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**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-4702

ARMED SERVICES

August 24, 2016

Mr. Gregory J. Goff  
Chairman, President and CEO  
Tesoro Corporation  
19100 Ridgewood Parkway  
San Antonio, TX 78259

Dear Mr. Goff:

On April 2, 2010, the Tesoro petroleum refinery in Anacortes experienced a catastrophic rupture of a heat exchanger. According to the final investigation report of the U.S. Chemical Safety and Hazard Investigation Board (CSB), the heat exchanger ruptured due to a High Temperature Hydrogen Attack (HTHA). Highly flammable hydrogen and naphtha were released from the ruptured heat exchanger and ignited, resulting in an explosion and a fire that burned for more than three hours. Tragically, seven Tesoro employees were killed.

Current industry practice to determine the vulnerability of equipment to HTHA is set forth by the American Petroleum Institute's (API) Recommended Practice (RP) 941, known as *Steels for Hydrogen Service at Elevated Temperatures and Pressures in Petroleum Refineries and the Petrochemical Plants*. To determine the standard, API uses "Nelson Curves" which help predict the conditions under which HTHA occurs in various types of steel. In their investigation of the Tesoro rupture, CSB found that HTHA occurred in the heat exchanger in an operating environment where it was not predicted to occur. Consequently, CSB recommended that API revise RP 941.

In response, in February of this year, API published an updated standard. While CSB believes the standard makes some improvements, they do not believe it adequately addresses their recommendations. Specifically, CSB has said the updated standard does not take into account all of the conditions where catastrophic failure could occur due to HTHA. Additionally, CSB cites the lack of minimum requirements to prevent equipment failure due to HTHA or require the use of safer materials. As a result, CSB voted in July to denote API's updated standard as deficient and subsequently designated the action on API's earlier recommendation as unacceptable.

Having rejected the updated standard, on August 11, CSB issued a safety alert focused on preventing an accident similar to the fatal 2010 Tesoro explosion. The safety alert provided the following guidance for industry:

1. Identify all carbon steel equipment in hydrogen service that have the potential to harm workers or communities due to catastrophic failure;
2. Verify actual operating conditions (hydrogen partial pressure and temperature) for the identified carbon steel equipment;
3. Replace carbon steel process equipment that operates above 400 °F and greater than 50 pounds per square inch absolute hydrogen partial pressure; and
4. Use inherently safer materials, such as steels with higher chromium and molybdenum content.

Ensuring the safety of workers, surrounding communities and the environment needs to be of the highest importance when operating a refinery, and accordingly, I ask that you provide me with specificity on how, if at all, you are addressing the safety alert guidance enumerated above. I also ask that you provide me with details on any safety improvements you have made with respect to potential HTHA events since the April 2, 2010, incident.

Thank you for your timely consideration of my concerns and I look forward to your response. Please do not hesitate to contact me if you have any questions or concerns.

Sincerely,



Rick Larsen

Member of Congress

Washington State, 2<sup>nd</sup> District