

Ministry of Water Resources and Electricity
Information Centre
Groundwater and Wadis Database

Well Summary	Form No. 01
International Number: _____	
Map sheet: _____	
State\Proviance : _____	Mahalia\Council _____ Location: _____
Latitude (dd): _____	Longitude (dd): _____
Surface Level(m): _____	
Date Start: _____	Date Finish: _____
Drilling Company: _____ Owner: _____ Geologist: _____	

Basin Name _____ **Sub Basin Name** _____ **Aquifer Formation Name** _____

Well Type: Hand Dug Well BH HP Driven Driven Dug Well

Well Purpose: Production Observation Exploration

Well Use: Drinking Irrigation Industry Injection

Drilling method: Percussion Direct Rotary Hammer Reverse Rotary Conventional Rotary

Drilling Rig: _____

Development Method: Compressor Bailer Airlift

Well Condition: Success Dry Failure Abandon **Total Depth (m):** _____

SWL (m): _____ **DWL (m):** _____ **Yield m³/h:** _____ **Diameter (cm):** _____ **Cased Depth(m):** _____

PH: _____ **EC:** _____ **TDS:** _____ **Water Quality Condition:** Fit: Unfit

Basement: **Lithology:** **Pumping Test:** **Installed:** **Geophysical Log**

Remarks: _____

FOR COMPUTER USE

Name : _____

1st Record: _____ Last Record: _____ Date: _____

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Well Summary/ Aquifer Formations

Form No. 01/1

Formation Name	Type			Layer		
	Confined	Geniconfined	Unconfined	Top	Middle	Lower
Nubian group						
Abyad						
Awatip conglomerate						
Kababish						
Wadi Howar						
Wadi El Melik						
Hamrat El Waiz						
Tagabo						
Gilf Kabier						
Shendi						
Omdurman						
Madani						
Essari						
Hudi Chert						
UmRwaba						
Atashan						
Gezira						
Abaca						
Khaseeb						
Mansur						
Sawagir						
Abu Gin						
El Azaza						
Sharaf						
Abu Gabra						
Bentiu						
Aradeiba						

Formation Name	Type			Layer		
	Confined	Geniconfined	Unconfined	Top	Middle	Lower
Zarga						
Ghazal						
Baraka						
Amal						
Nayil						
Tendl						
Adok						
Zeraf						
Jimdi						
Lau						
Adar						
Yabus						
Samma						
Melut						
Galhak						
Al Renk						
Al Gaygar						
Karkur Talh						
Tadard sandstone						
Ennedi						
Naw						
Laguia						
Wadi malik						
Umm Ras						
Basement						
Volcanic						
Alluvium						
Nile deposit						

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Lithological Log

Form No. 02

International Number: _____	Map sheet: _____
State\Proviance : _____ Mahalia\Council _____	Location: _____
Latitude (dd): _____	Longitude (dd): _____ Date: _____
Total Depth(m): _____	Geologist: _____

Basin Name _____ **Sub Basin Name** _____ **Aquifer Formation Name** _____

Layer No.	Top (m)	Bottom (m)	1st Noun	2nd Noun	Grain		Color Code	Description
					Size (mm)	Shape		
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

FOR COMPUTER USE

Name : _____

1st Record: _____

Last Record: _____

Date: _____

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Well Desgin

Form No. 03

International Number: _____	Map sheet: _____	State\Proviance : _____	Mahalia\Council _____
Location: _____	Latitude (dd): _____	Longitude (dd): _____	Total Depth(m): _____
Basin: _____	Sub Basin _____	Aquifer Formation Name _____	Geologist: _____
			Date: _____

Section Number	Top (m)	Bottom (m)	Diameter (cm)		Casing		Thikness (mm)	Slot Size (mm)	% Open Area	Annular Content	Gravel Size (mm)	Fiter	Remarks
			Well	Casing	Type	Material							
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

FOR COMPUTER USE

Name :

1st Record: _____ Last Record: _____ Date: _____

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Water Quality	Form No. 04
International Number: _____	Map sheet: _____
State\Proviance : _____ Mahalia\Council _____	Location: _____
Latitude (dd): _____ Longitude (dd): _____	Date: _____
Sample Depth (m) _____ Sample Collector _____	Sample Date _____
Analysis Date _____	Analyst _____ Remarks _____

Group	Parameter	Units	Method	Result	Sudanese Standard
Physical/Chemical					
	Electrical Conductance (EC)	μS/cm	Conduivity Meter		
	Color (TCU)	TCU	Spectrometry		
	Taste	NA			
	Odour	NA			
	Temperature (T)	°C	Mercury Thermometer		
	Dissolved Oxygen (O ₂)	mg O ₂ /L	Dissolve oxygen meter		
	Alkalinity Total (CaHCO ₃)	mg CaCO ₃ / L	Colorimetric Titration		
	Alkalinity Phenolphthalein (CO ₃)	mg/L	Potentiometric Titration		
	Ex. Alk (Na ₂ CO ₃)	mg/L			
	pH	pH	pH Meter (Electrometric) at 25°C		
	Turbidity (TURB)	NTU	Turbidity Meter		
	Hydrogen Sulfate (HS)	mg/L	Spectrometry		
	Total Hardness (TH)	mg/L	EDTA Titration		
	Total Dissolve	mg/L	Evaporation by		
	Solid (TDS)		Steam		
	Suspended Solids 105°C (SS)	mg/L	Spectrometer		
Nutrients					
	Nitrite (NO ₂)	mg/L	spectrometry		
	Nitrate (NO ₃)	mg/L	spectrometry		
	Amonia (NH ₄)	mg/L	spectrometry		
	Phosphorus Total (PHO ₄)	mg/L	spectrometry		
	Silica - Reactive	mg/L	spectrometry		

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Water Quality

Form 04 Continue

Group	Parameter	Unit	Method	Result	Sudanese Standard
Organic Matter					
	Chemical Oxygen Demand (COD)	mg/L	K ₂ CrO ₇ Digestion		
	Biochemical Oxygen Demand (BOD)	mg/L	5-days Dilution		
	Chlorophyll A	mg/L	Colorimetric		
	Humic Acid	mg/L	UV Spectro photometric		
	Carbon Organic Dissolved	mg/L	Colorimetric		
Organic Contamenants					
	Grease & oil (G&O)	mg/L	Petroleum Ether Extraction		
	DDT - Total	µg/L	Gas Chromatography		
	Aldrin	µg/L	Gas Chromatography		
	Beta - Endosulphan	µg/L	Gas Chromatography		
	Hydrocarbons - Total	µg/L	IR Intensity Spectroscopy		
	Polyaromatic Hydrocarbons	µg/L	HPLC - Fluorometry		
Major Ions					
Cations					
	Calcium -Dissolved (Ca)	mg/L	EDTA Titration		
	Sodium - Dissolved (Na)	mg/L	Flame Photometry		
	Magnesium Dissolved (Mg)	mg/L	EDTA Titration		
	Potassium - Dissolved (K)	mg/L	Flame Photometry		
Anions					
	Chloride - Dissolved (CL)	mg/L	Silver nitrate Titration		
	Bicarbonate (HCO ₃)	mg/L	Titration		
	Sulphate (SO ₄)	mg/L	Spectrophotometer		
	Fluride	mg/L	Spectrophotometer		
Metals					
	Iron - Total (Fe)	mg/L	Spectrophotometer		
	Arsenic - Dissolved (As)	mg/L	AAS		
	Lead -Dissolved (Pb)	mg/L	AAS		
	Cadmium (Cd)	mg/L	AAS		
	Chromium (Cr)	mg/L	AAS		
	Mercury (Hg)	mg/L	AAS		
	Manganese -Total (Mn)	mg/L	AAS Direct Aspiration		
	Bromine -Total (Br)	mg/L	Colorimeter		
	Bromide				
	Selenium - Dissolved (Se)	mg/L	AAS - Flameless		
	Boron - Total (B)	mg/L	ICP MS		
	Aluminum - Total (AL)	mg/L	ICP MS or AAS - Direct Aspiration		
	Nickel - Total (NI)	mg/L	AAS - Direct Aspiration		
	Copper - Total (Cu)	mg/L	AAS - Direct Aspiration		
	Zinc - Total (Zn)	mg/L	AAS - Direct Aspiration		

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Water Quality

Form 04 Continue

Group	Parameter	Unit	Method	Result	Sudanese Standard
Microbiology					
	Coliform Total	No/100 ml	Membrane Filtration		
	Faecal Coliform Bacteria (FC)	No/100 ml	Membrane Filtration		
	Escherichia Coliform (EC)	No/100 ml	Membrane Filtration		
Hydrological & Sampling Variables					
	Instantaneous Discharge	m ³ /s	Gauge Height		
	Temperature - Air	C	C		
Environmental Isotopes					
	O ¹⁸	0/00			
	H ²	0/00			
	H ³	TU			
	¹⁵ NO ₃	0/00			
	C ¹⁴	PMC			

FOR COMPUTER USE

Name : _____

1st Record: _____ Last Record: _____ Date: _____

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Aquifer and Pumping Test Result		Form 05/1
International Number: _____		Map sheet: _____
State\Proviance : _____	Mahalia\Council _____	Location: _____
Latitude (dd): _____	Longitude (dd): _____	Date: _____
Total Depth(m): _____	Geologist: _____	
Basin Name: _____	Sub Basin Name _____	
Catchment Name: _____	Sub Catchement Name: _____	
Starting Date _____	StartingTime _____	Finishing Date _____
Analysis Method:	Theis <input type="checkbox"/> Jacob <input type="checkbox"/> Hantush <input type="checkbox"/> Thiem <input type="checkbox"/> Papa Duplus <input type="checkbox"/> Dglee <input type="checkbox"/> Cooper <input type="checkbox"/> Walton <input type="checkbox"/> Large Diameter <input type="checkbox"/>	
Pumping Test Type	Constant Aquifer <input type="checkbox"/> Recovery <input type="checkbox"/> Step Test <input type="checkbox"/> Well Test <input type="checkbox"/>	
Solution Type	Curve <input type="checkbox"/> Straight Line <input type="checkbox"/>	Analyse Type Unsteady <input type="checkbox"/> Steady <input type="checkbox"/>
Aquifer Type	Confined <input type="checkbox"/> Semiconfined <input type="checkbox"/> Unconfined <input type="checkbox"/>	Aquifer Medium _____
Aquifer Formations _____	Aquifer Penetration Full <input type="checkbox"/> Partial <input type="checkbox"/>	
Aquifer Thickness _____	Surface level (m) _____	
Depth to water S.W.L (m) _____ DrawDown (m) _____ Discharge (m ³ /h) _____ Stortivity _____ Specifec Yield _____ Hydrulic Conductivity (m/day) _____	Transmissivity (m ² / Day) _____ Specifec Capacity (m ² / Day) _____ Specifec Drawdown (m ³ /m/ Day) _____ Well Storage (m ² /day) _____ Well Loss _____ Aquifer Loss _____	

FOR COMPUTER USE

Name : _____

1st Record: _____ Last Record: _____

Date _____

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Well Test Data

Form: 05/2

Time hh:mm	minutes	Depth to Water Level (m)	DrawDown (m)	Discharge (m ³ /h)	Remarks

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Constant Aquifer Test Data

Form 05/3

Pumping Well

Peizometer Well

Distance from Pumping Well: _____

International Number: _____

Depth to Water (m) _____ Latitude (dd) _____ Longitude (dd) _____

Time (hh:mm)	Minutes	Depth To Water (m)	Drawdown (m)	Discharge (m ³ /h)	Remarks

Email: icgww_15@hotmail.com
P.O Box 381, Khartoum, Sudan

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Email: icgww_15@hotmail.com
P.O Box 381, Khartoum, Sudan

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Step Drawdown Test Data

Form 05/5

Step Number	Time (hh : mm)	Depth to Water (m)	Drawdown (m)	Discharge (m ³ /h)

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Groundwater Monitoring

Form 06/1

International Number: _____ Latitude (dd) _____

Longitude (dd) _____

Basin Name: _____ Sub Basin _____ Aquifer Formation _____

Date	Depth to Water (m)	Temperature C	Remarks

FOR COMPUTER USE

Name : _____ Date: _____

1st Record: _____ Last Record: _____

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Resistivity Results		Form 07/1
State\Province : _____		Location: _____
Basin Name _____	Sub Basin Name _____	
Catchment Name _____	Subcatchment Name _____	
Geologist: _____	Latitude (dd): _____	
Date: _____	Longitude (dd): _____	
Resistivity Technique	VES <input type="checkbox"/>	HEP <input type="checkbox"/>
	Bearing: _____	
VES No. _____	HEP No. _____	Elevation (m) _____

Number of Layers: _____	HEP Thickness _____
VES Curve Type _____	HEP Spacing AB/2 _____
VES Profile Number _____	HEP Spacing MN/2 _____
Int. Thicknes _____	HEP K _____
Int. Depth (m) _____	Station Interval (m) _____
Int. Aquifer Top (m) _____	Near Well Int. Number _____
Int. Aquifer Bottom (m) _____	Near Well Depth (m) _____
Int. Basement Rock Depth (m) _____	Well Depth (m) _____
IntNr of Wells Drilled _____	Geometric Feature _____
Recommended _____	Geometric Factor _____

Report Title _____

Report Author _____

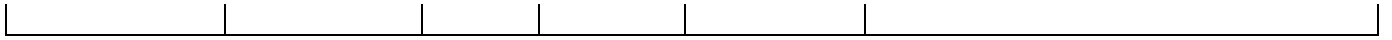
Report Date _____

FOR COMPUTER USE

Name : _____ Date: _____

1st Record: _____ Last Record: _____

Ministry of Water Resources and Electricity
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Hafirs and Dams		Form: 09
International Number: _____		
State _____	Mahalia _____	Location _____
Latitude (dd) _____	Longitude (dd) _____	Elevation (m) _____
Type of Source Hafir <input type="checkbox"/> Dam <input type="checkbox"/>		
Date Start _____		Date Finish _____
Catchment Name _____		Sub Catchment Name _____
Basin Name _____		Sub Basin _____

Geometric Feature: Length (m) _____			Depth (m) _____			Width (m) _____		
Construction Capacity (m ³) _____								
Inlet Type: _____								
Filter Type: Slow Sand Filter <input type="checkbox"/>			Rapid Sand Filter <input type="checkbox"/>					
OutLet Type: PVC, PIPE <input type="checkbox"/>			IRON, PIPE <input type="checkbox"/>					
Distribution System None <input type="checkbox"/>			Hand Pump <input type="checkbox"/>		Open Wel <input type="checkbox"/>		Motorized Pump <input type="checkbox"/>	
Water Availability (in Months) _____								

Monitoring Information				
Date	Length (m)	Depth (m)	Width (m)	Current Capacity (m ³)

FOR COMPUTER USE

Name : _____ Date: _____

1st Record: _____ Last Record: _____

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Rainfall		Form: 10
State	Mahalia/ Council	Location
Date of Establishments		
Latitude (dd)	Longitude (dd)	Elevation (m)
Catchment Name	Sub Catchment Name	
Basin Name	Sub BasinName	

Date	Days/ ordinary	Minutes	Total Rainfall (mm)	Rainfall Intensity (mm/m)

FOR COMPUTER USE
Name : _____ Date: _____

1st Record: _____ Last Record: _____

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Hydrometric Data										Form: 11
Catchment Name _____			Sub Catchment Name _____							
State _____		Locality _____				Location _____				
Date of Establishments _____										
Latitude (dd) _____			Longitude (dd) _____				Elevation (m) _____			

Date	Duration			Gradients %	Velocity (m/s)	Cross Section Area (m ²)	Wetted priemeter (km)	Water Level (m)	Hydro Radious	Discharge Rate (m ³ /s)	Volume (m ³)
	Day	Hours	Minutes								

FOR COMPUTER USE

Name : _____ Date: _____

1st Record: _____ Last Record: _____

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Climate Data			Form: 12
Catchment Name	Sub Catchment Name		
State	Locality	Location	
Date of Establishments			
Latitude (dd)	Longitude (dd)		
Elevation (m)			

Date	Temperature ©		Humidity %	Evaporation (mm)	Wind		Air Pressure	Sun Shine hours
	MIN	MAX			Direction	Speed		

FOR COMPUTER USE
 Name : _____ Date: _____

1st Record: _____ Last Record: _____