

OPIS Refinery Maintenance Report

A Comprehensive Listing of Planned and Unplanned U.S. Refinery Maintenance



January 13, 2020

*Updated

PADD1 / East Coast

Monroe Energy - Trainer, PA – Second-quarter 2020 will see planned maintenance on the diesel hydrotreater at the 208,000-b/d refinery, Reuters reported on Dec. 10. As of presstime, duration of the work wasn't known. OPIS notes that the unit (as well as the hydrocracker and reformer) was down on an unplanned basis for several days in early November. As previously reported, the refinery underwent turnaround on a number of units beginning in late September. Those units included the CDU, both VDUs and the FCC. The CDU restart reportedly concluded on Nov. 2 and the FCC was restarted on Oct. 24.

PBF Energy - Delaware City, DE – The company confirmed on Jan. 7 reports of Q1 2020 turnaround plans at the 190,200-b/d refinery will include work on the alkylation unit. Duration of the maintenance is seen at 35-45 days. In addition, PBF disclosed that Q4 would see 35-45 days of planned maintenance on the crude unit. As previously reported, the January-March period will also see work on the facility's new hydrogen plant.

PBF Energy - Paulsboro, NJ – The company disclosed on Jan. 7 its plans for 20-30 days of turnaround on the reformer at the 166,000-b/d refinery in Q2 2020. RMR history shows four days of unplanned maintenance for the unit in mid-June 2019.

Philadelphia Energy Solutions - Philadelphia, PA – Mid-August 2019 saw worker lay-offs begin at the fire-damaged Girard Point section of the 335,000-b/d refinery, along with workers at the onsite rail terminal that received shale crude shipments. Lay-offs for workers at the idled Point Breeze section followed amid some efforts to eventually restart equipment there. However, most traders have written off the possibility of any crude being processed at the complex as a whole.

Phillips 66 - Linden, NJ – The diesel hydrotreater at the 265,000-b/d Bayway refinery in Linden, N.J., was shut on Dec. 9 on an unplanned basis, Energy News Today reported. As of presstime, the duration of the outage wasn't known.

United Refining - Warren, PA – The diesel hydrotreater at the 70,000-b/d refinery in Warren, Pa., was restarted Nov. 7 after being shut on Nov 4.

PADD2 / Midwest

BP - Whiting, IN – The smaller of two FCCs at the 430,000-b/d refinery began restart Oct. 28 after turnaround maintenance that commenced in September, according to a report by Genscape. OPIS notes that during the work, the rest of the plant was operating at reduced rates, countering previous reports that the largest of three crude units had shut. The FCC work, which might also have included downtime for the reformer, had originally been expected to stretch into mid-November.

CVR Energy - Coffeyville, KS – The coker at the 136,000-b/d refinery returned to normal operations on Dec. 23, according to Genscape, following a week at reduced rates.

Meanwhile, the next turnaround (of six weeks) for the refinery is scheduled to begin in early March 2020. Units seen included in the work are the FCC, alkylation unit and associated hydrotreating units. As previously reported, the latest unplanned downtime for the FCC was brief, spanning Dec. 4-5, according to a market source. The unit also saw unplanned downtime Nov. 26-29 and on Oct. 16-17.

CVR Energy - Wynnewood, Ok – Oct. 29 saw the return to operations of the FCC at the 78,000-b/d refinery, Genscape reported, after some 14 days of unplanned downtime. As previously reported, the Oct. 21 unplanned outage of a reformer, hydrocracker, alkylation unit, both crude units, two hydrotreaters and a sulfur recovery unit lasted only a day.

Flint Hills Resources - Pine Bend, MN – Planned maintenance on two of three cokers at the 339,000-b/d refinery wrapped up as of Oct. 21, according to Genscape. Work to replace coker heaters began in early September. Turnaround on the FCC and two sulfur recovery units there began soon after, with the FCC seen back up around Oct. 11. OPIS notes that one of the plant's crude units was in turnaround in Fall 2015 and the other in Spring 2016.

HollyFrontier - El Dorado, KS – The coker at the 162,000-b/d refinery restarted on Nov. 17, according to Genscape, following turnaround that began on Oct. 6. Two days earlier saw the return of the FCC and gas oil hydrotreater which went down for planned work on Oct. 1.

OPIS notes the coker had been down on an unplanned basis from Sept. 21 to Oct. 4. Other units involved in the work included an alkylation unit, another hydrotreater and a sulfur unit.

HollyFrontier - Tulsa, OK – The smaller of two crude units at the 166,520-b/d refinery was restarted two days after being shut on Oct.

All refinery and processing unit capacity figures are given in barrels per stream day per the EIA Refinery Capacity Report. Material is from the best possible sources, but because of the reticence of many companies to confirm unit outages, it cannot be guaranteed.

28, according to Genscape. OPIS notes that the refinery underwent a turnaround beginning in mid-February and lasting into early April.

Husky Energy - Lima, OH – As of Dec. 27, the reformer at the 185,000-b/d refinery had restarted, Genscape reported, three months after shutting down for turnaround. The FCC was continuing restart (begun Dec. 14) and the coker remained down. The crude unit was restarted on Dec. 20 (after 11 days of ramp-up).

The turnaround, begun in late September, was accompanied by tie-in of the crude project which wrapped up in late November. Anticipated throughput impact from the work over Q4 has been anticipated at 79,000 b/d. The crude flexibility project will increase heavy crude processing capability by 30,000 b/d (to 40,000 b/d).

Husky Energy - Superior, WI – Permits now approved, reconstruction of the damaged 50,000-b/d refinery was seen beginning soon, Husky said on Sept. 30, 2019. The rebuild is seen taking two years and full operations are expected in 2021, in line with previous guidance. OPIS notes that before July 2019, Husky had been targeting late 2020 for partial resumption of operations.

Included in the rebuild will be an additional 5,000 b/d of heavy oil processing capability, for a total of 25,000 b/d. Overall capacity won't change. The refinery was shut after an explosion and fire involving the FCC and an asphalt tank on April 26, 2018.

Marathon Petroleum - Catlettsburg, KY – The 292,000-b/d refinery will carry out crude unit maintenance in August 2020, Reuters reported on Dec. 10. Duration and scope of the work were unclear as of presstime. OPIS notes that all three crude units were down or at reduced rates for unplanned work in 2019: four days of cut rates for the largest of the three in August and roughly two weeks each for the other crude units in first-half February and first-half May. According to OPIS history, the last crude unit turnaround at the refinery took place in the second half of 2015.

Marathon Petroleum - Detroit, MI – Several processing units at the 147,000-b/d refinery shut on an unplanned basis on Sept. 12 were restarted within a few days, Genscape reported. Units said affected included the FCC, reformer and coker.

***PBF Energy - Toledo, OH** – As of Jan. 11, the reformer at the 188,000-b/d refinery was ramping up, Genscape reported, following six days of unplanned downtime. Duration of the restart wasn't known at presstime.

Meanwhile, an upcoming turnaround will include work on the larger of two crude units in February, as well as maintenance on the FCC (beginning in March) and alkylation unit, an industry source has confirmed to OPIS. As reported on Jan. 7, PBF disclosed in an investor presentation that the Spring 2020 turnaround would include 40-50 days of maintenance on the FCC and alkylation unit in parts of Q1 and Q2.

Phillips 66/Cenovus - Wood River, IL – A flare gas recovery

compressor at the 344,500-b/d refinery located in Roxana, Ill., was shut for repairs on Nov. 13, according to a flaring report filed with the state's emergency management agency. The event followed by one day the refinery's report of upset at a unit not identified in the filing. Phillips confirmed there was maintenance at the refinery on Nov. 12. As previously reported, the plant saw planned maintenance on a reformer, coker and crude unit during October.

Phillips 66 - Ponca City, OK – Jan. 8 saw a decrease of activity at a reformer at the 223,000-b/d refinery, Genscape reported. The unit (one of two) had been ramping up following shutdown after a fire on Jan. 2.

As previously reported, the second-largest crude unit – down since a Dec. 27 power outage – restarted on Jan. 4. After the outage, the smaller of two FCCs, one of the two reformers and an alkylation unit were restarted within a day. The other FCC may still be down.

Meanwhile, FCC upgrade work is scheduled in 2020, possibly in both spring and fall, according to reports. September will see about one month of work on one of two FCCs, an alkylation unit and one of three crude units, Bloomberg has reported. In addition, indications from Morgan Stanley suggest that late Q1 will see turnaround (41 days) on at least the second-largest crude unit and possibly also downstream conversion units.

Valero Energy - Memphis, TN – As of Dec. 18, the timing of a turnaround on the West Plant crude unit at the 185,000-b/d refinery had returned to Q1 2020, according to a market source. Initial reports indicating downtime in the latter part of the 2020 period were followed by Bloomberg reporting that the work had been deferred to Q1 2021. OPIS notes that the East Plant crude unit was down on a planned basis from early May through early July 2019. The West Plant crude unit operated at reduced rates (on unplanned basis) between early May and late June. In addition, the FCC saw Q2 turnaround of about two months beginning in late April.

More recently, the refinery's reformer was restarted Nov. 7-8 following unplanned downtime of several days.

PADD3 / Gulf Coast

Calumet - Shreveport, LA – About four weeks of Q4 maintenance at the 60,000-b/d refinery in Shreveport, La., was extended to include a crude debottlenecking project, company execs said in a Nov. 12, 2019 conference call.

The turnaround – originally planned for Q3 – appeared to have involved a catalyst changeout and at least one of two crude units. Calumet didn't indicate dates of the work, but several reports put the start at mid-October.

Chevron - Pasadena, TX – The 115,700-b/d refinery in greater Houston experienced a process upset on Jan. 10 that caused flaring,

Chevron said in a notice to a community hotline. The report included no specifics on the nature and duration of the event, and identity of the unit or units involved.

As previously reported, the refinery's FCC developed a leak on Dec. 22, with the restart process said to have begun two days later. Earlier in the quarter, the FCC resumed full operation on Nov. 13 after three days of restart following reduced operations during October and a shutdown. In September the unit was shut for two weeks on an unplanned basis.

Meanwhile, maintenance is planned to take place in Q1, beginning in early March. Reports of the work suggest downtime for the crude unit, which may mean reduced rates for conversion units.

CITGO - Corpus Christi, TX – The smaller of two FCCs at the 163,500-b/d refinery experienced emissions on Jan. 4, CITGO reported to state environmental regulators. The operating status of the unit wasn't indicated in the filing.

As previously reported, October unplanned downtime for the coker lasted about a week, finally restarting on Oct. 12. Operation of the unit had been sporadic, going down on Oct. 4, restarting and then going down again on Oct. 6. At the same time, the crude distillation and vacuum distillation units were down for three days, restarting on Oct. 5.

CITGO - Lake Charles, LA – As of about Dec. 16, the reformer down at the 440,000-b/d refinery had restarted, a market source told OPIS. As previously reported, one of the two smaller reformers began two weeks of planned work on Dec. 3. According to RMR data, the unit last saw planned work over 46 days in Fall 2017. The third and largest reformer at the refinery is due for a turnaround beginning in mid-January and running into early March.

Meanwhile, one of several cokers at CITGO Lake Charles is set to under undergo some 10 days of planned maintenance in late January, according to Energy News Today.

***Delek - Big Spring, TX** – FCC-related upsets at the 74,000-b/d refinery have continued in January ahead of planned maintenance later in the month. The FCC was shut on Jan. 12, according to Genscape. Delek also reported to TCEQ emissions that day due to upset of the electrostatic precipitator. Previously reported were an FCC upset on Jan. 9 and emissions from the crude flare on Jan. 8. Genscape also reported that a distillate hydrotreater was shut on Jan. 10 and a diesel hydrotreater was shut on Jan. 11.

Meanwhile, Delek plans maintenance at the refinery for roughly half of Q1, judging by its expectations for Q1 crude throughput to average 30,000-35,000 b/d. Some reports have the downtime stretching from latter January to mid-March.

Delek - Krotz Springs, LA – The FCC at the 83,000-b/d refinery will reportedly see planned maintenance in October 2020, Bloomberg has reported.

As previously reported, Delek put into operation a 6,000-b/d alkylation unit in early April 2019. The unit aids Delek in converting low-value butanes and butylenes into gasoline and in the production of multiple summer gasoline grades and premium gasoline.

Delek - Tyler, TX – The company reported operational issues and emissions at its 76,000-b/d refinery on Dec. 31 related to the start-up of the FCC and an associated boiler. Actions taken included restarting and stabilizing equipment but the filing didn't indicate the operating status of the processing unit. As previously reported, the FCC experienced operational issues due to an upset with the boiler in early November 2019. End-April 2019 also saw an unplanned FCC outage of about one week.

Ergon - Vicksburg, MS – The 27,300-b/d refinery plans to conduct turnaround maintenance for about seven weeks, beginning in early January, according to Morgan Stanley. Downstream conversion includes desulfurization capacity for diesel (2,200 b/d) and "other" (20,800 b/d) at the heavy end of the barrel.

ExxonMobil - Baton Rouge, LA – February 2020 planned maintenance is seen for the reformer at the 523,200-b/d refinery, possibly along with one of the four crude units, OPIS understands from industry sources. The last known downtime for the reformer was November 2017 through February 2018, for repairs following a fire. As for the crude units, the two largest last saw planned maintenance in Summer 2018 and mid-February to mid-April 2019. One of the smaller crude units was down for some 10 days, unplanned, in September 2019.

ExxonMobil - Baytown, TX – The smaller of two FCCs at the 584,000-b/d refinery experienced a leak on Dec. 22, according to an emissions report made to state environmental regulators. Repairs are underway but the report did not indicate how long maintenance downtime would last.

As previously reported, some eight weeks of turnaround maintenance on the larger FCC – originally scheduled for Q1 2020 – is seen beginning in September 2020. A recent unplanned outage of the hydrocracker lasted only a day, Oct. 22-23, according to Genscape. The unit had been restarted on Oct. 11 following nine days of unplanned downtime.

ExxonMobil - Beaumont, TX – The hydrocracker at the 380,900-b/d refinery, down since Dec. 18 on an unplanned basis, began restart on Jan. 4, Genscape reported. Duration of that process wasn't known at presstime.

December saw some eight days of unplanned work on the larger of two crude units, and restarts of units after Fall 2019 turnaround work. OPIS has previously reported that the hydrocracker and smaller of two reformers went down for turnaround in late September and that the work reduced crude runs in October and

November. The ULSD hydrotreater returned to operations on Nov. 1.

The coker and the largest crude unit had been reportedly due to undergo planned maintenance in Q1. Energy News Today has put the beginning of the turnaround in early April.

HollyFrontier - Artesia, NM – The catalytic reformer at the 124,000-b/d Navajo refinery began restart on Oct. 26 after being shut since Oct. 8, according to a report by Genscape.

OPIS notes that in August, HollyFrontier said only that maintenance was planned for September, without offering details.

OPIS also notes the last multi-unit planned maintenance for the refinery was done in Q1 2017. It's not clear which units were down at that time, but the work followed by about two years maintenance for the two crude units (one in October 2014 and the other in February 2015).

LyondellBasell - Houston, TX – Downtime for the smaller of two crude units at the 296,300-b/d refinery caused by a temporary power loss on Sept. 3 lasted about four days, according to Genscape.

Previously, FCC operations at the refinery were cut back 15% over several days in mid-August due to maintenance and subsequent malfunction in ethylene production at the company's Channelview chemical facility beginning Aug. 9 or 10.

Marathon Petroleum - El Paso, TX – The 140,000-b/d refinery has scheduled early Q1 2020 maintenance on a number of units, including a crude unit, FCC and alkylation unit, according to Bloomberg. The last known planned downtime for a crude unit at El Paso involved the larger of the two crude units over about 40 days, late September to end-October in 2017.

Marathon Petroleum - Galveston Bay, TX – Several units at the 616,000-b/d refinery are due for turnaround beginning in early March 2020, OPIS understands from market sources. They include the crude unit for medium grades, the smaller of two reformers (also down in early December on an unplanned basis) and the coker. The crude unit is expected to be down about two months and the other units a little less.

In November, unplanned downtime for the larger of two reformers at the refinery lasted four days, ending on Nov. 16. Downtime for the 141,000-b/d FCC reportedly stretched into early November following equipment problems during restart. The FCC went down on Oct. 31.

Marathon Petroleum - Garyville, LA – The crude unit at the 586,000-b/d refinery restarted late on Dec. 10, Genscape reported, about a day after restart of the coker. Turnaround for both began in late October.

As previously reported, one of two reformers was restarted as of Dec. 1, as well as a naphtha hydrotreater. In late October, MPC had confirmed Q4 downtime for the coker (for coker drum replacement)

and crude capacity (for a revamp project).

Motiva - Port Arthur, TX – The FCC at the 639,700-b/d refinery began the process of restart on Jan. 9, three days after a process incident, Motiva told state environmental regulators. The “air startup” notice estimated duration of the restart at three days. OPIS notes that reports have put the beginning of some six weeks of turnaround maintenance on the FCC at Jan. 15.

PBF Energy - Chalmette, LA – The larger of two cokers at the 197,000-b/d refinery is set to see planned maintenance in Q1 2020, according to Bloomberg. Duration of the downtime wasn't known as of presstime. OPIS notes that the unit saw 11 days of unplanned downtime in Q1 2019. The plant's smaller coker reportedly underwent restart during November following refurbishment in Q4. The unit was idled in 2010 under previous ownership.

As previously reported, PBF also made modifications on a cat feed hydrotreater in September to increase the plant's output of ULSD to 10,000 b/d from 5,000 b/d.

Phillips 66/Cenovus - Borger, TX – An FCC at the 154,000-b/d refinery was restarted Nov. 13 after experiencing an upset a day earlier, according to Genscape. The two FCCs at the refinery saw previous upsets on Oct. 21 and Sept. 30.

As previously reported, the coker shut on Sept. 30 for an unknown duration. Based on previous reports, the latest turnaround was likely to include an alkylation unit and at least one of three crude units.

Phillips 66 - Belle Chasse, LA – The FCC at the 263,000-b/d Alliance refinery was shut late on Jan. 6, Genscape said, in line with previous reports that the plant's next turnaround would begin in early January. The seven to eight weeks of planned maintenance includes downtime for at least the coker, crude unit and vacuum distillation unit. OPIS notes that a diesel hydrotreater and distillate hydrotreater were also shut at Alliance on Jan. 1, according to Genscape.

OPIS also notes that the CDU and VDU saw unplanned downtime Oct. 2-6, with the effect on two hydrotreaters lasting longer.

***Phillips 66 - Sweeny, TX** – The larger of two FCCs at the company's 269,400-b/d refinery was shut on Jan. 10, Genscape reported, in line with previous expectations that planned maintenance including the unit would begin before mid-month. The turnaround will reportedly last about four weeks.

As previously reported, Phillips 66 has confirmed completion timing of the FCC optimization project at the plant as Q2 2020. The upgrade will increase production of petrochemical products and higher-octane gasoline.

Phillips 66 - Westlake, LA – Mid-November unplanned downtime for the FCC at the 273,000-b/d refinery lasted no more

than three days, restarting on Nov. 18, according to Genscape. The outage occurred less than a week after the unit resumed operations after Fall turnaround. As previously reported, the planned maintenance and ramp-up lasted 52 days.

Meanwhile, the refinery's new 25,000-b/d isomerization unit -- completed in July -- ramped up to full production in Q3. The project increases production of higher-octane gasoline blend components.

Shell/Pemex - Deer Park, TX -- Late Jan. 9 saw the beginning of "work activities" possibly causing flaring at the 340,000-b/d refinery in greater Houston, according to a notice on a community hotline. The nature and duration of the work, as well as which units were involved, were not indicated in the report.

As previously reported, a similar notice was lodged on Nov. 20, 2019 following the discovery of a leak. The refinery also conducted a multi-unit turnaround in 2019 between end-September and Nov. 19. Units involved were the largest of three crude units, a VDU, coker, reformer feed hydrotreater, gas oil hydrotreater, larger of two reformers and the hydrocracker.

Shell - Convent, LA -- The 260,000-b/d refinery will reportedly conduct a month-long turnaround beginning in early February impacting about 100,000 b/d of processing capacity, according to Morgan Stanley. It's not clear which units will be involved, but OPIS notes that there was planned maintenance on the smaller of two crude units in February-March 2014 and on the larger crude unit and a reformer in March-April 2016.

Shell - Norco, LA -- The coker at the 250,000-b/d refinery was shut on Dec. 10, according to Reuters, and crude runs reduced. The report was in line with early-December indications of decreased activity at the coker ahead of several weeks of planned maintenance which would cut crude runs.

As previously reported, Oct. 2 saw restart initiation for the hydrocracker. The unit was shut on Sept. 9 for planned maintenance. Restart of the coker began on Aug. 19 after planned work was bumped from June to mid-July.

Total - Port Arthur, TX -- The smaller of two crude units and a vacuum distillation unit at the 245,000-b/d refinery concluded restart on Jan. 7, Genscape reported, some five days after being shut on an unplanned basis. The coker, whose runs were cut on Jan. 1, returned to normal operations on Jan. 6.

As previously reported, coker operations were normal as of Dec. 25, following four days of unplanned downtime and not long after a period of reduced rates. An unidentified processing unit in Area 5 experienced an upset on Dec. 4, according to TCEQ. Area 5 includes the coker, a diesel hydrotreater, and a coker naphtha hydrotreater among others. The filing followed by a day word that coker operations at the refinery might be impacted by the shutdown of a vacuum unit feeding it, based on estimated downtime of two weeks.

Valero Energy - Corpus Christi, TX -- A boiler trip in Complex 8 of the 300,000-b/d refinery on Dec. 17 took down several units on an unplanned basis, according to an emissions report to state environmental regulators. The gas oil treater, ULSD and sulfur reduction unit No. 1 train came down, the report said. Actions taken included reducing unit rates and restarting the boiler. Duration of the outage was reportedly less than one day.

As previously reported, the refinery's coker was again operating on Dec. 5 following turnaround (including the crude unit and vacuum unit) that began on Oct. 9. Unplanned downtime for the refinery's smaller hydrocracker (shut June 15) and reformer (shut Oct. 4) have stretched past mid-December, according to Genscape.

Valero Energy - Meraux, LA -- The reformer at the 128,000-b/d refinery was shut on Dec. 13, according to Genscape. Duration and nature of the outage wasn't known as of presstime. Dec. 13 also saw the restart of a solvent deasphalter (ROSE unit) which had been down since Dec. 2. According to OPIS data, the reformer had seen planned maintenance in the second half of January 2019.

Valero Energy - Norco, LA -- Some nine days after encountering a snag in restart, the reformer at the 220,000-b/d St. Charles refinery in Norco, La., was back in operation as of Dec. 11, Genscape reported. The unit was taken down for turnaround on Oct. 9.

The status of the hydrocracker shut on Dec. 2 on an unplanned basis remained unclear. OPIS notes that the last known turnaround for the unit took place over 38 days beginning in early October 2018.

Valero Energy - Port Arthur, TX -- The smaller of two hydrocrackers at the 415,000-b/d refinery was shut on Jan. 1, according to Genscape. Having seen some 85 days of planned maintenance in Fall 2019, the latest outage was likely unplanned. Duration was unknown as of presstime.

As previously reported, the coker operated at reduced rates for four days, returning to normal rates on Nov 28. The smallest of three crude units was down as of Oct. 21 for at least a week, an outage which followed a roughly two-week period of reduced runs in the second half of September and into early October. Meanwhile, Valero has reportedly scheduled a turnaround in February 2021 for the FCC.

Valero Energy - Sunray, TX -- The unplanned Nov. 19 outage of the larger of two reformers at the 200,000-b/d McKee refinery in Sunray, Texas, lasted less than a day, Genscape reported.

Meanwhile, the refinery is reportedly planning a turnaround in Q2 2021, according to Bloomberg, which would include work on at least one of the crude units, the hydrocracker and the reformer.

Valero Energy - Texas City, TX -- The 231,000-b/d refinery plans to take down its coker for turnaround in January 2020, Bloomberg reported, most likely for six weeks. Last known downtime for the coker at the facility was about a week of reduced runs, unplanned basis, in the wake of Hurricane Harvey in late August, early

September 2017.

Valero Energy - Three Rivers, TX – The 91,000-b/d refinery will reportedly see about a month and a half of turnaround beginning in early January. The last known significant amount of downtime at the plant was a three-week period for the FCC that began on Sept. 18, 2019. It wasn't known whether the work was planned or unplanned.

PADD4 / Rockies

Calumet - Great Falls, MT – As of Dec. 2, the 25,000-b/d refinery was back to full operations following a fire on Nov. 30, according to local press accounts citing a statement from Calumet. A leak from a pipe fitting, now repaired, caused the fire (characterized as small). A processing unit – not identified – was shut and then restarted. As of presstime, Calumet had not responded to OPIS questions. The refinery experienced a fire on March 7 – the result of unusually prolonged cold weather -- which took down or reduced rates at a number of units. Full operations were resumed on March 28.

HollyFrontier - Cheyenne, WY – The Fall turnaround at the 52,000-b/d refinery was seen concluding in the second half of Q4, the company said on Oct. 31. The guidance is in line with previous OPIS reporting based on local media reports and indications that the work began in late September.

OPIS notes that a Fall 2013 turnaround at the Cheyenne plant began in the third week of September. That work focused on the crude unit, reformer and distillate hydrotreater. OPIS history also shows that the plant's FCC and alkylation units underwent turnaround in April 2016.

Marathon Petroleum - Salt Lake City, UT – The 64,500-b/d refinery is set to carry out a turnaround over six weeks beginning in early March, according to Morgan Stanley. Last known planned maintenance for the refinery took place in Q1 2017 and OPIS notes that the plant's FCC saw some three weeks of unplanned work in late September 2017.

Par Pacific - New Castle, WY – The company continues to plan maintenance for its 18,500-b/d refinery in Q4 2020, senior management said on Nov. 4, citing historical indications of capital expenditure at \$15 million to \$17 million. The team didn't elaborate on the turnaround's timing but in early August, Par Pacific specified October. OPIS notes that the refinery's crude unit underwent turnaround in the second half of October 2018.

Suncor - Commerce City, CO – Jan. 8 saw restart of the FCC at the 111,500-b/d refinery in the Denver area, almost one month after a post-turnaround restart attempt resulted in a release of catalyst to the community and shutdown of the unit.

The FCC (one of two) was shut on Dec. 11. Too much gas oil was

added to the unit during start-up from maintenance conducted in at least November (if not part of October). Restart was initially expected in the last full week of December but was postponed on Dec. 27 for "additional operability checks" which took until about Jan. 3.

Meanwhile, more maintenance downtime is seen for the refinery in March, according to Morgan Stanley. Indications suggest that about a month of work will take place at one of three crude units. RMR history shows previous crude unit turnarounds during March in 2018 and 2019, as well as in October 2018.

PADD5 / West Coast

Chevron - El Segundo, CA – Dec. 9 saw the restart of an alkylation unit at the 290,500-b/d refinery near Los Angeles, Genscape reported. The unit had been down on an unplanned basis since Sept. 18.

As previously reported, the FCC at the refinery restarted on Nov. 28 after 34 days of downtime. That outage had followed about a month of shutdown and/or reduced operations between mid-September and mid-October. A coker also restarted on Oct. 13 and the hydrocracker underwent planned maintenance beginning Sept. 27 into at least the first ten days of October.

Chevron - Richmond, CA – Unplanned downtime for the larger of two hydrocrackers at the 260,000-b/d refinery lasted some 10 days, according to Genscape, coming back on line on Oct. 20. The unit was also down unplanned for some part of September (beginning on Sept. 8). The plant's smaller hydrocracker experienced a one-day outage in early September.

Kern Oil - Bakersfield, CA – The 27,000-b/d refinery is due to undergo some two weeks of turnaround maintenance in late February and early March, according to Morgan Stanley. The plant has up to 3,300 b/d of catalytic reforming capacity, 5,000 b/d of naphtha/reformer desulfurization capacity and 9,000 b/d of distillate desulfurization capacity.

Marathon Petroleum - Los Angeles, CA – Flaring and SO₂ emissions reported late Jan. 6 from the Carson section of the 383,000-b/d Los Angeles refining complex were the result of a forced shutdown of a 95,000-b/d VGO hydrotreater, Energy News Today reported. Duration of the outage wasn't known as of presstime. The company's filing with local environmental regulators didn't identify the unit involved.

Meanwhile, the Wilmington crude unit (second-largest of the four crude units in the complex) was previously reported to be beginning about one month of planned maintenance in early January. The unit last saw downtime, unplanned, from late October to late November 2019.

Marathon Petroleum - Martinez, CA – Operations at the 170,000-b/d refinery were restored by the end of Oct. 16, MPC said, following unit shutdowns on Oct. 14 due to an earthquake in the region.

As previously reported, the restart process began within about one day. MPC didn't identify the downed units, but Genscape said they included the hydrocracker, reformer, hydrotreater and alkylation unit.

Par Pacific - Kapolei, HI – In addition to the crude unit turnaround at the 57,000-b/d West portion of the refinery and the crude pipeline tie-in in July and August 2019, a reformer at the 95,000-b/d legacy East portion of the refinery saw 34 days of unplanned downtime (concluding in mid-September). The East hydrocracker and new diesel hydrotreater operated at reduced rates for 11 days.

Meanwhile, turnaround at the East plant has also been set for 2020. Execs in a Nov. 4 call didn't specify the timing, but in August they indicated early summer. East Kapolei last saw planned maintenance July 9-Aug. 9, 2016.

Start-up of a 10,000-b/d naphtha hydrotreater and a 6,500-b/d isomerization unit at the Hawaii refinery will take place in 2021. The units will upgrade naphtha (currently exported) into gasoline for consumption in Hawaii, increase octane flexibility and reduce exposure to Tier 3 and benzene credit requirements across the Par Pacific system.

Par Pacific - Tacoma, WA – The company has deferred until 2021 all of the maintenance for the 42,000-b/d refinery that was originally planned to begin in later 2020 and then resume in Q1 2021, executives said in a Nov. 4 conference call.

Under previous ownership, the refinery last saw plantwide maintenance in Q2 2015. A crude unit fire on May 6 shut the plant and advanced a turnaround originally planned for later in 2015.

PBF Energy - Torrance, CA – The 166,200-b/d refinery notified local environmental regulators that the plant would be flaring on a planned basis from the evening of Jan. 1 through Jan. 4 due to unit “start-up/shutdown.” No unit or units were identified in the filing.

Genscape reported that the refinery's hydrocracker was shut on Dec. 28. As previously reported, the refinery reported a breakdown on Nov. 15 and then notified regulators of planned flaring Nov. 18 to Nov. 24. The unit or units affected weren't identified. One West Coast refining source cited “steam and hydrogen issues” for the breakdown and flaring over a week's time. PBF declined to comment.

Phillips 66 - Ferndale, WA – The 110,500-b/d refinery experienced a power outage on Sept. 19, according to local news reports, which resulted in flaring and smoke but no injuries and no offsite impacts. Power was restored and units began the process of

restarting within a few hours, the reports said.

Phillips 66 - Los Angeles, CA – As of Jan. 6, downtime for processing units shut by a Dec. 25 fire in the boiler plant at the Wilmington section of the company's 147,000-b/d Los Angeles refinery was stretching into a third week. Phillips notified local regulators about flaring planned for Jan. 8 through Jan. 15 for a “start-up/shutdown” event.

As previously reported, activity in some of the units was increasing as of Dec. 30, while others remained offline. At that time, units at less than normal rates included two reformers and a naphtha hydrotreater. Still shut were units including the FCC and hydrocracker.

The fire occurred just hours before several days of maintenance-related flaring was scheduled to begin. “Start-up/shut down” was given as the reason for the planned flaring event. The affected unit wasn't identified.

Phillips 66 - Rodeo, CA – Turnaround downtime for the reformer at the 128,000-b/d Rodeo portion of the company's San Francisco complex was ongoing as of Dec. 17, Genscape reported. The unit, which has been down since mid-October, was attempting restart for a second time in the month. A jet/diesel hydrotreater is also in the process of restarting. Post-turnaround restart of both hydrocrackers earlier in December appears to have been successful.

As previously reported, the coker, crude unit and vacuum distillation unit saw some ten days of unplanned repairs in late September and early October, before planned maintenance began around mid-October.

Shell - Anacortes, WA – Some ten days of unplanned downtime for the coker at the 149,000-b/d refinery appeared to be coming to a conclusion as of Oct. 15, Genscape reported. As previously reported by OPIS, the refinery saw plantwide turnaround maintenance that began in early March 2019 and wrapped up in mid-May.

Shell - Martinez, CA – The company notified local health officials on Jan. 8 about a unit startup at the 158,000-b/d refinery in a filing which didn't identify the unit.

As previously reported, Oct. 31 saw an unexpected unit trip and a Genscape report about flaring later the same evening. The flaring was said to have taken place at the light oil processing plant “due to normal operations,” according to a filing made with state regulators.

Accounts of Fall 2019 planned maintenance undertaken ahead of PBF's closing on acquisition of the plant in Q1 2020 vary regarding timing. Duration of that work has been given as both September to mid-October and November to mid-December.

Valero Energy - Benicia, CA – The company began maintenance on a processing unit at the 149,000-b/d refinery on Dec. 20, according to an emissions notice it filed with the city regarding

several days of intermittent flaring due to the work. The notice didn't identify the unit or indicate the duration of the maintenance.

As previously reported, the refinery saw flaring on Sept. 20, according to a report with environmental regulators.

Valero Energy - Wilmington, CA – The alkylation unit at the 87,000-b/d refinery was down as of at least Jan. 7, according to Genscape. The nature and duration of the work weren't known as of presstime. In terms of planned maintenance, OPIS notes that Fall 2017 saw turnaround downtime for the crude unit and coker, while the FCC was last down for turnaround in November-December 2015.