethanol as part of the LCFS.