

April 25, 2016

County of San Luis Obispo
Planning Commission
Attn: Ryan Hostetter, Senior Planner
976 Osos Street, Room 200
San Luis Obispo, CA 93408

Re: Phillips 66 Rail Spur Project

Honorable Planning Commissioners:

Public comment was not called during the 15 April hearing on the Phillips 66 Rail Spur Project. Therefore, I submit the following statement about hazard classification of bulk crude oil shipments by rail.

During the morning staff briefings, the Commission heard about federal hazard classification of crude oil for transportation in rail tank cars, and the heightened requirements when large quantities are carried in High-Hazard Flammable Unit Trains. The information presented by Marine Research Specialists consultants was informative, clearly presented, and accurate.

In subsequent testimony and questioning during the afternoon session, the straight-forward information provided that morning appeared to have lost clarity for Commissioners and staff.¹

As you were briefed, the Code of Federal Regulations identifies hazard classification of flammable liquids shipped in rail cars or trucks *uniquely by Packing Group* (PG). Packing Group is “a grouping according to the *degree of danger* presented by hazardous materials.” (‘Degree of danger’ refers exclusively to explosion and fire hazard.)

In turn, Packing Group assignment is *uniquely* determined by only two values – *flash point* and *initial boiling point*, which are temperature measurements. These two values are obtained through sampling of the crude oil and standardized laboratory testing.²

It doesn’t matter that Central Coast crude oil and Canadian diluted bitumen (dilbit) both flow only a short distance when poured out on a level surface (i.e. have an API gravity for “heavy” crude). That demonstration, mentioned at the hearings, does not define ‘degree of danger’.

It doesn’t matter if a bar graph showing fractional distributions of hydrocarbons for the materials looks similar. That graph, shown during the hearing, does not define ‘degree of danger’.

It doesn't matter that two crude oils have similar vapor pressure, sulfur content, total acid number, etc. These similarities, described in the Final EIR, do not define 'degree of danger'.

Under federal transportation regulations, the only thing that matters for defining 'degree of danger' is Packing Group assignment based exclusively on flash point and initial boiling point.³

If one material is thus assigned to Packing Group III (minor danger – such as San Ardo crude) and another is assigned to Packing Group I (great danger – such as Canadian dilbit), these materials have a different 'degree of danger' for purposes of carriage by rail. It does not matter how many other ways the materials may appear similar.

San Luis Obispo County has never experienced large quantities of these more dangerous Packing Group I and II dilbit crude oil blends transported by High-Hazard Flammable Unit Trains, nor has the refinery received and unloaded crude oil from rail tank cars.⁴

Whatever the outcome of the hearings, it is not possible for Commissioners to make an informed decision on the project without understanding the straightforward and unambiguous hazard classification standards codified in federal transportation regulations.

Anecdotal information presented during the hearings can be a distraction when assessing explosion and fire hazard. Commissioners should base their conclusions upon information that is technically accurate and grounded in established regulatory guidance.

Respectfully submitted,

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NOTES AND REFERENCES:

¹ **Unscripted discussions can cause confusion:** During discussion and questions, it was said: “almost all crudes fall into Packing Group I” (PG I). That is a misstatement, and likely unintended. The new DOT regulations require sampling and laboratory analysis for every crude oil source loaded onto every tank car to ensure proper Packaging Group assignment – a major departure from current industry practice, and a burdensome effort if it were true that almost all crude is PG I. There are many regional crude oil variations, which fall into all three Packing Groups.

However, what was probably intended and is true, is that all crude transported on High-Hazard Flammable Trains requires the same tank car specifications under the new regulations – irrespective of Packing Group. DOT-117 or DOT-117R tank cars must be used for all PG I, PG II, and PG III products once the new regulations are fully implemented as scheduled.

Also, as Mr. Peirson noted, little flammability information is available for local crude oil. Information on properties of crude oil is often generic, outdated, redacted, or not available. This is a sloppy industry practice that the new DOT regulations attempt to correct.

However, there are helpful data points. Mr. Peirson referenced an ExxonMobil Safety Data Sheet for San Ardo crude that assigns it to PG III, but there are no other publically available crude assays. Confirmation that San Ardo crude is consistently PG III is found in an approved Chevron project for a 57-mile heated crude oil pipeline from San Ardo to Coalinga. In this project, San Ardo crude is heated to 180° F, which is unlikely for anything but PG III crude with a flash point above 180° F.

Other data points indicate local Monterey shale crudes are essentially all PG III or PG II products for bulk shipment. (Hazard classification by Packing Group does not apply to transport by pipeline.) For example, [Oil Spill Response Plans](#) in the PHMSA repository provide flash point information for offshore oilfields in Santa Barbara Channel that would place offshore crude in PG III or PG II.

² **References:** Code of Federal Regulations, Title 49 (Transportation):

[49 CFR 173.121](#) – Class 3 Flammable Liquids – Assignment of Packing Group [Table]

[49 CFR 171.18](#) – Definitions – “Packing Group I indicates great danger; Packing Group II, medium danger; Packing Group III, minor danger...”

U.S. DOT/PHMSA High-Hazard Flammable Train [Final Rule](#): Page 31 – “In the case of a flammable liquid... the proper [Packing Group] classification is based on flash point and initial boiling point...The offeror may additionally need to identify properties such as corrosivity, vapor pressure, specific gravity... and concentration of specific compounds (e.g. sulfur) to further comply with complete packaging requirements.”

³ **Other public safety hazards:** In addition to ‘degree of danger’ for explosion and fire hazard, emergency responders utilize the DOT/PHMSA *Emergency Response Guidebook* and shipping papers to identify other public safety and property hazards such as product toxicity, particulate matter, and chemical contamination.

⁴ **Dilbit accident investigation photos:** Mr. Peirson stated that the risk that a unit train carrying crude oil could derail and potentially result in a fire in the State of California is a significant impact. He also noted that Canadian dilbit is typically a Packing Group I product, which has been implicated in explosive accidents. Photos from one ongoing accident investigation involving dilbit being conducted by the Transportation Safety Board of Canada are included on page 4.

Accident: Canadian National (CN-U70451-10) – derailment of 100-car High-Hazard Flammable Unit Train
Date: 14 February 2015
Location: Gogama / Timmins, Ontario
Scope: 29 tank cars derailed and 21 sustained catastrophic fire damage
Product: Diluted bitumen (dilbit) heavy blended crude oil and distillate (UN 1267/1268).
Product Origin, Northern Alberta



Thermal tears (arrows) indicate internal pressure rupture (Boiling Liquid Expanding Vapor Explosions)
Photos from Transportation Safety Board of Canada Railway Investigation

Unlike CPC-1232 bare steel tank cars, DOT-117 and DOT-117R tank cars will have thermal protection. This increases survival time from 100-minutes to 800-minutes as determined by an Association of American Railroads Tank Car Safety Research and Test Project. Thermal protection reduces, but not necessarily eliminates BLEVE events from long-lasting petroleum pool fires.

(BLEVE training video: <http://aceisgroup.com/video-gallery/hazardous-materials/bleve-how>)