

# Standards im Bohr- Brunnenbau.....Tehran

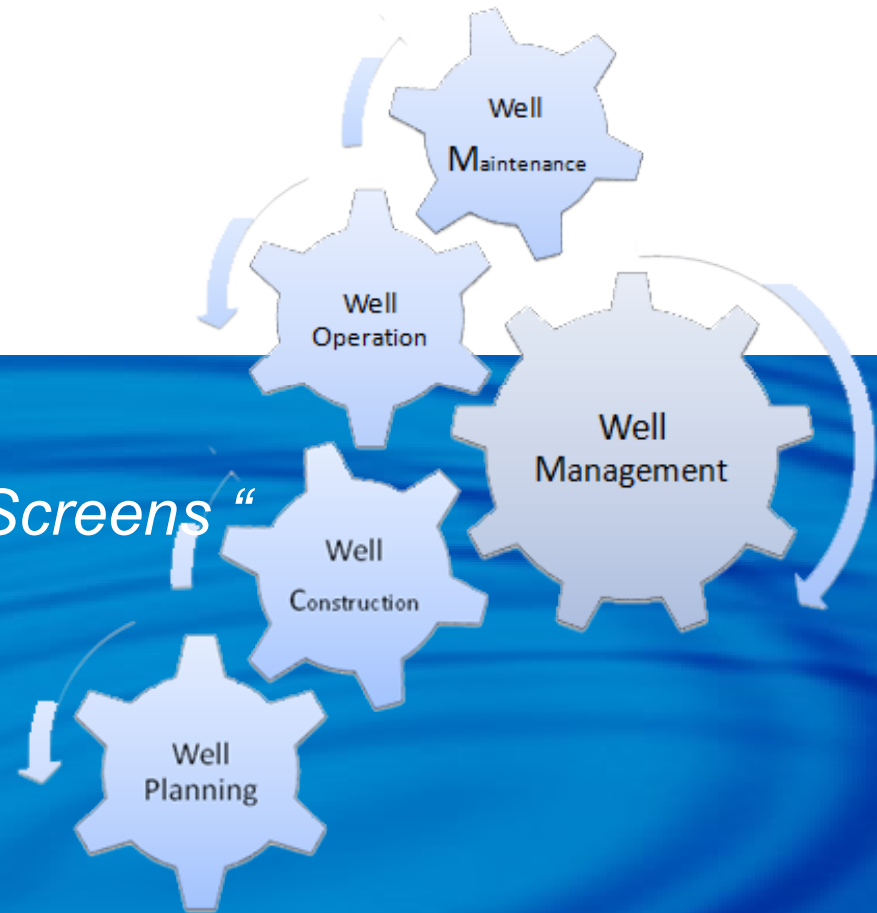
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Mining & Drilling Technologies

*Happy Drillers Workshop  
„Quality Issues for Well Pipes and Screens“  
Teheran, Iran, 14.-26.01.2017*



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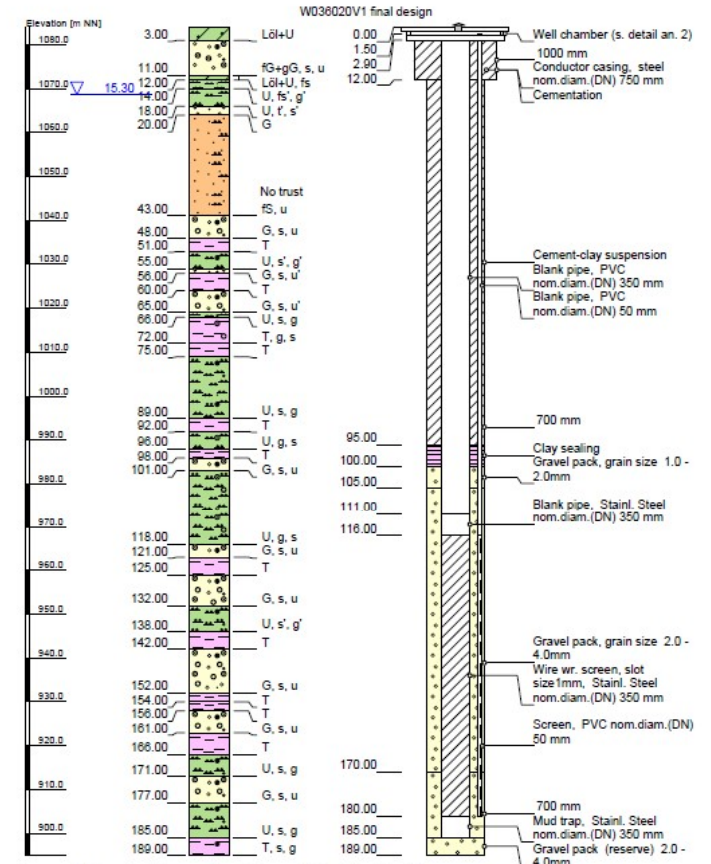
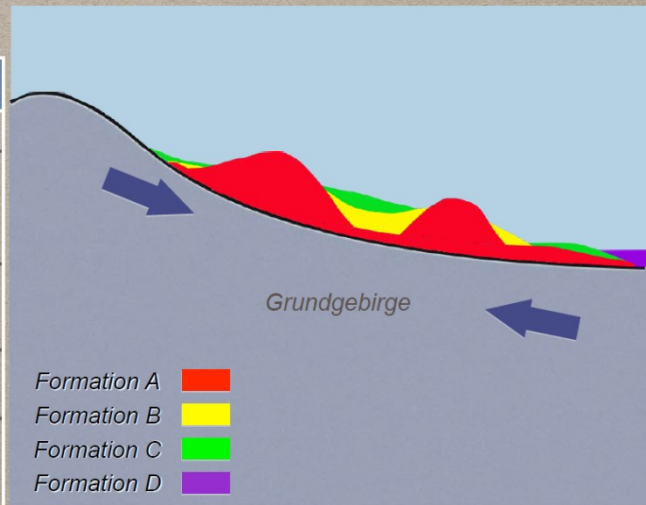
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## GEOLOGIE von TEHERAN

Gliederung der Lockergesteinsdecke nach Rieben (1955, 1966)

	Formation A	Formation B	Formation C	Formation D
<b>Alter [a]</b>	5,000,000	700,000	50,000	10,000
<b>Zementierung</b>	Hart zementiert	Versch., dominiert schwache Zement.	Sehr schwach	Keine
<b>Granulometrie</b>	Ton bis Geröll	Versch., mit Blöcken	Ton & Schluff bis Geröll	Ton bis Blöcke
<b>Schichtneigung</b>	Bis 90°	< 15°	Horizontal	Horizontal
<b>Mächtigkeit</b>	Max 1200 m	Max 300m & nach S abnehmend	Max 100 m	Max 20 m



Log compiled from borehole geophysics, cuttings and information of the driller due to the direct rotary drilling method reliability of the log limited

Vertical Scale: 1:940

Horizontal Scale: 1:50

Sheet 1 / 1

<b>Project:</b> Well Construction Project		
<b>Location:</b> Moshireh location W036020V1 final design		
<b>Client:</b> TPWW	X (UTM):	541794
<b>Drilling Comp.:</b> n.n.	Y (UTM):	3942854
<b>Geol. Engineer:</b> Dr. C. Leibenath	Elevation:	1084.00m NN
<b>Date:</b> 01.02.2017	Annex 1 Sheet 1	Depth: 189.00m



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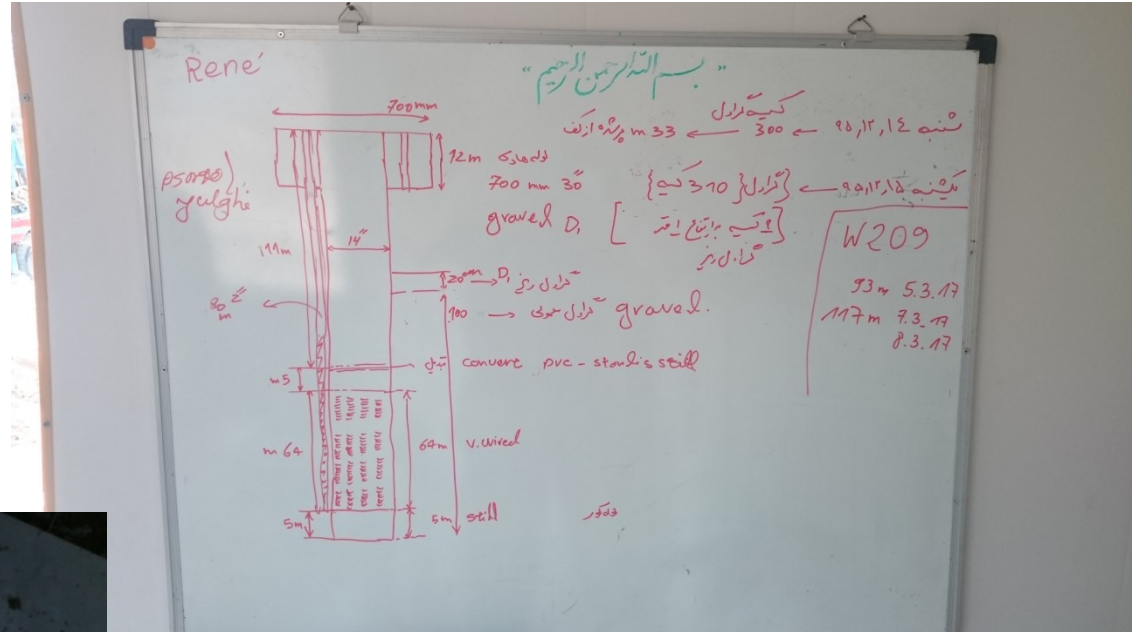


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Pigadi, UBV, Nordmeyer SMAG

W209

17.03.2017

شماره کاروبار	تاریخ	محل	نوع	عمق	قطر	ملاحظات
1	17.03.2017	...	...	...	...	...
2	...	...	...	...	...	...
3	...	...	...	...	...	...
4	...	...	...	...	...	...

17.03.2017

17.03.2017



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Well No.	Borehole		Casings			Well construction materials				Vol.	0.71 - 1.25mm			1 - 2mm			2 - 4mm			3.15 - 5.6mm			Clay			Cement						
	lenoht	Vol	lenoht	weight <sup>1</sup>		lenoht	weight <sup>1</sup>		TS		ECS	m <sup>3</sup> -density	0.0313	1.60	m <sup>3</sup> -density	0.0313	1.60	m <sup>3</sup> -density	0.0313	1.60	m <sup>3</sup> -density	0.0313	1.60	density	1.25	density	1.60					
	[m]	[m <sup>3</sup> ]	[m]	[l/m]	[t]	[m]	[kg/m]	[t]	[t]	[bar]	[m <sup>2</sup> /m]	[m]	[m <sup>2</sup> ]	[kg]	[m]	[m <sup>2</sup> ]	[kg]	[m]	[m <sup>2</sup> ]	[kg]	[m]	[m <sup>2</sup> ]	[kg]	[m]	[m <sup>2</sup> ]	[t]	[m]	[m <sup>2</sup> ]	[t]			
12R36	12	9.42									0.785																					
762 x 10			12	0.19	2.22						0.456																					
Ø 742											0.432																					
Ø 445	177	27.51									0.155																					
1000/762											0.329																					
742/400											0.307																					
Ø 700	177	68.08									0.385																					
700/400											0.259																					
700/368											0.283																					
60x7.5 (45)	monitoring pipe PVC (3m), s = 2mm					180	1.50	0.27			35.00	0.003																				
400 x 21.5	blank pipe PVC (6m)					111	37.70	4.18	40.40	12.80	0.126																					
DN350	vent screen V2A (4m), s = 1mm					74	37.60	2.78			0.102																					
DN350	blank pipe+mud trap V2A (5m)					10	52.20	0.52			0.102																					
60x7.5 (45)	ramie pipe					177	1.50	0.27			35.00	0.003																				
	189	77.50									7.76																					
											0.00	0.00	0.00	0.00	5.00	1.41	45.27	2.26	84.00	24.03	768.91	38.45	0.00	0.00	0.00	0.00	5.00	1.30	1.62	93.00	24.57	39.31

<sup>1)</sup> specific weight [kg/m] without consideration of buoyancy



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drilling method		direct rotary															
geology		clay, silt, sand, gravel, stones, cobbles															
depth		250				300				350							
drilling diameter		0,311		0,445		0,584		0,711		0,311		0,445		0,584		0,711	
		12 1/4		17 1/2		23		28		12 1/4		17 1/2		23		28	
π / 4		0,785															
drilling rig parameter		SI		shall		given		shall		given		shall		given		shall	
drillpipe (DP)		5" API		shall		given		shall		given		shall		given		shall	
total weight		t		6,00						7,20						8,40	
weight		m		0,024													
inside diameter		mm		98													
outside diameter		mm		127													
outside diameter joint		mm		150													
drill collar (DC)		t		6		9		2,4		12		14		2,4		6	
drill collar DC (BHA)		t		6		9		2,4		12		14		2,4		6	
weight on bit		t / inch		0,5		6		9		2,4		12		14		2,4	
WOB ↓ max.		t / inch		0,5		6		9		2,4		12		14		2,4	
pull up power		daN / kg		1,25		15		18		22		25		17		20	
pull up ↑ min. (x 1,25)		rpm		80		60		72		60		60		60		60	
power head max.		U/min		80		60		72		60		60		60		60	
torque		daNm		800		1.500		2.000		2.000		?		800		1.500	
power head min.		m³/h		41,10										800		1.500	
mud pump		min		59													
piston pump: 4 3/4 x 10"		m / s		0,75		0,15		0,07		0,03							
double stroke		m / s		7,56													
centrifugal pump		bar		3		7,5		7,5		7,5		7,5		7,5		7,5	
(v) annular ↑ min.		m³/h		205		41,10		419		41,10		723		1.072		41,10	
(v) drill pipe ↓		L/min		3.420		685		6.980		685		12.056		17.868		685	
friction losses per 100m		bar		16		?		25		?		40		60		?	
Q		bar		16		?		25		?		40		60		?	
Q		m³ / min		5,4		7,5		10		12		5,4		7,5		10	
p		bar		12		12		12		12		12		12		12	
mud		kg / m³		30													
Bentonite (50 - 70g / l)		kg / m³		3													
CMC		g / cm³				1,03 - 1,1		1,03 - 1,1		1,03 - 1,1		1,03 - 1,1		1,03 - 1,1		1,03 - 1,1	
density		s		40 - 70		40 - 70		40 - 70		40 - 70		40 - 70		40 - 70		40 - 70	
funnel outflow time		s		65		65		65		65		65		65		65	
rest outflow time		mm		2 - 3		2 - 3		2 - 3		2 - 3		2 - 3		2 - 3		2 - 3	
filter cake		%		as little as possible		as little as possible		as little as possible		as little as possible		as little as possible		as little as possible		as little as possible	
sand- / particle content		pH (indicator paper)		1 - 12		> 7		> 7		> 7		> 7		> 7		> 7	
pH (indicator paper)		air lift															
air lift		compressor															
compressor		v ↑ 4m / s															
v ↑ 4m / s		m³ / min		5,4		7,5		10		12		5,4		7,5		10	
Q		bar		12		12		12		12		12		12		12	
p																	



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*Thank You for Your Attention*



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