

UNITED STATES OF AMERICA 147 FERC ¶ 63,008
FEDERAL ENERGY REGULATORY COMMISSION

BP Pipelines (Alaska) Inc., ConocoPhillips
Transportation Alaska, Inc., and ExxonMobil Pipeline
Company

Docket No. OR14-6-000

INITIAL DECISION

(Issued May 8, 2014)

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H. PETER YOUNG, Presiding Administrative Law Judge

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FACTUAL AND PROCEDURAL BACKGROUND

Stipulated Joint Statement of the Case

1. Being most familiar with the complex factual and procedural background to Docket No. OR14-6-000, the participants were offered an opportunity to submit a joint stipulation concerning those matters. They filed a Stipulated Joint Statement of the Case on March 13, 2014 (Stipulated Joint Statement). The Stipulated Joint Statement was accepted into the record for inclusion in this Initial Decision by order issued March 14, 2014.¹

2. The substantive portion of the Stipulated Joint Statement follows:

[Begin Stipulated Joint Statement]

I. THE TRANS ALASKA PIPELINE SYSTEM

The Trans Alaska Pipeline System (“TAPS”) is a crude oil pipeline running approximately 800 miles from Pump Station No. 1 on Alaska’s North Slope to the Marine Terminal located in Valdez, Alaska. Crude oil produced on the North Slope is tendered to TAPS from gathering lines and pipelines at Pump Station No. 1 for transportation to market, thereby forming the “ANS common stream.” There are also three additional delivery points along TAPS: (1) the Golden Valley Electrical Association Connection, where petroleum from the ANS common stream is taken from TAPS and processed by two refineries, including the North Pole Refinery owned by Flint Hills Resources Alaska, LLC (“FHR”); (2) the Petro Star Valdez Refinery Connection, where petroleum from the ANS common stream is processed by one refinery; and (3) the Valdez Marine Terminal, where the ANS common stream is loaded on tankers for delivery to markets in either Alaska or the U.S. West Coast.

Five separate gathering lines and/or pipelines tender North Slope crude to TAPS at Pump Station No. 1: (1) the Prudhoe Bay gathering line delivers crude from the Prudhoe Bay field; (2) the Kuparuk pipeline delivers crude from the Kuparuk River, Milne Point, Alpine, Nikaitchuq and Ooguruk fields; (3) the Endicott pipeline delivers crude from the Endicott (also referred to as “Duck Island”) and Badami fields; (4) the Lisburne gathering line delivers crude from the Greater Pt. McIntyre Area; and (5) the Northstar pipeline delivers crude from the Northstar field.

¹ Any finding, determination or interpretation reflected in this Initial Decision that is inconsistent with the Stipulated Joint Statement shall supersede what is reflected in the Stipulated Joint Statement.

The three refineries along TAPS process petroleum extracted from the ANS common stream and return unused portions of the stream to TAPS. The shippers of the refinery return streams make Quality Bank payments based upon the differences between the quality of the petroleum delivered to them in the intake stream (or “offtake stream”) and the quality of the petroleum that makes up the return stream (or “return oil”).

II. HISTORY OF THE QUALITY BANK

Need for the Quality Bank

Crude oil is a mixture of different hydrocarbon molecules, some of which are more valuable to refiners than others. In general, the types of molecules that refiners use to produce gasoline, diesel fuel and jet fuel are the most valuable. Each of the crude oil fields on the North Slope has its own unique mixture of hydrocarbon molecules. Because these crudes all have different qualities (that is, different proportions of the various types of hydrocarbon molecules), they all have different values to refiners.

All of the North Slope crudes tendered at Pump Station No. 1 are blended together and transported on TAPS as a single commingled common stream (that is, the ANS common stream). The quality of the ANS common stream is also affected by the operations of the refineries connected to TAPS. As a result of crude oil processing at those refineries, the qualities of the refinery return streams differ from the quality of the offtake streams at those locations, which, in turn, affects the quality of the ANS common stream delivered to the Valdez Terminal. At the Valdez Marine Terminal, all shippers receive delivery of the ANS common stream regardless of the quality of the crude oil that they tendered to TAPS.

The TAPS Quality Bank was designed to compensate shippers for differences in the values of the crude oils which they tender to TAPS as compared to the value of the commingled ANS common stream. Shippers of crude oils that have a lower value than the ANS common stream are required to make payments into the Quality Bank, while shippers of crude oils with a value higher than the ANS common stream receive payments from the Quality Bank.

The Gravity-Based Quality Bank Methodology

TAPS began operations in 1977 with a single crude oil stream from the Prudhoe Bay field. The TAPS Quality Bank was instituted shortly thereafter as a result of the addition of a second crude oil stream from the Kuparuk pipeline and the start-up of operations of a refinery at the GVEA connection. The first TAPS Quality Bank proceeding was commenced in 1979. That proceeding resulted in a settlement in 1984 pursuant to which a gravity-based methodology was used to compensate shippers for differences in crude qualities. *Trans Alaska Pipeline Sys.*, 29 FERC ¶ 61,123 (1984).

The “gravity” methodology determined the relative values of the crude oils transported by TAPS based on their API gravities as compared to the API gravity of the ANS common stream. API gravity is a measure of the density of a crude oil. Crude oils with high API gravities are lighter and typically are worth more than crude oils with lower API gravities. Thus, in the gravity-based TAPS Quality Bank, shippers of crude oils with API gravities higher than the API gravity of the ANS common stream received payments from the Quality Bank, while shippers of crude oils with API gravities lower than the ANS common stream made payments into the Quality Bank. The gravity method assumed a direct, linear relationship between API gravity and the values of the different crude oils tendered to TAPS.

Implementation of the Distillation Quality Bank Methodology

In addition to crude oil, there are significant reserves of natural gas on the North Slope. Natural gas, like crude oil, is a mixture of hydrocarbons, albeit very small, light hydrocarbon molecules. Beginning in 1986, significant volumes of Natural Gas Liquids (“NGLs”) began to be extracted from the natural gas produced from the Prudhoe Bay field and blended into Prudhoe Bay crude oil for transportation to market over TAPS. NGLs have a very high API gravity (about 90° API versus 30° API for ANS), but are typically viewed as having a lower market value than crude oil. When blended with crude oil, volumes of NGLs can significantly increase the API gravity of the blended stream.

In 1989, two producers and an Alaska refiner filed complaints asserting that the gravity-based TAPS Quality Bank methodology no longer was just and reasonable as a result of NGL blending at Prudhoe Bay and increasing refinery operations along TAPS. After extended litigation and settlement negotiations and the resulting contested offer of settlement utilizing a distillation methodology, the Commission in November 1993 replaced the gravity-based TAPS Quality Bank methodology with a distillation methodology. *Trans Alaska Pipeline Sys.*, 65 FERC ¶ 61,277 (1993). The distillation methodology adopted by the Commission was based on the contested settlement with certain Commission-imposed changes.

The Distillation Methodology

The distillation methodology imposed by the Commission (the “QB Methodology”) is based on the premise that crude oils are valued in the market based on the products that can be refined from them. As an initial step in the refining process, crude oil is separated into different components or “cuts.” The nine cuts, from lightest to heaviest, are: (1) Propane; (2) Isobutane; (3) Normal Butane; (4) Light Straight Run (“LSR”); (5) Naphtha; (6) Light Distillate; (7) Heavy Distillate; (8) Vacuum Gas Oil (“VGO”); and (9) Resid. The first four of these cuts include the NGLs that are blended

into certain of the North Slope crude oil streams along with NGLs that occur naturally in crude oil.

In very simplified terms, the crude oil is heated until it starts to boil, and the different cuts boil out of the crude oil at different temperatures, with the lightest cuts boiling out at lower temperatures and the heaviest cuts boiling out at considerably higher temperatures. This process is known as distillation, and the cuts produced by distillation are defined by the temperature range at which each cut boils out of the crude oil. For example, in the TAPS Quality Bank, the Heavy Distillate cut is defined as the material that boils out of the crude oil at temperatures between 450° and 650° Fahrenheit. The Resid cut is what remains after boiling out all the lighter components up to a temperature of 1050° Fahrenheit. Some of the Quality Bank cuts can be sold without further processing, while other cuts—the Light and Heavy Distillate cuts and the Resid cut—are subjected to further processing and then sold as finished petroleum products.

The QB Methodology determines the percentage of each Quality Bank cut contained in each of the petroleum streams tendered to TAPS and calculates the percentage of each in the ANS common stream. The methodology then develops a value for each cut, multiplies that value by the percentage of the cut contained in each petroleum stream, and sums the resulting values to develop a total value for each petroleum stream transported by TAPS. These values are then used to determine the Quality Bank payments. Shippers of petroleum streams with values that are higher than the value of the ANS common stream receive payments from the Quality Bank, while shippers of petroleum streams with values lower than the ANS common stream make payments into the Quality Bank. The Quality Bank is a “zero-sum” operation in that it ultimately pays to shippers of relatively higher-value streams all the money paid into the Quality Bank by shippers of relatively lower-value streams, less the expense incurred by the TAPS Carriers to administer the program.

Subsequent Litigation

The Commission’s 1993 decision implementing the distillation methodology was appealed to the D.C. Circuit, which issued its ruling in August 1995. *OXY U.S.A. Inc. v. FERC*, 64 F.3d 679 (D.C. Cir. 1995). Although the court upheld the Commission’s finding that the gravity methodology should be replaced by a distillation methodology, it remanded to FERC issues regarding the valuation of the Resid, Heavy Distillate and Light Distillate cuts.

In 1997, the Commission approved another contested settlement that established new values for the remanded cuts. *Trans Alaska Pipeline Sys.*, 81 FERC ¶ 61,319 (1997). The Commission’s decision was again appealed. On July 13, 1999, the D.C. Circuit issued its decision in *Exxon Company, U.S.A. v. FERC*, 182 F.3d 30 (D.C. Cir. 1999), approving the Heavy Distillate and Light Distillate values set forth in the 1997

Settlement, but remanded the valuation of the Resid Cut because “there is no evidence that the prices of the proxy products are more than coincidentally related to the value of resid as a coker feedstock.” *Exxon*, 182 F.3d at 42. The Court upheld the Commission’s determination that Resid should be valued as a coker feedstock rather than as a fuel oil blendstock, but rejected the specific coker feedstock value incorporated by the 1997 Settlement and remanded the case to the Commission for further consideration. 182 F.3d at 40-42.

In a related proceeding, the Commission issued decisions in 1999 denying complaints filed by Exxon Corporation and Tesoro Alaska Petroleum Company regarding the distillation methodology in general and the values of the Naphtha and VGO cuts in particular. *Exxon Co., U.S.A. v. Amerada Hess Pipeline Corp.*, 87 FERC ¶ 61,133 (1999); *Tesoro Alaska Petroleum Co. v. Amerada Hess Pipeline Corp.*, 87 FERC ¶ 61,132 (1999). Those decisions also were appealed to the D.C. Circuit, which issued a decision in 2000 remanding the distillation methodology and Naphtha and VGO valuation issues for further consideration. *Tesoro Alaska Petroleum Co. v. FERC*, 234 F.3d 1286 (D.C. Cir. 2000).

In November 2001, the Commission issued orders setting for hearing the issues remanded by the D.C. Circuit in the *Exxon* and *Tesoro* decisions. *Trans Alaska Pipeline Sys.*, 97 FERC ¶ 61,150 (2001). Prior to the hearing, the parties stipulated that the Resid Cut should be valued as a coker feedstock in accordance with the following formula: “Resid = Before-Cost Value of Coker Products - (Coking Costs * Nelson Farrar Index).” *Trans Alaska Pipeline Sys.*, 108 FERC ¶ 63,030 at P 25 (2004) (Initial Decision). The parties stipulated that the Before-Cost Value of Coker Products would be determined by using the product yields set forth in the PIMS model multiplied by published market prices for each product. *Id.* The parties, however, did not agree to the amount of coking costs that should be subtracted from the Before-Cost Value. *Id.* That issue was set for hearing. After a lengthy hearing in 2002 and 2003, the Initial Decision (Silverstein, ALJ) was issued in 2004 that resolved all of the issues that had been set for hearing in the 2001 orders. In 2005, the Commission issued a decision (Opinion No. 481) affirming the Initial Decision. *Trans Alaska Pipeline Sys.*, 113 FERC ¶ 61,062 (2005).

In its decision on rehearing of Opinion No. 481, the Commission made certain changes to the 2005 decision, but left the Resid valuation unaltered. *Trans Alaska Pipeline Sys.*, 114 FERC ¶ 61,323 (2006) (Opinion 481-A). Opinions 481 and 481-A were upheld in their entirety on appeal. *Petro Star Inc. v. FERC*, 268 Fed. App’x 7 at *1 (D.C. Cir. 2008) (finding that the Resid methodology was not arbitrary and capricious).

Opinion No. 481 also had established a Platts Los Angeles Pipeline spot quotation for Low Sulfur Diesel, which had a sulfur content of 500 parts per million, as the reference price for the Heavy Distillate cut, and \$0.0502 cents per gallon (in Year 2000 dollars) as the appropriate processing cost adjustment. Effective June 1, 2006, Platts

discontinued the Low Sulfur Diesel reference price and replaced it with a price quotation for Ultra Low Sulfur Diesel, which has a sulfur content of 8 parts per million. As a consequence, the TAPS Quality Bank Administrator filed a notice of Radical Alteration in Basis for West Coast Heavy Distillate Price Quotation and Recommended Replacement Price.

On September 26, 2006, this Commission and the Regulatory Commission of Alaska set the Heavy Distillate processing cost adjustment for concurrent hearing. *BP Pipelines (Alaska) Inc.*, 116 FERC ¶ 61,291 (2006). The Initial Decision (Young, ALJ) issued at the conclusion of that hearing determined the processing cost deduction required to meet the Ultra Low Sulfur Diesel sulfur specification. The Commission affirmed Judge Young's Initial Decision in Opinion No. 500, *BP Pipelines (Alaska), Inc.*, 122 FERC ¶ 61,236 (2008).²

III. THE CURRENT PROCEEDING

The Commission initiated the present proceeding in an order dismissing a complaint by Flint Hills Resources against BP Pipelines (Alaska) Inc., ConocoPhillips Transportation Alaska, Inc., and ExxonMobil Pipeline Company ("Indicated TAPS Carriers" or "ITC"), in which Flint Hills had asserted that the formula used by the QB to value Resid had become unjust and reasonable and assigned too little value to the Resid cut. Flint Hills had sought three principal changes to the QB formula valuation of Resid:

1. Elimination from the QB formula's Resid processing cost adjustment of all returns on and of capital invested in the cokers and fixed operating costs, and retention of only the variable costs of coking;
2. Revision of the coking yields built into the QB Methodology's Resid valuation to reflect higher yields of more valuable liquid components; and
3. Implementation of a floor value for the QB Resid value consisting of the calculated value of Resid as a blendstock in the production of FO-380 fuel oil.

² The D.C. Circuit vacated and remanded Opinion No. 500 because the scope of its retroactive application violated section 4412 of the Motor Carrier Safety Reauthorization Act of 2005, Pub. L. No. 109-59, 119 Stat. 1144, 1778-79 (2005). *Flint Hills Res. Alaska, LLC v. FERC*, 631 F.3d 543 (D.C. Cir. 2011). On remand, the Commission adjusted the retroactivity period of Opinion No. 500, but otherwise left that order standing unmodified. *BP Pipelines (Alaska), Inc.*, 138 FERC ¶ 61164 (2012).

The Commission allowed intervenors in Flint Hills' complaint to be parties in the new investigation. *Id.* at P (B) n.28. These were ConocoPhillips Alaska, Inc. ("CPA"), Exxon Mobil Corporation ("EM"), and Tesoro Alaska Company and Anadarko Petroleum Corporation (collectively, "ATS"), originally in opposition to the Flint Hills complaint, and BP Exploration (Alaska) Inc. ("BP"), Petro Star Inc. ("PS"), and the State of Alaska, which had not adopted positions with respect to the merits of Flint Hills' position. In addition, the Commission made the Indicated TAPS Carriers parties to the investigation. The Indicated TAPS Carriers stated that, as was the case in prior proceedings, they do not take a position on proposed changes to the methodology except to ensure that proposed changes are capable of being administered.

An Order Establishing an Expedited Procedural Schedule was issued on November 14, 2013. Under this procedural schedule, Flint Hills filed expert testimony by Dr. Philip K. Verleger, Mr. Norman P. Lieberman, and Mr. Charles L. Miller on November 15, 2013. On January 3, 2014, CPA, EM, ATS, and ITC filed answering testimony and exhibits by Mr. John B. O'Brien and Dr. Sam Van Vactor (for CPA), by Dr. David I. Toof, Mr. Robert Tufts, Mr. Joseph J. Leto, and Dr. Michael C. Keeley (for EM), by Mr. Steven D. Graybill (for ATS), and by Mr. James T. Mitchell (for ITC). All parties and the Commission's Trial Staff filed a Joint Stipulation of Issues on January 27, 2014. Flint Hills filed rebuttal testimony and exhibits on January 31, 2014. All parties and the Commission's Trial Staff filed Prehearing Briefs on January 31, 2014.

The hearing commenced on February 11, 2014 and concluded on February 24, 2014. On February 28, 2014, Flint Hills and Petro Star filed a stipulation stating that they would not seek either the removal of fixed operating costs from the QB Methodology's coking processing cost adjustment for Resid or the institution of a floor for the QB Methodology's Resid valuation based on Resid's value as a blendstock in the manufacture of FO-380 fuel oil.

[End Stipulated Joint Statement]

Supplemental Procedural Background

3. My pre-hearing review of the direct and answering testimony/supporting exhibits filed on November 15, 2013 and January 3, 2014 revealed various deficiencies I considered problematic. Principal among these were: (1) pervasive narrative testimony references/citations to website and other published materials not included in supporting exhibits; (2) conclusory expert witness opinions/statements that appeared to have no other evidentiary support; and (3) material falling outside the scope of investigation parameters established at the November 14, 2013 prehearing conference. Left unaddressed until hearing, I anticipated these deficiencies would severely disrupt the proceeding and would render the evidentiary record virtually unusable. I considered it preferable in the circumstances of this extremely expedited *Commission-initiated*

investigation to affirmatively intervene to ensure that the Initial Decision/record certified to the Commission would reflect all the evidence the participants considered relevant rather than the eviscerated set of evidence the Initial Decision and underlying record otherwise would have been restricted to. I therefore issued a NOTICE TO ALL COUNSEL via e-mail on January 23, 2014 (January 23, 2014 Notice), noting the identified deficiencies by category³ and offering all participants the opportunity to reconsider their evidentiary submissions and, if deemed necessary, to rehabilitate them through supplemental filings.⁴ Flint Hills, ConocoPhillips, ExxonMobil and Anadarko/Tesoro each made supplemental filings in response to the January 23, 2014 Notice.

4. Flint Hills filed a motion for leave to file “Supplemental Rebuttal Testimony” and supporting exhibits on February 10, 2014—one (1) day before hearing commencement. The motion requested permission for Flint Hills to file an additional round of narrative testimony and supporting exhibits concerning commercially sensitive coker yield⁵ data Flint Hills had obtained from non-parties Tesoro Refining & Marketing Company LLC (TRMC), Phillips 66 and BP West Coast Products LLC (BP West Coast) under

³ The notice did not reference any specific participant, witness or narrative testimony.

⁴ I also intended the January 23, 2014 Notice to inform the participants’ final round of pre-filed testimony and supporting exhibits scheduled to be filed on January 31, 2014.

As noted in the orders accepting the Flint Hills, ConocoPhillips, ExxonMobil and Anadarko/Tesoro supplemental filings, a presiding judge should not intervene in this manner under ordinary circumstances. The judge should simply decide the case before him/her on the evidentiary record actually developed by the participants, not on material(s) they may have intended to be considered but failed properly to incorporate into their supporting evidence. But since this was an expedited investigation *initiated by the Commission* under its Interstate Commerce Act section 15(a) authority/obligation to ensure just and reasonable TAPS rates, I deemed it necessary/appropriate to intervene to ensure that the Commission’s objectives would not be frustrated by a deficient evidentiary record.

⁵ As more fully explained *infra*, coking is a refining process that that breaks Resid feedstock into more valuable petroleum products. The volume percentage of any product processed from a unit of Resid is the product yield.

subpoena.⁶ ConocoPhillips and ExxonMobil submitted answers opposing the Flint Hills motion that same evening.⁷ ConocoPhillips and ExxonMobil protested that permitting Flint Hills to further supplement its pre-filed direct and rebuttal testimony/supporting exhibits with an additional (third) round of completely new testimony and supporting exhibits on the first day of hearing would be highly prejudicial and was not otherwise justified. Specifically, they complained that permitting Flint Hills to file additional narrative testimony and supporting exhibits based on commercially sensitive information obtained from *non-parties* would preclude any opposing participant from (i) meaningfully analyzing the data itself, (ii) understanding either what the data actually reflected or how it had been developed, and (iii) most important, the manner in which it (admittedly) had been adjusted by the sponsoring Flint Hills witness.⁸ Even more objectionable on the ConocoPhillips/ExxonMobil accounts was the circumstance that neither Flint Hills's pre-filed direct nor rebuttal testimony/supporting exhibits had relied on actual coker yield data to support Flint Hills's position, relying instead on "updated" coker yields developed exclusively through modeling. As a consequence, ConocoPhillips/ExxonMobil argued that Flint Hills's proffered "Supplemental Rebuttal Testimony" and supporting exhibits actually constituted supplemental *direct* testimony/supporting exhibits that properly should have been filed as part of Flint Hills's direct case on November 15, 2013. And since all opposing participants had focused exclusively on the direct and rebuttal testimony/supporting exhibits Flint Hills submitted, they argued it

⁶ Flint Hills requested the TRMC, Phillips 66 and BP West Coast subpoenas after receiving discovery responses from parties Tesoro Alaska Company (Tesoro), ConocoPhillips Alaska Inc. (ConocoPhillips) and BP Exploration (Alaska), Inc. (BP Exploration) indicating that Tesoro, ConocoPhillips and BP Exploration had no coker yield information, but that TRMC, Phillips 66 and BP West Coast might have such information. In response to the subpoenas, TRMC and Phillips 66 objected to providing such commercially sensitive information unless it received enhanced "Highly Confidential" protected status. I granted "Highly Confidential" protected status to any coker yield information provided by TRMC, Phillips 66 or BP West Coast by order issued February 6, 2014.

⁷ The ConocoPhillips and ExxonMobil answers therefore were deemed filed on February 11, 2014—the first day of hearing.

⁸ The Flint Hills witness sponsoring the narrative testimony/supporting exhibits concerning the TRMC, Phillips 66 and BP West Coast coker yield information expressly stated in the narrative testimony that he had "adjusted all of the actual yields" to account for differences ANS Resid feedstock and his alternative model coker unit would produce. The witness did not explain specifically how the yield adjustments were made.

was both highly prejudicial and procedurally improper for Flint Hills to attempt to introduce an entirely new alternative theory of its case on the first day of hearing.⁹

5. Extensive oral argument concerning the Flint Hills motion was conducted at the outset of hearing on February 11, 2014.¹⁰ Based on that oral argument, the Flint Hills motion and the ConocoPhillips/ExxonMobil answers, I rejected the “Supplemental Rebuttal Testimony” (designated Ex. FHR-83 and Ex. FHR-85 [**Ex. FHR-85 Protected**]) and supporting exhibits (designated Ex. FHR-84 and Ex. FHR-86 through Ex. FHR-90 [**Ex. FHR-86 through Ex. FHR-90 Protected**]) proffered by Flint Hills on multiple grounds. Principal among these were: (1) my determination that the “Supplemental Rebuttal Testimony” and supporting exhibits at issue actually constituted supplemental direct testimony/supporting exhibits that properly should have been filed as part of Flint Hills’s direct case on November 15, 2013;¹¹ (2) Flint Hills lacked adequate evidentiary

⁹ ExxonMobil also noted Flint Hills made no attempt to subpoena similar coker yield data from several other West Coast refiners—most notably, Chevron, which operates two (2) of the three (3) largest California refineries—arguing that this circumstance (coupled with Flint Hills’s failure to include West Coast coker yield data provided to it in routine discovery responses from other participants, including ExxonMobil) rendered Flint Hills’s proffered testimony/supporting exhibits incomplete at best.

¹⁰ Flint Hills filed a response to the ConocoPhillips and ExxonMobil answers on February 11, 2014. I summarily rejected the Flint Hills response as an answer to an answer in violation of 18 C.F.R. § 385.213(a)(2) (2013) immediately prior to the oral argument concerning the Flint Hills motion. Tr. 59.

¹¹ *Accord ANR Storage Co.*, 146 FERC ¶ 63,007, at PP 431-435 (2014) (Initial Decision citing *KN Interstate Gas Trans. Co.*, 85 FERC ¶ 63,004, at 65,089 (1998) (Partial Initial Decision quoting *Southern California Edison Co.*, 50 FERC ¶ 63,012, at 65,065 (1990) (Presiding Judge Order on Motion(s) to Strike Rebuttal Testimony))). *See also KN Interstate Gas Trans. Co.*, 86 FERC ¶ 61,229, at 61,824-26 (1999) (interpreting 18 C.F.R. § 154.301(c) (1998) [regulation establishing new rate change filing requirements for natural gas companies] in summary disposition context). Even accepting as true (which I did for purposes of evaluating the motion) Flint Hills’s representations that Flint Hills initially was compelled to base its direct case exclusively on “updated” coker yields developed through modeling because it had been unable to obtain actual West Coast coker yield data (*see, e.g.*, Flint Hills motion at 2; Tr. 60, 68), it was incumbent on Flint Hills *at an absolute minimum* to indicate in its direct case (or at some reasonable point thereafter) that it intended to supplement the modeled yields with actual ones obtained through subsequent discovery. This holds particularly true in light of the circumstances that the Quality Bank “refinery” and its “coker unit” themselves are (Continued)

foundation to introduce coker yield data it had obtained from non-parties TRMC, Phillips 66 or BP West Coast through a Flint Hills witness who was not involved in the development of that data and therefore could not definitively establish how the data was developed or exactly what it reflected;¹² and (3) the timing of Flint Hills's motion, coupled with the extremely expedited procedural schedule required by the Commission's

(Continued)

purely theoretical models. But prior to filing its motion the day before hearing commencement, Flint Hills never indicated it intended to supplement its modeled coker yields with actual ones (including in its 512 page supplemental filing in response to the January 23, 2014 Notice (*see* Ex. FHR-50))—a fact I specifically confirmed with Flint Hills counsel at oral argument. Tr. 66-68. Permitting Flint Hills to present a completely new alternative case on the first day of hearing without any advance notice whatsoever to opposing participants therefore would have been highly prejudicial, in addition to being procedurally improper.

Research reveals no Commission order specifically endorsing the principle—applied here—that a party required to file a direct case in accordance with a procedural schedule in a case set for hearing generally (i.e. absent extraordinary extenuating circumstances) is procedurally required to present the party's direct case *in its entirety* on or before the applicable procedural deadline. This circumstance, coupled with the circumstance that presiding administrative law judges routinely apply the principle as if it were Commission-endorsed (*see* Initial Decisions/presiding judge order cited *supra*), presents an opportunity for the Commission expressly to endorse, modify or reject the general principle in the context of its review of this Initial Decision should the Commission consider it desirable to do so.

¹² Establishing a proper evidentiary foundation at hearing would have required Flint Hills to authenticate the TRMC, Phillips 66 and BP West Coast coker yield data through witnesses familiar with those entities' coker yield data development methodologies. This not only would have required TRMC, Phillips 66 and BP West Coast witnesses to be immediately subpoenaed to testify at hearing (essentially imploding three (3) non-parties into a Commission investigation in which they had no interest or voluntary involvement) or to provide adequate affidavits, but also would have increased the probability that the commercially-sensitive "Highly Confidential" coker yield information TRMC, Phillips 66 and BP West Coast had produced in good faith under subpoena might inappropriately be disclosed—a circumstance that already had occurred at least once. And while the limited inadvertent disclosure of the TRMC, Phillips 66 and BP West Coast coker yield data in that instance resulted in no commercial harm, it underscores the inherent potential risk of introducing into Commission proceedings commercially-sensitive information subpoenaed from non-parties.

November 8, 2013 investigative hearing order, was highly prejudicial to opposing participants because it deprived them of any meaningful opportunity to analyze/rebut the proffered narrative testimony and supporting exhibits. There simply was no time for opposing participants to conduct the necessary discovery—assuming it *could* be conducted on non-parties TRMC, Phillips 66 and BP West Coast, a questionable proposition in itself—and no opportunity for them to prepare answering testimony or to meaningfully explore the TRMC, Phillips 66 and BP West Coast coker yield data on cross-examination.¹³ I therefore extended Flint Hills the opportunity to make the materials designated Ex. FHR-83 through Ex.FHR-90 an offer of proof. Flint Hills accepted, and those materials were designated Offer of Proof 1[**Ex. FHR-85 through Ex. FHR-90 “Highly Confidential” Protected**].¹⁴

¹³ Flint Hills suggested at oral argument that these discovery, answering testimony and cross-examination issues were “manageable” (Tr. 81-82), but Flint Hills’s proposed management procedures were unrealistic in the available timeframes.

I respectfully submit for Commission consideration in future cases that requiring a complex/nuanced investigation to be completed (including post-hearing briefing and the issuance of an Initial Decision) not later than six (6) months from the date of the Commission order initially setting the case for hearing raises due process concerns because it potentially deprives the participants of adequate time to complete the necessary discovery, data review & analyses, evidentiary presentations and witness examination. The participants were compelled to expend extraordinary effort/resources under onerous time constraints throughout this proceeding—without which the May 8, 2014 Initial Decision deadline imposed by the Commission could not possibly have been satisfied. Less onerous time constraints also would have facilitated a better presented Initial Decision.

¹⁴ Although I prohibited Flint Hills from further reference to Offer of Proof 1, I expressly did not preclude Flint Hills from otherwise attempting to introduce any of the materials designated Ex. FHR-83 through Ex. FHR-90 through cross-examination of opposing witnesses. Tr. 94. Flint Hills unsuccessfully attempted to do so with respect to exhibits FHR-86 through FHR-88 [**“Highly Confidential” Protected**] and renewed its offer of proof concerning those exhibits on February 24, 2014. Tr. 1604-08.

I anticipate Flint Hills will continue to stress the importance of the coker yield data reflected in Offer of Proof 1 in its brief on exceptions to this Initial Decision. In that event, the Commission will have to decide whether to consider the data at all, and if so, what the data actually reflects. In this regard, I simply note the hearing in this investigation was replete with instances in which testimony, data, graphs and other evidence purporting (and appearing on face) to establish certain facts or correlations proved misrepresentative/misleading when subjected to informed cross-examination. I (Continued)

6. As stated *supra* at Paragraph 3, the January 23, 2014 Notice indicated, *inter alia*, that my pre-hearing review of the narrative testimony and supporting exhibits filed to date had identified material falling outside the scope of investigation parameters established at the November 14, 2013 prehearing conference. The notice advised that any materials or argumentation falling beyond the scope of investigation would be struck—on my own initiative if necessary.

7. The joint preliminary statement of issues proposed by the participants on November 14, 2013 reflected five (5) issues. The fifth issue essentially questioned whether any modification(s) to the QB Methodology adopted through this investigation could take effect unless identical modifications also were adopted by the Regulatory Commission of Alaska (RCA).¹⁵ I ruled that since this specific question had been raised before the Commission, but the Commission had confined its investigation to the justness/reasonableness of the existing Quality Bank Resid valuation methodology, whether any indicated change(s) to the methodology could *take effect* unless identical changes were adopted by the RCA fell beyond the scope of matters set for investigation here. Tr. 31-32. I therefore struck the issue from the joint preliminary statement of issues.¹⁶ It was not included in the final Joint Stipulation of Issues adopted on February 11, 2014.

8. Pre-filed exhibit designated ATS-1, page 36, lines 1 through 21 reflected narrative testimony addressing a potential disconnect between interstate and intrastate Quality Bank valuations. Although the testimony was couched in terms of Quality Bank administration (Joint Stipulation of Issues, Issue IV), I considered it an improper attempt to address the fifth issue struck from the joint preliminary statement of issues on November 14, 2013. I struck page 36, lines 1 through 21 of exhibit ATS-1 on that basis and extended Anadarko/Tesoro the opportunity to make that narrative testimony an offer

(Continued)

also note Flint Hills confirmed at oral argument that it remained Flint Hills's position that its "direct case, *as it stands*, demonstrates that the [Quality Bank] yields are understated . . . on the same basis as the [Quality Bank] yields." Tr. 67 (emphasis added). It would seem to follow that Flint Hills concedes it does not *require* the "Highly Confidential" protected coker yield data reflected in Offer of Proof 1 to prove its case.

¹⁵ To function properly, the QB Methodology must be the same for both interstate and intrastate shipments.

¹⁶ No participant requested permission to take interlocutory appeal of this action.

of proof. Anadarko/Tesoro accepted, and the struck testimony was designated Offer of Proof 2.

9. Flint Hills's initial position in this proceeding was that the existing QB Methodology for valuing Resid was unjust and unreasonable because: (1) the processing cost adjustment improperly included capital and fixed costs in addition to marginal coking costs; (2) the imbedded coker yields were understated; and (3) the formula did not treat Resid's value as a blendstock for making FO-380 fuel oil as a price floor. At the close of hearing on February 24, 2014, Flint Hills announced it would abandon its contentions that (i) fixed costs should be removed from the processing cost adjustment and (ii) Resid's value as a blendstock for making FO-380 fuel oil should be adopted as a price floor. Tr. 1660-62. Flint Hills filed a stipulation to that effect on behalf of itself and Petro Star on February 28, 2014. I issued an order accepting the stipulation and excluding the abandoned contentions from consideration on March 5, 2014.¹⁷

10. I accepted the Stipulated Joint Statement and closed the evidentiary record by order issued March 14, 2014. Initial post-hearing briefs (IB) were filed March 14, 2014. Post-hearing reply briefs (RB) were filed March 28, 2014.

Supplemental Factual Background

11. As the Stipulated Joint Statement indicates, crude oil is a mixture of different hydrocarbon molecules. Some hydrocarbon molecules are more valuable than others to refiners because the molecules can be refined into higher value finished products like gasoline, diesel and jet fuel.

12. Each Alaska North Slope (ANS) oil field produces crude oil with a unique mixture/proportion of the various hydrocarbon molecules. Because the crude oil each field produces has unique proportions of the hydrocarbon molecules, the crude oil stream from each field has a unique chemical character/value to refiners.

13. All of the ANS crude streams tendered at Pump Station No. 1 are blended together and transported on TAPS as a single commingled stream—the ANS common stream.

¹⁷ Having unilaterally conceded on the basis of a fully developed evidentiary record (*see* Tr. 1660-61) that (i) fixed costs should remain a component of the Quality Bank Resid valuation formula and (ii) Resid's FO-380 fuel oil blendstock value should not be adopted as a Resid valuation price floor, Flint Hills/Petro Star should be considered collaterally estopped from reprising these contentions in any future Quality Bank proceeding(s)—including the parallel RCA investigation (Docket P-14-005) initiated by order issued February 5, 2014.

Blending obscures the constituent streams' unique characteristics, creating an ANS common stream of uniform quality/value per unit. In addition, the initial ANS common stream quality is altered by refineries connected to TAPS downstream of Pump Station No. 1. Each of these refineries withdraws a specific quantity/quality of ANS common stream crude from TAPS, processes it, then returns the unprocessed (now different quality) portion back to the pipeline. As a result, not only is the quality of the ANS common stream ultimately delivered to Valdez Terminal different from each of the individual streams commingled at Pump Station No. 1, it also differs from the commingled ANS stream that first came out of Pump Station No. 1. But at Valdez Terminal, each shipper that tendered crude oil to TAPS at Pump Station No. 1 receives the same volume (though not the same quality) of crude oil it tendered at Pump Station No. 1. Left unaddressed, the qualitative discrepancy would result in windfalls to shippers that originally tendered lower quality/value crude (vis-à-vis the ANS common stream delivered at Valdez) to TAPS at Pump Station No. 1,¹⁸ while undercompensating shippers that originally tendered higher quality/value crude (again, vis-à-vis the ANS common stream delivered at Valdez) to TAPS at Pump Station No. 1. The TAPS Quality Bank is intended to eliminate the discrepancy by determining and accounting for the relative values of the crude oil streams tendered to TAPS at Pump Station No. 1 in comparison to the value of the ANS common stream the shippers receive at Valdez.

14. The Quality Bank relies on crude oil assays to determine the various hydrocarbon molecule percentages contained in each crude oil stream commingled into the ANS common stream at Pump Station No. 1.¹⁹ A similar assay of the ANS common stream at Valdez Terminal determines whether, and by how much, each of the constituent streams is more or less valuable than the ANS common stream. Shippers tendering less valuable crude at Pump Station No. 1 than they receive at Valdez Terminal pay the difference into the Quality Bank. Shippers tendering more valuable crude at Pump Station No. 1 than they receive at Valdez Terminal are paid the difference from the Quality Bank. It is a zero-sum mechanism.

15. The Quality Bank determines the relative value of each crude oil stream delivered to Pump Station No. 1—vis-à-vis the value of the ANS common stream delivered at Valdez Terminal—through a Commission-approved methodology premised on valuing crude oils by totaling the values of the products that can be refined from them (i.e. the QB Methodology). The QB Methodology assumes a simplified hypothetical “distillation

¹⁸ The intermediate TAPS refiners would receive a similar windfall.

¹⁹ Assays also are performed on the streams entering and exiting the intermediary TAPS refineries.

refinery” for this purpose.²⁰ The hypothetical distillation refinery separates each crude oil into nine (9) components or “cuts.” These nine cuts, from lightest to heaviest, are: (1) Propane; (2) Isobutane; (3) Normal Butane; (4) Light Straight Run (LSR); (5) Naphtha; (6) Light Distillate; (7) Heavy Distillate; (8) Vacuum Gas Oil (VGO); and (9) Resid.

16. The hypothetical distillation refinery heats each crude oil until it boils. Each of the nine (9) cuts boils out of the crude at a different temperature range. The lighter cuts boil out at lower temperatures and the heavier cuts boil out at higher temperatures. Each cut produced by this distillation process is defined by the temperature range at which it boils out of the crude. Resid is what remains after the other eight (8) cuts have been boiled out at temperatures up to 1050° Fahrenheit.

17. Six (6) of the nine (9) cuts can be sold without further processing. Quality Bank valuation relies on published market prices for these cuts.²¹ The remaining three (3) cuts—Light Distillate, Heavy Distillate and Resid—cannot be sold without further processing.²² Quality Bank valuation for these cuts therefore presumes additional processing in the hypothetical refinery to produce finished products that can be sold/valued at published market prices.²³ The QB Methodology subtracts the additional processing costs from these finished products’ market prices when valuing the Light Distillate, Heavy Distillate and Resid cuts. Since the QB Methodology values Resid as a coker unit feedstock, the methodology subtracts the additional costs associated with processing Resid into marketable products in a hypothetical coker unit located immediately “downstream” from the QB refinery’s hypothetical distillation tower.

18. The QB Methodology determines what percentage of each of the nine (9) cuts is contained in each crude oil stream delivered to Pump Station No. 1. Each cut’s Quality Bank valuation is multiplied by the applicable percentage, and those nine (9) values are totaled to derive each constituent stream’s indicated Quality Bank value. A similar

²⁰ Crude oil heating and “distillation” in an atmospheric tower is the fundamental first stage process in all real world refineries.

²¹ It is assumed the published market price for each of these six (6) cuts includes the simple refining (i.e. distillation) cost of producing the cut.

²² Light Distillate, Heavy Distillate and Resid consequently lack published market prices.

²³ Quality Bank values reflect U.S. West Coast (PADD V) market prices. PADD V (Petroleum Administration Defense District Five) includes Alaska, Arizona, California, Hawaii, Nevada, Oregon and Washington. Most ANS crude is processed and priced in PADD V.

calculation is performed to derive an ANS common stream value at Valdez Terminal.²⁴ Shippers that tendered less valuable crude at Pump Station No. 1 than they receive at Valdez Terminal pay the difference into the Quality Bank. Shippers that tendered more valuable crude at Pump Station No. 1 than they receive at Valdez Terminal are paid the difference from the Quality Bank. This procedure balances the relative Quality Bank values of the various quality crude oils tendered to TAPS at Pump Station No. 1 against the Quality Bank value of the uniform quality ANS common stream crude received by every shipper at Valdez Terminal. Thus, total payments into/out of the Quality Bank balance to zero.²⁵

19. Flint Hills and Petro Star own refineries connected to TAPS downstream of Pump Station No. 1. They withdraw ANS common stream crude oil from TAPS, process it, and return the unprocessed remainders back to the pipeline. The unprocessed remainders Flint Hills and Petro Star return to TAPS essentially dilute the ANS common stream with heavier/less valuable crude oils containing higher percentages of Resid than the ANS common stream they withdrew.²⁶ Flint Hills and Petro Star pay into the Quality Bank as a consequence.

20. Flint Hills and Petro Star claim the QB Methodology is unjust and unreasonable because it undervalues Resid by approximately \$16 per barrel.²⁷ Undervaluing Resid

²⁴ It is important to understand that the QB Methodology relies on two (2) discrete but interrelated valuations: the relative valuation of each cut *within* any stream (vis-à-vis the other eight (8) cuts), and the relative valuation of each crude stream—including the ANS common stream. The first valuation is derived by multiplying each cut's Quality Bank valuation per unit by its volume percentage in the relevant stream. These nine (9) values are summed to determine the stream's total Quality Bank valuation. The derived valuation for each stream delivered to Pump Station No. 1 is then compared to the derived valuation for the ANS common stream delivered at Valdez Terminal. The differentials establish each constituent stream's valuation vis-à-vis the ANS common stream—i.e. its relative Quality Bank valuation.

²⁵ A Quality Bank administration fee is ignored in this explanation.

²⁶ Neither Flint Hills nor Petro Star processes Resid.

²⁷ Flint Hills initially claimed the QB Methodology was undervaluing Resid by approximately \$19 per barrel. Ex. FHR-11 at 2 (compare column 3 with column 2 from May 2011 through May 2013). The February 28, 2014 stipulation not to remove fixed costs from the processing cost adjustment reduced the claimed undervaluation to approximately \$16 per barrel (*see* Ex. FHR-1 at 71 (reflecting \$2.90/barrel fixed cost component)), which implies a Resid value increase of nearly 23% if the revised Flint Hills/Petro Star proposal is adopted.

would artificially inflate the Quality Bank payments Flint Hills and Petro Star are required to make. More important for purposes of this investigation, undervaluing Resid would render the QB Methodology unjust and unreasonable in two (2) respects. Because the methodology relies on accurate *relative* valuations among the nine (9) Quality Bank cuts in the first instance, undervaluing one cut (Resid) necessarily would produce inaccurate relative valuations among *all* the cuts. And because the QB Methodology derives its relative valuation of each crude stream—including the ANS common stream—by multiplying each cut’s Quality Bank valuation by its volume percentage in the relevant stream, each Quality Bank stream valuation would be inaccurate as well. It follows that any indicated payments into/out of the Quality Bank would be inaccurate.

21. The Commission initiated this investigation “to determine whether the existing QB formula for valuing Resid is just and reasonable, and if it is not, what adjustment should be made to the QB formula.” *BP Pipelines (Alaska) Inc.*, 145 FERC ¶ 61,117, at P 47 (2013) (Hearing Order).

ISSUE ANALYSES

I. What Findings Must Be Made by the Commission to Warrant a Change to the Existing Quality Bank Methodology?

Participant Positions

Flint Hills

22. Flint Hills submits that because it proposes to modify the existing QB Methodology, it must demonstrate by substantial record evidence that the methodology is unjust and unreasonable. Flint Hills states the QB Methodology’s goal is to assign accurate relative values to the crude oil streams commingled into the ANS common stream and, as a consequence, the QB Methodology must be found unjust and unreasonable if the record demonstrates the methodology does not assign accurate relative values to each of the nine (9) ANS common stream cuts. Since the Resid cut’s relative value is challenged here, the Commission must find the Resid valuation formula no longer accurately values Resid relative to the other eight (8) cuts to conclude the QB Methodology is unjust and unreasonable.

23. Flint Hills maintains prior Commission approval of the Resid valuation in Opinion No. 481 and Opinion No. 500 does not preclude a determination in this proceeding that the valuation has become unjust and unreasonable. But because the valuation is Commission-approved, any proposed modification must be based on new evidence or changed circumstances. Flint Hills contends the Commission’s general policy against re-litigating decided issues should not apply if either condition is satisfied, and therefore suggests the Hearing Order reference to “changed circumstances” alone is not

controlling. According to Flint Hills, a broader question was set for hearing—to wit, whether the existing formula for valuing Resid is just and reasonable, and if it is not, what adjustment should be made to the QB formula. Flint Hills concludes this question may be examined in light of either new evidence (whether or not the evidence could have been presented in prior proceedings) or changed circumstances.

Petro Star

24. Petro Star states the Commission must find the existing Resid valuation formula is unjust or unreasonable to warrant a change to the existing QB Methodology. This turns on what Petro Star characterizes as the “deceptively simple” question of whether the formula accurately values Resid as a coker feedstock today. On Petro Star’s account, the Commission’s “single focus” on the Resid cut in this investigation is well-placed because the Commission assigns paramount importance to determining the most accurate possible valuation for each Quality Bank cut—so much so that the Commission conducts cut-by-cut proceedings to that end. Here, the Commission seeks greater Resid valuation accuracy according to Petro Star.

25. Petro Star asserts the Commission is not required in this investigation to ensure that the QB Methodology’s Resid valuation is consistent with methodology’s Light and Heavy Distillate valuations. According to Petro Star, if deducting (coker unit) capital costs renders the Resid valuation inaccurate, that circumstance raises questions concerning the Light and Heavy Distillate valuations as well, but does not support continuing to deduct the costs from the Resid valuation to maintain methodological consistency among the three. Petro Star claims this position does not violate *OXY U.S.A. Inc. v. FERC*²⁸ because *OXY* addressed a discrepancy between cuts valued at market prices and cuts that could not be similarly valued without additional processing.

26. Petro Star maintains neither “changed circumstances” nor “new evidence” is required for the Commission to find the QB Methodology unjust or unreasonable. Petro Star acknowledges it is well established that the Commission strongly disfavors re-litigating previously decided issues in the absence of new or changed circumstances. Accordingly, the Commission will apply the preclusion doctrines of *res judicata* or collateral estoppel where the issues presented already have been fully litigated and decided on the merits, and no new evidence or new circumstances would justify re-litigation. Petro Star submits, however, that either changed circumstances or new evidence may support a conclusion in this investigation that the QB Methodology approved by the Commission in 2005 is no longer just and reasonable.

²⁸ *OXY U.S.A. Inc. v. FERC*, 64 F.3d 679 (D.C. Cir. 1995) (*OXY*).

Anadarko/Tesoro

27. Anadarko/Tesoro assert Flint Hills/Petro Star must demonstrate that: (1) materially changed circumstances warrant reconsideration of the existing QB formula; (2) those materially changed circumstances result in a QB formula that no longer is just and reasonable; and (3) any proposed changes produce a just and reasonable QB formula. Demonstrating changed circumstances is paramount in Anadarko/Tesoro's view. They emphasize that neither the Commission nor the courts have adopted "new evidence" as an alternative to the well-established "changed circumstances" standard for just and reasonable review under the Interstate Commerce Act. They claim as a consequence that Flint Hills/Petro Star have resorted to cases adjudicated under the Federal Power Act, which establishes a different regulatory scheme the Commission has never applied to Quality Bank proceedings. Anadarko/Tesoro add that the evidence Flint Hills/Petro Star rely on to support the processing cost adjustment and increased coker yields they advocate has been available for decades, so it cannot legitimately be characterized as new—and in any event, Flint Hills/Petro Star fail to satisfy even this lower standard.

BPXA

28. BPXA contends no change to the existing QB Methodology should be considered unless Flint Hills/Petro Star first demonstrate the Resid valuation relative to the other QB cuts is unjust and unreasonable. BPXA states this is a heavy burden because (i) it is not necessary for the QB Methodology to value the ANS constituent streams with precision; (ii) the just and reasonable standard is imprecise; and (iii) determining justness/reasonableness is not an exact science. Quoting *OXY*, BPXA stress that the QB Methodology "need not be the only reasonable methodology, or even the most accurate." Thus, it is insufficient for Flint Hills/Petro Star to present a better way to value the Quality Bank cuts or more accurate coker yields.

29. BPXA next underscores that no proposed change(s) to the existing QB Methodology may be adopted in this proceeding unless the change(s) is/are affirmatively proved to produce a new overall methodology that is itself just and reasonable. This requires the Commission to consider the adverse precedential consequences of modifying discrete elements of the QB Methodology based exclusively on economic fluctuations. BPXA argues it has been consistent Commission policy to modify the QB Methodology only in response to significant and unexpected changed circumstances. BPXA contrasts such circumstances with periodic ebbs/flows in market conditions and the larger economy, which BPXA characterizes as the sole bases for the Flint Hills/Petro Star challenges here, and which BPXA contends the Commission has never considered sufficient grounds to modify the QB Methodology. BPXA observes that crude oil and petroleum markets are dynamic, and the existing QB Methodology is designed to work well in all market conditions. BPXA expresses concern that any methodological change(s) implemented in response to the market "snapshot" Flint Hills/Petro Star

present here will trigger an unending cascade of further litigation as fluctuating conditions prompt other market participants to seek similar QB Methodology adjustments in response.

ConocoPhillips

30. ConocoPhillips submits that where, as here, the Commission initiates an investigation of an existing rate, the burden is on the proponent(s) of any change to demonstrate the existing rate is not just and reasonable. ConocoPhillips emphasizes the Commission approved the current QB Methodology in Opinion No. 481, and its approval of the methodology was upheld on appeal. As a consequence, Flint Hills/Petro Star must prove a change of circumstances rendering the prior Commission approval invalid. Both OXY and the Hearing Order initiating this investigation expressly confirm this requirement on ConocoPhillips's account.

31. ConocoPhillips acknowledges the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit Court of Appeals) suggested in a 2000 Quality Bank decision²⁹ that "new evidence" may be sufficient grounds for the Commission to reopen a previously approved rate, but underscores the court expressly found it unnecessary to decide the question. And it is irrelevant as a practical matter in any event: ConocoPhillips concedes a "new evidence" standard conceivably might apply where a party claims a Commission decision was incorrect when issued. But ConocoPhillips contrasts that circumstance with the present case, observing that Flint Hills asserts the QB Methodology was correct when approved in 2005 but now should be changed. This assertion necessarily implies "changed circumstances" in ConocoPhillips's view. To the extent Flint Hills takes the position—contrary to its own witness's testimony—that the QB formula approved in Opinion No. 481 was not just and reasonable in 2005, ConocoPhillips observes the very case on which Flint Hills/Petro Star rely to argue a "new evidence" standard should apply here expressly requires evidence that is both "new in relation to what was before the Commission in its earlier determinations and sufficiently compelling to require reconsideration." ConocoPhillips argues Flint Hills/Petro Star have failed to satisfy either of these requirements.

ExxonMobil

32. ExxonMobil argues Flint Hills/Petro Star must demonstrate both that the existing QB Methodology Resid valuation no longer is just and reasonable and that their proposed alternative valuation is just and reasonable. In addition, Flint Hills/Petro Star must

²⁹ *Tesoro Alaska Petroleum Co. v. FERC*, 234 F.3d 1286 (D.C. Cir. 2000) (*Tesoro*).

plainly show any alleged undervaluation results from circumstances that have changed since the existing methodology was adopted.

33. ExxonMobil states the D.C. Circuit Court of Appeals has provided guidance regarding both “changed circumstances” and the just and reasonable standard to be applied here. It first cites *Tesoro* for the proposition that the required showing for “changed circumstances” is “evidence that is new in relation to what was before the Commission in its earlier determinations and sufficiently compelling to require reconsideration of the earlier resolution.” It next cites a 1999 decision explaining such evidence must be “new in the sense of being discovered after the Commission issued its [prior] [o]rder.”³⁰ Thus, to satisfy their burden here, ExxonMobil maintains Flint Hills/Petro Star must provide evidence of facts or circumstances that (i) did not exist or have significantly changed since the existing Resid valuation methodology was adopted and (ii) are sufficiently compelling to change the methodology.

34. Insofar as the just and reasonable standard is concerned, ExxonMobil cites *OXY*, emphasizing the opinion states the QB Methodology’s goal is to assign accurate *relative values* to the individual crude oil streams commingled into the ANS common stream. Since this requires consistency among the underlying cut valuation methodologies, the opinion concludes the Commission “must accurately value all cuts—not some or most of them—or it must overvalue or undervalue all cuts to approximately the same degree.” ExxonMobil asserts the QB Methodology adopted by the Commission in Opinion No. 481 continues to satisfy *OXY* because it values the Light Distillate, Heavy Distillate and Resid cuts on a consistent basis through (i) reference to finished proxy product prices (ii) adjusted to reflect the additional processing costs required to make the proxy products. ExxonMobil notes a subsequent D.C. Circuit Court of Appeals decision³¹ establishes that any finished product proxy price used to value a Quality Bank cut must bear a “rational relationship” to the market value of the cut.

35. In sum, ExxonMobil takes the position that Flint Hills/Petro Star must establish: (1) the QB Methodology no longer accurately values Resid relative to other cuts; (2) their proposed Resid valuation is consistent with the other cuts’ valuations; and (3) their proposed valuation bears a rational relationship to the actual market value of Resid.

³⁰ *Sw. Bell Tel. Co. v. FCC*, 180 F.3d 307, 312 (D.C. Cir. 1999).

³¹ *Exxon Co., U.S.A. v. FERC*, 182 F.3d 30 (D.C. Cir. 1999) (*Exxon*).

TAPS Carriers³²

36. TAPS Carriers explain they simply administer the QB Methodology and have no financial stake in the Quality Bank itself. While TAPS Carriers take no position with respect to the methodological changes Flint Hills/Petro Star advocate, they note Opinion No. 481 determined the current QB Methodology—including the Resid valuation challenged here by Flint Hills/Petro Star—is just and reasonable. TAPS Carriers quote Commission policy as “in the absence of new or changed circumstances requiring a different result, ‘it is contrary to sound administrative practice and a waste of resources to relitigate issues in succeeding cases once those issues have been determined.’” They also observe the Commission has made clear “that proponents of changing [an existing] methodology must show a change in circumstances to show why it is no longer just and reasonable.” TAPS Carriers therefore conclude Flint Hills/Petro Star must prove changed circumstances, and also that the QB Methodology is no longer just and reasonable as a consequence. If Flint Hills/Petro Star can satisfy those requirements, they must then demonstrate “that the proposed replacement is just and reasonable.”

Trial Staff

37. Trial Staff submits the Commission and the D.C. Circuit Court of Appeals have established the legal standards governing this investigation. Trial Staff notes the Hearing Order expressly acknowledges the *OXY* principle that “‘the fact that a rate was once found reasonable does not preclude a finding of unreasonableness in a subsequent proceeding.’” Trial Staff also notes the Hearing Order expressly confirms the pleadings before the Commission had “raised issues whether there has been ‘changed circumstances’ warranting review of the existing QB formula.” Trial Staff therefore interprets the Hearing Order to have made two (2) findings: first, that Flint Hills provided sufficient evidence of changed circumstances to warrant an investigation into whether the current QB Methodology for valuing Resid remains just and reasonable; and second, that the current just and reasonable QB Methodology for valuing Resid was established by Opinion No. 481. Trial Staff reasons that since Flint Hills/Petro Star propose to revise the just and reasonable Resid valuation formula adopted by Opinion No. 481 in 2005, they bear the burden to establish the formula is no longer just and reasonable due to changed circumstances.

³² Jointly, BP Pipelines (Alaska) Inc., ConocoPhillips Transportation Alaska, Inc. and ExxonMobil Pipeline Company. TAPS Carriers have ownership interests in TAPS. Unocal Pipeline Company (Unocal) also has an ownership interest in TAPS, but Unocal has provided final notice of its withdrawal from TAPS (effective August 1, 2012), and currently is in the process of completing the transfer of its TAPS ownership interest to TAPS Carriers.

38. Trial Staff asserts the *OXY* opinion explains what constitutes changed circumstances warranting a revision to the QB Methodology. According to Trial Staff, *OXY* confirms “significant” circumstantial changes are prerequisite to revising the methodology. Trial Staff claims both *Tesoro* and Opinion No. 481 support a conclusion that *OXY* requires Flint Hills/Petro Star to provide substantial credible evidence of specific “significant” and “material” changes to the facts underlying the current QB Methodology in order to satisfy their threshold burden to prove the methodology no longer is just and reasonable. But a demonstration of “changed circumstances” alone is insufficient on Trial Staff’s account. Flint Hills/Petro Star also must demonstrate the changed circumstances produce results under the current QB Methodology that no longer reflect fair relative valuations among the Quality Bank cuts. Trial Staff again cites *OXY*, emphasizing the opinion confirms the QB Methodology is not intended to derive an accurate absolute value for any crude oil stream. Instead, the methodology’s purpose is to establish reasonable relative values among the streams commingled into the ANS common stream by first establishing reasonable relative values among the nine (9) constituent Quality Bank cuts. Trial Staff notes *Exxon* reiterates this purpose, adding that *Exxon* also establishes the cut valuations must bear a “rational relationship” to the cuts’ actual market values.

39. Trial Staff concludes that in order for Flint Hills/Petro Star to support a revision to the QB Methodology Resid valuation they must provide substantial credible evidence that (i) a material and significant change in the facts underlying the Resid valuation has occurred (ii) since Opinion No. 481 was issued (iii) that renders the existing valuation methodology no longer just and reasonable. Trial Staff further concludes Flint Hills/Petro Star must demonstrate the Resid valuation methodology they advocate produces more accurate relative pricing between Resid and the other eight (8) Quality Bank cuts than the current methodology, and the resulting valuations bear a rational relationship to the cuts’ actual market values.

Analysis

Threshold Determination

40. It is undisputed that the current QB Methodology for valuing Resid is Commission-approved. Consequently, as Flint Hills/Petro Star concede,³³ they bear the burden to prove the current methodology is unjust or unreasonable. But Flint Hills/Petro Star must do so by affirmatively demonstrating in the first instance how the existing methodology is unjust/unreasonable *in itself*—not in comparison to some allegedly

³³ Flint Hills IB 3; Petro Star IB 3.

superior or more accurate methodology. A Commission-approved methodology enjoys a continuing (rebuttable) presumption it remains just and reasonable. *See, e.g., Morgan Stanley Capital Grp. Inc. v. Pub. Util. Dist. No. 1 of Snohomish Cnty.*, 554 U.S. 527, 545 (2008) (*Morgan Stanley*). *Accord* Hearing Order, 145 FERC ¶ 61,117 at P 47. Any challenger bears an affirmative burden to prove by a preponderance of evidence³⁴ that the methodology has become unjust/unreasonable in itself—not through recourse to some alternative—because more than one methodology may be just and reasonable under any given circumstances. *See Morgan Stanley*, 554 U.S. at 532; *OXY*, 64 F.3d at 692.

41. As noted in the Supplemental Procedural History, Flint Hills’s initial position in this investigation was that the existing QB Methodology for valuing Resid was unjust and unreasonable because: (1) the processing cost adjustment improperly included capital and fixed costs in addition to marginal coking costs; (2) the imbedded coker yields were understated; and (3) the formula did not treat Resid’s value as a blendstock for making FO-380 fuel oil as a price floor. At the close of hearing on February 24, 2014, Flint Hills indicated it would abandon its contentions that (i) fixed costs should be removed from the processing cost adjustment and (ii) Resid’s value as a blendstock for making FO-380 fuel oil should be adopted as a price floor. Tr. 1660-62. Flint Hills filed a stipulation to that effect on behalf of itself and Petro Star on February 28, 2014.

42. The enduring Flint Hills/Petro Star contention that the existing QB Methodology’s imbedded coker yields are understated is based exclusively on “updated” QB coker yields developed through modeling performed by Flint Hills witness Lieberman. Ex. FHR-23 at 4; Ex. FHR-24. The QB Methodology approved by the Commission in Opinion No. 481 reflects coker yields developed using the PIMS model.³⁵ Ex. FHR-23 at 4; Ex. CPA-1 at 22. Flint Hills/Petro Star rely on Lieberman model coker liquid yields to demonstrate the PIMS model coker liquid yields are understated. This reliance, however, is illegitimate. Flint Hills/Petro Star essentially argue the PIMS model yields are understated—hence, unjust/unreasonable—because the Lieberman model produces higher yields. This

³⁴ I reject any Flint Hills suggestion that it can satisfy its threshold burden of proof with “substantial” record evidence. By definition, a rebuttable presumption may be overcome only by the weight of the evidence. It otherwise would have no purpose or effect. And assuming, *arguendo*, substantial record evidence were the applicable standard here, the analysis conducted under Issue II, *infra*, demonstrates the totality of reliable Flint Hills evidence falls short even of this measure. Petro Star submitted no evidence.

³⁵ As explained in more detail *infra*, PIMS (Process Industry Modeling System, Version 11.0) is a standard linear programming computer model used to simulate refinery operations.

argument reduces to a claim that the Lieberman model is better than the PIMS model. Ignoring the relative merits of the models for now, Flint Hills/Petro Star simply cannot satisfy their threshold burden to prove the QB Methodology is unjust/unreasonable by comparing it to an allegedly (or even demonstrably) superior one.³⁶ Any Flint Hills/Petro Star claim that the existing Quality Bank methodology for valuing Resid is unjust or unreasonable because the imbedded PIMS model coker yields are understated vis-à-vis the Lieberman model yields fails on this ground alone.

The Findings Requirements

43. The Hearing Order initiating this investigation states:

In [OXY] . . . the court stated that “the fact that a rate was once found reasonable does not preclude a finding of unreasonableness in a subsequent proceeding.” The pleadings to date have raised issues whether there has been “changed circumstances,” warranting review of the existing QB formula.

Hearing Order, 145 FERC ¶ 61,117 at P 47 (footnote omitted).³⁷ This language indicates the Commission initiated the investigation (i) to review the existing QB formula (ii) to

³⁶ By extension, Trial Staff is incorrect insofar as it contends Flint Hills/Petro Star would be required to demonstrate the Resid valuation methodology they advocate produces more accurate relative pricing between Resid and the other eight (8) Quality Bank cuts than the current QB Methodology. In the event Flint Hills/Petro Star were able to satisfy their threshold burden to prove the current QB Methodology unjust/unreasonable, they would bear an additional burden to affirmatively prove the revised methodology they advocate is just and reasonable in itself. The circumstance that the revised methodology produced more accurate relative pricing among the Quality Bank cuts—i.e. was superior to the current methodology in that respect—certainly would be pertinent, but that circumstance alone would not establish the revised methodology was just and reasonable. A superior alternative to an unjust/unreasonable methodology is not necessarily just and reasonable because it is better/more accurate in comparison to the unjust/unreasonable referent. Both could be unjust/unreasonable.

³⁷ The sentence “[t]he pleadings to date have raised issues whether there has been ‘changed circumstances,’ warranting review of the existing QB formula[.]” reflects a comma immediately following the term “changed circumstances”. This construction indicates the Commission was stating the pleadings had presented an adequate *prima facie* case for changed circumstances, and the *prima facie* case warranted initiating an investigation to determine whether *in fact* there have been “changed circumstances” (Continued)

determine whether in fact there have been “changed circumstances” (iii) that render the existing Resid valuation unjust or unreasonable. I therefore find and conclude the indicated Hearing Order interpretation is the Commission contemplated the existing QB Methodology generally would be evaluated for continuing justness/reasonableness under a “changed circumstances” standard of review. This conclusion notwithstanding, nothing in the Hearing Order may be interpreted to *confine* the just and reasonable evaluation to “changed circumstances”.³⁸

44. The Hearing Order confirms the Commission ultimately initiated this investigation:

to determine whether the existing QB formula for valuing Resid is just and reasonable, and if it is not, what adjustment should be made to the QB formula.

Hearing Order, 145 FERC ¶ 61,117 at P 47 (emphasis added). This is consistent with the Commission’s Interstate Commerce Act (ICA) authority/obligation to ensure just and reasonable pipeline rates. *See* 49 U.S.C. App. §§ 1(5), 15(1) (1988). *Accord OXY*, 64 F.3d at 690; Hearing Order, 145 FERC ¶ 61,117 at ordering para. (B). And if the evidence developed in the course of the investigation establishes the existing QB formula for valuing Resid has become unjust/unreasonable *for any reason*, neither the presiding judge nor the Commission may disregard that fact simply because the underlying reason does not satisfy a “changed circumstances” standard of review. *See Tesoro*, 234 F.3d at 1290. This holds particularly true because the Commission has never defined “changed circumstances”. It follows that either changed circumstances or new evidence may provide an adequate basis on which to find the QB formula for valuing Resid has become unjust/unreasonable.

(Continued)

rendering the existing Resid valuation unjust/unreasonable. *See Tesoro*, 234 F.3d at 1290 (quoting *Tagg Bros. & Moorhead v. United States*, 280 U.S. 420, 445 (1930)).

³⁸ Similarly, although Opinion No. 481 affirms Initial Decision findings of material changed circumstances, thereby *implying* “changed circumstances” was the standard the Commission applied (*see Trans Alaska Pipeline Sys.*, 113 FERC ¶ 61,062, at PP 84, 93-94, 110 (2005)), the opinion does not expressly indicate what standard the Commission applied. And while *BP Pipelines (Alaska) Inc.*, 122 FERC ¶ 61,236, at P 43 (2008), *Exxon Co., U.S.A.*, 87 FERC ¶ 61,133, at 61,525 (1999), and *Trans Alaska Pipeline Sys.*, 65 FERC ¶ 61,277, at 62,287 (1993), each references “changed circumstances”, none of these references legitimately may be characterized as establishing, confirming or applying a definitive Commission standard of review.

45. I emphasize the “*has become unjust/unreasonable*” requirement. Since Opinion No. 481 establishes the current QB Methodology was just and reasonable when adopted in 2005,³⁹ Flint Hills/Petro Star are collaterally estopped from challenging the methodology in this investigation based on any allegation it was unjust/unreasonable when the Commission adopted it in 2005. The “rebuttable” aspect of the current QB Methodology’s just and reasonable presumption applies only to its *continuing* justness/reasonableness in light of post-2005 events/developments. The methodology’s justness/reasonableness when it was adopted in 2005 is conclusively established by Opinion No. 481 and subsequent Commission/court orders on review.

46. Moreover, any changed circumstance(s) or new evidence on which Flint Hills/Petro Star rely in this investigation must in fact be new, and also must be of sufficient weight/persuasiveness to overcome the existing formula’s just and reasonable presumption. Put differently, the circumstance(s)/evidence must be “new in relation to what was before the Commission in its earlier determinations and sufficiently compelling to require reconsideration of the earlier resolution.”⁴⁰ *Tesoro*, 234 F.3d at 1288. It also must be “new in the sense of being discovered after the Commission issued [Opinion No. 481].” *Sw. Bell Tel. Co. v. FCC*, 180 F.3d 307, 312 (D.C. Cir. 1999). “[E]vidence that reasonably was available to the parties [during the Opinion No. 481 proceedings] is not new evidence.” *Friends of Sierra R.R., Inc. v. ICC*, 881 F.2d 663, 667 (9th Cir. 1989) (quoting *Platnick Bros., Inc. v. Norfolk & W. Ry. Co.*, 367 I.C.C. 782, 785 (1983)).

³⁹ *Accord* Hearing Order, 145 FERC ¶ 61,117 at PP 42, 47.

⁴⁰ Flint Hills and Petro Star appear to endorse this definition. See Flint Hills IB 18; Petro Star IB 11-12.

The Commission previously has found circumstances sufficiently compelling to warrant QB Methodology review/revision only in response to significant developments undermining the existing methodology’s continuing viability. For example, the injection of substantial quantities of natural gas liquids into the ANS common stream beginning in 1986 required the Commission to supplant the gravity-based QB Methodology with the current distillation methodology. *Trans. Alaska Pipeline Sys.*, 65 FERC ¶ 61,277 (1993). Discontinuance of the Platts reference products/prices for the Heavy Distillate cut valuation in 1999 and again in 2006 required the Commission to adopt alternative reference products/prices for that cut on each occasion. *Trans Alaska Pipeline Sys.*, 90 FERC ¶ 61,123 (2000); *BP Pipelines (Alaska) Inc.*, 122 FERC ¶ 61,236 (2008).

Accordingly, “*newly raised* evidence is not the same as *new* evidence.” *Id.* (emphasis in original) (citations omitted).⁴¹

II. Whether, Based on the Applicable Legal Standards, the Quality Bank Methodology Has Become Unjust and Unreasonable for the Valuation of Resid?

Participant Positions

Flint Hills

47. Flint Hills asserts the QB Methodology is unjust and unreasonable because it significantly understates the Resid cut’s relative Quality Bank value. Flint Hills attributes the asserted undervaluation to two (2) Resid valuation formula components: the stipulated coker yields and the coker unit capital cost deduction. It claims the evidence demonstrates the formula’s stipulated coker yields understate by approximately 5% (translating to \$7.74/barrel) the volume of liquid petroleum products a new coker unit would produce from Resid. It also claims the evidence demonstrates current market conditions do not guarantee recovery of \$8.88/barrel in coker unit capital costs included in the Resid processing cost adjustment.

48. Flint Hills claims substantial record evidence demonstrates the QB Methodology is “broken” in that it no longer calculates an accurate aggregate value for the nine (9) Quality Bank cuts. Flint Hills first cites a 2005 through 2013 comparison between Platts⁴² published prices for ANS common stream crude oil and Quality Bank aggregate cut valuations for ANS common stream crude performed by Flint Hills witness Verleger. Flint Hills reasons the aggregate Quality Bank valuation always should exceed the published Platts price for ANS common stream crude because the Quality Bank cuts

⁴¹ These clarifications slightly nuance the preceding finding that the QB Methodology’s justness/reasonableness when it was adopted in 2005 is conclusively established by Opinion No. 481 and subsequent Commission/court orders. Flint Hills/Petro Star are not *absolutely* precluded from establishing in this investigation that the QB Methodology currently is unjust/unreasonable due to facts or circumstances existing in 2005 which either were unknown or were not before the Commission at the time. Reliance on any such facts or circumstances, however, would require Flint Hills/Petro Star to prove those facts or circumstances actually were unknown or not reasonably available/discoverable in the relevant timeframe—i.e. throughout the course of the Opinion No. 481 proceedings.

⁴² Platts is a major petroleum industry reporting service that tracks and publishes daily market prices for crude oils and petroleum products.

reflect processing costs. It then contrasts the circumstance that aggregate Quality Bank valuations exceeded published Platts ANS common stream crude prices from 2005 through 2008 with the circumstance that Platts prices exceeded aggregate Quality Bank valuations from 2009 through 2013. This inversion indicates a fundamental change in circumstances precipitated by a “Global Economic Collapse” on Flint Hills’s account.

49. Flint Hills next cites its witness Verleger’s analyses of three (3) “benchmarks” related to Resid’s market value: Platts ANS coking yields (netback values); Platts ANS cracking yields (netback values); and ANS Resid market value as a blendstock (with ANS Light Distillate) to produce FO-380 fuel oil. Flint Hills concedes none of these benchmarks is perfectly comparable with the QB Resid valuation. It nevertheless submits they offer the only available public market data on which useful analyses of the QB Methodology’s relative valuation accuracy can be tested. Comparing coking refinery netback values against cracking refinery netback values from 2004 through 2013 shows that coking netbacks generally exceeded cracking netbacks. Flint Hills says this confirms the QB Methodology assumption that ANS Resid’s coking value exceeds its FO-380 fuel oil blending value. But Flint Hills observes the methodology has in recent years derived a lower coker feedstock valuation for Resid than the indicated FO-380 blendstock value. Flint Hills again contrasts the circumstance that QB Methodology Resid valuation as a coker feedstock exceeded Resid’s indicated FO-380 blendstock value from 2005 through 2008 with the circumstance that indicated FO-380 blendstock value exceeded Quality Bank coker feedstock valuation from 2009 through 2013. Flint Hills argues this inversion further confirms a fundamental change in circumstances occurred in 2008/2009, resulting in a Quality Bank Resid undervaluation that endures to this day.

50. Flint Hills contends the highlighted inversions demonstrate the QB Methodology no longer produces aggregate Quality Bank valuations reasonably approximating Resid’s market value. Further, since (i) unadjusted market prices are used for the six (6) lightest Quality Bank cuts, and (ii) processing cost-adjusted market prices are used for the Light Distillate, Heavy Distillate and Resid cuts, the inversions demonstrate Resid is being undervalued relative to the other cuts on Flint Hills’s analysis. The QB Methodology consequently also must be undervaluing ANS crudes with higher Resid percentages vis-à-vis ANS crudes with lower Resid percentages.

51. Flint Hills states the QB Methodology tracks market changes to the extent the methodology uses published market prices to value the Quality Bank cuts. The Resid cut valuation formula, however, has two (2) fixed elements that do not respond to market changes: the coker liquid yield coefficients and the coker unit capital costs included in the processing cost adjustment. Flint Hills claims Resid’s understated Quality Bank valuation is attributable to disparities between these elements’ QB Methodology treatment and actual market conditions.

52. First, Flint Hills claims the methodology understates liquid yields because the yields are based on an outdated PIMS model generic coker unit. Flint Hills witness Lieberman therefore proposes to replace the generic coker unit assumed in the PIMS model/QB Methodology with an entirely new coker unit specifically designed and operated to “optimize” liquid yields. In this regard, Flint Hills emphasizes the PIMS model/QB Methodology liquid yields were stipulated among the parties in the Opinion No. 481 proceedings. The circumstances that the parties neither litigated the yields’ reasonableness nor established any operating parameters to verify their accuracy at that time confirms the yields are not being re-litigated in this investigation on Flint Hills’s account. And assuming, *arguendo*, the Lieberman model/yields (or something similar) could have been presented in the Opinion No. 481 proceedings, they were not. Flint Hills therefore contends the Lieberman model/yields constitute “new evidence” that appropriately may be considered on the merits in this investigation. Flint Hills also contends that since the Lieberman model’s replacement coker unit is merely a hypothetical construct, substituting the proposed coker unit for the PIMS model coker unit in the QB Methodology does not imply “building” and “operating” a completely new coker unit in any meaningful sense. Accordingly, no capital investment cost allowance for the proposed replacement coker unit is required.

53. Second, Flint Hills maintains the QB Methodology’s inclusion of coker unit capital investment costs in the Resid processing cost adjustment does not reflect current market conditions. Flint Hills contends that under current market conditions no refiner reasonably could expect the 20% annual return of/on coker unit capital investment assumed in the Resid valuation formula. Flint Hills claims this contention is supported by (i) the absence of any current U.S. West Coast coking capacity investment, (ii) excess existing U.S. West Coast coking capacity, (iii) declining petroleum product consumption and (iv) increasingly stringent environmental standards. Each of these current market conditions demonstrates “changed circumstances” since the existing QB Methodology was adopted in 2005 according to Flint Hills. Each of these factors also demonstrates “real world” refiners cannot recover anything more than their coker unit marginal operating costs when processing Resid. And since Flint Hills argues these current market conditions are permanent, Flint Hills concludes it is unjust/unreasonable for the QB Methodology to include any annual capital cost allowance whatsoever in the Resid processing cost adjustment.

Petro Star

54. Petro Star agrees the Resid valuation formula is unjust and unreasonable because it understates coker liquid yields and includes coker unit capital investment costs in the processing cost adjustment. As a general principle, Petro Star maintains the Quality Bank aggregate cut valuation for ANS common stream (and other) crude oil always should exceed the published Platts price for the crude(s) because the Quality Bank cut valuations reflect processing costs the crude valuation(s) does/do not. It makes no sense

in Petro Star's view to accept that the composite value of the products distilled from a crude oil ever could be lower than the value of the crude oil from which they are distilled. This would mean processing generates negative value. But that is exactly what applying the Quality Bank Resid valuation formula has implied since 2008 according to Petro Star.

55. More specifically, Petro Star submits real world crude oil refiners make their initial crude oil relative value estimates in much the same way as the QB Methodology. Petro Star states that while real world calculations rely on tremendously more complex linear programming models, those models initially calculate weighted average values for the basic distillation cuts just as the QB Methodology does. Resid therefore plays the same role in real world crude oil valuations as it does in Quality Bank valuations. But in contrast to the Quality Bank Resid valuation formula, real world refiners do not include a capital investment component in their Resid processing cost calculations. Instead, Petro Star asserts, refiners processing Resid completely disregard the capital investment associated with their coker units when they decide which crude oil to buy and how much to pay for it. Petro Star emphasizes this assertion comports with the fundamental economic principle that rational actors consider capital investment a "sunk" cost, and therefore will base production decisions exclusively on whether marginal revenues will exceed marginal costs. It necessarily follows that including coker unit capital investment in the Resid processing cost adjustment understates Resid's real world value to refiners.

56. Including coker unit capital investment as a constant adjusted only for inflation creates an additional problem in Petro Star's view: it does not reflect short-term petroleum market fluctuations. Petro Star observes that while the QB Methodology relies on daily/weekly published prices to accurately re-value the Quality Bank cuts each month, the coker unit capital investment included in the Resid processing cost adjustment is a long-term cost unrelated to prevailing/variable short-term market conditions. Valuing Resid this way might influence a refiner's long-term decision to invest in additional coking capacity, but it has no influence on whether a refiner's variable short-term marginal coking revenues exceed its variable short-term marginal coking costs. Including coker unit capital investment in the Resid processing cost adjustment therefore means Resid-rich crude oils always will be assigned a lower value for Quality Bank purposes than real world refiners would assign to them.

57. Petro Star acknowledges it is settled that the QB Methodology should value Resid as a coker feedstock because coking is its predominant and most valuable use. Nevertheless, Petro Star notes Resid also is used as a blendstock to produce FO-380 fuel oil. And reported prices for FO-380 fuel oil indicate that since 2008 Resid's FO-380 blendstock value typically has exceeded its Quality Bank coker feedstock valuation. This is telling in Petro Star's narrative because if both the blendstock and feedstock values were accurate, refiners would have had an economic incentive beginning in 2008 to divert Resid from coking to blending until the values reached equilibrium. But that never happened, which indicates Resid's actual value to refiners as a coker feedstock never fell

below its FO-380 blendstock value. This circumstance confirms the QB Methodology has been undervaluing Resid since 2008.

58. Turning to the coker unit liquid yields the current Resid valuation formula uses, Petro Star emphasizes Flint Hills witness Lieberman claims PIMS model yields (i) are generic, (ii) have no direct relationship to any process parameters, and (iii) are so low they would trigger troubleshooting measures in a real world refinery. Petro Star explains Mr. Lieberman therefore evaluated the PIMS model yields by modeling a new hypothetical coker unit specifically designed to maximize liquid yields. Petro Star states the Lieberman model reflects technology that has been available (with minor improvements) since 1967, and requires neither constructing a new coker unit nor any upgrade to the coker unit currently assumed in the QB Methodology. Accordingly, while the Lieberman model confirms the current QB Methodology undervalues Resid because the PIMS model generic coker unit produces lower liquid yields, it implies no capital investment because—like the PIMS model coker unit it would replace—the Lieberman model’s alternative coker is an entirely hypothetical construct. Petro Star states that neither (i) the appropriateness of using the PIMS model coker yields nor (ii) the propriety of including capital investment in the Resid valuation processing cost adjustment was considered in the Opinion No. 481 proceedings.

59. Petro Star argues its narrative confirms Flint Hills/Petro Star have demonstrated new evidence and changed circumstances warranting a conclusion that the QB Methodology approved in 2005 has become unjust/unreasonable and must be modified insofar as the Resid valuation is concerned.

Anadarko/Tesoro

60. Anadarko/Tesoro first state there is no disagreement that the grounds asserted by Flint Hills/Petro Star to support their position/proposal—i.e. changed market conditions negatively impacting Resid refiner profitability and enhanced coker yields from an “updated” model coker unit—have not previously been proposed as grounds for modifying the QB Methodology. Similarly, there is no dispute the QB Methodology should not be modified in response to short-term market cycles. Anadarko/Tesoro also note all participants agree Resid should be valued as a coker feedstock and the QB Methodology will capture any market changes impacting the published prices for the products that coking Resid produces. Where the participants disagree, according to Anadarko/Tesoro, concerns whether the market changes on which Flint Hills/Petro Star rely are permanent (or at least long-term) shifts in the economic environment that undermine the QB Methodology’s ability to ascribe accurate relative values to the various TAPS crude oil streams. Flint Hills/Petro Star claim market changes associated with the 2008-2009 financial crisis caused a “permanent shift in the refining market” that negatively has impacted coker profitability since that time and will continue to do so for

the foreseeable future. Anadarko/Tesoro say Flint Hills/Petro Star have failed to prove their claims.

61. Anadarko/Tesoro observe the only evidence of changed circumstances or that the Quality Bank no longer functions as intended was provided by Flint Hills witness Verleger. But Anadarko/Tesoro emphasize the Verleger evidence contains no analysis whatsoever of U.S. West Coast coking operations or coker unit profitability, noting the witness himself acknowledged on cross-examination that West Coast coking refineries currently are both profitable and recovering their capital costs. Nevertheless, he relies on certain “market-based benchmarks” to support his contention that the Quality Bank has become dysfunctional: (i) the Platts reported value for ANS common stream crude oil; (ii) Platts ANS coking yield netbacks; (iii) Platts ANS cracking yield netbacks; and (iv) a calculated value of ANS Resid as a blendstock to produce FO-380 fuel oil. Anadarko/Tesoro assert Flint Hills witness Verleger compares the Quality Bank Resid valuation (as a coker unit feedstock) to these benchmarks in an unsuccessful attempt to demonstrate Resid’s actual value has increased substantially since 2005 but the QB Methodology has not captured that increase.

62. The fundamental problem with the Verleger approach in Anadarko/Tesoro’s view is that the “benchmark” comparisons are irrelevant to the Quality Bank Resid valuation. First, the Quality Bank “distillation refinery” is a highly-simplified theoretical construct that does not (and never was intended to) capture/reflect the considerable value post-distillation refining in a complex real world refinery adds to the simple distillation cuts used for Quality Bank purposes. The Platts ANS common stream valuation presumes complex refining. The Quality Bank ANS common stream valuation assumes simple distillation. The circumstance that the Platts reported value for ANS common stream crude oil often exceeds the nine (9) cut aggregate Quality Bank valuation for ANS common stream crude therefore is meaningless. So, too, is the Verleger comparison between Platts ANS coking and cracking yield netbacks. In fact, on Anadarko/Tesoro’s account, this comparison actually supports the continued inclusion of coker capital investment in the Resid processing cost adjustment because it suggests real world coking refineries currently are profitable/recovering capital costs. And insofar as ANS Resid’s calculated value as a blendstock to produce FO-380 fuel oil is concerned, Anadarko/Tesoro underscore that the Commission rejected FO-380 as a Resid valuation reference product in 1997 because the market was too thin even then for its price to be deemed reliable. Anadarko/Tesoro note the FO-380 fuel oil market is thinner now than it was when the Commission rejected it in 1997, adding that Flint Hills’s expert witness on U.S. West Coast fuel oil markets was unable to confirm on cross-examination that any Resid whatsoever currently is being used as a fuel oil blendstock.

63. Focusing on the Flint Hills/Petro Star proposal to exclude coker unit capital investment from the Resid processing cost adjustment, Anadarko/Tesoro argue it is simply nonsensical for the QB Methodology to value Resid using the market prices of

products made by coking without also recognizing the coker unit capital investment required to make the products in the first place. Anadarko/Tesoro maintain that regardless of coker utility, viability or utilization in the real world, if the QB Methodology relies on the market prices of coker products to value Resid, it also must account for capital investment in the coker unit the methodology requires to make the reference products. Otherwise, the methodology necessarily will over-value Resid because the full cost of making the reference products from which Resid's value is derived will not be reflected. This, in turn will distort Resid's relative value among the Quality Bank cuts and, by extension, all the ANS crude steam valuations.

64. Anadarko/Tesoro assert the Flint Hills/Petro Star suggestion that changed market conditions have rendered cokers "superfluous" has no record support. They state cokers are important because the units employ thermal cracking to upgrade heavy crude oils into more valuable lighter products. Moreover, coker utility and value will progressively increase as the slate of available crude oils becomes heavier at the same time demand for lighter products increases. Anadarko/Tesoro explain this is the reason cokers currently run at higher utilization rates than other refinery processing units, remain profitable and new coking capacity continues to be added worldwide. They dismiss Flint Hills witness Verleger's claims to the contrary as completely inconsistent with the record evidence. They also emphasize refiners invest in cokers based on the long-term economics. Since refiners understand market prices may be higher or lower than their full production costs at any given time, they do not expect to make a profit or recover capital investment costs all the time. This simply reflects the variable reality of petroleum markets. But in the long run, refiners always expect/operate to realize a return on and of their capital investment. The Flint Hills/Petro Star contention that refiners consider their coker capital investment a "sunk" cost, and therefore base their day-to-day coker operating decisions exclusively on whether marginal revenues exceed marginal costs, focuses exclusively on the short-term, completely ignoring refiners' long-term investment expectations, as well as the fact that refiners always seek to maximize marginal revenues to realize a return on and of capital investment.

65. Insofar as the Flint Hills/Petro Star criticism of the current QB Methodology's PIMS model coker yields is concerned, Anadarko/Tesoro submit Flint Hills/Petro Star have failed to demonstrate any changed circumstances or new evidence since the yields were approved in 2005. They highlight that Flint Hills witness Lieberman concedes he does not suggest anything has happened in the interim since 2005 that justifies changing the yields. Instead, he simply argues Opinion No. 481 erred by adopting the stipulated PIMS model generic coker yields rather than yields from a hypothetical coker unit specifically designed and operated to maximize liquid yields. Anadarko/Tesoro note Mr. Lieberman takes this position despite the circumstances that (i) a model coker unit specifically designed and operated to maximize liquid yields was not proposed in the Opinion No. 481 proceedings and (ii) the evidentiary record in the Opinion No. 481 proceedings indicated real world U.S. West Coast cokers were being operated to

maximize throughput rather than liquid yields. Anadarko/Tesoro submit Flint Hills/Petro Star have failed to satisfy their threshold burden to prove the current QB Methodology PIMS model coker yields are unjust/unreasonable on this basis alone.

66. Anadarko/Tesoro contend other Lieberman concessions are equally damning. They note he explained at hearing that the technology to maximize coker liquid yields as he proposes has been available since 1966. In addition, he stated the yield correlations he proposes were developed in the late 1970s. Anadarko/Tesoro therefore argue Flint Hills expressly admits the crucial premise for its understated coker yield allegation in this investigation was available at the time the Commission adopted the PIMS model yields for the QB Methodology in 2005. As a consequence, Flint Hills must concede the Lieberman model coker yields neither are based on changed circumstances nor constitute “new” evidence.

67. In addition, Anadarko/Tesoro claim Flint Hills witness Lieberman is not a credible expert. They first underscore that Mr. Lieberman conceded on cross-examination he is the sole “authority” on which the Lieberman model liquid yields are based. He also admitted he had done nothing to test those yields’ accuracy by comparing his modeled yields to actual U.S. West Coast coker yields, and in fact knew nothing about actual West Coast coker operating conditions or yields. He further admitted he was unaware of the American Society for Testing and Materials (ASTM) standards used throughout the petroleum industry to define the standards applied by petroleum processing engineers and specifically referenced in the Quality Bank tariffs. Anadarko/Tesoro emphasize Flint Hills was unable to offer any substantive support whatsoever for the Lieberman model “updated coker” yields, additionally emphasizing Mr. Lieberman confirmed his yields were derived by assuming an entirely new coker unit specifically designed and operated to maximize liquid yields rather than an “update” of the generic coker assumed in the QB Methodology’s PIMS model. They conclude their challenge to Mr. Lieberman’s credibility by noting he repeatedly recanted his previously sworn testimony/attempted to update information on cross-examination, contradicted himself, appeared to forget important details, and suddenly exhibited previously disclaimed expertise with the PIMS model in his pre-filed rebuttal testimony and at hearing.

68. Anadarko/Tesoro observe that despite his PIMS model liquid yield criticisms, Mr. Lieberman neither knew nor made any attempt to ascertain their source. This contrasts with Anadarko/Tesoro witness Graybill, who contacted the former Bechtel corporation employee who managed Bechtel’s PIMS group when the PIMS model yields first were developed in 1985. The former Bechtel manager confirmed the original PIMS yields were developed using a library of model units based on the best available process information. The manager also confirmed the PIMS model was updated several years later, again based on the best available process information. Thus, the generic/typical PIMS model coker yields adopted for the QB Methodology in Opinion No. 481 were grounded in the best information available to Bechtel, a corporation that designs and

constructs coker units worldwide. Anadarko/ Tesoro add that the record establishes coker yields have not changed materially since Opinion No. 481 adopted the PIMS model yields in 2005. They note Anadarko/Tesoro witness Graybill also examined U.S. West Coast coker yield data from the U.S. Energy Information Administration (EIA), which confirms this claim, as does other evidence concerning corresponding solid coke factors. Accordingly, the record demonstrates the generic/typical PIMS model coker yields adopted for the QB Methodology in Opinion No. 481 remain just and reasonable.

BPXA

69. BPXA maintains Flint Hills/Petro Star have failed to demonstrate any legitimate reason to question the QB Methodology's continuing justness/reasonableness. First, the Flint Hills/Petro Star assertion that the methodology must be "broken" because the Platts published price for ANS common stream crude oil often has been higher than the composite value of the Quality Bank cuts since late 2008 is based on an invalid comparison. BPXA points out that the QB Methodology-derived values for the Light Distillate, Heavy Distillate and Resid cuts each has been reduced by a 20% capital recovery factor through a processing cost adjustment. This stands in contrast to Platts's ANS common stream crude oil price, which reflects no processing cost adjustment(s). A valid comparison between the published Platts price and the Quality Bank composite valuation would have to begin by restoring the 20% capital recovery deductions to the Light Distillate, Heavy Distillate and Resid Quality Bank valuations. BPXA states ExxonMobil witness Toof demonstrated a dramatic drop in instances in which the published Platts ANS common stream crude price exceeded the Quality Bank composite valuation when the 20% capital recovery deductions were restored. In fact, he demonstrated the average differential has been a positive \$0.64/bbl. in the Quality Bank composite valuation's favor. BPXA adds that ExxonMobil witness Toof also demonstrated the Quality Bank composite valuation exceeded the published Platts ANS common stream crude price throughout 2012 and 2013 even without restoring the Light Distillate, Heavy Distillate and Resid capital recovery deductions.

70. BPXA next underscores that the Quality Bank cut valuations do not reflect the value added by additional downstream processing. BPXA notes the Quality Bank distillation cuts are "intermediate" products, most of which are further refined into more valuable "finished" products. While the Platts valuation for ANS common stream crude oil takes this additional processing into account, the "simple distillation" QB Methodology does not. Moreover, processing margins are volatile, and even complex refining marginal revenue can turn negative in the short-term. These disparities further demonstrate the Flint Hills/Petro Star assertion that the QB Methodology is "broken" because the Platts published price for ANS common stream crude oil has exceeded the composite value of the Quality Bank cuts is grounded in an invalid comparison.

71. In addition, BPXA challenges the Flint Hills/Petro Star assertion that the Platts published price for ANS common stream crude oil routinely exceeds Quality Bank composite cut value. BPXA maintains the values have, in fact, closely tracked one another since 2004. Relying on linear regression analyses performed by ExxonMobil witness Toof, BPXA argues the Quality Bank composite cut valuation and the Platts ANS common stream crude oil valuation moved in almost perfect lockstep (measured by correlation coefficient) for the entire period from January 2004 through May 2013—including the discrete January 2009 through 2013 period Flint Hills/Petro Star claim to demonstrate the QB Methodology has become dysfunctional. And even assuming the Quality Bank composite cut valuation fell below the Platts ANS common stream crude oil valuation on a consistent basis, BPXA maintains that circumstance alone would not prove either that (i) the Quality Bank's relative cut valuations were unjust/unreasonable or (ii) the Resid valuation was responsible for the differential. BPXA notes ExxonMobil witness Toof's analyses also confirm Resid's relative valuation among the other Quality Bank cuts remained constant throughout the period from January 2004 through May 2013. BPXA further notes Flint Hills performed no analysis on any other Quality Bank cut valuation(s) to determine/confirm whether the Resid valuation was in fact responsible for the composite cut undervaluation Flint Hills/Petro Star allege.

72. BPXA also argues Flint Hills/Petro Star have failed to prove the current QB Methodology is undervaluing Resid relative to the other Quality Bank cuts. Addressing Resid's FO-380 fuel oil blendstock value in general, BPXA submits any Flint Hills/Petro Star reliance on that value to demonstrate the Quality Bank undervalues Resid as a coker feedstock is fundamentally flawed. BPXA emphasizes the Commission repeatedly has determined the Quality Bank should value Resid as a coker feedstock rather than an FO-380 blendstock. Moreover, there has been no change in the FO-380 fuel oil market that warrants revisiting Resid's FO-380 blendstock value. To the contrary, the FO-380 market is demonstrably thinner now than it was when the Commission previously rejected it as an appropriate valuation benchmark—a circumstance BPXA criticizes Flint Hills/Petro Star at length for ignoring. BPXA emphasizes Flint Hills witness Miller conceded he made no attempt whatsoever to evaluate the current U.S. West Coast market for FO-380. In addition, Flint Hills witness Verleger conceded (i) he was completely unaware of any prior Commission or Court of Appeals rejections of FO-380 as a Resid valuation proxy product; (ii) he did not know whether any coking refiner anywhere—let alone on the U.S. West Coast—actually blends Resid to produce FO-380 fuel oil; (iii) he did not know whether any ANS Resid actually was being sold into the FO-380 blending market; and (iv) he did not know whether any U.S. West Coast coking refinery actually is capable of blending Resid as an alternative to coking it.

73. BPXA argues in addition that Flint Hills/Petro Star have failed to justify the specific values they impute to Resid as an FO-380 blendstock. It stresses the FO-380 blendstock value Flint Hills witness Verleger imputes to Resid is derived from a blending recipe developed by Flint Hills witness Miller. But Mr. Miller confirmed on cross-

examination he was unaware Mr. Verleger intended to use the blending recipe to derive an FO-380 blendstock market value for Resid, and the recipe could not legitimately be used for that purpose. Mr. Miller also confirmed he would not expect an actual U.S. West Coast coking refinery to blend Resid with Light Distillate or Heavy Distillate as Mr. Verleger did to derive his imputed blendstock values. Mr. Verleger, in turn, conceded he did not know what blends refiners actually use make FO-380 fuel oil. He also conceded his imputed blendstock values assumed a refiner concentrated exclusively on maximizing Resid's blendstock value, even though a real world refiner instead would attempt to optimize the value of its entire products slate. Re-focusing on Mr. Miller, BPXA adds that although he testified an accurate derived blendstock value for Resid would require fixed, capital and various other costs associated with the blending/marketing operations to be deducted, Mr. Verleger made no such deductions. Mr. Verleger similarly did not appropriately discount the 100% utilization factor Mr. Miller assumed. Finally, Mr. Verleger acknowledged there is no empirical way to test/confirm the value he imputes to Resid as an FO-380 blendstock. BPXA therefore submits Flint Hills/Petro Star have completely failed to support the value they assign to Resid as an FO-380 blendstock.

74. BPXA submits Flint Hills/Petro Star similarly have failed to support their follow-on reasoning that if (i) Resid's true value to refiners as a coker feedstock matches its Quality Bank valuation, and (ii) its FO-380 blendstock value were higher, as Flint Hills/Petro Star maintain, then (iii) U.S. West Coast coking refiners would divert ANS Resid from coking to blending until the values reached equilibrium. First, the premise that Resid's FO-380 blendstock value is what Flint Hills witness Verleger imputes to it has been discredited. Second, the reasoning relies on additional faulty assumptions: U.S. West Coast coking refiners could and would switch from coking to blending Resid. BPXA claims the record confirms U.S. West Coast coking refineries simply do not have the physical facilities (e.g., heated storage tanks, pipes, blending equipment) required to blend Resid as an alternative to coking it. The record also confirms the FO-380 fuel oil market is so thin that blending into FO-380 the 60,000 barrels/day of Resid the QB Methodology assumes would immediately overwhelm that market and cause the current price to collapse. It follows on BPXA's account that U.S. West Coast coking refiners have neither the capability nor any economic incentive to divert ANS Resid from coking to blending as Flint Hills/Petro Star suggest.

75. Turning to coker yields, BPXA states the QB Methodology's PIMS model coker liquid yields are intended to reflect the yields a typical U.S. West Coast coking refinery would achieve from coking ANS Resid. BPXA contrasts these yields with the yields Flint Hills witness Lieberman maintains a new "grass roots" coker unit specifically designed and operated to maximize liquid yields would achieve. BPXA offers the circumstance that a new hypothetical coker specifically designed and operated to maximize liquid yields might produce higher yields than the PIMS model coker does not establish the PIMS model yields are unjust/unreasonable. The fact remains that Flint

Hills/Petro Star have cited no changed circumstance(s) to justify substituting the Lieberman model coker/yields for the PIMS model coker/yields adopted by the Commission in Opinion No. 481. BPXA states Flint Hills/Petro Star instead simply claim the PIMS model yields were unjust/unreasonable when the Commission adopted them in 2005. Absent a showing of changed circumstances, however, this claim amounts to nothing more than a collateral attack on Opinion No. 481.

76. Finally, BPXA dismisses as speculation Flint Hills witness Verleger's contention that a permanent shift in the Resid coking market essentially has stranded U.S. West Coast coker unit investment, rendering it unjust/unreasonable to continue to include a capital investment return in the processing cost adjustment. BPXA submits substantial record evidence of continuing U.S. West Coast coker unit investment and profitability belie any such contention.

ConocoPhillips

77. ConocoPhillips first argues Flint Hills/Petro Star have failed to prove the existing QB Methodology Resid valuation is unjust/unreasonable because they apply meaningless tests. It submits Flint Hills witness Verleger's essential premise that the Quality Bank composite distillation cut valuation is essentially an estimate of ANS crude oil gross product worth to a U.S. West Coast coking refinery is simply wrong. ConocoPhillips emphasizes the composite cut valuation merely represents the combined values of nine (9) intermediate products made from simple distillation—i.e. before coking or any further processing. The simple distillation “refinery” the QB Methodology assumes does not incorporate the advanced processing equipment a real world coking refinery would include. The QB Methodology therefore could not possibly calculate ANS crude oil gross product worth to such a refinery. ConocoPhillips highlights Flint Hills witness Verleger nevertheless insisted in both his rebuttal testimony and on cross-examination that the QB Methodology was intended to capture/reflect the value contributed by coking and other post-distillation processing, clearly demonstrating he fundamentally misunderstands the methodology. ConocoPhillips therefore submits Mr. Verleger's claim that the QB Methodology is “broken” because its composite cut valuation does not accurately reflect ANS crude oil gross product worth must be rejected because it is grounded in misunderstanding.

78. ConocoPhillips further explains the QB Methodology is intended to assign accurate *relative* values among the various ANS crude oil streams rather than accurate *absolute* market values as Flint Hills witness Verleger wrongly assumes. So long as the methodology accurately determines one crude stream is worth \$2/bbl. more than another, for example, it does not matter whether the methodology values the comparative streams at \$50/bbl. and \$48/bbl., at \$75/bbl. and \$73/bbl. or at \$100/bbl. and \$98/bbl. Only the \$2/bbl. differential matters. But Mr. Verleger performed no relative value analysis. It follows on ConocoPhillips's account that even if he were correct in concluding the QB

Methodology understates the absolute value of the reference ANS common stream crude oil, that circumstance alone would prove nothing about the other ANS crude stream values relative to the ANS common stream crude and, by extension, to one another. ConocoPhillips concedes the Quality Bank nine (9) cut composite valuation likely falls below the absolute market value of ANS common stream crude oil, but only because (i) the Quality Bank composite cut valuation never was intended to reflect the absolute market value of ANS common stream crude, and (ii) the Quality Bank composite cut valuation is calculated using intermediate products made by simple distillation rather than the finished products more complex refining would produce. More important, however, *OXY* simply does not require the QB Methodology to derive accurate absolute values for the Quality Bank distillation cuts/ANS crude oil streams. *OXY* only requires the methodology to value the distillation cuts/ANS crude streams on a consistent basis and to the same degrees of relative accuracy. It follows that Flint Hills witness Verleger's reliance on the circumstance that the Quality Bank composite distillation cut valuation falls below the ANS common stream's absolute market value to infer the QB Methodology is "broken" is completely misplaced.

79. ConocoPhillips next challenges the Flint Hills/Petro Star follow-on conclusion that the (discredited) claim that the QB Methodology undervalues ANS common stream crude oil is attributable to the Resid valuation formula. ConocoPhillips first stresses Flint Hills witness Verleger considered no other potential explanation for the claimed undervaluation. Instead, he focused exclusively on the Resid valuation, confining his analysis exclusively to a number of comparisons between the QB Methodology Resid valuation and an alternative value he calculated/imputed to Resid as an FO-380 fuel oil blendstock. ConocoPhillips criticizes Mr. Verleger's analysis on numerous grounds: (1) both the Commission and the D.C. Circuit Court of Appeals have rejected using FO-380 as a Resid valuation proxy for Quality Bank purposes; (2) Flint Hills witness Miller indicated the FO-380 blendstock recipes Mr. Verleger assumed, and the FO-380 blendstock values he calculated/imputed to Resid based on those recipes, are illegitimate; (3) Mr. Verleger did not deduct fixed, capital and various other costs associated with FO-380 blending/marketing even though Mr. Miller indicated those deductions were required; (4) FO-380 fuel oil constitutes a shrinking niche market not reasonably accessible to U.S. West Coast coking refiners; and (5) the record contradicts Mr. Verleger's assumptions that U.S. West Coast coking refiners could and would switch from coking to blending Resid if the FO-380 blending value exceeded the coking value.

80. Turning to the Flint Hills/Petro Star contention that "changed circumstances" in U.S. West Coast refining markets have rendered it unjust/unreasonable to continue to include capital investment in the Resid processing cost adjustment, ConocoPhillips argues none of the three (3) circumstances Flint Hills witness Verleger alleges is legitimate either. It first challenges Mr. Verleger's claim that a post-2005 permanent decline in petroleum product demand, exacerbated by what he calls the 2009 "Global Economic Collapse", has rendered U.S. West Coast coking capital investment

uneconomic. ConocoPhillips maintains this claim is completely unsupported, noting Mr. Verleger (i) failed to provide any evidence concerning actual West Coast coking refinery margins, (ii) admitted he did not know whether West Coast cokers actually were earning returns on/of capital investment, and (iii) could point to no empirical data supporting his assertion that coking has become less profitable than it was when the Commission issued Opinion No. 481 in 2005. According to ConocoPhillips, the record actually establishes that while refining margins generally declined in 2009, U.S. West Coast refining margins never went negative (including during Mr. Verleger's "Global Economic Collapse"), and had completely rebounded by 2013. It dismisses Mr. Verleger's emphasis on BP's 2012 sale of its Carson, California refinery (plus approximately 800 retail gas stations throughout the Southwest) as mischaracterizing a distress sale BP was compelled to make to pay Gulf of Mexico Deepwater Horizon oil spill liabilities. Further, ConocoPhillips says the indirect metrics Mr. Verleger cites for support actually demonstrate U.S. West Coast coking profitability has increased since the 2009 timeframe in which he alleges it became unjust/ unreasonable to include coker unit capital investment in the Resid processing cost adjustment. ConocoPhillips states Mr. Verleger's own data show West Coast coking capacity has not declined since 2000, and other record evidence confirms significant recent capital investments in both U.S. West Coast and global coking capacity. Mr. Verleger's own data also contradict his contention that excess West Coast coking capacity is demonstrated by reduced coker utilization rates. Instead, his data confirm the 2011 West Coast coker utilization rate essentially matched the 2004 and 2005 utilization rates. 2012 and 2013 data confirm even higher coker utilization rates. Last, the record contradicts Mr. Verleger's claim that coker unit value declined after 2004/2005 because the heavier crude oil slates coking refiners expected at the time never materialized. ConocoPhillips notes the PADD V crude oil slate has measured progressively heavier each year since 2007. In sum, ConocoPhillips submits Flint Hills/Petro Star have established no basis on which to exclude coker unit capital investment from the Resid processing cost adjustment.

81. ConocoPhillips vigorously contests the legitimacy of Flint Hills witness Verleger's second "changed circumstance" allegedly rendering U.S. West Coast coking capital investment uneconomic: significant supplies of a light crude oil produced in North Dakota (Bakken). Although ConocoPhillips acknowledges some Bakken crude oil is now making its way to the U.S. West Coast, it emphasizes the record confirms no Bakken crude whatsoever was delivered to the West Coast until 2012—a full three (3) years after Mr. Verleger claims West Coast cokers lost their economic value. And only minimal amounts of Bakken crude are being delivered to the West Coast even today. ConocoPhillips therefore argues Bakken's ultimate impact on West Coast refiners remains completely speculative/prospective—and certainly insufficient to conclude Bakken crude has/will displace(d) heavier crudes like ANS that require coking. To the contrary, the record indicates Bakken crude would displace other light crudes currently being imported to the U.S. West Coast, which are processed in cracking refineries rather than coking refineries.

82. ConocoPhillips challenges the legitimacy of Flint Hills witness Verleger's third alleged "changed circumstance" on similar grounds. It emphasizes California's Low Carbon Fuel Standard (LCFS) just went into effect—once again, years after Mr. Verleger claims West Coast cokers lost their economic value. And once again, LCFS's ultimate impact on West Coast refiners currently is unknown/speculative. More important in ConocoPhillips's view, Mr. Verleger presented no evidence LCFS will have any greater impact on coking than it will have on refining in general. ConocoPhillips underscores the issue in this investigation is whether the QB Methodology undervalues Resid relative to the other Quality Bank cuts. If LCFS increases the price of every refined product, thereby reducing demand for every refined product, that circumstance would provide no basis to conclude Resid is undervalued compared to the other Quality Bank cuts. ConocoPhillips dismisses Mr. Verleger's contention that LCFS is a greater threat to coking refinery viability, noting the record indicates complex high-conversion refineries—i.e. refineries with coking capability—will be economically less susceptible to LCFS-induced closures.

83. Shifting briefly to affirmative argument, ConocoPhillips submits that sound economic principles support continuing to include coker unit capital investment in the Resid processing cost adjustment. It maintains the record in this investigation confirms the axiom that over time a product's market price will reflect the full costs of producing and processing it plus a reasonable return on any underlying capital investment. This stands in stark contrast to the Flint Hills/Petro Star contention that once made, coker unit capital investment is a sunk cost that does not influence Resid's coker feedstock value to refiners unless Resid supply exceeds available coking capacity. ConocoPhillips contends the QB Methodology employs a reasonable long-term approach to capital investment return, again contrasting this approach with the Flint Hills/Petro Star proposal to completely and permanently exclude any capital investment component from the Resid processing cost adjustment regardless of actual market conditions. ConocoPhillips reiterates the record here establishes actual market conditions never have prevented U.S. West Coast coking refineries from earning at least some return on capital investment—even during the "Global Economic Collapse" Flint Hills/Petro Star emphasize.

84. Insofar as QB Methodology coker yields are concerned, ConocoPhillips underscores that PIMS is a standard, commercially available model representing an objective source of coker yield data. It submits the reason the PIMS model yields were stipulated/adopted in Opinion No. 481 is the PIMS yields reflected what a typical/generic U.S. West Coast coker unit would produce, thereby minimizing disagreements over what specific coker design/yields the QB Methodology should assume. It also notes the record in this investigation confirms the PIMS model yields reasonably represent what a typical West Coast refinery could achieve from coking ANS Resid.

85. ConocoPhillips contends Flint Hills/Petro Star present conflicting arguments to support their position that the PIMS model yields are unjust/unreasonable. On the one hand, Flint Hills witness Verleger asserts conditions have changed since the PIMS model yields were adopted in 2005, and also that “updating” the hypothetical coker unit the QB Methodology currently assumes would produce a more valuable slate of coker yields without implicating additional capital investment or operating costs. Conversely, Flint Hills witness Lieberman maintains it simply was wrong for the Commission to adopt the PIMS model/yields in 2005, and that appropriate yields could be achieved only by an alternative “grass roots” coker specifically modeled and operated to maximize liquid yields. ConocoPhillips argues Mr. Verleger’s position necessarily must be rejected because (i) it presumes incompatible Lieberman model coker yields and (ii) Mr. Lieberman disclaims any “changed circumstances” since 2005. Moreover, the Lieberman model itself exhibits various deficiencies, including imprecise ANS Resid feedstock parameters and unsubstantiated coker unit operating parameters (drum pressure, recycle ratio, outlet temperature).

ExxonMobil

86. ExxonMobil submits Flint Hills/Petro Star have not demonstrated either that the current QB Methodology is broken or that any changed circumstance justifies altering the way the Quality Bank values the Resid cut. ExxonMobil notes the Flint Hills/Petro Star claim that the current QB Methodology is “broken” relies exclusively on Flint Hills witness Verleger, who presents a series of analyses purporting to demonstrate the methodology undervalues Resid. Specifically, Mr. Verleger argues the QB Methodology clearly has become dysfunctional because it no longer produces a positive “margin” in comparison to the Platts published price assessment for ANS common stream crude oil. He further concludes the dysfunction is rooted in the methodology’s Resid valuation, basing his conclusion on an analysis ostensibly demonstrating the Quality Bank Resid valuation has been lower than the U.S. West Coast value he calculates for Resid as an FO-380 fuel oil blendstock since 2009. ExxonMobil maintains: (1) Mr. Verleger’s analyses are based on the wrong standard; (2) his comparison between the Quality Bank composite cut valuation and the Platts published price assessment for ANS common stream crude oil is meaningless; and (3) his claim that the Quality Bank undervalues Resid in comparison to its FO-380 blendstock value is seriously flawed.

87. ExxonMobil repeats its Issue I position that the “just and reasonable” standard requires the QB Methodology to assign accurate *relative values* among the various Quality Bank cuts/ANS crude oil streams. It emphasizes the methodology is not intended to determine the *actual values* of the cuts or streams. ExxonMobil contends Flint Hills witness Verleger neither considered nor adhered to this fundamental principle. Instead, his entire analysis is premised on an erroneous assumption that the Quality Bank nine (9) cut composite valuation is intended to represent the actual aggregate market value of the cuts. He therefore reasons the Quality Bank composite (distillation) cut valuation should

be uniformly higher than the Platts published price for (unprocessed) ANS common stream crude oil. Comparing the two leads him to conclude the QB Methodology has “undervalued” ANS common stream crude since 2009—a circumstance he attributes exclusively to the Resid cut. But ExxonMobil observes Mr. Verleger’s analysis provides no information about the Resid valuation relative to the other Quality Bank cuts. This is significant in ExxonMobil’s view because the record indicates Resid’s proportionate share of the composite cut valuation has remained relatively constant since 2004.

88. ExxonMobil next argues the circumstance that the Quality Bank composite cut valuation produced, on average, a positive “margin” in comparison to the Platts published price assessment for ANS common stream crude oil from 2004 through 2008, but a negative “margin” from 2009 to 2013 is meaningless. As an initial matter, ExxonMobil emphasizes Mr. Verleger simply assumed his 2004 through 2008 reference period reflected normal baseline conditions. He made no effort to determine whether the 2004 through 2008 period or the 2009 to 2013 period more accurately represented the long-term relationship between the Quality Bank composite cut valuation and the Platts ANS common stream price assessment. Moreover, contrary to Mr. Verleger’s assumption, ExxonMobil maintains the record suggests 2004 through 2008 was a period of abnormally high refinery profits. It adds that Mr. Verleger also acknowledged the 2004 through 2008 relationship he used as his benchmark was not uniform throughout the period. Instead, it is an average of three (3) distinct sub-periods. ExxonMobil therefore challenges the validity of Mr. Verleger’s 2004 through 2008 benchmark period. Further, the circumstance that the Quality Bank composite cut valuation often produced negative “margins” when compared to the Platts ANS common stream price assessment from 2009 to 2013 is unsurprising in any event on ExxonMobil’s account. The QB Methodology assumes a completely hypothetical “simple distillation” refinery. The record confirms there are no such refineries operating on the U.S. West Coast, presumably because simple distillation is not economically viable. The Platts ANS common stream price assessment is often higher than the Quality Bank composite cut valuation because the Platts assessment reflects more complex refining. ExxonMobil notes in addition that Mr. Verleger himself emphasizes the 2009 to 2013 period on which he focuses was heavily influenced by the Great Recession—which he calls a “Global Economic Collapse”. Moreover, the negative “margins” he highlights over that period have more recently dissipated, further undercutting his claim that a permanent shift rendering the QB Methodology dysfunctional has occurred. ExxonMobil adds that Mr. Verleger’s “calculated QB refining margin” completely fails to account for the fact that a large percentage of the capital recovery factor included in the QB Methodology processing cost adjustments for the Light Distillate, Heavy Distillate and Resid cuts represents return on capital—i.e. profit. It states the record establishes Mr. Verleger’s 2009 to 2013 average negative “margin” disappears when these costs properly are taken into account. In conclusion, ExxonMobil emphasizes Mr. Verleger conceded his comparison at best indicates *something* is wrong with the QB Methodology. It does not establish the Resid cut valuation is responsible.

89. ExxonMobil submits the principal (arguably sole) basis on which Mr. Verleger relies to establish the Resid valuation is responsible for the disparity his comparative margin analysis implies is a second comparative analysis between the QB Methodology's Resid valuation as a coker feedstock and a value he imputes to Resid as an FO-380 fuel oil blendstock. ExxonMobil stresses it is undisputed Mr. Verleger's FO-380 blendstock value is not a reported market price. Instead, it is a value he computed using an FO-380 blending recipe created by Flint Hills witness Miller. ExxonMobil asserts Mr. Verleger's FO-380 blendstock analysis is seriously flawed on multiple grounds. First, it runs contrary to prior Commission and D.C. Circuit Court of Appeals determinations specifically rejecting FO-380 as a legitimate Resid valuation proxy for Quality Bank purposes. Second, both Mr. Verleger and Mr. Miller admitted on cross-examination they neither consulted with one another nor reviewed each other's pre-filed testimony. As a consequence, Mr. Verleger was unaware Mr. Miller's FO-380 blending recipe assumed a Light Distillate or Heavy Distillate blendstock rather than Resid. He also ignored the blending operation costs Mr. Miller calculated. Third, Mr. Verleger made no attempt to confirm his base assumptions that (i) there is an active market for Resid as an FO-380 blendstock on the U.S. West Coast and (ii) West Coast coking refineries have the capability to blend Resid as an alternative to coking it. ExxonMobil maintains the record belies both assumptions, noting Mr. Miller's underlying calculations rely on a number of unsubstantiated assumptions as well. Fourth, Mr. Verleger completely disregarded the impacts introducing significant additional volumes of FO-380 into the West Coast market would produce. ExxonMobil submits the record establishes the U.S. West Coast FO-380 market is small and declining. Introducing significant additional supply therefore would cause the Platts FO-380 price assessment on which Mr. Verleger relies to plummet. As a final point, ExxonMobil suggests the fact that neither Flint Hills nor Petro Star has made any attempt to take advantage of Resid's alleged attractiveness as an FO-380 blendstock confirms Mr. Verleger's analysis is untenable. In sum, Flint Hills/Petro Star utterly have failed to satisfy their burden to prove the QB Methodology undervalues Resid.

90. Flint Hills/Petro Star similarly have failed to satisfy the "changed circumstances" requirement on ExxonMobil's account. ExxonMobil dismisses any assertion there has been a "permanent shift" in the economics of coking Resid on the U.S. West Coast. It contends Flint Hills witness Verleger at most illustrates petroleum market volatility, and such volatility is neither new nor evidence of any permanent shift. To the contrary, the record indicates petroleum markets are volatile/cyclical by nature. ExxonMobil acknowledges West Coast market volatility was exacerbated and demand suppressed by the 2008-2009 Great Recession, but adds the record shows the demand for light petroleum products has since increased and is expected to continue to improve along with the broader economy. More important, the QB Methodology is specifically designed to self-adjust to market changes: it employs constantly updated petroleum product prices and annually adjusts to production cost changes in accordance with the Nelson Farrar operating cost index.

91. ExxonMobil next disputes Mr. Verleger's claim that West Coast cokers have become uneconomic. First, his own testimony confirms West Coast coking capacity has remained constant over the last 15 years. This circumstance undermines any suggestion West Coast cokers have lost value due to overbuilding since Opinion No. 481 was issued in 2005. Mr. Verleger's own data similarly undermine his claim that West Coast coker utilization rates demonstrate excess coking capacity. ExxonMobil observes the data reflect a pre-Great Recession (i.e. 2004 to 2008) average utilization rate only 2% higher than the depths of recession 2009 to 2011 average utilization rate. And the record confirms post-2011 utilization rates exceed both the 2004 to 2008 average rate and the rate Opinion No. 481 adopted for the QB Methodology. ExxonMobil also notes the Platts netback data on which Mr. Verleger relied for other purposes show West Coast cokers were profitable over the entire period from 2009 to 2013, adding Mr. Verleger conceded on cross-examination that his own evidence indicated West Coast cokers generally were profitable. ExxonMobil rejects Mr. Verleger's claim that cokers have lost their value because the West Coast crude slate has become lighter as completely at odds with the evidence. In fact, the record proves the West Coast crude slate has become progressively heavier every year since 2007—rendering West Coast coker units more valuable rather than less so. Finally, ExxonMobil dismisses as sheer speculation Mr. Verleger's claims that a predicted influx of light Bakken crude oil and the California LCFS reasonably may be anticipated to devalue West Coast cokers. It first underscores Mr. Verleger's oft-repeated tenets that “there are no facts about the future” and “all forecasts are wrong” to question the wisdom of modifying a QB Methodology forged through many years of litigation based on market predictions. More important, ExxonMobil argues Mr. Verleger simply provided no support for any of his claims/predictions that (i) there has been a permanent shift in West Coast refining markets, (ii) Bakken crude will displace ANS crude, stranding West Coast coking capacity, or (iii) California's LCFS will render West Coast cokers superfluous. For example, on cross-examination Mr. Verleger could point to nothing in the materials he provided that actually stated the described market conditions were or were expected to be permanent. Neither did he provide any support for his prediction light Bakken crude will displace heavy ANS crude on the West Coast. Indeed, the record indicates Bakken crude would displace higher-priced light crudes currently being imported to the West Coast, which would have absolutely no impact on ANS crude or West Coast coker utilization. The record also suggests the California LCFS will have a more severe negative financial impact on simpler refineries lacking coking capability than it will have on the more complex refineries with cokers. Accordingly, ExxonMobil argues Flint Hills/Petro Star have failed to satisfy their burden to prove “changed circumstances” establish the QB Methodology no longer is just and reasonable insofar as it includes a coker unit capital allowance in the Resid processing cost adjustment.

92. ExxonMobil argues Flint Hills/Petro Star also have failed to satisfy their burden to prove the PIMS model coker yields Opinion No. 481 adopted for the QB Methodology

are unjust/unreasonable. In ExxonMobil's narrative: (1) the PIMS model yields were just and reasonable when adopted in 2005; (2) Flint Hills/Petro Star have demonstrated no "changed circumstances" nor presented any "new evidence" that justifies replacing the PIMS model yields; and (3) the Lieberman model yields Flint Hills/Petro Star advocate are inadequately supported. ExxonMobil emphasizes the PIMS model yields were selected and stipulated for Quality Bank purposes in the Opinion No. 481 proceedings specifically because the PIMS model is widely used by refiners to simulate coker unit operations and PIMS model data provide a generally accepted/commercially available basis for estimating coker yields. It notes the record confirms Flint Hills witness Lieberman independently reviewed the PIMS model yields and concluded they were typical of the yields historically produced by U.S. West Coast cokers. This contrasts with his alternative model coker unit, operating parameters and yields, which Mr. Lieberman concedes (and the record confirms) are not typical of actual West Coast coking operations. In addition, Mr. Lieberman admitted his opposition to valuing Resid for Quality Bank purposes based on PIMS model yields is not grounded in any "changed circumstances". It is based solely on his opinion that it was inappropriate for the Commission to adopt the PIMS model yields in the first place—i.e. in 2005 via Opinion No. 481. Mr. Lieberman further confirmed the alternative coker unit and yields he modeled here are based on information/technology existing and available at the time the proceedings culminating in Opinion No. 481 were conducted. This establishes the Lieberman model coker and yields do not satisfy the "new evidence" requirement in ExxonMobil's view.

93. ExxonMobil observes several refining industry experts testified in this investigation that the PIMS model yields remain appropriate for Quality Bank Resid valuation purposes. The bases for their conclusions include the circumstances that (i) the PIMS model currently is so widely used throughout the refining industry that fully three fourths (3/4) of the world's refinery feedstock is planned with it; (ii) West Coast cokers have not changed their operations in the interim since 2005; and (iii) the relative percentages of liquid to solid yields produced by West Coast cokers have remained constant in the interim since 2005. In contrast, the Lieberman model yields are based exclusively on Mr. Lieberman's own proprietary data and his 1960s work experience with Amoco. ExxonMobil emphasizes that in addition to having no other support, the Lieberman model yields are inconsistent with several authoritative sources. Among these is the industry handbook *Petroleum Refining Technology and Economics*—particularly noteworthy in ExxonMobil's view because the Opinion No. 481 proceedings extensively relied on it. ExxonMobil underscores that in addition to being inconsistent with the Lieberman model yields, the yields presented in the handbook and other authoritative sources square with the PIMS model yields.

94. ExxonMobil dismisses Mr. Lieberman's contention that his model liquid yields are appropriately higher than PIMS model yields because, unlike the PIMS typical/generic coker unit, the Lieberman model unit produces the yields a modern coker

designed and operated to optimize liquid yields would produce. Not only is this contention completely subjective and myopic in its assumption that a complex refinery would seek to optimize coker liquid yields rather than its entire product slate, the record indicates the Lieberman model liquid yields would be of a quality requiring significant and costly additional processing. And while the Lieberman model assumes replacing the PIMS model coker with a completely new coker specifically designed/built to optimize liquid yields, Flint Hills/Petro Star concurrently argue it is unjust/unreasonable to include any coker unit capital allowance whatsoever in the Resid processing cost adjustment. In addition, Mr. Lieberman admitted his yields are derived at least in part from feedstock that does not satisfy the 1050+ degree Fahrenheit boiling point the Quality Bank uses to define the Resid cut. Employing a lighter feedstock than the QB Methodology assumes (i) is fundamentally inconsistent with the methodology's distillation cut parameters and (ii) produces higher liquid yields than 1050+ degree boiling point feedstock would produce. These deficiencies alone establish the Lieberman model yields are not appropriate to value the Resid cut for Quality Bank purposes on ExxonMobil's account.

TAPS Carriers

95. TAPS Carriers take no position on this issue.

Trial Staff

96. Trial Staff summarizes the central premise of the Flint Hill/Petro Star position in this investigation as: the QB Methodology should be adjusted to reflect how U.S. West Coast refiners actually value ANS Resid. It states Flint Hills witness Verleger's QB Methodology criticisms and proposed remedies actually are grounded in his subjective interpretation of basic economic principles and his disagreement with prior Commission decisions rather than any changed circumstances. Nevertheless, Mr. Verleger casts his contention that the capital investment allowance should be eliminated from the Resid processing cost adjustment as the rational economic response to three (3) alleged changed circumstances: (i) excess West Coast coker capacity, evidenced by reduced coker utilization rates; (ii) an absence of new coker investment; and (iii) severely depressed refining asset values. Trial Staff maintains these alleged changed circumstances are specious.

97. First, the record demonstrates coker utilization/capacity rates have not fallen materially below historical levels or the 87% utilization rate adopted in Opinion No. 481. Trial Staff acknowledges West Coast coker utilization rates fell somewhat below historical levels from 2007 to 2010, but says the record confirms the rate had rebounded to 87% by 2011 and stands at 91% today. It adds Mr. Verleger admits U.S. West Coast coking capacity has not declined since Opinion No. 481 was issued in 2005, and that worldwide coking capacity has increased. In sum, contrary to Mr. Verleger's allegation, the record establishes U.S. West Coast coking capacity and utilization rates currently

equal or exceed what they were in the 2004 to 2009 period Mr. Verleger uses as his just and reasonable Resid valuation benchmark. Second, it is irrelevant in Trial Staff's view whether any additional coker capacity currently is being built on the U.S. West Coast. Mr. Verleger's claim that such construction is prerequisite to any existing coker unit owner's expectation of a return of/on capital investment is completely unsupported. And in any event, the record confirms West Coast refiners continue to make substantial capital investments in coking capacity—as do refiners around the world. Trial Staff notes Mr. Verleger himself agrees a capital investment allowance is appropriate if coking capacity is being built. He also concedes West Coast cokers currently are realizing both a return of and on their capital investments. Third, the record establishes that while U.S. West Coast coking margins varied widely over the period from 2004 through 2013, they were never negative. In fact, West Coast average annual coking margins always exceeded \$8.00/bbl. and were as high as \$15.00/bbl. This belies Mr. Verleger's (again unsupported) contention that West Coast cokers have lost value because they are unprofitable. Trial Staff underscores Mr. Verleger ultimately conceded their profitability on cross-examination. It follows on Trial Staff's account that Mr. Verleger is just plain wrong. U.S. West Coast coker economics have not changed in any way since Opinion No. 481 was issued that warrants eliminating the capital investment allowance from the Resid processing cost adjustment.

98. Trial Staff submits the fatal error in Mr. Verleger's Resid relative pricing analysis is his mistaken fundamental premise that the QB Methodology essentially estimates ANS crude oil's gross product worth. It explains the QB Methodology instead is intended to assign accurate *relative* values among the various ANS crude oil streams rather than the gross market values Mr. Verleger assumes. Trial Staff emphasizes the QB Methodology composite cut valuation employs a simplified distillation approach that does not account for the complex processing a typical West Coast refinery would perform. This additional processing adds significant value not reflected in Mr. Verleger's comparative analysis. His conclusion that the QB Methodology has been undervaluing ANS crudes because the Platts published price for ANS common stream crude oil often has been higher than the Quality Bank composite cut valuation therefore is based on an invalid comparison. Moreover, Trial Staff notes linear regression analyses performed by ExxonMobil witness Toof indicate the Quality Bank composite cut valuation and the Platts ANS common stream valuation moved in almost perfect lockstep (measured by correlation coefficient) for the entire period from January 2004 through May 2013—including the January 2009 through 2013 period Mr. Verleger claims the QB Methodology was dysfunctional. This constant correlation undercuts Mr. Verleger's contention that the January 2009 through 2013 period establishes changed circumstances. It also demonstrates a rational relationship between the Quality Bank composite cut valuation and the Platts ANS common stream valuation.

99. Trial Staff reiterates what it describes as the "bedrock" *OXY* and *Exxon* requirement that the QB Methodology must calculate accurate relative values among the

ANS crude streams. This requirement necessarily implies accurate relative valuations among the Quality Bank distillation cuts. Trial Staff underscores, however, that Mr. Verleger proposes to eliminate the capital investment allowance only from the Resid processing cost adjustment. He does not propose to eliminate similar capital investment allowances from either the Light Distillate or the Heavy Distillate processing cost adjustments. Even assuming the resulting Resid valuation were accurate, Trial Staff argues both the Light Distillate and Heavy Distillate valuations relative to Resid would be rendered inaccurate. Moreover, the valuation methodology among the cuts would be inconsistent. This relative inaccuracy/methodological inconsistency would violate *OXY* and *Exxon*.

100. Expanding on the preceding problem, Trial Staff pointedly argues Flint Hills witness Verleger's testimony demonstrates little/no credibility in other respects as well. Trial Staff emphasizes this investigation is only the latest in a decades-long series of TAPS Quality Bank proceedings. This long series of Quality Bank disputes has produced many Initial Decisions, Commission opinions/orders and appellate court decisions—all of which established important precedent. In Trial Staff's view, a thorough familiarity with/understanding of that precedent was critical to developing/presenting legitimate opinions and positions in this case. It laments, however, that the record in this investigation—initiated in specific response to a (dismissed) Flint Hills complaint—is replete with confirmation that Mr. Verleger—Flint Hills's primary expert—was completely unfamiliar with both the relevant precedent and the other Flint Hills expert testimony on which he ostensibly relied. Trial Staff cites multiple examples where Mr. Verleger was compelled on cross-examination expressly to admit (i) his understanding of/testimony concerning relevant authority—including Opinion No. 481 and the underlying Initial Decision—came exclusively from Flint Hills counsel; (ii) he did not correctly understand essential fundamentals of the QB Methodology, including its “simple distillation” assumption and how the processing cost adjustment operates; and (iii) he fundamentally misunderstood (or ignored) crucial elements of the Flint Hills witness Miller and Lieberman evidentiary presentations on which he premised his own analyses.

101. Turning to Flint Hill witness Lieberman, Trial Staff contends Flint Hills/Petro Star failed to satisfy their burden to justify changing the existing QB Methodology coker yields. Trial Staff notes the current PIMS model coker/yields were stipulated among all parties in the Opinion No. 481 proceedings. It states Mr. Lieberman's basic proposition here is the typical/generic PIMS model coker unit the QB Methodology continues to assume should be replaced with a new unit specifically designed, built and operated to optimize liquid yields. There are two (2) fundamental problems with this approach on Trial Staff's account. First, Flint Hills/Petro Star failed to establish any “changed circumstance” to justify abandoning the stipulated PIMS model coker/yields adopted in Opinion No. 481. Mr. Lieberman simply argues the Commission should have adopted the model coker/yields he advocates here when it issued Opinion No. 481 in 2005.

Second, Flint Hills/Petro Star failed to present any evidence the current PIMS model coker/yields are unjust or unreasonable. Trial Staff submits there was ample evidence the the PIMS model coker/yields were just and reasonable in 2005, and there is no evidence the PIMS model yields since have become atypical or unreasonable insofar as West Coast cokers are concerned. To the contrary, the record in this proceeding establishes West Coast cokers are achieving yields consistent with the PIMS model rather than the Lieberman model. In addition, the Lieberman model assumes design conditions and processing objectives the record indicates are inconsistent with actual West Coast refining operations. Trial Staff maintains there is no empirical support whatsoever for the Lieberman model yields. It adds Mr. Lieberman himself concedes the yields he derived cannot be achieved from his alternate model coker unit processing ANS Resid as prescribed by the 1050+ degree Fahrenheit cut point Quality Bank definition.

102. Trial Staff emphasizes Mr. Lieberman concedes the coker unit technology his model assumes has not changed significantly since 1967. He more specifically concedes the technology to maximize coker liquid yields existed when the PIMS model yields first were proposed to the Commission for Quality Bank purposes in 1997, and could have been offered as an alternative at that time or in the interim between 1997 and 2005. He also concedes he did not propose his model in this investigation in reaction to any changed circumstance(s) arising in the interim between 2005 and November 15, 2013. Instead, it is his expert opinion that the PIMS model coker yields were unjust/unreasonable when Opinion No. 481 first adopted them for Quality Bank purposes in 2005. Trial Staff submits these concessions conclusively establish the Flint Hills/Petro Star position that the PIMS model yields are unjust/unreasonable amounts to nothing more than a collateral attack on Opinion No. 481. This circumstance alone demonstrates they have not satisfied their threshold burden to prove the PIMS model/yields are unjust/unreasonable.

103. The preceding point notwithstanding, Trial Staff argues the record in this investigation clearly establishes the PIMS model/yields were just and reasonable when adopted in 2005 and remain so today. It notes real world cokers vary widely in configuration, operating parameters, feedstock handling capabilities and potential product slates. Accordingly, every real world coker will produce a relatively unique set of yields. The Quality Bank coker, in contrast, is assumed to be a typical U.S. West Coast coker producing typical ANS Resid yields. In contrast to the Lieberman model coker, the basic PIMS model coker is a generic/typical unit generating typical yields. It therefore was an appropriate model for the Commission to adopt for the QB Methodology to use to estimate typical yields for a West Coast coker processing ANS Resid. Trial Staff emphasizes PIMS was/remains a standard, commercially available computer model used throughout the petroleum industry to simulate refinery operations, noting PIMS model yields were/are based on the best available information. It further emphasizes all this information was before Commission in the Opinion No. 481 proceedings. Trial Staff dismisses the Flint Hills suggestion that the PIMS baseline coker yields are “for

demonstration purposes only” as inconsistent with the evidence, including Mr. Lieberman’s own testimony. It further underscores Mr. Lieberman not only admits he is the sole “authority” for his proposed yields, he admits he has no empirical evidence or personal knowledge concerning current U.S. West Coast coker operations or yields to confirm them. It follows that Flint Hills/Petro Star have demonstrated no basis to conclude the PIMS model coker yields were not just and reasonable when Opinion No. 481 adopted them in 2005 or that they do not remain so today.

104. Trial Staff concludes with the observation that in contrast to the PIMS model coker/yields, the Lieberman model coker/yields are demonstrably unrepresentative of actual West Coast coking operations. The record indicates the Lieberman model coker unit design conditions (15 psig, 1.04 recycle ratio, 835 degree Fahrenheit coke drum vapor outlet temperature) are not typical for West Coast cokers. Neither is Mr. Lieberman’s assumption West Coast cokers are operated to optimize liquid yields rather than to maximize Resid feedstock throughput. Last, Trial Staff observes Mr. Lieberman derives his liquid yields from feedstock that does not satisfy the Quality Bank definition of Resid as material with a 1050+ degree Fahrenheit boiling point.

Analysis

Background Reprise

105. The participants tend to blur the distinction, so it is essential to bear in mind the QB Methodology relies on two (2) discrete but interrelated valuations. The first is the relative valuation of each Quality Bank distillation cut *within* each ANS crude oil stream vis-à-vis the other eight (8) cuts. The second is the relative valuation of each ANS crude oil stream vis-à-vis the ANS common stream—which serves as the constituent stream valuation referent. The first valuation is derived by multiplying each cut’s Quality Bank valuation per unit by its volume percentage in the relevant stream. These nine (9) values are summed to determine the stream’s total Quality Bank valuation. The derived valuation for each crude stream delivered to Pump Station No. 1 (or returned to the ANS common stream by downstream refiners) is then compared to the derived valuation for the referent: the commingled ANS common stream delivered at Valdez Terminal.⁴³ The differentials establish each constituent stream’s valuation vis-à-vis the ANS common stream—i.e. its relative Quality Bank valuation. Since each crude stream delivered to Pump Station No. 1—or returned to the ANS common stream by downstream refiners like Flint Hills and Petro Star—contains a different Resid percentage, the Resid cut

⁴³ To be clear, the Quality Bank reference value for ANS common stream crude delivered at Valdez Terminal is derived using the QB Methodology. It is not the value Platts estimates/publishes for ANS common stream crude delivered at Valdez Terminal.

valuation has a direct impact on each crude stream's Quality Bank valuation—hence the stream's Quality Bank payment liability or entitlement.

106. Light Distillate, Heavy Distillate and Resid differ from the other six (6) Quality Bank cuts in that Light Distillate, Heavy Distillate and Resid have no published market prices. The QB Methodology therefore presumes these cuts receive additional processing in the hypothetical Quality Bank refinery to produce finished products for which published U.S. West Coast market prices are available. The methodology “backs out” (i.e. subtracts) the additional processing costs from the finished products' published market prices in order to value Light Distillate, Heavy Distillate and Resid on a consistent basis—both in relation to one another and in relation to the other six (6) Quality Bank cuts.⁴⁴ Since the QB Methodology values Resid as a coker feedstock,⁴⁵ the methodology subtracts the additional costs associated with processing Resid into marketable products in a hypothetical coker unit located immediately “downstream” from the hypothetical distillation tower that first separates each of the various Quality Bank crudes into the nine (9) Quality Bank cuts.⁴⁶ See Ex. CPA-1 at 12; Ex. EM-22.⁴⁷ The

⁴⁴ Recall that simple distillation is sufficient to produce the lightest six (6) Quality Bank cuts, each of which has a published market price. And while simple distillation also is sufficient to produce the Light Distillate, Heavy Distillate and Resid cuts, these heavier cuts have no published market prices. The QB Methodology therefore further “refines” the Light Distillate, Heavy Distillate and Resid cuts into products with published market prices, then backs out the additional refining costs to derive Light Distillate, Heavy Distillate and Resid Quality Bank valuations on a consistent basis with the other six (6) cuts.

⁴⁵ There is no dispute the QB Methodology should value Resid as a coker feedstock.

⁴⁶ Thus, while the QB Methodology must resort to coking to value the Resid cut, the methodology subsequently backs out all the coking costs to value the cut on a consistent basis with the other cuts—i.e. *as if* it had been valued as a simple distillation product *before* coking. See, e.g., Opinion No. 481, 113 FERC ¶ 61,062 at P 18; Ex. EM-47 at 10. As previously noted, heating/distilling crude oil in an atmospheric tower is the fundamental first stage process in all real world refineries.

⁴⁷ The typical delayed coker unit diagrammed in Ex. EM-22 has only two (2) coke drums. The hypothetical coker unit approved for the QB Methodology in Opinion No. 481 is assumed to have four (4) coke drums capable of processing 40,000 barrels of Resid per day. See Opinion No. 481, 113 FERC ¶ 61,062 at PP 25, 33. In the real world, a four (4) drum coker unit would be significantly more expensive to build than a two (2) drum unit.

coker product volumes (i.e. the coker yields) and the coker processing costs directly impact the Quality Bank Resid cut valuation.

107. At issue here are Flint Hills/Petro Star allegations that the QB Methodology adopted in Opinion No. 481 is unjust/unreasonable in that the methodology's Resid valuation formula understates the Resid cut value because: (1) the PIMS model coker liquid yields it derives are too low; and (2) the Resid processing cost adjustment is too high because it inappropriately includes a coker unit capital investment allowance.

The Coker Yields

108. Opinion No. 481 adopted for Quality Bank purposes the PIMS (Process Industry Modeling System, Version 11.0) model coker yields stipulated among the parties. Opinion No. 481, 113 FERC ¶ 61,062 at P 18. The PIMS model yields therefore have the benefit of rebuttable presumptions (i) they were just and reasonable when adopted in 2005⁴⁸ and (ii) they remain just and reasonable. Flint Hills and Petro Star contend the PIMS model yields adopted in Opinion No. 481 are unjust/unreasonable. As a consequence, Flint Hills/Petro Star bear an affirmative burden to prove in the first instance the PIMS model coker yields adopted in Opinion No. 481 are unjust or unreasonable. And they are required to satisfy this burden by a preponderance of the record evidence in this investigation.⁴⁹ In accordance with these requirements, Flint Hills/Petro Star must prove either: (1) it was *ab initio* unjust or unreasonable for the Commission to approve the PIMS model coker/yields for Quality Bank purposes in 2005 due to facts or circumstances unknown or not reasonably available at the time; or (2) events or developments subsequent to 2005 render it unjust or unreasonable to continue to use the PIMS model coker/yields for Quality Bank purposes.

109. As stated in the Issue I analysis *supra*, the Flint Hills/Petro Star contention that the PIMS model coker/yields Opinion No. 481 adopted for Quality Bank purposes are understated (i.e. unjust/unreasonable) is based exclusively on Flint Hills witness

⁴⁸ Again, Flint Hills/Petro Star are not *absolutely* precluded from establishing the QB Methodology currently is unjust/unreasonable due to facts or circumstances existing in 2005 which either were unknown or were not before the Commission at the time. Reliance on any such facts or circumstances, however, requires Flint Hills/Petro Star to prove those facts or circumstances actually were unknown or not reasonably available/discoverable in the relevant timeframe—i.e. throughout the course of the Opinion No. 481 proceedings.

⁴⁹ As stated in footnote 34, *supra*, a rebuttable presumption cannot be overcome by less than the weight of the record evidence—i.e. by “substantial” evidence.

Lieberman's opinion that the Commission instead should have adopted a coker unit modeled to optimize⁵⁰ liquid yields. Ex. FHR-23 at 4; Ex. FHR-24; Tr. 775, 808, 846. This fails to satisfy their threshold burden of proof for multiple reasons. Primary among these is Mr. Lieberman's opinion reduces to a claim that the alternative model coker/yields he advocates are preferable to the PIMS model coker/yields Opinion No. 481 adopted. The Issue I analysis establishes Flint Hills/Petro Star cannot satisfy their threshold burden to prove the PIMS model coker/yields are unjust or unreasonable by comparing them to allegedly (or even demonstrably) superior alternatives. Since more than one alternative may be just and reasonable under any given circumstances (*see Morgan Stanley*, 554 U.S. at 532; *OXY*, 64 F.3d at 692), demonstrating one alternative is superior to another only proves the inferior alternative is inferior. It does not prove the inferior alternative is unjust or unreasonable. Proving the PIMS model coker/yields Opinion No. 481 adopted were unjust or unreasonable at the time would require Flint Hills/Petro Star to discredit the PIMS model coker/yields in themselves—something Flint Hills/Petro Star failed even to attempt insofar as the PIMS model coker/yields' initial adoption is concerned. Moreover, Mr. Lieberman himself concedes the PIMS model yields "were likely typical at the time" they were adopted. Ex. FHR-23 at 4; Tr. 777-78.

110. Mr. Lieberman also concedes the coker technology reflected in his alternative model was known and available long before 2005. Ex. FHR-62 at 12; Tr. 812-14. As a consequence, the technology cannot plausibly be characterized as unknown or not reasonably available during the course of the Opinion No. 481 proceedings—i.e. new evidence. It is not "new in the sense of being discovered after the Commission issued

⁵⁰ There is an inconsistency in Mr. Lieberman's testimony on this point and—more important—in the way the participants present/address it throughout the record and in post-hearing briefs. While the Lieberman model frequently is explained to "optimize" coker liquid yields, Mr. Lieberman (and others) alternately describe it to "maximize" coker liquid yields. *Compare* Ex. FHR-40 at 2 *with* Tr. 807-09. This could be nothing more than descriptive imprecision, but the record suggests a distinction of consequence. It is my understanding a complex real world refinery attempting to "optimize" coker liquid yields would tailor its coker operations to the refinery's specific Resid feedstock, desired coker product quality, downstream refining capabilities and overall product slate—thereby maximizing total refining revenues. *See, e.g.*, Tr. 1599, 1602-03. In contrast, a complex refinery attempting to "maximize" coker liquid yields would tailor its coker operations to produce the highest possible liquid volumes regardless of feedstock, coker product quality, downstream refining capabilities or overall product slate. The record suggests the latter scenario is unrealistic in the real world, but would produce a significantly higher Quality Bank Resid cut valuation than the first scenario. For the Commission's benefit, I encourage the participants to eliminate any confusion on this point in their briefs on/opposing exceptions to this Initial Decision.

[Opinion No. 481].” *Sw. Bell Tel. Co. v. FCC*, 180 F.3d 307, 312 (D.C. Cir. 1999). It is “evidence that reasonably was available to the parties [during the Opinion No. 481 proceedings, and therefore it] is not new evidence.” *Friends of Sierra R.R., Inc. v. ICC*, 881 F.2d 663, 667 (9th Cir. 1989) (quoting *Platnick Bros., Inc. v. Norfolk & W. Ry. Co.*, 367 I.C.C. 782, 785 (1983)). And since “changed circumstances” cannot possibly apply to the Commission’s initial adoption of the PIMS model coker/yields for Quality Bank purposes in 2005, any Flint Hills/Petro Star claim it was unjust or unreasonable for the Commission to adopt them at that time must be rejected as a collateral attack on Opinion No. 481. *See, e.g., Mid-America Pipeline Co.*, 146 FERC ¶ 61,131, at PP 24-25 (2014); *Midwest Indep. Trans. Sys. Operator, Inc.*, 136 FERC ¶ 61,244, at P 62 (2011).

111. Both Flint Hills and Petro Star emphasize the PIMS model coker/yields were stipulated among the parties in the Opinion No. 481 proceedings. They further emphasize the parties neither litigated the stipulated yields’ reasonableness nor established any operating parameters to verify their accuracy at the time. To the extent Flint Hills/Petro Star imply these circumstances either undermine the presumption the PIMS model coker/yields were just and reasonable when approved in 2005 or de-legitimizes their appropriateness for Quality Bank purposes, I reject those implications. The circumstance that the Commission adopted the PIMS model coker/yields stipulated among the parties in no way undermines the PIMS model coker/yields’ just and reasonable presumption. The Commission had/has an Interstate Commerce Act obligation to ensure just and reasonable TAPS rates. *See* 49 U.S.C. App. §§ 1(5), 15(1) (1988). *See also OXY*, 64 F.3d at 690; Hearing Order, 145 FERC ¶ 61,117 at ordering para. (B). As a consequence, it could not adopt any TAPS ratemaking methodology (or methodological component) it did not consider just and reasonable. Although the record in this investigation does not indicate what measures the Commission took in 2005 to satisfy itself that the stipulated PIMS model coker/yields were just and reasonable for Quality Bank purposes, it need not. It must be presumed the Commission fulfilled its statutory responsibility. To suggest the opposite presupposes the Commission abdicated that responsibility, which turns the just and reasonable presumption on its head. Moreover, both Opinion No. 481 and the underlying Initial Decision clearly indicate the Commission and Presiding Judge had before them a significant amount of evidence addressing the coker yield issue—certainly enough to satisfy a substantial record evidence or rational relationship standard. *See, e.g.,* Opinion No. 481, 113 FERC ¶ 61,062 at PP 18, 20 and n.25-27; *Trans Alaska Pipeline Sys.*, 108 FERC ¶ 63,030, at P 1127 (2004) (Initial Decision) (referencing PIMS model correlations found in various exhibits).

112. Neither does the circumstance that Opinion No. 481 adopted the PIMS model coker/yields stipulated among the parties in any way de-legitimize the PIMS model coker/yields’ appropriateness for Quality Bank purposes. The record confirms PIMS was (and remains) an industry standard linear programming computer model used to simulate refinery operations around the world. Ex. CPA-1 at 22; Ex. EM-24 at 2. PIMS Version

11.0 coker software models a typical/generic and commercially available delayed coking unit. Ex. ATS-1 at 10. The PIMS Version 11.0 typical/generic coker model can be customized to the specific configuration(s) of many different real world coking refineries to help them optimize their feedstock selection, operational execution and product slate. Ex. CPA-1 at 22; Ex. EM-23 at 1. The record indicates 75% of the world's petroleum feedstock is planned using PIMS. Ex. EM-23 at 1; Tr. 754-55.

113. Bechtel, a corporation that designs and constructs coker units worldwide, first developed the generic/typical PIMS model coker yields used in the QB Methodology in 1985. Ex. ATS-45 at 1; Tr. 1638-39. The record indicates the 1985 PIMS model yields were based on a broad "library" of model units and the best available process information. *Id.* The record further establishes the 1985 PIMS model/yields were updated several years later, again based on a broad library of model units and the best available process information.⁵¹ *Id.* In addition, the record establishes the accuracy of the PIMS model/yields was confirmed through multiple outside sources. Ex. EM-25 at 2-4. *See also* Tr. 765, 889; Ex. EM-76 at 3-15; Ex. ATS-48 at 3. Even accepting, *arguendo*, that a coker unit specifically designed and operated to optimize (maximize?) liquid yields was better suited to Quality Bank Resid cut valuation purposes than the stipulated PIMS model coker/yields Opinion No. 481 adopted, I find and conclude the PIMS-specific evidence presented in this investigation definitively undercuts any suggestion it was inappropriate *on the merits* for the Commission to adopt the stipulated PIMS model coker/yields for Quality Bank purposes in 2005.

114. Further, the record in this investigation belies any claim a coker unit specifically designed and operated to optimize/maximize liquid yields was appropriate—let alone better suited than the PIMS model coker/yields Opinion No. 481 adopted—to Quality Bank Resid cut valuation purposes. Opinion No. 481 and the underlying Initial Decision confirm the QB Methodology objective was to mimic a *typical* U.S. West Coast coker. *See, e.g.*, Opinion No. 481, 113 FERC ¶ 61,062 at PP 33-36; *Trans Alaska Pipeline Sys.*, 108 FERC ¶ 63,030, at PP 1189, 1191, 1194 (2004) (Initial Decision). *Accord* Ex. FHR-64 at 4, 7. The record establishes real world refineries and their coker units vary widely in configuration, operating parameters, feedstock handling capabilities and potential product slates. *See, e.g.*, Ex. EM-20 at 4. It follows that any specific real world coker or coker model will produce a relatively unique set of yields. *Id.* This presents a problem: how to choose for Quality Bank purposes a single specific coker or model coker configuration among many without making an arbitrary or capricious choice. An obvious solution is to opt for the typical model coker/yields the PIMS model uses as its

⁵¹ Aspen Technology Inc. (Aspen) subsequently acquired the rights to PIMS from Bechtel. Aspen announced the latest PIMS model update/improvement on May 14, 2012. Ex. EM-23 at 1.

baseline.⁵² Adopting the generic baseline PIMS model coker/yields obviates any need to try to determine which specific characteristics reasonably represent U.S. West Coast cokers. And it is perfectly suited to calculate a reasonable ANS Resid value for Quality Bank purposes because it generates the yields a typical U.S. West Coast coker would produce.

115. In contrast, a coker unit specifically designed and operated to optimize/maximize liquid yields is not typical of U.S. West Coast refineries. Since any *specific* real world coker or coker model will produce a relatively unique set of yields, it is a virtual truism the yields will not be “typical”. More important, the record demonstrates the Lieberman model coker/yields would in fact have been atypical of actual West Coast cokers/yields in 2005, and they remain so today. The Lieberman model coker unit presumes design parameters of (i) 15 pounds per square inch coke drum pressure, (ii) 825 degrees Fahrenheit coke drum vapor outlet temperature, and (iii) a 1.04 recycle ratio.⁵³ Ex. EM-26 at 5; Ex. EM-28 at 4. The record, however, establishes West Coast cokers historically (including in 2005) have operated at significantly higher coke drum pressures, lower coke drum vapor outlet temperatures and higher recycle ratios. Ex. EM-20 at 12; Tr. 1596-98, 1603-04. These parameters do not optimize/maximize liquid yields in the manner Mr. Lieberman proposes. Mr. Lieberman expressly concedes these facts.⁵⁴ Ex. FHR-40 at 2;

⁵² I reject any Flint Hills/Petro Star suggestion that the PIMS model baseline yields are mere placeholders, becoming meaningful only when unit-specific coker configurations and operating parameters are substituted. The record indicates the PIMS model baseline yields are generally representative—i.e. “typical”—yields derived using Aspen’s broad library of model units and the best available process information. Ex. ATS-45 at 1; Tr. 1638-39. Although the PIMS baseline model coker/yields customarily are tailored to model specific real world refinery/coker unit design characteristics, configurations and operating parameters, such specific applications do not imply the PIMS baseline coker model/yields are not meaningful or generally representative in themselves.

⁵³ Recycle ratio reflects the percentage of vapor line liquids coming out of the coke drum vapor outlets that is directed back through the coke drums (by being commingled into the unprocessed Resid feedstock, or “fresh feed”) for additional coking rather than directly downstream through the combination tower or “fractionator”. See Ex. EM-22-A; Ex. EM-20 at 3-4. The recycle ratio has a significant impact on liquid yield quantity, quality and additional processing requirements. Ex. EM-20 at 3; Ex. EM-27; Ex. EM-32; Ex. EM-75 at 17. A 1.04 recycle ratio indicates 4% of the vapor line liquid coming out of the coke drum vapor outlets is directed back through the coke drums.

⁵⁴ Mr. Lieberman also concedes his model assumes a feedstock that does not satisfy the 1050+ degree Fahrenheit boiling point the Quality Bank uses to define the
(Continued)

Ex. FHR-60 at 7; Ex. CPA-13 at 4-5; EM-75 at 25. Moreover, the record confirms West Coast cokers continue to operate in accordance with their historical design parameters and to achieve essentially the same yields they achieved in 2005. Ex. ATS-1 at 24-25; Ex. ATS-15; Ex. ATS-16. It follows that the Lieberman model coker/yields were not typical of U.S. West Coast refineries when the Commission adopted the PIMS model coker/yields in 2005 and they are not typical today.

116. In summary, I find and conclude Flint Hills/Petro Star have failed to prove either: (1) it was unjust or unreasonable for the Commission to approve the PIMS model coker/yields for Quality Bank purposes in 2005; or (2) events or developments subsequent to 2005 render it unjust or unreasonable to continue to use the PIMS model coker/yields for Quality Bank purposes. The PIMS model coker/yields were and remain a just and reasonable basis on which to value the Resid cut for Quality Bank purposes.

Capital Investment Costs

Fundamental Inconsistency Problems

117. The preceding determinations obviate the need to address in detail the fundamental inconsistency between the Lieberman model coker/yields and the Flint Hills/Petro Star contention it no longer is just and reasonable to include a coker unit capital investment allowance in the Resid processing cost adjustment. That inconsistency lay mainly in the circumstance that while the Lieberman model assumes replacing the PIMS model coker with a completely new coker unit specifically designed and built to optimize/maximize liquid yields, Flint Hills witness Verleger concurrently argues it is unjust/unreasonable to include any coker unit capital allowance whatsoever in the Resid processing cost adjustment. *Compare* Ex. FHR-40 at 3-4 and EM-29 at 2 with Ex. FHR-1 at 67 and FHR-51 at 29-31. The Lieberman model coker/yields have been rejected. Accordingly, the obvious disingenuousness of Flint Hills/Petro Star arguing on the one hand the PIMS model coker should be replaced with a completely new coker unit specifically designed and built to optimize/maximize liquid yields while arguing on the other that the capital investment required to build the new unit should be ignored no longer is an issue. The only enduring question is whether it remains just and reasonable for the QB Methodology to include a PIMS model coker unit capital investment

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Resid cut. Tr. 769-73. Since assuming this lighter feedstock produces higher liquid yields than Quality Bank specification Resid would produce (*see, e.g.*, Tr. 716), the Lieberman model yields are not “typical” of the yields a West Coast coker processing Quality Bank specification ANS Resid would achieve.

allowance in the Resid processing cost adjustment. Nettlesome vestiges of the Lieberman model remain nonetheless.

118. Flint Hills/Petro Star emphasize the Lieberman model coker unit—like the PIMS model unit—is nothing more than a theoretical construct. *See, e.g.*, Flint Hills IB 21; Petro Star IB 23. The QB Methodology doesn't actually "build" a coker unit. It simply *assumes* one. From this, Flint Hills/Petro Star reasoned substituting the Lieberman model unit for the PIMS model unit implied no additional capital investment. Closing the circle, Flint Hills/Petro Star suggest there is no recoverable capital investment associated with the PIMS model coker unit either.

119. Although the PIMS model coker unit the QB Methodology assumes—indeed the entire methodology—is a theoretical construct, the construct must bear a rational/logical relationship to the real world. *See, e.g., Exxon*, 182 F.3d at 42. No real world refiner can process Resid by simply *assuming* a coker. A real world refiner has to build (or buy) a coker if it wants to process Resid. The QB Methodology expressly acknowledges this circumstance. *See Trans Alaska Pipeline Sys.*, 108 FERC ¶ 63,030, at P 1194 (2004) (Initial Decision). The QB Methodology does not simply assume a coker. It assumes the PIMS model coker was *built*—and includes an allowance for the capital investment required to build it in the Resid processing cost adjustment. The capital investment allowance is an enduring methodological acknowledgement that Resid cannot be (or continue to be) processed unless first there has been a significant capital investment in a coker—in this case, a typical U.S. West Coast coker. In sum, the QB Methodology cannot legitimately assume a coker without also assuming the capital investment required to build it.

120. Moreover, it is axiomatic that a real world refiner will not invest in a coker unless the refiner has a reasonable long-term expectation it will earn a return both of and on its capital investment. It would be economically irrational for a refiner to invest significant capital in a coker with the sole expectation of realizing marginal processing revenues. Although Flint Hills witness Verleger acknowledges this principle, he claims West Coast cokers have failed to generate capital investment returns since 2009. West Coast refiners therefore have abandoned any expectation they ever again will realize capital investment returns on their cokers according to Mr. Verleger. These changed circumstances warrant eliminating the capital investment allowance from the Quality Bank Resid processing cost adjustment in his view because the allowance amounts to a guaranteed return of/on capital investment that real world refiners no longer realize or expect.⁵⁵ While I agree

⁵⁵ Prevailing market conditions may limit a refiner's ability to *realize* anything more (and perhaps less) than marginal processing revenues—even for extended periods of time—but it does not follow that refiners do not *expect* to realize returns on/of their substantial capital investments over the long term. Refiners are sophisticated rational
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with Mr. Verleger insofar as he argues no real world refiner is guaranteed to realize capital returns, he completely disregards the equally valid point that no real world refiner will invest capital in the first place in the absence of the *opportunity* to realize capital returns. This is the fundamental tenet on which all ratemaking is premised. *See, e.g., FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944); *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923). And in the purely conceptual context of the Quality Bank—where capital investment is not subject to market risk—the only way to model the opportunity for capital investment return is to guarantee it via the processing cost adjustment.⁵⁶ Further, while real world market conditions might not support the 20% capital investment allowance reflected in the Resid processing cost adjustment, Flint Hills/Petro Star make no argument the allowance should be reduced to some lower/more representative percentage. They argue it should be completely and permanently eliminated.⁵⁷ And though Flint Hills/Petro Star have avoided the problems inherent in arguing a 20% capital investment return suggests the PIMS model coker has fully “recovered” its indicated capital investment in the interim

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investors, savvy to petroleum market cycles and volatilities. It therefore is unrealistic to assume they do not take these cycles and volatilities (i.e. market risks) into account when they make their capital investment/operating decisions.

⁵⁶ This is not to suggest the Quality Bank Resid processing cost adjustment is completely insulated from real world market impacts. The cost adjustment automatically corrects itself over time to reflect real world conditions through the Nelson Farrar Refinery Cost Index. *See* Opinion No. 481, 113 FERC ¶ 61,062 at P 18; *Trans Alaska Pipeline Sys.*, 108 FERC ¶ 63,030, at P 864 (2004) (Initial Decision). *See also* Tr. 1590-93; Ex. CPA-1 at 21.

⁵⁷ Mr. Verleger notably does not propose to *reduce* the 20% capital investment allowance. He proposes to *completely eliminate* it on a *permanent basis*. This arguably constitutes another instance in which Flint Hills/Petro Star claim the QB Methodology adopted in Opinion No. 481 is unjust or unreasonable because their proposed alternative (a Resid processing cost adjustment with no capital investment allowance) is preferable. Insofar as this is the case, the Flint Hills/Petro Star alternative may be rejected on that basis alone. *See* Paragraphs 40-42, *supra*. In this regard, I do not accept any claim that completely and permanently eliminating the 20% capital investment allowance Opinion No. 481 adopted is the methodological equivalent of simply “reducing” it to zero—i.e. modifying the existing methodology rather than proposing an alternative to it. Mr. Verleger proposes to eliminate the capital investment allowance *factor itself* from the model.

since 2005 or that the costs are permanently stranded,⁵⁸ Mr. Verleger's "sunk cost" argument achieves the same result: it allows Flint Hills/Petro Star to assume a zero capital investment coker on a going-forward basis. But here again, the assumption must bear a rational/logical relationship to the real world. *Exxon*, 182 F.3d at 42. The QB Methodology cannot legitimately assume a coker to process ANS Resid without also assuming the capital investment required to build it in the first place.

121. In addition, the Quality Bank Resid processing cost adjustment assumes both a coker unit *and* a 20% capital investment allowance for the unit. It is unsound from a purely methodological standpoint for Flint Hills/Petro Star to embrace one theoretical element of the QB Methodology (a coker to process Resid) while at the same time rejecting another (the 20% coker capital investment allowance). Thus, *methodological* inconsistency also is a necessary precondition to Flint Hills/Petro Star assuming a zero capital investment coker on a going-forward basis.⁵⁹

122. The last inconsistent vestige of the Lieberman model is that one of the rationales Mr. Verleger advances for the higher Quality Bank Resid valuation he advocates is his understanding that simply "updating" (at negligible cost) the existing PIMS model coker was sufficient to achieve the Lieberman model liquid yields. The record clearly establishes the Lieberman model yields rely on a completely new coker specifically designed and built to optimize/maximize liquid yields. Ex. FHR-23 at 4; Ex. FHR-24; Tr. 808, 846-51.

123. The most problematic inconsistency of all is unrelated to the Lieberman model. It is the methodological and relative valuation disconnect the proposed elimination of the capital investment allowance from the Resid processing cost adjustment produces vis-à-vis the Light Distillate and Heavy Distillate cuts. As previously explained, Light Distillate, Heavy Distillate and Resid differ from the other six (6) Quality Bank cuts in that they have no published market prices. The QB Methodology therefore presumes Light Distillate, Heavy Distillate and Resid receive additional processing in the hypothetical Quality Bank refinery to produce finished products for which published U.S. West Coast market prices are available.⁶⁰ The methodology backs out (i.e. subtracts) the

⁵⁸ I do suggest Flint Hills or Petro Star made these arguments.

⁵⁹ In addition, it supports a conclusion Flint Hills/Petro Star are proposing an alternative to the existing model rather than a modification. See footnote 56, *supra*.

⁶⁰ Light Distillate and Heavy Distillate are not processed through the coker. After exiting the distillation tower, they bypass the coker and receive additional processing in other facilities further "downstream" in the Quality Bank refinery. More detail is unnecessary for purposes of this analysis.

additional processing costs from the finished products' published market prices in order to value Light Distillate, Heavy Distillate and Resid on a consistent basis—both in relation to one another and in relation to the other six (6) Quality Bank cuts. Put differently, the QB Methodology values Light Distillate and Heavy Distillate the same way it values Resid—i.e. the methodology applies a processing cost adjustment. The Light Distillate, Heavy Distillate and Resid processing cost adjustments all include a capital investment allowance.⁶¹ Flint Hills/Petro Star only propose to eliminate the capital investment allowance reflected in the Resid processing cost adjustment.

124. *OXY* states:

The goal of the Quality Bank valuation methodology, as all parties agree, is to assign accurate relative values to the petroleum that is delivered to TAPS and becomes part of the [ANS] common stream. In order to achieve this goal, FERC must accurately value all cuts—not merely some or most of them—or it must overvalue or undervalue all cuts to approximately the same degree.

OXY, 64 F.3d at 693. The reason is clear:

If light and heavy distillates are overvalued and other cuts are not, streams rich in these distillates will be overvalued relative to other streams and their [producers] will receive a windfall in the form of Quality bank credits.

Id. By necessary implication, if Resid is overvalued, but Light Distillate and Heavy Distillate are not, their relative values will be skewed. It follows that ANS constituent streams rich in Resid will be overvalued relative to other streams and their contributors will receive a windfall in the form of Quality Bank credits. *OXY* prohibits these results. But they are exactly what the Flint Hills/Petro Star proposal to eliminate only the capital investment allowance reflected in the Resid processing cost adjustment achieves. The

⁶¹ The Heavy Distillate capital investment allowance also is 20%. *See* Opinion No. 481, 113 FERC ¶ 61,062 at P 59. The Light Distillate capital investment allowance is 20% as well. Ex. EM-1 at 35; Ex. EM-5. And irrespective of the actual percentages, the circumstance that the Light Distillate and Heavy Distillate processing cost adjustments both include a capital investment allowance confirms those cuts' valuations also recognize no real world refiner will invest in facilities to process them into finished products in the absence of an opportunity to realize capital returns. *See* Paragraph 120, *supra*.

Light Distillate and Heavy Distillate processing cost adjustments will include a capital investment allowance. The Resid processing cost adjustment will not. This disparity necessarily will overvalue Resid vis-à-vis Light Distillate and Heavy Distillate. It follows that the relatively Resid-rich streams Flint Hills and Petro Star return to the ANS common stream will be overvalued relative to the crude oil streams tendered to TAPS at Pump Station No. 1. Flint Hills and Petro Star will receive windfalls in the form of Quality Bank credits. And because the actual dollar amount (vs. the percentage) of the capital investment allowance reflected in the Resid processing cost adjustment is significantly larger than the actual dollar amounts of the capital investment allowances reflected in the Light Distillate and Heavy Distillate processing cost adjustments, the Flint Hills and Petro Star windfalls will be substantial. Ex. EM-1 at 40-42.

125. Flint Hills/Petro Star seize on the circumstance that the actual dollar impacts of the Light Distillate and Heavy Distillate capital investment allowances are relatively small in comparison the Resid processing cost adjustment. They argue: (1) the methodological inconsistency may be ignored on that basis; (2) the sole Commission objective in this investigation is to ensure the Resid cut is valued as accurately as possible—therefore, the Light Distillate and Heavy Distillate valuations should be addressed in other proceedings; and (3) no opposing participant has established changed circumstances that warrant eliminating the Light Distillate and Heavy Distillate capital investment allowances. Addressing the last of these arguments first, the burden of proof in this investigation falls on Flint Hills and Petro Star. They must prove the capital investment allowance reflected in the Resid processing cost adjustment is unjust or unreasonable. And since they propose to *completely eliminate* it on a *permanent basis* rather than merely to reduce it, they also must affirmatively prove it is just and reasonable to do so.⁶² This requires them to satisfy *OXY*.

126. *OXY* requires:

[I]f the agency chooses to value some cuts of petroleum at the prices they command in the market without the benefit of processing . . . it must attempt, *to the extent possible*, to value *all cuts* at the price they would command without processing. *It cannot*, consistent with the requirement of reasoned

⁶² This secondary burden ordinarily would be relegated to Issue III. The circumstance that Flint Hills/Petro Star must satisfy it under Issue II lends additional support to a conclusion they are attempting to prove the current QB Methodology is unjust/unreasonable in comparison to an allegedly superior alternative methodology—i.e. a Resid processing cost adjustment with *no* capital investment allowance.

decisionmaking, *value some cuts precisely and others haphazardly.*

OXY, 64 F.3d at 694 (emphasis added). Contrary to the Flint Hills/Petro Star position, it is *they* who *OXY* requires to establish changed circumstances that warrant eliminating the Light Distillate and Heavy Distillate capital investment allowances in this investigation. *OXY* expressly prohibits the Commission from “valu[ing] some cuts precisely and others haphazardly.” *Id.* But that is precisely what Flint Hills/Petro Star advocate. They propose to value Resid “more accurately” by eliminating the capital investment allowance reflected in the Resid processing cost adjustment without any consideration whatsoever of whether that measure produces comparatively “haphazard” Light Distillate and Heavy Distillate valuations. Although it could be the case U.S. West Coast cokers have lost their capital value while West Coast facilities processing Light Distillate and Heavy Distillate have not, Flint Hills/Petro Star have made no attempt to establish this scenario. They have not “to the extent possible” attempted to value “all cuts”—i.e. Light Distillate and Heavy Distillate in addition to Resid—at the prices they would command without further processing. It follows Flint Hills/Petro Star have completely failed to satisfy their burden of proof in accordance with *OXY*.

127. Neither have Flint Hills/Petro Star satisfied the *OXY* requirement to ensure Light Distillate and Heavy Distillate are valued “to approximately the same degree” of precision as Resid. While they attempt to do so by emphasizing the actual dollar amounts of the capital investment allowances reflected in the Light Distillate and Heavy Distillate processing cost adjustments are relatively small in comparison to the Resid allowance (*see, e.g.*, Ex. FHR-1 at 15), this circumstance does not avail them. *OXY* clearly attaches paramount importance to precision achieved through *methodological* consistency. Again:

The goal of the Quality Bank valuation methodology . . . is to assign accurate relative values to the petroleum that is delivered to TAPS and becomes part of the [ANS] common stream. In order to achieve this goal, *FERC must accurately value all cuts*—not merely some or most of them—*or it must overvalue or undervalue all cuts to approximately the same degree.*

OXY, 64 F.3d at 693 (emphasis added). In the context of the Light Distillate, Heavy Distillate and Resid valuations, then, what *OXY* deems most important is that the relative valuations are both accurate and methodologically consistent to the greatest possible degrees. *Accord Exxon*, 182 F.3d at 38 (emphasizing remand was based on methodological non-uniformity rather than inaccuracy). The existing QB Methodology achieves this methodological consistency in part by including identical 20% capital investment allowances in the Light Distillate, Heavy Distillate and Resid processing cost adjustments.

128. Last, both *OXY* and *Exxon* undermine any Flint Hills/Petro Star insistence that the Commission's sole objective in this investigation is to ensure the Resid cut is valued as accurately as possible. *See, e.g.,* Petro Star IB 4-9. *OXY* pointedly explains it is the QB Methodology's "goal" to assign accurate *relative* values among the *crude streams* commingled into the ANS common stream. *OXY*, 64 F.3d at 693. Both *OXY* and *Exxon* acknowledge the inherent imprecision in this task. *Id.* at 694; *Exxon*, 182 F.3d at 38. Accordingly,

the fact that a more precise method exists for determining the relative value of the streams does not render the decision to adopt a less accurate, but more administrable, method arbitrary and capricious. FERC has opted to use a magnifying glass to determine the value of the streams, and we will not fault it for not using a microscope.

Exxon, 182 F.3d at 40. These clarifications, coupled with the court's emphasis that a just and reasonable degree of precision must be achieved in conjunction with methodological consistency, confirm the Commission's responsibility/objective in this investigation is to ensure the Resid cut is valued as accurately as possible *on a methodologically consistent basis* with the other Quality Bank cuts. Stated more broadly, the Commission's responsibility/objective in this investigation is:

to determine whether the existing QB formula for valuing Resid is just and reasonable, and if it is not, what adjustment should be made to the QB formula.

Hearing Order, 145 FERC ¶ 61,117 at P 47 (emphasis added).

129. Petro Star's suggestion that the Commission routinely initiates cut-specific Quality Bank proceedings to achieve greater valuation accuracy (Petro Star IB 6-7, 9) is both incorrect and misleading. As previously noted, the Commission has found circumstances sufficiently compelling to warrant QB Methodology review/revision only in response to significant developments undermining the existing methodology's continuing viability. For example, the injection of substantial quantities of natural gas liquids into the ANS common stream beginning in 1986 required the Commission to supplant the gravity-based QB Methodology with the current distillation methodology. *Trans. Alaska Pipeline Sys.*, 65 FERC ¶ 61,277 (1993). Discontinuance of the Platts reference products/prices for the Heavy Distillate cut valuation in 1999 and again in 2006 required the Commission to adopt alternative reference products/prices for that cut on each occasion. *Trans Alaska Pipeline Sys.*, 90 FERC ¶ 61,123 (2000); *BP Pipelines (Alaska) Inc.*, 122 FERC ¶ 61,236 (2008) (Opinion No. 500).

130. The Opinion No. 500 proceedings are of particular relevance to this investigation. Petro Star suggests Resid valuation accuracy is paramount here, and the Commission need not consider whether eliminating the 20% capital investment allowance from the Resid processing cost adjustment renders the Resid valuation inconsistent with the Light Distillate and Heavy Distillate valuations. Ignoring the fact that this suggestion patently violates *OXY* and *Exxon*, it effectively would nullify the Opinion No. 500 proceedings. Those extensive proceedings⁶³ were dedicated exclusively to establishing a new Heavy Distillate valuation methodology. Many processing cost issues were addressed. Among them was the capital investment allowance—which ultimately was set at 20%, based at least in part on consistency with the Resid valuation methodology previously adopted in the Opinion No. 481 proceedings. Flint Hills/Petro Star essentially argue both Opinion No. 500 and Opinion No. 481 (insofar as the current Resid processing cost capital investment allowance is concerned) should be vacated to be consistent with their position rather than the reverse. This reduces to collateral attacks on Opinion No. 481 and Opinion No. 500 insofar as Quality Bank methodological consistency is implicated.⁶⁴

131. Finally, the Commission simply cannot adopt a Resid valuation methodology in this proceeding that is inconsistent on its face with the Light Distillate and Heavy Distillate valuation methodologies. As previously observed, it conceivably *could* be the case U.S. West Coast cokers have lost their capital value while West Coast facilities processing Light Distillate and Heavy Distillate have not. Such disparate circumstances might permit the Commission to eliminate the Resid processing cost adjustment's 20% capital investment allowance while retaining the 20% allowances for the Light Distillate and Heavy Distillate cuts. But there has been absolutely no demonstration—or attempt to demonstrate—any such disparate circumstances in this investigation. That demonstration (or some equivalent) is a necessary factual prerequisite for the Commission to eliminate the Resid processing cost adjustment's 20% capital investment allowance while retaining the 20% allowances for the Light Distillate and Heavy Distillate cuts without violating the *OXY/Exxon* methodological consistency requirement. It follows that the Commission is precluded from doing so. Neither may the Commission defer the Light Distillate and Heavy Distillate valuation inquiries to future proceedings as Petro Star suggests. Either action would be inconsistent with the Commission's Interstate Commerce Act obligation

⁶³ The time between the Quality Bank Administrator notice triggering the proceedings and TAPS Carriers' Order No. 500 compliance filing was nearly two and a half years.

⁶⁴ Petro Star expressly acknowledges further proceedings involving the Light Distillate and Heavy Distillate valuation methodologies "are virtually certain to follow" if the capital investment allowance reflected the Resid processing cost adjustment is eliminated. Petro Star IB 36. On this point I completely agree.

to ensure just and reasonable TAPS rates.⁶⁵ See 49 U.S.C. App. §§ 1(5), 15(1) (1988). Here again, the Flint Hills/Petro Star proposal to eliminate the Resid processing cost adjustment's 20% capital investment allowance fails on these grounds alone. And while this ruling renders it unnecessary to address Flint Hills's evidentiary presentation on the merits, I do so to provide the Commission with a comprehensive investigative analysis.

Merits Analysis

132. Opinion No. 481 adopted for Quality Bank purposes a Resid processing cost adjustment reflecting a 20% capital investment allowance. The 20% capital investment allowance therefore has the benefit of a rebuttable presumption it remains just and reasonable.⁶⁶ Flint Hills and Petro Star contend the allowance has become unjust/unreasonable. As a consequence, they bear an affirmative burden to prove in the first instance the PIMS model coker yields adopted in Opinion No. 481 have become unjust or unreasonable based on new evidence or changed circumstances. They are required to satisfy this burden by a preponderance of the record evidence compiled in this investigation.⁶⁷ In accordance with these requirements, Flint Hills/Petro Star must prove events or developments subsequent to 2005 render it unjust or unreasonable to continue to include a 20% capital investment allowance in the Resid processing cost adjustment for Quality Bank purposes.

Flint Hills/Petro Star Argument Summarized

133. The Flint Hills/Petro Star contention that it no longer is just and reasonable to include a 20% capital investment allowance in the Resid processing cost adjustment is based on a series of contingent arguments. These arguments begin from the premise that the composite value of the Quality Bank cuts always should exceed the Platts published price for ANS common stream crude oil because the Quality Bank cuts are value-added products—i.e. the Quality Bank cuts are processed while ANS common stream crude oil is not. They submit it makes no sense to assume processing reduces crude oil value.

⁶⁵ Contrary to Petro Star's suggestion, the Commission cannot approve a rate methodology that is just and reasonable in one respect but is unjust or unreasonable in another.

⁶⁶ In contrast to the PIMS model coker yields, Flint Hills/Petro Star do not argue the 20% capital investment allowance was unjust or unreasonable when Opinion No. 481 adopted it in 2005.

⁶⁷ Again, a rebuttable presumption cannot be overcome by less than the weight of the record evidence—i.e. by "substantial" record evidence.

Nevertheless, the Platts published price for ANS common stream crude oil often has exceeded the Quality Bank composite cut valuation since 2009. Flint Hills/Petro Star assert this value inversion demonstrates the QB Methodology is “broken”. It reflects a permanent petroleum market shift (confirmed by various post-2005 market developments) that undermines the QB Methodology’s ability to accurately value the Quality Bank cuts. The methodology’s inability to accurately value the Quality Bank cuts compromises its ability to appropriately value the ANS crude streams. This results in inappropriate Quality Bank liabilities being imposed on Flint Hills and Petro Star.

134. Six (6) Quality Bank cuts are valued by reference to published U.S. West Coast market prices. The Quality Bank composite cut valuation shortfall therefore must originate with the Light Distillate, Heavy Distillate or Resid valuations. Since those valuations are derived by assuming additional processing in the hypothetical Quality Bank refinery to produce finished products for which published U.S. West Coast market prices are available, the shortfall must result from the processing cost adjustments. Flint Hills/Petro Star conclude the Resid processing cost adjustment—more specifically, the adjustment’s 20% capital investment allowance—must be the shortfall source because the coker unit the QB Methodology assumes to process Resid has a significantly higher underlying capital investment cost than the facilities the methodology assumes to process Light Distillate and Heavy Distillate. It is unjust/unreasonable to continue the coker unit’s 20% capital investment allowance because typical U.S. West Coast cokers have lost any ability to realize the capital returns the allowance represents due to post-2005 petroleum market developments.⁶⁸

Discussion

135. The Flint Hills/Petro Star position on this issue rests almost entirely on analyses performed by Flint Hills witness Verleger.⁶⁹ The record in this investigation overwhelmingly establishes these analyses are completely illegitimate. Most fundamentally, Mr. Verleger misunderstands both what the QB Methodology is intended to achieve and how the methodology achieves it.

⁶⁸ This is a simplistic summary. I only provide it because the Flint Hills evidentiary presentations and the Flint Hills/Petro Star arguments (and opposing participants’ responses to them) are so convoluted and interdependent it is easy to lose the forest for the trees.

⁶⁹ As discussed *infra*, Mr. Verleger relies in part on an FO-380 fuel oil blendstock recipe suggested by Flint Hills witness Miller.

136. Mr. Verleger's initial premise that the composite value of the Quality Bank cuts always should exceed the Platts published price for ANS common stream crude oil is simply wrong. While both the QB Methodology and Platts place a value estimate on ANS common stream crude delivered at Valdez Terminal, only the QB Methodology valuation is relevant for Quality Bank purposes. It is the *Quality Bank* ANS common stream valuation that serves as the reference for the methodology's comparative ANS constituent stream valuations. The Platts published price for ANS common stream crude is irrelevant to the Quality Bank ANS common stream (i.e. composite cut) valuation—except as a source of confirmation that the Quality Bank composite cut valuation bears a rational relationship (*see Exxon*, 182 F.3d at 42) to the real world market value of ANS common stream crude delivered at Valdez Terminal.⁷⁰ Put differently, the QB Methodology is designed to achieve *internal* valuation consistency/accuracy—both in how it values the nine (9) Quality Bank cuts and in how it uses those values to determine the values of the ANS constituent streams relative to the ANS common stream. Moreover, the reference ANS common stream Quality Bank composite cut valuation is based on simple distillation.⁷¹ It represents the aggregate value of the nine (9) Quality Bank cuts assumed to be produced by a hypothetical distillation refinery. Accordingly, the QB Methodology does not derive cut values that reflect any additional processing “downstream” from the distillation tower—including coking.⁷² Paraphrasing *Exxon*: the Quality Bank uses a magnifying glass rather than a microscope. *See Exxon*, 182 F.3d at 42. Since the hypothetical Quality Bank refinery does not incorporate any of the advanced processing equipment a real world coking refinery would include, the QB Methodology ANS common stream valuation couldn't possibly reflect the ANS common stream market value Platts attempts to estimate. *See, e.g.*, Ex. CPA-1 at 16-19; Ex. EM-1 at 37-38. Any analysis based on the faulty premise that it does fails as a consequence.

⁷⁰ The record confirms a rational relationship has endured at all times since 2005. *See, e.g.*, Ex. EM-1 at 38; Ex. EM-10; Tr. 351-57. Also note the terms “price” and “value” can (and do in this context) have significantly different meanings.

⁷¹ As are the ANS constituent stream Quality Bank valuations. The record indicates there are no simple distillation refineries operating on the U.S. West Coast. Ex. EM-47 at 19.

⁷² The whole purpose of the Resid processing cost adjustment is to back out all the coking costs so Resid may be valued on a consistent basis with the other cuts—i.e. as a simple distillation product. Mr. Verleger reaffirmed his misunderstanding on this point throughout the proceeding. *See, e.g.*, Ex. FHR-51 at 7-8; Tr. 154-55, 294.

137. *OXY* clarifies:

The *goal* of the Quality Bank valuation methodology . . . is to assign *accurate relative values* to the petroleum that is delivered to TAPS and becomes part of the [ANS] common stream. In order to achieve this goal, FERC must accurately value all cuts—not merely some or most of them—*or it must overvalue or undervalue all cuts to approximately the same degree.*

OXY, 64 F.3d at 693 (emphasis added). *OXY* confirms the QB Methodology’s objective is to assign accurate *relative values* among the various Quality Bank cuts/ANS crude oil streams. The methodology’s objective is not to determine the *actual market values* of the cuts or streams for comparison purposes. But Mr. Verleger assumes it is—at least in the first instance. His reasoning distills to: (1) the Quality Bank composite cut valuation always should exceed the Platts ANS common stream market price; (2) it has not done so since 2009; (3) the Quality Bank composite cut valuation therefore has been understated since 2009; (4) the understated composite cut valuation necessarily implies at least one component cut is undervalued; and (5) if any component cut is undervalued, the Quality Bank stream valuations all must be inaccurate. This reasoning is unsound. As previously demonstrated, Mr. Verleger’s fundamental assumption that the Quality Bank composite cut valuation always should exceed the Platts ANS common stream market price is incorrect. The two have no meaningful connection for Quality Bank valuation purposes. This renders meaningless the circumstance that the Quality Bank composite cut valuation has not exceeded the Platts ANS common stream market price since 2009.⁷³ It also invalidates the follow-on conclusion that the Quality Bank composite cut valuation has been understated since 2009. Likewise invalidated is the contingent conclusion that at least one component cut is undervalued. It follows there is no valid basis on which to conclude the Quality Bank stream valuations are inaccurate.

138. More important, even accepting Mr. Verleger’s reasoning that an understated composite cut valuation necessarily implies at least one component cut is undervalued, it does not necessarily follow that the cut is undervalued vis-à-vis the other cuts. *OXY* expressly permits the QB Methodology to “*undervalue all cuts to approximately the same degree.*” *Id.* (emphasis added). By extension, it does not necessarily follow that the Quality Bank ANS constituent stream valuations will be inaccurate relative to one another. Mr. Verleger never focused on the limited Quality Bank objective clarified in

⁷³ This claim also is incorrect. The record indicates the Quality Bank composite cut valuation exceeded the Platts ANS common stream market price for most of 2012 and 2013. See Ex. EM-16.

OXY—which is simply to assign accurate *relative* valuations among the ANS constituent streams, including the ANS common stream. He never examined the *QB Methodology* cut valuations or ANS constituent stream valuations on a comparative basis to determine whether the QB Methodology *in itself* was assigning accurate relative valuations among the cuts and ANS crude streams.⁷⁴ See, e.g., Ex. CPA-1 at 28-29, 49; Ex. CPA-4 at 28-29; Ex. CPA-26 at 38; Ex. EM-1 at 38; Tr. 190-92. The complete absence of relative valuation evidence and analysis falls far short of satisfying the Flint Hills/Petro Star burden of proof on this issue.

139. The balance of analysis and evidence Mr. Verleger provides to support his reasoning falls far short of satisfying the Flint Hills/Petro Star burden of proof as well. The only other basis on which Mr. Verleger attempts to link his alleged Quality Bank composite cut valuation shortfall to the Resid valuation is a comparison he constructs between the Quality Bank Resid valuation and a value he imputes to Resid as an FO-380 fuel oil blendstock. This comparison exhibits multiple flaws.

140. As a threshold matter, however, I disagree with opposing participants' contention that it is illegitimate for Flint Hills/Petro Star to rely on any FO-380 blendstock comparison because the Commission repeatedly has rejected FO-380 as a Resid valuation proxy. Although it is true both the Commission and the D.C. Circuit Court of Appeals have rejected FO-380 as a Resid valuation reference product, Flint Hills/Petro Star have abandoned their initial claim that Mr. Veleger's FO-380 valuation should be adopted as a minimum Resid value for Quality Bank purposes.⁷⁵ Accordingly, they no longer claim FO-380 should be used as a reference product in any way. Flint Hills/Petro Star only attempt to use Mr. Verleger's FO-380 valuation to demonstrate the Quality Bank coker feedstock valuation is too low. Since the Commission has determined Resid is most valuable as a coker feedstock, a demonstration that Resid has a higher market value (vis-à-vis its coker feedstock Quality Bank valuation) as an FO-380 blendstock would support the Flint Hills/Petro Star contention that the QB Methodology undervalues Resid.⁷⁶ Nothing precludes Flint Hills/Petro Star from attempting to demonstrate this is the case.

⁷⁴ The record confirms Resid's relative valuation vis-à-vis the other Quality Bank cuts remained constant from January 2004 through May 2013. Ex. EM-1 at 38-40; Ex. EM-10; Ex. EM-11; Ex. EM-12; Ex. EM-13; Ex. EM-47 at 26; Tr. 196.

⁷⁵ I issued a post-hearing order accepting a Flint Hills/Petro Star stipulation to that effect on March 5, 2014.

⁷⁶ Note, however, that any such demonstration would not in itself establish the QB Methodology undervalued Resid vis-à-vis the other Quality Bank cuts. Also note that in this instance Flint Hills/Petro Star are not attempting to prove the QB Methodology Resid valuation is unjust or unreasonable in comparison to an allegedly superior alternative
(Continued)

141. The preceding determination notwithstanding, Mr. Verleger's FO-380 blendstock comparison is deeply flawed. First, Mr. Verleger's FO-380 blendstock value is not a reported market price. Tr. 386-87, 399, 1159. It is a value he derived using an FO-380 blending recipe created by Flint Hills witness Miller. Ex. FHR-1 at 36-37; Ex. FHR-25; Tr. 388-89. Mr. Miller confirmed on cross-examination he was unaware Mr. Verleger intended to use the blending recipe to derive an FO-380 blendstock market value for Resid, and the recipe cannot legitimately be used for that purpose. Tr. 1137-39. Mr. Miller also confirmed he would not expect an actual U.S. West Coast coking refinery to blend Resid with Light Distillate or Heavy Distillate as Mr. Verleger did to derive his imputed blendstock values. *Id.* at 1093-94. Mr. Verleger, in turn, conceded he does not know what blends refiners actually use make FO-380 fuel oil. He also conceded his imputed blendstock values assumed a refiner concentrating exclusively on maximizing Resid's blendstock value, even though a real world refiner would attempt to optimize the value of its entire products slate instead. *Id.* at 391-92. Finally, Mr. Verleger conceded that while Mr. Miller testified an accurate derived blendstock value for Resid would require fixed, capital, diluent and other costs associated with the blending/marketing operations to be deducted, Mr. Verleger made no such deductions. *Compare* Tr. 1145 *with* Tr. 318. It follows that the FO-380 blendstock value Mr. Verleger calculated for Resid is completely unreliable for comparison purposes.

142. Similarly flawed are Mr. Verleger's underlying assumptions that (i) there is an active market for Resid as an FO-380 blendstock on the U.S. West Coast and (ii) West Coast coking refineries have the capability to blend Resid as an alternative to coking it. The record confirms both assumptions are unfounded. The record establishes the U.S. West Coast FO-380 market is small and declining.⁷⁷ Ex. EM-1 at 46-49; EM-35 at 18-20; Tr. 322-23. Introducing significant additional supply into the West Coast market would cause the Platts FO-380 published price on which Mr. Verleger relies to plummet. Tr. 325-26; 1120-22; Ex. CPA-26 at 42. And since the hypothetical coker unit approved for the QB Methodology in Opinion No. 481 is assumed to process 40,000 barrels of Resid per day (*see* Opinion No. 481, 113 FERC ¶ 61,062 at P 25), any significant shift

(Continued)

because they do not advocate substituting Mr. Verleger's FO-380 valuation for the coker feedstock valuation. They instead advocate increasing Resid's Quality Bank valuation by eliminating the coker unit capital investment allowance from the Resid processing cost adjustment.

⁷⁷ The record indicates it is possible the entire U.S. West Coast FO-380 market currently is being satisfied without blending any Resid whatsoever. *See* Ex. ATS-51; Tr. 1250-77.

from coking to blending that volume would completely overwhelm the existing West Coast market, causing the actual market price of FO-380 to collapse. Ex. CPA-1 at 55. In addition, neither Mr. Verleger nor Mr. Miller provided any evidence West Coast coking refineries have the physical processing/tankage facilities required to blend Resid as an alternative to coking it (*see, e.g.*, Tr. 467-68; 1098-1100), and the record confirms they do not. Ex. CPA-1 at 55. Neither could Mr. Verleger or Mr. Miller confirm any West Coast coking refinery actually was blending ANS Resid instead of coking it. *See* Tr. 306, 389, 1259-67. It follows that Mr. Verleger's assumptions in these key respects fail to satisfy the rational relationship requirement reflected in *Exxon*. *See Exxon*, 182 F.3d at 42. Here again, the FO-380 blendstock value Mr. Verleger calculated for Resid is completely unreliable for comparison purposes.

143. The foregoing analyses establish Flint Hills/Petro Star have entirely failed to demonstrate Resid actually has a higher indicated market value as an FO-380 blendstock than the QB Methodology derives for it as a coker feedstock. But their conclusion that the indicated FO-380 market price demonstrates the QB Methodology substantially undervalues Resid as a coker feedstock is not a *necessary* predicate to their ultimate claim that it is unjust/unreasonable to continue to include a capital investment allowance in the Resid processing cost adjustment. That claim rests primarily on the assertion that West Coast cokers have failed to generate capital investment returns since 2009. Mr. Verleger argues this is a consequence of permanent market changes compelling West Coast refiners to abandon any reasonable expectation they ever again will realize capital investment returns on their cokers. This position has been discredited as a general matter. All that remains to examine are the specific market developments Mr. Verleger offers to support his "sunk cost" rationale.

144. These developments fairly may be summarized as: (1) excess West Coast coker capacity, as evidenced by reduced coker utilization rates (Ex. FHR-1 at 44); (2) an absence of new coker investment (*Id.* at 57); and (3) severely depressed refining asset values (*Id.* at 57).⁷⁸ The record contradicts all three. The record confirms U.S. West Coast coker utilization/capacity rates have not fallen materially below historical levels or the 87% utilization rate adopted in Opinion No. 481. Ex. FHR-1 at 60-61; Ex. EM-35 at 14-15; Ex. EM-40; Tr. 578. Although the West Coast coker utilization rate fell to 82%

⁷⁸ I summarily dismiss Mr. Verleger's suggestions that an influx of light Bakken crude oil and the California LCFS reasonably may be anticipated to devalue West Coast cokers. These suggestions are completely speculative/predictive. Moreover, as in so many other instances, Mr. Verleger simply provided no support for his assertions. And predictions (supported or not) are insufficient grounds to overcome a presumption—let alone modify a Commission-approved ratemaking methodology.

between 2007 and 2010,⁷⁹ the rate had rebounded to 87% by 2011 and stands at 91% today. Ex. EM-47 at 33. *See also* Ex. 35 at 13; Tr. 564 (confirming constant U.S. West Coast coking capacity between 2004 and 2013). The record therefore contradicts any claim either that West Coast coking capacity or coker utilization rates have deteriorated since Opinion No. 481 was issued in 2005. The record similarly contradicts Mr. Verleger's claim there has been no significant new investment in West Coast coking capacity. *See* Ex. CPA-1 at 42-44; Ex. CPA-8; Tr. 223. Most important, the record establishes that while U.S. West Coast coking margins varied widely over the period from 2004 through 2013, they were never negative. Ex. CPA-1 at 40-41. West Coast average annual coking margins always exceeded \$8.00/bbl. and were as high as \$15.00/bbl. *Id.* at 38-40. Mr. Verleger himself concedes U.S. West Coast cokers are currently profitable, earning returns both of and on capital investment. Tr. 507, 510-11.⁸⁰ I therefore find and conclude Mr. Verleger has failed to substantiate any of his claims that post-2005 market developments support a conclusion that U.S. West Coast cokers represent unrecoverable capital investments and, as a consequence, it is unjust/unreasonable to continue to include a capital investment allowance in the Quality Bank Resid processing cost adjustment.

III. If it is Determined that the Existing Quality Bank Methodology Has Become Unjust and Unreasonable for Valuing Resid, What Changes Need to Be Made to the Existing Methodology?

145. This issue is resolved in accordance with Issue I and Issue II.

IV. If the Existing Quality Bank Methodology is to Be Modified, Whether the Modified Methodology is Capable of Being Administered By the TAPS Carriers?

Participant Positions

146. TAPS Carriers submit that while they take no substantive position with respect to the QB Methodology changes Flint Hills/Petro Star propose in this investigation, the Quality Bank Administrator (QBA) has reviewed those proposals and concluded they could be implemented if approved by the Commission. Ex. ITC-1 at 4-5. The QBA notes, however, that some crude oil transported on TAPS is delivered to Alaska refiners. That oil travels only in intrastate commerce, and therefore is subject to Quality Bank

⁷⁹ Coinciding with Mr. Verleger's "Global Economic Collapse".

⁸⁰ *See also* Ex. FHR-1 at 32-33 (Platts netback data provided by Mr. Verleger for other purposes indicating West Coast coking refineries were profitable from 2009 to 2013).

adjustments under tariffs filed with the RCA. *Id.* at 5. For the Quality Bank to properly balance, the same payment methodology must be applied to both interstate and intrastate deliveries. Thus, if the Commission approves the Flint Hills/Petro Star proposals, the Quality Bank will balance only if the RCA approves them as well. *Id.*

147. Flint Hills, Anadarko/Tesoro and Trial Staff defer to the QBA evaluation. BPXA and ExxonMobil take no position. ConocoPhillips submits endorsing the Flint Hills/Petro Star position that economic fluctuations provide a sufficient basis to reopen the QB Methodology presents the potential for constant future litigation and administrative inefficiency. Petro Star cites the QBA evaluation, adding that ConocoPhillips's concern mischaracterizes the Flint Hills/Petro Star position.

Analysis

148. I defer to the QBA evaluation.

V. MATTERS NOT DISCUSSED

149. This Initial Decision's failure to discuss any matter raised/argument made by the participants, or any portion of the record, does not indicate it has not been considered. Rather, with the exception of the Flint Hills witness credibility issues raised by various participants—particularly Trial Staff—any such matter(s), argument(s) or portion(s) of the record has/have been determined to be irrelevant, of no consequence, unsupported, meritless or otherwise beyond the scope of issues set for hearing in this investigation. Arguments made on brief which otherwise were unsupported by record evidence or relevant authority have been accorded no weight. This Initial Decision is based exclusively on the merits of the participants' evidentiary presentations. Accordingly, while relevant and of consequence, it was unnecessary to take Flint Hills witness credibility into account. The hearing transcript speaks for itself in that regard. I therefore defer to it.

VI. ORDER

150. Wherefore, it is ordered, subject to review by the Commission on exceptions or on its own motion, as provided by Commission Rules of Practice and Procedure, that within thirty (30) days of the issuance of the final Commission order in this proceeding, the participants shall comply with the findings and conclusions reflected in this Initial Decision, as adopted or modified by the Commission.

H. Peter Young
Presiding Administrative Law Judge