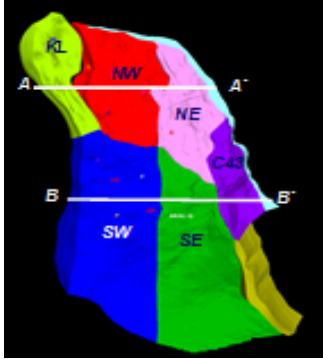
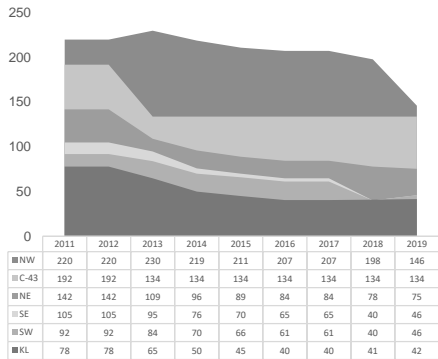


**NATIONAL HYDROCARBONS COMMISSION**  
**Akal Field Operational Report/1, Production Active Cantarell**  
June 2019

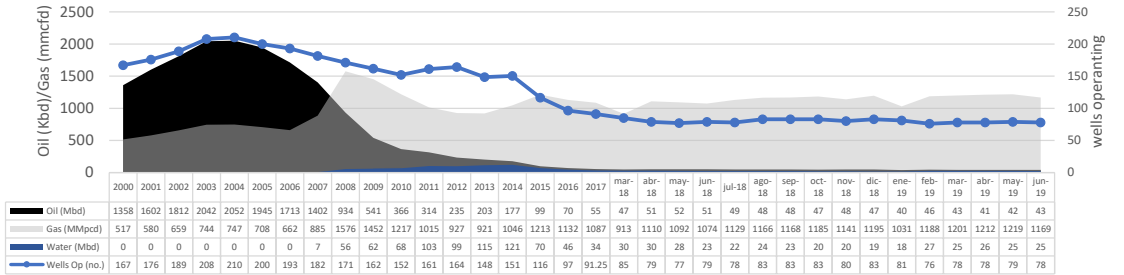
Block map in Akal



Thickness of the oil column in vertical meters (MV) since 2011



Production and wells operating 2000 - 2019



Closure and reopening of cycling wells<sup>2</sup>

|           | Jan-19 | Feb-19 | Mar-19 | Apr-19 | May-19 | Jun-19 | Jul-19 | Aug-19 | Sep-19 | Oct-19 | Nov-19 | Dec-19 | Total |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Closure   | 133    | 7      | 4      | 6      | 7      | 4      | 0      | 0      | 0      | 0      | 0      | 0      | 161   |
| Reopening | 127    | 5      | 4      | 6      | 6      | 6      | 0      | 0      | 0      | 0      | 0      | 0      | 154   |

Advance of the Gas / Water contact per block since 2012<sup>3</sup> (meters)

Pressure by block<sup>4</sup> (kg/cm<sup>2</sup>)

Percentage variation of the pressure per block

| Block | 2012   | 2013  | 2014 | 2015 | 2016 | 2017  | 2018 | 2019  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019   | 2012  | 2013  | 2014 | 2015  | 2016 | 2017 | 2018  | 2019 | TMC  |
|-------|--------|-------|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|------|-------|------|------|-------|------|------|
| C-43  | -13.00 | 0.00  | 0.00 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 73.95 | 73.80 | 73.80 | 73.80 | 73.80 | 80.52 | 96.88 | 99.72  | -0.4% | -0.2% | 0.0% | 0.0%  | 0.0% | 9.1% | 20.3% | 2.9% | 2.9% |
| KL    | -2.00  | 6.23  | 5.77 | 4.23 | 3.60 | -3.83 | 8.00 | 1.80  | 46.81 | 49.30 | 51.44 | 51.73 | 52.08 | 55.38 | 61.31 | 63.92  | 0.6%  | 5.3%  | 4.4% | 0.6%  | 0.7% | 6.3% | 10.7% | 4.3% | 4.3% |
| NE    | -6.50  | 12.90 | 7.60 | 5.30 | 2.70 | 4.00  | 2.00 | 1.60  | 72.21 | 73.21 | 73.95 | 73.90 | 73.90 | 76.09 | 83.68 | 86.27  | 0.3%  | 1.4%  | 1.0% | -0.1% | 0.0% | 3.0% | 10.0% | 3.1% | 3.1% |
| NW    | -73.50 | 11.31 | 8.19 | 4.61 | 4.39 | 5.00  | 4.00 | 48.80 | 65.26 | 66.59 | 66.64 | 66.97 | 67.38 | 69.72 | 77.00 | 79.48  | 0.1%  | 2.0%  | 0.1% | 0.5%  | 0.6% | 3.5% | 10.5% | 3.2% | 3.2% |
| SE    | 2.00   | 19.59 | 6.41 | 5.01 | 4.79 | 9.20  | 5.00 | -2.20 | 87.04 | 87.12 | 88.26 | 88.26 | 88.26 | 92.06 | 98.15 | 101.83 | -1.3% | 0.1%  | 1.3% | 0.0%  | 0.0% | 4.3% | 6.6%  | 3.8% | 3.8% |
| SW    | 3.00   | 14.20 | 4.80 | 4.80 | 4.80 | 5.40  | 5.00 | 1.60  | 86.39 | 87.60 | 88.08 | 89.11 | 91.77 | 94.07 | 98.02 | 100.80 | -0.6% | 1.4%  | 0.6% | 1.2%  | 3.0% | 2.5% | 4.2%  | 2.8% | 2.8% |

Gas / Oil ratio/5 per block since 2010, by year and as a monthly average for the last 12 months

| Block | Annual average |       |       |       |        |        |        | Average last 12 months |        |        |        |        |        |        |        |        |        |        |        |        |
|-------|----------------|-------|-------|-------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|       | 2011           | 2012  | 2013  | 2014  | 2015   | 2016   | 2017   | 2018                   | Jul-18 | Aug-18 | Sep-18 | Oct-18 | Nov-18 | Dec-18 | Jan-19 | Feb-19 | Mar-19 | Apr-19 | May-19 | Jun-19 |
| C-43  | 10,305         | 3,990 | 2,155 | 3,711 | 9,394  | 39,693 | 16,691 | 714                    | 703    | 698    | 704    | 735    | 733    | 746    | 734    | 703    | 753    | 783    | 13,015 | 779    |
| KL    | 3,351          | 6,132 | 7,805 | 8,676 | 26,010 | 25,500 | 41,413 | 43,803                 | 38,690 | 40,537 | 36,197 | 33,920 | 28,936 | 24,637 | 26,749 | 26,473 | 30,416 | 34,902 | 26,807 | 26,987 |
| NE    | 8,167          | 7,938 | 8,861 | 8,586 | 18,956 | 16,074 | 19,116 | 31,703                 | 36,349 | 38,517 | 34,260 | 41,883 | 33,958 | 38,629 | 39,395 | 44,464 | 52,923 | 57,627 | 65,381 | 50,380 |
| NW    | 6,124          | 5,637 | 4,997 | 5,820 | 15,227 | 20,595 | 32,142 | 32,598                 | 36,263 | 40,452 | 37,391 | 32,290 | 31,636 | 34,353 | 34,461 | 36,414 | 37,388 | 39,299 | 42,333 | 40,570 |
| SE    | 5,373          | 3,062 | 3,903 | 9,041 | 19,750 | 14,974 | 20,608 | 24,502                 | 24,160 | 22,177 | 29,758 | 45,095 | 18,159 | 31,515 | 22,971 | 23,669 | 27,060 | 26,366 | 21,617 | 20,799 |
| SW    | 3,501          | 3,714 | 7,463 | 8,039 | 15,227 | 20,162 | 27,856 | 22,705                 | 14,773 | 22,469 | 17,708 | 21,063 | 17,747 | 26,226 | 26,613 | 18,217 | 20,376 | 21,172 | 19,509 | 21,730 |

Notes:  
<sup>1</sup> Akal is the main field of Cantarell Production Assets. Both historical and monthly information is provided by Pemex Exploración y Producción through monthly monitoring reports.  
<sup>2</sup> Cyclic wells are those that have a high RGA or a high % of water, and therefore are closed to stabilize and then reopened. The last month reported in the closures is preliminary, because it is made official the month after the well stops producing.  
<sup>3</sup> In 2012, Pemex made measurements on the levels of the blocks, so they showed a setback, hence negative values are observed. 2018 corresponds to the advance achieved from January through the month of the report's publication.  
<sup>4</sup> 2018 corresponds to the average month of reporting.  
<sup>5</sup> The oil gas ratio is obtained by dividing the volume of gas produced in cubic feet per day by the volume produced per day.  
<sup>6</sup> The distance that determines if a well is inside or outside the CGA is in relation to its top and the approximate average of the CGA level of the block, which may have different depths within it, so the distance to the well is considered a reference value.

Distribution of wells operating by block, volume of production and depth of top and base (MV), in June 2018.

