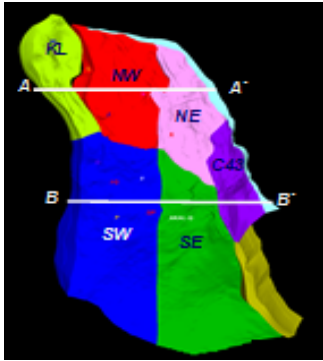
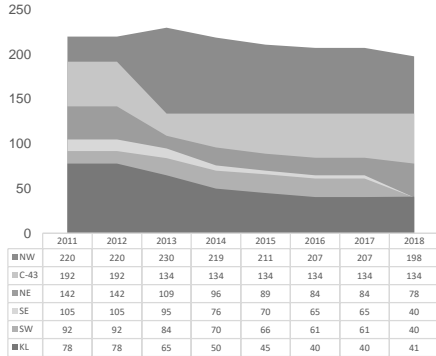


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Akal Field Operational Report/1, Production Active Cantarell
December 2018

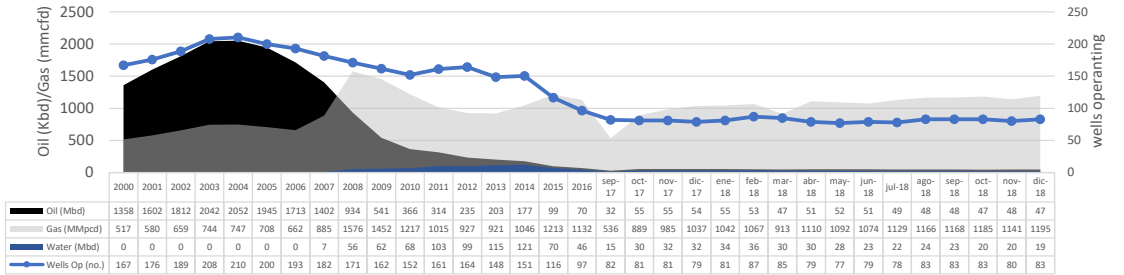
Block map in Akal



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



Production and wells operating 2000 - 2018



Advance of the Gas / Water contact per block since 2011^{1/3} (meters)

Pressure by block⁴ (kg/cm²)

Percentage variation of the pressure per block

Block	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	TMC
C-43	8.00	-13.00	0.00	0.00	0.00	0.00	0.00	0.00	74.25	73.95	73.80	73.80	73.80	73.80	80.52	96.88	-7.5%	-0.4%	-0.2%	0.0%	0.0%	0.0%	9.1%	20.3%	20.3%
KL	6.40	-2.00	6.23	5.77	4.23	3.60	-3.83	8.00	46.52	46.81	49.30	51.44	51.73	52.08	55.38	61.31	1.9%	0.6%	5.3%	4.4%	0.6%	0.7%	6.3%	10.7%	10.7%
NE	25.00	-6.50	12.90	7.60	5.30	2.70	4.00	2.00	72.02	72.21	73.21	73.95	73.90	73.90	76.09	83.68	-0.7%	0.3%	1.4%	1.0%	-0.1%	0.0%	3.0%	10.0%	10.0%
NW	36.00	-73.50	11.31	8.19	4.61	4.39	5.00	4.00	65.17	65.26	66.59	66.64	66.97	67.38	69.72	77.00	-0.9%	0.1%	2.0%	0.1%	0.5%	0.6%	3.5%	10.5%	10.5%
SE	9.00	2.00	19.59	6.41	5.01	4.79	9.20	5.00	88.14	87.04	87.12	88.26	88.26	88.26	92.06	98.15	-0.9%	-1.3%	0.1%	1.3%	0.0%	0.0%	4.3%	6.6%	6.6%
SW	3.00	3.00	14.20	4.80	4.80	4.80	5.40	5.00	86.90	86.39	87.60	88.08	89.11	91.77	94.07	98.02	-0.6%	-0.6%	1.4%	0.6%	1.2%	3.0%	2.5%	4.2%	4.2%

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												
	2010	2011	2012	2013	2014	2015	2016	2017	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
C-43	8,898	10,305	3,990	2,155	3,711	9,394	39,693	16,691	482	799	697	805	737	725	703	698	704	735	733	746
KL	3,553	3,351	6,132	7,805	8,676	26,010	25,500	41,413	30,840	38,994	111,697	45,328	48,266	37,588	38,690	40,537	36,197	33,920	28,936	24,637
NE	9,532	8,167	7,938	8,861	8,586	18,956	16,074	19,116	15,858	19,843	26,506	31,585	28,591	33,559	36,349	38,517	34,260	41,883	33,958	38,629
NW	6,493	6,124	5,637	4,997	5,820	15,227	20,595	32,142	22,300	24,373	27,021	28,554	33,377	38,959	36,263	40,452	37,391	32,290	31,636	34,353
SE	9,672	5,373	3,062	3,903	9,041	14,974	20,608		21,292	23,941	17,995	17,418	19,396	19,607	24,160	22,177	29,758	45,095	18,159	31,515
SW	4,583	3,501	3,714	7,463	8,039	15,227	20,162	27,856	29,833	34,371	25,825	24,472	19,548	13,627	14,773	22,469	17,708	21,063	17,747	26,226

Notes:
¹ 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.
² 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.
³ 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.
⁴ 2018 corresponds to the average month of reporting.
⁵ The oil gas ratio is obtained by dividing the volume of gas produced in cubic feet per day by the volume produced per day.
⁶ 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 November 2018.

