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**Antonoil Cementing Service
Introduction**

东方智慧 全球分享
Oriental wisdom , Global sharing

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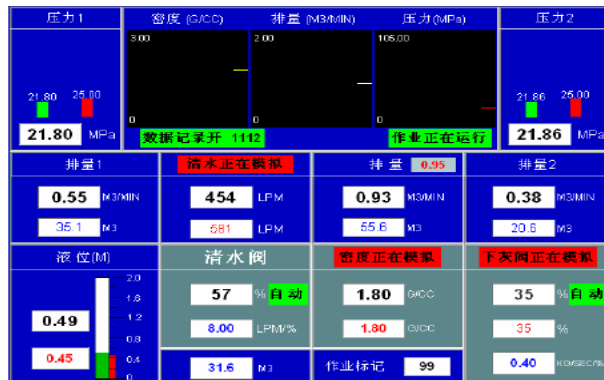
Cementing Additive

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Cementing Experience

➤ Cementing Equipment

Automatic cementing pump truck



Main parameters:

Generator rate kW (hp):	403 (540)
Max pressure MPa(psi):	71 (10394)
Max displacement L/min(gpm):	3388(895)
Cylinder diameter mm (in):	88.9+114.3 (3.5+4.5)
Measuring tank volume (m ³):	4 (two room)
max mixing slurry capacity:	2300L/min
Slurry density (g/cm ³):	1.00-2.50
Elevation:	≤3000m
Environmental temperature:	-20°C—45°C
structure:	mounted wheeled
size(length×width×height) (mm):	≈12000x2500x3950
Total weight(kg):	≈32000

➤ Cementing Equipment

cement truck



Main parameters:

type	JSJ5313GXH4
Chassis type	ND1316D41J (drilling type 8×4)
Generator type	rate: 247kw/336HP
Bearing span (mm)	1500 + 4150 + 1450
size (mm)	11650×2500×3800
Tank capacity	20 m ³
weight	15600 kg
Rated load	15270 kg
Force extractor	QH70

➤ Cementing Equipment

Cementing back tank truck



Main parameters

type	JSJ5169ZBG
Chassis type	ND1165A48J (4×2)
Generator type	Rate:221kw/300HP
Bearing span (mm)	4800
size (mm)	8870×2500×3260
Tank capacity (mm)	Φ2500×6400
hydraulic system work pressure (MPa)	14

➤ Cementing Equipment



skid batch mixer

parameter	
weight	13t (28660) lbs
size	6850X2500X2800 mm
Density scale	1.0 ~ 2.5 g/cm3
capacity	0.3 ~ 2.3 m3/min
Work temperature	-20 °C ~ 50 °C
Tank volume	100bbl



**Air
compressor**

parameter	
Compressor grease volume	24 L
Gas storage tank net capacity	42 L
Fuel tank capacity	175 L
Air inlet capacity	3.9 m/s

➤ Cementing Equipment

- HPHT Consistometer
- HPHT Curing Chamber
- HT bathing box
- Gas / liquid channeling simulation device
- Cement stone mechanical performance analyzer
- HPHT Fluid Loss Cell
- HPHT Rheometer
- Cement expansion / shrinkage tester
- Cement stone permeability meter



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Cementing technology of unconventional wells

- horizontal shale gas well
- Geothermal well
- Deep water and cryogenic well
- Thermal recovery well
- Carbon dioxide well

Optimized cementing technology of conventional wells

- HT and high density well
- Adjustment well
- small annular well
- Brine well, coal-bed gas well

Cement additives service

Cement tools service

Cementing engineering design service

Cementing organization service

- Cementing technology of horizontal shale gas well
- Elastic-plastic cement slurry system for gas reservoir wells, narrow annulus wells and gas wells
- Deep and large temperature difference cement slurry system for long interval cementing
- Ultra high density cement slurry system for high pressure gas wells
- Super fiber cleaning technology to improve the
- displacement efficiency
- Dry cementing technology for gas drilling wells
- Cementing technology of oil base mud well to improve the displacement efficiency
- Self-healing cement slurry technology to prevent channeling

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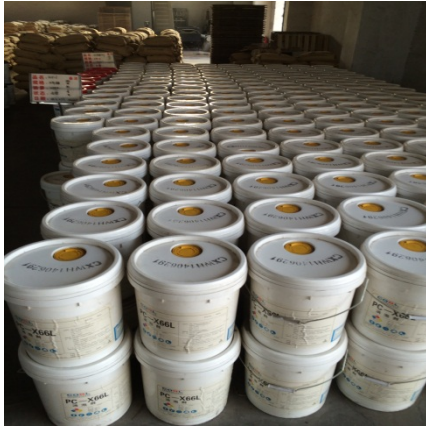
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Item	Species	Name	Code	Application
Cementing Additives	Fluid Loss Additive	HT Anti-salt Fluid Loss Additive	ATF-200L	60-250°C
		MT Anti-salt Fluid Loss Additive	ATF-120L	60-180°C
		LT Phragmoid Fluid Loss Additive	ATF-100S	20-110°C
	Retarder	HT Retarder	ATD-300L	120-250°C
		Large temperature difference Retarder	ATLD-301L	30-200°C
		Medium-low temperature Retarder	ATD-200L	40-110°C
	Dispersant	Dispersant (Solid)	ATS-101S	20-180°C
		Dispersant (Liquid)	ATS-201L	20-220°C
	Accelerator	Accelerator	ATC-100S	20-110°C
		LT Accelerator	ATA-120S	-10-100°C
	Strength-enhancing material	Strength-enhancing material	ATB-20S	20-180°C
	Anti-channeling agent	Anti-channeling agent	ATGS-11S	20-200°C
	Elastic-plastic agent	Elastic-plastic agent	ATEP-10S	20-200°C
	Weighting agent	Weighting agent		
	Suspending agent	Suspending agent	ATD-100S	20-220°C
Spacer	Spacer	ATSP-11S	20-220°C	



- Anton independent additive can meet the cementing requirements of different well depth, temperature and other complex conditions, has strong adaptability;
- Annual service capacity of cement slurry additive is more than 200 wells.

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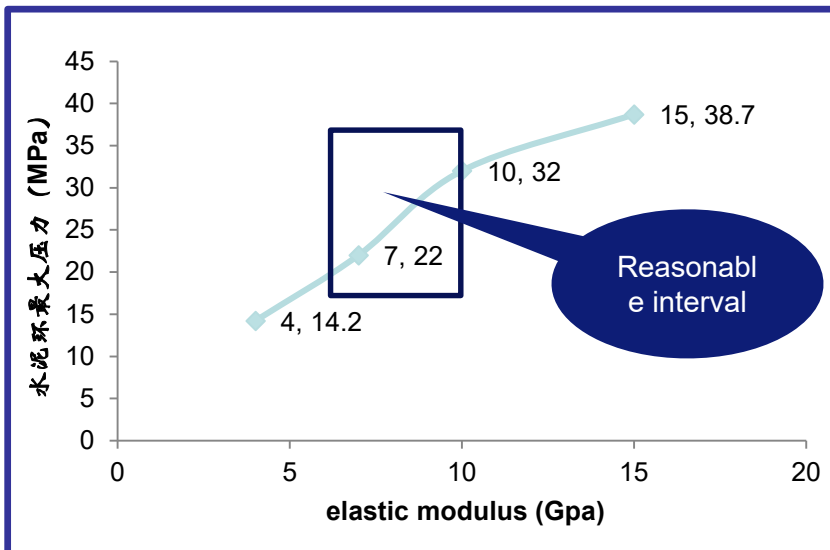
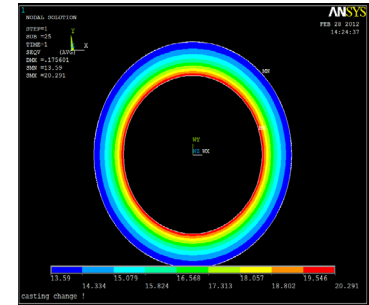
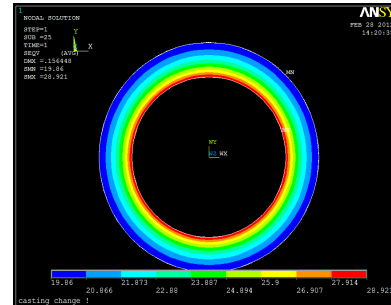
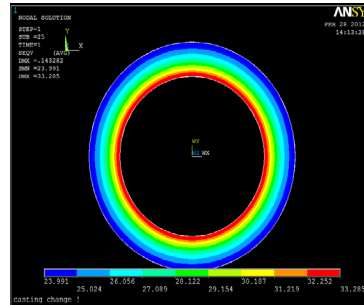
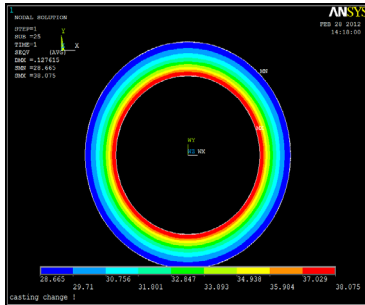
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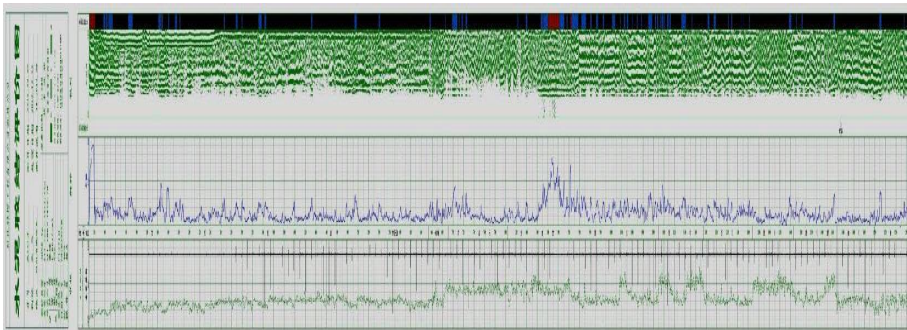
Wei204、Wei205



- Establish casing- cement sheath - Formation coupling model
- Analysis of the relationship between elastic modulus of cement and cement sheath :
The lower the elastic modulus, the smaller stress in the cement sheath, and the lower compressive stress in the fracturing process, the more favorable to maintain the integrity of the cement sheath, and the elastic modulus of the cement sheath is 6GPa-8.2GPa.

■ Wei204、Wei205

- The entire construction process smoothly
- Cementing quality is premium
- CBL Well logging quality 100%
- Highly reputable from the Southwest Oil and gas company



西南油气田分公司

威 205 和威 204 井施工质量证明

威 205 和威 204 井是西南油气田分公司的两口页岩气重点评价水平井, 采用油基泥浆条件下完井, 由安东石油技术(集团)有限公司承担两口井的生产套管的固井水泥浆技术服务。

本次固井施工受到安东石油技术(集团)有限公司及各单位的高度重视, 为保证固井施工的顺利进行和达到优质的固井质量, 安东石油在施工前做了充分的准备, 严格按照甲方要求进行室内试验和现场复核试验。在甲方领导的组织和指导下, 主动与各个施工单位沟通、交流和积极配合, 取得了两口井固井施工顺利和固井质量优质。

威 205 井采用 2.11g/cm^3 的油基泥浆完钻 $\phi 168.3\text{mm}$ 井眼, 完钻井深 4930m , 下入 $\phi 127\text{mm}$ 生产套管进行固井作业, 设计封固段 $2400\text{--}4928\text{m}$, 于 2013 年 5 月 18 日顺利完成现场固井施工, 水泥浆技术采用斯伦贝谢公司的高效驱油冲洗隔离液 33m^3 , 和 G 级两凝高密度水泥浆体系, 两凝界面为 3250m , 2.35g/cm^3 ISOBLOK® 防气窜缓凝水泥浆 17m^3 和 2.35g/cm^3 ISOBLOK® 防气窜快干水泥尾浆 23m^3 ; 2.35g/cm^3 领浆顶至茅口地层上方 500m (2400m), 2.35g/cm^3 尾浆顶至上一个套管鞋 (3753m) 上方 500m 。

经采用 CBL 测井解释固井质量, 水泥浆实际返高为 2120.5m , 封固段内 ($2120.5\text{--}4802.0\text{m}$) $2120.5\text{--}4802.0\text{m}$ 为优, 固井优质率 100% 。

**Domestic business mainly concentrated in Sichuan and Chongqing
two blocks of Antonoil cementing Department.**

Num	Well number	Casing size	Cementing quality	Note
1	Xiangchu 8well	244.5mm Production liner Cementing	premium	completed
2	Xiangchu 8well	244.5mmliner tie-back Cementing	premium	completed
3	Xiangchu 1well	244.5mmProduction liner Cementing	premium	completed
4	Xiangchu 1well	244.5mmliner tie-back Cementing	premium	completed
5	Wei 205well	127.0mmProduction Casing Cementing	premium	completed
6	Wei201well	139.7mmProduction Casing Cementing	premium	completed
7	Xiangchu 4well	177.8mmProduction liner Cementing	premium	completed
8	Xiangchu 16well	177.8mmProduction liner Cementing	premium	completed
9	Xiangchu 4well	177.8mmliner tie-back Cementing	premium	completed
10	Xiangchu 16well	177.8mmliner tie-back Cementing	premium	completed
11	Xiangchu 6well	177.8mmProduction liner Cementing	premium	completed
12	Xiangchu 19well	177.8mmProduction liner Cementing	premium	completed
13	Xiangchu 3well	177.8mmProduction liner Cementing	premium	completed
14	Xiangchu 15well	177.8mmProduction liner Cementing	premium	completed
15	Gaoshi 18well	177.8mm liner cementing	premium	completed

Antonoil cementing Department of international projects in America, Iraq, Central Asia, Africa etc..

- **Ethiopia well cementing package project (15 wells cementing have been completed.) ;**
- **Iraqi FZE cementing package (23 wells cementing have been completed.);**

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THANKS!

Helping others succeed...

www.antonoil.com