Water flooding Improvement with PI System

Presented by

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Automation Team Leader
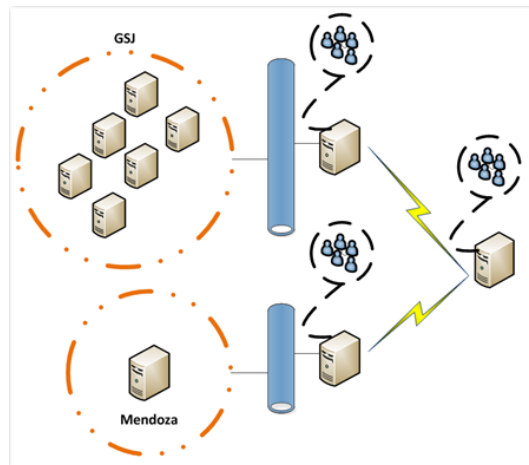
Sinopec Argentina E&P

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Sinopec operates in 3 provinces of Argentina:
- 100 wells in Mendoza
- 100 wells in Chubut
- 2000 wells in Santa Cruz
- Headquarters in Buenos Aires

Water flooding Improvement

- **The designers of the Project are working in Buenos Aires.**
- **The Operation is located in Las Heras (Santa Cruz) way south of Argentina.**
- **Plant is operated by field technicians.**
- **The information about the project is distributed in different locations.**
- **The users involved in the process are in different geographical points.**
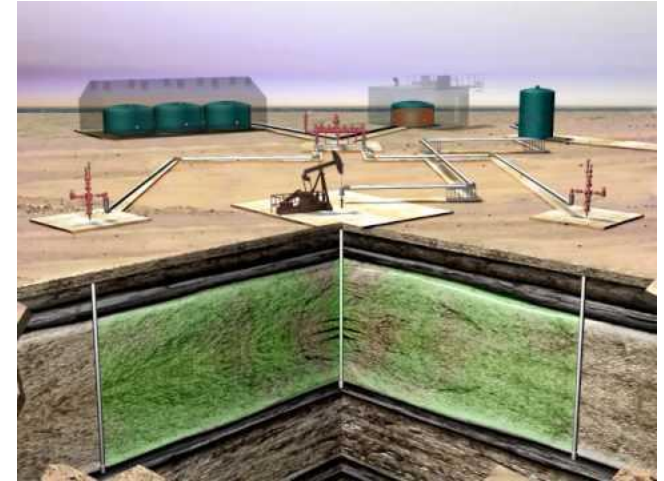
Business Challenge

- Improve the use of information generated by different Scada Servers.
- Share real time Production data with Facilities and Asset Department.
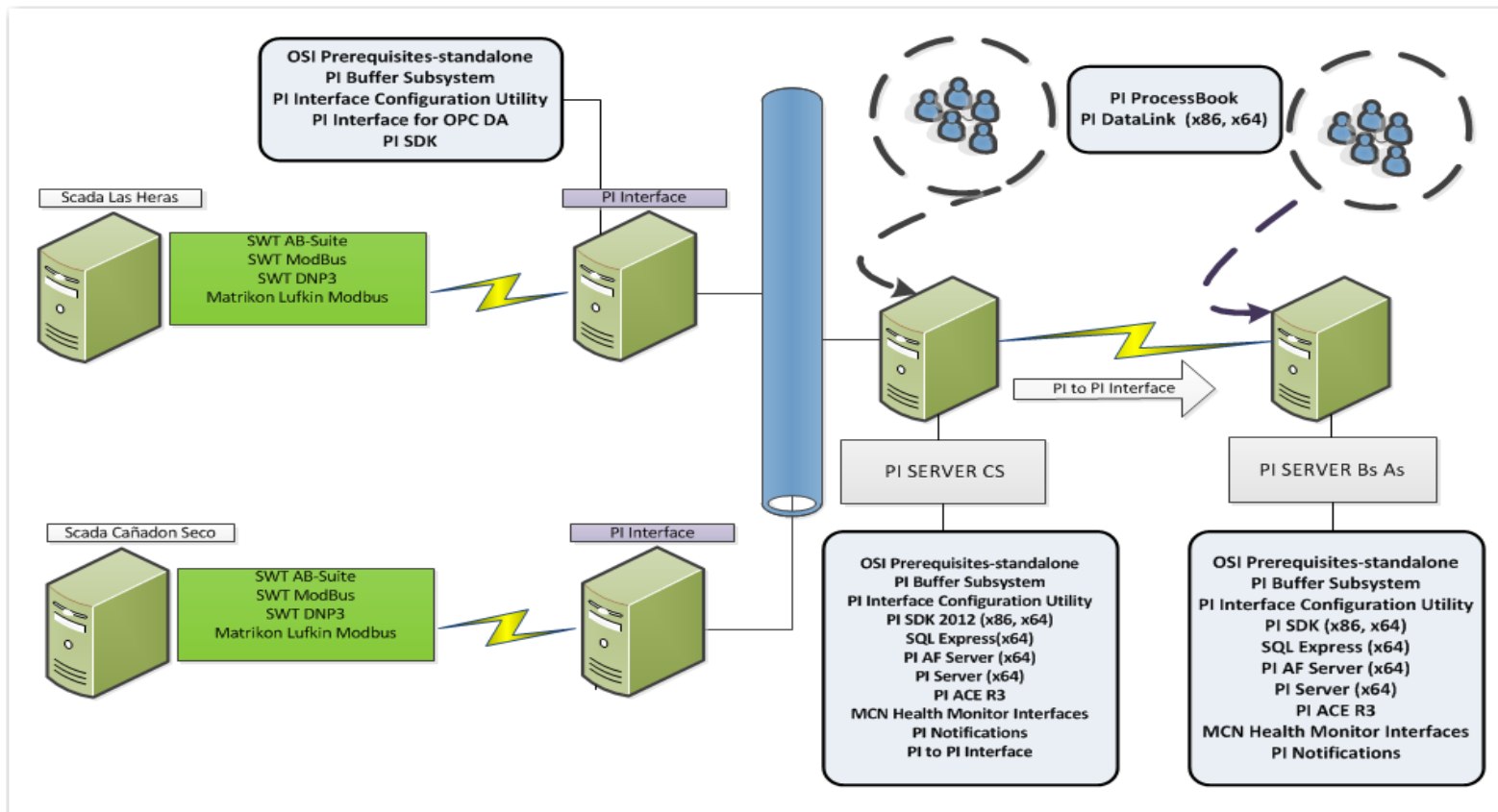
Solution

- Install PI System Infrastructure to have a single point of access to critical information.
- Create a unique point of view with PI Datalink.

Results and Benefits

- Detect Facilities issues.
- Improve the Process conditions.
- Obtain more productivity and XXXXXX

PI System Architecture

INJECTION DATA SUMMARY PROJECT SPC 32 (LAS HERAS FIELD)

WELLS (AVG WEEK)

Injector	Injection Flow rate m3/day					Direct Well Head Pressure kg/cm2				Fouling Factor			Delta P (Bomba-Pozo)		
	Injection Goal	Avg Week	Avg Last Week	%Gap (goal week)	%Gap (goal last week)	Project Goal	Avg Week	Avg Last Week	% Week	Avg Week	Avg Last Week	Dif semanal %	Avg Week	Avg Last Week	Dif semanal %
	300	316	285	5%	-5%	90	92	66	39%	0.76	0.48	59%	28.67	54.31	-47%
	135	152	138	13%	2%	90	103	73	40%	2.63	2.36	12%	17.65	46.79	-62%
	225	231	213	3%	-5%	90	103	74	39%	1.11	0.99	12%	17.41	46.28	-62%
	100	135	103	35%	3%	90	105	74	41%	3.30	4.23	-22%	15.48	45.74	-66%
	300	327	282	9%	-6%	90	92	65	40%	0.49	0.49	0%	28.45	54.72	-48%

WELLS (YESTERDAY)

Injector	Injection Flow rate m3/day					Direct Well Head Pressure kg/cm2				Fouling Factor			Delta P (Bomba-Pozo)		
	Injection Goal	Daily avg	Yesterday	%Gap (goal week)	%Gap (goal last week)	Project Goal	Daily avg	Yesterday	% Week	Daily avg	Yesterday	Dif semanal %	Daily avg	Yesterday	Dif semanal %
	13	9	9	-26%	-26%	90	100	100	0%	1.16	1.16	0%	20.26	20.07	1%
	6	6	6	12%	10%	90	103	103	0%	2.89	2.70	7%	16.93	16.75	1%
	9	10	10	7%	4%	90	103	103	0%	1.03	1.10	-6%	16.87	16.56	2%
	4	6	6	39%	42%	90	105	105	0%	3.12	3.01	4%	14.95	14.68	2%
	13	14	14	9%	10%	90	93	93	0%	0.49	0.49	1%	27.65	27.48	1%

INJECTION PUMPS (AVG WEEK)

	Discharge Pressure		Pressure to wells		Total flow rate to inyection wells m3/hr	
	Avg Week	Avg Last week	Avg Week	Avg Last week	Avg Week	Avg Last week
B209C	0.6	32.1	120.0	113.7	4.2	2414.5
B209D	120.0	80.2	120.1	113.7	9612.9	5644.9

INJECTION PUMPS (YESTERDAY)

	Discharge Pressure		Pressure to wells		Total flow rate to inyection wells m3/hr	
	Yesterday	Day before	Yesterday	Day before	Yesterday	Day before
B209C	0.6	0.6	120.1	120.1	0.0	0.0
B209D	120.0	120.0	120.2	120.1	54.2	53.6

VOLUMETRIC BALANCE

	Daily	Avg Week	Avg Last Week
Total Flow rate	1301	9617	8059
	222	2210	1997
	151	1067	964
	240	1616	1490
	139	948	720
SPC1023	328	2290	1971
Total	1081	8131	7142
GAP	-221	-1486	-917
% GAP	-17%	-15%	-11%
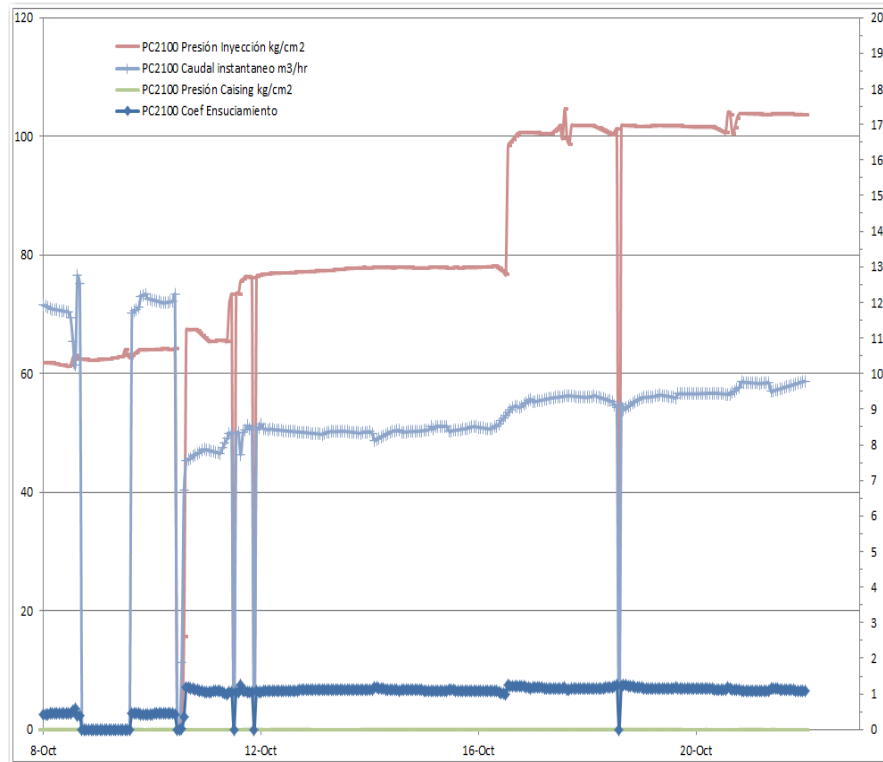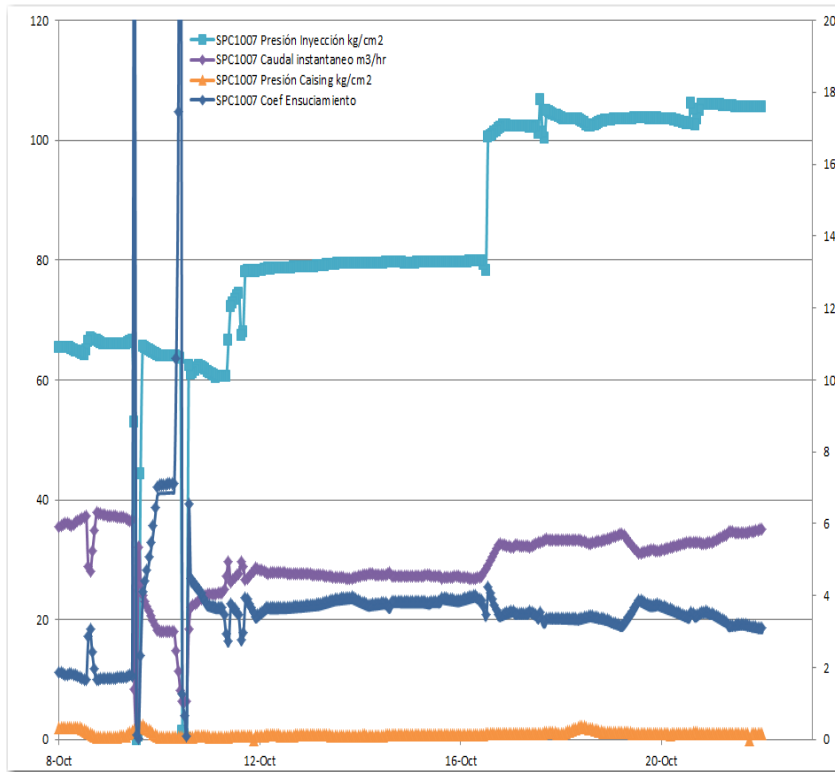
Improving Injection Proyect. Oil Production increase of 534 m3 (Oct-Dec 2014)
534m3 == 3352 BOE == US 200K

Future PI System Architecture? EA?!
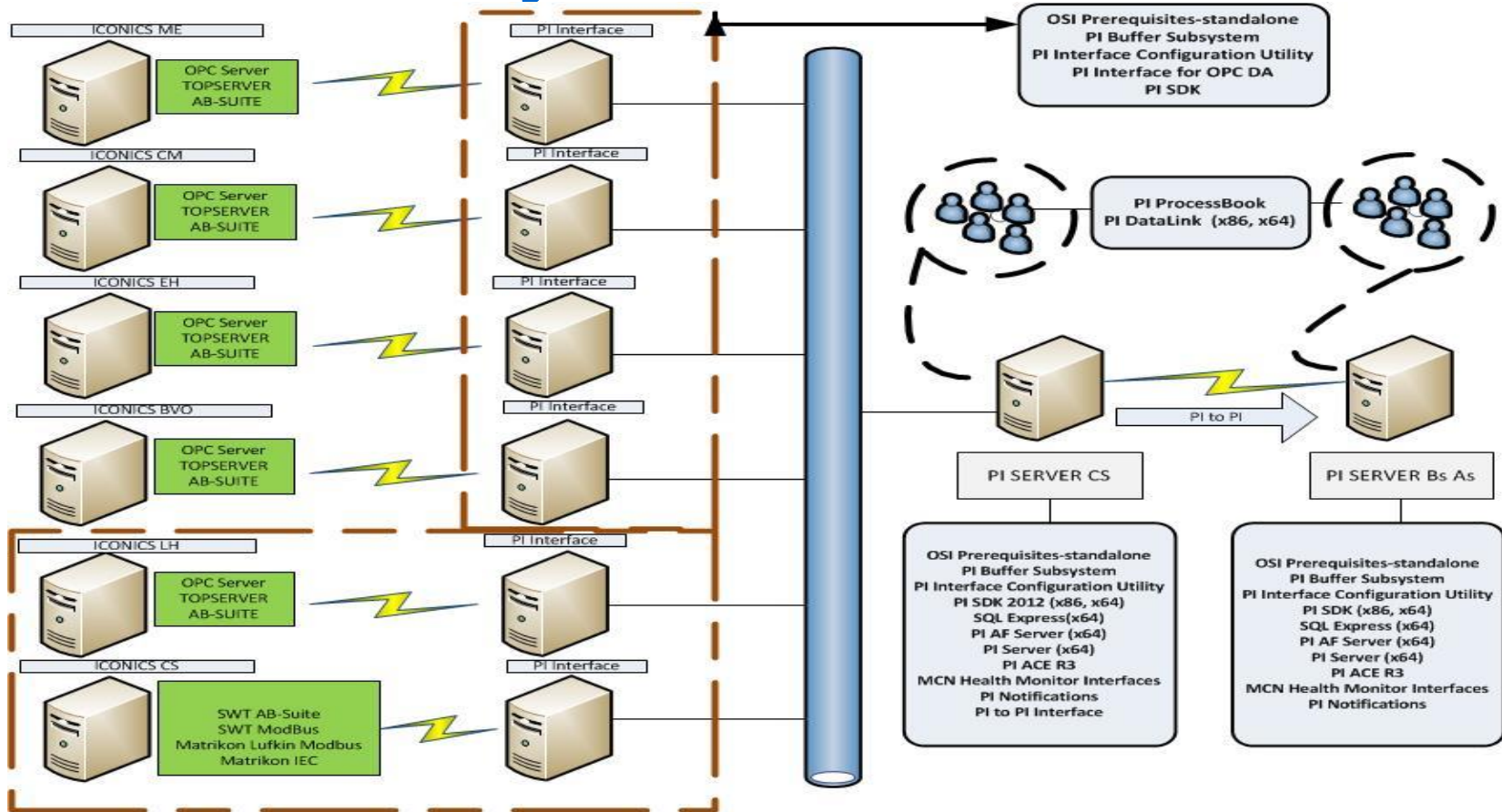
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THANK YOU

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