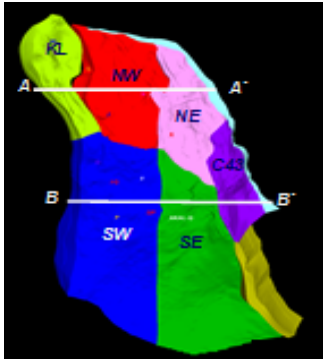
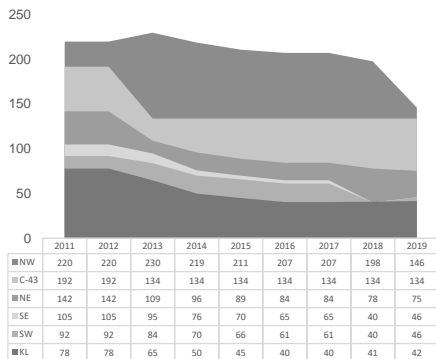


**COMISIÓN NACIONAL DE HIDROCARBUROS**  
**Akal Field Operational Report<sup>1</sup>, Production Active Cantarell**  
**September 2019**

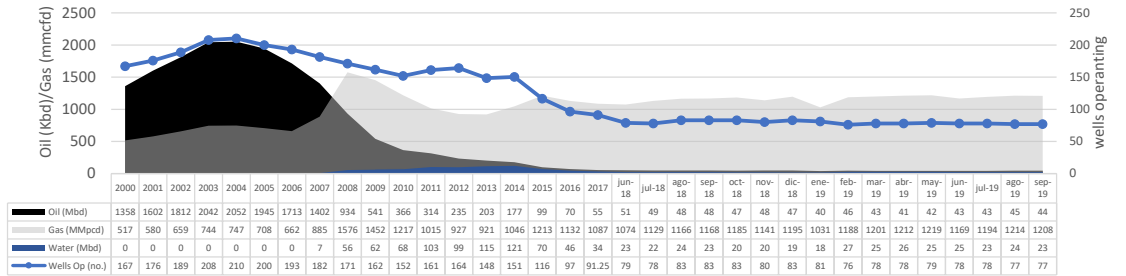
Block map in Akal



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	6	6	3				176
Reopening	127	5	4	6	6	6	6	4	6				170

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	100.21	-0.4%	-0.2%	0.0%	0.0%	0.0%	9.1%	20.3%	3.4%	3.4%
KL	-2.00	6.23	5.77	4.23	3.60	-3.83	8.00	2.70	46.81	49.30	51.44	51.73	52.08	55.38	61.31	64.32	0.6%	5.3%	4.4%	0.6%	0.7%	6.3%	10.7%	4.9%	4.9%
NE	-6.50	12.90	7.60	5.30	2.70	4.00	2.00	2.20	72.21	73.21	73.95	73.90	73.90	76.09	83.68	86.76	0.3%	1.4%	1.0%	-0.1%	0.0%	3.0%	10.0%	3.7%	3.7%
NW	-73.50	11.31	8.19	4.61	4.39	5.00	4.00	49.40	65.26	66.59	66.64	66.97	67.38	69.72	77.00	80.03	0.1%	2.0%	0.1%	0.5%	0.6%	3.5%	10.5%	3.9%	3.9%
SE	2.00	19.59	6.41	5.01	4.79	9.20	5.00	-1.00	87.04	87.12	88.26	88.26	88.26	92.06	98.15	101.98	-1.3%	0.1%	1.3%	0.0%	0.0%	4.3%	6.6%	3.9%	3.9%
SW	3.00	14.20	4.80	4.80	4.80	5.40	5.00	2.70	86.39	87.60	88.08	89.11	91.77	94.07	98.02	101.09	-0.6%	1.4%	0.6%	1.2%	3.0%	2.5%	4.2%	3.1%	3.1%

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	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19
C-43	10,305	3,990	2,155	3,711	9,394	39,693	16,691	714	735	733	746	734	703	753	783	13,015	779	8,289	8,269	8,303
KL	3,351	6,132	7,805	8,676	26,010	25,500	41,413	43,803	33,920	28,936	24,637	26,749	26,473	30,416	34,902	26,807	26,987	28,056	32,470	31,332
NE	8,167	7,938	8,861	8,586	18,956	16,074	19,116	31,703	41,883	33,958	38,629	39,395	44,464	52,923	57,627	65,381	50,380	52,098	48,316	51,642
NW	6,124	5,637	4,997	5,820	15,227	20,595	32,142	32,598	32,290	31,636	34,353	34,461	36,414	37,388	39,299	42,333	40,570	42,190	42,695	45,873
SE	5,373	3,062	3,903	9,041	19,750	14,974	20,608	24,502	45,095	18,159	31,515	22,971	23,669	27,060	26,366	21,617	20,799	22,682	19,121	18,687
SW	3,501	3,714	7,463	8,039	15,227	20,162	27,856	22,705	21,063	17,747	26,226	26,613	18,217	20,376	21,172	19,509	21,730	26,654	23,437	23,271

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. 2019 corresponds to the advance achieved from January through the month of the report's publication.  
<sup>4</sup> 2019 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 September 2018.

