بسدالله الرحن الرحيد

Al-Abraki for Contracting & Drilling Wells الأبرقي للتجارة و المقاولات و حفر الآبار الارتوازية

# The final Report For Pumping Test

Rural Water Supply Component of Study for Water Resources Management and Rural Water Supply Improvement in Republic of Yemen.



Preparing Engneer: AbdulSalam Sallam. Execution: Mabkhout Al-Abraki Office.

September 7 · · ٦

# **Summary**

- 1. Information for Pumping Test Wells.
- 2. Pictures of Pumping Test Sites.
- 3. Pumping Test Report Sheets.



Information for Pumping Test Wells

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Governorate	District	Site	Site Name	Source	Target Water Source	Latitude N	Longi	Longitude E	Allitude (m)	Const,	Depth.	SWL (G.Lm)	Remarks
						, ,		, ,			,,	,	
Al Mahweet	Al Khabt	A-01	Al Sha'afel Al Olyah & Al Sufla	A-01	New projected deep well	15 27 27.0	43	17 58.1	357	2005	192	20.12	
	Al Mahweet	A-02	Jabal Al Taraf	A-02	Existing projected deep well	15 26 20.4	43	30 26.1	1,111	1997	165	26.00	
	Al Rujum	A-03	A-03 Ozlat Al Jaradi	A-03	Existing projected deep well	15 27 53.0	43	37 41.9	1,986	1990	150	50.80	
	Bani Sa'ad	A-04	A-04 Al Khamis-Bani Ali	A-04	New projected deep well	15 10 54.4	43	29 56.4	458	2001	92	99'9	
Sana'a	Al Haymah	0	S 01 Bani Waleed	S-01/1	S-01/1 Bani Waleed New projected deep well	15 00 33.1	43	53 10.1	1,664	2005	348	112.59	Recovery is very slow
	Al Kharijiyah	5		S-01/2	S-01/2 Al Asboor New projected deep well	15 00 32.8	43	52 49.4	1,654	2005	300	42.56	Recovery is very slow
	Boni Motor	S-03	Al Kharaba	S-03	Existing projected deep well	15 18 47.2	43	58 56.4	2,935	1982	150	44.93	
	במון ואומימו	S-04	S-04 Qamlan-Bait Al Najrani	S-04	Existing projected deep well	15 10 31.1	43	58 27.4	2,748	1975	145	10.01	
	Sanhan & Bany Bahlool	80-8	Dajah & Sarfah	<del>\$ 08</del>	New projected deep well	15 21 20.4	4	25 25.3	2,567	2006	672	468.33	Test carried by GARWSP
	Alteyal	S-13	Al Ga'ra	S-43	New projected deep well	15 19 54.9	44	27 48.4	2,603	2006	840	ì	Test carried by GARWSP
Dahmar		D-01	D-01 Elow Al Mikhlaf	D-01	New projected deep well	14 48 11.0	43	51 28.9	1,799	2000	273	184.13	
	Jabal Al Sharq	D-02	Jabal Al Sharq D-02 Hamal Bait Al Jabar	D-02	Existing projected deep well	14 44 38.6	43	56 45.2	2,205	1985	310	185.80	
		D-03	D-03 Hegrat Al A'asham	D-03	New projected deep well	14 42 51.6	43	59 53.7	2,041	1999	320	163.05	
	Duran	D-04	D-04 AI Kuob	D-04	D-04 New projected deep well	14 45 25.7	4	10 53.3	2,237	1999	152	84.90	
	Δns	D-05	D-05 Mayfa'at Yaer	D-05	Existing projected deep well	14 33 39.9	44	14 12.3	2,176	1984	127	59.56	
		90-Q	D-06 Wardasan	90-Q	Existing projected deep well	14 24 32.5	44	20 36.4	2,118	1998	220	89.65	
	Mayfala	D-07	D-07 Al Asakera	D-07	New projected deep well	14 32 24.8	44	40 01.7	2,589	1999	304	193.58	
	50.6	D-08	D-08 Masneat Abdul Aziz	D-08	New projected deep well	14 26 49.2	44	31 51.8	2,508	2004	268	61.98	
qq	Al Qafr	5	I-01 Asfal Bani Saba	1-0-1	New projected deep well	14 13 43.8	44	14 41.8	1,812	2005	305	106.40	
	Al Makhader	1-02	Al Sana	1-02	New projected deep well	14 13 36.9	44	14 01.5	1,741	2005	272	35.58	
		F03	Mamasa Al Marqab	<u>-63</u>	New projected deep well	14 11 15.3	44	12 09.1	1,648	2002	78	47.78	
	lbb	-04 -	Al Jahlah & Al Meshraq	I-04	New projected deep well	13 55 44.8	44	14 53.4	1,803	2005	305	14.85	

52	2	20
Wells to be tested	Cancelled wels	Total wells tested

								_		i de fr	Sten Drawdown			onstant d	icharge	Constant dicharge & Recovery Test	Test	
Pumping Te	Pumping Tests Informations	SL						1		1			<u> </u>		,	10000	Conchant	
Governorate	District	Site	Site Name	Source	Target Water Source	Depth.	SWL (G. 1-m)	Pump depth	ס	Step I ischarg	Step Drawdown discharge rate (l/sec)	sec)	I.W.L	P.W.L	Draw	discharge		Remarks
		98					(3.6.7111)	(G.Lm)	1st	2nd :	3rd 4	4th 5th	Ц	]	Ē	(l/sec)	(l/sec)	
Al Mahweet	Al Khabt	A-01	Al Sha'afel Al Olyah & Al Sufla	A-01	New projected deep well	192	20.12	138	2.0	4.0	6.0 8.	8.0 10.0	0 21.07	67.16	46.09	5.5	4.4	
	At Mahweet	A-02	A-02 Jabal Al Taraf	A-02	A-02 Existing projected deep well	165	26.00	117	1.6	3.2	4.8   6.	4 8.0	26.60	34.36	7.76	5.5	4.4	
	Al Ruium	A-03	3 Ozlat Ai Jaradi	A-03	Existing projected deep well	150	50.80	107	2.6	5.2	7.8   10	10.4 13.0	0 51.50	56.56	5.06	10.4	10,4	
	Bani Sa'ad	A Q	A-04 Al Khamis-Bani Ali	A-04		92	99.9	99	1.3	2.6	3.9 5.	5.2 6.5	7.38	43.22	35 84	5.5	4.4	
2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2	4-17/17/17		Bani Walaad	S-01/1	S-01/1 Bani Waleed New projected deep well	348	112.59	247	9.0	1.2	1.8	2.4   3.0	116,70	143.84	27.14	2.0	1.6	Recovery is very slaw
5 1 1 1	Al Kharijiyah	S-01	- Al Asboar	S-01/2	S-01/2 At Asboor New projected deep well	300	42.56	213	1.6	3.2	4.8 6	6.4 8.0	53.50	106.90	53.40	4.2	3.4	Recovery is very slow
		8-63	S-03 Al Kharaba	S-03	Existing projected deep well	150	44.93	111	1.3	2.6	4.2 5.	2 6.5	45.75	81.64	35.89	3.9	3.5	
	Bani Matar	S-04	4 Qamlan-Bait Al Najrani	S-04	Existing projected deep well	145	10.01	105	1.4	2.8	4.3   5.	6 7.0	11.20	12.11	0.91	5.6	5.6	
	Sanhan & Rany Bahlool	S-08	8 Dajah & Sarfah	80-8	New projected deep well	672	468.33	580	_	ł	 _		ł		1	8.0	6.0	Test carried by GARWSP
	Alteyal	S-13	S-13 Al Ga'ra	S-13	New projected deep well	840		668	<u> </u>	1	_  - 		1	!	i	6.1	5.4	Test carried by GARWSP
Dahmar		9	D-01 Elow Al Mikhlaf	<u>-0</u>	D-01 New projected deep well	273	184 13	207	1.5	3.0	4.5 6.	0 7	5 184.68	186.38	1.70	3.0	2.4	
	Jabal Al Sharq	0-07	Jabal Al Sharq D-02 Harnal Bait Al Jabar	D-02	Existing projected deep well	310	185.80	220	6'0	1.8	2.7 3.	6 4	5 186.60	210.10	23.50	4.3	3.5	
_		0-0	D-03   Hegrat Al A'asham	D-03	New projected deep well	320	163.05	249	1.3	2.6	3.9 5.	2 6.	5 163.60	184.50	20.90	5.2	5.0	
14	Duran	D-04	D-04 Al Kuob	D-04	New projected deep well	152	84.90	123	0.1	0.2	0.3 0	0.4 0.5	5 85.50	92.02	6.52	0.35	0.3	
-2		Ä	D-05 Mayfa'at Yaer	D-05	Existing projected deep well	127	59.56	96	1.6	3.2	4.8 6	4 8.0	60.34	63.56	3.22	5.0	2.6	
4	Ans	ŏ	D-06 Wardasan	90-Q		220	69.65	165	0.5	0.7	0.9 1	1.1	- 90.45	132.70	42.25	0,5	0.5	
	A40.46.	0-0	D-07 Al Asakera	D-07	New projected deep well	304	193,58	250	1.4	2.8	4,2 5.	.6 7.0	194.15	195.70	1.55	5.6	4.5	
	lylayia a	0-0	D-08 Masneat Abdul Aziz	B0-0	New projected deep well	268	61.98	192	1.4	2.8	4.2 5.	6 7.0	0 62.80	124.50	61.70	5.6	4.5	
qqı	Al Qafr		I-01 Asfal Bani Saba	1-0-1	New projected deep well	305	106.40	216	1,4	2.8	4.2   5.	0.7 8.	107.40	113.70	6.30	5.6	4.5	
	44.00	1-02	I-02 Al Sana	1-02	New projected deep well	272	35.58	210	1.2	2.4	3.6 4.	8 6	0 36.10	141.00	104.90	7 4.8	3,9	
		F03	Mamasa Al Marqab	1-03	New projected deep well	82	47.78	69	1.1	1.5	2.1 2.	.5 3.0	0 48.50	55.07	6.57	2.0	1.6	
	귤	-04	I-04 At Jahlah & Al Meshrag	5	New projected deep well	305	14.85	219	1.7	3.4	5.1 6	6.8	- 15.50	110.80	95,30	5.1	1,4	

# Pictures of Pumping Test Sites

Governorates of

Al Mahweet

Sana'a

Dahmar

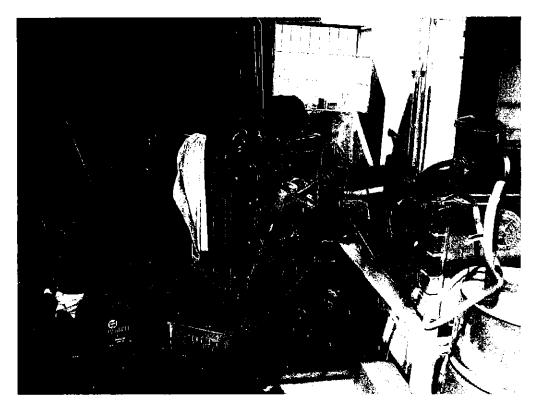
lbb



#### **Governorate: Al Mahweet**



A-01 (Al Sha'afel Al Olyah & Al Sufla)



A-02 (Jabal Al Taraf)

#### **Governorate: Al Mahweet**



A-03 (Ozlat Al Jaradi)



A-04 (Al Khamis-Bani Ali)

#### Governorate: Sana'a



S-01/1 (Bani Waleed - Al Asboor) Bani Waleed

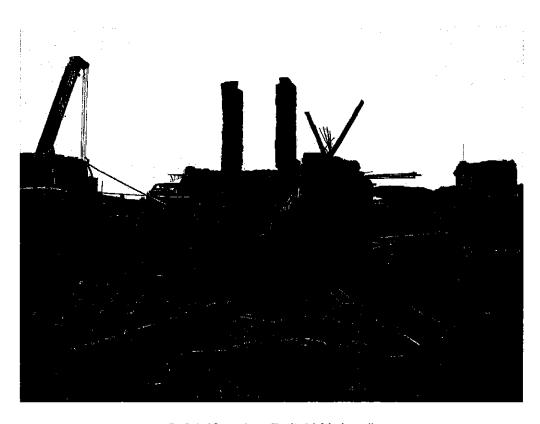


S-01/2 (Bani Waleed - Al Asboor) Al Asboor

## Governorate: Sana'a



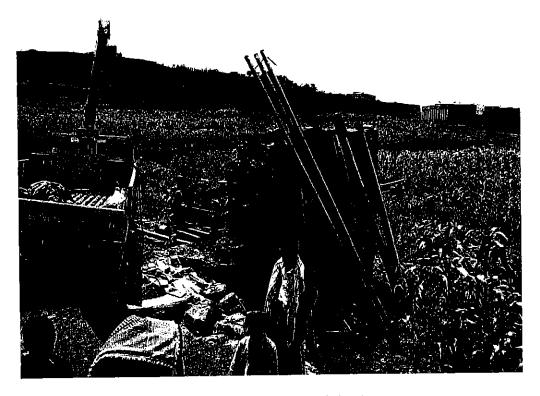
S-03 (Al Kharaba)



S-04 (Qamlan-Bait Al Najrani)



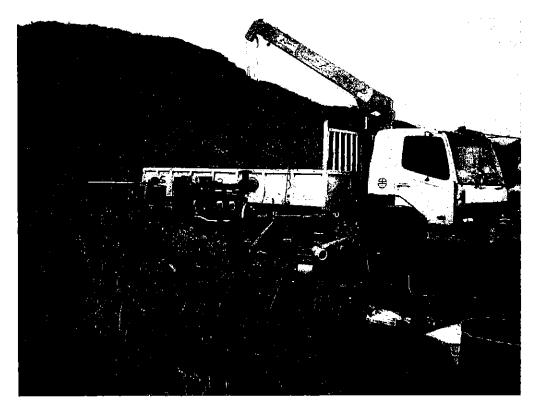
D-01 (Elow Al Mikhlaf)



D-02 (Hamal Bait Al Jabar)



D-03 (Hegrat Al A'asham)



D-04 (Al Kuob)



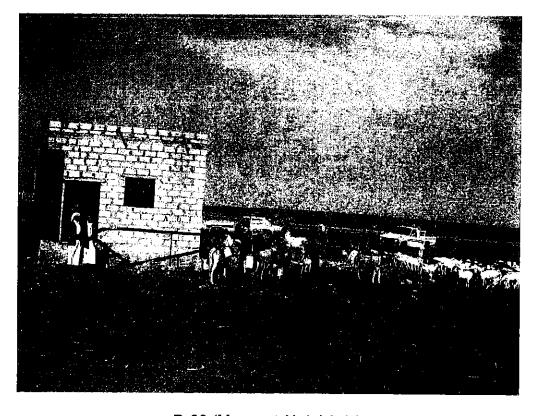
D-05 (Mayfa'at Yaer)



D-06 (Wardasan)

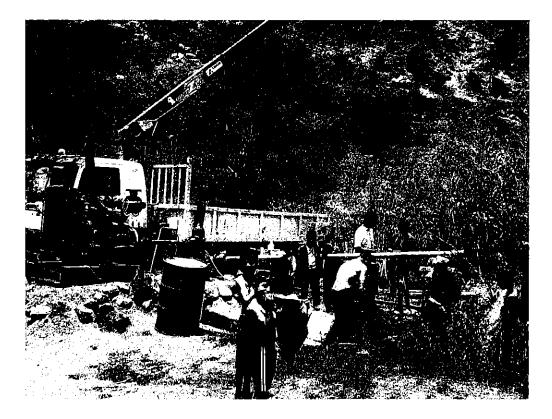


D-07 (Al Asakera)



D-08 (Masneat Abdul Aziz)

## **Governorate: Ibb**



I-01 (Asfal Bani Saba)

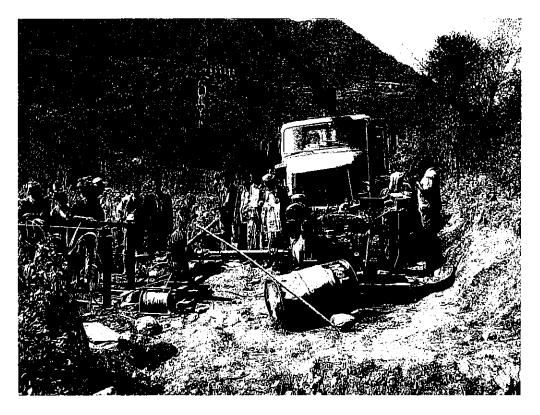


I-02 (Al Sana)

#### **Governorate: Ibb**



I-03 (Mamasa Al Marqab)



I-04 (Al Jahlah & Al Meshraq)

# **Pumping Test Report Sheets**

Governorate of

Al Mahweet



## **Pumping Test Report Sheet**

Well code: A-01	Site code:	A-01	Site name	: Al Sha'a	fel Al Olyah &	Al Sufla
District:	Al Khabt		Govern	orate:	Al Mahweet	
Target water source:	New projected	deep well_	<del></del>	Well depth	. <u>192 m</u>	
Contractor:	Mabkhout .	Al-Abraki				
Hydrogeologist in cha						
Operator:	Hosein .	Jamell	<del></del>			
Date of start of the te	st: <u>18/8/2006</u>	<u> </u>	Date of end	of the test:	22/8/200	06
Pump type:	Vertical pump		Engine:		IVECO Aifo	
Pump installation dep	oth: <u>138 m</u>		Datum leve	l: <u>0.95 m</u>	_ S.W.L.:_	G.L20.12 r
Step drawdown test						
Date/hour started:	18/8/2006 10:00pm	n Date/ho	our finished:	19/8/2006	9:15pm Total	hours: 23:1
Yield (I/sec) 1 <sup>st</sup> step	· · · · · · · · · · · · · · · · · · ·	_			•	
Water level before sta				_		<del></del>
Water level after end						
Water level after reco			<del></del>	Recovery h	nours 13:15	
	,			•		_
Constant discharge t	est					
Date/hour started:		Date/ho	our finished:	22/8/2006	6:15pm Total	hours: 69:0
Yield (I/sec) 4.40					<u> </u>	
Water level before start	 t of the test (G.Lm):	20.	12			
Water level after end		66.2				
Water level after reco	-	20.	 12	Recovery h	ours 45:00	
	6.09			•		_
•						
Revised by:						
Nevised by.						
Name :	<del></del>	<del>_</del>				
Date:						
2 4.0.						

#### **Provisional Step Drawdown Test (1/2)**

 Well Code:
 A-01
 Pump on date/hour:
 18/8/2006 3:30pm

 Site name:
 Al Sha'afel Al Olyah & Al Suffa
 Pump off date/hour:
 18/8/2006 6:00pm

 District:
 Al Khabt
 End of recovery hour:
 18/8/2006 10:00pm

Governorate Al Mahweet S.W.L ( m ): 21.07

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Hosein Jamell

	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
( min )	( m )	( l/sec)	(m)	( l/sec)	( m )	( l/sec)	(m)	( I/sec)	(m)	( l/sec)	( m )
0.0	21.07	2.00	25.66	4.00	26.89	6.00	28.82	8.00	34.76	10.00	49.01
0.5	24.51		26.30		27.02		29.76		35.39		41.14
1.0	25.05		26.30		27.41		30.68		35.79		38.16
1.5	25.22		26.43		27.85		31.18		36.11		36.01
2.0	25.37		26,50		28.18		31.46		36.33		33.83
2.5	25.50		26.90		28.14		31.62		37.70		32.28
3.0	25.73		27.07		28.77		31.68	-	37.76		30.67
3.5	25.74		26.94		28.77		31.88		38.12		29.33
4.0	25.73		26.77		28.70		31.93		38.44		28.32
4.5	25.70		26.81	i	28.70		32.09		38.83		27.70
5.0	25.73		26.93		28.73		32.39		39.05		27.19
6.0	25.60		26.95		28.79		32.54		39.50		26.60
7.0	25.38		26.89		29.04		32.58		40.24		26.15
8.0	25.56		27.05		29.20		32.62		40.44		25.90
9.0	24.27		27.25		29.07		32,98		41.13	·	25.66
10.0	23.87		27.52		28.86		33.24		41.52		25.50
12.0	24.39		26.88		28.85		33.71		42.24		25.27
14.0	24.37		27.07	<del></del>	28.86		33.89		43.24		25.12
16.0	25.00		27.09		28.77		34.00		43.98		24.96
18.0	25.53		26.95		28.79		34.16		44.86		24.79
20.0	25.45		26.98		28.80		34.27		45.74		24.67
22.0	25,46		26.81		28.75		34.36		46.39		24.55
24.0	25.54		26.84	_	28.82		34.46		46.80		24.34
26.0	25.64		26.82		28.83		34.56		48.08		24.15
28.0	25.66		26.83	_	28.82		34.76		48.59		23.98
30.0	25.66	-	26.89		28.82		34.76		49.01		23.85
35.0							_	-			23.58
40.0				-			-				23.42
45.0											23.25
50.0											23.00
55.0											22.79
60.0											22.63
70.0											22.30
80.0											22.05
90.0								·			21.85
100.0											21.65
110.0											21.48
120.0											21.33
150.0					<u>.</u>						21.20
180.0					14-3	8					21.14

# Provisional Step Drawdown Test (2/2)

Well Code:	A-01	Site code:	A-01	Pump on date/hour:	
Site name:	Al Sha'afel Al Ol	yah & Al Sufla	<u>.</u>	Pump off date/hour:	
District:	Al Khabt			End of recovery hour:	
Governorate	e Al Mahweet			S.W.L ( m ):	
		-			
Contractor:	Mabkhout Al-Abi	raki			
Hydrogeolog	gist: <i>Abudul Salan</i>	n Sallam			
Operator:	Hosein Jamell				

]	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	<b>.</b>
Duration ( min )	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield ( l/sec)	W.L. (m)	Yield (I/sec)	W.L. ( m )	Yield ( l/sec)	Recovery (m)
210.0	(1117	(1/300)	(111)	(1/300)	( 111 )	( "000)	(1)	( #650)	(,	( "000)	21.10
240.0		1		<del>-</del>		<del>                                     </del>				<u> </u>	21.07
240.0			•				<del></del>				
				<u> </u>							<del></del> -
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					14-3	39					

#### Step Drawdown Test (1/2)

Well Code:	A-01	Site code:	A-01	Pump on date/hour:	18/8/2006 10:00pm
Site name:	Al Sha'afel Al Olyah	& Al Sufla		Pump off date/hour:	19/8/2006 8:00am
District:	Al Khabt		-	End of recovery hour:	19/8/2006 9:15pm

Governorate Al Mahweet S.W.L ( m ): 21.07

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Hosein Jamell

D	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	D
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery (m)
( ''''''	( m )	( l/sec)	(m)	( l/sec)	( m )	( l/sec)	( m )	( l/sec)	(m)	( I/sec)	( ''' )
0.0	21.07	2.00	24.48	4.00	27.53	6.00	33.11	8.00	48.58	10.00	124.20
0.5	23.98		24.65		27.60		33.17		50.20		111.66
1.0	24.25		24.93		27.74		33.40		51.22		106.71
1.5	24.27		25.00		27.97		33.54		52.00		102.60
2.0	24.15		25.06		28.14		33.65		52.51		100.70
2.5	24.00		25.17		28.31		33.86		53.44		97.95
3.0	23.99		25.18		28.47		34.04		54.12		95.10
3.5	23.98		25.19		28.65		34.26		55.24		92,60
4.0	23.98		25.20		28.92		34.45		55.87		88.55
4.5	23.98		25.22		29.19		34.56		56.67		86.29
5.0	23.95		25.24		29.35		34.71		56.98		84.40
6.0	23.97		25.43		29.60		35.00		57.72		80.10
7.0	23.98		25.53		29.80		35.28		58.92		76.43
8.0	23.99		25.58		29.94		35.56		60.47		73.65
9.0	23.99		25.62		30.04		35.71		61.25		71.52
10.0	23.99		25.65		30.14		35.92		62.88		69.90
12.0	24.00		25.70		30.26	-	36.37		64.23		66.75
14.0	24.01		25.78		30.48		36.78		65.94		63.59
16.0	24.03		25.80		30.70		37.04		67.90		60.50
18.0	24.05		25.86		30.89		37.39		68.45		56.05
20.0	24.06		25.90		30.98		37.90		70.99		53.57
25.0	24.09		26.03		31.18		39.69		73.85		45.54
30.0	24.12		26.12		31,33		40.69		75.86		37.50
35.0	24.14		26.20		31.47		41.41		77.98		33.44
40.0	24,16		26.29		31.63		42.02		80.72		31.23
45.0	24.18		26.40		31.73		42.56		83.39		30.44
50.0	24.20		26.49		31.87		43.07		86.00		29.95
55.0	24.22		26.59		31.96		43.56	-	88.82		29.67
60.0	24.24		26.70		32.13		43,98		92.59		29.22
70.0	24.28		26.89		32.38		44.80		99.14		28.55
80.0	24.32		27.06		32.49		45.42		111.70		28.40
90.0	24.36		27.22		32.63		46.21		115.76		28.29
100.0	24.40		27.33		32.83		47.00		118.82		28.05
110.0	24.44		27.43		32.97		47.79		120.45		27.81
120.0	24.48		27.53		33.11		48.58		124.20		27.72
140.0											27.27
160.0							-				26.85
180.0	-										26.56
200.0											26.16
220.0					14-4	0	•				25.84

## Step Drawdown Test (2/2)

 Well Code:
 A-01
 Site code:
 A-01
 Site name:
 Al Sha'afel Al Olyah
 & Al Sufla

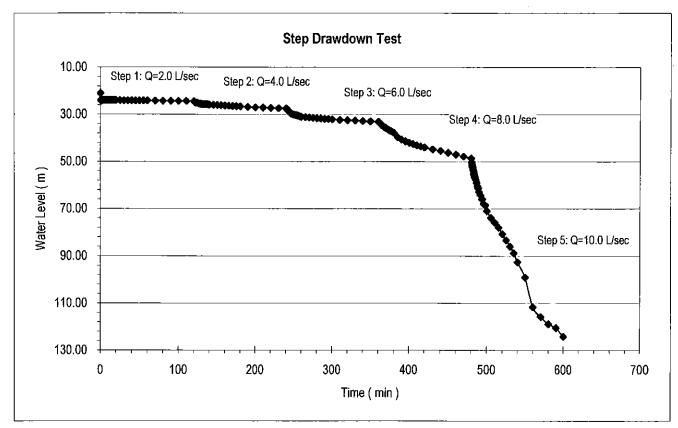
 District:
 Al Khabt
 Governorate:
 Al Mahweet

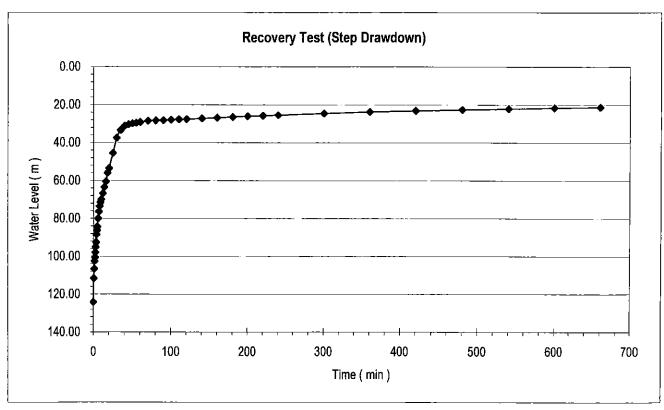
	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Recovery
Duration (min)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	W.L. (m)	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	(m)
240.0	(111)	(1/360)	. ( 111 )	(1/300)	<del>- ( III )</del>	(1/300)	( ) , ,	( #666)	(,,,,	( "000)	25.55
300.0					_	-	_	<del>                                     </del>	_		24.67
360.0						<del> </del>					23.88
420.0	<u> </u>			i							23.25
480.0	<del></del>									-	22.67
540.0			-					<del>                                     </del>			22.12
600.0	•								_	<del></del>	21,62
660.0		_		_		-					21.35
720.0								<del> </del>			21.13
780.0		<del>                                     </del>				<u> </u>					21.08
795.0		-									21.07
795.0						<u> </u>				<u> </u>	
						<del> </del> -					
	i	-				-		<u> </u>		<u> </u>	
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<del></del>	<del>                                     </del>	<del>                                     </del>	<del> </del>		1	+		†			<u> </u>
	<del>  -</del>	1	<del>                                     </del>		14-	41			<del>       </del>		<u>†                                      </u>

#### **Step Drawdown Test**

Well Code: **A-01**Site Code: **A-01**S.W.L.: **21.07** m

Site Name: Al Sha'afel Al Olyah & Al Sufla



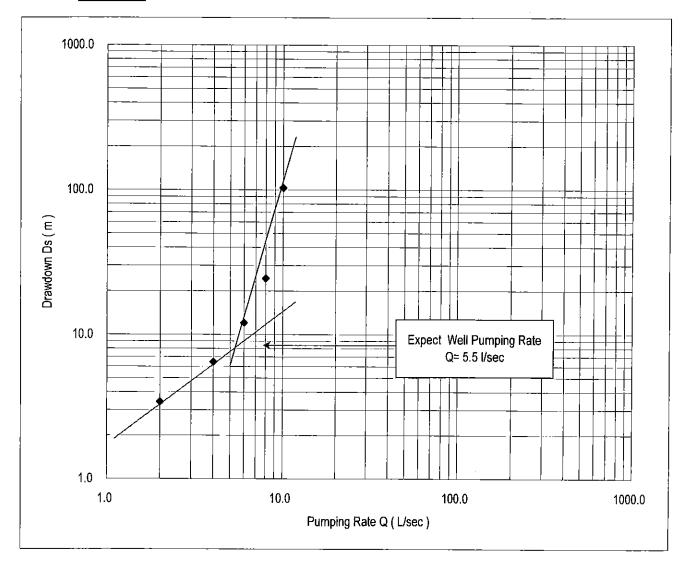


#### **Step Drawdown Test**

Well Code: **A-01**Site Code: **A-01** 

S.W.L.: 21.07 m

Site Name: Al Sha'afel Al Olyah & Al Sufla



Step	Q(I/sec)	D.W.L.( m )	Ds(m)
1	2.0	24.48	3.41
2	4.0	27.53	6.46
3	6.0	33.11	12.04
4	8.0	45.42	24.35
5	10.0	124.20	103.13

## Constant Discharge & Recorery Test (1/2)

 Well Code:
 A-01
 Site code:
 A-01

 Site name:
 Al Sha'afel Al Olyah & Al Sufla
 Pump on date/hour:
 19/8/2006 9:15pm

 District:
 Al Khabt
 Pump off date/hour:
 20/8/2006 9:15pm

 Governorate:
 Al Mahweet
 End of recovery hour:
 22/8/2006 6:15pm

 Contractor:
 Mabkhout Al-Abraki
 S.W.L ( m ):
 21.07

 Hydrogeologist:
 Abudul Salam Sallam
 D.W.L ( m ):
 67.16

 Operator:
 Hosein Jamell
 Yield (l/sec):
 4.4

5	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
Duration   ( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
(11181)	(m)	(m)	rate (l/sec)	(m)	(m)	(µS/cm)	
0.0	21.07	0.00		67.16	46.09		
0.5	25.44	4.37		62.02	40.95		
1.0	25.68	4.61		60.88	39.81		
1,5	25.83	4.76		60.46	39.39		
2.0	26.60	5.53		59.93	38.86		<u> </u>
2.5	26.20	5.13		59.34	38.27		
3.0	26.31	5.24	-	58.70	37.63		
3.5	26.44	5.37		58.10	37.03		
4.0	26.52	5.45		57.39	36.32		
4.5	26.62	5.55		56.80	35.73		
5.0	26.68	5.61		55.96	34.89		
6.0	26.88	5.81		54.80	33.73		
7.0	26.95	5.88		53.55	32.48	-	
8.0	27.02	5.95		52.37	31.30		
9.0	27.09	6.02		51.35	30.28		
10.0	27.16	6.09		50.30	29.23		
12.0	27.30	6.23		48.20	27.13		
14.0	27.44	6.37		46.22	25.15		
16.0	27.58	6.51		44.46	23.39		
18.0	27.68	6.61		42.20	21.13		
20.0	27.84	6.77	<u> </u>	41.39	20.32		
25.0	28.13	7.06		38.07	17.00		
30.0	28.14	7.07		36.02	14.95		
35.0	28.60	7.53	<del>1</del>	34.79	13.72		
40.0	28.80	7.73	<u> </u>	34.11	13.04		
45.0	28.97	7.90		33.75	12.68		
50.0	29.17	8.10	1	33.54	12.47		
55.0	29.23	8.16		33.24	12.17		
60.0	29.36	8.29		32.99	11.92	1970	

# Constant Discharge & Recorery Test (2/2)

Well Code: A-01 Site code: A-01 Site name: Al Sha'afel Al Olyah & Al Sufla

District: Al Khabt Governorate: Al Mahweet

1	Constant Dischrge Test		est	Recove	ery Test	Water Analysis	1	
Duration (min)	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity (µS/cm)	Remarks	
70.0	29.56	8,49	14.5 (#555)	32.56	11.49	<del> </del>		
80.0	29.78	8.71	_	32.15	11.08	†	<del></del>	
90.0	29.85	8.78		31.92	10.85		<u></u>	
100.0	29.95	8.88		31.70	10.63			
110.0	30.07	9.00	_	31.54	10.47			
120.0	30.18	9.11		31.35	10.28	1970		
140.0	30.35	9.28		31.01	9.94			
160.0	30.56	9.49		30.72	9.65	1		
180.0	30.70	9.63	_	30.41	9.34	1970		
200.0	30.85	9.78		30.23	9.16			
220.0	30.97	9.90		30.03	8.96			
240.0	31.11	10.04		29.86	8.79	1970		
280.0	31.43	10.36	-	29.56	8.49	1		
320.0	31.68	10.61		29.26	8.19			
360.0	31.92	10.85		28.93	7.86	1970		
420.0	32.25	11.18		28.61	7.54			
480.0	32.36	11.29		28.47	7.40			
540.0	33.02	11.95		28.16	7.09	1970		
600.0	34.46	13.39		27.90	6.83			
660.0	37.24	16.17		27.69	6.62			
720.0	39.70	18.63		27.47	6.40	1970		
840.0	44.68	23.61		27.06	5.99			
960.0	48.25	27.18		26.65	5.58	_		
1080.0	51.76	30.69		26.40	5.33	1970		
1200.0	56.12	35.05		26.11	5.04			
1320.0	63.56	42.49		25.80	4.73	1970		
1440.0	67.16	46.09		25.52	4.45			
1560.0				25.24	4.17	_		
1680.0				24.98	3.91			
1800.0				24.70	3.63			
1920.0				23.30	2.23			
2040.0				22.33	1.26			
2160.0				21.34	0.27		<u> </u>	
2280.0	† — ·		_	21.12	0.05			
2340.0				21.07	0.00			
						_[]		

#### **Constant Dischrge Test**

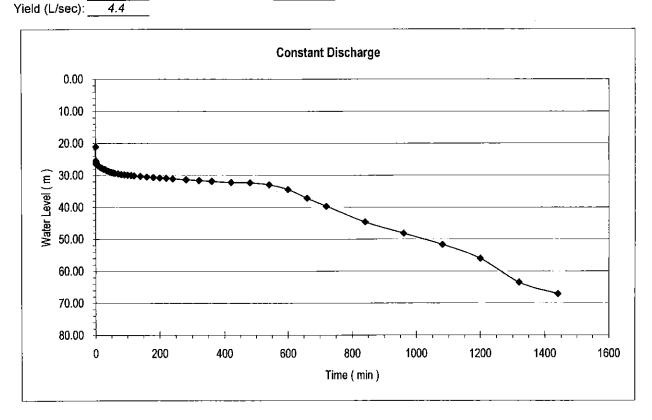
 Well Code:
 A-01

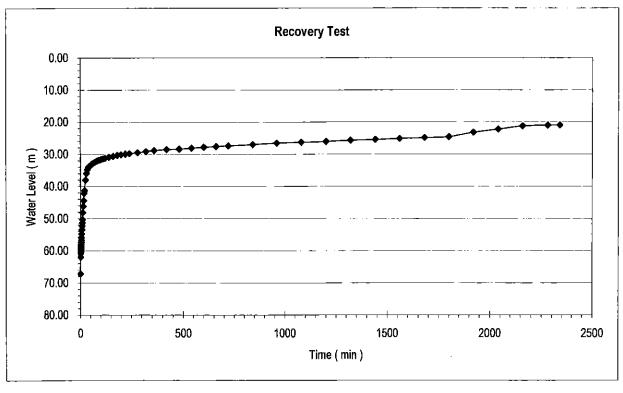
 Site Code:
 A-01

 S.W.L. (m):
 21.07

Site Name Al Sha'afel Al Olyah & Al Sufla

D.W.L (m): 67.16 Drawdown (m): 46.09





#### **Constant Dischrge Test**

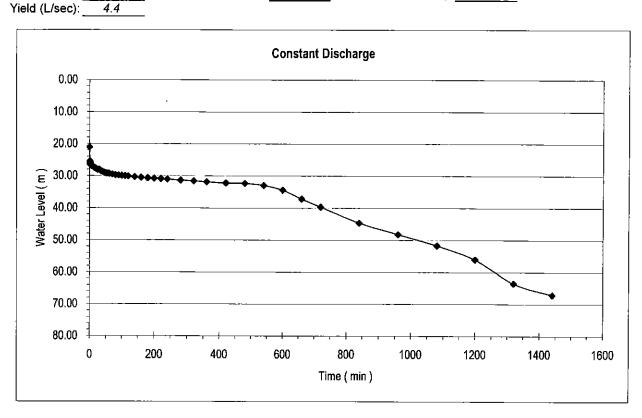
 Well Code:
 A-01

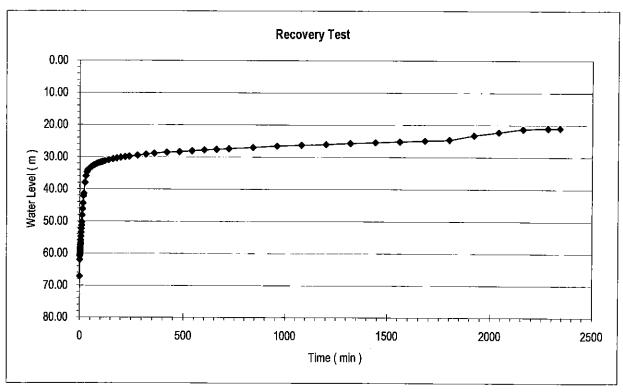
 Site Code:
 A-01

 S.W.L. (m):
 21.07

Site Name Al Sha'afel Al Olyah & Al Sufla

D.W.L (m): 67.16 Drawdown (m): 46.09





# **Pumping Test Report Sheet**

Well code:	A-02	_ Site code: _	A-02	Site name	ð:	Jabal Al Taraf	
		Mahweet				Al Mahweet	
				-			
Target water	r source: <u>E</u>	xisiting project	ted deep v	<u>vell</u>	Well depth	n: <u>165 m</u>	
						· · · · · · · · · · · · · · · · · · ·	
		Mabkhou					
		e <u>Abu</u>					
Operator:	<del></del>	Kaid A	I Abraki				
	,						
		28/8/200				30/8/2006	_
		ertical pump	<u></u>		·	IVECO Aifo	_
Pump install	ation depth:	117 m		Datum leve	l: <u>0.60_m</u> _	S.W.L.: <u>G.L.</u> -	-26.00 m
Com decarde	44						
Step drawdo		11 2 2 2 2 A AA	~ . "	~			_
						9:00am_Total hours	
					_4 <sup>tn</sup> step_ <u>6</u>	5.40 5 <sup>th</sup> step <u>8.00</u>	<u> </u>
		the test (G.Ln					
		5 <sup>th</sup> step (G.Ln					
Water level a	after recover	ry (G.Lm);	26	3.00	Recovery h	hours8:00	
Constant dis	L toet						
Constant dis		=	¬ - + - /b	en in telegradi.		- · · ·	
		/8/2006 9; Tuan	<u>n</u> Datem	our finisnea.	30/8/2000	6.1:10pm Total hours	s: <u>30:00</u>
Yield (l/sec)_			26	·			
		the test (G.Lm)					
		test (G.Lm):				. 55	
Water level a		•	∠0.	0.00	Recovery h	hours <u>4:00</u>	
Drawdown (n	n): <u>/./o</u>						
ورمط المحادث							
Revised by:							
-			_				
Name :							
Date:							

## **Provisional Step Drawdown Test**

Well Code:	A-02	Site code:	A-02	Pump on date/hour:	28/8/2006 9:30am
Site name:	Jabal Al Taraf			Pump off date/hour:	28/8/2006 12:00pm
District:	Al Mahweet			End of recovery hour:	28/8/2006 3:00pm
Governorate	Al Mahweet			SWI (m)	26 60

Contractor: <u>Mabkhout Al-Abraki</u> Hydrogeologist: <u>Abudul Salam Sallam</u>

Operator: Kaid Al Abraki

	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
( min )	( m )	( l/sec)	(m)	(I/sec)	(m)	(I/sec)	( m )	(I/sec)	(m)	( l/sec)	(m)
0.0	26.60	1.60	27.79	3.20	30.17	4.80	33.45	6.40	39.62	8.00	46.41
0.5	29.77		28.55		30.71		33.90		39,97		34.76
1.0	29.65		28.95		31.01		34.10		40.55		31.42
1.5	29.90		29.21		31.27		34.77	-	40.95		29.63
2.0	30.30		29.37		31.61		35.10		41.18		28.52
2.5	30.43		29.54		31.81		35.41		41.40		27.76
3.0	30.45		29.67		31.97		35.75		41.57		27.45
3.5	30.65		29.69		32.10		36.05		41.74		27.31
4.0	30.30		29.72		32.46		36.65		41.86		27.26
4.5	29.95		29,74		32.66		37.00		41.95		27.24
5.0	29.67		29.76		32.78		37.50		42.02		27.20
6.0	29.45		29.76		32,77		38.20		42.16		27.17
7.0	29.35		29.77		33.03		38.52		42.24		27.15
8.0	28.89		29.86		33.20		38.82		42.98		27.14
9.0	28.26		29.95		33.28		38.97		43.76		27.11
10.0	27.99		30.08		33.32		39.05		44.40		27.10
12.0	27.82		30.11		33.34		39.17		45.20		27.08
14.0	27.83		30.12		33.38		39.28		45.64		27.08
16.0	27.82		30.15		33.40		39.34		45.82		27.03
18.0	27.82		30.16		33.41		39.43		45.98		27.01
20.0	27.82		30.16		33.41		39.48		46.00		27.00
22.0	27.82		30.15		33.42		39.54		46.12		26.97
24.0	27.83		30.16		33.44		39.58		46.20	ı	26.96
26.0	27.80		30.16		33.44		39.59		46.28		26.94
28.0	27.78		30.17		33.45		39.60		46.35		26.93
30.0	27.79		30.17		33.45		39.62		46.41		26.92
40.0											26.87
50.0											26.84
60.0											26.79
70.0											26.76
80.0											26.73
90.0									İ		26.71
100.0											26.69
110.0											26.66
120.0									ļ		26.65
150.0											26.61
180.0										ĺ	26.60
					14-4	9					

#### Step Drawdown Test (1/2)

Well Code:	A-02	Site code:	A-02	Pump on date/hour:	28/8/2006 3:00pm	
Site name:	Jabal Al Taraf	_		Pump off date/hour:	29/8/2006 1:00am	
District:	Al Mahweet			End of recovery hour:	29/8/2006 9:00am	
Governorate	Al Mahweet			SWI(m)	26 60	

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam
Operator: Kaid Al Abraki

	1st S	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	D
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery (m)
( min )	( m )	( l/sec)	(m)	( l/sec)	(m)	( I/sec)	(m)	( l/sec)	(m)	( l/sec)	( ''' )
0.0	26.60	1.60	27.87	3.20	30.60	4.80	34.08	6.40	39.83	8.00	49.52
0.5	29.85		28.65		31.62		35.25		40.95		37.25
1.0	29.37		28.87		30.88		35.84		41.41		32.77
1.5	28.86		29.27		32.07		36.26		43.35		31.08
2.0	28,66		29.55		32.14		36.72		44.18		29.86
2.5	28.42		29.84		32.30		36.98		44.83		28.76
3.0	28.26		29.93		32.40		37.18		45.50	-	28.45
3.5	28.17		30.10		32.55		37.43		46.00		28.22
4.0	28.13		30.26		32.59		37.67		46.33		28.11
4.5	28.10		30.28		32.99		37.75		46.64		28.09
5.0	28.00		30.29		33.20		37.89		46.93		28.05
6.0	27.87		30.35		33.56		38.02		47.28		27.99
7.0	27.89		30.37		33.73		38.29		47.56		27.95
8.0	27.90		30.38	_	33.85		38.50		47.72		27.93
9.0	27.90		30.40		33.91		38.72		47.88		27.89
10.0	27.91		30.40		33.93		38.81		47.97		27.88
12.0	27,90		30.40		33.95		38.84		48.11		27.84
14.0	27.87		30.41		33.95		38.87		48.22		27.79
16.0	27.86		30.42		33.95		38.89		48.33		27.76
18.0	27.83		30,45		33.95		38.93		48.45		27.72
20.0	27.85		30.47		33.96		38.97		48.50		27.69
25.0	27.85		30.49		33.98		38,97		48.61		27.62
30.0	27.85		30.51		33.98		38.98		48.70		27.45
35.0	27.85		30.53		33.99		38.99		48.74		27.49
40.0	27.85		30.53		34.00		39.05		48.82		27.45
45.0	27.85		30.53		34.02		39.16		48.91		27.39
50.0	27.86		30.53		34.04		39.28		48.98		27.35
55.0	27.86		30.53		34.05		39.45		49.07		27.32
60.0	27.86		30.54		34.05		39.50		49.15		27.29
70.0	27.86		30.55		34.06		39.60		49.25		27.22
80.0	27.86		30.56		34,07		39.73		49.38		27.15
90.0	27.86		30.58		34.07		39.75		49.40		27.11
100.0	27.86		30.59		34.08		39.77		49.44		27.05
110.0	27.87		30.59		34.08		39.79		49.48		27.01
120.0	27.87		30.60		34.08		39.83		49.52		26.96
180.0											26.83
240.0											26.77
300.0											26.71
360.0											26.66
420.0					14-5	υ					26.63

#### Step Drawdown Test (2/2)

Well Code:

A-02

Site code: <u>A-02</u>

Site name: Jabal Al Taraf

District:

Al Mahweet

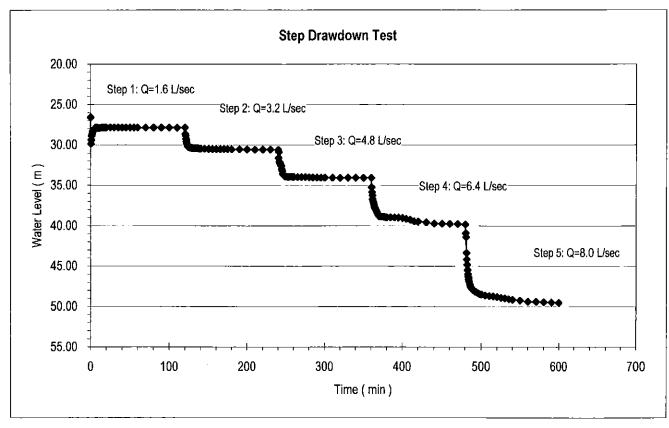
Governorate: Al Mahweet

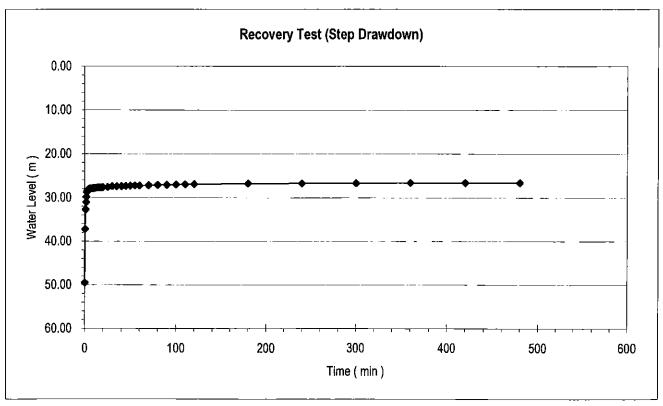
D	1st Step		2nd Step		3rd	Step	4th	Step	5th	Step	Recovery
Duration ( min )	W.L. ( m )	Yield ( l/sec)	W.L.	Yield ( l/sec)	W.L.	Yield ( l/sec)	W.L. ( m )		W.L. ( m )	Yield (I/sec)	Recovery (m)
480.0	<del>```</del> -	<u> </u>	<u> </u>	<u> </u>	<u> </u>	, ,	` '	, ,	, ,	, <u>, , , , , , , , , , , , , , , , , , </u>	26.60
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#### **Step Drawdown Test**

Well Code: **A-02**Site Code: **A-02**S.W.L.: **26.60** m

Site Name: Jabal Al Taraf



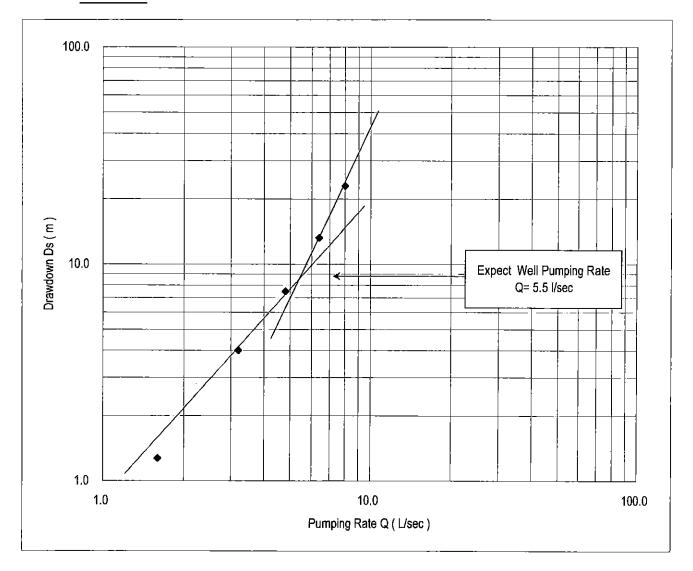


#### **Step Drawdown Test**

Well Code: **A-02**Site Code: **A-02** 

S.W.L.: 26.60 m

Site Name: Jabal Al Taraf



Step	Q(I/sec)	D.W.L.( m )	Ds(m)		
_1	1.6	27.87	1,27		
2	3.2	30.60	4.00		
3	4.8	34.08	7.48		
4	6.4	39.83	13.23		
5	8.0	49.52	22.92		

#### **Constant Discharge & Recorery Test (1/2)**

Well Code: A-02 Site code: Pump on date/hour: 29/8/2006 9:10am Site name: Jabal Al Taraf Pump off date/hour: 30/8/2006 9:10am District: Al Mahweet End of recovery hour: 30/8/2006 1:10pm Governorate: Al Mahweet Contractor: Mabkhout Al-Abraki S.W.L ( m ): \_\_\_ 26.60 Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 34.36 Yield (l/sec): \_\_\_ 4.4 Operator: Kaid Al Abraki

Duration	Constant Dischrge Test		Recove	ery Test	Water Analysis		
( min )	Water level (m)	Drawdown (m)	Pumping rate (I/sec)	Water level (m)	Residual (m)	Conductivity ( )	Remarks
0.0	26.60	0.00		34.36	7.76		
0.5	28.30	1.70		28.30	1.70		
1.0	28.73	2.13		27.85	1.25		
1.5	29.18	2.58		27.70	1.10		
2.0	29.67	3.07		27.63	1.03		
2.5	30.17	3.57		27.58	0.98		
3.0	30.60	4.00		27.56	0.96		
3.5	30.97	4.37		27.54	0.94		
4.0	31.31	4.71		27.53	0.93		
4.5	31.46	4.86		27.51	0.91		
5.0	31.68	5.08		27.50	0.90		
6.0	32.00	5.40		27.49	0.89		
7.0	32.25	5.65		27.48	0.88		
8.0	32.52	5.92		27.46	0.86		
9.0	32.75	6.15		27.45	0.85		
10.0	32.94	6.34		27.44	0.84		
12.0	33.15	6.55		27.41	0.81		
14.0	33.32	6.72		27.39	0.79		
16.0	33.44	6.84		27.34	0.74		
18.0	33.50	6.90		27.32	0.72		
20.0	33.58	6.98		27.31	0.71		
25.0	33.58	6.98		27.28	0.68	-	
30.0	33.59	6.99		27.25	0.65		
35.0	33.62	7.02		27.21	0.61		
40.0	33.65	7.05		27.18	0.58		
45.0	33.68	7.08		27.16	0.56		
50.0	33.68	7.08		27.14	0.54		_
55.0	33.68	7.08	· ·	27.12	0.52		
60.0	33.69	7.09		27.10	0.50		

# **Constant Discharge & Recorery Test (2/2)**

Well Code:	A-02	Site code:	A-02	Site name:	Jabal Al Taraf
District:	Al Mahweet			Governorate:	Al Mahweet

Duration	Constant Dischrge Test		Recove	ery Test	Water Analysis		
(min)	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
70.0	(m) 33.71	(m) 7.11	rate (l/sec)	(m) 27.04	(m) 0.44	( )	
80.0	33.72	7.12		26.99	0.39	┼─-	<u> </u>
90.0	33.73	7.12		26.94	0.39	<del></del>	
100.0	33.74	7.14	·	26.90	0.30		<u> </u>
110.0	33.75	7.15		26.86	0.30	<del> </del>	
120.0	33.76	7.16	<u> </u>	26.81	0.26	<del>                                     </del>	
140.0	33.78	7.18		26.77	0.17	-	
160.0	33.80	7.20	_	26.73	0.17	<del>                                     </del>	<u> </u>
180.0	33.82	7.22		26.69	0.13	<del>                                     </del>	
200.0	33.84	7.24		26.65	0.09	<del>  -  </del>	<del></del> :-
220.0	33.86	7.26		26.62	0.05	<del>                                     </del>	
240.0	33.88	7.28		26.60	0.02	<del>                                     </del>	<del></del>
280.0	33.91	7.31		20.00		-	<del></del>
320.0	33.95	7.35			· · ·		<del></del>
360.0	33.98	7.38				<del>                                     </del>	
420.0	34.04	7.44		·		<del> </del>	<del></del> -
480.0	34.09	7.49			·	<del>                                     </del>	·-
540.0	34.19	7.59	<del></del>		<del></del>	┼	,
600.0	34.23	7.63	_			<del>                                     </del>	
660.0	34.27	7.67				-	
720.0	34.30	7.70		_	···	<del>                                     </del>	· ·
840.0	34.32	7.72			<del></del>	<del>                                     </del>	_
960.0	34.34	7.74		<del></del> -		<del>                                     </del>	
1080.0	34.35	7.75		<del></del>		-	
1200.0	34.36	7.76	·				
1320.0	34.36	7.76			<u> </u>	<del> </del>	
1440.0	34.36	7.76	- +	<del></del> -	<u> </u>	-	
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#### **Constant Dischrge Test**

 Well Code:
 A-02

 Site Code:
 A-02

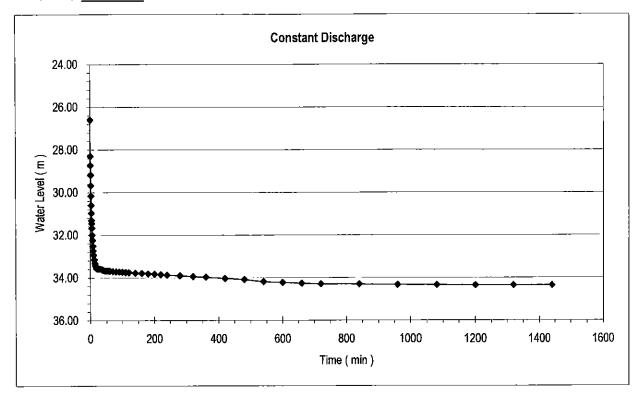
 S.W.L. (m):
 26.60

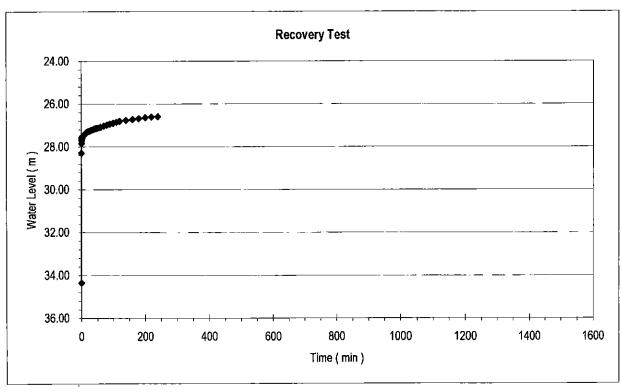
 Yield (L/sec):
 4.4

 Site Name
 Jabal Al Taraf

 D.W.L (m):
 34.36

 Drawdown (m):
 7.76





# **Pumping Test Report Sheet**

Well code:A-03 Site code:	A-03 Site nam	e:Jabal Al Taraf
District: Al Rujum	Gover	rnorate: <u>Al Mahweet</u>
Target water source: Exisiting projected	d deep well	Well depth: 150 m
Contractor: Mabkhout A	Al-Abraki	
Hydrogeologist in charge Abudu	ul Salam Sallam	
Operator: Kaid Al A	Abraki	
Date of start of the test: 23/8/2006	Date of en	nd of the test: 26/8/2006
Pump type: Vertical pump	Engine:	IVECO Aifo
Pump installation depth:107 m	Datum lev	vel: <u>0.70 m</u> S.W.L.: <u>G.L50.80 r</u>
Step drawdown test		
Date/hour started: 23/8/2006 2:00pm	_ Date/hour_finishe	d: <u>24/8/2006 3:00am</u> Total hours: <u>13:0</u>
Yield (I/sec) 1 <sup>st</sup> step <u>2.60</u> 2 <sup>nd</sup> step <u>5</u> .	20 3 <sup>rd</sup> step <i>7.80</i>	4 <sup>th</sup> step <u>10.40</u> 5 <sup>th</sup> step <u>13.00</u>
Water level before start the test (G.Lm)	:50.80	
Water level after end of 5 <sup>th</sup> step (G.Lm)	:55,56	
Water level after recovery (G.Lm):	50.80	Recovery hours 3:00
Constant discharge test		
Date/hour started: 24/8/2006 10:00am	Date/hour finished	d: 26/8/2006 6:00am Total hours: 44:00
Yield (l/sec) 10.40	_	
Water level before start of the test (G.Lm):	50.80	
Water level after end of test (G.Lm):	55.86	
Water level after recovery (G.Lm):	50.80	Recovery hours 20:00
Drawdown (m):5.06		<del>,                                    </del>
Revised by:		
Name :	<del>-</del>	
Date:		

## **Provisional Step Drawdown Test**

Well Code:	A-03	Site code:	A-03	Pump on date/hour:	28/8/2006 9:30am
Site name:	Jabal Al Taraf			Pump off date/hour:	28/8/2006 12:00pm
District:	Al Rujum		•	End of recovery hour:	28/8/2006 3:00pm
Governorate	Al Mahweet			SWI(m)	26 60

Contractor: <u>Mabkhout Al-Abraki</u> Hydrogeologist:<u>Abudul Salam Sallam</u>

Operator: Kaid Al Abraki

	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Beervery
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery (m)
( ''''''	( m )	( l/sec)	( m )	( l/sec)	(m)	(I/sec)	(m)	(I/sec)	(m)	( l/sec)	( ''' /
0.0	51.50	2.60	51.88	5.20	52.73	7.80	53.59	10.40	54.29	13.00	55.55
0.5	51.75		51.97		53.02		53.73		54.46		52.81
1,0	51.77		52,10		53.16		53.82		54.50		52.83
1.5	51.77		52.15		53.22		53.87		54.61		52.78
2.0	51.75		52.18		53.26		53.92		54.67		52.65
2.5	51.76		52.28		53.30		53.97		54.68		52.55
3.0	51.77		52.29		53.33		54.00		54.85		52.42
3.5	57.78		52.41		53.35		54.03		54.89		52.37
4.0	51.79		52.50		53.36		54.04		54.92		52.33
4.5	51.79		52.52		53.38		54.05		54.98		52.28
5.0	51.80		52.55		53.41		54.07		55.03		52.26
6.0	51.81		52.44		53.40		54.08		55.10		52.15
7.0	51.82		52.56		53.42		54.10		55.18		52.10
8.0	51.83		52.58	i i	53.43		54.11		55.22		52.05
9.0	51.83		52.61		53.44		54.12		55.24		52.03
10.0	51.84		52.60	İ	53.45		54.13		55.27		51.98
12.0	51.85		52.62		53.46		54.16		55.30		51.92
14.0	51.84		52.61		53.50		54.18		55.35		51.88
16.0	51.84		52.63		53.52		54.20		55.38		51.83
18.0	51.85		52.66		53,53		54.22		55.42		51.80
20.0	51.86		52.67		53.54		54.24		55.44		51.79
22.0	51,87		52.68		53.55		54.25		55.46		51.75
24.0	51.87		52.69		53.57		54.26		55.49		51.73
26.0	51.87		52.70		53.58		54.27		55.50		51.71
28.0	51.87		52.72		53.58		54.28		55.52		51.69
30.0	51.88		52.73		53.59		54.29		55.55		51.67
40.0											51.62
50.0											51.60
60.0	-										51.59
70.0											51.58
80.0						_					51.56
90.0											51.54
100.0											51.53
110.0											51.52
120.0											51.50
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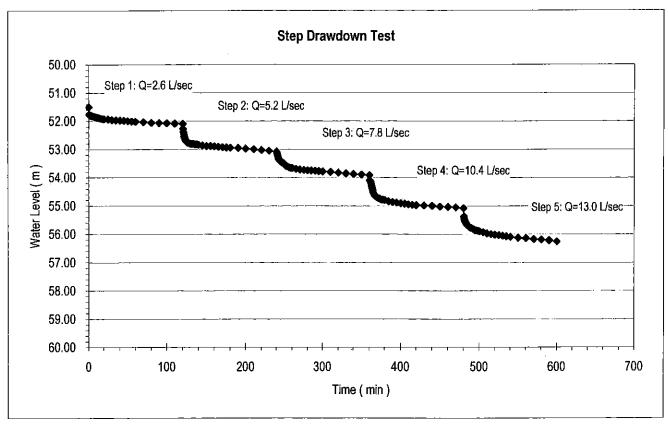
Well Code:	A-03	Site code:	A-03	Pump on date/hour:	23/8/2006 2:00pm
Site name:	Jabal Al Taraf			Pump off date/hour:	24/8/2006 12:00am
District:	Al Rujum		•	End of recovery hour:	24/8/2006 3:00am
Governorate	ΔI Mahweet		•	SWL(m):	51.50

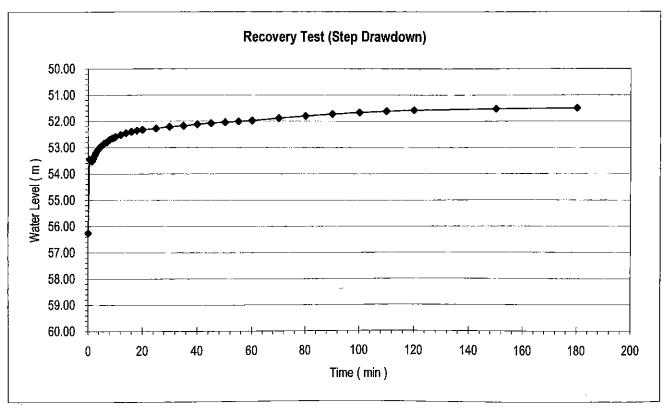
Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam
Operator: Kaid Al Abraki

<u> </u>	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Возмови
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery (m)
(111111)	(m)	( I/sec)	( m )	( l/sec)	(m)	( l/sec)	( m )	( l/sec)	( m )	(I/sec)	\ ''' /
0.0	51.50	2.60	52.10	5.20	53.09	7.80	53.92	10.40	55.08	13.00	56.26
0.5	51.76		52.28		53.15		54.10		55.38		53.45
1.0	51.78		52.39		53,20		54.13		55.47		53.49
1.5	51.79		52.47		53.22		54.15		55.52		53.52
2.0	51.79		52.55		53.28		54.17		55.57		53.42
2.5	51.80		52.60		53.34		54.24		55.58		53.30
3.0	51.80		52,63		53.37		54.30		55.61		53.20
3.5	51.81		52.67		53.39		54.34		55.63		53.11
4.0	51.82		52.70		53.41		54.39		55.66		53,05
4.5	51.82		52.72		53.43		54.45		55.68		52.99
5.0	51.83		52.74		53.44		54.52		55.69		52.94
6.0	51.83	_	52.76		53.45		54.58		55.71		52.86
7.0	51.84		52.78		53.46		54.64		55.74		52.80
8.0	51.85		52.79		53.49		54.66		55.76		52.71
9.0	51.86		52.80		53.50		54.69		55.78		52.65
10.0	51.87		52.81		53.54		54.71		55.79		52.60
12.0	51.88		52.81		53.60		54.73		55.82	·	52.52
14.0	51.89		52.82		53.62		54.76		55.85		52.45
16.0	51.91		52.83		53.65		54.78		55.87		52.40
18.0	51.92		52.83		53.66		54.79		55.88		52.36
20.0	51.93		52.84		53.67		54.80		55.90		52.33
25.0	51.94		52.87		53.70		54.85		55.94		52.28
30.0	51.96		52.89		53.72		54.87		55.98		52.21
35.0	51.97		52.89		53.74		54.89		56.00		52.18
40.0	51.98		52.90		53.75		54.91		56.02		52.12
45.0	51.99		52.92		53.76		54.93		56.04		52.08
50.0	52.00		52.93		53.77		54.95		56.06		52.04
55.0	52.01		52.94		53.78		54.97		56.08		52.01
60.0	52.02		52.95	·	53.79		54.98		56.10		51.98
70.0	52.04		52.96		53.81		54.99		56.13		51.89
80.0	52.06		52.98		53.83		55.00		56.15		51.80
90.0	52.07		53.00		53.86		55.03		56.18		51.73
100.0	52.08	_	53.03		53.88		55.04		56.20		51.67
110.0	52.09		53.06		53.90		55.06		56.22		51.62
120.0	52.10		53.09	-	53.92		55.08		56.26		51.58
150.0					_						51.53
180.0		<u> </u>	-	-							51.50
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			-		14-5	9	_				_

Well Code: **A-03**Site Code: **A-03**S.W.L.: 51.50 m

Site Name: Jabal Al Taraf

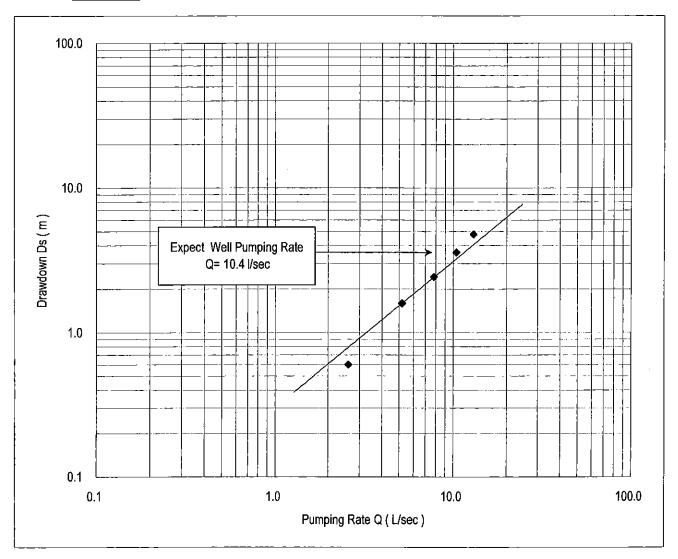




Well Code: **A-03**Site Code: **A-03** 

S.W.L.: 51.50 m

Site Name: Jabal Al Taraf



Step	Q(1/sec)	D.W.L.( m )	Ds(m)		
1	2.6	52.10	0.60		
2	5.2	53.09	1.59		
3	7.8	53.92	2.42		
4	10.4	55.08	3.58		
5	13.0	56.26	4.76		

## **Constant Discharge & Recorery Test (1/2)**

Well Code: A-03 Site code: A-03 Site name: Jabal Al Taraf Pump on date/hour: 24/8/2006 10:00am District: Al Rujum Pump off date/hour: 25/8/2006 10:00am Governorate: Al Mahweet End of recovery hour: 26/8/2006 6:00am Contractor: Mabkhout Al-Abraki S.W.L ( m ): 51.50 Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 56.56 Operator: Kaid Al Abraki Yield (l/sec): \_\_\_\_ 10.4

Duration	Const	ant Dischrge T	est	Recove	 эгу Test	Water Analysis	
( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity (	Remarks
0.0	51.50	0.00		56.56	5.06		
0.5	52.65	1.15		54.30	2.80		
1.0	52.72	1.22		54.25	2.75		
1.5	52.76	1.26		54.20	2.70	1	
2.0	52.80	1.30		54.10	2.60		
2.5	53.22	1.72		54.05	2.55		
3.0	53.36	1.86		54.00	2.50		
3.5	53.43	1.93		53.92	2.42		
4.0	53.50	2.00		53.86	2.36		
4.5	53.60	2.10		53.81	2.31		
5.0	53.85	2.35		53.77	2,27		
6.0	54.03	2.53		53.69	2.19		
7.0	54.13	2.63		53.63	2.13		
8.0	54.21	2.71		53.57	2.07		
9.0	54.29	2.79		53.52	2.02		
10.0	54.32	2.82		53.48	1.98		
12.0	54,37	2.87		53.41	1.91		
14.0	54.44	2.94		53.35	1.85		
16.0	54.53	3.03		53.27	1.77		
18.0	54.54	3.04		53.22	1.72		
20.0	54.59	3.09		53.17	1.67		
25.0	54.65	3.15		53.11	1.61		
30.0	54.72	3.22		53.07	1.57		
35.0	54.78	3.28		53.00	1.50		
40.0	54.82	3.32		52.97	1.47		
45.0	54.86	3.36		52.95	1.45		
50.0	54.89	3.39	-	52.91	1.41		
55.0	54.98	3.48		52.89	1.39		
60.0	55.02	3.52		52.87	1.37		-

#### **Constant Dischrge Test**

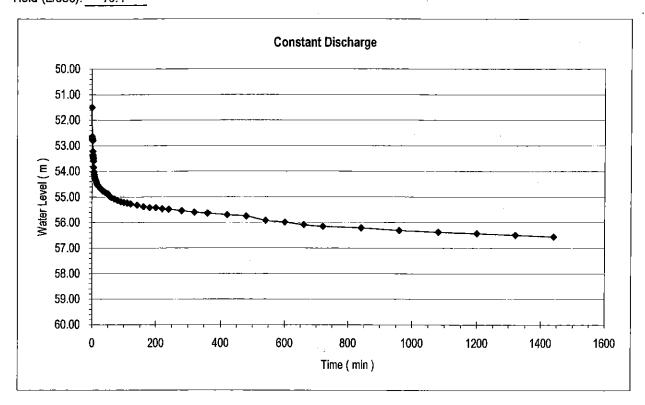
Well Code: Site Code:

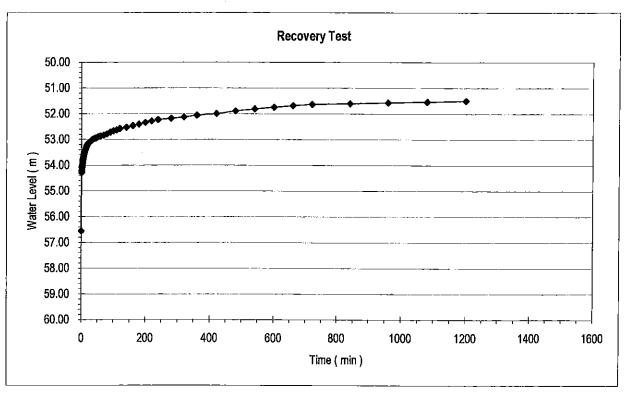
A-03

Site Name Jabal Al Taraf

S.W.L. (m); 51.50 Yield (L/sec): 10.4

D.W.L (m): 56.56 Drawdown (m): 5.06





# **Pumping Test Report Sheet**

Well code: A-04 Site code: A-04	4 Site name: Al Khamis-Bani Ali
District: Bani Sa'ad	Governorate: Al Mahweet
Target water source: New projected deep	well Well depth: 92 m
raigot water courses.	
Contractor: Mabkhout Al-Ab	
Hydrogeologist in charge Abudul Sa	<del></del>
Operator: Kaid Al Abrai	<u>ki</u>
Date of start of the test: 31/7/2006	Date of end of the test: 3/8/2006
Pump type: Vertical pump	Engine: IVECO Aifo
Pump installation depth: 66 m	Datum level: 0.72 m S.W.L.: G.L6.66 m
Step drawdown test	
<del></del>	te/hour finished: 1/8/2006 9:47pm Total hours: 13:40
	3 <sup>rd</sup> step 3.90 4 <sup>th</sup> step 5.20 5 <sup>th</sup> step 6.50
Water level before start the test (G.Lm):	
Water level after end of 5 <sup>th</sup> step (G.Lm):	<del></del>
Water level after recovery (G.Lm):	<del></del>
Constant discharge test	
Date/hour started: <u>1/8/2006 9:55pm</u> Date	te/hour_finished: <u>3/8/2006 1:55am</u> Total hours: <u>28:00</u>
Yield (I/sec)	- · ·
Water level before start of the test (G.Lm):	6.66
Water level after end of test (G.Lm):	42.50
Water level after recovery (G.Lm):	6.66 Recovery hours 4:00
Drawdown (m):35.84	
Revised by:	
Name :	
Date:	

## **Provisional Step Drawdown Test**

Well Code:	A-04	Site code:	A-04	Pump on date/hour:	31/7/2006 7:18pm
Site name:	Al Khamis-Bani Ali		_	Pump off date/hour:	31/7/2006 9:48pm
District:	Bani Sa'ad	<del></del>	_	End of recovery hour:	1/8/2006 1:48am
Governorate	e Al Mahweet			S.W.L ( m ):	7.38

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Kaid Al Abraki

Duration	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
( '''''' )	( m )	( l/sec)	(m)	( I/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( m )
0.0	7.38	1.30	14.96	2.60	21.60	3.90	30.90	5.20	39.66	6.50	50.00
0.5	11.30		15.27		22.45		31.30		40.05		47.00
1.0	11.33		15.47		22.80		31.85		40.40	_	45.50
1.5	11.87		15.75		23.20		32.35		40.62		44.40
2.0	12.35		15.95		23.60	_	32.70		40.90		43.70
2.5	12.80		16.20		23.90		33.15		41.20		42.77
3.0	13.36		16.40		24.20		33.75		41.37		41.66
3.5	13.39		16.66		24.55		34.05		41.40		41.10
4.0	13.40		16.85		24.80		34.35	-	42.05		40.22
4.5	13.41		17.12		25.35		34.65		42.34		39.90
5.0	13.45		17.32		25.73		35.15	_	42.62	1	38.48
6.0	13.50		17.80		26.00	_	35.57		43.20		36.80
7.0	13.54		18.10		26.30		36.00		43.83		35.10
8.0	13.60		18.43		26.70		36.35		44.30	i	33.52
9.0	13.76		18.70		27.05		36.65		44.83		32.09
10.0	13.86		19.00		27.30		37.20		45.27		30.72
12.0	14.20		19.40		27.75		37.66		46.07		28.15
14.0	14.30		19.83		28.25		38.00	i	46.80		25.53
16.0	14.31		20.20		28.70		38.30		47.43		23.58
18.0	14.35		20.50		29.10		38.55		48.03		21.78
20.0	14.36		20.75		29.45		38.75		48.46		20.19
22.0	14.37	[	21.00		29.75		38.98		48.95		18.70
24.0	14.39		21.17		30.00	_ " _	39.09		49.22		17.45
26.0	14.47		21.35		30.32		39.18		49.52		16,37
28.0	14.77		21.50		30.65		39.35		49.81		15.49
30.0	14.96		21.60		30.90		39.66		50.00		14.66
40.0											12.05
50.0											10.73
60.0											9.97
70.0		Ţ									9.50
80.0											9.18
90.0											8.95
100.0				I							8.75
110.0											8.55
120.0											8.32
150.0											7.88
180.0				_							7.63
210.0											
240.0										1	
					14-65	T					:-

Well Code:	A-04	Site code:	A-04	Pump on date/hour: _	1/8/2006 8:07am
Site name:	Al Khamis-Bani Ali	<u>-</u>	_	Pump off date/hour:	1/8/2006 6:07am
District:	Bani Sa'ad	<u> </u>	-	End of recovery hour:	1/8/2006 9:47pm
Governorate	Al Mahweet		_	S.W.L ( m ):	7.38

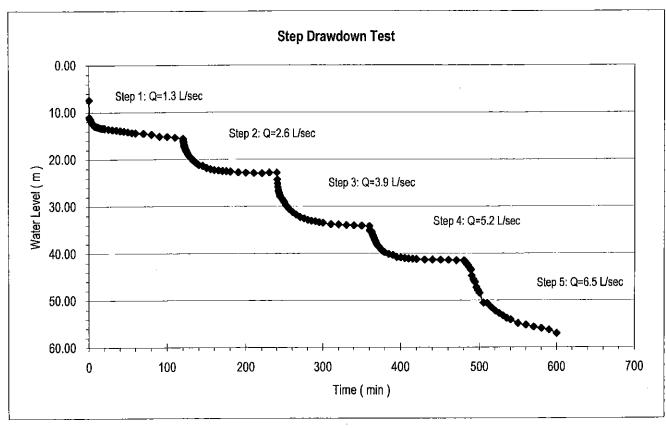
Contractor: <u>Mabkhout Al-Abraki</u> Hydrogeologist: <u>Abudul Salam Sallam</u>

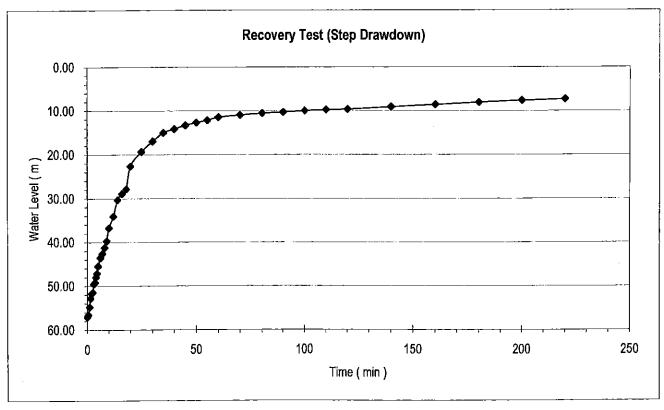
Operator: Kaid Al Abraki

Duration		Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
( min )	W.L. ( m )	Yield (I/sec)	W.L. (m)	Yield (I/sec)	W.L. (m)	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield	Recovery (m)
0.0	7.38	1.30	15.65	2.60	22.85	3.90	34.22			( l/sec)	57.07
0.5	11.05	1.00	16.10	2.00	24.35	3.90	35.13	5.20	41.57	6.50	57.07
1.0	11.23		16.50		25.15		35.26		41.60 41.68		56.60
1.5	11.41		16.99		25.90		35.30	_	41.84	-	54.78 52.80
2.0	11.55		17.30		26.60		35.20	_	41.90		51.72
2.5	11.80		17.53	-	26.86		35.25		42.05		51.72
3.0	11.92		17.75		27.16		35.40		42.12		49.56
3.5	12.13		17.98		27.47	<u> </u>	35.72		42.23		49.17
4.0	12.30		18.18		27.73		35.91		42.45		48.02
4.5	12.36	·	18.33		27.98	·	36.17		42.50		47.16
5.0	12.47		18.50		28.10		36.30	<del></del>	42.60		45.50
6.0	12.67		18.80		28.25	¬	36.75		42.92		43.55
7.0	12.85		19.10		28.37		37.16		43.00		42.64
8.0	12.94		19.33		28.70		37.47		43.20		41.22
9.0	12.96		19.55		28.93		37.82		43.56		39.74
10.0	13.02		19.80		29.22		38.15		44.80		36.78
12.0	13.13		20.04		29.80		38.60		45.57		34.12
14.0	13.24	i	20.47		30.18		38.95		46.12		30.39
16.0	13.39		20.75		30.63		39.45		47.30		28.94
18.0	13.41		20.97		30.95		39.63		47.93		27.90
20.0	13.43		21.20	_	31.25		39.82		48.47	-+	22.68
25.0	13.57		21.37		31.83		40.17		50.60		19.40
30.0	13.70		21.90		32.33		40.38	· ·	50.66		17.00
35.0	13.81		22.10		32.60		40.82		51.53		15.05
40.0	13.92		22.29		32.90		40.93		52.24	1	14.20
45.0	14.05		22.40	-	33.10		41.06		52.80		13.35
50.0	14.17		22.50		33.20	, i	41.17		53.30		12.71
55.0	14.35	_	22.53		33.42		41.21		53.80		12.20
60.0	14.42		22.64		33.55		41.28		54.15		11.50
70.0	14.53		22.76		33.82		41.39		54.92		11.00
80.0	14.72		22.87		33.90		41.40	-	55.27		10.59
90.0	15.15		22.93		34.02		41.43		55.72		10.34
100.0	15.23		22.98		34.10		41.45		55.99		10.00
110.0	15.40		22.85		34.15		41.53		56.30		9.80
120.0	15.65		22.85		34.22		41.57		57.07		9.68
140.0											9.12
160.0											8.60
180.0											8.11
200.0											7.66
220.0					14-66						7.38

Well Code: **A-04**Site Code: **A-04**S.W.L.: **7.38** *m* 

Site Name: Al Khamis-Bani Ali

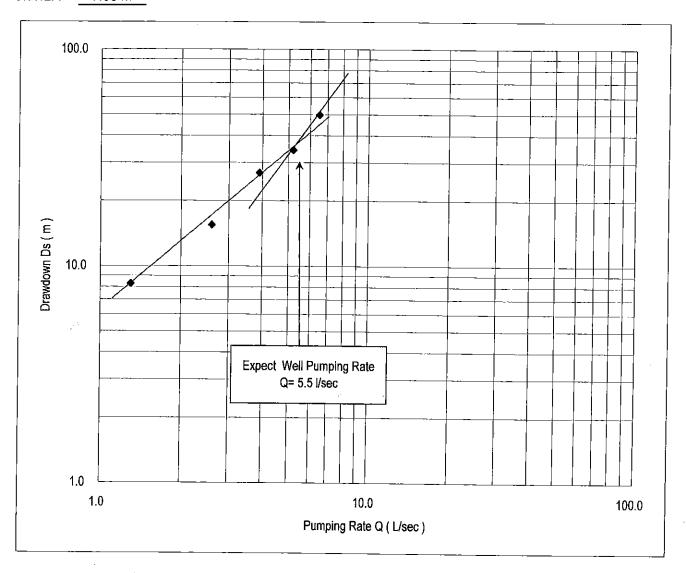




Well Code: A-04
Site Code: A-04

S.W.L.: 7.38 m

Site Name: Al Khamis-Bani Ali



Step	Q(I/sec)	D.W.L.( m )	Ds(m)
1	1.3	15.65	8.27
2	2.6	22.85	15.47
_3	3.9	34.22	26.84
4	5.2	41.57	34.19
5	6.5	57.07	49.69

### **Constant Discharge & Recorery Test (1/2)**

Well Code: A-04 Site code: A-04 Al Khamis-Bani Ali Pump on date/hour: 1/8/2006 9:55pm Site name: Bani Sa'ad Pump off date/hour: 2/8/2006 9:55pm District: Governorate: Al Mahweet End of recovery hour: 3/8/2006 1:55am Contractor: Mabkhout Al-Abraki S.W.L ( m ): 7.38 Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 43.22 Operator: Kaid Al Abraki 4.4 Yield (l/sec):

Duration	Const	ant Dischrge T	est	Recovery Test		Water Analysis	
( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
	(m)	(m)	rate (l/sec)	(m)	(m)	(µS/cm)	<del></del>
0.0	7.38	0.00		43.22	35.84		
0.5	12.80	5.42		38.03	30.65		
1.0	13.77	6.39		36.92	29.54	ļ	
1.5	14.27	6.89		36.20	28.82		
2.0	14.83	7.45		35.36	27.98		
2.5	15.45	8.07		34.70	27.32		
3.0	16.13	8.75		33.98	26.60		
3.5	16.64	9.26		33.33	25.95		·
4.0	17.20	9.82		32.78	25.40		
4.5	17.74	10.36		32.14	24.76		······································
5.0	18.26	10.88		31.52	24.14		
6.0	19.20	11.82		30.40	23.02		
7.0	20.18	12.80		29.32	21.94		
8.0	20.86	13.48		28.33	20.95		
9.0	21.80	14,42		27.30	19.92		<del> </del>
10.0	22.37	14.99		26.34	18.96		
12.0	23.80	16.42		24.74	17.36		<del></del>
14.0	24.95	17.57		23.21	15.83		<u> </u>
16.0	25.90	18.52		21.92	14.54		
18.0	26.98	19.60		20.71	13.33		
20.0	27.37	19.99		19.74	12.36		
25.0	28.81	21.43		17.80	10.42		
30.0	29.73	22.35		16.60	9.22		
35.0	30.47	23.09		15.59	8.21		
40.0	30.97	23.59		14.98	7.60	<del> </del>	
45.0	31.40	24.02	<del></del>	14.43	7.05		-
50.0	31.65	24.27	٠.	13.94	6.56		
55.0	31.87	24.49		13.64	6.26		
60.0	32.08	24.70		13.31	5.93	3250	

## **Constant Discharge & Recorery Test (2/2)**

 Well Code:
 A-04
 Site code:
 A-04
 Site name:
 Al Khamis-Bani Ali

 District:
 Bani Sa'ad
 Governorate:
 Al Mahweet

Duration	Const			Water Analysis			
( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity (µS/cm)	Remarks
70.0	32.39	25.01		12.71	5.33		
80.0	32.56	25.18		12.10	4.72		
90.0	33.39	26.01		11.51	4.13		<u> </u>
100.0	34.70	27.32		10.94	3.56		
110.0	35.24	27.86		10.40	3.02	<u> </u>	<del></del>
120.0	35.55	28.17		9.85	2.47	3250	
140.0	36.54	29.16		9.36	1.98		
160.0	37.97	30.59		8.88	1.50		
180.0	38.77	31.39		8.44	1.06	3250	<del></del>
200.0	39.03	31.65		8.03	0.65		
220.0	39.67	32.29		7.68	0.30		
240.0	39.80	32.42		7.38	0.00		
280.0	39.80	32.42					,
320.0	39.97	32.59					
360.0	39.92	32.54					
420.0	40.45	33.07				3250	· · · · · ·
480.0	40.85	33.47					
540.0	41.05	33.67					
600.0	41.20	33.82					
660.0	41.15	33.77			<u> </u>		
720.0	41.25	33.87				3250	
840.0	41.87	34.49			_		
960.0	42.90	35.52					
1080.0	43.10	35.72		-		3250	
1200.0	43.14	35.76			_		
1320.0	43.18	35.80		_	· - ·	3250	
1440.0	43.22	35.84					
1560.0							
1680.0		_					
1800.0					<u>-</u>		
1920.0							
2040.0							
2160.0							
2280.0				_			
2340.0							<del></del>

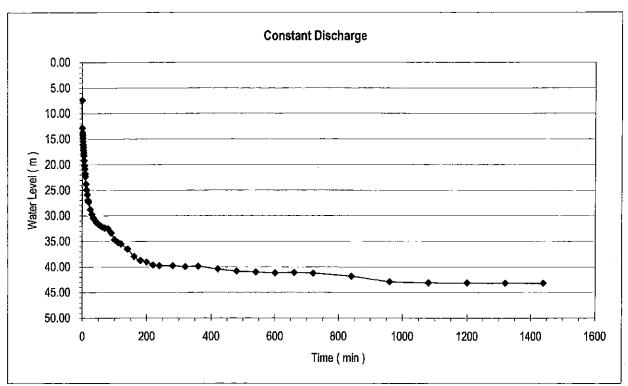
#### **Constant Dischrge Test**

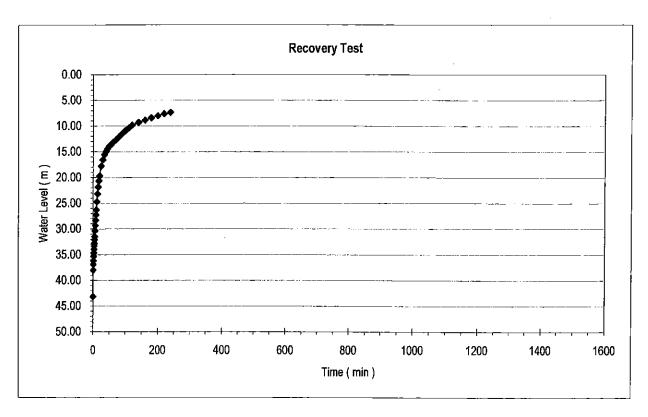
Well Code: A-04
Site Code: A-04
S.W.L. (m): 7.38

Site Name Al Khamis-Bani Ali

D.W.L (m): 43.22 Drawdown (m): 35.84

Yield (L/sec): 4.4





# **Pumping Test Report Sheets**

Governorate of

Sana'a



# **Pumping Test Report Sheet**

Well code: Site code:	S-01 Site na	ame: <i>Bani</i>	Waleed - Al Asboor	
District: Al Haymah Al Kharijiyah	Go	vernorate:	Sana'a	
<del></del>				
Target water source: New projected deep well	l (Bani Waleed)	Well depth	n: <u>348 m</u>	
Contractor: Mahkhout (	U Abroki			
Contractor: Mabkhout A  Hydrogeologist in charge Abudu				
Operator: Kaid Al A		<del>.</del>		
Operator.	IDI GNI			
Date of start of the test: 15/8/2006	Date of	end of the test:	26/8/2006	
Pump type: Vertical pump	<del></del>		IVECO Aifo	 
Pump installation depth: 247 m		level: <u>0.91 m</u>	S.W.L.: <u>G.L1</u>	12.59 m
Step drawdown test				
Date/hour started: <u>15/8/2006 12:00pm</u>				: 68:00
Yield (l/sec) 1 <sup>st</sup> step <u>0.60</u> 2 <sup>nd</sup> step <u>1.3</u>	<u>20    </u> 3 <sup>rd</sup> step <u>    1.</u>	80 4 <sup>th</sup> step 2	2.40 5 <sup>th</sup> step 3.00	_
Water level before start the test (G.Lm)	t <u> </u>	-		٠
Water level after end of 5 <sup>th</sup> step (G.Lm)	:162.29	-		
Water level after recovery (G.Lm):	115.79	Recovery	hours <u>58:00</u>	
Constant discharge test				
Date/hour started:	_ Date/hour finis	hed: <u>22/8/2006</u>	5 5:10pm Total hours	: 102:00
Yield (l/sec) 1.60				
Water level before start of the test (G.Lm):	115.79	_		
Water level after end of test (G.Lm):	142.93	_		
Water level after recovery (G.Lm):	124.09	Recovery	hours <u>78:00</u>	
Drawdown (m):27.14				
				1 1
Revised by:				
,				
Name :	-			
Date:				
		•		

## Step Drawdown Test (1/2)

Well Code: S-01/1 Site code: S-01 Pump on date/hour: 15/8/2006 12:00pm

Site name: Bani Waleed - Al Asboor Pump off date/hour: 15/8/2006 10:00pm

District: Al Haymah Al Kharijiyah End of recovery hour: 18/8/2006 1:00am

Governorate Sana'a S.W.L ( m ): 113.50

Contractor: Mabkhout Al-Abraki

Hydrogeologist: Abudul Salam Sallam

Operator: Kaid Al Abraki

Duration	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	<b>D</b>
( min )	W.L. ( m )	Yield (I/sec)	W.L.	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	W,L. ( m )	Yield (I/sec)	W.L. (m)	Yield ( l/sec)	Recovery (m)
0.0	113.50	0.60	116.40	1.20	121.70	1.80	128.90	2.40	139.14	3.00	163.20
0.5	117.95		116.67		121.95	1.00	129.03	2.40	139.30	3.00	157.50
1.0	117.73		117.20		122.10		129.10	_	139.42		152.70
1.5	117.17	i	117.31		122.18	<u> </u>	129.25		139.50		102.10
2.0	116.74		117.44		122.25		129.37		140.40		147.50
2.5	116.56		117.67		122.40		130.06		140.60		146.70
3.0	116.41		117.80		122,99		130.70	<del></del>	140.78		145.80
3.5	116.25		117.93		123.37		131.08		141.00		145.25
4.0	116.10		118.03	<del></del>	123.43		131.60		141.14		144.35
4.5	115.66		118.12		123.48		131.85		141.30		143.75
5.0	115.48		118.25		123.52		132.02	_	141.45		143.00
6.0	115.21		118.00		123.57		132.30		141.70	-	141.50
7.0	115.02		117.90		123.70		132.53		141.85		140.35
8.0	114.87		117.90		123.84		132.70		142.28		139.70
9.0	114.74		118.02		124.00		132.85		142.45	1	139.00
10.0	114.70		118.29		124.10		132.95	./	142.67	İ	138.30
12.0	114.57		118.55		124.23		133.25	-	143.00		137.20
14.0	114.54		118.66		124.33	-	133.48		143.32	1	136.70
16.0	114.56		118.80		124.46		133.67	·	143.57		136.40
18.0	114.61		118.85		124.58		133.82		143.74		136.30
20.0	114.65		118.93		124.68		133.94		144.04		136.12
25.0	114.78	·	119.21		125.06	-	134.27		144.70	<u> </u>	135.80
30.0	114.90		119.40		125.30		134.55		145.45		135.50
35.0	114.95		119.60		125.58		134.80		145.93		135,25
40.0	115.00		119.74		125.80		135.06		146.10		135.03
45.0	115.15		119.93		125.95		135.82		146.56		134.73
50.0	115.25		120.03	ĺ	126.60		136.20		147.03		134.43
55.0	115.45		120.20		126.80		136.50		147.26		134,10
60.0	115.55		120.30		127.03		136.69		147.50		134.00
70.0	115.71		120.60		127.40		137.29		150.55		133.55
80.0	115.86		120.82		127.84		137.80		152.50		133.18
90.0	116.00		121.16		128.10		138.12		154.96		132.72
100.0	116.12		121.45		128.38		138,56		156.90		132.39
110.0	116.27		121.60		128.70		138.74		160.00		132.03
120.0	116.40		121.70		128.90		139.14		163.20		131.75
150.0											131.00
180.0			<u>_</u>								130.28
240.0											129.35
300.0											128.60
360.0					14 - 74						127.95

## Step Drawdown Test (2/2)

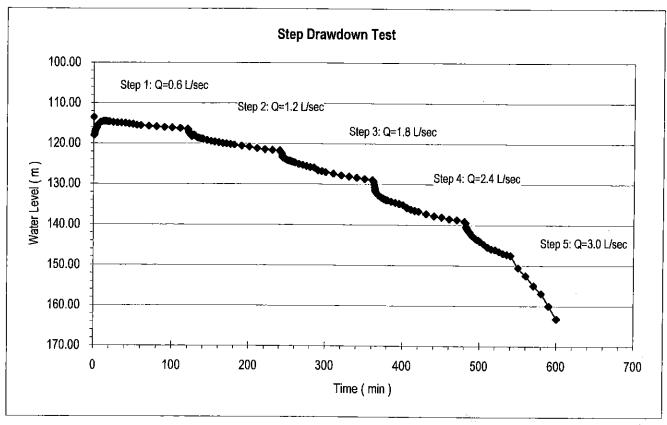
Well Code: S-01/1 Site code: S-01 Site name: Bani Waleed - Al Asboor

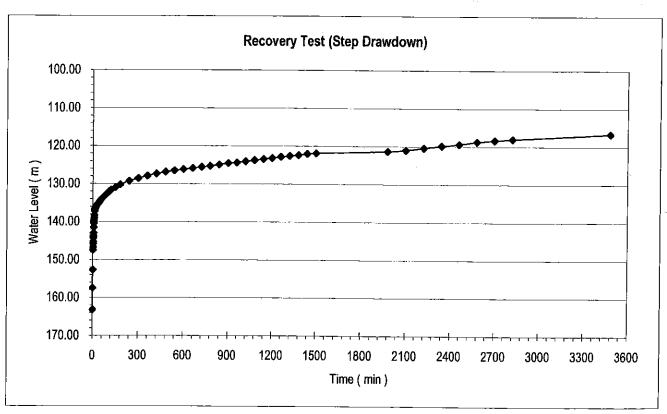
District: Al Haymah Al Kharijiyah Governorate: Sana'a

	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	D
Duration (min)	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	Recovery (m)						
420.0	- ( )	(1/000)	- ( )	( ,,000)		( #666)	···· /	(1/000)	· · · · · · ·	( "000)	127.38
480.0	_									<del>  -</del>	126.94
540.0				-			<del></del>	-			126.55
600.0										<u> </u>	126.20
660.0								<del> </del>	_		125.90
720.0					_					1	125.63
780.0				1							125.30
840.0								<del> </del>		<u> </u>	125.00
900.0	<del></del>		-								124.60
960.0										· ·	124.45
1020.0										1	124.10
1020.0											123.80
		<u> </u>	<u>-</u>					<del></del>			123.50
1140.0				1		-					123.20
1200.0					<del></del>	1		1		<del>                                     </del>	122.88
1260.0								ļ <u> </u>			122.62
1320.0				<del></del>							
1380.0		_	_	-		<u> </u>		-			122.39
1440.0											122.05
1500.0			_							ļ	121.90
1980.0											121.33
2100.0	_	_				 					121.00
2220.0											120.41
2340.0											119.86
2460.0		_	_								119.40
2580.0											118.76
2700.0								<u> </u>			118.38
2820.0											118.05
3480.0			_	<u> </u>							116.70
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			-					-			
<del></del>	-	-		<del> </del>	14-75					1	

Well Code: S-01/1
Site Code: S-01
S.W.L.: 113.50 m

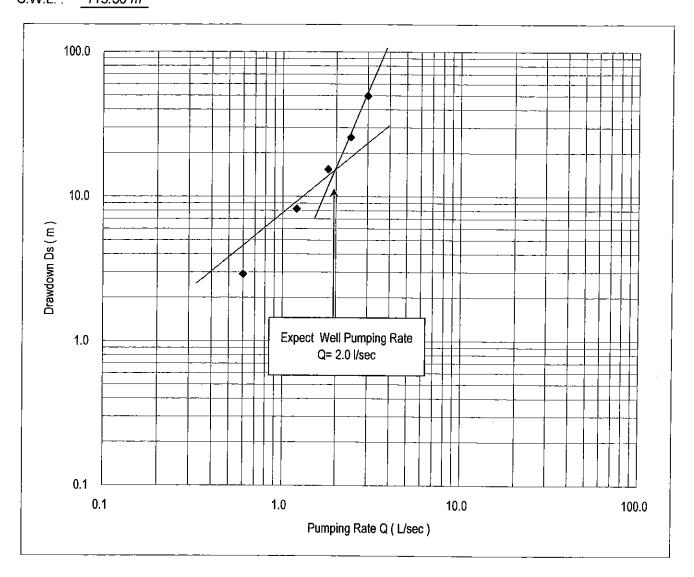
Site Name: Bani Waleed - Al Asboor





Well Code: **S-01/1**Site Code: **S-01** S.W.L.: 113.50 m

Site Name:\_\_\_\_ Bani Waleed - Al Asboor



Step	Q(1/sec)	D.W.L.( m )	Ds(m)
1	0.6	116.40	2.90
2	1.2	121.70	8.20
3	1.8	128.90	15.40
4	2.4	139.14	25.64
5	3.0	163.20	49.70

## **Constant Discharge & Recorery Test (1/3)**

Well Code: <u>S-01/1</u> Site code: <u>S-01</u>

Site name: Bani Waleed - Al Asboor Pump on date/hour: 18/8/2006 9:10am

District: Al Haymah Al Kharijiyah Pump off date/hour: 18/8/2006 9:10am

Governorate: Sana'a End of recovery hour: 22/8/2006 5:10pm

Contractor: Mabkhout Al-Abraki

Hydrogeologist: Abudul Salam Sallam

D.W.L ( m ): 116.70

D.W.L ( m ): 143.84

Operator: Kaid Al Abraki Yield (I/sec): 1.6

Duration	Const	ant Dischrge T	est	Recovery Test		Water Analysis	
( min )	Water level (m)	Drawdown (m)	Pumping rate (i/sec)	Water level (m)	Residual (m)	Conductivity ( )	Remarks
0.0	116.70	0.00		143.84	27.14		
0.5	121.92	5.22		142.20	25.50		
1.0	122.50	5.80		142.03	25.33		
1.5	122.20	5.50		141.87	25.17		•
2.0	122.23	5.53		141.70	25.00		
2.5	122.00	5.30		141.54	24.84		
3.0	121.90	5.20		141.37	24.67		
3.5	121.67	4.97	-	141.21	- 24.51	Ţ: <del>-                                   </del>	
4.0	121.66	4.96		141.04	24.34		
4.5	121,60	4.90		140.88	24.18		
5.0	121.50	4.80		140.71	24.01	1	e se
6.0	121.18	4.48		140.55	23.85		
7.0	120.93	4.23		140.38	23.68		•
8.0	120.90	4.20		140.22	23.52	1	
9.0	120.91	4.21		140.05	23.35		<del></del>
10.0	121.05	4.35		140.01	23.31	1	
12.0	121.35	4.65		140.00	23.30		
14.0	121.61	4.91		139.96	23.26		
16.0	121.78	5.08		139.95	23.25		•
18.0	122.00	5.30		139.90	23.20		
20.0	122.20	5.50	İ	139.88	23.18	1	
25.0	122.65	5.95		139.80	23.10		
30.0	123.07	6.37		139.73	23.03	!	<del></del>
35.0	123.41	6.71		139.60	22.90		
40.0	123.68	6.98		139.55	22.85	<u> </u>	
45.0	124.02	7.32		139.50	22.80		
50.0	124.32	7.62		139.40	22.70		
55.0	124.68	7.98		139.36	22.66		
60.0	124.85	8.15		139.30	22.60		

## **Constant Discharge & Recorery Test (2/3)**

Well Code:S-01/1Site code:S-01Site name:Bani Waleed - Al AsboorDistrict:Al Haymah Al KharijiyahGovernorate:Sana'a

Duration		ant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
70.0	(m)	(m)	rate (l/sec)	(m)	(m)	( )	<del></del>
70.0	125.25	8.55		139.20	22.50		
80.0	125.56	8.86		139.10	22.40		
90.0	125.88	9.18		139.00	22.30		
100.0	126.30	9.60		138.90	22.20		
110.0	126.57	9.87		138.78	22.08		
120.0	126.70	10.00		138.70	22.00	<u> </u>	
140.0	127.33	10.63		138.55	21.85		
160.0	127.62	10.92		138.30	21.60		
180.0	127.93	11.23		138.20	21.50		
200.0	128.59	11.89		138.10	21.40		
220.0	129.90	13.20		137.95	21.25		
240.0	130.20	13.50		137.80	21.10		
280.0	131.10	14.40		137.64	20.94		<del>-</del>
320.0	132.13	15.43		137.46	20.76		
360.0	132.86	16.16		137.20	20.50		
420.0	134.48	17.78		136.96	20,26		
480.0	136.55	19.85		136.69	19.99		
540.0	137.75	21.05		136.43	19.73		
600.0	138.67	21.97		136.18	19.48	-	
660.0	139.73	23.03		135.93	19.23		·
720.0	140.16	23.46		135.70	19.00		
840.0	141.05	24.35		135.40	18.70	-	
960.0	141.20	24.50		135.13	18.43		
1080.0	141.70	25.00		134.85	18.15	<del>-</del>	
1200.0	142.35	25.65	_	134.70	18.00		-
1320.0	143.05	26.35		134.50	17.80		
1440.0	143.84	27.14	<u> </u>	134.30	17.60		
1560.0		-		133.89	17.19	-	
1680.0				133.46	16.76		<del></del>
1800.0				132.82	16.12		<del></del> -
1920.0				132.45	15.75		
2040.0			<del></del>	132.10	15.40		<del></del>
2160.0			<del></del> +	131.80	15.10	<del></del>	
2280.0				131.43	14.73		
2400.0			+	<del></del>		<del></del>	
2520.0				130.28	13.58		

## **Constant Discharge & Recorery Test (3/3)**

Well Code:S-01/1Site code:S-01Site name:Bani Waleed - Al AsboorDistrict:Al Haymah Al KharijiyahGovernorate:Sana'a

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
Duration ( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity ( )	Remarks
2640.0	(,	(177		129.35	12.65		
2760.0				128,60	11.90	<del>                                     </del>	
2880.0				127.95	11.25		
3120.0	-			126.94	10.24		
3360.0				126.20	9.50		•
3840.0				125,90	9.20		
4080.0		<del>_</del>		125.63	8.93		
4320.0		<del></del> -		125.30	8.60		
4680.0				125.00	8.30	1	
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						1	
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#### **Constant Dischrge Test**

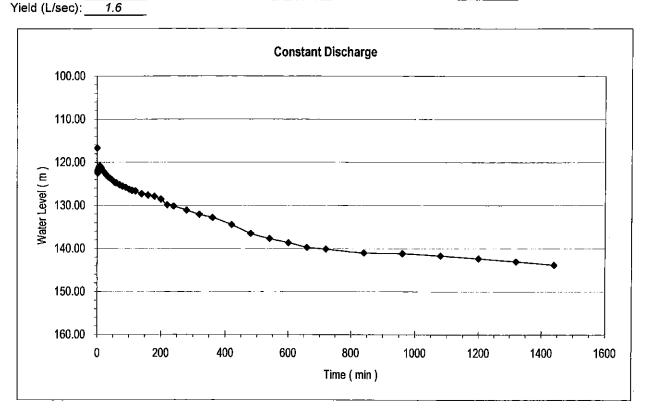
Well Code: \_\_\_\_S

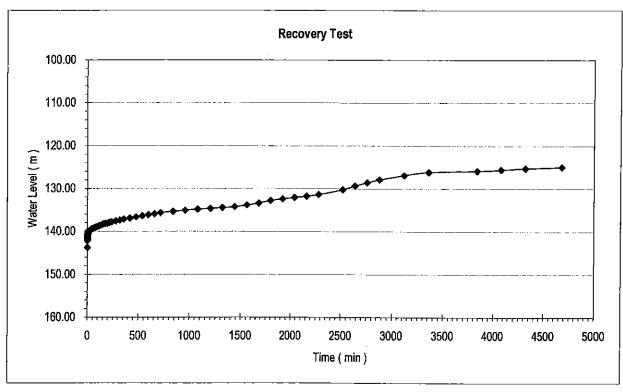
S.W.L. (m):

**S-01/1** S-01 116.70

Site Name Bani Waleed - Al Asboor

D.W.L (m): 143.84 Drawdown (m): 27.14





# **Pumping Test Report Sheet**

Well code: S-01/2 Site code: S-01 Site name: Bani Waleed - Al Asboor
District: Al Haymah Al Kharijiyah Governorate: Sana'a
Target water source: New projected deep well (Al Asboor) Well depth: 300 m
Contractor: Mabkhout Al-Abraki  Abudul Solom Sollam
Hydrogeologist in charge Abudul Salam Sallam Operator: Al Pahoi
Operator: Al Raboi
Date of start of the test:3/8/2006 Date of end of the test:18/8/2006
Pump type: Vertical pump Engine: IVECO Aifo
Pump installation depth: 213 m Datum level: 0.72 m S.W.L.: G.L34.78 m
Step drawdown test
Date/hour started:
Yield (I/sec) 1 <sup>st</sup> step <u>1.60</u> 2 <sup>nd</sup> step <u>3.20</u> 3 <sup>rd</sup> step <u>4.80</u> 4 <sup>th</sup> step <u>6.40</u> 5 <sup>th</sup> step <u>8.00</u>
Water level before start the test (G.Lm): 42.56
Water level after end of 5 <sup>th</sup> step (G.Lm):137.68
Water level after recovery (G.Lm): 42.56 Recovery hours 73:20
Constant discharge test
Date/hour started: <u>15/8/2006 9:50am</u> Date/hour finished: <u>20/8/2006 10:30am</u> Total hours: <u>124:00</u>
Yield (l/sec) 3.40
Water level before start of the test (G.Lm): 52.78
Water level after end of test (G.Lm): 106.18
Water level after recovery (G.Lm): 52.81 Recovery hours 100:00
Drawdown (m):53.40
Revised by:
 Name :
Date:
Date.

## Provisional Step Drawdown Test (1/2)

Well Code:	S-01/2	Site code:	S-01	Pump on date/hour:	3/8/2006 8:30pm
Site name:	Bani Waleed	d - Al Asboor		Pump off date/hour:	3/8/2006 11:00pm
District:	Al Haymah A	Al Kharijiyah		End of recovery hour:	5/8/2006 1:00am
Governorate	Sana'a			SWI (m)	35.50

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Al Raboi

D	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
[ (""")	( m )	(I/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	(I/sec)	(m)	( l/sec)	(m)
0.0	35.50	1.60	38.00	3.20	46.73	4.80	60.57	6.40	76.20	8.00	93.02
0.5	35.60		38,07		47.07	·			76.63		88.10
1.0	35.60		38.15		48.40		60.93		77.40		83.75
1.5	35.60		38.27		48.65		61.55		77.80		71.45
2.0	35.63		38.55		49.02		62.13		78.43		79.68
2.5	35.63		38.82		49.33		62.63		78.93		78.19
3.0	35.66		39.28		49.70		63.05		79.50		76.75
3.5	35.86		39.58		50.03		63.47		79.93		75.39
4.0	35.90		39.90		50.27		63.83		80.43	_	74.05
4.5	35.92		40.10		50.56		64.53		80.82		72.80
5.0	35.94		40.42		51.20		64.96		81.20		71.83
6.0	35.98		41.03		51.96		65.60		82.00		69.83
7.0	36.05		41.62		52.57		66.10		82.74		68.17
8.0	36.17		42.08		53.27		66.54		83.34		66.75
9.0	36.28		42.35		53.88		67.00		84.00		65.53
10.0	36.40		42.88	<u> </u>	54.93		67.47		84.70		64.40
12.0	36.63		43.83		55.65		68.33		85.80	1	63.07
14.0	36.85		44.42		56.33		69.64		86.90		61.82
16.0	37.08		44.95	-	56.95		70.82		87.55		60.77
18.0	37.26		45.30		57.46		71.85		88.50		60.00
20.0	37.40		45.75		57.90		72.55		89.42		59.32
22.0	37.65		46.06		58.42		73.43		90.18		58.70
24.0	37.73		46.26		59.07		74.24		90.86		58.20
26.0	37.85		46.52		59.60		74.96		81.48		57.76
28.0	37.94		46.62		60.07		75.66		82.16		57.35
30.0	38.00		46.73		60.57		76.26		93.02		59.98
40.0											56.10
50.0											55.30
60.0								_			54.52
70.0											53.77
80.0							_				53.03
90.0			į								52.34
120.0											51.43
180,0											50.12
240.0											49.08
300.0						1					48.03
360.0								T			47.15
420.0				l							46.35
480.0											45.64
540.0					14-83						45.04

# Provisional Step Drawdown Test (2/2)

Well Code:	S-01/2	Site code:	S-01	Pump on date/hour:	
Site name:	Bani Waleed -	Al Asboor		Pump off date/hour:	
District:	Al Haymah Al I	Kharijiyah		End of recovery hour:	
Governorate	Sana'a		<u> </u>	S.W.L ( m ):	
Contractor:	Mabkhout Al-A	braki	<del></del>		
Hydrogeolog	gist: <i>Abudul Sala</i>	am Sallam			
Operator:	Al Pahoi				

	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Dogovoni
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery (m)
	( m )	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( m )	( I/sec)	(m)	( l/sec)	
600.0										_	44.51
720.0											44.09
840.0											43.79
960.0											43.57
1080.0						•					43.41
1200.0								,			43.30
1320.0											43.28
1440.0											43.28
1560.0											43.28
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### Step Drawdown Test (1/2)

Well Code:S-01/2Site code:S-01Pump on date/hour:6/8/2006 2:30pmSite name:Bani Waleed - Al AsboorPump off date/hour:7/8/2006 1:00am

District: Al Haymah Al Kharijiyah End of recovery hour: 10/8/2006 1:20pm

Governorate Sana'a S.W.L ( m ): 43.28

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Al Raboi

	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	_
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
(min)	( m )	( l/sec)	(m)	(I/sec)	(m)	( l/sec)	( m )	( l/sec)	(m)	( l/sec)	(m)
0.0	43.28	1.60	52.80	3.20	65.40	4.80	85.68	6.40	107.69	8.00	138.40
0.5	46.38		53.44		65.62		85.71		107.86		131.00
1.0	46.32		54.33		66.02		85.87		108.15		127.03
1.5	46.39	-	55.26		66.60		86.11		108.57		123.50
2.0	46.47		55.80		67.00		86.30		109.07		121.33
2.5	47.32		55.90		67.36	-	86.47		109.36		119.62
3.0	47.20		56.30		67.70		86.76		109.82		118.13
3.5	46.72		56,37		68.05		87.29		110.23		116.53
4.0	46.46		56.40		68.30		87.70	1	110.70		114.90
4.5	47.15		56.53	·	68.60		88.31		111.24		113.33
5.0	47.51		56.68	·	68.86		88.79		111.70		111.97
6.0	47.20		56.94		69.20		89.81		112.67		109.30
7.0	47.40		57.20		69.55		90.63		113.43		105.80
8.0	47.42		57.43		69.82		91.60		114.10		104.70
9.0	47.45		57.65		70.10		92.00		114.80		102.68
10.0	47.47		57.83		70.30		92.52		115.45		100.75
12.0	47.65		58.03	-	70.73		93.60		116.63		97.42
14.0	47.75		58.33		70.98		94.23		117.44		94.58
16.0	47.86		58.64		71.24		94.80		118.80		92.15
18.0	47.95		58.83		71.40		95.58		119.82		90.21
20.0	48.40		59.05		71.65		96.25		120.71		88.40
25.0	49.35		59.52		73.50		96.97		122.75		85.26
30.0	49.58		59.94		75.15		97.60		123.98		83.06
35.0	50.00		60.30		77.20		98.47		125.36		81.55
40.0	50.20		60.85		78.36		99.15		126.30		80.40
45.0	50.33		61.27		79.25		99.90		127.60	-	79.50
50.0	50.52		61.50		79.98		100.45		128.38		78.70
55.0	50.70		61.96		80.56		102.00		129.32		78.10
60.0	51.03		62.22		81.03		102.92		130.00		77.75
70.0	51,16		62.65		82.02		104.07		131.68		76.70
80.0	51.45		63.08		82.95		105.01		133.22		76.00
90.0	51.93		63.49		83.84		105.77		134.87		75.37
100.0	52.18		63.80		84.47		106.50		136.01		74.75
110.0	52.53		64.65		85.15		107.10		137.27		74.10
120.0	52.80		65.40		85.68		107.69		138.40		73.65
150.0											72.60
180.0											71.55
210.0											70.40
240.0											69.68
300.0					14-85					]	68.10

## Step Drawdown Test (2/2)

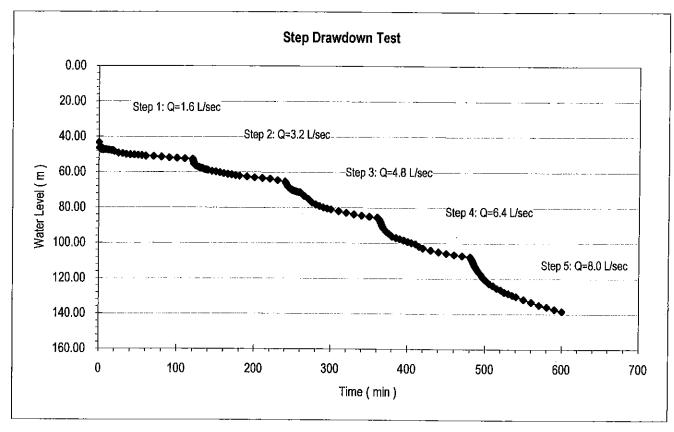
Well Code:	S-01/2_	Site code:	S-01	Site name: Bani Waleed - Al Asboor
District:	Al Haymah A	l Kharijiyah		Governorate: Sana'a

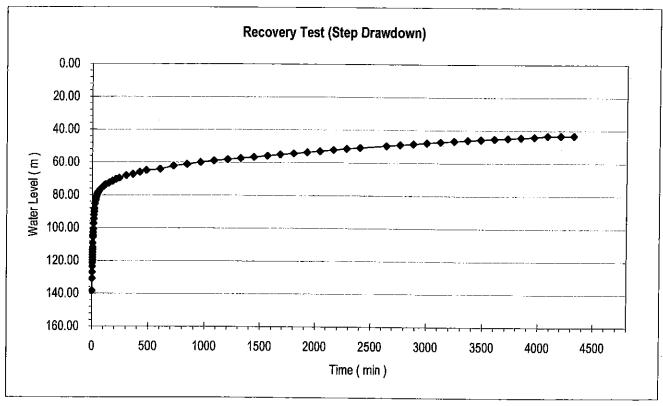
	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	_
Duration ( min )	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	Recovery (m)
360.0	<del></del>	<u> </u>	, ,		<u> </u>		<del>`-</del>	, ,	<u>` - ′</u> .	<u> </u>	67.30
420.0						ļ				<u> </u>	66.05
480.0											65.02
600.0		<del> </del>						<del>                                     </del>	-	<del> </del>	64.26
720.0				<del>  </del>			<del></del>				62.25
840.0											61.30
960.0				1	<del></del>	<u> </u>					60.05
1080.0				<del> </del>							59.07
1200.0		<del> -</del>									58.27
1320.0			-			<u> </u>		<del> </del> -			57.50
1440.0							<del></del>				56.75
1560.0			-					<del></del>	·	-	56.00
1680.0											55.23
1800.0									<del></del>		54.49
1920.0		-									53.75
2040.0			l	!							53.03
2160.0				!							52.33
2280.0		<u></u>			-						51.61
2400.0											50.89
2640.0	<del></del>										49.79
2760.0				-	·						49.11
2880.0							<del></del>				48.46
3000.0		-							·	l	47.86
3120.0											47.24
3240.0				<del>  </del>							46.68
3360.0	·-										46.18
3480.0			•		<del></del>						45.72
3600.0											45.27
3720.0											44.86
3840.0			_				_				44.46
3960.0								<del></del>			44.11
4080.0	<del></del>										43.41
4200.0					<del></del>						43.28
4320.0			_				-		-	<del></del>	43.28
4440.0											43.28
					-		·····				
+		<del></del>									
							-				
				+				+		+	
						-	+			<del></del> }	_
		<del></del>				+	<del></del>	-		-	
$\longrightarrow$						<del></del>		<del></del> +		<del></del> -	
		_									

Well Code: **S-01/2**Site Code: **S-01** 

S.W.L.: 43.28 m

Site Name: Bani Waleed - Al Asboor

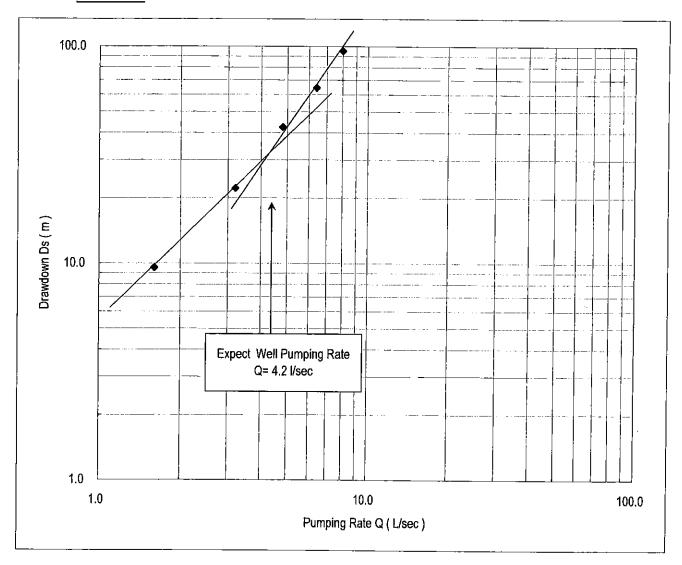




Well Code: S-01/2

Site Code: S-01 S.W.L.: 43.28 m

Site Name: Bani Waleed - Al Asboor



Step	Q(I/sec)	D.W.L.( m )	Ds(m)
1	1.6	52.80	9.52
2	3.2	65.40	22,12
3	4.8	85.68	42.40
4	6.4	107.69	64.41
5	8.0	138.40	95.12

### **Constant Discharge & Recorery Test (1/3)**

Well Code: **S-01/2** Site code: **S-01** 

Site name: Bani Waleed - Al Asboor Pump on date/hour: 15/8/2006 9:50am

District: Al Haymah Al Kharijiyah Pump off date/hour: 16/8/2006 9:50am

Governorate: Sana'a End of recovery hour: 20/8/2006 10:30am

Contractor: Mabkhout Al-Abraki S.W.L ( m ): 53.50
Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 106.90

Operator: Al Raboi Yield (I/sec): 3.4

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity ( )	Remarks
0.0	53.50	0.00	` '	106.90	53.40	<del>  ` '  </del>	
0.5	56.40	2.90		102.52	49.02	1	
1.0	56.85	3.35		99.26	45.76	1	
1.5	57.35	3.85	-	97.96	44.46		
2.0	57.88	4.38		97.53	44.03		
2.5	58.24	4.74		97.15	43.65	1	
3.0	58.50	5.00		96.85	43.35		
3.5	59.07	5.57		96.35	42.85		
4.0	59.14	5.64		96.06	42.56		
4.5	59.39	5.89		95.87	42.37	ĺ	· · · · · · · · · · · · · · · · · · ·
5.0	59.51	6.01		95.39	41.89		
6.0	59.87	6.37		94.86	41.36		·
7.0	60.32	6.82		94.39	40.89		
8.0	60.54	7.04		93.90	40.40		1
9.0	60.73	7.23		93.52	40.02		
10.0	61.29	7.79		93.20	39.70		
12.0	62.21	8.71		92.53	39.03		
14.0	62.43	8.93		92.10	38.60		
16.0	62.44	8.94		91.70	38.20		
18.0	62.57	9.07		91.38	37.88		
20.0	63.09	9.59		91.05	37.55		
25.0	63.34	9.84		90.45	36.95		
30.0	63.69	10.19		89.95	36.45		
35.0	64.35	10.85		89.68	36.18		
40.0	65.03	11.53		89.20	35.70		
45.0	65.12	11.62		89.90	36.40		
50.0	65.22	11.72		88.62	35.12		
55.0	65.44	11.94		88.35	34.85		
60.0	65.65	12.15		88.18	34.68		

# **Constant Discharge & Recorery Test (2/3)**

Well Code: **S-01/2** 

Site code: S-01

Site name: Bani Waleed - Al Asboor

District:

Al Haymah Al Kharijiyah

Governorate: Sana'a

Duration		tant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
	(m)	(m)	rate (l/sec)	(m)	(m)	( )	
70.0	66.11	12.61		87.40	33.90		
80.0	66.81	13.31		87.20	33.70		
90.0	67.35	13.85		86.79	33.29		
100.0	67.89	14.39		86.35	32.85		
110.0	68.32	14.82		85.91	32.41	,	
120.0	68.89	15.39		85. <u>4</u> 3	31.93		
140.0	69.39	15.89		84.96	31.46		<u> </u>
160.0	70.05	16.55		84.38	30.88		
180.0	71.28	17.78		83.84	30.34		
200.0	72.43	18.93		83,20	29.70		
220.0	73.58	20.08		82.60	29.10		
240.0	74.69	21.19	_	81.98	28.48		
280.0	76.25	22.75		81.14	27.64		
320.0	77.80	24.30		80.32	26.82		
360.0	79.27	25.77		79.42	25.92	T	
420.0	81.34	27.84		78.35	24.85	<del>                                     </del>	<u> </u>
480.0	83.39	29.89		77.38	23.88	<del>                                     </del>	
540.0	85.40	31.90		76.45	22.95		
600.0	87.32	33.82		75.54	22.04	<del>                                     </del>	
660.0	89.20	35.70		74.83	21.33	<u> </u>	
720.0	91.00	37.50		74.08	20.58	<del></del>	<del></del>
840.0	93.89	40.39		72.83	19.33	<del>                                     </del>	<del></del>
960.0	96.07	42.57		71.74	18.24		<del>-</del>
1080.0	99.78	46.28		70.78	17.28		
1200.0	102.30	48.80		70.05	16.55	<del> </del>	
1320.0	104.70	51.20		69.65	16.15	-	
1440.0	106.90	53.40		69.12	15.62		
1560.0				68.48	14.98		
1680.0				68.12	14.62	<del></del>	
1800.0	-			67.75	14.25		
1920.0	-	<del></del>	<del>- +</del>	67.31	13.81		
2040.0	<del></del>			66.90	13.40	<del>  </del>	
2160.0		-		66.53	13.03	<del></del>	
2280.0	_			65.85	12.35		
2400.0		-		65.35	11.85	<del>-</del> +	
2520.0	<del></del>	<del></del>	<del>-</del> +	64.95	11.45	<del>-</del>	

# **Constant Discharge & Recorery Test (3/3)**

Well Code:	S-01/2	Site code:	S-01	Site name: Bani Waleed - Al Asboor	
District:	Al Haymah Al	Khariiivah		Governorate: Sana'a	

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity (	Remarks
2640.0	(111)	(,	1010 (11000)	64.55	11.05	<del>                                     </del>	
2760.0				64.20	10.70	<del> </del>	
2880.0				63.80	10.30	1	
3000.0				63.37	9.87		
3120.0		<del></del>		62.97	9.47		·. ·
3240.0				62.58	9.08	<del> </del>	
3360.0				62.17	8.67		
3480.0				61.78	8.28		
3600.0				61.36	7,86		
3720.0				60.98	7.48		
3840.0	·			60.59	7.09		
4080.0				59.77	6.27		
4320.0				58.96	5.46		
4560.0				58.16	4.66	1	
4800.0				57.38	3.88		
5040.0				56.59	3.09		
5280.0		-		55.82	2.32		
5520.0				55.04	1.54		
5760.0				54.28	0.78		
6000.0				53.53	0.03		
		•		<del>-</del> ·		ļļ.	<del></del>
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	- · - · - ·	- <del></del>	- <u></u>				- · · · · · · · · · · · · · · · · · · ·
			<u> </u>		_		
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### **Constant Dischrge Test**

 Well Code:
 S-01/2

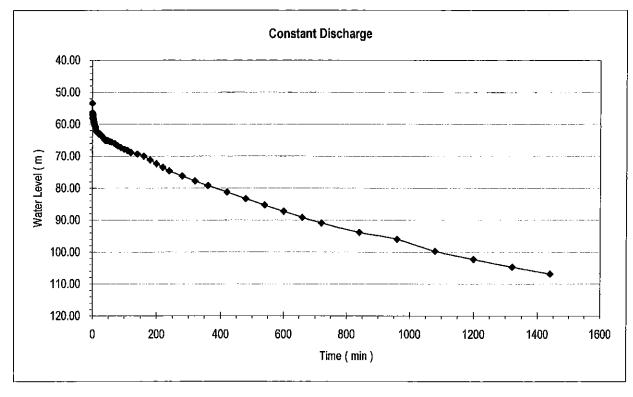
 Site Code:
 S-01

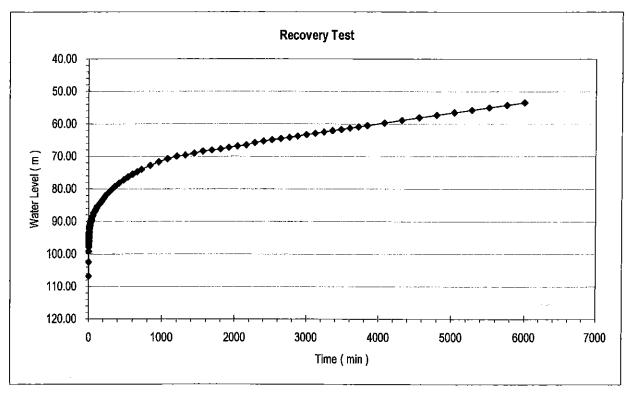
 S.W.L. (m):
 53.50

 Yield (L/sec):
 3.4

Site Name Bani Waleed - Al Asboor

D.W.L (m): 106.90 Drawdown (m): 53.40





## **Pumping Test Report Sheet**

Well code: Site code:	S-03 Site na	ame:	Al Kharaba
District: Bani Matar		vernorate:	Sana'a
Target water source: Existing projected	l deep well	Well depth	n:150_m
Contractor: Mabkhout A	N-Abraki		
Hydrogeologist in charge Abudu	<del></del>	<u>.</u>	
Operator: Kaid Al-A	\braki		
Date of start of the test:11/8/2006  Pump type: Vertical pump	<del></del>		14/8/2006 Iveco aifo
Pump installation depth:111 m			S.W.L.: <u>G.L44.93 m</u>
Step drawdown test  Date/hour started: 11/8/2006 5:45pm			
Yield (I/sec) 1 <sup>st</sup> step <u>1.30</u> 2 <sup>nd</sup> step <u>2.6</u>	60 3 <sup>rd</sup> step 3.9	904 <sup>th</sup> step_ <u>5</u> .	.20_5 <sup>th</sup> step_6.50_
Water level before start the test (G.Lm):			
Water level after end of 5 <sup>th</sup> step (G.Lm):			
Water level after recovery (G.Lm):	44.93	Recovery h	nours 8:07
Constant discharge test			
Date/hour started: <u>12/8/2006 2:00pm</u>	Date/hour finish	ned: <u>14/8/2006</u>	8:00pm Total hours: <u>54:00</u>
Yield (l/sec) <u>3.50</u>			<del></del>
Water level before start of the test (G.Lm):	44.93		
Water level after end of test (G,L,-m):	80.82		
Water level after recovery (G.Lm):	44.93	Recovery h	ours <i>30:00</i>
Drawdown (m): <u>35.89</u>			
Revised by:			
Name :			
Date:			
·			

### **Provisional Step Drawdown Test**

Well Code:	S-03	Site code:	S-03	Pump on date/hour: _1	11/8/2006 11:30am
Site name:	Al Kharaba			Pump off date/hour:	11/8/2006 2:00pm
District:	Bani Matar		<del>-</del>	End of recovery hour:	11/8/2006 5.45pm
Governorate				S.W.L ( m ):	45.75

Contractor: Mabkhout Al-Abraki

Hydrogeologist: Abudul Salam Sallam

Operator: Kaid Al-Abraki

	1st \$	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Recovery
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	(m)
(min)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( m )	( l/sec)	\ \ \ \
0.0	45.75	1.30	50.58	2.60	57.15	3.90	63.40	5.20	70.12	6.50	76.64
0.5	46.76		51.30		57.98		63.68		70.31		74.36
1.0	48.90		52.06	_	58.84		64.02		70.48		70.85
1.5	51.09		52.39		59.40		64.45		70.82		69.40
2.0	50.40		52.67		59.83		64.71		71.13		68.66
2.5	49.86		52.77		60.22		65.15		71.49		66.85
3.0	49.65		52.79		60.56		65.38		71.74		66.00
3.5	49.56		52.83		60.88		65.55		72.06		65.35
4.0	49.53	,	52.88		61.06		65.56		72.28		64.38
4.5	49.50		52.95	-	61.21		65.60		72.56		63.05
5.0	49.50		53.04		61.46		65.55		72.73		60.66
6.0	49.45		53.50		61.73		65.51		73.14		59.53
7.0	49.93		54.17		61.96		65.52		73.51		58.44
8.0	50.20		54.20		62.09		65.53		73.92		57.46
9.0	50.39		54.23		62.23		65.54		74.14		56.13
10.0	50.10		54.21		62.34		65.56		74.17		55.10
12.0	50.12		54.24		62.52		65.60		74.49		54.46
14.0	50.06		54.32		62.63		66.45		74.90		53.70
16.0	49.93		55.23		62.87		67.10		75.23		52.70
18.0	50.22		55.58		62.93		67.80		75.54		51.85
20.0	50.33		56.97		63.02		68.55		75.69		51.22
22.0	50.40		57.32		63.11		69.10		75.95		50.58
24.0	50.51		57.41		63.18		69.59		76.17		50.05
26.0	50.50		57.40		63.24		69.80		76.29	<u> </u>	49.62
28.0	50.55		57.25		63.37		69.96		76.38		49.40
30.0	50.58		57.15	1	63.40		70.12	1	76.64		49.31
40.0							-			<u> </u>	48.69
50.0										<u></u>	48.30
60.0											48.00
90.0											47.36
120.0							ļ		<u> </u>		46.78
150.0											46.29
180.0											46.08
210.0											45.92
225.0								<u> </u>			45.75
											<u> </u>
					-5						
									<u></u>		
					$\Gamma_{14-94}$					<u> -</u>	<u> </u>

Well Code:	S-03	Site code:	S-03	Pump on date/hour:	11/8/2006 5:45pm
Site name:	Al Kharaba			Pump off date/hour:	12/8/2006 3:45am
District:	Bani Matar	<del></del>	•	End of recovery hour:	12/8/2006 11:52am
Governorate		<u></u>	•	S.W.L ( m ):	<u>45.75</u>

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Kaid Al-Abraki

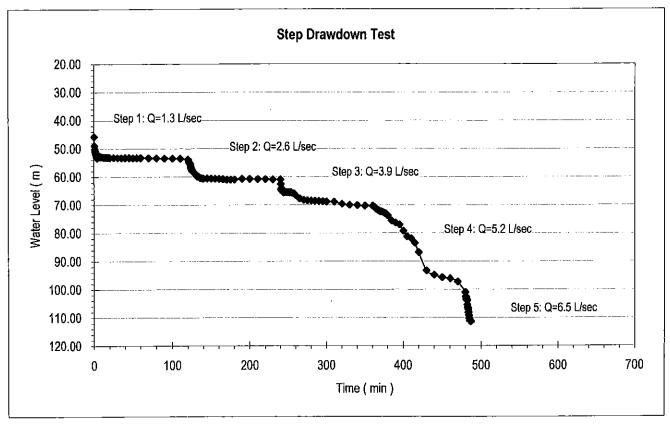
T	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	<b>D</b>
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery (m)
( min )	( m )	( l/sec)	( m )	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( ''' )
0.0	45.75	1.30	53.78	2.60	61.04	4.20	70.42	5.20	101.03	6.50	111.40
0.5	48.90		54.02		62.60		70.45		102.55		104.88
1.0	50.20		54.88		64.65		70.49		103.22		95.95
1.5	50.83		54.96		64.15		70.60		103.65		91.66
2.0	51.38		55.06		64.70		70.74		104.00		88.36
2.5	51.92		55.10		65.11		70.86		105.52		84.48
3.0	52.42		55.55		65.38		70.97		106.43		82.26
3.5	52.88		56.34		65.55		71.16		107.11		80.98
4.0	53.30		56.87		65.60		71.24		108.22		79.31
4.5	53.19		57.26		65.58		71,32		109.29		77.96
5.0	53.03		57.58		65.50		71.51		110.32		76.54
6.0	52.81		58.14		65.52		71.72		111.27		76.02
7.0	52.76		58.32		65.54		71.90		111.40		74.64
8.0	52.84		58.70		65.55		72.04				72.44
9.0	52.90		58.98		65.56		72.17				70.10
10.0	52.97		59.02		65.58		72.32				68.12
12.0	53.03	-	59.86		65.60		72.43		-		65.12
14.0	53.06		59.98		65.62		72.68		-		62.05
16.0	53.10		60.44		65.82		72.94				60.09
18.0	53.18		60.55		66.00		73.20				58.72
20.0	53.20		60.60		66.60		73.79				57.82
25.0	53.21		60.62		67.75		75.64				55.69
30.0	53.24		60.65		68.22		76.36				54.12
35.0	53.27		60.70		68.43		77.05				52.98
40.0	53.26		60.76		68.50		79.34				52.46
45.0	53.26		60.85		68.57		81.23				52.16
50.0	53.27		61.00		68.65		81.94				51.90
55.0	53.28		61.00		68.76		83.56				51.69
60.0	53.32		61.02		68.88	_	86.85			-	51.55
70.0	53.34		60.75		68.92		93.38				51.28
80.0	53.40		60.82		69.64		94.87		_	[	51.08
90.0	53.47		60.87		70.06		95.77		-		50.90
100.0	53.52	-	60.90		70.19		96.19				50.68
110.0	53.56		61.00		70.36		97.28				50.42
120.0	53.78		61.04		70.42		101.03				50.16
150.0											49.70
180.0											49.27
210.0		×							-		48.90
240.0											48.57
300.0					14-9	, 1		ĺ		1	47.98

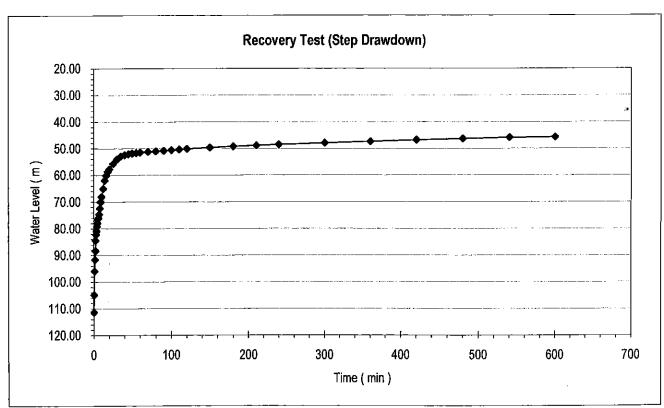
Well Code:	S-03	Site code:	S-03	Site name: Al Kharaba	
District:	Bani Matar	_		Governorate: Sana'a	

1	1st \$	Step	2nd Step 3r		3rd	d Step 4th Step			5th	Step	Recovery
Duration ( min )	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield ( l/sec)	(m)
360.0		,,	<del>`</del>			,	, ,				47.40
420.0											46.85
480.0						İ					46.40
540.0					<del>.</del>						46.00
600.0											45.75
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Well Code: S-03
Site Code: S-03
S.W.L.: 45.75 m

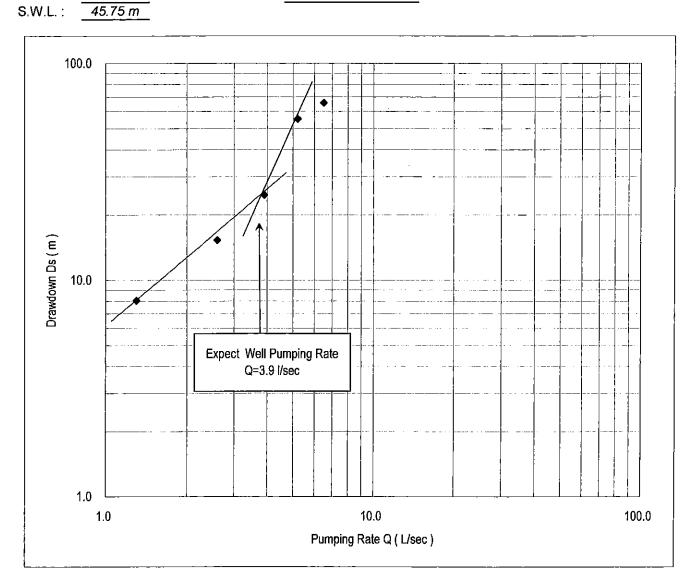
Site Name: Al Kharaba





Well Code: **S-03**Site Code: **S-03** 

Site Name: Al Kharaba



Step	Q(1/sec)	D.W.L.( m )	Ds(m)
1	1.3	53.78	8.03
2	2.6	61.04	15.29
3	3.9	70.42	24.67
4	5.2	101.03	55.28
5	6.5	111.40	65.65

#### **Constant Discharge & Recorery Test (1/2)**

Well Code: <u>S-03</u> Site code: <u>S-03</u>

 Site name:
 Al Kharaba
 Pump on date/hour:
 12/8/2006 2:00pm

 District:
 Bani Matar
 Pump off date/hour:
 13/8/2006 2:00pm

Governorate: Sana'a End of recovery hour: 14/8/2006 8:00pm

Contractor: Mabkhout Al-Abraki S.W.L ( m ): 45.75

Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 81.64

Operator: Kaid Al-Abraki Yield (I/sec): 3.5

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
(min)	Water level (m)	Drawdown (m)	Pumping rate (I/sec)	Water level (m)	Residual (m)	Conductivity ( µS/cm )	Remarks
0.0	45.75	0.00		81.64	35.89		
0.5	47.90	2.15		78.10	32.35		
1.0	51.10	5.35		76.25	30.50		
1.5	52.64	6.89		75.99	30.24		
2.0	53.90	8.15		75.23	29.48		
2.5	54.98	9.23		74.78	29.03		
3.0	56.00	10.25		73.90	28.15		
3.5	57.10	11.35		72.93	27.18		
4.0	58.25	12.50		71.82	26.07		
4.5	59.35	13.60		71.03	25.28		
5.0	60.43	14.68		69.98	24.23		<u> </u>
6.0	61.45	15.70		67.92	22.17		
7.0	62.52	16.77		67.16	21.41		
8.0	63.45	17.70		66.24	20.49	,	
9.0	64.30	18.55		65.55	19.80		
10.0	65.10	19.35		64.61	18.86		_
12.0	65.20	19.45		63.23	17.48		
14.0	65.35	19.60		62.29	16.54		
16.0	65.45	19.70		61.44	15.69		
18.0	65.45	19.70		61.10	15.35		
20.0	65.46	19.71		60.79	15.04		
25.0	65.46	19.71		59.84	14.09		
30.0	65.50	19.75		59.10	13.35		
35.0	66.00	20.25		58.95	13.20		-
40.0	66,55	20.80		58.42	12.67		
45.0	68.19	22.44		58.20	12.45		
50.0	68.40	22.65		57.95	12.20		
55.0	68.47	22.72		57.80	12.05		
60.0	68.50	22.75		57.55	11.80	764	_

### **Constant Discharge & Recorery Test (2/2)**

Well Code: S-03 Site code: S-03 Site name: Al Kharaba

District: Bani Matar Governorate: Sana'a

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
	(m)	(m)	rate (l/sec)	(m)	(m)	( µS/cm )	
70.0	69.14	23.39		57.17	11.42		
80.0	69.45	23.70		56.87	11.12		
90.0	69.65	23.90		56.65	10.90		
100.0	69.71	23.96		56.47	10.72		<u> </u>
110.0	69.80	24.05		56.34	10.59		
120.0	69.98	24.23		56.20	10.45	764	
140.0	70.00	24.25		56.07	10.32		
160.0	70.03	24.28		55.93	10.18		•
180.0	70.12	24.37		55.65	9.90	764	
200.0	70.25	24.50		55.53	9.78		
220.0	69.00	23.25		55.42	9.67		
240.0	69.05	23.30		55.20	9.45	764	
280.0	69.23	23.48		55.02	9.27		
320.0	69.35	23.60		54.89	9.14		
360.0	69.62	23.87		54.66	8.91		
420.0	71.30	25.55		54.14	8.39	764	<del></del>
480.0	71.91	26.16		53.12	7.37		
540.0	72.27	26.52		52.39	6.64	764	
600.0	72.44	26.69		51.69	5.94		
660.0	73.55	27.80		51.25	5.50		
720.0	74.29	28.54		50.37	4.62	764	
840.0	76.12	30.37		49.58	3.83		
960.0	77.49	31.74		49.39	3.64	764	
1080.0	78.86	33.11		49,21	3.46		
1200.0	79.60	33.85		48.51	2.76	764	
1320.0	80.91	35.16		47.84	2.09		
1440.0	81.64	35.89		47.20	1.45	764	·
1560.0		<del></del>		46.60	0.85		
1680.0				46.03	0.28		
1800.0		<del></del>	-	45.75	0.00		
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### Step Drawdown Test (1/2)

Well Code:	D-04	Site code:	D-04	Pump on date/hour:	1/9/2006 9:00am
Site name:	Al Kuob		_	Pump off date/hour:	1/9/2006 7:00pm
District:	Duran			End of recovery hour:	2/9/2006 1:00am
Governorate	e Dahmar			S.W.L ( m ):	85.50

Contractor: Mabkhout Al-Abraki

Hydrogeologist: Abudul Salam Sallam

Operator: Kaid Al Abraki

Durettee	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
( '''''' )	( m )	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)
0.0	85.50	0.10	85.75	0.20	86,40	0.30	87.03	0.40	88.58	0.50	92.16
0.5	88.33		85.85		86.41		87.10		88.67		90.20
1.0	88.00		85.95		86.41		87.15		88.70		88.10
1.5	87.82		86.00		86.41		87.18		88.72		88.37
2.0	87.55		86.02		86.45		87.19		88.73		88.50
2.5	87.33		86.02		86.53		87.20	· -	88.74		88.55
3.0	87.28	·	86.03	_	86.57		87.20		88.75		88.60
3.5	87.05		86.03		86.62		87.21		88.76		88.60
4.0	86.90		86.04		86.63		87.22		88.76		88.62
4.5	86.84		86.04		86.63		87.28		88.76		88.62
5.0	86.75		86.05		86.63		87.55		88.77		88.62
6.0	86.73		86.02		86.63		87.65		88.78		88.61
7.0	86.55		86.00		86.63		87.75		88.90		88.52
8.0	86.43		86.00		86.62		87.77		89.00		88.57
9.0	86.30		86.00		86.60	-	87.80		89.13		88.55
10.0	86.23		86.00		86.58		87.85		89.17		88.51
12.0	86.13		86.00	· -	86.57		87.85		89.28		88.45
14.0	86.08		86.00		86.58		87.85		89.33		88.37
16.0	86.00		86.01		86.60		87.87		89.38		88.33
18.0	85.95		86.02		86.61		87.90		89.44		88.26
20.0	85.95		86.04		86.62		88.06		89.49		88.19
25.0	85.85		86,07		86.67		88.15	<u> </u>	89.63		88.00
30.0	85.72		86.10		86.72		88.23		89.75		87.90
35.0	85.70		86.14	İ	86.77		88.26		89.95		87.77
40.0	85.72		86.16		86.78		88.29		90.14		87.63
45.0	85.70		86.17		86.79		88.32		90.32		87.56
50.0	85.70	Ì	86.19		86.79		88.33		90.50		87.46
55.0	85.70		86.20		86.80	7	88.35		90.68		87.42
60.0	85.70		86.22		86.82		88.36		90.85		87.31
70.0	85.68	i	86.24		86.86		88.39		91.08		87.20
80.0	85.65		86.26		86.90		88.42		91.30		87.05
90.0	85.65		86.29		86.94		88.43		91.52		86.90
100.0	85.70		86.33		86.98		88.45	-	91.74		86.80
110.0	85.75		86.35		87.00		88.51		91.95		86.70
120.0	85.75		86.40		87.03		88.58		92.16		86.60
140.0										-	86.46
160.0							·		<del></del>		86.31
180.0				Ī		-				<u> </u> -	86.20
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220.0	- \				14-101					<del>   </del>	85.96

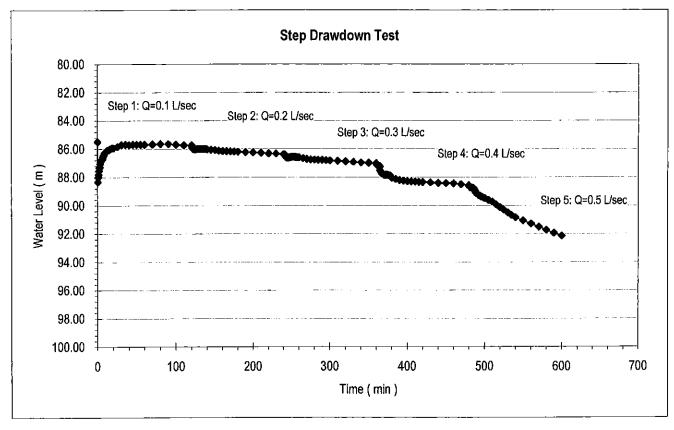
## Step Drawdown Test (2/2)

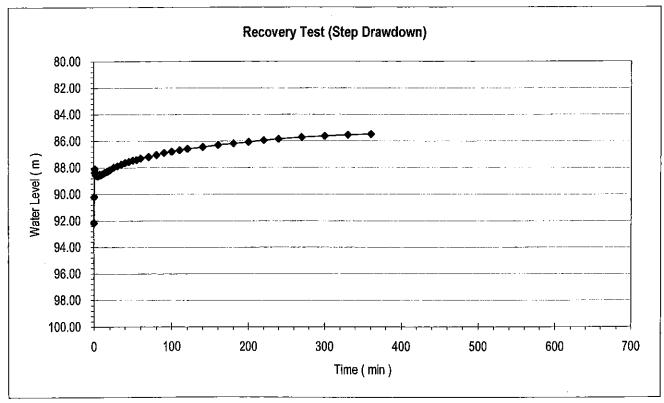
Well Code:	D-04	Site code:	D-04	Site name:	Al Kuob	<u> </u>	
District:	Duran	_	<u> </u>	Governorate:	Dahmar		

	1st 5	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration ( min )	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	Recovery (m)
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270.0						_				<u> </u>	85.73
300.0											85.64
330.0		<del></del>							_		85.56
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Well Code: **D-04**Site Code: **D-04**S.W.L.: 85.50 m

Site Name: Al Kuob

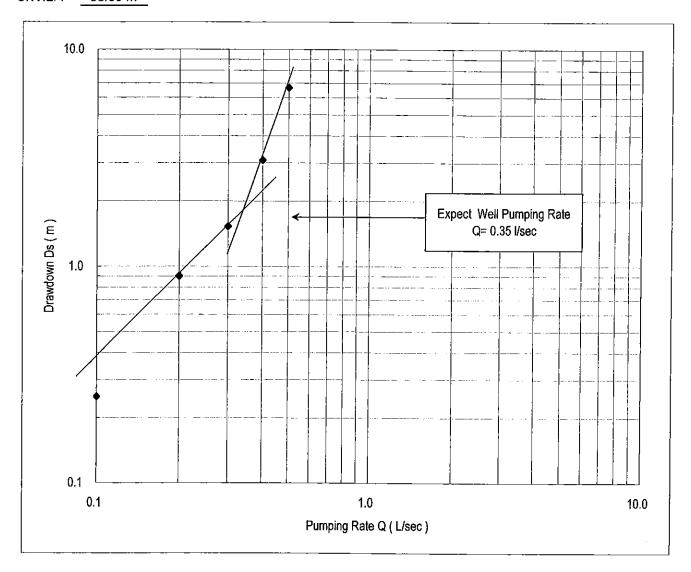




Well Code: D-04

Site Code: D-04 S.W.L. : 85.50 m Site Name:

Al Kuob



Step	Q(1/sec)	D.W.L.( m )	Ds(m)
1	0.1	85.75	0.25
2	0.2	86.40	0.90
3	0.3	87.03	1.53
4	0.4	88.58	3.08
5	0.5	92.16	6.66

### **Constant Discharge & Recorery Test (1/2)**

D-04 Site code: D-04 Well Code: Pump on date/hour: 2/9/2006 12:00pm Al Kuob Site name: Pump off date/hour: 3/9/2006 12:00pm District: Duran End of recovery hour: 3/9/2006 11:00pm Governorate: Dahmar Contractor: Mabkhout Al-Abraki S.W.L ( m ): \_ 85.50 Hydrogeologist: Abudul Salam Sallam\_ 92.02 D.W.L ( m ): \_\_\_ Yield (I/sec): 0.3 Kaid Al Abraki Operator:

Durting	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
Duration - ( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
( ),,,,,	_(m)	(m)	rate (l/sec)	(m)	(m)	( )	
0.0	85.50	0.00		92.02	6.52		
0.5	89.50	4.00		90.10	4.60		
1.0	89.55	4.05		89.93	4.43		
1.5	89.52	4.02		89.76	4.26		
2.0	89.33	3.83		89.59	4.09		
2.5	89.14	3.64		89.45	3.95		
3.0	89.05	3.55		89.24	3.74		
3.5	89.00	3.50		89.07	3.57		
4.0	88.93	3.43		88.90	3.40		
4.5	88.00	2.50		88.77	3.27		
5.0	88.84	3.34		88.76	3.26		
6.0	88.68	3.18		88.75	3.25		
7.0	88.55	3.05	· -	88.75	3.25		
8.0	88.41	2.91		88.75	3.25		
9.0	88.33	2.83		88.74	3.24		
10.0	88.30	2.80		88.73	3.23		
12.0	88.24	2.74		88.63	3.13		-
14.0	88.10	2.60	-	88.62	3.12		· · ·
16.0	88.06	2.56		88.59	3.09		
18.0	88.05	2.55		88.54	3.04		
20.0	88.05	2.55		88.44	2.94	<u> </u>	
25.0	88.05	2.55		88.33	2.83	† †	
30.0	88.06	2.56		88.22	2.72	1	<del></del> -
35.0	88.07	2.57		88.14	2.64		
40.0	88.08	2.58		88.05	2.55	† †	<del></del>
45.0	88.12	2.62	-	87.95	2.45	†	<del></del>
50.0	88.15	2.65		87.90	2.40	†	·
55.0	88.20	2.70		87.80	2.30	†	-
60.0	88.26	2.76		87,75	2.25	<del>  </del>	

# Constant Discharge & Recorery Test (2/2)

Well Code:	D-04	Site code:	D-04	Site name:	Al Kuob
District:	Duran			Governorate:	Dahmar

Duration	Const	tant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
	(m)	(m)_	rate (l/sec)	(m)	(m)	( )	
70.0	88.28	2.78	<u> </u>	87.60 	2.10		
80.0	88.28	2.78		87.48	1.98		
90.0	88.30	2.80		87.33	1.83		
100.0	88.34	2.84		87.27	1.77		
110.0	88.38	2.88		87.17	1.67		
120.0	88.42	2.92		87.08	1.58		
140.0	88.52	3.02		86.95	1.45		
160.0	88.60	3.10		86.77	1.27		
180.0	88.64	3.14		86.60	1.10		
200.0	88.69	3.19		86.45	0.95		_
220.0	88.73	3.23		86.30	0.80		
240.0	88.80	3.30		86.13	0.63		
280.0	88.89	3.39		86.01	0.51		
320.0	88.97	3.47		85.87	0.37		_
360.0	89.07	3.57		85.75	0.25		
420.0	89.18	3.68		85.66	0.16		
480.0	89.26	3.76		85.57	0.07		
540.0	89.45	3.95	·-	85.54	0.04	<del></del>	<del></del> _
600.0	89.75	4.25		85.52	0.02	ر,	
660.0	89.92	4.42		85.50	0.00	_	<del> </del>
720.0	90.08	4.58			_	-	<del></del>
840.0	90.50	5.00				<del>-</del>	<del></del>
960.0	90.77	5.27					
1080.0	91.01	5.51					<del></del>
1200.0	91.36	5.86					
1320.0	91.68	6.18			<u>.</u>		<del></del> -
1440.0	92.02	6.52				· ·	
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						<del></del>	
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						<del></del>	
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				<u>-</u>			

#### **Constant Dischrge Test**

Well Code: Site Code:

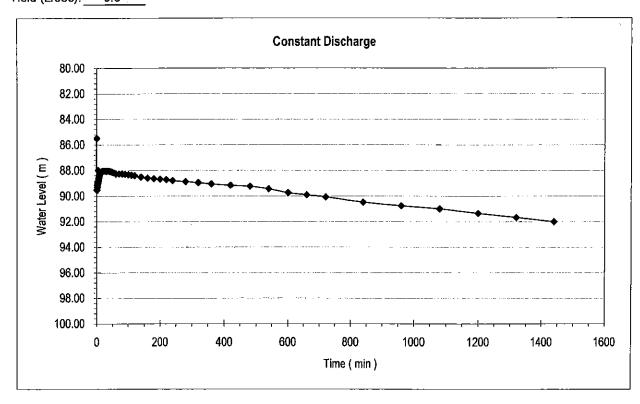
D-04

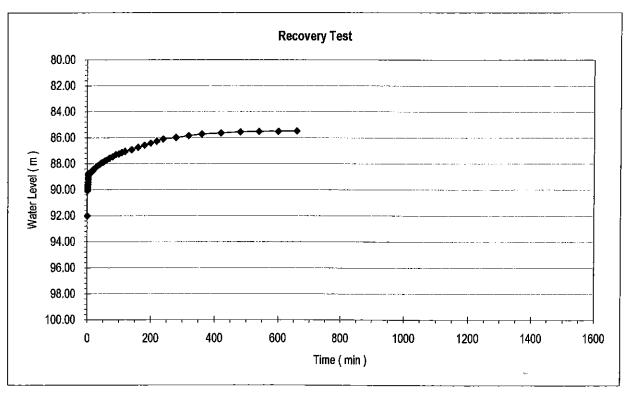
D-04 S.W.L. (m): 85.50 Yield (L/sec): 0.3

Al Kuob Site Name

D.W.L (m): 92.02 Drawdown (m):

6.52





# **Pumping Test Report Sheet**

Well code: Site code:	0- <i>05</i> Site name:	Maifa'at Yaer
District: Ans	Governorate:	
	<del></del>	
Target water source: Existing projected	deep well Well	depth: <u>127 m</u>
		·
Contractor: Mabkhout Al		
Hydrogeologist in charge Abudul		
Operator: Hezan Jan	meel	
Date of start of the test: 23/7/2006	Date of end of the	e test: 26/7/2006
Pump type: Vertical pump	<del></del> .	
Pump installation depth: 96 m	<del></del>	78 m S.W.L.: G.L59.56 m
Step drawdown test		
Date/hour started: 24/7/2006 11:00am	Date/hour finished: 25/7	7/2006 6:00am Total hours: 19:00
Yield (l/sec) 1 <sup>st</sup> step <u>1.60</u> 2 <sup>nd</sup> step <u>3.2</u>	<u>'0</u> 3 <sup>rd</sup> step <u>4.80</u> 4 <sup>th</sup> st	tep <u>6.40</u> 5 <sup>th</sup> step <u>8.00</u>
Water level before start the test (G.Lm):	59.56	
Water level after end of 5 <sup>th</sup> step (G.Lm):	74.12	
Water level after recovery (G.Lm):	59.56 Reco	overy hours9:00
Constant discharge test		
Date/hour started: <u>25/7/2006 10:35am</u>	Date/hour finished: 26/7	<u>//2006 9:35pm</u> Total hours: <u>35:00</u>
Yield (l/sec) 2.60		
Water level before start of the test (G.Lm):		
Water level after end of test (G.Lm):	62.78	
Water level after recovery (G.Lm):	59.56 Reco	overy hours 11:00
Drawdown (m): 3.22		
Revised by:		
Nama		
Name :		
Date:		
		:

### **Provisional Step Drawdown Test**

Well Code:	D-05	Site code:	D-05	Pump on da	ate/hour:	23/7/2006 4:00pr	n
Site name:	Maifa'at Yaer	_		Pump off da	ate/hour:	23/7/2006 6:30pr	n
District:	Ans		•	End of recove	ery hour:	24/7/2006 10:30a	m
Governorate	- Dahmar		•	S.W	V.L ( m ):	60.34	

Contractor: <u>Mabkhout Al-Abraki</u> Hydrogeologist: <u>Abudul Salam Sallam</u>

Operator: Hezan Jameel

]	1st :	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	_
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
( min )	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( m )
0.0	60.34	1.60	61.72	3.20	63.39	4.80	65.76	6.40	68.10	8.00	73.00
0.5	67.90		63.40		63.87		65.73		70.37		63.47
1.0	66.90	_	63.60		63.93		65.72		71.40		60.11
1.5	65.71		63.84		64.02		65.73		71.72		60.30
2.0	65.22		63.90		64.04		65.74		72.07		60.86
2.5	64.98		63.81		63.98		65.78		72.10		60.94
3.0	64.34		63.85		63.80		66.17		72.33	_	60.93
3.5	63.50		63.90		63.54		66.62		72.60		60.96
4.0	63.20		64.08		63.33		66.74		72.83		60.89
4.5	63.07		63.97		63.63		67.02		73.29		60.84
5.0	62.82	-	63.87		63.70		67.38		73.97		60.80
6.0	62.22		63.86		63.83		67.80		73.76	-	60.78
7.0	62.14		63.82		63.98		67.82		73.38		60.76
8.0	62.12		63.81		64.50		67.81		73.06		60.70
9.0	62.08		63.82		65.23		67.80		73.13		60.67
10.0	62.07		63.56	-	65.42		67.81		72.98		60.66
12.0	62.00		63.33		65.85		67.80	·	72.85	'	60.64
14.0	61.91		63.32		65.79		67.86		72.89		60.60
16.0	61.87		63.30		65.52		67.89		72.92		60.60
18.0	61.80		63.32		65.60		67.95		72.91		60.56
20.0	61.76		63.31		65.54		68.00		72.92		60.54
22.0	61.77		63.32		65.60		67.96		72.93		60.52
24.0	61.76		63.34		65.53		67.93		72.96		60.50
26.0	61.75		63.35		65.56		67.96		73.03		60.50
28.0	61.74		63.36		65.65		67.94		73.00		60.50
30.0	61.72		63.39		65.76		68.10		73.00		60.50
60.0											60.50
120.0											60.50
180.0											60.50
360.0											60.45
540.0											60.41
720.0											60.38
900.0											60.35
960.0										·	60.34
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### Step Drawdown Test (1/2)

Well Code:	D-05	Site code:	D-05	Pump on date/hour: _2	24/7/2006 11:00am
Site name:	Maifa'at Yaer			Pump off date/hour:	24/7/2006 9:00pm
District:	Ans			End of recovery hour:	25/7/2006 6:00am
Governorate	 Dahmar			S.W.L ( m ):	60.34

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Hezan Jameel

Dunation	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Recovery
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	(m)
( 111111 /	( m )	( l/sec)	(m)	(I/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	
0.0	60.34	1.60	61.67	3.20	65.10	4.80	65.86	6.40	68.97	8.00	74.90
0.5	64.54		63.03		66.10		66.34		71.24		61.65
1.0	64.09		64.66	•	66.48		66.30		72.74		61.00
1.5	62.56		65.26		66.55		66.50		73.06		60.98
2.0	62.16		65.65		66.09		66.59		72.71		61.39
2.5	61.06		64.58		66.05		66.61		72.74		61.45
3.0	61.82		63.78		65.78		67.25		72.75		61.42
3.5	61.80		63.80	•	65.74		67.48		73.00	_	61.36
4.0	61.78		63.72		65.48		67.82		73.20		61.33
4.5	61.80		63.62		65.50		68.30		73.59		61.32
5.0	61.77		64.54		65.56		68.44		74.25		61.31
6.0	61.60		64.54		65.53		68.66		74.44		61.30
7.0	61.92		64.62		65.60		67.73		74.04		61.25
8.0	61.85		64.71		65.62		68.76		73.74		61.22
9.0	61.79		64.81		65.66		68.73		73.81		61.19
10.0	61.83		64.82		65.67		68.60		73.66		61.18
12.0	61.80		64.86		65.68		68.55		73,53		61.15
14.0	61.81		64.88	_	65.73		68.57		73.50		61.13
16.0	61.82		64.93		65.74		68.56		73.59	_	61.11
18.0	61.80		64.96		65.75		68.53		73.58		61.09
20.0	61.82		64.98		65.74		68.58		73.59		61.08
25.0	61.82		64.88		65.74		68.62		73.63		61.04
30.0	61.83		64.88		65.75		68.59		73.70	_	61.02
35.0	61.79		64.90		65.77		68.61		73.78		61.00
40.0	61.79		64.92		65.78		68.62		73.77		61.00
45.0	61.81		64.92		65.74		68.60		74.10		60.98
50.0	61.81		64.90		65.75		68.65		74.23		60.97
55.0	61.80		64.90		65.76		68.68		74.36		60.95
60.0	61.80		64.89		65.82		68.69		74.48		60.94
70.0	61.74		64.92	-	65.85		68.70		74.59		60.92
80.0	61.66		64.91		65.85		68.78		74.66		60.85
90.0	61.68	<del>                                     </del>	64.92		65.86		68.86		74.74		60.83
100.0	61.67	<u> </u>	64.94		65.85		68.90		74.80		60.80
110.0	61.67		65.09		65.86	-	68.94		74.85		60.80
120.0	61.67		65.10		65.86		68.97		74.90		60.79
150.0		<u> </u>		_							60.75
180.0		-	_		•					· ·	60.72
210.0											60.69
240.0								-	ı		60.66
300.0					 14:110	-					60.58

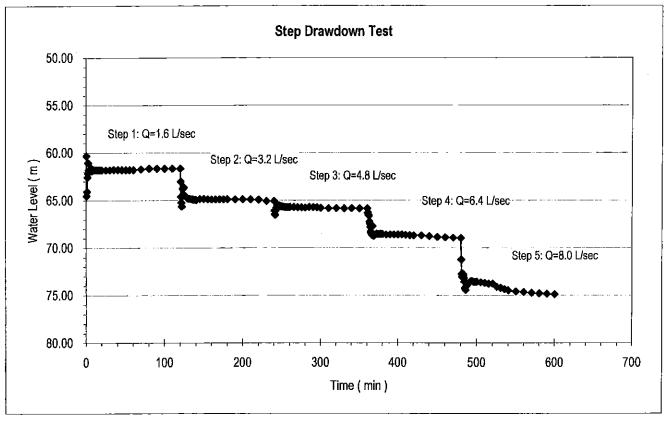
## Step Drawdown Test (2/2)

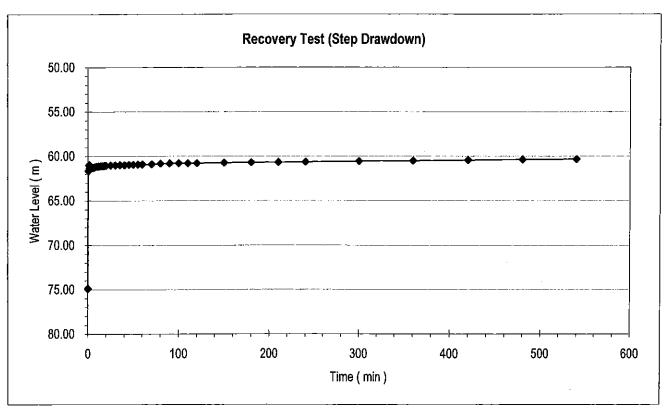
Well Code:	D-05	Site code: _	D-05	Site name: Maifa'at Yaer	
District:	Ans			Governorate: Dahmar	

I	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	<u> </u>
Duration ( min )	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	W.L. (m)	Yield ( l/sec)	W.L.	Yield (!/sec)	W.L. (m)	Yield (I/sec)	Recovery (m)
360.0	<del></del>	<del>  `                                   </del>	, ,		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	(	1,	(/	(,	()	60.51
420.0								T-		<del>                                     </del>	60.44
480.0		j									60.38
540.0											60.34
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Well Code: *D-05*Site Code: *D-05*S.W.L.: 60.34 m

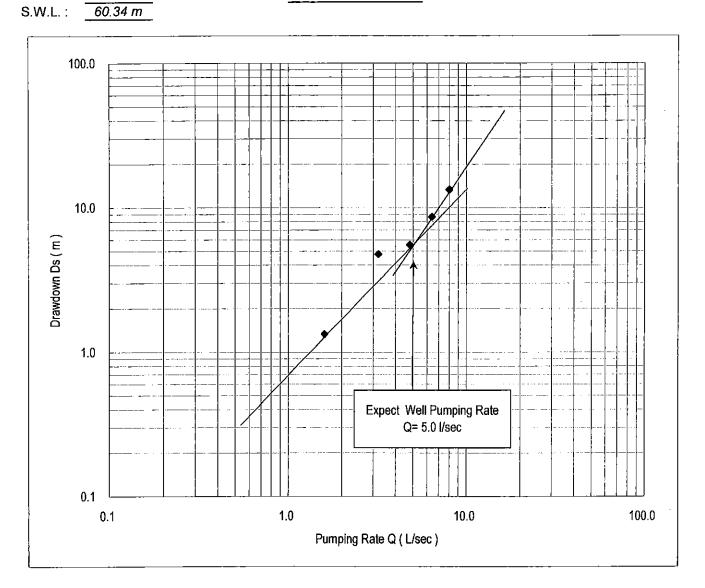
Site Name: Maifa'at Yaer





Well Code: *D-05*Site Code: *D-05* 

Site Name: Maifa'at Yaer



Step	Q(I/sec)	D.W.L.( m )	Ds(m)
1	1.6	61.67	1.33
2	3.2	65.10	4.76
3	4.8	65.86	5.52
4	6.4	_68.97	8.63
5	8.0	73.70	13.36

#### **Constant Discharge & Recorery Test (1/2)**

Site code: D-05 Well Code: D-05 Site name: Maifa'at Yaer Pump on date/hour: 25/7/2006 10:35am Pump off date/hour: 26/7/2006 10:35am District: Ans End of recovery hour: 26/7/2006 9:35pm Governorate: Dahmar Contractor: Mabkhout Al-Abraki S.W.L ( m ): \_\_\_\_ 60.34 Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 63.56 Yield (I/sec): 2.6 Operator: Hezan Jameel

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level (m)	Drawdown (m)	Pumping rate (I/sec)	Water level (m)	Residual (m)	Conductivity (µS/cm)	Remarks
0.0	60.34	0.00		63.56	3.22		
0.5	65.00	4.66		62.80	2.46		
1.0	64.62	4.28		62.54	2.20		
1.5	63.74	3.40		62.00	1.66		
2.0	63.39	3.05		61.65	1.31		
2.5	63.28	2.94		61.17	0.83		
3.0	62.82	2.48		61.16	0.82		
3.5	62.56	2.22		61.05	0.71		·
4.0	62.49	2.15		61.04	0.70		
4.5	62.51	2.17		61.04	0.70		
5.0	62.55	2.21		61.04	0.70		
6.0	62.54	2.20		61.04	0.70		
7.0	63.90	3.56		61.04	0.70		
8.0	63.31	2.97		61.04	0.70		
9.0	62.71	2.37		61.03	0.69		•
10.0	62.88	2.54		61.03	0.69		
12.0	62.74	2.40		61.03	0.69		
14.0	62.85	2.51		61.02	0.68		
16.0	63.10	2.76		61.02	0.68		
18.0	63.15	2.81		61.00	0.66		
20.0	63.18	2.84		61.00	0.66		
25.0	63.18	2.84		60.99	0.65		
30.0	63.09	2.75		60.99	0.65		
35.0	63.09	2.75		60.98	0.64		
40.0	63.08	2.74		60.98	0.64		
45.0	63.05	2.71		60.97	0.63		
50.0	63.05	2.71		60.97	0.63		
55.0	63.04	2.70		60.96	0.62		
60.0	63.03	2.69		60.96	0.62	594	

## **Constant Discharge & Recorery Test (2/2)**

Well Code:	D-05	Site code:	D-05	Site name:	Maifa'at Yaer	
District:	Ans	_		Governorate:	Dahmar	

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
Duration ( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity (µS/cm)	Remarks
70.0	63.05	2.71	Tate (#3cc)	60.95	0.61	(μο/οπ)	
80.0	63.05	2.71		60.94	0.60	+	
90.0	63.05	2.71		60.93	0.59	<del>                                     </del>	
100.0	63.04	2.70		60.91	0.57	†	
110.0	63.05	2.71		60.89	0.55	<del> </del> -	
120.0	63.05	2.71	<del></del>	60.87	0.53	594	
140.0	63.06	2.72		60.82	0.48	+	
160.0	63.05	2.71		60.79	0.45	<del> -</del>	
180.0	63.05	2.71		60.75	0.41	594	
200.0	63.06	2.72		60.72	0.38	+	
220.0	63.06	2.72		60.69	0.35	<del> </del>	
240.0	63.07	2.73		60.66	0.32	594	<del>.</del> .
280.0	63.23	2.89		60.63	0.29	1	
320.0	63.27	2.93		60.60	0.26	<del>                                     </del>	
360.0	63.18	2.84		60.57	0.23		
420.0	63.26	2.92	!	60.52	0.18	<del> </del>	
480.0	63.30	2.96		60.44	0.10	594	
540.0	63.35	3.01		60,40	0.06		
600.0	63.34	3.00	!	60.37	0.03	<del>                                     </del>	<del> </del>
660.0	63.38	3.04	<del> </del>	60.34	0.00	594	
720.0	63.44	3,10				1 1	
840.0	63.45	3.11				594	
960.0	63.45	3.11	<del> </del>		<u></u>		
1080.0	63.45	3.11				594	<u> </u>
1200.0	63.52	3.18	<del></del>				<u> </u>
1320.0	63.56	3.22				594	
1440.0	63.56	3.22	<del> </del>	-		1	<del></del>
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		<u> </u>			<del></del>	† †	
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	<del></del>					†	
		<del>-</del>				<del>                                     </del>	
		<del></del>		-		†	
	<del></del> ,					<del>                                     </del>	
	<u></u>				<del></del>	† †	
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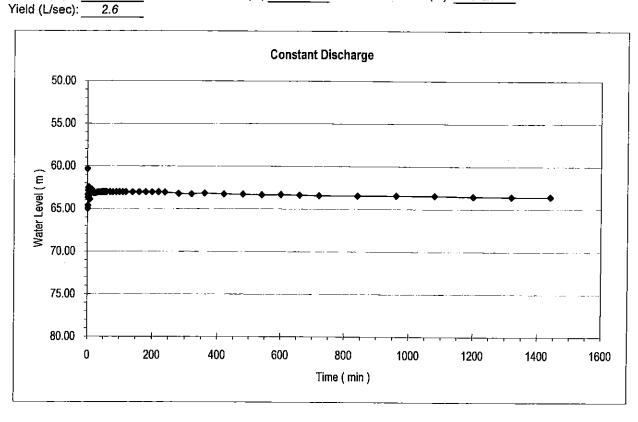
#### **Constant Dischrge Test**

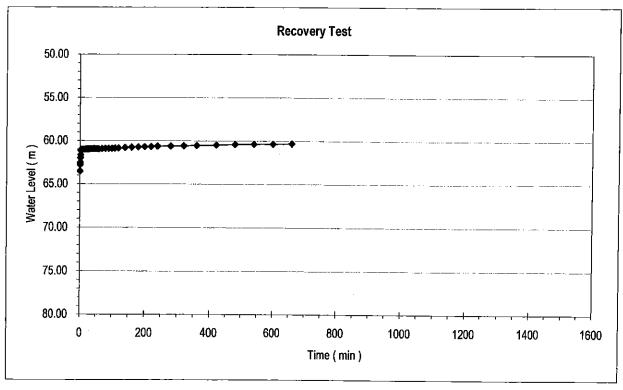
Well Code: Site Code: S.W.L. (m): D-05

D-05 60.34 2.6 Site Name Maifa'at Yaer

D.W.L (m): 63.56

Drawdown (m): 3.22





## **Pumping Test Report Sheet**

Well code:	Site code:	D-06	Site name:		Wardasan	
District:	Ans		Governo	orate:	Dahmar	_
Target water source:	Existing projecte	ed deep w	<u>rell</u>	Well depth:	220 m	
Contractor:	Mabkhout	Al-Abrak	i			
Hydrogeologist in cha						
Operator:	AIR	aboi				
Date of start of the te	st: <u>23/7/200</u> 0	6	Date of end	of the test:	29/7/2006	
Pump type:	Vertical pump		Engine:		lveco aifo	<del></del>
Pump installation dep	th: <u>165 m</u>		Datum level	0.80 m	S.W.L.: <u>G</u>	L89.65 m
Step drawdown test						
Date/hour started:						-
Yield (l/sec) 1 <sup>st</sup> step _	<u>0.50</u> 2 <sup>nd</sup> step_(	<u>0.70                                   </u>	step <u>0.90</u>	_4 <sup>th</sup> step <u>1.</u>	<u>10</u> 5 <sup>th</sup> step	
Water level before sta	art the test (G.Ln	n): <u>89</u>	0.65			
Water level after end	of 3 <sup>th</sup> step (G.Ln	n): <u>15</u>	4.76			
Water level after reco	very (G.Lm):	89	0.65	Recovery h	ours <u>16:00</u>	=
Constant discharge t	nat					
Constant discharge to		n Doto/b	our finished:	20/7/2006	P:EOnm Total ha	
Date/hour started:	20/7/2000 3.50pii	_ Date/II	oui imisned.	20///2000	<u>6.50pm</u> rotal no	urs
Yield (l/sec) 0.50 Water level before start	of the test (C. I. m)	. 90	65			
Water level after end	-					
Water level after reco				Recovery h	ours 29:00	
Drawdown (m):42			.00	itecovery ii	Ours	
Diawcowii (iii)	<u>20</u>					
Revised by:						
Name :		_				
Date:						

## **Provisional Step Drawdown Test (1/3)**

Well Code:	D-06	Site code:	D-06	. Pump on date/hour:	23/7/2006 2:00am
Site name:	Wardasan			Pump off date/hour:	23/7/2006 2:42 am
District:	Ans		•	End of recovery hour:	23/7/2006 4:42pm
Governorate	e Dahmar	_		S.W.L ( m ):	90.45
Contractor;	Mabkhout Al-A	Abraki			
Hydrogeolog	gist: Abudul Sal	lam Sallam			

Pump set depth: 156 m

Operator: Al Raboi

<u> </u>	1st	Step	2nd	Step	3rd Step Recovery						
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	Duration		Duration	W.L.	
(min)	( m )	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( min )	(m)	(min)	(m)	
0.0	90.45	1.30	128.93	2.60			0.0	156.00	420.0	97.75	
0.5	99.50	_	129.92				0.5	145.00	480.0	96.80	
1.0	99.87		132.26				1.0	133.50	540.0	95.90	
1.5	99.98		130.50				1.5	128.65	600.0	95.10	· · · · · · · · · · · · · · · · · · ·
2.0	100.24		135.60				2.0	127.65	720.0	92.28	
2.5	100.60		137.80				2.5	127.40	840.0	90.45	
3.0	102.04		139.04		-		3.0	126.90			
3.5	104.08		140.60				3.5	126.35			<del></del>
4.0	105.85		141.57				4.0	125.90			
4.5	107.29		142.20	_			4.5	125.40			
5.0	108.30		143.00		•		5.0	124.85			
6.0	109.32		143.40				6.0	123.90			
7.0	109.57		144.70				7.0	123.00			
8.0	110.72		148.80				8.0	122.07			
9.0	111.00		151.71				9.0	121.20			
10.0	111.20		154.30				10.0	120.35			
12.0	113.70		156.00		-		12.0	118.75			
14.0	118.68			-			14.0	117.30			
16.0	121.18						16.0	115.90			
18.0	121.70						18.0	114.57			
20.0	123.35						20.0	113.30			-
22.0	123.85						22.0	112.15			
24.0	124.10						24.0	111.28			•
26.0	124.91						26.0	110.15			
28.0	126.90						28.0	109.12			_
30.0	128.93						30.0	108.05			
	_						35.0	107.60			·
	_						40.0	107.20			
							45.0	106.82			
							50.0	106.47	[		
							55.0	106.14			
							60.0	105.84			
							90.0	104.77			
							120.0	103.82			
							150.0	102.94			
							180.0	102.14			
							240.0	100.94			
							300.0	99.79			
							360.0	98.74			
					14-118	3					

### **Provisional Step Drawdown Test (2/3)**

Well Code:	D-06	Site code:	D-06	Pump on date/hour:	23/7/2006 5:20 pm
Site name:	Wardasan			Pump off date/hour:	23/7/2006 6:06 pm
District:	Ans			End of recovery hour:	24/7/2006 12.06pm
Governorate	e Dahmar			S.W.L ( m ):	90.45
	_				
Contractor:	Mabkhout Al-Ab	raki			
Hydrogeolo	gist: Abudul Salar	n Sallam			
Operator:	Al Raboi	<u> </u>	<u> </u>	Pump s	et depth: <u>165 m</u>

	1st	Step	2nd	Step	3rd Step		<u> </u>	Rece	overy		
Duration	W.L.	Yield	W.L.	Yield	W.L.	Yield	Duration	W.L.	Duration	W.L.	
( min )	(m)	( l/sec)	(m)	(I/sec)	(m)	( l/sec)	(min)	(m)	(min)	( m )	
0.0	90.45	1.30	128.93	2.60			0.0	162.60	420.0	9810	
0.5	99.60		129.93				0.5	139.30	480.0	97.26	
1.0	99.80		132.27				1.0	136.80	540.0	96.46	
1.5	99.95		134.47				1.5	134.75	600.0	95.69	
2.0	100.22		135.97				2.0	134.12	720.0	94.39	
2.5	100.57		137.97		_		2.5	133.80	840.0	93.20	
3.0	102.07		139.00				3.0	133.12	960.0	92.11	
3.5	104.08		140.10				3.5	132.55	1080.0	90.45	
4.0	105.85		140.60				4.0	131.97			
4.5	107.27		141.55				4.5	131.62			
5.0	108.27		142.20				5.0	131.10			
6.0	109.35		143.38				6.0	130.15			
7.0	110.06		144.70				7.0	129.12			
8.0	110.72		148.70				8.0	128.30			
9.0	111.03		151.74				9.0	127.32			
10.0	111.20		154.30				10.0	126.60			
12.0	113.70		185.00				12.0	124.91			
14.0	118.70		160.90				14.0	123.45			
16.0	121.18		162.60				16.0	122.05			
18.0	121.70				•		18.0	120.75			
20.0	123.35						20.0	119.51			
22.0	123.85						22.0	118.35			
24.0	124.10					i	24.0	117.31			
26.0	124.95						26.0	116.23			
28.0	126.90						28.0	115.34			
30.0	128.93						30.0	114.45			
							35.0	112.10			
							40.0	110.70			
					_		45.0	109.23			
	!						50.0	107.90			
							55.0	106.75		1-	-
							60.0	105.69			
							90.0	104.70			
							120.0	103.77		7	
<u>'</u>							150.0	102.93			
							180.0	102.16			
						·	240.0	101.03		•	
_							300.0	99.99		<u> </u>	
			-				360.0	99.00			
					14-11	9					

### **Provisional Step Drawdown Test (3/3)**

Well Code:	D-06	Site code:	D-06	Pump on date/hour:	24/7/2006 3:15pm
Site name:	Wardasan	·		Pump off date/hour:	24/7/2006 4:48pm
District:	Ans		<del></del>	End of recovery hour:	25/7/2006 4:48pm
Governorate	Dahmar			S.W.L ( m ):	90.45

Contractor: <u>Mabkhout Al-Abraki</u> Hydrogeologist: <u>Abudul Salam Sallam</u>

Operator: Al Raboi

Duration	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	_
(min)	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
! `''''''	(m)	(I/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( m )
0.0	90.45	0.50	118.62.	1.00	134.14	1.50	155.67	2.00			162.00
0.5	116.00		118.80		134.72		156.12				146.35
1.0	116.17		118.93	-	153,27	,	157.75				138.60
1.5	116.20		118.95		153.73		158.47				135.25
2.0	116.27		119.00		136.15		159.66			İ	134.90
2.5	116.34		119.30		136.56		160.90				134.62
3.0	116.42		119.60		136.83		161.77				134.25
3.5	116.55		120.54		137.47		162.00				133.90
4.0	116.72		121.57		137.87						133.65
4.5	116.83		121.87		138.53						133.40
5.0	116.95		122.33		139.37						133.10
6.0	117.14		122.84		140.50						132.58
7.0	117.22		123.15		141.42		· i				132.03
8.0	117.30		123.20		142.00						131.52
9.0	117.30		123.30		142.50						131.00
10.0	117.40		123.50		143.70						130.53
12.0	117.54		125.93		149.43						129.56
14.0	117.62		127.20		146.33						128.69
16.0	118.15		127.80		147.75						127.75
18.0	118.35		128.18		148.54						126.90
20.0	118.60		129.00		149.15	·					126.00
22.0	118.55		132.18		149.97						125.15
24.0	118.50		133.12		152.73						124.30
26.0	118.55		133.67	_	153.80						123.58
28.0	118.60		133.90		154.40						122.80
30.0	118.62		134.14		155.67						122.00
60.0									İ		120.60
90.0				_			Ī				119.31
120.0											118.09
180.0											115.84
240.0						-			Ť		113.05
300.0								<u> </u>	-		111.38
420.0									1		108.17
540.0						-	_	<u> </u>	-		105.20
660.0											102.14
780.0											99.03
900.0											95.38
1200.0											92.10
1440.0											90.45
					14-120						

#### **Constant Dischrge Test**

Well Code: Site Code:

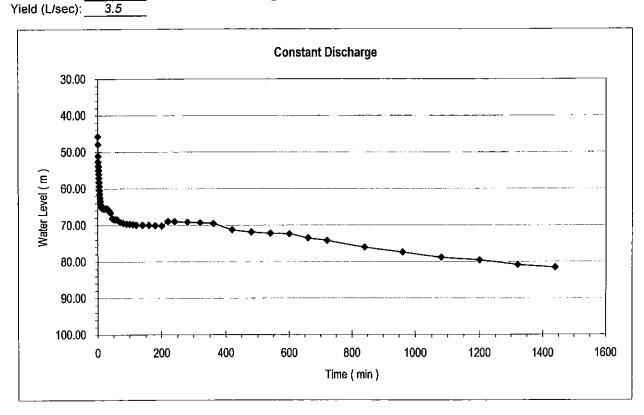
S.W.L. (m):

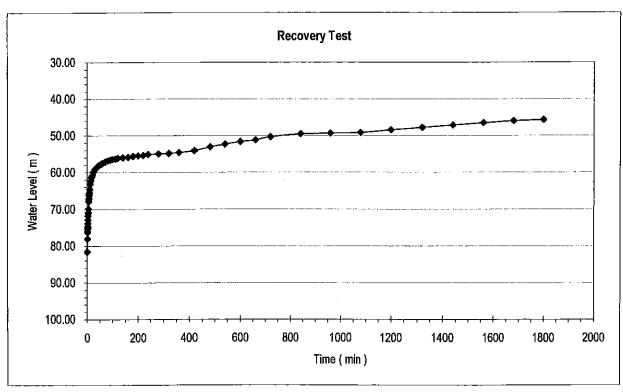
S-03

S-03 45.75 3.5

Site Name Al Kharaba

D.W.L (m): 81.64 Drawdown (m): 35.89





## **Pumping Test Report Sheet**

Well code: S-04	Site code: _	S-04	_ Site name:	. Qam	lan-Bait Al Najrani
District:					Sana'a
Target water source:	Existing projecte	ed deep w	ell_	Well depth:	145 m
Contractor:					
Hydrogeologist in charg			Sallam		
Operator:	Al R	aboi			
Date of start of the test:	:11/8/200	6	Date of end	of the test:	14/8/2006
Pump type:			Engine:		Iveco aifo
Pump installation depth					S.W.L.: <u>G.L 10.01 m</u>
Step drawdown test					
	1/8/2006 4:35pr	n Date/ho	our finished:	12/8/2006 1	11:35am Total hours: 19:00
Yield (I/sec) 1 <sup>st</sup> step 1					
Water level before start	<del></del>			<u> </u>	<u></u> ,
Water level after end of		-			
Water level after recove				Recovery h	ours <u>9:00</u>
					<del></del>
Constant discharge tes	<u>.t</u>				
Date/hour started: _12	2/8/2006 2:10pm	n_ Date/hc	our finished:	14/8/2006 2	2:10am_Total hours: <u>36:00</u>
Yield (I/sec) 5.60	<u> </u>				<del></del> :
Water level before start of	f the test (G.Lm)	: <u>10.</u> (	01		
Water level after end of	test (G.Lm):	10.9	92		
Water level after recove	ery (G.Lm):	10.(	01	Recovery ho	ours <u>12:00</u>
Drawdown (m): 0.9	1	_			
Revised by:					
Name :		-			
Date:					

### **Provisional Step Drawdown Test**

Well Code:	S-04	Site code:	S-04	Pump on date/hour:	11/8/2006 9:00am
Site name:	Qamlan-Bait	t Al Najrani		Pump off date/hour:	11/8/2006 11:30am
District:	Bani Matar		ı	End of recovery hour:	11/8/2006 11:56am
Governorate	Sana'a			S.W.L ( m ):	11.20

Contractor: Mabkhout Al-Abraki

Hydrogeologist: Abudul Salam Sallam

Operator: Al Raboi

Duration	1st	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	
Duration ( min )	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	W.L.	Yield	Recovery
(111111)	( m )	( l/sec)	(m)	(	(m)	( l/sec)	(m)	( l/sec)	(m)	( l/sec)	( m )
0.0	11.20	1.10	11.26	2.20	11.30	3.30	11.42	4.40	11.52	5.50	11.72
0.5	11.68		11.43		11.48	-	11.57		11.60		11.23
1.0	11.48		11.44		11.52		11.57		11.62		11.26
1.5	11.50		11.32		11.47		11.56		11.63		11.30
2.0	11.42		11.31		11.46		11.53		11.65		11.32
2.5	11.30		11.30		11.40		11.53		11.65		11.31
3.0	11.29		11.45		11.39		11.51		11.65		11.30
3.5	11.29		11.39		11.39		11.50		11.65		11.28
4.0	11.26		11.39		11.38		11.50		11.66		11.28
4.5	11.28		11.40		11.39		11.50		11.67		11.27
5.0	11.27		11.40		11.39		11.50		11.67		11.26
6.0	11.23		11.40		11.39		11.50		11.67		11.26
7.0	11.23		11.41		11.38		11.50		11.67		11.25
8.0	11.23		11.41		11.40	_	11.50		11.67		11.25
9.0	11.22		11.42		11.40		11.50		11.68		11.25
10.0	11.22		11.41		11.40		11.50		11.68		11.25
12.0	11.23		11.40	-	11.41		11.51		11.68		11.24
14.0	11.22		11.37		11.40		11.51		11.66		11.23
16.0	11.22		11.30		11.40		11.52		11.69		11.22
18.0	11.23		11.30		11.41		11.52	1	11.70		11.22
20.0	11.22		11.30		11.41		11.52		11.71		11.22
22.0	11.24		11.29		11.42		11.52		11.71		11.21
24.0	11.24	]	11.29		11.42		11.53	ĺ	11.71		11.21
26.0	11.25		11.30	:	11.42		11.53	_	11.72		11.20
28.0	11.26		11.30		11.42	_	11.52		11.72		
30.0	11.26		11.30		11.42		11.52		11.72		
40.0											
50.0											
60.0											
90.0									j		
120.0											
150.0											
180.0											
210.0											
225.0							_				
						_					
								$\neg \neg$			
					14-123		-	$\neg \neg$			

### **Step Drawdown Test (1/2)**

Well Code:	S-04	Site code:	S-04	,	Pump on date/hour:	11/8/2006 4:35pm
Site name:	Qamlan-Bait	Al Najrani			Pump off date/hour:	12/8/2006 2:35am
District: Bani Matar					End of recovery hour:	12/8/2006 11:35am
Governorate	Sana'a				S.W.L ( m ):	11.20

Contractor: Mabkhout Al-Abraki
Hydrogeologist: Abudul Salam Sallam

Operator: Al Raboi

Duration	1st :	Step	2nd	Step	3rd	Step	4th	Step	5th	Step	Decertor
( min )	W.L. ( m )	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	W.L. ( m )	Yield (I/sec)	W.L. (m)	Yield ( l/sec)	W.L. ( m )	Yield (I/sec)	Recovery (m)
0.0	11.20	1.40	11.28	2.80	11.44	4.20	11.66	5.60	11.90	7.00	12.09
0.5	11.47		11.39		11.49		11.66		11.90		11.76
1.0	11.45		11.36		11.50		11.67		11.91	_	11.58
1.5	11.44		11.38		11.50		11.68		11.91		11.56
2.0	11.34		11.38		11.51		11.70		11.92		11.54
2.5	11.28		11.38		11.52		11.70		11.92		11.52
3.0	11.29		11.39		11.53		11.71		11.93		11.51
3.5	11.28		11.39		11,54		11.71		11.93		11.51
4.0	11.27		11.39		11.53		11.74		11.93		11.50
4.5	11.27		11.39		11.54		11.74		11.93		11.50
5.0	11.25		11.40		11.55		11.75		11.94		11.49
6.0	11.27		11.40		11.56	_	11.75		11.98		11.49
7.0	11.28		11.38		11.57	1	11.76		11.99		11.47
8.0	11.28		11.38		11.56		11.76		11.99		11.47
9.0	11.28		11.39		11.57		11.77		11.99		11.46
10.0	11.25		11.39		11.56		11.77	-	11.99		11.45
12.0	11.25		11.39		11.57		11.77		12.00		11,44
14.0	11.25		11.39		11.58		11.82		12.01	<del></del>	11.44
16.0	11.27		11.40		11.58		11.83		12.01		11.42
18.0	11.27		11.40		11.58		11.84		12.01		11.42
20.0	11.26		11.40		11.58		11.84		12.01		11.41
25.0	11.27		11.40	İ	11.59		11.85		12.02		11.41
30.0	11.26		11.40		11.60		11.84		12.04		11.40
35.0	11.26		11.41		11.61		11.84		12.05	1	11.40
40.0	11.26		11.41		11.61		11.84	- 1	12.04		11.38
45.0	11.26		11.41		11.62		11.85		12.05		11.37
50.0	11.27		11.41	<del></del> f	11.62		11.85		12.05		11.37
55.0	11.27		11.41		11.62		11.85		12.06		11.36
60.0	11.27		11.42	-	11.63		11.85		12.06		11.36
70.0	11.27		11.42		11.63		11.85		12.07		11.35
80.0	11.28		11.43		11.64		11.86	_	12.07	1	11.35
90.0	11.28		11.43		11.64		11.87		12.08	<del></del>  -	11.34
100.0	11.28	-	11.44		11.65	1	11.88		12.08		11.34
110.0	11.28		11.44		11.65	- F	11.89		12.09	<del> </del>	11.33
120.0	11.28		11.44		11.66	1	11.90		12.09		11.33
150.0						_					11.32
180.0			-				_			·	11.31
210.0				. [							11.30
240.0					-						11.29
300.0			•								11.27

# Step Drawdown Test (2/2)

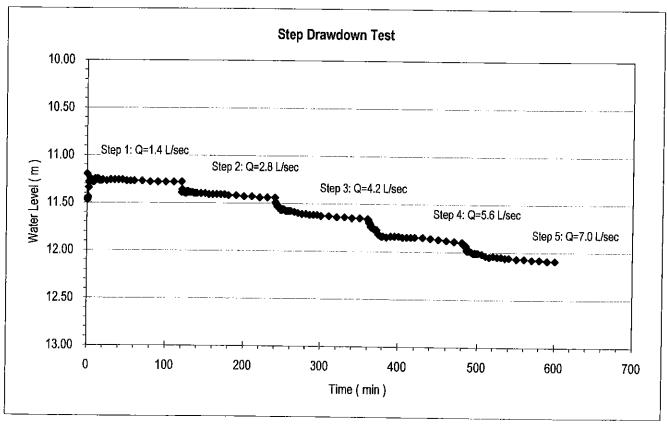
Well Code:	S-04	Site code:	S-04	Site name: Qamlan-Bait Al Najrani	
District:	Bani Matar	_		Governorate: Sana'a	

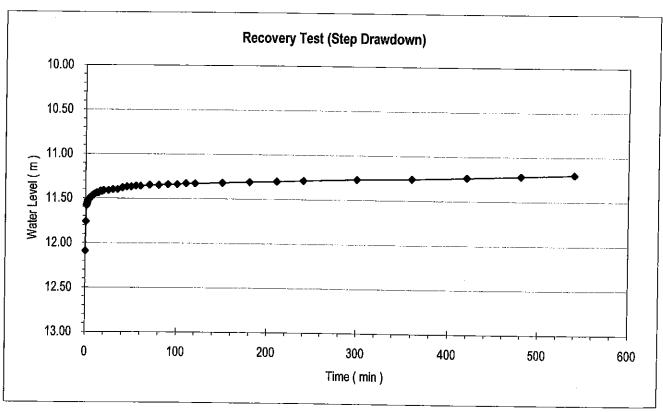
Duration		Step		Step	370	Step	4ti	n Step	5th	Step	Б.
( min )	W.L. ( m )	Yield (I/sec)	W.L. (m)	Yield ( l/sec)	W.L. (m)	Yield (I/sec)	W.L.	Yield	W.L. ( m )	Yield ( l/sec)	Recovery (m)
360.0	-				<del>  ` '</del>		<del>  ` /</del>	1	(/	( 000)	11.26
420.0					<del>                                     </del>			<del></del>			11.24
480.0								<del></del>		<del> </del>	11.22
540.0								<del></del>		-	11.20
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Well Code: S-04 Site Code: S-04

Site Name: Qamlan-Bait Al Najrani

S.W.L.; 11.20 m

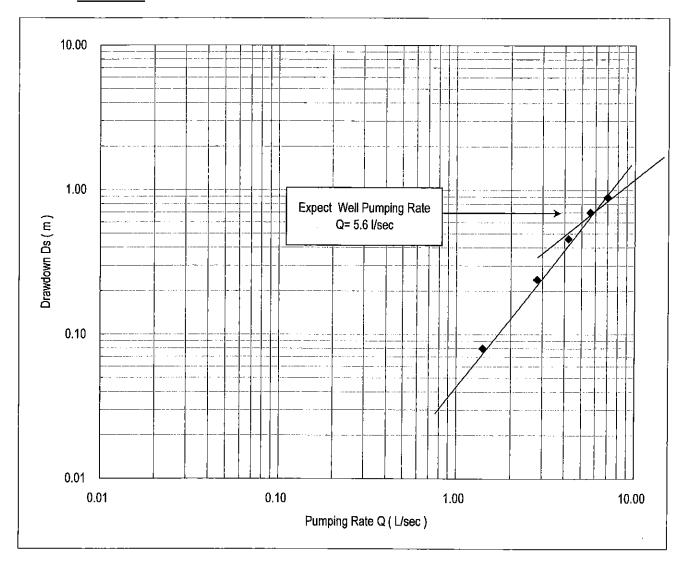




Well Code:\_\_**S-04** 

Site Name;Qamlan-Bait Al Najrani

Site Code: S-04 S.W.L.: 11.20 m



Step	Q(I/sec)	D.W.L.(m)	Ds(m)		
1	1.4	11.28	0.08		
2	2.8	11.44	0.24		
3	4.2	11.66	0.46		
4	5.6	11.90	0.70		
5	7.0	12.09	0.89		

## **Constant Discharge & Recorery Test (1/2)**

S-04 Well Code: Site code: S-04 Site name: Qamlan-Bait Al Najrani Pump on date/hour: 12/8/2006 2:10pm District: Bani Matar Pump off date/hour: 13/8/2006 2:10pm Governorate: Sana'a End of recovery hour: 14/8/2006 2:10am Contractor: Mabkhout Al-Abraki S.W.L ( m ): 11.20 Hydrogeologist: Abudul Salam Sallam D.W.L ( m ): 12.11

Yield (l/sec):

5.6

Operator:

Al Raboi

Duration	Const	ant Dischrge T	est		ery Test	Water Analysis	
( min )	Water level (m)	Drawdown (m)	Pumping rate (l/sec)	Water level (m)	Residual (m)	Conductivity ( µS/cm )	Remarks
0.0	11.20	0.00		12.11	0.91		
0.5	11.60	0.40		11.87	0.67		
1.0	11.54	0.34		11.78	0.58		
1.5	11.56	0.36		11.73	0.53		
2.0	11.63	0.43		11.80	0.60		
2.5	11.62	0.42		11.82	0.62		
3.0	11.65	0.45		11.79	0.59		
3.5	11.72	0.52		11.77	0.57		
4.0	11.70	0.50		11.75	0.55		
4.5	11.69	0.49		11.70	0.50		
5.0	11.70	0.50		11.68	0.48		
6.0	11.70	0.50		11.68	0.48		
7.0	11.70	0.50		11.68	0.48		
8.0	11.69	0.49		11.67	0.47		
9.0	11.69	0.49		11.67	0.47		
10.0	11.70	0.50		11.66	0.46		
12.0	11.70	0.50		11.66	0.46		
14.0	11.71	0.51		11.65	0.45		_
16.0	11.72	0.52		11.64	0.44	-	
18.0	11.72	0.52		11.64	0.44		
20.0	11.73	0.53		11.63	0.43	,	
25.0	11.75	0.55		11.63	0.43		<u>-</u> -
30.0	11.76	0.56		11.63	0.43		
35.0	11.77	0.57	-	11.62	0.42		
40.0	11.78	0.58		11.62	0.42		
45.0	11.79	0.59		11.61	0.41		
50.0	11.79	0.59	1	11.61	0.41		
55.0	11.80	0.60		11.60	0.40		
60.0	11.81	0.61		11.58	0.38	426	

# Constant Discharge & Recorery Test (2/2)

Well Code:	S-04	Site code: _	S-04	Site name: Qamlan-Bait Al Najrani	
District:	Bani Matar			Governorate: Sana'a	

Duration	Const	ant Dischrge T	est	Recove	ery Test	Water Analysis	
( min )	Water level	Drawdown	Pumping	Water level	Residual	Conductivity	Remarks
	(m)	(m)	rate (l/sec)	<u>(m)</u>	(m)	(µS/cm)	
70.0	11.82	0.62	<u> </u>	11.57	0.37		
80.0	11.83	0.63	·	11.56	0.36		
90.0	11.84	0.64		11.55	0.35		
100.0	11.85	0.65		11.54	0.34		
110.0	11.86	0.66		11.53	0.33		
120.0	11.87	0.67		11.52	0.32	426	
140.0	11.88	0.68		11.51	0.31		
160.0	11.90	0.70		11.50	0.30		
180.0	11.91	0.71		11.49	0.29	426	
200.0	11.92	0.72		11.48	0.28		
220.0	11.93	0.73		11.47	0.27	T	<del></del>
240.0	11.95	0.75		11.46	0.26		
280.0	11.96	0.76		11.42	0.22		
320.0	11.97	0.77		11.38	0.18		· · · · · ·
360.0	11.99	0.79		11.34	0.14		
420.0	12.00	0.80		11.30	0.10	426	
480.0	12.01	0.81		11.28	0.08		
540.0	12.04	0.84		11.22	0.02		
600.0	12.04	0.84		11.22	0.02	1	
660.0	12.04	0.84		11.22	0.02		<del></del> -
720.0	12.04	0.84		11.22	0.02	426	
840.0	12.05	0.85					
960.0	12.05	0.85		-		426	
1080.0	12.06	0.86			-	426	
1200.0	12.07	0.87			<del></del>		
1320.0	12.09	0.89		<del></del> .	<del>_</del>	426	
1440.0	12.11	0.91		<del>-  </del>			
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#### **Constant Dischrge Test**

Well Code:

S-04

Site Code: S-04 S.W.L. (m): 11.20

Site Name Qamlan-Bait Al Najrani

D.W.L (m): 12.11 Drawdown (m): 0.91

