

Appendix E

Draft EIR comments and responses to comments

Appendix E – Draft EIR comments and responses to comments

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Appendix E
Air Products Hydrogen Pipeline Project
Final Environmental Impact Report
Public Draft EIR Responses to Comments

Comment #	Response
Air Products and Chemicals, Inc.	
APCI-1	<p>a. SBC thresholds: individual risk. The Santa Barbara Thresholds use an individual risk level as a screening value. This is effective for facilities or single point projects where the risk levels are concentrated in one area, and a low individual risk level is indicative of a low societal risk level. However, where the risks are linear, such as along a pipeline, or are distributed, such as around a large site such as an oil refinery, then individual risk levels do not always correspond to the same societal risk conclusions. The conservative and appropriate approach is to examine the individual risk and the societal risk and ensure that both do not present significant risk levels. This approach ensures compliance with the thresholds and the acceptable risk levels and addresses the condition in CEQA that states CEQA should address if there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment.</p> <p>b. As per CEQA 15064.7, “When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.” The use of the societal risk thresholds developed by Santa Barbara County have been used by multiple agencies, including the County of Los Angeles, the State of California State Lands Commission and other agencies and are appropriate to utilize in this analysis.</p> <p>c. Many of the assumptions made in the risk analysis in the EIR were also made by the Applicant’s analysis from EDM. These include the base case frequency of pipeline failures and the conditional probabilities of suffering fatalities. The Applicant’s analysis also concluded, as did the EIR, that the risks for the pipeline would fall into the amber region of the thresholds and would therefore be a significant impact.</p> <p>d. As discussed in the EIR, one of the conditions for escape is that the affected person is not actually within the flame jet itself. Most of the impacts of a release from the hydrogen pipeline would be due to flame jets. The studies discussed in the EIR indicate that, for very rapid releases and areas within the flame jet, exposure levels would be very high and escape is generally not possible. Most of the impacted areas are located within the flame jets and therefore the additional conditional probability of an escape was not counted. This is consistent with other risk studies conducted by the CCPS and others.</p> <p>e. While more recent data may indicate a reduction in the failure rates for pipelines, the increased failure rates of older pipelines most likely would continue to present a similar increase ratio as was the case in the 2000-2009 range. More recent studies on the effect of age may indicate a different increase in levels for older pipelines, but the study by the pipeline industry group used in the EIR (INGAA 2012) was considered to be an effective analysis and still appropriate. Note that only the relative increase in rates for older pipelines was utilized. The actual failure rates utilized the failure for pipelines in the 2010-2020 timeframe, as was done in the Applicant report by EDM.</p> <p>f. The inclusion of the valves was added to ensure that all release points were included in the analysis. The general failure rate used for pipelines from PHMSA reflects only the general pipeline system density of valves. In order to be more pipeline system specific, the valve density was added. Although this does cause some double counting, the use of the general nationwide valve density would</p>

	<p>produce an undercount and it was preferable to be conservative. Note also that the failure rate of valves used in the EIR only add 10-11% to the failure rate levels and only at those pipeline segments which have a valve. Segments with valves only constituted less than 10% of the segments, so the overcounting due to the valves was very minor.</p> <p>g. The EIR discusses the overcounting due to higher winds. However, this overcounting was also conducted by the Applicant's analysis by EDM and was therefore carried forward. There are a number of factors related to wind, such as the wind speed distribution and directional distributions, which all increase the complexity of the risk analysis. Note that the size of the impact zones for different wind speeds, while not trivial, is not different by orders of magnitude from the average wind and therefore would not produce substantially different results in the logarithmic analysis associated with FN curves.</p> <p>h. Schools constitute a higher density population than the general census data and this needs to be taken into account in the risk analysis. Many children, and staff, that attend the schools come from areas outside of the census tracts that are immediately along the pipeline route. At the same time, some children live within the census tracts along the pipeline route. So, by including the school population in a census tract, there is some double counting. However, by not including the school population, there would be an undercounting. The EIR includes this additional population to be reasonably conservative.</p> <p>i. The CDE School protocol only address the risks to an individual school and utilizes an individual risk approach. As discussed above, there is a substantial difference between individual risk and societal risk for linear and distributed facilities. However, there are multiple schools located along the pipeline route and there are also residences located along the routes. The individual risk levels of any one residence or one school most likely would be acceptable. However, the cumulative risk of all the schools and residences along the pipeline route, which is what the societal risk examines, becomes significant. For linear or distributed risk systems, such as pipelines or refineries, the individual risk levels can be acceptable while the societal risk levels can be unacceptable. The use of societal risk levels for linear or distributed projects correctly encompasses the risks to all receptors that could be exposed to the facility activities and enables the comparison of different routes and the relative risks for effective community planning and land use purposes. For pipelines, it is better, given all other factors the same, for a pipeline to pass through industrial areas with no residences than for the pipeline to pass through highly dense residential areas. This is appropriate planning that is not encompassed if only the individual risk levels are examined. The societal analysis encompasses these variations in pipeline routes and densities and therefore allows for better planning decisions.</p>
APCI-2	<p>The text has been revised in Section 4.3, Hazardous Materials, to incorporate additional testing and maintenance requirements and to specifically describe the test pressures and hydrogen embrittlement issues. Mitigation measures have been modified in response to the comment.</p>
APCI-3	<p>The objectives of the project as defined by the Applicant have been described in Section 2.0 Project Description and include providing hydrogen to the Paramount Refinery. The requirements of CEQA define the need to identify an environmentally superior project, which in this case would be operating a hydrogen plant at the Paramount Refinery. The discussion also takes into consideration that under the proposed Project, the pipeline may continue to operate even after the completion of the expansion of the World Energy Renewable Fuels Project and its ancillary hydrogen plant as suggested in the comment. The EIR also recognized that there may be limitations in meeting the objectives, delays in the timing and uncertainty in the permitting to this alternative. Finally, determination of an environmentally superior alternative does not require the lead agency to approve that alternative.</p>

APCI-4	The correct use of psia verses psig has been incorporated throughout the document.
APCI-5	The MTA indicated in their comment letter that coordination would be needed. The letter attached to the Applicant comments would suffice to demonstrate coordination on the part of the MTA comment letter on the NOP.
APCI-6	As required under AB52, the City consulted with the Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and they requested that language be included for Native American monitors during ground excavation activities. Text has been modified in the FEIR to indicate a Native American monitor is needed only along the areas of new pipeline construction. However, use of a qualified archeologist instead of a Native American monitor, in the event a Native American monitor is not available may need to be discussed directly with the Tribal Government during construction.
American Cancer Society	
ACS-1	The construction activities, which would use some diesel equipment, would be short term and would therefore not produce any cancer impacts. In addition, receptors are located a substantial distance from construction activities, as discussed under impacts AQ.3 and AQ.4. Operational emissions would only be produced through occasional emergency flaring, which would also be located a substantial distance from receptors and, as per the Carson AP Hydrogen Facility EIR, would not produce health risks. Some additional text has been added to the FEIR to indicate that health risks would not be anticipated and to expand on the health risks of trucking.
Boeing	
BOE-1	Thank you for your comments on the benefits of the World Energy project. This EIR addresses the hydrogen pipeline project and the supply of hydrogen to the World Energy site. No additional comment was provided on the DEIR and no additional response is merited.
Breathe Southern California; Healthy Air Alliance	
BSC-1	Thank you for your comments on the DEIR. The future World Energy project proposes the installation of a hydrogen plant at the Paramount Refinery site, thereby eliminating the need for the trucking of hydrogen. The pipeline discussed in this EIR would satisfy the intermediate needs of the World Energy project and provide some potential backup to future operations.
California Advanced Biofuels Alliance	
CABA-1	Thank you for your comments on the DEIR. The future World Energy project proposes the installation of a hydrogen plant at the Paramount Refinery site, thereby eliminating the need for the trucking of hydrogen. The pipeline discussed in this EIR would satisfy the intermediate needs of the World Energy project and provide some backup to future operations.
Coalition for Clean Air	
CCA-1	Thank you for your comments on the DEIR. The future World Energy project proposes the installation of a hydrogen plant at the Paramount Refinery site, thereby eliminating the need for the trucking of hydrogen. The pipeline discussed in this EIR would satisfy the intermediate needs of the World Energy project and provide some backup to future operations. The new portions of the pipeline would be in industrial areas, but much of the pipeline route would travel through populated, residential areas near schools and other sensitive receptors. A thorough analysis of the potential impacts is important to fulfilling the CEQA requirement of full disclosure of the impacts for the project and all feasible alternatives.
California Department of Transportation	
CDT-1	Thank you for your comments on the DEIR. As required by CEQA, the permitting requirements are assumed to be completed and fulfilled by the Applicant and therefore are generally not applied as mitigation measures. The CalTrans requirement for obtaining oversized-vehicle permits would need to be fulfilled by the applicant. Information to this extent is included in the FEIR Section 4.5, Transportation and Circulation.

The Center for Transportation and the Environment	
CTE-1	<p>Thank you for your comments on the DEIR. The future World Energy project proposes the installation of a hydrogen plant at the Paramount Refinery site, thereby eliminating the need for the trucking of hydrogen. The pipeline discussed in this EIR would satisfy the intermediate needs of the World Energy project and provide some backup to future operations. The new portions of the pipeline would be in industrial areas, but much of the pipeline route would travel through populated, residential areas near schools and other sensitive receptors. A thorough analysis of the potential impacts is important to ensuring the CEQA requirement of full disclosure of the impacts for the project and all feasible alternatives.</p>



October 8, 2020

City of Carson
Max Castillo
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Dear Mr. Castillo,

American Cancer Society would like to acknowledge the ongoing focus of World Energy, including the Air Products Carson to Paramount Hydrogen Pipeline Project and other approaches that enable emission reduction and improved transportation. The American Cancer Society editorial and medical content team reports that several national and international agencies study substances in the environment to determine if they can cause cancer. The American Cancer Society looks to these organizations to evaluate the risks based on evidence from laboratory, animal, and human research studies.

A substance that causes cancer or helps cancer grow is called a carcinogen. Many of these expert agencies have classified diesel exhaust as carcinogenic, based largely on the possible link to lung cancer. The International Agency for Research on Cancer (IARC) is part of the World Health Organization (WHO). Its major goal is to identify causes of cancer. IARC classifies diesel engine exhaust as “carcinogenic to humans,” based on sufficient evidence that it is linked to an increased risk of lung cancer. IARC also notes that there is “some evidence of a positive association” between diesel exhaust and bladder cancer. The National Toxicology Program (NTP) is formed from parts of several different US government agencies, including the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the Food and Drug Administration (FDA). The NTP has classified exposure to diesel exhaust particulates as “reasonably anticipated to be a human carcinogen,” based on limited evidence from studies in humans (mainly linking it to lung cancer) and supporting evidence from lab studies. The US Environmental Protection Agency (EPA) maintains the Integrated Risk Information System (IRIS), an electronic database that contains information on human health effects from exposure to various substances in the environment. The EPA classifies diesel exhaust as “likely to be carcinogenic to humans.” The National Institute for Occupational Safety and Health (NIOSH) is part of the CDC that studies exposures in the workplace. NIOSH has determined that diesel exhaust is a “potential occupational carcinogen.” (further information available via www.cancer.org)

ACS-1

Thank you for considering World Energy and Air Products’ commitment in initiatives that focuses on the full spectrum of wellness, mitigating carcinogenic triggers to cancer, early cancer detection, ongoing care options, and ultimately fighting together to defeat cancer. Since 1913, American Cancer Society continues the fight against cancers of all types, with more than 2 million people actively involved in communities across the country.

Our sincerest thanks,

Dan Witzling

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October 14, 2020

City of Carson
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Re: Carson to Paramount Hydrogen Pipeline Project (CUP #1089-18) - Public Comment Letter

Dear Mr. Castillo,

Please accept this letter as Air Products' formal comments on the Carson to Paramount Hydrogen Pipeline Project Draft Environmental Impact Report (DEIR).

This project proposes to use a pipeline to replace trucks that currently deliver hydrogen to World Energy, a green, bio-fuels producer in Paramount.

Air Products is proposing to use 11.5 miles of existing pipeline to transport the hydrogen requiring no new construction. An additional half mile of new pipeline will be constructed to connect the existing pipeline to the plant. The location of the half mile of new pipeline is behind the current Air Products plant on South Alameda Street between E. Sepulveda Blvd. and the Dominguez Channel, a highly industrialized area.

Generally, delivery by pipeline is safer and more reliable than delivery by truck, especially on the very busy Los Angeles freeways and local roads. What we find in this Draft Environmental Impact Report (DEIR) is that, due to extremely conservative and highly unlikely assumptions, the risk of the project was determined to be the same as using trucks. Air Products believes the operation of the pipeline will present less risk, lower emissions, and greater reliability than using trucks for delivery of hydrogen.

While Air Products is not seeking to make significant changes to the DEIR, as changes would cause further delay, we would like to recognize that it is actually less risky, with fewer emissions, to use a pipeline to transport hydrogen than it is to use trucks.

Below you will find the issues that Air Products believes contributed to a DEIR that is overly conservative. Also offered below are some technical comments on the document and mitigation measures with some alternative options.

Finally, it is important to note that hydrogen use is increasing, and its use is actively encouraged by the state of California. It is non-toxic and can stand alone as a clean fuel, in the form of hydrogen fuel cells. Hydrogen is also used to clean impurities making traditional fuels burn cleaner. In the case of this project,

Hydrogen will be used by World Energy to produce low carbon, green transportation fuels, bio-jet & biodiesel, that are derived from sustainable feedstocks and significantly reduce greenhouse gases that contribute to climate change.

Detailed Comments on DEIR

Comment #1. Section 4.3 - Hazardous Materials and Risk of Upset, Page 4.3-22, Section 4.3.4 Project Impacts and Mitigation Measures, Impact HM-2:

Comment: The Draft EIR overstates the potential risk from operation of the proposed pipeline through the use of overly conservative assumptions and selective application of methodologies from other jurisdictions. Some examples are as follows:

- a. Section 4.3 of the DEIR is based largely on the Santa Barbara County, Environmental Thresholds and Guidelines Manual (Manual). For example, the DEIR uses the Santa Barbara County Manual societal risk thresholds in determining the level of impacts posed by the project (e.g., Class I, Class II, or Class III). However, using the methodology presented in the Santa Barbara County Manual, a comprehensive risk analysis (societal risk assessment) would not be required for this project if it were in Santa Barbara County. Specifically, the Manual states,

“Staff adjusts the Individual Risk to reflect conditional probabilities, called the Individual Specific Risk. Such probabilities address factors such as number of hours in the day in which someone is present in the hazard zone. A measurement of one in a million (1×10^{-6}) on an annual basis indicates sufficient evidence to trigger the risk thresholds and a comprehensive risk analysis.”

The DEIR very conservatively determined that the individual risk was 1.5×10^{-7} (0.15 in one million) for the nearest school site. This is well below the Santa Barbara County individual risk threshold of 1×10^{-6} (1.0 in one million) which would trigger a comprehensive risk analysis (societal risk assessment). The actual individual risk is much lower than this value, as detailed in Item “c” below.)

The Pipeline Safety Technical Report, prepared for this project by EDM Services, Inc., conservatively determined that the individual risk for a maximally exposed individual (24 hours per day, 365 days per year) was 2.86×10^{-8} , 3.37×10^{-8} , and 4.28×10^{-8} for segments 1, 2A and 2B respectively.

Based on the data presented, the individual risk would need to be more than 6 times greater (DEIR) or 20 times greater (EDM Services Report) in order to require a comprehensive risk analysis (societal risk assessment) using the Santa Barbara Manual procedures.

- b. The societal risk thresholds used in the DEIR are those adopted by the County of Santa Barbara. Similar thresholds have not been adopted by the United States, the State of California, nor the City of Carson. Specifically, as presented in the EDM Services Report, the United States government has opposed setting tolerable risk guidelines. The 1997 final report of the

APCI-1

Presidential/Congressional Commission on Risk Assessment and Risk Management (Commission), entitled Framework for Environmental Health Risk Management, included the following finding,

“There is much controversy about bright lines, “cut points,” or decision criteria used in setting and evaluating compliance with standards, tolerances, cleanup levels, or other regulatory actions. Risk managers sometimes rely on clearly demarcated bright lines, defining boundaries between unacceptable and negligible upper limits on cancer risk, to guide their decisions. Congress has occasionally sought to include specified bright lines in legislation. A strict “bright line” approach to decision making is vulnerable to misapplications since it cannot explicitly reflect uncertainty about risks, population within, variation in susceptibility, community preferences and values, or economic considerations – all of which are legitimate components of any credible risk management process.” The report states further, “Furthermore, use of risk estimates with bright lines, such as one-in-a-million, and single point estimates in general, provide a misleading implication of knowledge and certainty. As a result, reliance on command-and-control regulatory programs and use of strict bright lines in risk estimates to distinguish between safe and unsafe are inconsistent with the Commission’s Risk Management Framework and with the inclusion of cost, stakeholder values, and other considerations in decision-making.”

APCI-1
continued

c. Excessive Conservatism

The DEIR uses worst case and conservative assumptions for several conditional probabilities. The combined conservatism overstates the individual and societal risks posed by the proposed project by more than a factor of 200 – more than two orders of magnitude. If corrections were made, the societal risks posed by the project will be well within the “green” region, using the Santa Barbara County societal risk thresholds. The individual risks at school sites will be similarly reduced.

d. Human Reaction

The DEIR correctly states that historical data already includes a fraction of some people moving away from a given scenario. As included in the California Department of Education (CDE) Protocol, the exposure end points are based on a 30 second exposure. The basis for the CDE is for natural gas pipeline releases; it was not developed for hydrogen pipeline releases. For the proposed hydrogen pipeline segments, the impact radius is much smaller. If one considers the worst-case releases from the proposed project:

- Full-bore hydrogen pipeline rupture and
- 12,000 btu/hr-ft² heat flux

The average impact area is approximately 750 square feet. The average impact radius would be 15.5-feet ($\pi \times 15.5\text{-feet}^2 = 755 \text{ feet}^2$). (The actual average escape distance would be greater than 15.5-feet downwind and less than 15.5-feet upwind.)

Using the same methodology as used for gas pipelines, one would assume that a person would remain in their original position for between 1 and 5 seconds and then run at 5 mph (7.3 feet per second) in the direction of shelter for 2 seconds, 15-feet. The resulting duration of exposure for a hydrogen pipeline rupture would be between 3 and 7 seconds, not 30 seconds as for natural gas pipeline releases.

As shown in the table below, taken from the Gas Research Institute report, which is the basis for the endpoints used in the CDE Protocol, at the highest heat flux level of 12,000 btu/hr-ft², an 8.4 second exposure is only expected to result in 1% mortality. Lower levels of exposure would not result in any fatalities.

The DEIR did not consider the reduced impact areas and escape distances associated with hydrogen releases from the proposed pipe segments. The DEIR assumed that the mortality rate at a heat flux of 12,000 btu/hr-ft² would be 100%. The DEIR has overstated the impacts to humans by more than 100 times for the highest heat flux level of 12,000 btu/hr-ft². At lower heat flux levels, fatalities are not likely to occur. The DEIR assumed 50% mortality at 8,000 btu/hr-ft² and 1% mortality at 5,000 btu/hr-ft².

APCI-1
continued

e. Pipeline Incident Rate

As correctly stated in the DEIR, the average U.S. gas transmission onshore pipeline incident rate from 2010 through 2018 was 0.29 incidents per 1,000 mile-years. However, the DEIR increased this incident rate by a factor of 1.78. The DEIR justifies this increase based on two reports. One report utilizes gas transmission pipeline release data between 2000 and 2009. The other report utilizes hazardous liquid pipeline release data between 1981 through 1990. However, the data presented in these reports do not reflect improvements in gas transmission pipeline safety which have resulted from more recent gas transmission pipeline integrity management regulations.

These reports were developed before the impacts of the U.S. gas transmission pipeline integrity management programs were effective. Gas transmission pipeline operators were required to write and begin implementation of their integrity management plans by December 17, 2004; the plans were implemented over the following years.

The Pipeline and Hazardous Materials Safety Administration (PHMSA), Gas Transmission Integrity Management Progress Report, February 2011, found, "there is an overall decreasing trend over this period (see Figure 1). A similar decreasing trend is observed when considering only the subset of incident causes that are detectable by the rule's line pipe integrity assessment requirements (e.g., corrosion, dents, and material defects)."

Further, this pipeline has been successfully hydrostatically tested in 2014 and 2015 to 940 psig and 942 psig respectively. This test pressure is more than three times the proposed pipeline operating pressure. The increased incident rate used in the DEIR overstates both the individual and societal risks posed by the proposed project.

f. Valve Incident Rate

The DEIR adds additional releases for valves. However, valve releases are already included in the PHMSA database. Also, the pipeline incident rate of 0.29 incidents per 1,000 mile-years is already conservative. If only pipe, valve, weld, and flange releases are considered, the incident rate would be reduced nearly one-third, to 0.20 incidents per 1,000 mile-years.

As a result, the releases from valves have been included twice in the DEIR analysis. This overstates the frequency of unintentional releases and potential impacts to the public. As a result, the DEIR overstates both the individual and societal risks by roughly one-third based on this issue alone.

g. Wind Conditions

The DEIR assumed worst case wind speed, wind direction (only downwind releases), and high winds 100% of the time. These factors add additional conservatism to the analysis and overstate the potential project impacts to the public, both individual and societal risks.

h. Population Density

As stated in the DEIR, “route segments that pass by schools have the school population added into the respective census tract population to account for the increased density of people in the area of the school.” However, these children are already included in the census tract population data. It appears that they have been included twice, which overstates the societal project risks.

i. Schools

The DEIR concludes for the closest school site to the proposed pipeline that the, “risk levels are acceptable under the CDE Risk Protocols with a Total Individual Risk/Individual Risk Criteria (TIR/IRC) ratio of 0.15, with a 1.0 TIR/IRC ratio being the CDE Protocol threshold... all of the other schools would present less risk. Therefore, risk to schools and the impacts of Hazardous Materials Impact 3 are less than significant (Class III).”

It does not seem reasonable that if the risk to the nearest school site is less than significant (Class III), that the risk to the general population is determined to be significant (Class I). We believe that the analysis is unnecessarily overly conservative, for the reasons presented above.

Page 4.3-22, Section 4.3.4 Project Impacts and Mitigation Measures, Impact HM-2:

Comment: The Project risks are over-stated through the use of a societal risk analysis, as discussed above, that contains compounded multiple worst-case scenarios and discounts a human response in the unlikely event of a full pipeline rupture. It should be noted that the reason why societal risk analyses are not widely used is that for linear projects the risks are a function of project length. When added together, they present an unrealistic perception of risk. An example

APCI-1
continued

is that if the same methodology were applied to a proposed highway, the societal risks would be determined to be magnitudes above what would be considered acceptable – although these risks are typically accepted by the public when driving a car on the freeway.

Regardless of the abovementioned use of overly conservative assumptions and selective application of methodologies from other jurisdictions, Air Products is not seeking changes to the document associated with Comment #1 as it would require too much time and needlessly delay this project.

APCI-1
continued

Comment #2 - The DEIR suggests mitigation measures requiring annual pressure testing at three times the Maximum Allowed Operating Pressure (MAOP) to address a misunderstanding of “hydrogen embrittlement” and pipeline materials.

Comment: Hydrogen embrittlement requires three factors, all of which must be present: 1) presence of a rare form of hydrogen (free radical hydrogen) must be present, 2) the pipeline material must be susceptible to reaction to the rare hydrogen, and 3) the operating pressure must be operated at higher pressure for the particular pipeline (greater than 30% of specified minimum yield strength [SMYS]). Hydrogen embrittlement is not a significant concern to this pipeline due to both the pipeline material, which is not susceptible to embrittlement, and the low operating pressure of 160 psig, that is being imposed on the operation of the pipeline. Proposed Mitigation Measure HM-2c is actually counterproductive to maintaining a safe pipeline and does not recognize the current DOT regulations or Air Products safety measures that exceed regulatory requirements. We believe that testing annually at three times the maximum operating pressure is not only unnecessary but can create unnecessary stress on the pipeline. Air Products offers the following revisions to the Mitigation Options discussion found on page 4.3-25 of the DEIR and mitigation measures HM-2b and HM-2c, presented below in underline/strike-out text.

APCI-2

Mitigation Options – Page 4.3-23

Mitigation could take the form of reducing the impacts, by reducing the size of a release, or reducing the frequency of a release. Operating the pipeline at a lower pressure in order to reduce the size of the jet fires and decrease the potential for exposure is one possibility. Operating the pipeline at a lower pressure (such as 160 psig instead of 260 psig) would reduce the area of the jet fire by an average of about 35%. FN curve for operating the pipeline at a pressure of 160 psig is shown in Figure 4.3-4 and allows for a reduction in the severity of the significant impact. The Applicant has indicated that this is feasible.

A potential concern related to the use of non-hydrogen pipelines for hydrogen transportation is hydrogen embrittlement, which is a term indicating the presence of atomic hydrogen in carbon steel (permeability) that affects the pipeline toughness or ductility of the metal and can result in

cracking or fissuring of the Metal (DOE 2005, Hafsi 2018, Xu 2012, Thompson 1977). Applicant has evaluated the materials of construction for the existing pipeline and determined the pipeline was constructed of materials recommended by the Compressed Gas Association to eliminate the risk of hydrogen embrittlement. The new construction portion of the pipeline will also be constructed of these materials. It is not clear whether this pipeline could be susceptible to this phenomenon as it can be a function of the operating pressure, pressure changes over time, and the construction characteristics of the pipeline steel. However, monitoring of the pipeline for this issue would help to ensure that this is not an issue. Operating pressure of the pipeline is another key factor in the avoidance of hydrogen embrittlement. The operating pressure of 160 psig is well below industry recommendations to avoid hydrogen embrittlement.

Pressure testing of the pipeline is another important tool in mitigation of pipeline risk. Pressure testing is done by filling the pipeline with water, compressing the water to the required pressure for testing, and observing the pipeline for any leaks or other integrity issues. Before hydrogen is introduced to the pipeline, Applicant will pressure test the pipeline at 556 psig, which is approximately 3.5 times the normal operating pressure of 160 psig. This test will be repeated every 5 years in accordance with DOT regulations.

During ongoing operation, a robust integrity management program is an important mitigation measure. An integrity management program should include:

- Cathodic system maintenance, including bi-monthly checks for proper operation. (The cathodic protection system protects the outside of the pipeline from corrosion damage; the inside of the pipeline is protected from corrosion because the hydrogen is bone dry, containing no moisture.)
- Leak surveys with hydrogen gas detector every six months.
- Quarterly patrols checking for unusual conditions or activity around the line.
- Valve functionality assurance testing to ensure the leak detection system is operating as designed. (While not required by regulation, Applicant will install a leak detection capable of detecting leaks as small as 0.25 inches in diameter.)
- Damage prevention, pipeline marking and surveillance activities
- Other pipeline inspections and any required repairs to address inspection findings.
- Destructive testing on any sections removed in the course of normal maintenance and operation. For each sample location, the proposed material testing protocol includes the following analyses: 1) cut two longitudinal tensile samples to determine Yield Strength, Ultimate Tensile Strength, and elongation; 2) analyze for chemical composition, and 3) cut one transverse cross seam weld sample to determine weld type and check hardness of the weld.

APCI-2
continued

Mitigation Measures

HM-2a **Maximum Pressure Allowance:** The pipeline shall be operated at a maximum pressure at any point in the pipeline of 160 psia~~g~~. The operator shall maintain operating pressure information that shall be made available upon request. Information on pipeline maintenance, including pressure testing and any direct assessments or any other pipeline issues, shall be reported to the City.

HM-2b **Materials and Operating Pressure:** New and existing pipeline materials shall be consistent with CGA recommendations for avoidance of hydrogen embrittlement. Operation at or below the Maximum Pressure Allowance of 160 psig will be maintained at all times, ensuring operation that goes conservatively beyond industry recommendations to avoid hydrogen embrittlement.

~~Testing and Monitoring for Hydrogen Issues: The pipeline shall be monitored on an annual basis for any issues that could indicate increased rates of the loss of pipeline integrity, such as hydrogen-related embrittlement, through the use of in service inspection methods, corrosion type coupons or other equivalent methods. The monitoring procedure shall be documented and available for inspection upon request.~~

HM-2c **Pressure Testing:** Prior to the introduction of hydrogen, the pipeline shall be pressure tested at 556 psig, which is approximately 3.5 times the normal operating pressure. The pressure testing shall be repeated every 5 years in accordance with DOT regulations. The pipeline shall continue to be pressure tested at a MAOP to test pressure ratio of at least 3.0 to ensure pipeline integrity. ~~In addition, the testing shall be performed at an annual basis for the first 3 years to ensure that no issues are introduced to the pipeline due to the use of hydrogen. Subsequent years tests may be relaxed to once every 3-5 years as per PHMSA requirements.~~

HM-2d **Integrity Management Program:** Applicant shall administer a robust integrity management program as recommended for hydrogen pipelines of this age. The program shall include operational and maintenance activities as described in the Mitigation Options section.

APCI-2
continued

Comment #3 – Environmentally Superior Alternative

Comment: Air Products opposes the determination of the on-site hydrogen generation alternative as the “environmentally superior alternative” to the project. Air Products is not investing in the development of this pipeline as a temporary measure. The pipeline will continue

APCI-3

to have utility as a redundant source of hydrogen regardless of World Energy’s possible conversion project.

APCI-3
continued

Comment #4 - Multiple References, Use of ‘psig’ vs. ‘psia’

Comment: The DEIR uses both “psig” (pounds per square inch gauge) and “psia” (pounds per square inch absolute) when discussing the proposed operating pressures for the Air Products pipeline. Air Product’s proposed project has consistently discussed the project in terms of “psig”. The DEIR should be edited throughout to consistently use “psig” when discussing proposed pipeline operating pressure.

APCI-4

Comment #5- Page. 4.3-29, MM HM-Cum1.

Comment: The DEIR includes a mitigation measure that requires Air Products to coordinate their proposed project with the Los Angeles County Metropolitan Transit Authority (MTA) regarding MTA’s proposed West Santa Ana Branch Transit Corridor project. The Air Products pipeline route crosses the railroad right-of-way proposed for use by the MTA project in Paramount at Downey Avenue. It should be noted that the Air Products pipeline would use an existing pipeline owned by Paramount Pipeline located underground within an existing utility easement within Downey Avenue. Air Products has coordinated with MTA and MTA agrees that the Air Products pipeline would not conflict with the MTA project, which is currently scheduled for construction in 2030. Documentation of Air Products-MTA coordination is attached to this letter.

APCI-5

Comment #6 - Air Products has reviewed the proposed Mitigation Measure TC-1a – Regain a Native American Monitor/Consultant, and offers the following comment:

Air Products is in agreement with retaining a Native American monitor to monitor project-related ground-disturbing activities at the proposed pipeline alignment due to the tribe’s concerns regarding potential human remains within the project vicinity. Air Products requests that the mitigation measure be revised to state that the monitoring requirement is limited to the 0.5 miles of new pipeline construction along the Dominguez Channel area, and would not apply to other areas of the project that may involve ground disturbing activities located within street rights-of-way and within developed industrial facilities further east along the pipeline route. Also, Air Products respectfully requests modification of the mitigation measure to state that construction activities will not be required to cease if the Native American monitor is unavailable to participate, provided that a 48-hour notice has been provided by Air Products prior to start of construction activities. In this event, Air Products will retain a qualified archaeologist to provide cultural resources monitoring in lieu of Native American representatives. Please see the proposed revisions to this mitigation measure shown below (added text shown as underlined):

APCI-6

TC-1a - Retain a Native American Monitor/Consultant: The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the

Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC. The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities along the 0.5-mile of new pipeline construction along the Dominguez Channel. Ground disturbing activities are defined by the Gabrieleño Band of Mission Indians-Kizh Nation as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. Work will be allowed to continue with monitoring provided by a qualified archaeologist if the Tribal monitor/consultant is unavailable. In this case, the archaeologist would provide daily updates to the Tribal monitor/consultant. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.

APCI-6
continued

We appreciate the opportunity to provide our comments on the DEIR to the City and are available if there are any further questions or comments. Air Products looks forward to the preparation of the Final EIR and presentation of our project to the Carson Planning Commission.

Best regards,



Seth Gottlund
Account Executive, HyCO CA

Attachments:

LA Metro Communication



External Re_ Air
Products Carson to I

MITIGATION MEASURES DRAFT

October 9, 2020

Mitigation Options – Page 4.3-23

Mitigation could take the form of reducing the impacts, by reducing the size of a release, or reducing the frequency of a release. Operating the pipeline at a lower pressure in order to reduce the size of the jet fires and decrease the potential for exposure is one possibility. Operating the pipeline at a lower pressure (such as 160 psig instead of 260 psig) would reduce the area of the jet fire by an average of about 35%. FN curve for operating the pipeline at a pressure of 160 psig is shown in Figure 4.3-4 and allows for a reduction in the severity of the significant impact. The Applicant has indicated that this is feasible.

A potential concern related to the use of non-hydrogen pipelines for hydrogen transportation is hydrogen embrittlement, which is a term indicating the presence of atomic hydrogen in carbon steel (permeability) that affects the pipeline toughness or ductility of the metal and can result in cracking or fissuring of the Metal (DOE 2005, Hafsi 2018, Xu 2012, Thompson 1977). Applicant has evaluated the materials of construction for the existing pipeline and determined the pipeline was constructed of materials recommended by the Compressed Gas Association to eliminate the risk of hydrogen embrittlement. The new construction portion of the pipeline will also be constructed of these materials. Operating pressure of the pipeline is another key factor in the avoidance of hydrogen embrittlement. The operating pressure of 160 psig is well below industry recommendations to avoid hydrogen embrittlement.

Pressure testing of the pipeline is another important tool in mitigation of pipeline risk. Pressure testing is done by filling the pipeline with water, compressing the water to the required pressure for testing, and observing the pipeline for any leaks or other integrity issues. Before hydrogen is introduced to the pipeline, Applicant will pressure test the pipeline at 556 psig, which is approximately 3.5 times the normal operating pressure of 160 psig. This test will be repeated every 5 years in accordance with DOT regulations.

During ongoing operation, a robust integrity management program is an important mitigation measure. An integrity management program should include:

- Cathodic system maintenance, including bi-monthly checks for proper operation. (The cathodic protection system protects the outside of the pipeline from corrosion damage; the inside of the pipeline is protected from corrosion because the hydrogen is bone dry, containing no moisture.)
- Leak surveys with hydrogen gas detector every six months.
- Quarterly patrols checking for unusual conditions or activity around the line.
- Valve functionality assurance testing to ensure the leak detection system is operating as designed. (While not required by regulation, Applicant will install a leak detection capable of detecting leaks as small as 0.25 inches in diameter.)
- Damage prevention, pipeline marking and surveillance activities
- Other pipeline inspections and any required repairs to address inspection findings.

- Destructive testing on any sections removed in the course of normal maintenance and operation.

Mitigation Measures

HM-2a **Maximum Pressure Allowance:** The pipeline shall be operated at a maximum pressure at any point in the pipeline of 160 psig. The operator shall maintain operating pressure information that shall be made available upon request. Information on pipeline maintenance, including pressure testing and any direct assessments or any other pipeline issues, shall be reported to the City.

HM-2b **Materials and Operating Pressure:** New and existing pipeline materials shall be consistent with CGA recommendations for avoidance of hydrogen embrittlement. Operation at or below the Maximum Pressure Allowance of 160 psig will be maintained at all times, ensuring operation that goes conservatively beyond industry recommendations to avoid hydrogen embrittlement.

HM-2c **Pressure Testing:** Prior to the introduction of hydrogen, the pipeline shall be pressure tested at 556 psig, which is approximately 3.5 times the normal operating pressure. The pressure testing shall be repeated every 5 years in accordance with DOT regulations.

HM-2d **Integrity Management Program:** Applicant shall administer a robust integrity management program as recommended for hydrogen pipelines of this age. The program shall include operational and maintenance activities as described in the Mitigation Options section.

Section 4.6 Tribal Cultural Resources

Mitigation Measures

TC-1a - **Retain a Native American Monitor/Consultant:** The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC. The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities along the 0.5-mile of new pipeline construction along the Dominguez Channel. Ground disturbing activities are defined by the Gabrieleño Band of Mission Indians-Kizh Nation as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. Work will be allowed to continue with monitoring provided by a qualified archaeologist if the Tribal monitor/consultant is unavailable. In this case, the archaeologist would provide daily updates to the Tribal monitor/consultant. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and

monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.



October 19, 2020

City of Carson
Max Castillo
Community Development Department – Planning Division
701 East Carson Street
Carson, CA 90745
Sent via email to: Mcastillo@carson.ca.us

RE: Support - Air Products Carson to Paramount Pipeline Project

Dear Mr. Castillo,

Please accept this letter in support of the Air Products' Carson to Paramount hydrogen pipeline project and the City's approval of the Focused Environmental Impact Report and Conditional Use Permit.

Aviation carries over 4 billion people and about \$7 trillion in goods every year to bring the world closer together than ever before. Boeing and the aviation industry recognize that climate change is a fundamental challenge of our time, and we are united in fulfilling our responsibility to reduce greenhouse gas emissions.

Each new generation of Boeing airplanes reduces emissions 15-25% from than the previous one. Along with the industry, we are further reducing emissions through the use of sustainable fuels, improving operational efficiency of the global fleet, upgrading air traffic control infrastructure and implementing a global carbon-offset program.

Since 2009, World Energy and Boeing have collaborated to help the aviation industry advance their sustainability goals. First, by achieving ASTM certification of sustainable aviation fuels (SAF), and continuing in our daily use of SAF in our ecoDemonstrator, as well as offering of SAF to customers as they take possession of their new airplanes.

World Energy in Paramount, CA is currently the only commercial producer of SAF in the world, and is highly sought after by all the major airlines. Presently, United Airlines is the primary recipient of this fuel, followed by KLM, Gulfstream, and Boeing. Production limitation is the only thing preventing its use by more airlines.

This pipeline project is a key step in World Energy's effort to produce more renewable fuels. By debottlenecking the plant through the use of piped in hydrogen, World Energy will benefit from an uninterrupted supply of gas hydrogen. Currently, hydrogen is trucked daily to the plant in liquid form and persistent delivery interruptions impede production. Phase one of debottlenecking will create a 20% increase in SAF production. This in turn will lead to a decreased cost for airline customers, and more

BOE-1



importantly, lowers the carbon intensity score by 5 metric tons per mega joule. In the race for cleaner fueling options, this is a key step forward.

We are committed to supporting projects that will help increase the overall production of SAF, continue pushing us and the industry towards our climate goals, and create more sustainable fueling options for our customers.

BOE-1
continued

Thank you for considering our remarks as a part of the public comment on this project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mark", written over a light gray rectangular background.

Mark W. Taylor
Director, Government Operations
The Boeing Company
mark.taylor@boeing.com
(562) 797-1081



October 19, 2020

Mr. Max Castillo
City of Carson
Community Development Department – Planning Division
701 East Carson Street
Carson, CA 90745

RE: Support – Reduced Air Emissions: Air Products Carson to Paramount Pipeline Project

Dear Mr. Castillo,

Both Breathe Southern California (Breathe SoCal) and Healthy Air Alliance support efforts being made to reduce emissions in Southern California, and in particular, diesel emissions. As such, we support the Air Products' Carson to Paramount Hydrogen Pipeline Project that will lead to emissions reductions from diesel trucks in the region and increase the availability of hydrogen in our region which will help our state meet its climate goals.

Breathe SoCal is a nonprofit organization that promotes clean air and healthy lungs through research, education, advocacy, and technology. For over 50 years, we have been a leader in air quality improvement efforts in California. Last October, we launched our End Diesel Now campaign, which seeks to eliminate diesel pollution from the goods movement sector. Healthy Air Alliance is a group of advocates who believe there are ways we can immediately reduce air pollution, and that discussion of actionable solutions must include cleaner fuel choices that will immediately lower harmful emissions, improve health in our most vulnerable communities, and make cleaner and more affordable transportation solutions available to all.

BSC-1

According to the project's Draft Environmental Impact Report (DEIR), the transportation of hydrogen currently from the Air Products site to the World Energy facility in Carson utilizes 5-6 diesel truck trips per day. If the pipeline project is not approved this is expected to increase to 35 diesel truck trips daily. We say diesel trucks since the vast majority of heavy-duty Class 8 transport trucks have diesel engines, as the commercialization of zero emission trucks is not expected for several years. Utilizing a pipeline for hydrogen would not only eliminate these truck trips, it would also reduce the negative health impacts from carcinogenic diesel emissions on those living in adjacent communities.

The negative health impacts of diesel particulate matter are staggering, and diesel exhaust contributes to Southern California's nation-worst air quality. To meet the state's ambitious goals combating climate change, cleaner fuels must play a role in achieving those standards. Given the dangerous health impacts of diesel and the air and climate challenges we face, it is critical for elected officials, government agencies, industry leaders, and community organizations to find solutions that will lead to a meaningful reduction in diesel emissions.

We support the conversion to cleaner fuels such as hydrogen which we believe will become a common transportation fuel in the future. This project could help make hydrogen transportation fuel more widely available and ease the transition to cleaner air.

BSC-1
continued

Projects such as this that reduce diesel emissions, and thus the adverse health impacts associated with inhaling diesel particle pollution, support California's vital leadership in prioritizing public health and fighting air pollution. Should you have any questions regarding this letter, please contact me at (323) 935-8050 x250 or at MCarrel@breathesocal.org. Thank you for your consideration.

Sincerely,



Marc Carrel
President & CEO
Breathe Southern California



Jim Kennedy
Executive Director
Healthy Air Alliance

October 6, 2020

City of Carson
Max Castillo
Community Development Department – Planning Division
701 East Carson Street
Carson, CA 90745
Mcastillo@carson.ca.us

RE: Support - Air Products Carson to Paramount Pipeline Project

Dear Mr. Castillo,

Please accept this letter in support of the Air Products' Carson to Paramount hydrogen pipeline project and the City's approval of the Focused Environmental Impact Report and Conditional Use Permit.

California Advanced Biofuels Alliance (CABA) is the state's trade association for advanced biofuels. We fully support this project and applaud World Energy and Air Products for moving our state towards a cleaner, more sustainable environment.

CABA-1

CABA believes in a wide portfolio of alternative fuels and this 11.5-mile pipeline will allow for more availability of hydrogen, while simultaneously reducing truck traffic in the Los Angeles area. The location of this pipeline and the repurposing of existing infrastructure will avoid disruption to the public and benefit the Los Angeles area and beyond.

Thank you for considering our remarks as a part of the public comment on this project.

Sincerely,



Rebecca Baskins
Executive Director
California Advanced Biofuels Alliance

October 19, 2020

Max Castillo
Community Development Department – Planning Division
City of Carson
701 East Carson Street
Carson, CA 90745
Mcastillo@carson.ca.us

RE: Support - Air Products Carson to Paramount Pipeline Project

Dear Mr. Castillo,

Please accept this letter in support of the Air Products Carson to Paramount hydrogen pipeline project and the City's approval of the Focused Environmental Impact Report and Conditional Use Permit.

We recognize the importance of clean alternative fuels in meeting California's climate and air quality commitments. The transportation sector is responsible for approximately 50 percent of California's greenhouse gas emissions after factoring in upstream emissions. Further, vehicles powered by gasoline, diesel or other conventional fuels produce nearly 80% of smog-forming emissions within the state, as well as toxic and other health-damaging air pollutants.

World Energy is a leader in the development of low carbon and renewable fuels, including renewable aviation fuel. Further, World Energy produces ingredients and components necessary for the creation of clean fuels. Their Paramount facility, previously a highly polluting asphalt refinery, has received significant upgrades and is a far cleaner plant under World Energy's ownership.

Lastly, it is worth noting this project largely relies on existing infrastructure. All new pipeline will be entirely within an industrial area, far away from residences and sensitive receptors. This project will also have the added benefit of taking trucks off the road, eliminating the need for trucks to transport hydrogen gas between Ontario and Paramount.

CCA-1

Thank you for considering our remarks as a part of the public comment on this project.

Sincerely,



Christopher Chavez
Deputy Policy Director

DEPARTMENT OF TRANSPORTATION

DISTRICT 7 – Office of Regional Planning
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897-9140
FAX (213) 897-1337
TTY 711
www.dot.ca.gov



*Making Conservation
a California Way of Life.*

October 19, 2020

Max Castillo, Assistant Planner
City of Carson
701 East Carson Street
Carson, CA 90745

RE: Air Products Hydrogen Pipeline
Project – Draft Environmental
Impact Report (DEIR)
SCH# 2020059038
GTS # 07-LA-2020-03359
Vic. LA-405/PM: 9.01

Dear Max Castillo:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-mentioned project's Draft Environmental Impact Report (DEIR). Air Products proposes to construct a new 0.5 mile pipeline segment within the City of Carson and connect this newly constructed segment with 11.5 miles of existing pipeline to provide hydrogen distribution from its existing hydrogen production facilities located in Wilmington and Carson. Air Products proposes to use this pipeline to connect Air Products with a new customer in the City of Paramount, who uses hydrogen to produce renewable biofuels (biodiesel and biojet).

After reviewing the DEIR, Caltrans does not expect project approval to result in a direct adverse impact to the existing State transportation facilities.

Any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. We recommend large size truck trips be limited to off-peak commute periods

CDT-1

If you have any questions regarding these comments, please contact project coordinator Reece Allen, at reece.allen@dot.ca.gov and refer to GTS# 07-LA-2020-03359

Sincerely,

A handwritten signature in blue ink, appearing to read "Miya Edmonson".

MIYA EDMONSON

IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

October 13, 2020

City of Carson
Max Castillo
Community Development Department – Planning Division
701 East Carson Street
Carson, CA 90745
Mcastillo@carson.ca.us

RE: Support - Air Products Carson to Paramount Pipeline Project

Dear Mr. Castillo,

Please accept this letter in support of the Air Products' Carson to Paramount hydrogen pipeline project and the City's approval of the Focused Environmental Impact Report and Conditional Use Permit.

To understand our support for this project, you must first know a little about The Center for Transportation and the Environment (CTE). Our mission is to improve the health of our climate and communities by bringing people together to develop and commercialize clean, efficient, and sustainable transportation technologies. We are a member-supported 501(c)(3) nonprofit organization that develops, promotes, and implements advanced transportation technologies, vehicles, and fuels that reduce environmental pollution and fossil fuel dependency.

In California we are working with various project teams to install public hydrogen fueling stations at strategic locations in California. In the Los Angeles area, we are working with Los Angeles County Metropolitan Transportation Authority's (Metro) to create a Strategic Master Plan for Metro's transition to zero-emission buses.

The project you are considering will allow Air Products, an industry safety leader, to bring a reliable supply of hydrogen via pipeline to World Energy, an international leader in bio- and renewable-fuel production, that is converting its refinery in Paramount into the world's first renewable jet fuel refinery. World Energy's renewable diesel and jet fuel products reduce greenhouse gas emissions by at least 60% compared to similar petroleum fuels. By approving this project, Carson will play a significant role in bringing cleaner fuels and reduced emissions to the Los Angeles basin and beyond.

CTE-1

The hydrogen that World Energy critically needs to make these alternative fuels is currently being transported by truck. Moving hydrogen by pipeline is a safer, more reliable and more efficient alternative to tanker trucks. In addition to removing trucks and their emissions from busy roads and freeways, this project will also facilitate growth in biofuels and alternative fuel vehicles.

CTE-1
continued

Thank you for considering our remarks as a part of the public comment on this project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel J. Raudebaugh". The signature is stylized and cursive.

Daniel J. Raudebaugh
Executive Director

Bcc: TomiDRiley@gmail.com