OILCONTROL

PARALAX®

NAMST Matrix Stimulation NanoTechnology for Production Optimization (Non Acid)

Restore/Enhance your well/formation/pipeline productivity with proven non-conventional Matrix Stimulation methodology

Formation Damage types addressed by PARALAX®

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1. **Organic deposition (paraffin, asphaltene, resins, etc.)**

   - **Statistical Fact***: the most common formation damage problem reported in the mature oil-producing regions of the world is organic deposits forming both in and around the wellbore.

2. **Wettability alteration, water blockage, workover fluid invasions**

3. **Emulsions, sludge**

4. **Acidizing Damage**

*** Lafayette Formation Damage Control, SPE International Conference**

PARALAX® action summary

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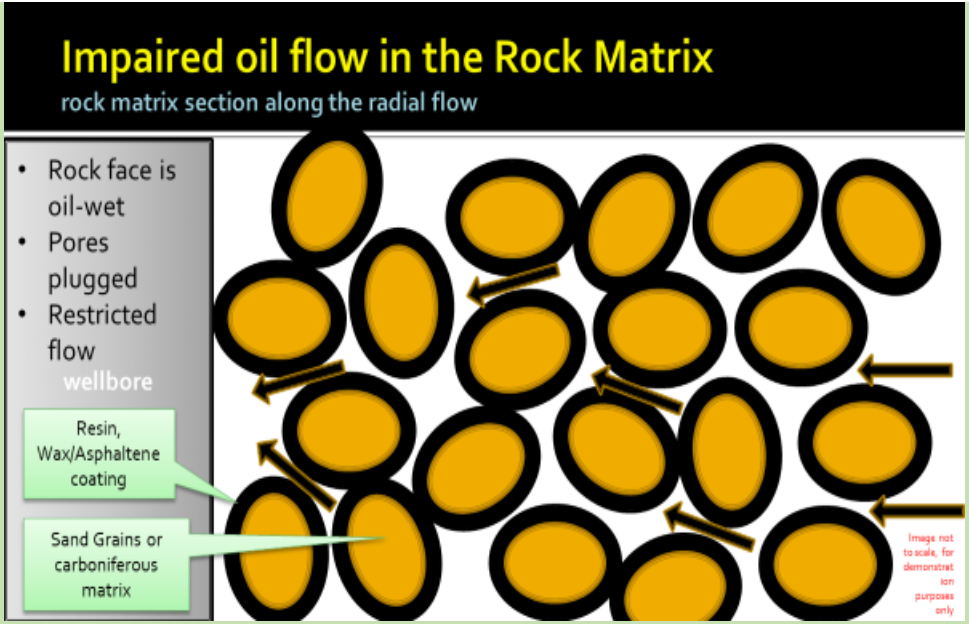
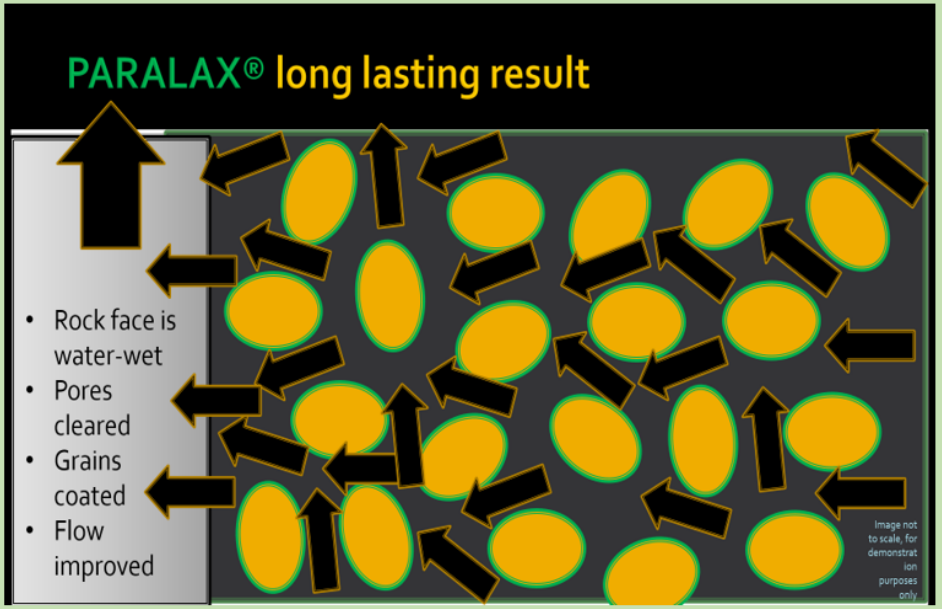


Before



After

Solid surfaces are coated with NANO film that stops deposition

- **Surfaces left water-wet, hence:**
  - Better relative permeability to oil
  - Lower relative perm. to water
- **Lasts at least 3-4 months**

PARALAX® long lasting result

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- **Solid surfaces are left coated with a Nano film that stops deposition**
- **Surfaces left water-wet, hence:**
  - Better relative permeability to oil
  - Lower relative perm. to water
- **Lasts 3+ months after treatment**

Benefits

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1. **Extra Revenue** due to stimulation effect and unobstructed oil flow
2. **Less Manpower** usage due to lower frequency treatments
3. **Lower Cost** than conventional stimulations
4. **Remediate** damage from fracturing, acidizing, workover, oil-based drilling fluids
5. **Better than acidizing** in majority of wells for stimulation
6. **All wells** become candidates for stimulation
7. **Safe** for your wells/formation and your personnel

Treatment types for any well

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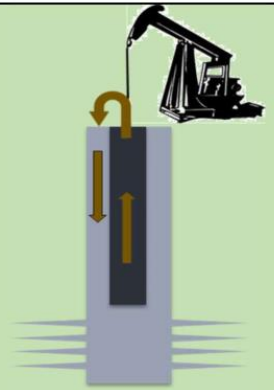


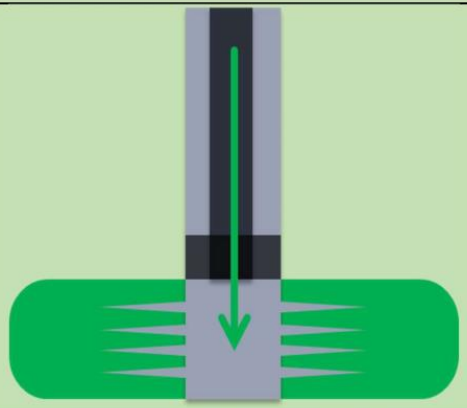
Pumped wells: Circulation

PARALAX® treatment method developed for the pumped wells equipped with ESP, SRP, PCP types of pumps

Method of circulating PARALAX®-treated oil (PTO) in the closed loop "Tubing-Annulus" up to 2-3 cycles

Reason: There is a pump and no packer

Expected results: Formation and tubing are treated for an extended and incremented wax-free production time



Flowing wells: Squeeze

PARALAX® treatment method developed for flowing or gas lift assisted wells.

PTO is injected down the tubing (bullheading) and squeezed into the formation

Reason: There is a packer and no pump (opposite of the above)

Expected results: Tubing is treated by PTO on the way down and up. Formation near wellbore is treated for higher production

Typical treatment procedure

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1. Hold Pre-Job Safety Meeting with everyone involved, Job Safety Analysis, discuss risks and hazards and ensure mitigation and bring safety concerns down to the minimum.
2. Spot Hot Oil Unit or Pump truck and tanks on the wellsite
    a. Connect suction hose to tank bottom discharge valve and other hose end to Hot Oil Unit or Pump truck suction
    b. Connect Hot Oil Unit or Pump Truck discharge via high pressure line to the wellhead top of wellhead tree.
3. Pressure test all connections with water. Water poses no environmental hazard in case of connections leak/spills under pressure
4. Deliver crude oil for preparing PTO into the PTO tank
5. Hold Pre-Job Ops Meeting to clarify tasks and functions of everyone involved in the operation. Non-essential personnel should leave the location during the treatment.
6. Start mixing PTO by adding PARALAX slowly into circulated flow.
7. Continue circulating for 30 more minutes
8. Start pumping PTO down the tubing, while heating it “on the fly” to 200 F (if hot oil unit used).
9. Pump displacement fluid - brine. Volume to be determined according to the condition at the time of treatment.
10. Shut the well in. Rig down all equipment safely
11. Keep the well shut-in for 6 to 48 hours depending on well
12. Leave the location clean and tidy.

Examples, Global and Texas

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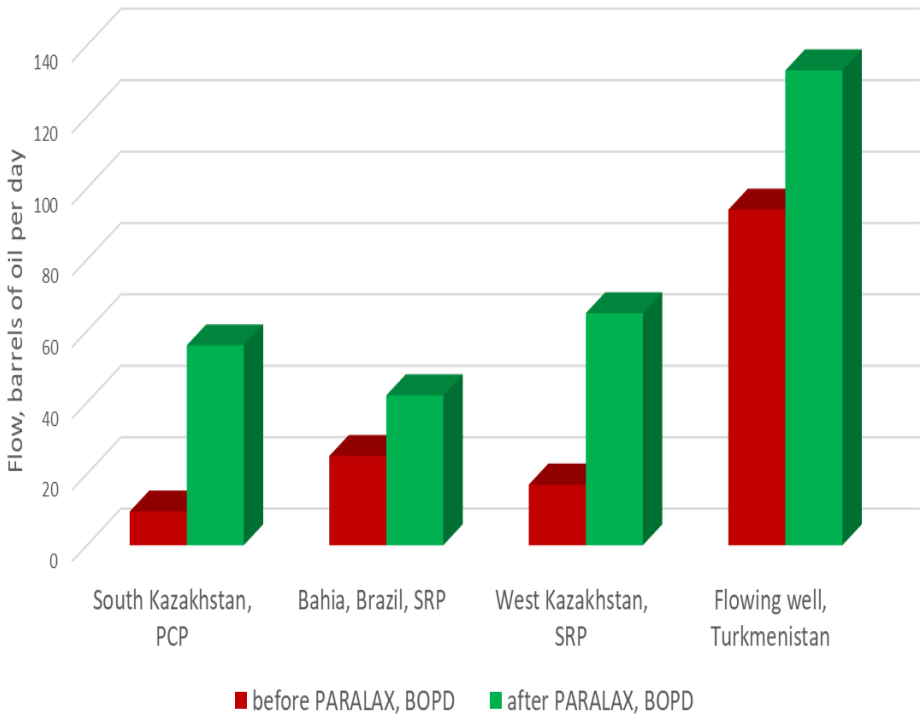

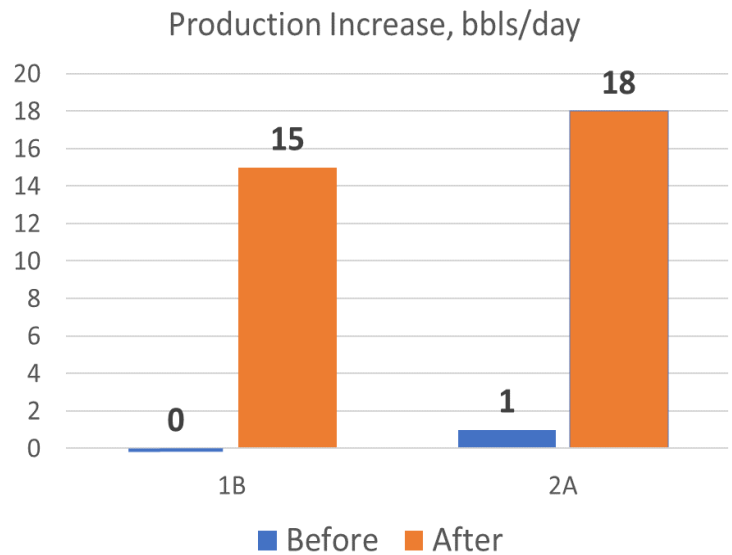

North Texas

Production Increase OMV KZ

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Well:	Ak-203			Tur-33			Tur-48		
	before	after	change	before	after	change	before	after	change
Rod Load, kg:	7779	7805	0.33%	7163	7202	0.54%	Not applicable		
Fluid Level, m:	133	160	20.3%	73	95	30.1%	Not available		
BHP, bar:	Not measured						39.4	34.2	-13%
Production, bopd	44.2	58.6	33%	9.3	21.4	130%	39.4	60	52%
Incremental Production, bopd		14.4			12.1			20.6	

With the production increase combined from all 3 wells you get an additional 45 bopd. Over a 100 day period you get an additional 4500 bopd from 3 wells.

Heavy water cut wells: Oil production increase

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Well No.	Treatment date	Flow rate						
		Before treatment			After treatment on 24th July 2017			
		bfpd	% water	bopd	bfpd	% water	bopd	% change
576	24.04.2017	91.2	93	5.28	91.20	89	8.18	+54.8%
813	25.04.2017	345.94	86	41.19	361.66	85.4	43.78	+8.9%
797	24.05.2017	119.51	92	7.93	132.09	88	12.58	+58.7%
427	25.05.2017	45.92	60	15.10	50.95	60	16.92	+12.1%

With the production increase combined from all 4 wells you get an additional 11.96 bopd. Over a 90 day period you get an additional 1076.4 bopd from 4 wells. Water decreased on heavier water cut wells.

Expected results

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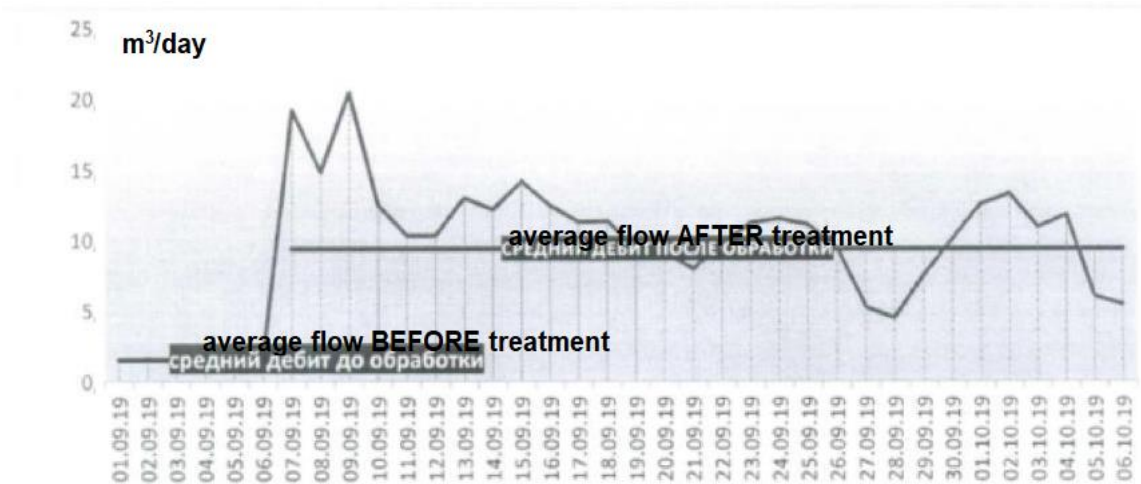
- Increased production that lasts 3+ months
- Organic deposition aborted for 3+ months
- Lower load on pump, rod and drive saves well maintenance
- **REVIVE DEAD WELLS! PROVEN GLOBALLY!**



ACID SLUDGE ASPHALTENE DAMAGED WELL, DUE TO ACID/OIL INCOMPATIBILITY, REVIVED IN KAZAKHSTAN!

Example treatment Atyrau

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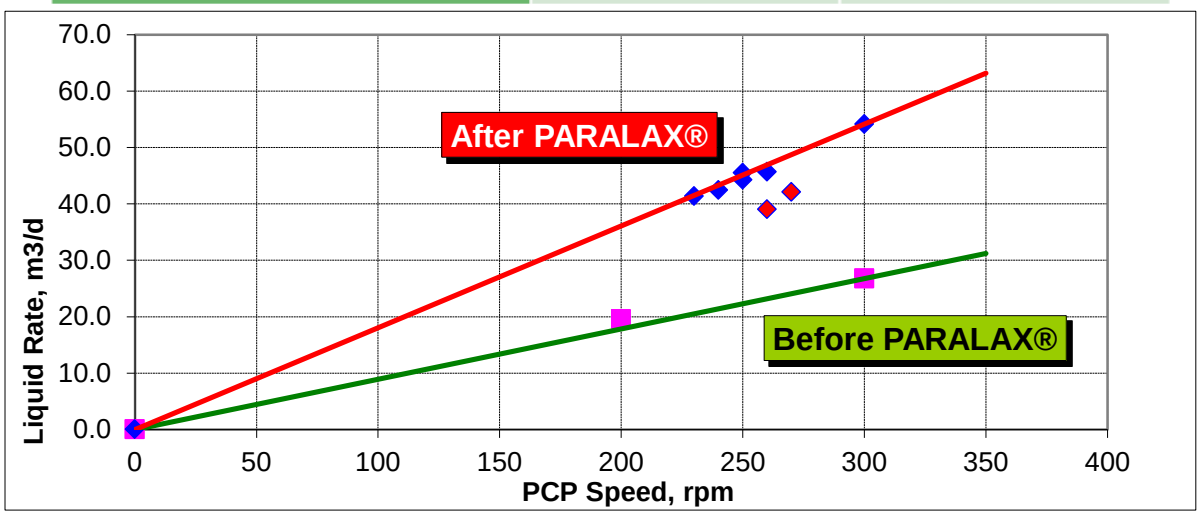
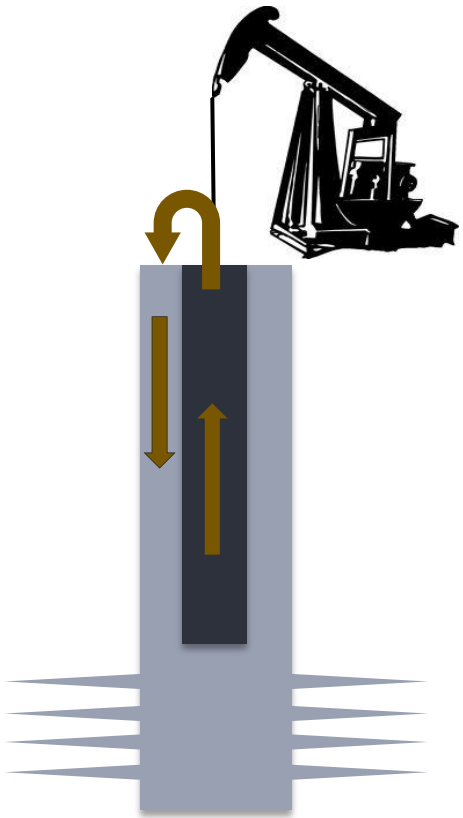
	Before PARALAX®	After PARALAX®
Pump RPM	300	250
Amperage load, amp	22	18
Torque	52	40%
Dynamic level	185	330
Oil flow, m3/day	28	46





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THANK YOU!

PLEASE CONTACT US AT info@oilctl.com

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