

CHEMICAL INJECTION TREATMENT OF WELLS

BELLOTA-JUJO ASSET

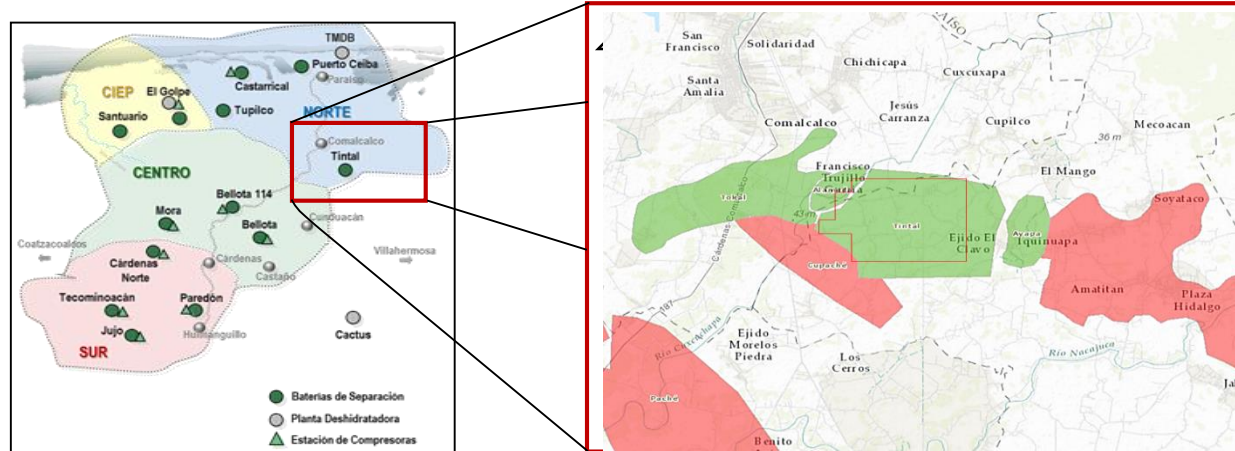
ING. HECTOR CRUZ
GRUPO EXCO OIL DE MEXICO



BACKGROUND

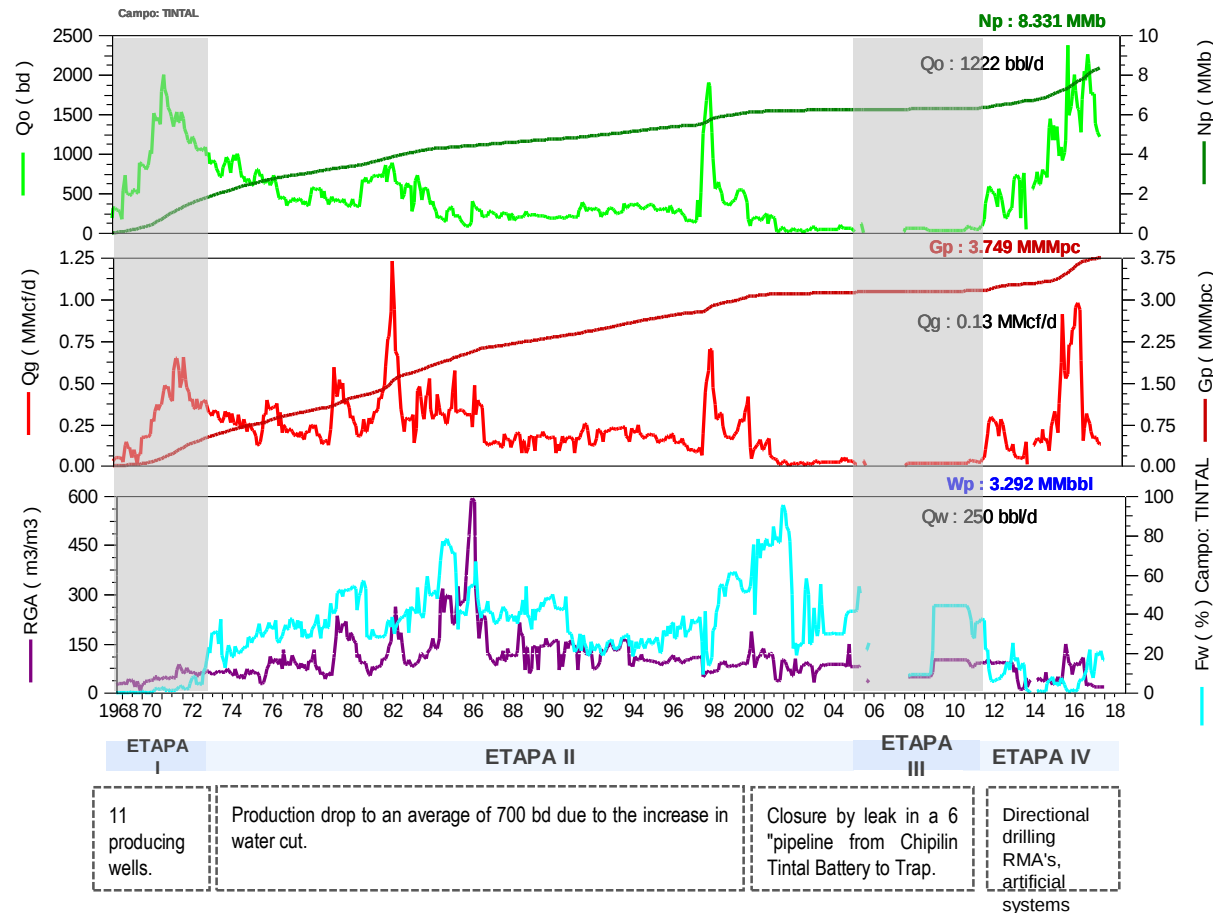


- According to the information provided by the asset personnel, there are problems to recover the production of the Tintan Asset wells.
- The Tintal field is located in the Municipality of Jalpa de Méndez; 11 km to the Southeast of the city of Comalcalco, in the State of Tabasco; Geologically, it is located in the sub-province of Comalcalco, within the Tertiary Basins
- This field corresponds to the Assignment A-0338-M - Tintal Field in the southern part of what comprises the El Golpe-Puerto Ceiba Project, adjoining the Northwest with the Assignment A-0342-M - Tokal Field, to the East with the Assignment AR-0404- Campo Ayapa.



Background

- According to the information provided, the wells have reduced their production by 70% or more.



Proposal



- According to the 15 API crude oil type, we propose the injection of two products:
 - PEM 6423 EXCO FLOW X. Cleaner and nano surfactant to fluidize high molecular weight hydrocarbons
 - PEM 6424 EXCO FLOW XII. Súper limpiador para hidrocarburos asfáltenos y parafínicos.
- A maximum evaluation of 72 hrs is proposed, injecting from 10 to 30 lts / hr by means of capillary injection equipment at 80 m depth.
- Reactant records will be taken every hour.
- At the end a final report is provided of the reaction of each chemical mixture.
- Our products do not contain halogens nor are they generated. Safety sheets, technical sheets and laboratory analysis are provided.

CERTIFICATE OF NO ORGANIC CHLORIDES



REPORT OF ANALYSIS

		Date of Report February 21st, 2019			
		Interleuk Reference Number M001148-0001256			
		Vessel Name NOT DATA			
		Port / Terminal GRUPO EXCO-OIL PLANT, MONTERREY, MEXICO			
		Report Number of Interleuk Lab LAC-0061119			
		Client (a) Reference Number NOT DATA			
Customer (a) Name		GRUPO EXCO-OIL MEXICO S.A. DE C.V.			
Customer (a) Address		BL. GONZALEZ DAVILA # 2919 COL. CUMBERG 3 SECTOR SECCION 3-A MTY NL.			
Customer Sample Description		EXCO FLOW X			
Sampling Place		INTERTEK			
Drawn by		INTERTEK			
Analyzed by		INTERTEK			
Witnessed by (*)		NOT APPLICABLE			
Submitted by		GRUPO EXCO-OIL MEXICO S.A. DE C.V.			
Sample ID		EXCO FLOW X			
Sample Number (Sequencing of Samples)		M001148-0001256-A			
Date and Time of Sample		FEBRUARY 21ST, 2019 From: NOT DATA To: NOT DATA			
Date and Time of Reception		FEBRUARY 21ST, 2019 From: 13:50 To: 13:50			
Date and Time of Analysis		FEBRUARY 21ST, 2019 From: 16:50 To: 21:30			
No	Test Description	Method	Specification	Units	Results
1	TOTAL CHLORIDES	UOP-88B-04	NOT DATA	mgas-ppm	0.00

Remarks: None

According to the NCM-001 SOP-0002 the comma (,) is our decimal sign and we must put a blank space to ascertain the thousands. In case of composite sample the data corresponds to the individual samples used to prepare it.

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* When witnessing analysis, Our responsibility is solely to witness that the analysis is conducted on the correct sample. Customer agrees that Intertek is not responsible for the condition of apparatus, instrumentation and measuring devices and that Intertek accepts calibration data, weights, etc. as presented.


 Maria del Carmen Cruz Alvarado
 Analyst
 Name and Signature



National Aeronautics and Space Administration
Authorized Signature
Name and Signature

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Headquarters Office:	Poniente 134 # 602 Col Industrial Valparaíso, Delegación Benito Juárez, México D.F. CP 03090

CERTIFICATE OF NO ORGANIC CHLORIDES



REPORT OF ANALYSIS

Date of Report	FEBRUARY 21ST, 2019				
Intertek Reference Number	MXD1148-0001257				
Vessel Name	NOT DATA				
Port / Terminal	GRUPO EXCO OIL PLANT, MONTERRREY, MEXICO				
Report Number of Intertek Lab	JAC-050219				
Client (s) Reference Number	NOT DATA				
Customer (s) Name	GRUPO EXCO OIL MEXICO S.A. DE C.V.				
Customer (s) Address	CIL GONZALEZ DAVILA # 2019 COL. CUMBRES 3 SECTOR SECCION 3-4 MTY NL.				
Customer Sample Description	EXCO FLOW XI				
Sampling Place	INTERTEK				
Drawn by	INTERTEK				
Analyzed by	INTERTEK				
Witnessed by (*)	NOT APPLICABLE				
Submitted by	GRUPO EXCO OIL MEXICO S.A. DE C.V.				
Sample ID	EXCO FLOW XI				
Sample Number (Sequencing of Samples)	MXD1148-0001257-A				
Date and Time of Sample	FEBRUARY 21ST, 2019	From:	NOT DATA	To: NOT DATA	
Date and Time of Reception	FEBRUARY 21ST, 2019		13:00		
Date and Time of Analysis	FEBRUARY 21ST, 2019	From:	15:00	To: 21:30	
No	Test Description	Method	Specification	Units	Results
1	TOTAL CHLORIDES	UCP-888-04	NOT DATA	mass-ppm	0.00

Remarks: Note

According to the NORM-005 SCFI2002 the comma (,) is our decimal sign and we must put a blank space to ascertain the thousands. In case of composite sample the date of sampling corresponds to the individual samples used to prepare it.

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Maria del Carmen Cruz Alvarado
Analyst
Name and Signature


Natalia Alejandra Cruz Flores
Authorized Signature
Name and Signature

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Lab Tests



- Clogging test of the OTATES field.



Sample of the well plugging product

Lab Tests



- PEM 6423 EXCO FLOW X and PEM 6424 EXCO FLOW XII 50% -50% at 10% were added with water at 20 ° C.



30 min



2 hrs



6 hrs

Lab Tests



12 hrs



24 hrs

Lab Tests



- A sample of 500 grs of well material was taken
 - 43% sand
 - 12.5% paraffin
 - 23.5% asphaltenes
 - 21% various hydrocarbons
- After 24 hours the material was fluidized by 90% and the sandstone material and asphaltenes dispersed in the liquid.
- The possibility of success in the TINTAL Asset is very high.