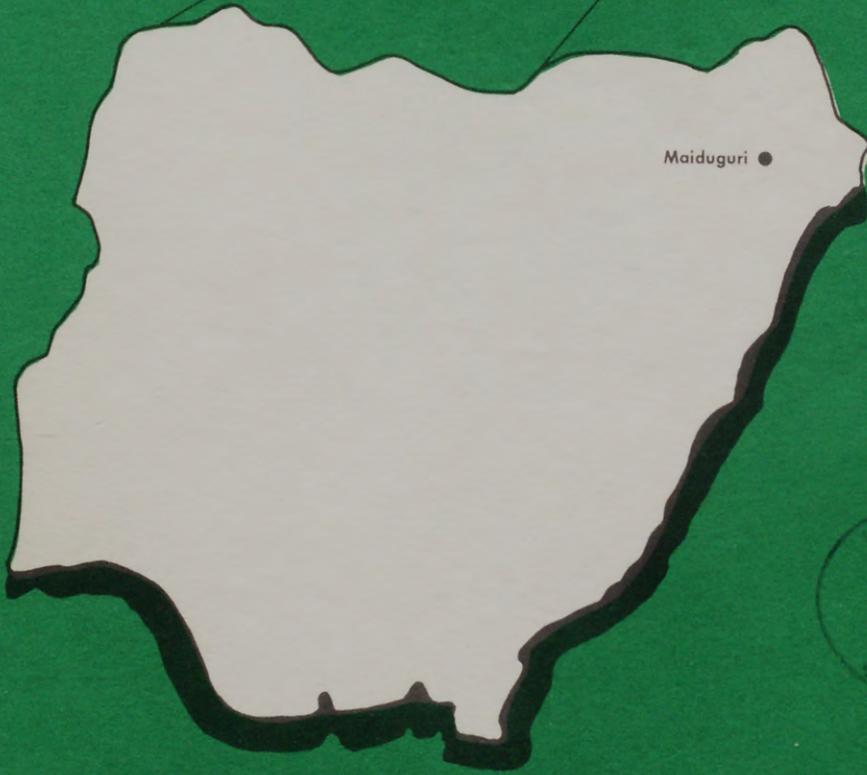
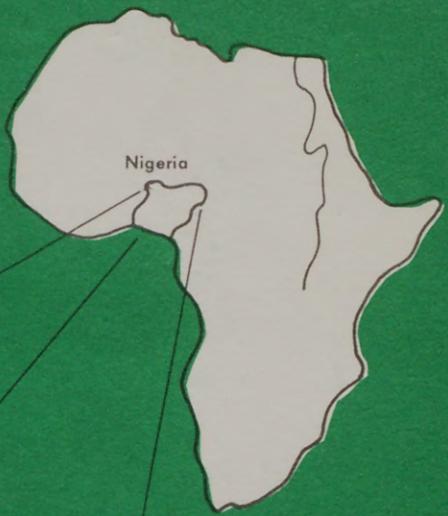


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WATER LEVELS AND ARTESIAN PRESSURES
IN THE CHAD BASIN
OF NORTHEASTERN NIGERIA, 1963-68

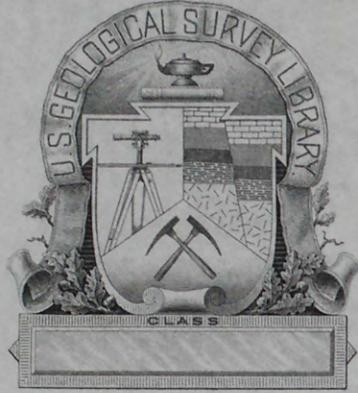


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Prepared by the United States Geological Survey
in cooperation with the
Government of Nigeria
under the auspices of the
United States Agency for International Development

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Water Levels and Artesian Pressures in
the Chad Basin of Northeastern Nigeria, 1963-68

by

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and

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U.S. Geological Survey

238407

Open File Report

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1969



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Abstract

This report presents records of water levels and artesian pressures collected during 1963-68 on an observational network of 116 dug wells and boreholes (drilled wells) in the Chad Basin of northeastern Nigeria. The Chad Basin is underlain by the Chad Formation, a series of fluvio-lacustrine sediments which attain a thickness of 1,500 feet or more in Nigeria. Three water-bearing zones, designated Upper, Middle and Lower, have been identified in the Chad Formation of Nigeria. The Upper Zone aquifer, which contains water under both unconfined and confined conditions, provides the principal source of water to dug wells for domestic and village water supply. The Middle Zone aquifer is tapped by numerous deep boreholes (drilled wells) which provide water by artesian flow in more than 13,000 square miles of Nigeria north and east of Maiduguri. The Lower Zone, which is also confined has only been identified thus far (1969) in the vicinity of Maiduguri.

Introduction

The principal purpose of this report is to present data on ground-water levels and artesian pressures collected in the course of moderately intensive ground-water investigations in the Nigerian sector of the Chad Basin during 1963-68. A brief description of the geographic and hydrogeologic framework of the region is also presented for background information.

The observation well network, was established in 1963 by the Geological Survey of Nigeria (GSN) and the U.S. Geological Survey (USGS) as part of a cooperative agreement under the auspices of the United States Agency for International Development (US AID). Prior to this time, some measurements of artesian pressure had been collected by the GSN (Barber, 1965). Between 1963 and 1968, the observations were made by GSN personnel in cooperation with USGS/US AID teams working on investigations of the ground-water geology and hydrology of the basin, and with assistance provided by personnel of the U.S. Peace Corps. With the completion of the USGS/US AID investigations program in 1968, a continuing program of observations was planned by the GSN.

This report presents a compilation of all data collected prior to July 1968. While the projected flow life and decrease in pressure in the artesian system made by Miller and others (1968, p. 30-34) have been observed to be accurate, a

longer-term continuous record must be obtained before any extensive analysis can be made of the hydrologic parameters of the basin.

Personnel involved in the present project included R. E. Miller, D. A. Phoenix, R. H. Johnston, G. C. Tibbitts, Jr., geologists, and R. T. Kiser, chemist, of USGS/US AID; J.A.I. Olowu, J. U. Uzoma, and M. Offodile, geologists, M. Irioke and M. Meshela, technical assistants, of GSN; and S. W. Carmalt, geologist, U.S. Peace Corps (assigned to the GSN).

Previous investigations and reports on the ground-water geology and hydrology of the region have been made by Raeburn and Jones (1934), Barber and Jones (1960), Barber (1965), Miller and others (1965), and Miller and others (1968). A report dealing with the chemistry of the ground water as related to well casing corrosion problems was prepared by Clarke (1965). R. T. Kiser (1969) presented 116 chemical analyses of the surface and ground waters of the region and discussed the general implications of chemical quality with respect to potential uses of the waters. Streamflow records and related water quality and sediment analyses for gaging stations in the Yobe River system, which is a contributory to Lake Chad, were presented by B. E. Colson (1969).

In recent years the four countries bordering Lake Chad, Niger, Nigeria, Cameroun and Chad, have established the Chad Basin Commission to share information and coordinate the

economic and social development of the entire basin. Both the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the United Nations Food and Agriculture Organization (FAO) have provided expert teams, including ground-water hydrologists to further the objectives of the Commission.

Messrs. C. Geishler and P. Schroder of UNESCO and P. Schroeter of FAO, all ground-water hydrologists, have been helpful in stimulating discussions concerning both ground-water hydrology and logistic problems of the region. The personnel of Balakhany (Chad) Ltd. have been most generous with their time and assistance. The writers also wish to acknowledge the help received from a number of persons in the USGS in the preparation of the computer compilation of data with special acknowledgement to Mr. L. G. Moore.

Geographic Features

The region covered by this report includes some 25,000 square miles of the Chad Basin (fig. 1) in northeastern Nigeria. This basin, the largest interior drainage basin in Africa, covers a total of about 600,000 square miles in the south-central Sahara and the adjacent Sudan belt to the south. Lake Chad, in the northeast sector of the report area, forms a natural catchment for the runoff from most of the southern, wetter part of the basin. Lake Chad, however, does not lie in the lowest part of the basin. In extremely wet years or after a series of wet years the lake overflows by way of the Bahr El Ghazal toward the Bodélé depression, which is the point of lowest altitude in the basin. More detailed descriptions of the geographic setting of the report area are given by Barber (1965) and the U.S. Bureau of Reclamation (1968).

Maiduguri, a city of more than 100,000 people, is the capital of Bornu Province and the chief cultural and commercial center in the region. Bornu and Dikwa Emirates (Divisions) are both in Bornu Province. Divisions are further subdivided into districts.

For the most part, the region described in the report is a broad, featureless plain sloping very gently (about 2 feet per mile) northeast toward Lake Chad. The regularity of the landscape is broken by stabilized sand dunes in the north and low sandy hills that become more numerous away from the lake.

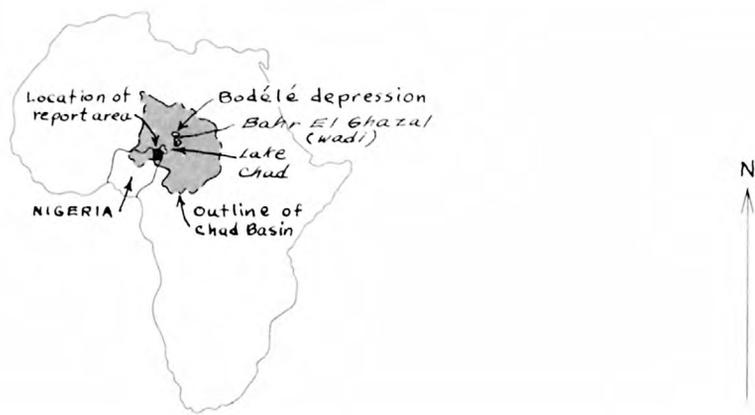
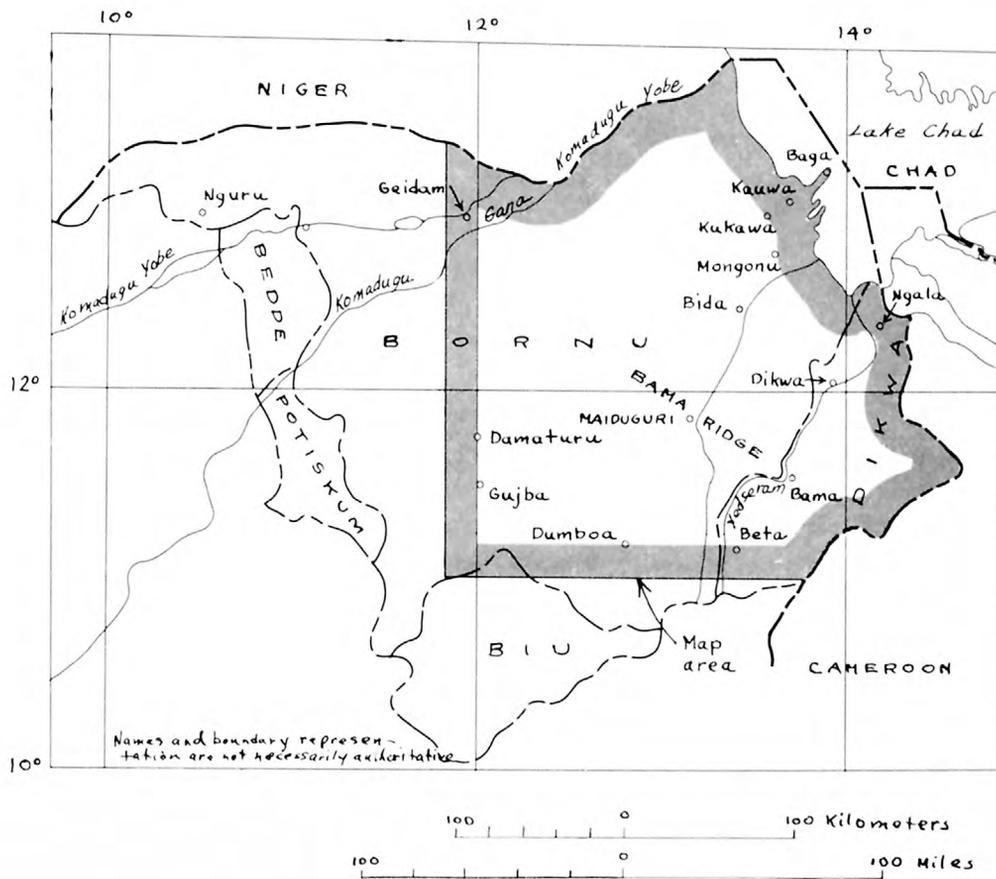


Figure 1--Location of Chad Basin and Bornu and Dikwa Emirates (after Miller and others, 1968)

Bama Ridge, a strand line of an ancient Lake Chad, extends from Bama northwest to Maiduguri and beyond. A more complete description of the topography is given by Grove and Pullen (1963).

The level datum is not consistent within the area and thus reported altitudes vary in accuracy. Maiduguri lies at altitude of about 1,100 feet above sea level based on the spirit-level line for the railroad, which is probably reasonably accurate. Topographic and route surveys have also been made in conjunction with highway construction, but away from the highways little has been done. A topographic map prepared by W. Barber (1965) from barometric observations was used to determine the land-surface altitudes at observation wells. Whereas a comparison of this map with the railway survey and other data shows that the altitudes on the southern part of this map may be at least 50 feet too low, the map, nevertheless, provides the best overall topographic information available. Base maps for future ground-water investigations will no doubt be improved upon the completion of detailed topographic mapping currently in progress.

The climate of the Nigerian sector of the Chad Basin is characterized by a long dry season from October to May and a short wet season from June to September. The dry season, moreover, has three distinct phases. October to December and March to May are the "little" and "big" hot seasons, respectively, marked by clear, hot days and warm nights. During January and February, the winds (harmattan) blow from the north, bringing cooler weather and considerable dust.

Table 1.--Monthly and Annual Precipitation, in inches, 1963-68, at Maiduguri,
Nigeria (Source of data: Nigeria Meteorological Survey)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1963	0.00	0.00	0.00	2.33	0.74	2.81	5.62	11.89	2.36	1.38	0.00	0.00	27.13
1964	.00	.00	TR	.39	.18	2.98	6.63	5.51	2.06	.05	.	.00	17.80
1965	.00	.00	.05	.36	.32	2.82	6.70	9.63	2.89	TR	.00	.00	22.77
1966	.00	.00	.00	.59	1.78	1.99	3.20	10.74	6.17	--	.00	.00	24.47 ^{a)}
[∞] 1967	.00	.00	TR	1.60	0.37	4.40	5.91	18.22	3.34	TR	.00	.00	33.84
1968	.00	.00	.00	2.30	0.98	3.13	8.01	6.90	3.24	.00	.00	.00	24.56
Average ^{b)}	0.00	0.00	0.01	1.40	0.52	3.23	6.57	10.43	2.78	0.29	0.00	0.00	25.22

TR Trace

a) No records available September 29 to October 31, 1966. Annual is the total of records available.

b) Records for 1966 are not included in average.

The monthly distribution of rainfall recorded at Maiduguri for 1963-68 is shown in table 1. Wide variation in annual rainfall from year to year is evident, but an accurate determination of the average rainfall requires records of greater length. Monthly rainfall at 12 locations throughout Bornu and Dikwa Emirates is illustrated in figure 2. It is evident that rainfall decreases from south to north in the part of the Chad Basin covered by the investigation.

The diurnal temperature fluctuation is considerable. During the months of the harmattan, January and February, the range is often greater than 40° F.

Evaporation data for the area are limited. Average monthly evaporation at Maiduguri is shown in table 2. The average annual figure for Maiduguri is 154.7 inches per year (Nigerian Meteorological Survey, written commun., 1969).

Table 2.--Average Monthly Evaporation in Inches, Maiduguri, Nigeria (Source of data: Meteorological Survey of Nigeria, Data for Class 'A' pan; 47 1/2 in. diam. x 10 in. deep, 6-year average, 1963-68)

Jan.	12.6	May	19.6	Sept.	7.4
Feb.	15.6	June	11.8	Oct.	9.9
Mar.	22.0	July	8.5	Nov.	10.0
Apr.	20.7	Aug.	6.5	Dec.	11.2

A more exhaustive description of the climate is available in the U.S. Bureau of Reclamation report (1968).

Rivers and streams in the report area are seasonal in nature. The Yobe River (Komadugu Yobe) system drains the northern and western part of the report area, flowing generally northeast to empty into Lake Chad. This river forms the northern limit of the report area and also the Nigerian frontier with Niger for more than 100 miles west of Lake Chad (fig. 1).

To the southeast of the Yobe River basin, a number of rivers flow north toward Lake Chad. Some of these (for example, the Yedseram, which flows through Bama) discharge directly into the lake, while the flow of others (for example, the Ngadda, which flows through Maiduguri) spreads out on the old lake bed after crossing the Bama Ridge and disappears from surface flow.

On a large part of the Chad Basin the rain soaks into the sand with a little surface runoff collecting locally in clay flats, or tapkis. Especially in the western part of this area, these minor depressions are occasionally fed by small streams draining a few square miles.

A more detailed description of the drainage system, especially the larger rivers, is given by Miller and others (1968) and Colson (1969).

Hydrogeology

The Chad Basin is underlain by fluvio-lacustrine sediments of the Chad Formation which attains a thickness of 1,500 feet or more in Nigeria. These sediments, largely Pleistocene and perhaps Pliocene in age, were deposited in a structural depression in and adjacent to an ancestral Lake Chad (Barber, 1965). Most of the formation consists of unconsolidated and partly consolidated clays interbedded with layers of sand, gravel, and sandy clay. The geology of the Chad Basin in Nigeria is described in detail by Barber and Jones (1960) and by Barber (1965).

Three major water-bearing zones, designated the Upper, Middle, and Lower, were identified in the Chad Formation by Barber and Jones (1960). In each of these zones, the water-bearing strata are partially connected or separated sand lenses of varying thickness and extent, hence, the common usage of Upper, Middle or Lower zone aquifer is not strictly accurate, although the concept proves useful in practice.

The Upper Zone aquifer defined by Barber and Jones (1960)^{1/} was limited to the sub-artesian aquifer beneath Maiduguri and did not include the surficial sandy deposits which provide water to numerous dug wells in the region. The Upper Zone

^{1/} Following convention in use for the region, artesian is restricted to conditions where the head is positive relative to land surface. Sub-artesian refers to confined water which rises in a well or borehole to a point below land surface. The terms, well and borehole, refer, respectively, to a dug well and to a drilled well.

aquifer was re-defined by Miller and others (1965) to embrace both the surficial sandy deposits and the deeper sub-artesian aquifer. In the context of the broadened definition ground water occurs in the Upper Zone aquifer under both unconfined and confined conditions. The sub-artesian conditions encountered in the vicinity of Maiduguri at depths of approximately 100 to 300 feet are probably a result of the high ratio of horizontal to vertical permeability caused by the limited thickness of highly permeable beds. The chemical quality and potentiometric levels in wells and boreholes tapping ground water in several Upper Zone horizons compare favorably.

The Middle Zone aquifer is composed of partially interconnected sand lenses. This is indicated by the hydraulic separation of the boreholes at Dalori (Miller and others, p. 22-23). Also separation of several Middle Zone water-bearing sands by clay beds, some more than 100 feet thick, has been observed in boreholes southwest of Baga. Except perhaps near the southern and western borders of the report area, the Middle Zone aquifer is hydraulically separated from the Upper Zone by 200 to 1,000 feet of gray or blue-gray clay. Water occurs under confined conditions throughout the Middle Zone aquifer, and under artesian conditions for more than 13,000 square miles of Nigeria north and east of Maiduguri. The line separating flowing from non-flowing boreholes runs generally northwest-southeast and passes through Maiduguri. Barber (1965) and

and Miller and others (1968) have discussed the geology and hydrology of the Middle Zone in detail.

The Lower Zone aquifer is known only in the Maiduguri area. In a few boreholes in the vicinity of Maiduguri thin sand beds have been encountered which may represent the Lower Zone (Miller and others, 1968, p. 34; and observations by the writers). The great depth to the Lower Zone aquifer together with its unknown extent make development for water supply uneconomical for water supply in the immediate future.

References

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_____ 1968, Ground-Water Hydrology of the Chad Basin in Bornu
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8 figs.

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2 pls., 4 figs.

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Office of the Chief Engineer, Denver, Colo.

Observational Network

The observational network of 116 wells and boreholes described in this report was divided into five parts and a route (called "run" in following tables) established for each, for logistic purposes. Each run, named after a large town near the outer end of the route, was made once each month. At each visit the water level was measured in each well or borehole, and all recorders were serviced and the charts changed. GSN technicians trained by the USGS/US AID project personnel have made most of the runs. When work loads permitted, they were accompanied by a hydrogeologist.

In following presentation of records, the wells and boreholes are grouped according to the five runs: Bama, Dumboa, Geidam, Kauwa, and Ngala. A listing of the wells and boreholes, in the order in which they were usually visited in each run, precedes the water level data. An asterisk in this list indicates that a complete chemical analysis is available in Kiser (1968). The list is further annotated with information not found in the descriptive headings. The location of all the observation wells and boreholes is shown in figure 3.

The tables of well records comprise a description of the well or borehole followed by water levels and (or) artesian pressures and dates of measurement. The description gives the location, construction data, reference altitude, extremes in water levels or artesian pressures and period of record for

each site. Hydrographs for 3 dug wells and 4 boreholes given in figures 4 and 5, respectively, present typical examples of changes in potentiometric surface in the Upper and Middle Zone during 1963-68. It is not to be inferred that these hydrographs necessarily represent hydrologic conditions at other locations.

The water level in a dug well may be affected by heavy daily or seasonal use of the well, as for instance, a water level measured on a market day may be abnormally low. Although no record is available on the amount of water withdrawn from a dug well, the effect on the water level in a well from exceptional use should be kept in mind.

Separate numbering systems are used for dug wells and boreholes.

Dug wells: Those constructed by the Ministry of Works (MOW), are numbered serially, followed by a slash and the year of construction (for example, 480/59). Other dug wells are not numbered in the field and are identified by the symbols NN.

Boreholes: The Geological Survey of Nigeria assigns each borehole a serial number (for example, GSN 2266). Frequently, a local serial number also will be used (for example, Bama 7). In addition some wells drilled as part of the GSN-USGS/US AID investigations are numbered with a project number (for example, USGS 2A).

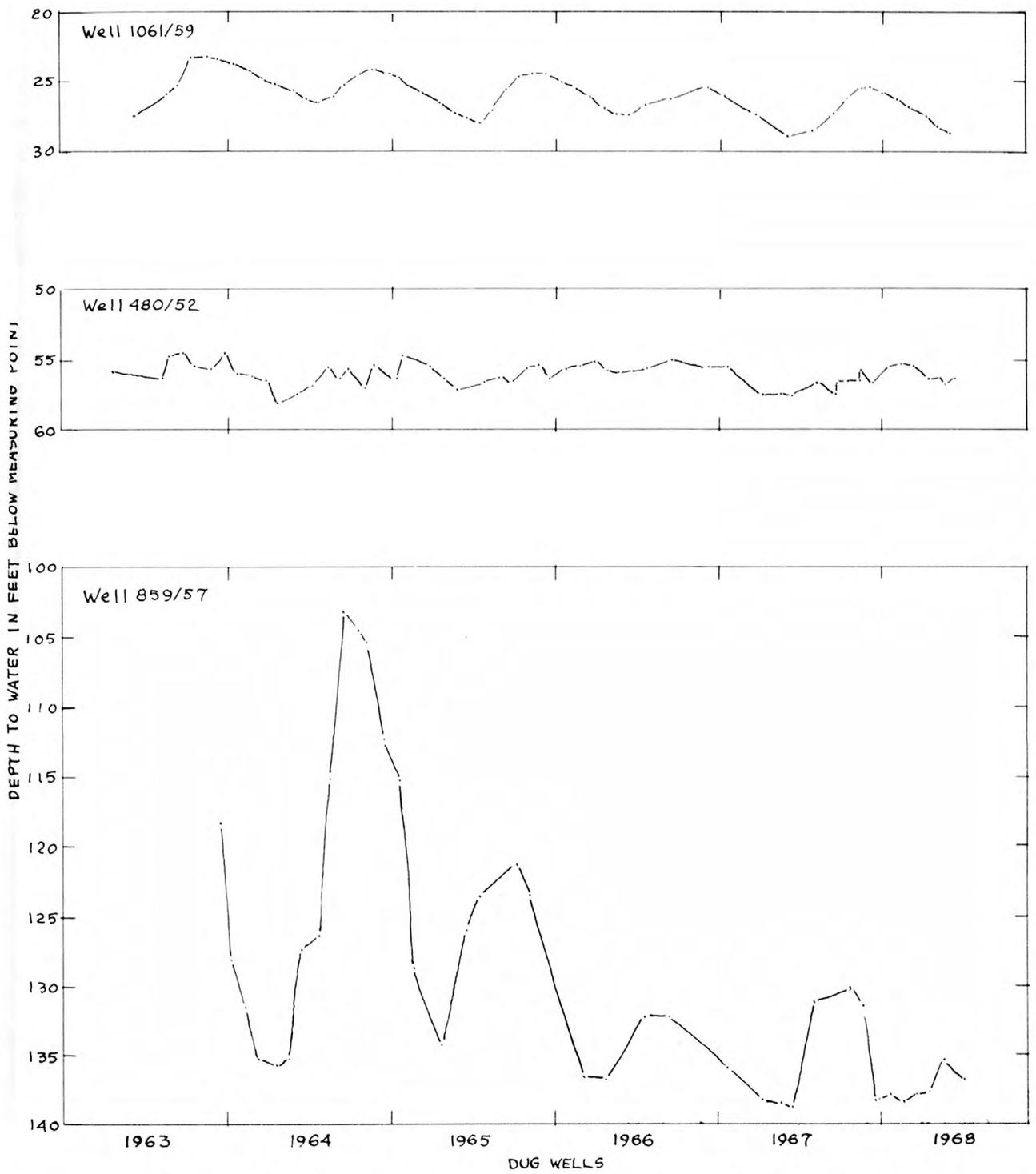


Figure 4--Hydrographs of three dug wells ending in the surficial sands of the Upper Zone Aquifer.

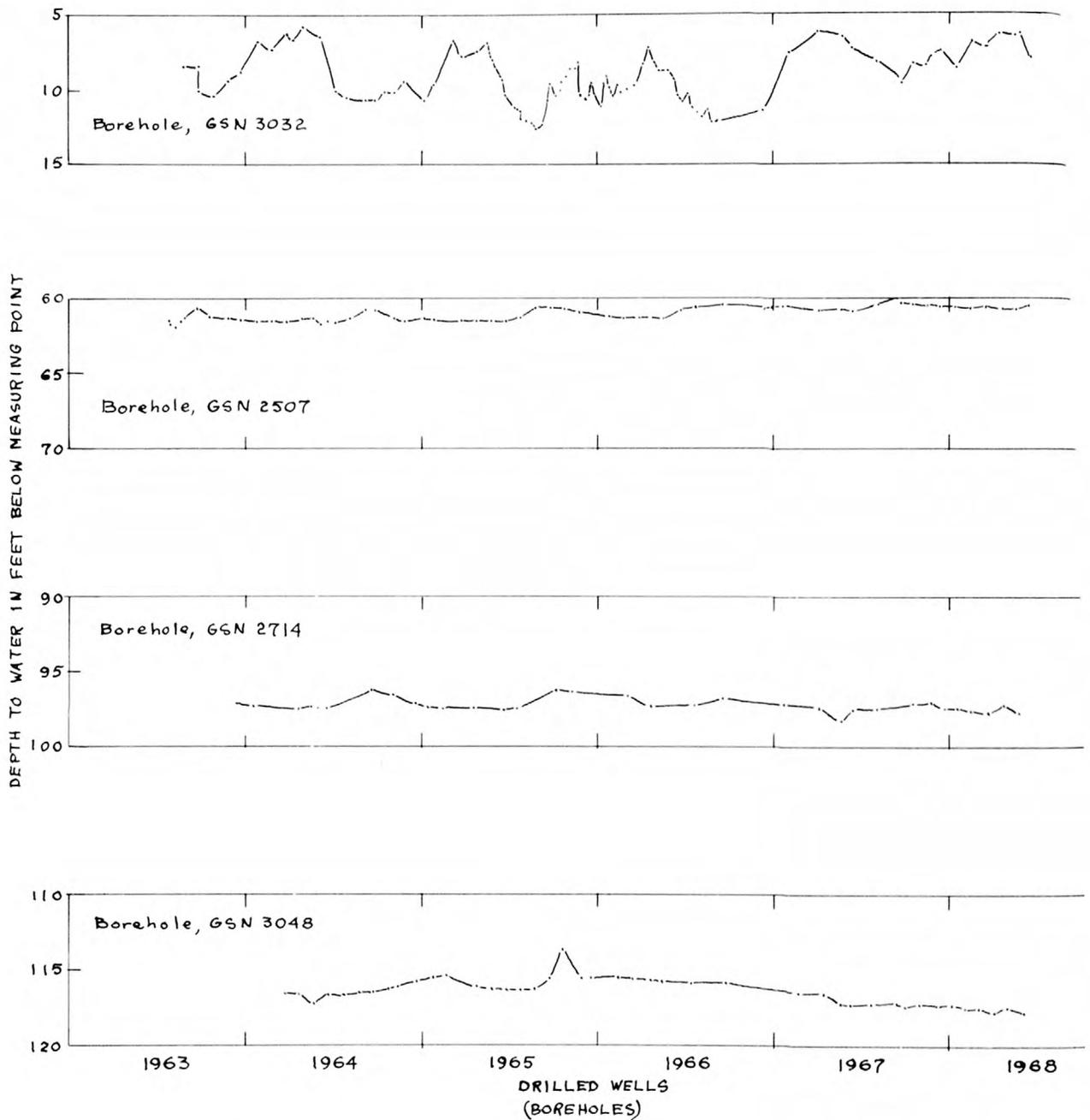


Figure 5--Hydrographs of four drilled wells(boreholes)completed in the Middle Zone Aquifer.

Construction of Observations Wells and Boreholes

Most of the observational data presented in this report are from dug wells whose primary use is for village water supply. Those dug wells constructed by the Ministry of Works are of a standard design, which utilizes concrete culvert rings for curbing, usually 4 feet in diameter. To dig a well, a concrete ring (section) is placed on the ground with the ends open at top and bottom. Earth is removed from the inside of the ring until **settling** occurs. An additional concrete ring is stacked on top the one which has settled and digging is resumed. This procedure is repeated until digging reaches a suitable water-bearing layer. The bottom of the rings is left open. The well is finished by mortaring the joints between the rings and fitting the top of the well with an A-frame and rollers for drawing water by bucket and rope. Concrete troughs are also constructed in the vicinity. Should the water level in the well decline, it can be deepened below the bottom of the original well by insertion, excavation and settlement of 3-foot diameter concrete rings. The concrete rings installed by this technique are termed, concrete casing, in following individual well descriptions. Generally, the measuring point for these wells is the top of the concrete casing at the side of the well nearest the well number inscribed in the concrete.

Most of the observation drilled wells (boreholes) were put down primarily for the US/US AID ground-water investigations

project by Balakhany (Chad), Ltd. using rotary drilling methods. Construction details are given in the individual well descriptions.

Presentation of Data

The water levels are referred to the measuring point (MP) and unless the measuring point is exactly at land surface datum (LSD), the data will not be the same as those reported "above (or below) land surface". For boreholes the construction data in the well description are often referred to land surface, although the water-level measurements are to the measuring point. Where this occurs the correct datum is identified in the well description.

The USGS refers ground-water levels to the land surface datum and as a result of using the USGS computer program the highest and lowest water levels in the well descriptions have been incorrectly referenced to LSD and should be above (or below) MP.

When a well has been observed dry, the total depth of the well is shown in the water level table with the letter D replacing the decimal point.

Automatic data processing has been used in preparing well descriptions and accompanying tabulation of water levels. As a result much of the information has been symbolized by the a abbreviations which are defined under "Abbreviations."

Abbreviations

The abbreviations used in the description of the wells and boreholes are defined below:

API	American Petroleum Institute
BH	Borehole
DIAM.	Diameter
E	East
FT.	Foot (Feet)
G.R.A.	Government Residential Area
GSN	Geological Survey of Nigeria
IN.	Inch (es)
ID	Internal diameter
LSD	Land surface datum
MM	Millimeters
M.O.W.	Ministry of Works
MP	Measuring point
NA	Native Authority
NE	Northeast
N	North
NN	No number
NW	Northwest
S	South
SE	Southeast

Abbreviations (con't)

SW	Southwest
SWL	Standing water level
TD	Total depth
USGS	U.S. Geological Survey
W	West

Bama Run

<u>Well No.</u>	<u>Location</u>
	Mileage is measured from the Maiduguri Post Office. The Nigerian Customs yard in Maiduguri, at the start of the Bama road, is at mile 3.9.
480/52	Kakuri village
*616/53	Kofa village
*GSN 3032 GSN 3033 *GSN 3019	Dalori village. Dalori village is about 1/4 mile NE of the Maiduguri-Bama road, at mile 13.0.
700/54	Kadiri village
933/57	Kasalari village
932/57	Jaytaytay village
722/54	Kondua village
-NN-	Mairambi village
601/53	Kaururi village
*736/54	Gauramari village
1061/59	Bama roundabout
GSN 2526 604/53	Bulabulin village
GSN 2507 294/49 328/50	Bama village
GSN 3031	near Bama village
1085/59	Soye village
1046/59	Bulongo village. During the rainy season it is sometimes impossible to go farther than Bulongo village.

GSN 2527 Dala Gonebori village
*499/53

292/49 Dipchari village

GSN 2528 Jere village
485/52

-NN- Dar-Al-Jimell village

* - A complete chemical analysis is available in Kiser (1968)

WELL 480/52. KAKURI VILLAGE. MILE 8.2 ON SW SIDE MAIDUGURI-BAMA RD, ABOUT 25 FT. FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.4 FT. ABOVE LSD. TO 63.0 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1095 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 54.60 BELOW LSD, DEC. 24, 1963,
 LOWEST WATER LEVEL 58.05 BELOW LSD, APR. 28, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
PR. 24, 1963	56.0	SEP. 3, 1964	56.3	DEC. 21, 1965	56.2	AUG. 4, 1967	56.72
UG. 9	56.1	SEP. 29	55.6	JAN. 29, 1966	55.6	SEP. 23	57.18
UG. 30	54.95	NOV. 1	57.0	FEB. 25	55.25	SEP. 26	56.61
EP. 24	54.70	NOV. 26	55.3	MAR. 25	55.0	OCT. 20	56.15
CT. 24	55.5	JAN. 2, 1965	56.3	APR. 30	55.8	NOV. 18	56.10
OV. 30	55.6	JAN. 27	54.9	MAY 21	55.95	NOV. 28	55.65
DEC. 24	54.6	MAR. 25	55.6	JUNE 29	55.7	DEC. 16	56.16
JAN. 29, 1964	56.0	APR. 29	56.3	JULY 30	55.65	JAN. 16, 1968	55.76
FEB. 29	56.2	MAY 29	57.00	SEP. 25	55.0	FEB. 15	55.27
MAR. 29	56.35	JULY 26	56.6	DEC. 13	55.35	MAR. 16	55.63
APR. 28	58.05	AUG. 26	56.3	JAN. 26, 1967	55.48	APR. 19	56.34
MAY 5	57.5	SEP. 23	56.5	APR. 8	57.22	MAY 16	56.24
JULY 1	56.9	OCT. 21	55.8	MAY 31	57.02	MAY 24	56.68
AUG. 4	55.6	NOV. 23	55.70	JUNE 13	57.35	JUNE 17	56.04

WELL 616/53. KOFA VILLAGE. MILE 11.7 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 350 FT. FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.2 FT. ABOVE LSD. TO 30.5 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 21.3 FT., 3 FT. DIAM. 21.3 FT. TO D. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 26.32 BELOW LSD, NOV. 28, 1967,
 LOWEST WATER LEVEL 29.72 BELOW LSD, JUNE 13, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 9, 1963	26.7	SEP. 29, 1964	27.8	DEC. 21, 1965	27.3	JUNE 13, 1967	29.72
AUG. 30	26.7	NOV. 1	27.3	JAN. 29, 1966	27.1	AUG. 4	28.69
SEP. 24	27.4	NOV. 26	27.44	FEB. 25	27.9	SEP. 26	28.19
OCT. 24	26.9	JAN. 2, 1965	28.5	MAR. 25	28.35	OCT. 20	27.68
NOV. 30	26.8	JAN. 27	28.2	APR. 30	28.6	NOV. 18	28.53
DEC. 24	26.8	MAR. 25	28.4	MAY 21	28.6	NOV. 28	26.32
JAN. 29, 1964	27.2	APR. 29	28.3	JUNE 29	28.2	DEC. 16	27.89
FEB. 29	27.9	MAY 24	28.2	JULY 30	27.9	JAN. 16, 1968	28.00
MAR. 29	27.2	JUNE 26	28.4	SEP. 25	27.6	FEB. 15	28.26
APR. 28	28.7	JULY 26	28.00	DEC. 13	28.23	MAR. 16	27.78
JUNE 5	27.8	AUG. 27	27.8	JAN. 26, 1967	28.20	APR. 19	28.99
JULY 1	27.7	SEP. 23	27.45	APR. 8	28.98	MAY 16	29.20
AUG. 4	27.3	OCT. 21	27.9	MAY 31	29.20	JUNE 17	28.58
SEP. 3	27.5	NOV. 23	27.32				

GSN 3032 (DALORI 3, USGS 2A). IN DALORI VILLAGE ABOUT 200 FT. SE OF GSN 3019 AND 15 FT. SE OF SHELTER OVER GSN 3033. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A FOXBORO PRESSURE RECORDER, DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF CONCRETE SHELTER, 0.5 FT. ABOVE LSD. TD 761 FT. CASING API 4.5 IN. ID SURFACE TO 726 FT., 3 IN. ID TO 740 FT. SCREENED 740 FT. TO 760 FT. 4 IN. DIAM. 15 SLOT EVERDUR. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 12.50 ABOVE LSD, SEP. 8, 1965,
 LOWEST WATER LEVEL 5.95 ABOVE LSD, APR. 30, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
AUG. 30, 1963	+ 8.51	MAY 12, 1965	+ 6.80	DEC. 3, 1965	+ 10.75	JULY 26, 1966	+ 11.35
SEP. 20	+ 8.5	MAY 22	+ 7.41	DEC. 11	+ 10.33	AUG. 8	+ 11.92
SEP. 25	+ 10.15	MAY 29	+ 7.90	DEC. 21	+ 9.65	AUG. 18	+ 11.30
OCT. 24	+ 10.40	JUNE 7	+ 8.33	DEC. 29	+ 10.49	AUG. 25	+ 12.07
NOV. 23	+ 9.40	JUNE 17	+ 9.24	JAN. 6, 1966	+ 11.20	DEC. 13	+ 11.20
DEC. 24	+ 8.95	JUNE 26	+ 10.35	JAN. 14	+ 9.72	FEB. 6, 1967	+ 7.58
JAN. 29, 1964	+ 6.90	JULY 12	+ 11.24	JAN. 22	+ 9.07	APR. 1	+ 6.00
FEB. 29	+ 7.30	JULY 23	+ 11.50	JAN. 29	+ 9.76	MAY 31	+ 6.40
MAR. 29	+ 6.42	JULY 31	+ 11.60	FEB. 9	+ 10.32	JUNE 13	+ 7.10
APR. 4	+ 6.53	AUG. 7	+ 12.00	FEB. 16	+ 9.91	AUG. 4	+ 8.05
APR. 30	+ 5.95	AUG. 20	+ 12.23	FEB. 25	+ 10.19	SEP. 22	+ 9.35
JUNE 8	+ 6.30	AUG. 26	+ 12.26	MAR. 9	+ 10.00	SEP. 26	+ 9.38
JULY 1	+ 10.03	SEP. 8	+ 12.50	MAR. 23	+ 9.74	OCT. 20	+ 8.20
JULY 31	+ 10.45	SEP. 20	+ 10.75	APR. 4	+ 8.30	NOV. 18	+ 8.30
SEP. 3	+ 10.71	SEP. 27	+ 9.77	APR. 15	+ 7.22	NOV. 28	+ 7.30
SEP. 28	+ 10.75	OCT. 4	+ 10.5	APR. 28	+ 8.34	DEC. 16	+ 7.63
OCT. 14	+ 10.06	OCT. 12	+ 10.04	MAY 5	+ 8.94	JAN. 16, 1968	+ 8.45
NOV. 1	+ 10.05	OCT. 19	+ 9.60	MAY 21	+ 8.81	FEB. 15	+ 6.95
NOV. 26	+ 9.55	OCT. 28	+ 9.03	JUNE 11	+ 9.31	MAR. 16	+ 7.08
JAN. 2, 1965	+ 10.95	NOV. 5	+ 8.78	JUNE 22	+ 10.42	APR. 19	+ 6.32
JAN. 28	+ 9.40	NOV. 11	+ 8.79	JUNE 29	+ 10.90	MAY 16	+ 6.45
MAR. 4	+ 6.79	NOV. 19	+ 8.25	JULY 9	+ 10.15	MAY 24	+ 6.31
MAR. 25	+ 7.90	NOV. 26	+ 10.03	JULY 20	+ 11.23	JUNE 17	+ 7.91
APR. 29	+ 7.62						

GSN 3033 (DALORI 4, USGS 2B). IN DALORI VILLAGE ABOUT 185 FT. SE OF GSN 3019 AND 15 FT. NW OF SHELTER OVER GSN 3032. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A STEVENS TYPE FM WATER LEVEL RECORDER. DRILLED WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 1.0 FT. ABOVE LSD. TD 70 FT. CASING API 8 IN. ID SURFACE TO 65 FT. SCREENED 65 FT. TO 70 FT. 5-5/8 IN. DIAM. 15 SLOT EVERDUR. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 52.43 BELOW LSD, OCT. 24, 1963,
 LOWEST WATER LEVEL 58.38 BELOW LSD, JULY 30, 1966.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 22, 1963	52.83	SEP. 28, 1964	53.48	DEC. 21, 1965	55.37	AUG. 4, 1967	56.78
AUG. 30	52.73	NOV. 1	53.72	JAN. 29, 1966	56.08	SEP. 22	55.75
SEP. 25	52.48	NOV. 26	54.16	MAR. 25	57.17	SEP. 26	55.62
OCT. 24	52.43	JAN. 2, 1965	54.76	APR. 30	57.52	OCT. 11	55.62
NOV. 23	52.84	JAN. 28	55.25	MAY 21	57.67	OCT. 20	55.69
DEC. 24	53.25	MAR. 4	55.93	JUNE 29	57.07	NOV. 18	55.98
JAN. 29, 1964	53.66	MAR. 25	56.26	JULY 30	58.38	DEC. 16	56.29
FEB. 29	54.34	APR. 29	56.69	SEP. 18	55.49	JAN. 16, 1968	56.66
MAR. 29	54.88	MAY 29	57.12	SEP. 25	55.43	FEB. 15	56.88
APR. 30	55.27	JULY 26	55.77	DEC. 13	56.20	MAR. 16	57.59
JUNE 8	55.40	AUG. 26	55.02	JAN. 26, 1967	56.69	APR. 19	58.12
JULY 1	55.10	SEP. 23	54.66	APR. 8	58.20	MAY 16	58.31
JULY 31	54.34	OCT. 21	54.76	MAY 31	58.29	MAY 24	58.31
SEP. 3	53.74	NOV. 23	55.19	JUNE 13	58.18	JUNE 17	57.64

GSN 3019 (DALORI 2, USGS 2). IN DALORI VILLAGE ABOUT 185 FT. NW OF SHELTER OVER GSN 3033. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMAT9ON. USED AS OBSERVATION WELL. MP IS ZERO ON MANOMETER WHEN MANOMETER IS MOUNTED ON BRACKET AT TOP OF CASING, AT LSD. TD 743 FT. CASING API 2.5 IN. ID SURFACE TO 723 FT. SCREENED 723 FT. TO 743 FT. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 13.55 ABOVE LSD, OCT. 24, 1963,
 LOWEST WATER LEVEL 8.75 ABOVE LSD, MAY 16, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 9, 1963	+ 12.70	SEP. 3, 1964	+ 13.20	FEB. 25, 1966	+ 10.5	AUG. 4, 1967	+ 11.08
AUG. 30	+ 12.55	SEP. 28	+ 13.13	MAR. 25	+ 10.44	SEP. 26	+ 11.46
SEP. 20	+ 13.1	NOV. 26	+ 12.36	APR. 30	+ 10.26	OCT. 20	+ 11.91
SEP. 25	+ 13.4	JAN. 2, 1965	+ 10.92	MAY 21	+ 9.74	NOV. 18	+ 9.92
OCT. 24	+ 13.55	MAR. 25	+ 11.75	JUNE 29	+ 10.08	NOV. 28	+ 9.41
NOV. 23	+ 13.15	APR. 29	+ 11.12	JULY 30	+ 10.19	DEC. 16	+ 9.33
DEC. 24	+ 12.40	MAY 29	+ 11.2	SEP. 18	+ 11.65	JAN. 16, 1968	+ 9.63
FEB. 29, 1964	+ 10.35	JULY 26	+ 11.66	SEP. 25	+ 11.71	FEB. 15	+ 10.30
MAR. 29	+ 11.30	AUG. 26	+ 12.50	DEC. 13	+ 10.50	MAR. 16	+ 9.25
APR. 4	+ 10.96	SEP. 23	+ 12.68	FEB. 6, 1967	+ 11.01	APR. 19	+ 8.92
APR. 30	+ 9.87	OCT. 21	+ 11.32	APR. 8	+ 9.58	MAY 16	+ 8.75
JUNE 8	+ 10.96	NOV. 23	+ 10.07	MAY 31	+ 9.00	MAY 24	+ 8.83
JULY 1	+ 11.71	DEC. 21	+ 11.00	JUNE 13	+ 9.67	JUNE 17	+ 9.96
JULY 31	+ 12.42	JAN. 29, 1966	+ 10.75				

WELL 700/54. KADIRI VILLAGE. MILE 15 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 100 YARDS FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TD 32.9 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 20.8 FT., 3 FT. DIAM. 20.8 FT. TO TD. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 28.15 BELOW LSD, AUG. 30, 1963,
 LOWEST WATER LEVEL 34.85 BELOW LSD, APR. 8, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 21, 1963	29.5	SEP. 29, 1964	29.0	NOV. 23, 1965	29.0	MAY 31, 1967	33.87
AUG. 30	28.15	NOV. 1	29.3	DEC. 21	28.6	JUNE 13	31.49
OCT. 24	29.1	NOV. 26	29.4	JAN. 29, 1966	28.4	AUG. 4	32.10
NOV. 30	28.6	JAN. 2, 1965	29.06	FEB. 25	28.9	SEP. 26	30.87
DEC. 24	29.4	JAN. 26	28.74	MAR. 25	29.2	OCT. 20	30.62
JAN. 29, 1964	29.5	MAR. 25	30.8	APR. 30	29.7	NOV. 18	29.19
FEB. 29	28.9	APR. 29	31.9	MAY 21	29.55	DEC. 16	29.84
MAR. 29	30.25	MAY 29	30.7	JUNE 29	29.7	JAN. 16, 1968	28.84
APR. 28	30.67	JUNE 26	29.6	JULY 30	29.0	FEB. 15	29.46
JUNE 5	30.05	JULY 26	29.6	SEP. 25	29.2	MAR. 16	29.35
JULY 1	29.2	AUG. 26	29.9	DEC. 13	30.76	APR. 19	32.28
AUG. 4	28.9	SEP. 23	29.8	JAN. 26, 1967	30.11	MAY 16	31.55
SEP. 3	29.5	OCT. 21	29.0	APR. 8	34.85	JUNE 17	29.61

WELL 933/57. KASALARI VILLAGE. MILE 17.3 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 800 FT. FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.5 FT. ABOVE LSD. TD 37.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 29.8 FT., 3 FT. DIAM. 29.8 FT. TO TD. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 28.60 BELOW LSD, NOV. 30, 1963,
 LOWEST WATER LEVEL 38.00 BELOW LSD, JULY 26, 1965.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
AUG. 30, 1963	30.85	NOV. 1, 1964	30.8	DEC. 21, 1965	33.2	JUNE 13, 1967	35.55
SEP. 24	29.75	NOV. 26	31.4	JAN. 29, 1966	34.4	AUG. 4	36.44
OCT. 24	29.5	JAN. 2, 1965	31.2	FEB. 25	35.9	SEP. 26	33.32
NOV. 30	28.6	JAN. 27	32.2	MAR. 25	36.6	OCT. 20	34.05
DEC. 24	30.6	MAR. 25	36.7	APR. 30	36.85	NOV. 18	33.80
JAN. 29, 1964	31.5	APR. 29	36.9	MAY 21	36.55	DEC. 16	34.49
MAR. 29	33.8	MAY 29	37.2	JUNE 29	34.3	JAN. 16, 1968	35.05
APR. 28	36.5	JUNE 26	37.4	JULY 30	35.0	FEB. 15	35.47
JUNE 5	34.65	JULY 26	38.0	SEP. 25	33.8	MAR. 16	36.92
JULY 1	33.15	AUG. 26	32.9	DEC. 13	34.23	APR. 19	36.90
AUG. 4	33.3	SEP. 23	32.5	JAN. 26, 1967	34.48	MAY 16	37.23
SEP. 3	32.7	OCT. 21	32.7	APR. 8	37.71	JUNE 17	35.26
SEP. 29	32.4	NOV. 23	31.71	MAY 31	37.44		

WELL 932/57. JAYTAYTAY VILLAGE. MILE 18.1 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 150 FT. FROM PAV PAV
 PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.5 FT ABO ABO
 ABOVE LSD. TO 42.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1090 FT ABO ABO
 ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGH LOW
 HIGHEST WATER LEVEL 35.64 BELOW LSD, FEB. 25, 1966, REC
 LOWEST WATER LEVEL 40.35 BELOW LSD, MAY 31, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 21, 1963	37.	SEP. 3, 1964	37.05	NOV. 23, 1965	36.78	MAY 31, 1967	40.35
AUG. 30	36.3	SEP. 29	37.0	DEC. 21	36.3	JUNE 13	38.91
SEP. 24	36.35	NOV. 1	37.3	JAN. 29, 1966	35.9	AUG. 4	39.31
OCT. 24	36.3	NOV. 26	37.2	FEB. 25	35.64	SEP. 26	39.61
NOV. 30	36.3	JAN. 2, 1965	37.2	MAR. 25	36.4	OCT. 20	40.14
DEC. 24	36.2	JAN. 27	36.9	APR. 30	37.0	NOV. 18	38.59
JAN. 29, 1964	36.1	MAR. 25	37.5	MAY 21	37.3	DEC. 16	38.42
FEB. 29	36.3	APR. 29	37.75	JUNE 29	37.1	JAN. 16, 1968	37.48
MAR. 29	36.2	MAY 29	37.9	JULY 30	37.5	FEB. 15	37.51
APR. 28	36.65	JULY 26	38.0	SEP. 25	37.7	MAR. 16	38.86
JUNE 5	36.7	AUG. 26	38.0	DEC. 13	39.05	APR. 19	38.66
JULY 1	36.7	SEP. 23	38.0	JAN. 26, 1967	39.59	MAY 16	38.48
AUG. 4	36.8	OCT. 21	37.3	APR. 8	40.01	JUNE 17	38.03

WELL 722/54. KONDUVA VILLAGE (OLD ROAD CAMP). MILE 25.5 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 350 FT. FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TO 36.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 28.0 FT., 3 FT. DIAM. 28.0 FT. TO TD. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 30.25 BELOW LSD, JAN. 27, 1965,
 LOWEST WATER LEVEL 36.42 BELOW LSD, AUG. 4, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 21, 1963	34.	SEP. 29, 1964	34.4	NOV. 23, 1965	31.69	MAY 31, 1967	34.35
AUG. 30	35.1	NOV. 1	32.5	DEC. 21	31.35	JUNE 13	35.28
SEP. 24	34.8	NOV. 26	30.85	JAN. 29, 1966	31.7	AUG. 4	36.42
OCT. 24	33.6	JAN. 2, 1965	30.65	FEB. 25	32.05	SEP. 26	34.21
NOV. 30	32.6	JAN. 27	30.25	MAR. 25	33.15	OCT. 20	33.05
DEC. 24	31.9	MAR. 25	31.6	APR. 30	34.75	NOV. 18	30.76
JAN. 29, 1964	31.2	APR. 29	32.6	MAY 21	35.7	DEC. 16	30.50
FEB. 29	31.8	MAY 29	33.6	JUNE 29	35.0	JAN. 16, 1968	30.46
MAR. 29	32.1	JUNE 26	33.8	JULY 30	35.5	FEB. 15	31.10
APR. 28	32.6	JULY 27	34.5	SEP. 25	35.3	MAR. 16	32.31
JUNE 5	33.5	AUG. 26	34.7	DEC. 13	32.97	APR. 19	33.21
JULY 1	33.9	SEP. 23	33.8	JAN. 26, 1967	32.46	MAY 16	33.63
AUG. 4	34.7	OCT. 21	32.6	APR. 8	34.28	JUNE 17	33.81
SEP. 3	34.4						

WELL --NN-. MAIRAMBI VILLAGE. MILE 30.6 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 500 YARDS FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.3 FT. ABOVE LSD. TO 12.4 FT. CASING CONCRETE RINGS 3 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 5.30 BELOW LSD, SEP. 23, 1965,
 LOWEST WATER LEVEL 12.28 BELOW LSD, AUG. 4, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 21, 1963	5.5	SEP. 29, 1964	6.2	NOV. 23, 1965	7.8	MAY 31, 1967	12.25
AUG. 30	5.7	NOV. 1	7.7	DEC. 21	7.30	JUNE 13	10.93
SEP. 24	6.03	NOV. 26	7.7	JAN. 29, 1966	8.3	AUG. 4	12.28
OCT. 24	6.3	JAN. 2, 1965	7.6	FEB. 25	7.75	SEP. 26	8.85
NOV. 30	8.1	JAN. 27	7.64	MAR. 25	8.7	OCT. 20	10.82
DEC. 24	8.1	MAR. 25	8.4	APR. 30	8.85	NOV. 18	9.27
JAN. 29, 1964	7.8	APR. 29	8.2	MAY 21	9.6	DEC. 16	9.44
FEB. 29	7.7	MAY 29	8.5	JUNE 29	9.0	JAN. 16, 1968	9.90
MAR. 29	7.5	JUNE 26	8.0	JULY 30	9.3	FEB. 15	10.34
APR. 28	7.13	JULY 27	7.8	SEP. 25	8.35	MAR. 16	10.24
JUNE 5	7.9	AUG. 26	5.4	DEC. 13	11.15	APR. 19	12.17
JULY 1	7.75	SEP. 23	5.3	JAN. 26, 1967	10.51	MAY 16	11.08
AUG. 4	6.8	OCT. 21	6.8	APR. 8	11.87	JUNE 17	9.55
SEP. 3	6.1						

WELL 601/53. KATURURI VILLAGE. MILE 35.6 ON NE SIDE MAIDUGURI-BAMA RD, ABOUT 375 FT. FROM PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.3 FT. ABOVE LSD. TD 67.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 60.80 BELOW LSD, AUG. 30, 1963,
 LOWEST WATER LEVEL 70.70 BELOW LSD, APR. 29, 1965.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 18, 1963	64.	SEP. 3, 1964	63.85	NOV. 23, 1965	65.7	MAY 31, 1967	67.80
JUNE 21	63.5	SEP. 29	63.3	DEC. 21	65.0	JUNE 13	66.65
AUG. 30	60.8	NOV. 1	69.1	JAN. 29, 1966	63.1	AUG. 4	66.00
SEP. 24	62.25	NOV. 26	63.1	FEB. 25	66.3	SEP. 26	66.54
OCT. 24	63.7	JAN. 2, 1965	68.3	MAR. 25	67.6	OCT. 20	67.08
NOV. 30	61.6	JAN. 27	65.0	APR. 30	66.9	NOV. 18	66.78
DEC. 24	65.7	MAR. 25	67.7	MAY 21	67.9	DEC. 16	67.26
JAN. 29, 1964	66.4	APR. 29	70.7	JUNE 29	64.3	JAN. 16, 1968	66.41
FEB. 29	65.4	MAY 29	68.5	JULY 30	70.0	FEB. 15	66.52
MAR. 29	68.2	JUNE 26	62.6	SEP. 25	64.6	MAR. 16	67.37
APR. 28	68.65	JULY 26	63.1	DEC. 13	67.37	APR. 19	67.4
JUNE 5	63.4	AUG. 26	61.2	JAN. 27, 1967	67.02	MAY 16	66.52
JULY 1	63.4	SEP. 23	64.3	APR. 8	67.47	JUNE 17	62.83
AUG. 4	62.3	OCT. 21	65.4				

WELL 736/54. GAURAMARI VILLAGE. MILE 38.9 ON NE SIDE MAIDUGURI-BAMA RD, CLOSE TO PAVEMENT. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.5 FT. ABOVE LSD. TD 40.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 37.2 FT., 3 FT. DIAM. 37.2 FT. TO TD. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 35.00 BELOW LSD, JUNE 18, 1963,
 LOWEST WATER LEVEL 38.84 BELOW LSD, AUG. 4, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 18, 1963	35.	SEP. 29, 1964	37.1	NOV. 23, 1965	37.38	MAY 31, 1967	38.65
AUG. 30	37.7	NOV. 1	37.0	DEC. 21	37.3	JUNE 13	38.46
SEP. 24	37.64	NOV. 26	37.0	JAN. 29, 1966	37.4	AUG. 4	38.84
OCT. 24	37.65	JAN. 2, 1965	37.85	FEB. 25	37.5	SEP. 26	38.79
NOV. 30	37.3	JAN. 27	37.00	MAR. 25	37.65	OCT. 20	38.43
DEC. 24	37.1	MAR. 27	37.1	APR. 30	37.7	NOV. 18	38.59
JAN. 29, 1964	37.0	APR. 29	37.3	MAY 21	37.8	DEC. 16	38.54
FEB. 29	37.0	MAY 29	37.4	JUNE 29	37.9	JAN. 16, 1968	38.44
MAR. 29	37.0	JUNE 26	37.4	JULY 30	38.0	FEB. 15	38.43
APR. 28	36.95	JULY 26	37.5	SEP. 25	38.0	MAR. 16	38.59
JUNE 5	36.8	AUG. 26	37.5	DEC. 13	38.10	APR. 19	38.61
JULY 1	37.1	SEP. 23	37.45	JAN. 26, 1967	38.16	MAY 16	38.73
AUG. 4	37.1	OCT. 21	37.4	APR. 8	38.37	JUNE 17	38.71
SEP. 3	37.2						

WELL 1061/59. NW CORNER OF FIRST ROUNDABOUT ENTERING BAMA ON MAIDUGURI-BAMA RD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.3 FT. ABOVE LSD. TD 31.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 25.3 FT., 3 FT. DIAM. 25.3 FT. TO TD. LAND SURFACE IS 1057 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 23.30 BELOW LSD, NOV. 30, 1963,
 LOWEST WATER LEVEL 29.00 BELOW LSD, JUNE 13, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 18, 1963	27.5	SEP. 29, 1964	25.4	NOV. 23, 1965	24.53	MAY 31, 1967	28.76
AUG. 30	26.75	NOV. 1	24.5	DEC. 21	24.6	JUNE 13	29.0
SEP. 24	25.58	NOV. 26	24.35	JAN. 29, 1966	25.1	AUG. 4	28.66
OCT. 24	23.4	JAN. 2, 1965	24.57	FEB. 25	25.6	SEP. 26	27.03
NOV. 30	23.3	JAN. 27	24.87	MAR. 25	26.2	OCT. 26	26.26
DEC. 24	23.6	MAR. 25	26.0	APR. 30	27.0	NOV. 18	25.75
JAN. 29, 1964	23.9	APR. 29	26.7	MAY 21	27.5	DEC. 16	25.75
FEB. 29	24.3	MAY 29	27.4	JUNE 29	27.4	JAN. 16, 1968	26.0
MAR. 29	24.9	JUNE 26	27.8	JULY 30	26.9	FEB. 15	26.39
APR. 28	25.3	JULY 26	28.0	SEP. 25	26.2	MAR. 16	27.09
JUNE 5	25.9	AUG. 26	27.1	DEC. 13	25.6	APR. 19	27.82
JULY 1	26.3	SEP. 23	25.65	JAN. 26, 1967	26.08	MAY 16	28.48
AUG. 4	26.5	OCT. 21	24.8	APR. 8	27.73	JUNE 17	28.73
SEP. 3	26.0						

GSN 2526 (BULABULIN 1). IN BULABULIN VILLAGE. FROM WELL 1061/59 (BAMA) N ON DIKWA TRACK 1.1 MILES, THEN NW ON WORN FOOTPATH 1.6 MILES TO VILLAGE. BH IS APPROX. 100 YARDS E OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.8 FT. ABOVE LSD. TD 323 FT. CASING 2-1/2 IN. ID TO 303 FT. SCREENED 303 FT. TO 323 FT. WITH 1-1/4 IN. DIAM. 20 SLOT STAINLESS STEEL. LAND SURFACE APPROX. 1060 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 34.40 BELOW LSD, SEP. 26, 1967,
 LOWEST WATER LEVEL 36.15 BELOW LSD, JUNE 18, 1963.
 RECORDS AVAILABLE 1963-68.

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DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 18, 1963	36.15	SEP. 3, 1964	35.28	NOV. 23, 1965	34.60	MAY 31, 1967	34.77
JULY 29	35.63	SEP. 29	35.49	DEC. 21	35.07	JUNE 13	35.00
AUG. 30	35.54	NOV. 1	35.40	JAN. 29, 1966	35.13	AUG. 4	34.68
SEP. 24	35.45	NOV. 26	35.40	FEB. 25	35.27	SEP. 26	34.40
OCT. 24	35.45	JAN. 2, 1965	35.51	MAR. 25	35.30	OCT. 20	34.62
NOV. 30	35.61	JAN. 27	35.57	APR. 30	35.21	NOV. 18	34.71
DEC. 24	35.70	MAR. 25	35.62	MAY 21	35.33	DEC. 16	34.71
JAN. 29, 1964	35.75	APR. 29	35.64	JUNE 29	35.19	JAN. 16, 1968	34.81
FEB. 29	35.77	MAY 29	35.69	JULY 30	34.56	FEB. 15	34.81
MAR. 29	35.91	JUNE 26	35.51	SEP. 25	34.66	MAR. 16	34.81
APR. 28	35.79	JULY 26	35.23	DEC. 13	34.90	APR. 19	34.91
JUNE 5	35.77	AUG. 26	34.91	JAN. 26, 1967	35.01	MAY 16	34.92
JULY 1	35.70	SEP. 23	34.72	APR. 8	35.04	JUNE 17	34.7
AUG. 4	35.45	OCT. 21	34.83				

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WELL 674/53. BULABULIN VILLAGE. (SEE DESCRIPTION FOR GSN 2526). WELL IS E OF VILLAGE BEHIND LAST COMPOUNDS. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.1 FT. ABOVE LSD. TD 70.5 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1060 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 61.35 BELOW LSD, SEP. 26, 1967,
 LOWEST WATER LEVEL 66.30 BELOW LSD, MAR. 25, 1966.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 18, 1963	64.5	SEP. 3, 1964	62.9	NOV. 23, 1965	63.04	MAY 31, 1967	65.77
AUG. 30	63.16	SEP. 29	62.5	DEC. 21	63.0	JUNE 13	63.13
SEP. 24	62.97	NOV. 1, 26	64.3	JAN. 29, 1966	63.1	AUG. 4	61.76
OCT. 24	63.4	JAN. 2, 1965	64.7	FEB. 25	64.6	SEP. 26	61.35
NOV. 30	62.6	JAN. 27	65.2	MAR. 25	66.3	OCT. 20	62.2
DEC. 24	65.1	MAR. 25	65.3	APR. 30	64.7	NOV. 18	61.65
JAN. 29, 1964	63.8	APR. 29	66.0	MAY 21	63.7	DEC. 16	63.11
FEB. 29	66.2	MAY 29	64.9	JUNE 29	62.5	JAN. 16, 1968	62.75
MAR. 29	64.7	JUNE 26	63.7	JULY 30	62.4	FEB. 15	63.38
APR. 28	65.03	JULY 26	63.6	SEP. 25	61.9	MAR. 16	63.48
JUNE 5	64.9	AUG. 26	62.6	DEC. 13	62.82	APR. 19	63.42
JULY 1	63.2	SEP. 23	62.2	JAN. 26, 1967	62.83	MAY 16	64.67
AUG. 4	63.0	OCT. 21	63.8	APR. 8	64.73	JUNE 17	61.70

GSN 2507 (BAMA 7). IN BAMA TOWN ON G.R.A. NEAR BUSH REST HOUSE. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A STEVENS TYPE FM WATER LEVEL RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.15 FT. ABOVE FLOOR OF SHELTER AND 1.8 FT. ABOVE LSD. TO 365 FT. CASING 8 IN. ID TO 320 FT., 6 IN. ID 320 FT. TO 365 FT. 6 IN. CASING IS PERFORATED. SCREEN MAY HAVE BEEN FITTED LATER. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 60.35 BELOW LSD, SEP. 22, 1967,
 LOWEST WATER LEVEL 61.77 BELOW LSD, APR. 29, 1965.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JULY 30, 1963	61.65	JULY 1, 1964	61.48	SEP. 23, 1965	60.6	MAY 31, 1967	60.98
AUG. 1	61.73	AUG. 4	61.10	OCT. 21	60.79	JUNE 13	60.98
AUG. 24	61.50	SEP. 3	60.80	NOV. 23	60.99	AUG. 4	60.43
AUG. 30	61.28	SEP. 29	60.79	JAN. 29, 1966	61.06	SEP. 22	60.00
SEP. 24	60.86	NOV. 1	61.04	FEB. 25	61.08	SEP. 26	60.04
OCT. 24	61.06	NOV. 26	61.16	MAR. 25	61.13	OCT. 20	60.26
NOV. 30	61.36	JAN. 2, 1965	61.23	APR. 30	61.10	NOV. 18	60.41
DEC. 24	61.40	JAN. 27	61.28	MAY 21	61.13	DEC. 16	60.49
JAN. 29, 1964	61.55	MAR. 25	61.39	JUNE 29	60.97	JAN. 16, 1968	60.58
FEB. 29	61.57	APR. 29	61.42	JULY 30	60.65	FEB. 15	60.62
MAR. 29	61.58	MAY 29	61.47	SEP. 18	60.44	MAR. 16	60.65
APR. 28	61.47	JUNE 26	61.40	DEC. 13	60.79	APR. 19	60.72
MAY 20	61.47	JULY 26	61.29	JAN. 26, 1967	60.79	MAY 16	60.75
JUNE 5	61.60	AUG. 26	60.69	APR. 8	60.93	JUNE 17	60.43
JUNE 18	61.51						

WELL 294/49. IN BAMA VILLAGE ON G.R.A. NEAR BUSH REST HOUSE AND ABOUT 50 YARDS NW OF GSN 2507. DUG WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CONCRETE CASING, 2.2 FT. ABOVE LSD. TO 49.5 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 41.75 BELOW LSD, OCT. 24, 1963,
 LOWEST WATER LEVEL 46.57 BELOW LSD, JUNE 13, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JULY 30, 1963	44.1	JUNE 5, 1964	45.1	JULY 26, 1965	44.4	AUG. 4, 1967	44.73
AUG. 30	43.7	JULY 1	45.1	AUG. 26	43.0	SEP. 26	42.82
SEP. 24	41.98	AUG. 4	43.6	SEP. 23	42.4	OCT. 20	42.78
OCT. 24	41.75	SEP. 3	42.6	OCT. 21	42.3	NOV. 18	43.03
NOV. 30	42.44	SEP. 29	42.1	NOV. 23	42.85	DEC. 16	43.39
DEC. 24	43.0	JAN. 2, 1965	43.3	DEC. 21	43.25	JAN. 16, 1968	43.78
JAN. 29, 1964	43.7	JAN. 27	43.46	DEC. 13, 1966	43.78	FEB. 15	44.20
FEB. 29	43.8	MAR. 25	44.7	JAN. 26, 1967	44.4	MAR. 16	44.91
MAR. 29	44.3	APR. 29	45.2	APR. 8	45.61	APR. 19	45.55
APR. 28	44.9	MAY 29	45.8	MAY 31	46.37	MAY 16	46.11
MAY 20	44.8	JUNE 26	45.5	JUNE 13	46.57	JUNE 17	45.42

WELL 328/50. BAMA VILLAGE. ON E SIDE OF ROUNDABOUT WHERE ROAD FROM GWOZA ENTERS BAMA. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TO 52.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 47.40 BELOW LSD, NOV. 1, 1964,
 LOWEST WATER LEVEL 50.76 BELOW LSD, MAY 16, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
AUG. 30, 1963	49.2	AUG. 4, 1964	48.8	JULY 26, 1965	48.60	AUG. 4, 1967	50.15
SEP. 24	48.95	SEP. 3	47.8	AUG. 26	48.20	SEP. 26	49.57
OCT. 24	48.9	SEP. 29	47.7	SEP. 23	48.0	OCT. 20	49.61
NOV. 30	48.6	NOV. 1	47.4	OCT. 21	48.0	NOV. 18	49.59
DEC. 24	48.6	NOV. 26	47.57	NOV. 23	48.16	DEC. 16	49.49
JAN. 29, 1964	48.3	JAN. 2, 1965	47.58	DEC. 21	48.2	JAN. 16, 1968	49.71
FEB. 29	48.3	JAN. 27	47.67	DEC. 13, 1966	49.11	FEB. 15	49.74
MAR. 29	48.4	MAR. 25	48.1	JAN. 26, 1967	49.3	MAR. 16	50.08
APR. 29	48.4	APR. 29	48.5	APR. 8	49.88	APR. 19	50.51
JUNE 5	48.5	MAY 29	48.85	MAY 31	50.44	MAY 16	50.76
JULY 1	48.5	JUNE 26	48.80	JUNE 13	50.60	JUNE 17	50.48

GSN 3031 (BAMA 8, USGS). ON BAMA-GWOZA ROAD 2.2 MILES FROM BARRIER AT EDGE OF BAMA TOWN. BOREHOLE IS AT E SIDE OF ROAD. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 4.5 FT. ABOVE LSD. TO 382 FT. CASING 2-1/2 IN. ID MP TO 372 FT. SCREENED 372 TO 382 FT. WITH 10 SLOT EVERDUR. LAND SURFACE IS APPROX. 1075 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 81.14 BELOW LSD, SEP. 26, 1967,
 LOWEST WATER LEVEL 82.63 BELOW LSD, MAR. 29, 1964.
 RECORDS AVAILABLE 1963-68.

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DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
AUG. 30, 1963	82.12	JULY 1, 1964	82.47	JULY 26, 1965	82.36	AUG. 4, 1967	81.57
SEP. 24	81.99	AUG. 4	82.21	AUG. 26	81.91	SEP. 26	81.14
OCT. 24	82.20	SEP. 3	81.82	SEP. 23	81.70	OCT. 20	81.46
NOV. 30	82.46	SEP. 29	81.87	OCT. 21	81.85	NOV. 18	81.56
DEC. 24	82.17	NOV. 1	82.09	NOV. 23	81.98	DEC. 16	81.62
JAN. 29, 1964	82.45	JAN. 2, 1965	82.22	DEC. 21	82.00	JAN. 16, 1968	81.68
FEB. 29	82.55	JAN. 27	82.27	DEC. 15, 1966	81.74	FEB. 15	81.72
MAR. 29	82.63	MAR. 25	82.37	FEB. 6, 1967	81.57	MAR. 16	81.76
APR. 29	82.47	APR. 29	82.47	APR. 8	81.88	APR. 19	81.77
MAY 20	82.47	MAY 29	82.46	MAY 31	81.92	MAY 16	81.71
JUNE 1	82.49	JUNE 26	82.40	JUNE 13	81.92	JUNE 17	81.58

WELL 1085/59. SOYE VILLAGE. ON BAMA - DAR-AL-JIMEIL ROAD ABOUT 5 MILES FROM BARRIER AT EDGE OF BAMA VILLAGE. SOYE VILLAGE IS REACHED JUST AFTER TURNING OFF BAMA-GWOZA ROAD. WELL IS IN YARD OF NA SCHOOL, AT E EDGE OF TOWN. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.2 FT. ABOVE LSD. TO 25.7 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 17.3 FT., 3 FT. DIAM. 17.3 FT. TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 14.60 BELOW LSD, NOV. 30, 1963,
 LOWEST WATER LEVEL 21.38 BELOW LSD, JUNE 17, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JULY 19, 1963	20.50	JULY 1, 1964	18.4	JULY 26, 1965	20.00	AUG. 4, 1967	21.15
AUG. 30	18.90	AUG. 4	18.6	AUG. 26	19.6	SEP. 26	19.62
SEP. 24	14.95	SEP. 3	17.6	SEP. 23	17.4	OCT. 20	20.14
OCT. 24	14.6	SEP. 29	16.9	OCT. 21	16.3	NOV. 18	19.34
NOV. 30	14.6	NOV. 1	17.2	NOV. 23	16.8	DEC. 16	19.66
DEC. 24	15.9	JAN. 2, 1965	18.16	DEC. 21	17.3	JAN. 16, 1968	20.02
JAN. 29, 1964	16.5	JAN. 27	18.49	DEC. 15, 1966	19.62	FEB. 15	20.32
FEB. 29	17.2	MAR. 25	19.1	FEB. 6, 1967	20.07	MAR. 16	20.64
MAR. 29	17.75	APR. 29	19.4	APR. 8	20.55	APR. 19	20.68
APR. 28	17.95	MAY 29	19.7	MAY 31	20.89	MAY 16	21.15
JUNE 1	17.9	JUNE 26	18.8	JUNE 13	20.89	JUNE 17	21.28

WELL 1046/59. BULONGO VILLAGE. ON BAMA - DAR-AL-JIMEIL ROAD 8.6 MILES FROM BARRIER WHERE ROAD ENTERS BAMA. WELL IS IN CENTER OF VILLAGE, TO NE OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TO 21.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 12.9 FT., 3 FT. DIAM. 12.9 FT. TO TD. LAND SURFACE IS APPROX. 1080 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 13.40 BELOW LSD, SEP. 23, 1965,
 LOWEST WATER LEVEL 18.80 BELOW LSD, JUNE 26, 1965.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 18, 1963	17.2	SEP. 29, 1964	15.8	SEP. 23, 1965	13.4	SEP. 26, 1967	18.00
NOV. 30	14.0	NOV. 1	16.1	OCT. 21	13.8	OCT. 20	15.22
DEC. 24	14.45	NOV. 26	16.49	NOV. 23	14.39	NOV. 18	15.60
JAN. 29, 1964	14.95	JAN. 2, 1965	16.95	DEC. 21	14.8	DEC. 16	15.03
FEB. 29	15.4	JAN. 27	17.36	DEC. 15, 1966	17.08	JAN. 16, 1968	16.51
MAR. 29	16.0	MAR. 25	17.8	FEB. 6, 1967	16.77	FEB. 15	16.85
APR. 28	16.5	APR. 29	18.2	APR. 8	17.24	MAR. 16	17.41
JUNE 1	16.6	MAY 29	18.4	MAY 31	18.00	APR. 19	17.89
JULY 1	16.9	JUNE 26	18.8	JUNE 13	18.32	MAY 16	18.26
AUG. 4	16.6	JULY 26	18.1	AUG. 4	17.75	JUNE 17	18.09

GSN 2527 (DALA GONEBORI 1). DALA GONEBORI VILLAGE. ON BAMA - DAR-AL-JIMEIL ROAD ABOUT 15.9 MILES FROM BARRIER AT BAMA. BOREHOLE IS IN FIELD AT SW CORNER OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, AT LSD. TO 114 FT. CASING 5 IN. ID MP TO 12 FT., 2-1/2 IN. ID 12 FT. TO 94 FT. SCREENED 94 TO 114 FT. WITH 1-1/4 IN. DIAM. 20 SLOT STAINLESS STEEL. LAND SURFACE APPROX. 1050 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 24.50 BELOW LSD, NOV. 30, 1963, LOWEST WATER LEVEL 34.09 BELOW LSD, MAY 16, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
NOV. 30, 1963	24.5	SEP. 29, 1964	27.28	JULY 26, 1965	33.00	AUG. 4, 1967	33.46
DEC. 24	24.73	NOV. 1	28.62	OCT. 21	29.41	OCT. 20	31.65
JAN. 29, 1964	25.25	NOV. 26	29.00	NOV. 23	27.28	NOV. 18	31.16
FEB. 29	25.86	JAN. 2, 1965	29.67	DEC. 21	27.59	DEC. 6	31.28
MAR. 29	26.24	JAN. 27	30.17	DEC. 15, 1966	29.30	JAN. 16, 1968	32.09
APR. 28	26.59	MAR. 25	31.08	FEB. 6, 1967	30.50	FEB. 15	32.50
JUNE 1	26.82	APR. 29	31.94	APR. 8	32.38	MAR. 16	33.09
JULY 1	27.81	MAY 29	32.48	MAY 31	33.14	APR. 19	33.30
AUG. 4	27.84	JUNE 26	32.85	JUNE 13	33.45	MAY 16	34.09

WELL 499/53. DALA GONEBORI VILLAGE. ON BAMA - DAR-AL-JIMEIL ROAD ABOUT 15.9 MILES FROM THE BARRIER AT BAMA VILLAGE. WELL IS ABOUT 85 FT. N OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TO 57.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1050 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 24.75 BELOW LSD, NOV. 30, 1963, LOWEST WATER LEVEL 56.00 BELOW LSD, APR. 19, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 18, 1963	34.5	AUG. 4, 1964	25.6	JUNE 26, 1965	36.1	JUNE 13, 1967	37.75
NOV. 30	24.75	SEP. 29	27.7	JULY 26	35.7	AUG. 4	36.42
DEC. 24	26.5	NOV. 1	29.1	OCT. 21	31.7	NOV. 18	37.46
JAN. 29, 1964	24.95	NOV. 26	30.5	NOV. 23	31.19	DEC. 16	40.22
FEB. 29	25.6	JAN. 2, 1965	34.46	DEC. 21	30.15	JAN. 16, 1968	41.22
MAR. 29	26.9	JAN. 27	36.66	DEC. 15, 1966	34.55	FEB. 15	42.13
APR. 28	27.45	MAR. 25	37.50	FEB. 6, 1967	35.61	MAR. 16	44.69
JUNE 1	29.0	APR. 29	38.08	APR. 8	43.94	APR. 19	56.00
JULY 1	26.6	MAY 29	40.7	MAY 31	42.30	MAY 16	54.26

WELL 292/49. DIPCHARI VILLAGE. ON BAMA - DAR-AL-JIMEIL ROAD ABOUT 18.1 MILES FROM BARRIER AT BAMA VILLAGE. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.5 FT. ABOVE LSD. TO 89.6 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1045 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 52.20 BELOW LSD, AUG. 4, 1964, LOWEST WATER LEVEL 88.46 BELOW LSD, MAY 31, 1967. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 18, 1963	58.5	SEP. 29, 1964	58.7	JULY 26, 1965	57.4	AUG. 4, 1967	58.63
DEC. 24	57.8	NOV. 1	62.8	OCT. 21	55.6	OCT. 20	60.46
JAN. 29, 1964	59.25	NOV. 26	68.97	NOV. 23	59.37	NOV. 18	62.53
FEB. 29	60.2	JAN. 2, 1965	68.40	DEC. 21	64.9	DEC. 16	74.38
MAR. 29	66.3	JAN. 27	69.32	DEC. 15, 1966	75.46	JAN. 16, 1968	74.56
APR. 28	67.25	MAR. 25	70.4	FEB. 6, 1967	75.38	FEB. 15	76.88
JUNE 1	65.0	APR. 29	73.9	APR. 8	82.38	MAR. 16	76.34
JULY 1	57.0	MAY 29	75.1	MAY 31	83.46	APR. 19	83.93
AUG. 4	52.2	JUNE 26	60.5	JUNE 13	67.78	MAY 16	82.44

GSN 2528 (JERE 1). JERE VILLAGE. JERE IS ABOUT 2.7 MILES E OF DIPCHARI ON FOOT PATH. BORE-HOLE IS IN A FIELD ABOUT 1/4 MILE E OF VILLAGE CENTER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, AT LSD. TD 65 FT. CASING 2-1/2 IN. ID. MP TO 55 FT. SCREENED 55 TO 65 FT. WITH 1-1/4 IN. DIAM. 20 SLOT STAINLESS STEEL SCREEN. LAND SURFACE APPROX. 1040 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 8.67 BELOW LSD, OCT. 21, 1965,
 LOWEST WATER LEVEL 15.92 BELOW LSD, JUNE 16, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 18, 1963	14.29	SEP. 29, 1964	9.37	JULY 26, 1965	12.19	AUG. 4, 1967	13.96
DEC. 24	9.10	NOV. 1	10.70	OCT. 21	8.67	OCT. 20	10.86
JAN. 29, 1964	10.10	NOV. 26	11.45	NOV. 23	10.2	NOV. 18	11.27
FEB. 29	10.95	JAN. 2, 1965	12.39	DEC. 21	11.07	DEC. 16	12.14
MAR. 29	11.70	JAN. 27	12.85	DEC. 15, 1966	12.41	JAN. 16, 1968	13.14
APR. 28	12.36	MAR. 25	13.9	FEB. 6, 1967	13.50	FEB. 15	13.63
JUNE 1	13.03	APR. 29	14.51	APR. 8	14.78	MAR. 16	14.42
JULY 1	13.48	MAY 29	14.95	MAY 31	15.45	APR. 19	15.25
AUG. 4	11.77	JUNE 26	14.23	JUNE 13	15.73	MAY 16	15.92

WELL 485/52. JERE VILLAGE. JERE IS ABOUT 2.7 MILES E OF DIPCHARI ON FOOT PATH. WELL IS IN VILLAGE MARKET. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 58.8 FT. CASING CONCRETE RINGS MP TO TD. LAND SURFACE APPROX. 1040 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 36.90 BELOW LSD, AUG. 4, 1964,
 LOWEST WATER LEVEL 54.94 BELOW LSD, MAR. 16, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 18, 1963	44.0	SEP. 29, 1964	42.4	JULY 26, 1965	47.2	AUG. 4, 1967	43.79
DEC. 24	45.9	NOV. 1	50.2	OCT. 21	40.2	OCT. 20	45.12
JAN. 29, 1964	39.05	NOV. 26	43.95	NOV. 23	49.78	NOV. 18	49.05
FEB. 29	42.03	JAN. 2, 1965	46.7	DEC. 21	51.6	DEC. 16	50.14
MAR. 29	47.5	JAN. 27	47.54	DEC. 15, 1966	48.83	JAN. 16, 1968	50.08
APR. 28	51.1	MAR. 25	47.5	FEB. 6, 1967	51.13	FEB. 15	50.00
JUNE 1	48.1	APR. 29	45.8	APR. 8	50.53	MAR. 16	54.94
JULY 1	43.9	MAY 29	51.2	MAY 31	51.49	APR. 19	52.43
AUG. 4	36.9	JUNE 26	43.3	JUNE 13	50.67	MAY 16	53.67

WELL --N-. DAR-AL-JIMEIL VILLAGE. AT END OF BAMA - DAR-AL-JIMEIL ROAD, ABOUT 24.5 MILES FROM BARRIER IN BAMA. WELL IS NEAR NA SCHOOL. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TD 96.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 71.50 BELOW LSD, JAN. 29, 1964,
 LOWEST WATER LEVEL 84.09 BELOW LSD, APR. 19, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC. 24, 1963	74.6	NOV. 1, 1964	72.9	OCT. 21, 1965	79.0	OCT. 20, 1967	80.40
JAN. 29, 1964	71.5	NOV. 26	75.07	NOV. 23	76.59	NOV. 18	80.50
FEB. 29	76.2	JAN. 2, 1965	76.00	DEC. 21	77.7	DEC. 16	78.86
MAR. 29	76.5	JAN. 27	77.12	DEC. 15, 1966	78.64	JAN. 16, 1968	80.88
APR. 28	76.3	MAR. 25	76.2	APR. 8, 1967	77.53	FEB. 15	81.35
JUNE 1	75.8	APR. 29	76.1	MAY 31	77.60	MAR. 16	82.07
JULY 1	75.4	MAY 29	77.2	JUNE 13	78.28	APR. 19	84.09
AUG. 4	72.6	JUNE 26	74.4	SEP. 4	77.82	MAY 16	83.57
SEP. 29	73.0	JULY 26	76.3				

Dumboa Run

<u>Well No.</u>	<u>Location</u>
141/1936	Maiduguri G.R.A.
345/50	Molai village
-NN-	Kama village
*551/52	Delwa West village
*552/52	
1575/62	Tarteri village
561/53	Masaba village
GSN 3045A	Masta Fanameri village
564/53	Komala village
GSN 3046	Musa village. 1 mile beyond GSN 3046 the track to Mulgwe joins the road from the east.
1571/62	Jirina village
1433/62	Kirikashima village
-NN-	Ngadiniri village
-NN-	Ajiri village
-NN-	Gamberi village
*-NN-	Mulgwe village. The best way to get to
GSN 3167	Mutube village is from Gwoza, although it
GSN 3180	can be reached from Mulgwe.
GSN 3188	Mutube village. The Mutube borehole was not generally visited. The data presented here is taken from the automatic recording charts.
582/53	Bulabulin village
GSN 3048	Faloni village
578/53	Yaleri village

639/54	Sandia village
-NN-	Jimleri village
*-NN-	Kafa village
GSN 3162	Goniri railroad station
-NN-	

* - A complete chemical analysis is available in Kiser (1968)

WELL 141/1935. IN MAIDUGURI. ON G.R.A. ON LOT DIAGONALLY OPPOSITE THE M.O.W. YARD. DUG WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TO 55.9 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). NO MEASUREMENTS HAVE BEEN MADE SINCE 1967 BECAUSE WELL HAS BEEN DRY. HIGHEST WATER LEVEL 52.20 BELOW LSD, OCT. 22, 1963, DRY, WATER LEVEL NOT MEASUREABLE, MAY 14, 1966, JULY 14, 1966, FEB. 23, 1967. RECORDS AVAILABLE 1963-67.

DATE	WATER LEVEL						
SEP. 17, 1963	52.4	JUNE 25, 1964	54.00	FEB. 23, 1965	54.8	NOV. 27, 1965	55.0
SEP. 24	52.34	JULY 28	53.8	APR. 23	54.7	DEC. 14	55.05
OCT. 22	52.2	AUG. 27	53.8	MAY 26	55.5	FEB. 15, 1966	55.6
NOV. 29	53.36	SEP. 23	53.7	JUNE 22	55.7	MAR. 12	55.5
DEC. 19	53.0	OCT. 23	53.7	JULY 24	54.8	MAY 14	55.09
FEB. 26, 1964	53.3	NOV. 14	53.95	AUG. 25	54.7	JULY 14	55.09
APR. 24	53.78	DEC. 26	54.3	SEP. 21	54.8	SEP. 27	55.50
MAY 31	54.05	JAN. 22, 1965	54.5	OCT. 26	54.8	FEB. 23, 1967	55.09

WELL 345/50. MOLAI VILLAGE. VILLAGE IS ON ROAD FROM MAIDUGURI G.R.A. TO MISSION HOSPITAL, ABOUT 4.6 MILES FROM MAIDUGURI. WELL IS IN FIELD ABOUT 100 YARDS S OF CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.9 FT. ABOVE LSD. TO 97.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 85.72 BELOW LSD, AUG. 22, 1967, LOWEST WATER LEVEL 90.32 BELOW LSD, MAY 27, 1967. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JULY 26, 1963	87.0	AUG. 27, 1964	86.5	OCT. 26, 1965	86.3	JUNE 10, 1967	88.53
SEP. 17	87.1	SEP. 23	86.5	NOV. 27	86.4	AUG. 22	95.72
OCT. 22	87.0	OCT. 23	86.6	DEC. 14	86.2	OCT. 12	86.07
NOV. 29	87.7	NOV. 14	86.7	FEB. 15, 1966	88.2	NOV. 7	86.42
DEC. 16	88.2	JAN. 22, 1965	87.73	MAR. 12	86.7	DEC. 7	87.28
JAN. 22, 1964	88.3	FEB. 23	89.46	APR. 23	88.3	JAN. 9, 1968	86.73
FEB. 26	87.9	APR. 23	89.40	MAY 14	88.7	FEB. 7	87.38
MAR. 22	88.8	MAY 26	89.30	JULY 14	85.9	MAR. 7	87.40
APR. 22	89.65	JUNE 22	87.3	SEP. 27	86.05	APR. 8	87.05
MAY 31	88.85	JULY 24	86.5	FEB. 23, 1967	86.94	MAY 7	88.00
JUNE 25	87.2	AUG. 25	86.1	APR. 11	86.58	JUNE 7	87.13
JULY 28	87.1	SEP. 21	86.0	MAY 27	90.32		

WELL --N-. KAMA VILLAGE. TRACK LEADING TO KAMA VILLAGE TURNS OFF MAIDUGURI-DUMBOA ROAD AT 11.7 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. VILLAGE IS ABOUT 1/4 MILE WEST OF ROAD ALONG TRACK. WELL IS JUST OUTSIDE VILLAGE AT N EDGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS NAIL IN LOG AT TOP OF WELL, AT LSD. TO 94.4 FT. WELL IS UNCASED. LAND SURFACE APPROX. 1105 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 88.90 BELOW LSD, SEP. 17, 1963, DRY, WATER LEVEL NOT MEASUREABLE, FEB. 23, 1967, APR. 11, 1967. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JULY 26, 1963	91.0	AUG. 27, 1964	91.0	OCT. 26, 1965	90.5	JUNE 10, 1967	93.16
SEP. 17	88.9	SEP. 23	92.1	NOV. 27	90.9	AUG. 22	90.68
OCT. 22	90.8	OCT. 23	90.8	DEC. 14	91.0	OCT. 12	90.62
NOV. 29	91.2	NOV. 14	91.0	FEB. 15, 1966	91.1	NOV. 7	91.43
DEC. 16	91.2	JAN. 22, 1965	90.8	MAR. 12	91.15	DEC. 7	93.14
JAN. 22, 1964	90.8	FEB. 23	91.2	APR. 23	91.3	JAN. 9, 1968	92.96
FEB. 26	91.1	APR. 23	91.5	MAY 14	91.25	FEB. 7	92.59
MAR. 22	91.5	MAY 26	91.8	JULY 14	91.3	MAR. 7	92.55
APR. 22	91.9	JUNE 22	91.35	SEP. 27	90.9	APR. 8	92.10
MAY 31	92.1	JULY 24	91.4	FEB. 23, 1967	94.04	MAY 7	92.50
JUNE 25	91.7	AUG. 25	91.1	APR. 11	94.04	JUNE 7	92.77
JULY 28	90.7	SEP. 21	90.9	MAY 27	92.38		

WELL 551/52. DELWA WEST VILLAGE. VILLAGE IS ON MAIDUFURI-DUMBOA ROAD ABOUT 14.9 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS IN VILLAGE ABOUT 1/4 MILE SE OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.3 FT. ABOVE LSD. TO 67.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1115 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 53.05 BELOW LSD, DEC. 14, 1965, LOWEST WATER LEVEL 68.10 BELOW LSD, MAY 31, 1964. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JULY 26, 1963	61.6	AUG. 27, 1964	65.9	OCT. 26, 1965	55.6	JUNE 10, 1967	61.0
SEP. 17	57.4	SEP. 23	59.7	NOV. 27	55.8	AUG. 22	61.0
OCT. 22	59.5	OCT. 23	62.8	DEC. 14	53.05	OCT. 12	57.9
NOV. 29	61.3	NOV. 14	60.6	FEB. 15, 1966	56.25	NOV. 7	60.0
DEC. 16	62.1	JAN. 22, 1965	62.3	MAR. 12	56.0	DEC. 7	64.0
JAN. 22, 1964	64.05	FEB. 23	63.4	APR. 23	62.4	JAN. 9, 1968	63.0
FEB. 26	63.4	APR. 23	66.2	MAY 14	62.8	FEB. 7	61.0
MAR. 22	67.3	MAY 26	67.7	JULY 14	59.8	MAR. 7	65.0
APR. 22	67.85	JUNE 22	60.6	SEP. 27	55.80	APR. 8	67.0
MAY 31	68.1	JULY 24	58.2	FEB. 23, 1967	62.22	MAY 7	67.0
JUNE 25	64.3	AUG. 25	57.7	APR. 11	62.52	JUNE 7	65.0
JULY 28	62.1	SEP. 21	55.6	MAY 27	62.10		

WELL 552/52 (GSN 1647, DELWA WEST 1). DELWA WEST VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 14.9 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS IN VILLAGE MARKET. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION IN BOTTOM OF DUG WELL. USED AS A VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TO 797 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 30.4 FT., 3 FT. DIAM. 30.4 FT. TO 48.9 FT., METAL 4 IN. ID ABOUT 45.5 FT. TO 771 FT. SCREENED 771 TO 797 FT. WITH 4 IN. DIAM. 1 MM. BUTTON SCREEN. LAND SURFACE APPROX. 1115 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). NOTE SOME WATER LEVELS ARE BELOW TOP OF METAL CASING. HIGHEST WATER LEVEL 39.00 BELOW LSD, SEP. 21, 1965, LOWEST WATER LEVEL 50.95 BELOW LSD, APR. 22, 1964. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JULY 26, 1963	44.0	AUG. 27, 1964	44.1	OCT. 26, 1965	45.8	JUNE 10, 1967	50.0
SEP. 17	43.8	SEP. 23	43.4	NOV. 27	46.9	AUG. 22	46.0
OCT. 22	45.25	OCT. 23	47.1	DEC. 14	44.7	OCT. 12	47.0
NOV. 29	47.0	NOV. 14	47.6	FEB. 15, 1966	47.1	NOV. 7	47.0
DEC. 16	50.3	JAN. 22, 1965	49.5	MAR. 12	50.0	DEC. 7	49.0
JAN. 22, 1964	50.8	FEB. 23	48.8	APR. 23	50.6	JAN. 9, 1968	50.0
FEB. 26	49.2	APR. 23	50.7	MAY 14	50.4	FEB. 7	50.0
MAR. 23	50.3	MAY 26	50.85	JULY 14	49.55	MAR. 7	50.0
APR. 22	50.95	JUNE 22	46.0	SEP. 27	47.2	APR. 8	50.0
MAY 31	50.3	JULY 24	45.2	FEB. 23, 1967	50.76	MAY 7	50.0
JUNE 25	46.2	AUG. 25	43.7	APR. 11	50.76	JUNE 7	50.0
JULY 28	44.8	SEP. 21	39.0	MAY 27	50.22		

WELL 1575/62. TARTERI VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 17.2 MILES FROM IGI WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS ABOUT 150 FT. E OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.3 FT. ABOVE LSD. TO 62.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 57.0 FT., 3 FT. DIAM. 57.0 FT. TO TD. LAND SURFACE APPROX. 1120 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 57.50 BELOW LSD, DEC. 14, 1965, LOWEST WATER LEVEL 62.27 BELOW LSD, APR. 8, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 17, 1963	58.3	SEP. 23, 1964	59.0	OCT. 26, 1965	58.4	JUNE 10, 1967	61.05
OCT. 22	58.9	OCT. 23	59.0	NOV. 27	59.05	AUG. 22	59.20
NOV. 29	59.15	NOV. 14	60.4	DEC. 14	57.5	OCT. 12	57.95
DEC. 16	59.35	DEC. 26	60.7	FEB. 15, 1966	58.7	NOV. 7	58.45
JAN. 22, 1964	60.4	JAN. 22, 1965	60.0	MAR. 12	58.55	DEC. 7	60.60
FEB. 26	59.8	FEB. 23	60.85	APR. 23	59.85	JAN. 9, 1968	59.45
MAR. 22	60.8	APR. 23	60.1	MAY 14	58.5	FEB. 7	60.17
APR. 22	59.77	MAY 26	60.3	JULY 14	58.1	MAR. 7	59.97
MAY 31	60.15	JUNE 22	58.4	SEP. 27	58.5	APR. 8	62.27
JUNE 25	58.9	JULY 24	58.3	FEB. 23, 1967	60.56	MAY 7	61.84
JULY 28	59.1	AUG. 25	58.4	APR. 14	61.50	JUNE 7	60.04
AUG. 27	58.6	SEP. 21	58.5	MAY 27	61.70		

WELL 561/53. MASABA VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 19.1 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS ABOUT 1/4 MILE E OF ROAD, IN VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.7 FT. ABOVE LSD. TD 62.1 FT. USING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1130 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 43.65 BELOW LSD, DEC. 14, 1965,
 LOWEST WATER LEVEL 59.30 BELOW LSD, MAY 27, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN. 9, 1963	47.1	AUG. 27, 1964	56.3	SEP. 21, 1965	48.5	MAY 27, 1967	59.3
FEB. 17	53.0	SEP. 23	55.4	OCT. 26	45.2	JUNE 10	58.75
MAR. 22	54.7	OCT. 23	54.5	NOV. 27	45.7	AUG. 22	56.23
APR. 29	55.1	NOV. 14	55.1	DEC. 14	45.65	OCT. 12	53.26
MAY 16	56.15	DEC. 26	57.75	FEB. 15, 1966	48.5	NOV. 7	53.78
JUN. 22, 1964	56.35	JAN. 22, 1965	56.5	MAR. 12	49.7	DEC. 7	54.08
JUL. 26	56.65	FEB. 23	58.7	APR. 23	52.2	JAN. 9, 1968	54.97
AUG. 23	57.7	APR. 23	58.5	MAY 14	52.5	FEB. 7	58.18
SEP. 22	56.45	MAY 26	59.1	JULY 14	50.3	MAR. 7	57.83
OCT. 31	57.55	JUNE 22	56.5	SEP. 27	51.4	APR. 8	56.56
NOV. 25	57.1	JULY 24	56.2	FEB. 23, 1967	56.15	MAY 7	58.42
DEC. 29	55.5	AUG. 25	54.4	APR. 11	59.02	JUNE 7	57.12

WELL GSN 3045A (MASTA FANAMERI 1). ALONG MAIDUGURI-DUMBOA ROAD ABOUT 22.3 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. BOREHOLE IS ABOUT 200 FT. E OF ROAD. DRILLED WELL TO MIDDLE OF NE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 3.0 FT. ABOVE LSD. TD 445 FT. CASING 2-1/2 IN. ID API MP TO TD. SCREENED 425 TO 440 FT. WITH 15 SLOT EVERDUR, 440 TO 455 FT. WITH 5 SLOT EVERDUR. LAND SURFACE IS APPROX. 1140 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). MEASUREMENTS DISCONTINUED BECAUSE VANDALS HAVE FILLED BOREHOLE WITH RUBBISH.
 HIGHEST WATER LEVEL 55.80 BELOW LSD, OCT. 26, 1965,
 LOWEST WATER LEVEL 59.02 BELOW LSD, MAY 26, 1965.
 RECORDS AVAILABLE 1964-66.

DATE	WATER LEVEL						
MAR. 19, 1964	57.95	OCT. 23, 1964	57.30	JUNE 22, 1965	57.97	FEB. 15, 1966	57.92
APR. 22	57.93	NOV. 14	57.48	JULY 24	57.80	MAR. 12	58.01
MAY 31	57.95	DEC. 26	57.68	AUG. 25	57.95	APR. 23	58.10
JUNE 25	57.80	JAN. 22, 1965	57.75	SEP. 21	56.86	MAY 14	58.17
JULY 28	57.57	FEB. 23	57.84	OCT. 26	55.80	JULY 14	58.12
AUG. 27	57.27	APR. 23	58.00	NOV. 27	57.64	SEP. 27	58.01
SEP. 23	56.94	MAY 26	59.02	DEC. 14	57.58		

WELL 564/53. KOMALA VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 27.8 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS ABOUT 1/4 MILE W OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 73.4 FT. CASING USING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1175 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 57.50 BELOW LSD, OCT. 26, 1965,
 LOWEST WATER LEVEL 73.00 BELOW LSD, APR. 11, 1967.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 22, 1964	66.25	DEC. 26, 1964	63.6	DEC. 14, 1965	59.3	AUG. 22, 1967	65.12
FEB. 26	67.7	JAN. 22, 1965	63.95	FEB. 15, 1966	63.8	OCT. 12	61.79
MAR. 22	71.7	FEB. 23	66.8	MAR. 12	65.4	NOV. 7	63.07
APR. 22	68.72	APR. 23	69.7	APR. 23	64.1	DEC. 7	64.73
MAY 31	72.1	MAY 26	72.6	MAY 14	66.3	JAN. 9, 1968	65.88
JUNE 25	65.1	JUNE 22	64.5	JULY 14	64.2	FEB. 7	68.18
JULY 28	64.7	JULY 24	64.1	SEP. 27	62.9	MAR. 7	72.54
AUG. 27	64.1	AUG. 25	63.9	FEB. 23, 1967	68.01	APR. 8	71.56
SEP. 23	61.0	SEP. 21	59.6	APR. 11	73.00	MAY 7	72.61
OCT. 23	58.6	OCT. 26	57.5	MAY 27	72.87	JUNE 7	68.19
NOV. 14	62.0	NOV. 27	60.0	JUNE 10	72.82		

GSN 3046 (MUSA 1). ON MAIDUGURI-DUMBOA ROAD ABOUT 33.6 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. BOREHOLE IS ABOUT 200 FT. W OF ROAD. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 4.5 FT. ABOVE LSD. TO 213 FT. CASING 2-1/2 IN. ID API MP TO 193 FT. SCREENED 193 TO 208 FT. WITH 20 SLOT 1-1/4 IN. DIAM. EVERDUR, 208 TO 213 FT. WITH 15 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1185 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). MEASUREMENTS DISCONTINUED BECAUSE VANDALS FILLED BOREHOLE WITH RUBBISH.
 HIGHEST WATER LEVEL 84.80 BELOW LSD, OCT. 26, 1965,
 LOWEST WATER LEVEL 89.90 BELOW LSD, MAY 31, 1964.
 RECORDS AVAILABLE 1964-66.

DATE	WATER LEVEL						
MAR. 20, 1964	89.35	OCT. 23, 1964	87.71	JUNE 22, 1965	89.38	DEC. 14, 1965	87.34
APR. 22	89.57	NOV. 14	87.58	JULY 24	89.30	FEB. 15, 1966	87.74
MAY 31	89.9	DEC. 26	87.69	AUG. 25	89.21	MAR. 12	88.14
JUNE 25	89.75	JAN. 22, 1965	87.94	SEP. 21	88.26	APR. 23	88.62
JULY 29	89.60	FEB. 23	88.39	OCT. 26	84.8	MAY 14	88.85
AUG. 27	89.31	APR. 23	89.05	NOV. 27	87.25	JULY 14	88.12
SEP. 23	88.60	MAY 26	89.51				

WELL 1571/62. JIRINA VILLAGE. VILLAGE IS ABOUT 1.4 MILES FROM MAIDUGURI-DUMBOA ROAD ALONG MULGWE TRACK. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.9 FT. ABOVE LSD. TO 112.0 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 106.4 FT., 3 FT. DIAM. 106.4 TO TD. LAND SURFACE APPROX. 1185 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 107.00 BELOW LSD, APR. 30, 1964,
 LOWEST WATER LEVEL 111.38 BELOW LSD, MAR. 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR. 30, 1964	107.0	DEC. 14, 1965	109.0	FEB. 23, 1967	110.35	JAN. 9, 1968	109.72
OCT. 21	109.4	FEB. 15, 1966	109.02	APR. 11	110.26	FEB. 7	110.63
MAR. 16, 1965	110.0	MAR. 12	110.0	MAY 27	110.35	MAR. 7	111.38
APR. 23	110.1	APR. 23	109.6	JUNE 10	110.75	APR. 8	111.00
MAY 26	109.9	MAY 14	109.7	NOV. 7	109.72	MAY 7	110.80
JUNE 22	109.2	JUNE 14	109.7	DEC. 7	110.08	JUNE 7	110.74
OCT. 26	109.8	AUG. 27	109.4				

WELL 1433/62. KIRIKASHIMA VILLAGE. VILLAGE IS ABOUT 3.5 MILES FROM MAIDUGURI-DUMBOA ROAD ALONG TRACK TO MULGWE. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.8 FT. ABOVE LSD. TO 116.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 108.1 FT., 3 FT. DIAM. 108.1 TO TD. LAND SURFACE APPROX. 1185 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 112.00 BELOW LSD, APR. 30, 1964,
 LOWEST WATER LEVEL 115.05 BELOW LSD, MAR. 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR. 30, 1964	112.0	DEC. 14, 1965	113.7	FEB. 23, 1967	114.62	JAN. 9, 1968	114.26
OCT. 21	113.5	FEB. 15, 1966	113.8	APR. 11	114.29	FEB. 7	114.25
MAR. 16, 1965	113.8	MAR. 12	113.75	MAY 27	114.20	MAR. 7	115.05
APR. 23	113.9	APR. 23	114.5	JUNE 10	114.53	APR. 8	114.84
MAY 26	114.5	MAY 14	113.9	NOV. 7	112.93	MAY 7	114.33
JUNE 22	113.7	JULY 14	113.7	DEC. 7	114.11	JUNE 7	114.24
OCT. 26	113.5	SEP. 27	113.55				

WELL -NN-. NGADINIRI VILLAGE. VILLAGE IS ABOUT 15.0 MILES FROM MAIDUGURI-DUMBOA ROAD ALONG MULGWE TRACK. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.9 FT. ABOVE LSD. TD 98.7 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1180 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 93.00 BELOW LSD, APR. 30, 1964,

LOWEST WATER LEVEL 98.23 BELOW LSD, JUNE 10, 1967.

RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR. 30, 1964	93.0	DEC. 14, 1965	95.9	FEB. 23, 1967	97.42	JAN. 9, 1968	97.36
OCT. 21	94.1	FEB. 15, 1966	96.0	APR. 11	97.78	FEB. 7	97.30
MAR. 16, 1965	95.4	MAR. 12	95.6	MAY 27	97.19	MAR. 7	98.22
APR. 23	96.20	APR. 23	96.1	JUNE 10	98.23	APR. 8	97.83
MAY 26	96.05	MAY. 14	97.1	NOV. 7	96.64	MAY 7	97.83
JUNE 22	95.5	JULY 14	95.9	DEC. 7	96.28	JUNE 7	97.69

WELL -NN-. AJIRI VILLAGE. VILLAGE IS ABOUT 19.4 MILES FROM MAIDUGURI-DUMBOA ROAD ALONG MULGWE TRACK. WELL IS TO NE OF ROAD, ABOUT 100 YARDS W OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS NAIL IN LOG AT TOP OF WELL, 1.0 FT. ABOVE LSD. TD 101.6 FT. WELL IS UNCASSED. LAND SURFACE IS APPROX. 1175 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 93.90 BELOW LSD, OCT. 21, 1964,

LOWEST WATER LEVEL 101.08 BELOW LSD, MAR. 7, 1968.

RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR. 30, 1964	94.5	DEC. 14, 1965	95.63	FEB. 23, 1967	97.44	JAN. 9, 1968	99.30
OCT. 21	93.9	FEB. 15, 1966	97.4	APR. 11	99.57	FEB. 7	100.45
MAR. 16, 1965	95.3	MAR. 12	96.6	MAY 27	99.00	MAR. 7	101.08
APR. 23	96.8	APR. 23	97.4	JUNE 10	99.95	APR. 8	100.60
MAY 26	97.1	MAY 14	96.95	NOV. 7	98.35	MAY 7	100.69
JUNE 22	95.5	JUNE 14	97.3	DEC. 7	98.45	JUNE 7	99.78

WELL -NN-. GAMBERI VILLAGE. VILLAGE IS ABOUT 20.8 MILES FROM MAIDUGURI-DUMBOA ROAD ALONG TRACK TO MULGWE. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS NAIL IN LOG AT TOP OF WELL, AT LSD. TD 95.9 FT. WELL IS UNCASSED. LAND SURFACE IS APPROX. 1175 FT. ABOVE SEA LEVEL.

HIGHEST WATER LEVEL 85.00 BELOW LSD, APR. 30, 1964,

LOWEST WATER LEVEL 97.95 BELOW LSD, APR. 38, 1968.

RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR. 30, 1964	85.0	DEC. 14, 1965	86.8	FEB. 23, 1967	91.27	JAN. 9, 1968	92.67
OCT. 21	85.7	FEB. 15, 1966	87.5	APR. 11	93.45	FEB. 7	95.11
MAR. 16, 1965	87.9	MAR. 12	89.8	MAY 27	95.05	MAR. 7	94.14
APR. 23	88.6	APR. 23	90.15	JUNE 10	95.10	APR. 8	97.95
MAY 26	88.3	MAY 14	90.95	NOV. 7	90.72	MAY 7	95.31
JUNE 22	87.8	JULY 14	89.3	DEC. 7	92.21	JUNE 7	93.95

WELL -NN-. MULGWE VILLAGE. VILLAGE IS ABOUT 26.7 MILES FROM MAIDUGURI-DUMBOA ROAD AT END OF MULGWE TRACK. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS NAIL IN LOG AT TOP OF WELL, AT LSD. TO 44.4 FT. WELL IS UNCASSED. LAND SURFACE IS APPROX. 1195 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 21.10 BELOW LSD, OCT. 21, 1964,
 LOWEST WATER LEVEL 44.29 BELOW LSD, JUNE 10, 1967.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR. 30, 1964	34.	DEC. 14, 1965	34.8	FEB. 23, 1967	43.00	JAN. 9, 1968	42.55
OCT. 21	21.1	JAN. 15, 1966	36.9	APR. 11	42.50	FEB. 7	43.95
MAR. 16, 1965	33.9	FEB. 12	38.05	MAY 27	43.75	MAR. 7	43.20
APR. 23	36.2	MAR. 23	37.95	JUNE 10	44.29	APR. 8	43.95
MAY 26	36.7	APR. 14	37.85	NOV. 7	38.36	MAY 7	44.05
JUNE 22	35.6	JUNE 14	38.4	DEC. 7	40.89	JUNE 7	44.10

GSN 3167 (MULGWE 1). MULGWE VILLAGE. VILLAGE IS ABOUT 26.7 MILES SE OF MAIDUGURI-DUMBOA ROAD AT END OF MULGWE TRACK. BOREHOLE IS ABOUT 100 YARDS E OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.5 FT. ABOVE LSD. TO 215 FT. CASING 2-1/2 IN. ID API MP TO 200 FT. SCREENED 200 TO 215 FT. 15 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1195 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 30.75 BELOW LSD, NOV. 17, 1964,
 LOWEST WATER LEVEL 44.68 BELOW LSD, JUNE 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JULY 28, 1964	39.55	JUNE 22, 1965	38.28	FEB. 23, 1967	42.35	JAN. 9, 1968	41.56
OCT. 21	31.10	DEC. 14	37.66	APR. 11	42.84	FEB. 7	42.03
NOV. 17	30.75	FEB. 15, 1966	38.90	MAY 27	43.45	MAR. 7	42.64
DEC. 22	34.37	MAR. 12	39.00	JUNE 10	43.54	APR. 8	43.24
MAR. 16, 1965	37.47	APR. 23	40.09	NOV. 7	39.41	MAY 7	44.19
APR. 23	38.13	MAY 14	40.39	DEC. 7	40.83	JUNE 7	44.64
MAY 26	38.92	JULY 14	41.09				

GSN 3180 (MULGWE 2). MULGWE VILLAGE. VILLAGE IS ABOUT 26.7 MILES SE OF MAIDUGURI-DUMBOA ROAD AT END OF MULGWE TRACK. BOREHOLE IS ABOUT 200 FT. E OF VILLAGE. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A STEVENS TYPE A-35 WATER LEVEL RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF METAL CASING, 3.5 FT. ABOVE LSD AND ABOUT 0.5 FT. BELOW FLOOR OF SHELTER. TO 216.5 FT. CASING 8 IN. ID MP TO 193 FT., 3 IN. ID 193 TO 196 FT. SCREENED 195 TO 216.5 FT. 20 SLOT 4 IN. DIAM. SCREEN. LAND SURFACE IS APPROX. 1195 FT. ABOVE LSD. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 30.00 BELOW LSD, OCT. 17, 1964, 1/
 LOWEST WATER LEVEL 44.99 BELOW LSD, JUNE 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 17, 1964	30.0 <u>1/</u>	DEC. 14, 1965	38.98	FEB. 23, 1967	42.65	JAN. 9, 1968	42.30
DEC. 20	34.67	FEB. 15, 1966	39.17	APR. 11	43.23	FEB. 7	41.88
MAR. 16, 1965	37.50	MAR. 12	39.74	MAY 27	43.78	MAR. 7	43.48
APR. 23	38.47	APR. 23	39.45	JUNE 10	43.99	APR. 8	44.03
MAY 26	39.23	MAY 14	40.73	NOV. 7	39.72	MAY 7	44.48
JUNE 22	39.67	JULY 14	41.36	DEC. 7	40.48	JUNE 7	44.99

1/ DEPTH TO WATER SURFACE GREATER THAN 30.0 FEET.

GSN 3188 (MUTUBE 3). MUTUBE VILLAGE. VILLAGE IS ON E BANK OF YEDSERAM RIVER ABOUT 12 MILES E OF MULGWE ALONG FOOT PATHS. BOREHOLE IS ENCLOSED BY EASTERNMOST (OF TWO) CONCRETE SHELTER, AND IS AT THE TOP OF A NOTICEABLE MOUND. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF CONCRETE SHELTER, 4.0 FT. ABOVE LSD. TO 112 FT. CASING 8 IN. ID AT TOP, 4 IN. ID TO 107 FT. SCREENED 107 TO 112 FT. LAND SURFACE APPROX. 1185 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 100.35 BELOW LSD, MAY 14, 1966, LOWEST WATER LEVEL 103.20 BELOW LSD, FEB. 26, 1964. RECORDS AVAILABLE 1964-66, 1968-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN. 22, 1964	102.8 J	FEB. 23, 1965	102.34J	APR. 23, 1966	101.1 J	JAN. 9, 1968	101.32J
FEB. 26	103.2 J	APR. 23	100.9 J	MAY 14	100.35J	FEB. 7	101.42J
MAR. 22	102.2 J	MAY 26	101.6 J	JULY 14	100.8 J	MAR. 7	101.66J
APR. 22	101.45J	JUNE 22	100.94J	SEP. 27	100.77J	APR. 8	101.58J

WELL 582/53. BULABULIN VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 36.5 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS ABOUT 100 FT. W OF ROAD, IN MIDDLE OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TO 106.1 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1195 FT. ABOVE LSD. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 100.00 BELOW LSD, AUG. 22, 1967, LOWEST WATER LEVEL 103.64 BELOW LSD, NOV. 7, 1967. RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 22, 1964	102.8	DEC. 26, 1964	101.35	DEC. 14, 1965	102.1	AUG. 22, 1967	100.00
FEB. 26	103.2	JAN. 22, 1965	101.37	FEB. 15, 1966	102.8	OCT. 12	102.90
MAR. 22	102.2	FEB. 23	102.34	MAR. 12	103.6	NOV. 7	103.64
APR. 22	101.45	APR. 23	100.9	APR. 23	101.1	DEC. 7	101.40
MAY 31	102.45	MAY 26	101.6	MAY 14	100.35	JAN. 9, 1968	101.32
JUNE 25	101.2	JUNE 22	100.94	JULY 14	100.8	FEB. 7	101.42
JULY 28	100.45	JULY 24	100.7	SEP. 27	100.77	MAR. 7	101.66
AUG. 27	101.5	AUG. 25	101.2	FEB. 23, 1967	101.06	APR. 8	101.58
SEP. 23	101.2	SEP. 21	101.6	APR. 11	101.54	MAY 7	101.19
OCT. 23	102.1	OCT. 26	100.8	MAY 27	101.43	JUNE 7	101.23
NOV. 14	101.3	NOV. 27	102.0	JUNE 10	101.60		

GSN 3048 (FALONI 1). ALONG MAIDUGURI-DUMBOA ROAD ABOUT 40.6 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. BOREHOLE IS APPROX. 100 FT. W OF ROAD. DRILLED TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 2.4 FT. ABOVE LSD. TO 187 FT. CASING 2-1/2 IN. ID API MP TO 167 FT. SCREENED 167 TO 187 FT. 15 SLOT 1-1/4 IN. DIAM. FVERDUR. LAND SURFACE APPROX. 1220 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 113.70 BELOW LSD, OCT. 26, 1965, LOWEST WATER LEVEL 117.99 BELOW LSD, JUNE 7, 1968. RECORDS AVATLABLE 1964-68.

DATE	WATER LEVEL						
MAR. 23, 1964	116.75	FEB. 23, 1965	115.69	FEB. 15, 1966	115.42	AUG. 22, 1967	117.17
APR. 22	116.80	APR. 23	116.09	MAR. 12	115.63	OCT. 12	117.15
MAY 31	117.1	MAY 26	116.26	APR. 23	115.82	NOV. 8	117.20
JUNE 25	116.98	JUNE 22	116.25	MAY 14	115.85	DEC. 7	117.10
JULY 28	116.90	JULY 24	116.17	JULY 14	115.92	JAN. 9, 1968	117.38
AUG. 27	116.77	AUG. 25	116.10	SEP. 27	115.73	FEB. 7	117.55
SEP. 23	116.60	SEP. 21	115.79	FEB. 23, 1967	116.59	MAR. 7	117.63
OCT. 23	116.36	OCT. 26	113.70	APR. 11	116.88	APR. 8	117.98
NOV. 14	116.17	NOV. 27	115.62	MAY 27	117.18	MAY 7	117.78
DEC. 26	115.95	DEC. 14	115.55	JUNE 10	117.23	JUNE 7	117.99
JAN. 22, 1965	115.85						

WELL 578/53. YALERI VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 44.5 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS ABOUT 50 FT. W OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 140.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1240 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 128.80 BELOW LSD, AUG. 25, 1965, SEP. 27, 1966,
 LOWEST WATER LEVEL 133.24 BELOW LSD, APR. 8, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 22, 1964	131.15	DEC. 26, 1964	130.97	DEC. 14, 1965	130.2	AUG. 22, 1967	130.25
FEB. 26	131.25	JAN. 22, 1965	130.98	FEB. 15, 1966	131.9	OCT. 12	131.25
MAR. 23	132.7	FEB. 23	131.2	MAR. 12	129.3	NOV. 8	130.11
APR. 22	131.65	APR. 23	130.3	APR. 23	129.4	DEC. 7	130.50
MAY 31	132.20	MAY 26	131.0	MAY 14	129.17	JAN. 9, 1968	132.15
JUNE 25	130.6	JUNE 22	130.1	JULY 14	129.4	FEB. 7	132.32
JULY 28	130.0	JULY 24	129.4	SEP. 27	128.8	MAR. 7	132.53
AUG. 27	130.1	AUG. 25	128.8	FEB. 23, 1967	130.09	APR. 8	133.04
SEP. 23	129.3	SEP. 21	130.5	APR. 11	130.75	MAY 7	131.88
OCT. 23	129.6	OCT. 26	130.2	MAY 27	132.18	JUNE 7	132.39
NOV. 14	129.8	NOV. 27	130.4	JUNE 10	132.05		

WELL 639/54. SANDIA VILLAGE. VILLAGE IS ON MAIDUGURI-DUMBOA ROAD ABOUT 50.2 MILES FROM WHERE ROAD JOINS CLAPPERTON WAY IN MAIDUGURI. WELL IS TO W OF ROAD, AT CORNER OF VILLAGE MARKET. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TD 36.0 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1280 FT. ABOVE LSD. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 17.65 BELOW LSD, SEP. 21, 1965,
 LOWEST WATER LEVEL 33.30 BELOW LSD, JUNE 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 22, 1964	29.1	DEC. 26, 1964	26.25	DEC. 14, 1965	24.6	AUG. 22, 1967	29.25
FEB. 26	29.9	JAN. 22, 1965	27.45	FEB. 15, 1966	27.35	OCT. 12	26.90
MAR. 22	31.9	FEB. 23	27.57	MAR. 12	27.95	NOV. 8	28.35
APR. 22	31.8	APR. 23	29.6	APR. 23	28.63	DEC. 7	29.22
MAY 31	32.45	MAY 26	29.5	MAY 14	29.25	JAN. 9, 1968	30.17
JUNE 25	31.1	JUNE 22	28.9	JULY 14	28.5	FEB. 7	30.76
JULY 28	28.5	JULY 24	27.8	SEP. 27	26.2	MAR. 7	31.72
AUG. 27	25.3	AUG. 25	24.3	FEB. 23, 1967	31.22	APR. 8	31.61
SEP. 23	21.9	SEP. 21	17.65	APR. 11	31.12	MAY 7	32.53
OCT. 23	21.8	OCT. 26	20.5	MAY 27	32.12	JUNE 7	33.30
NOV. 14	23.8	NOV. 27	23.9	JUNE 10	32.05		

WELL -NN-. JIMLARI VILLAGE. ON DUMBOA-GONIRI-NGAMDU TRACK ABOUT 13.2 MILES FROM DUMBOA. WELL IS ABOUT 300 YARDS E OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, AT LSD. TD 22.3 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 16.3 FT., 3 FT. DIAM. 16.3 FT. TO TD. LAND SURFACE APPROX. 1380 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 9.80 BELOW LSD, OCT. 23, 1964,
 LOWEST WATER LEVEL 22.14 BELOW LSD, JUNE 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 22, 1964	16.4	JAN. 22, 1965	16.1	MAY 14, 1966	19.6	DEC. 12, 1967	13.56
FEB. 26	17.35	APR. 23	16.3	JULY 14	17.55	JAN. 9, 1968	18.62
APR. 23	19.7	MAY 26	19.9	FEB. 23, 1967	18.89	FEB. 7	16.90
MAY 22	18.1	NOV. 27	12.4	APR. 11	19.09	MAR. 7	17.70
JUNE 31	20.2	DEC. 14	14.45	MAY 27	19.00	APR. 8	18.53
OCT. 23	9.8	FEB. 15, 1966	15.6	JUNE 10	19.49	MAY 7	20.73
NOV. 14	12.6	MAR. 12	16.8	OCT. 12	11.37	JUNE 7	22.14
DEC. 26	13.44	APR. 23	16.3	NOV. 8	12.52		

WELL -NN-. Kafa Village. ON DUMBOA-GONIRI-NGAMDU TRACK ABOUT 23.7 MILES FROM DUMBOA. WELL IS ABOUT 50 YARDS E OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS NAIL IN LOG AT TOP OF WELL, 2.0 FT. ABOVE LSD. TO 66.7 FT. WELL IS UNCASSED. LAND SURFACE APPROX. 1300 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE FROM MP (NOT LSD).
 HIGHEST WATER LEVEL 51.90 BELOW LSD, OCT. 23, 1964,
 LOWEST WATER LEVEL 68.51 BELOW LSD, MAY 7, 1968.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN. 22, 1964	54.7	JAN. 22, 1965	52.6	MAY 14, 1966	63.2	DEC. 7, 1967	64.66
FEB. 26	55.45	APR. 23	56.9	JULY 14	57.1	JAN. 9, 1968	66.52
APR. 3	57.3	MAY 26	58.6	FEB. 23, 1967	60.59	FEB. 7	67.23
APR. 23	58.9	NOV. 27	53.2	APR. 11	64.89	MAR. 7	67.21
MAY 31	58.27	DEC. 14	52.6	MAY 27	66.36	APR. 8	67.73
OCT. 23	51.9	FEB. 15, 1966	55.75	JUNE 10	67.66	MAY 7	68.51
NOV. 14	52.0	MAR. 12	57.6	OCT. 12	58.60	JUNE 7	67.58
DEC. 26	52.1	APR. 23	61.7	NOV. 8	60.21		

GSN 3162 (GONIRI 2). GONIRI VILLAGE RAILROAD STATION. RR STATION IS ABOUT 1.2 MILES SW OF WHERE DUMBOA-GONIRI-NGAMDU TRACK CROSSES RAILROAD LINE. BOREHOLE IS ABOUT 400 YARDS NW OF STATION. A CONCRETE SHELTER ENCLOSES BOREHOLE AND A STEVENS TYPE A-35 WATER LEVEL RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF 8 IN. CASING, AT LSD. TO 261 FT. CASING 8 IN. ID MP TO 219 FT., 3 IN. ID 219 TO 241 FT. SCREENED 241 TO 261 FT. 15 SLOT 4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1310 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 140.75 BELOW LSD, JULY 27, 1965,
 LOWEST WATER LEVEL 144.75 BELOW LSD, JAN. 22, 1965.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 23, 1964	144.39	JULY 27, 1965	140.75	JULY 27, 1966	144.43	DEC. 8, 1967	143.95
OCT. 24	144.52	NOV. 27	144.31	FEB. 23, 1967	144.25	JAN. 9, 1968	143.92
NOV. 14	144.63	DEC. 14	144.42	APR. 11	144.23	FEB. 7	143.95
DEC. 26	144.73	FEB. 15, 1966	144.64	MAY 27	144.15	MAR. 7	143.92
JAN. 22, 1965	144.75	MAR. 12	144.50	JUNE 10	144.15	APR. 8	143.95
APR. 23	144.38	APR. 23	144.48	OCT. 12	143.97	MAY 7	143.89
MAY 26	144.42	MAY 14	144.17	NOV. 8	143.95	JUNE 7	143.90

WELL -NN-. GONIRI VILLAGE RAILROAD STATION. RR STATION IS ABOUT 1.2 MILES SW OF WHERE DUMBOA-GONIRI-NGAMDU TRACK CROSSES RAILROAD LINE. WELL IS ABOUT 50 FT. NE OF STATION. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY WHEN RAILROAD BOREHOLE NOT FUNCTIONING. MP IS TOP OF CONCRETE CASING, 0.5 FT. ABOVE LSD. TO 179.3 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TO. LAND SURFACE APPROX. 1310 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 147.30 BELOW LSD, JUNE 7, 1968,
 LOWEST WATER LEVEL 148.99 BELOW LSD, FEB. 7, 1968.
 RECORDS AVAILABLE 1965-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN. 22, 1965	148.38	MAR. 12, 1966	147.94	MAY 27, 1967	147.52	FEB. 7, 1968	148.99
APR. 23	148.15	APR. 23	147.90	JUNE 10	147.63	MAR. 7	148.85
MAY 26	148.24	MAY 14	147.90	OCT. 12	147.35	APR. 8	147.67
NOV. 27	148.05	JULY 14	147.85	NOV. 8	147.45	MAY 7	147.40
DEC. 14	148.06	FEB. 23, 1967	147.65	DEC. 8	147.48	JUNE 7	147.30
FEB. 15, 1966	148.0	APR. 11	147.55	JAN. 9, 1968	148.91		

Geidam Run

<u>Well No.</u>	<u>Location</u>
559/53	M.O.W. Road Camp, Mile 3
212/46	M.O.W. Road Camp, Mile 7
BM-68	Auno village
*805/55	Yanayaku village
GSN 3034	Kesawa village
-NN-	Lefa village
209/1946	Mainok village. The track to Bornu Yessu from Mainok is extremely rough and difficult to follow.
GSN 2737	Karagawaru village
GSN 2872	Lowanti village
GSN 2742	Kajidiri village
GSN 2736 -NN-	Bornu Yessu village
GSN 2703 *-NN-	Yasku village
GSN 2705 -NN-	Dana village
-NN-	Lumususu village
-NN-	near Shilawa village
GSN 2722 -NN-	Kusar village
394/51	Bulama village
387/51 GSN 2717	Geidam town
GSN 3166 *392/51	Belle village

GSN 2714 -NN-	Gumsa village
-NN-	Lantewa village
*534/53	Kalalawa village
173/1937	Damaturu village
583/53	M.O.W. Road Camp, Mile 674
692/54	Kukaretta village
859/57	Ngamdu village
172/1937 GSN 2730	Benesheik village •

* - A complete chemical analysis is available in Kiser (1968)

WELL 559/53. M.O.W. ROAD CAMP (MILE 3). ON MAIDUGURI-BENESHEIK ROAD ABOUT 1.5 MILES W OF MAIDUGURI POLICE STATION. WELL IS ABOUT 75 YARDS S OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.5 FT. ABOVE LSD. TD 81.5 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1080 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 74.80 BELOW LSD, SEP. 12, 1963,
 LOWEST WATER LEVEL 78.58 BELOW LSD, MAR. 21, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 12, 1963	74.8	AUG. 13, 1964	75.65	JULY 19, 1965	76.8	OCT. 27, 1967	77.78
OCT. 13	75.7	SEP. 16	75.6	AUG. 23	76.5	NOV. 20	77.68
DEC. 11	75.2	OCT. 17	75.6	SEP. 28	76.6	DEC. 20	77.99
JAN. 10, 1964	75.3	NOV. 9	75.4	NOV. 2	76.46	JAN. 22, 1968	78.22
FEB. 11	75.55	DEC. 14	76.05	DEC. 30	76.8	FEB. 22	78.30
MAR. 9	75.6	JAN. 14, 1965	76.1	JAN. 24, 1967	77.69	MAR. 21	78.68
APR. 20	75.8	FEB. 11	76.24	APR. 4	77.15	APR. 24	78.46
MAY 13	76.25	APR. 15	76.8	MAY 24	76.50	MAY 28	78.59
JUNE 12	75.9	MAY 18	76.7	JUNE 16	76.75	JULY 2	78.44
JULY 22	75.72	JUNE 18	76.8	AUG. 7	77.65		

WELL 212/46. M.O.W. ROAD CAMP (MILE 7). ON MAIDUGURI-BENESHEIK ROAD ABOUT 6.0 MILES W OF MAIDUGURI POLICE STATION. WELL IS ABOUT 50 YARDS N OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.45 FT. ABOVE LSD. TD 201.5 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 165.22 BELOW LSD, NOV. 20, 1967,
 LOWEST WATER LEVEL 195.19 BELOW LSD, APR. 4, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 12, 1963	167.60	JULY 22, 1964	167.45	JUNE 18, 1965	173.10	AUG. 7, 1967	167.11
OCT. 13	169.70	AUG. 13	167.20	JULY 19	167.30	OCT. 27	165.38
NOV. 12	171.70	SEP. 16	173.30	AUG. 23	166.70	NOV. 20	165.22
DEC. 11	171.85	OCT. 17	171.60	SEP. 28	166.50	DEC. 20	166.29
JAN. 10, 1964	176.70	NOV. 9	175.80	NOV. 2	172.90	JAN. 22, 1968	172.30
FEB. 11	182.04	DEC. 14	179.40	DEC. 30	183.40	FEB. 22	175.85
MAR. 9	182.35	JAN. 14, 1965	177.70	JAN. 24, 1967	183.59	MAR. 21	178.42
APR. 20	176.45	FEB. 11	177.85	APR. 4	195.19	APR. 24	173.68
MAY 13	178.10	APR. 15	189.30	MAY 24	186.12	MAY 28	176.75
JUNE 12	177.00	MAY 18	192.50	JUNE 16	189.08	JULY 2	168.29

WELL BM-68. AUNO VILLAGE. ON MAIDUGURI-BENESHEIK ROAD ABOUT 14.0 MILES W OF MAIDUGURI POLICE STATION. WELL IS IN FRONT OF SCHOOL, ABOUT 100 YARDS N OF ROAD. DUG WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TD 268.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1095 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 183.28 BELOW LSD, DEC. 20, 1967,
 LOWEST WATER LEVEL 186.90 BELOW LSD, OCT. 13, 1963.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 14, 1963	186.1	AUG. 13, 1964	185.6	JULY 19, 1965	185.7	OCT. 27, 1967	184.13
OCT. 13	186.8	SEP. 16	185.5	AUG. 23	185.2	NOV. 20	184.20
DEC. 11	186.15	OCT. 17	185.6	SEP. 28	185.1	DEC. 20	184.28
JAN. 10, 1964	186.1	NOV. 9	185.7	NOV. 2	185.25	JAN. 22, 1968	184.30
FEB. 11	186.14	DEC. 14	185.6	DEC. 30	185.3	FEB. 22	184.27
MAR. 9	186.2	JAN. 14, 1965	185.7	JAN. 24, 1967	184.70	MAR. 21	184.23
APR. 20	185.1	FEB. 11	185.7	APR. 4	184.73	APR. 24	184.13
MAY 13	186.05	APR. 15	185.7	MAY 24	184.75	MAY 28	184.19
JUNE 12	185.90	MAY 18	185.7	JUNE 16	184.82	JULY 2	184.12
JULY 22	185.79	JUNE 18	185.7	AUG. 7	184.60		

WELL 805/55. YANAYAKU VILLAGE. ON MAIDUGURI-BENESHEIK ROAD ABOUT 17.2 MILES W OF MAIDUGURI POLICE STATION. WELL IS ABOUT 100 YARDS S OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.3 FT. ABOVE LSD. TO 264.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1110 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 207.60 BELOW LSD, JULY 19, 1965,
 LOWEST WATER LEVEL 265.35 BELOW LSD, APR. 5, 1967. 2/
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP. 14, 1963	214.4	JULY 22, 1964	216.48	JUNE 18, 1965	219.3	AUG. 7, 1967	216.12
OCT. 13	214.4	AUG. 13	215.65	JULY 19	207.6	OCT. 27	214.88
NOV. 12	214.4	SEP. 16	215.0	AUG. 23	223.1	NOV. 20	214.84
DEC. 11	215.5	OCT. 17	214.8	SEP. 28	215.3	DEC. 20	214.84
JAN. 10, 1964	218.2	NOV. 9	214.8	NOV. 2	215.06	JAN. 22, 1968	214.88
FEB. 11	221.58	DEC. 14	214.9	DEC. 30	215.2	FEB. 22	217.29
MAR. 9	223.4	JAN. 14, 1965	219.15	JAN. 24, 1967	225.35	MAR. 21	220.68
APR. 20	222.15	FEB. 11	224.73	APR. 5	265.35 <u>2/</u>	APR. 24	219.60
MAY 13	226.0	APR. 15	229.1	MAY 24	246.57	MAY 28	216.57
JUNE 12	226.0	MAY 18	232.9	JUNE 16	226.32	JULY 2	215.46

2/ DOUBTFUL READING, SOFT MUD IN BOTTOM OF WELL.

GSN 3034 (KESAWA 1, USGS 9). KESAWA VILLAGE. ON MAIDUGURI-BENESHEIK ROAD ABOUT 24.6 MILES W OF MAIDUGURI POLICE STATION. BOREHOLE IS ABOUT 1/4 MILE E OF VILLAGE, ABOUT 200 FT. N OF ROAD. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A STEVENS TYPE F WATER LEVEL RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, AT LSD. TO 608 FT. CASING 6 IN. ID MP TO 160 FT., 4-1/2 IN. ID 160 TO 575 FT., 3 IN. ID 575 TO 598 FT. SCREENED 598 TO 608 FT. 15 SLOT 3 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1120 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 83.63 BELOW LSD, OCT. 17, 1963,
 LOWEST WATER LEVEL 90.11 BELOW LSD, MAY 27, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 12, 1963	84.34	MAY 18, 1964	87.20	MAY 18, 1965	87.39	AUG. 7, 1967	88.48
OCT. 17	83.63	JUNE 12	87.10	JUNE 18	86.86	OCT. 27	88.92
NOV. 12	86.37	JULY 22	86.35	JULY 19	86.35	NOV. 20	89.19
DEC. 11	86.60	AUG. 13	86.08	AUG. 23	85.91	DEC. 20	89.36
JAN. 10, 1964	86.77	SEP. 16	85.68	SEP. 28	85.85	JAN. 22, 1968	89.59
FEB. 11	86.84	OCT. 11	86.10	NOV. 3	85.46	FEB. 22	89.75
MAR. 9	87.11	NOV. 9	86.35	DEC. 30	86.72	MAR. 21	89.97
APR. 17	87.08	DEC. 15	86.96	APR. 11, 1967	88.54	APR. 24	90.06
APR. 20	87.07	JAN. 14, 1965	87.08	MAY 24	88.90	MAY 27	90.11
APR. 21	87.09	FEB. 20	87.05	JUNE 16	89.19	JULY 2	89.94
MAY 13	87.32	APR. 16	87.28				

WELL -NN-. LEFA VILLAGE. ON MAIDUGURI-BENESHEIK ROAD ABOUT 29.2 MILES W OF MAIDUGURI POLICE STATION. WELL IS AT EDGE OF VILLAGE, ABOUT 150 YARDS N OF ROAD. DUG WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CONCRETE CASING AT E SIDE, 2.6 FT. ABOVE LSD. TO 258.7 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1135 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 217.0 BELOW LSD, SEP. 14, 1963, 1/
 LOWEST WATER LEVEL 251.48 BELOW LSD, APR. 24, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP. 14, 1963	217.0 <u>1/</u>	JULY 22, 1964	245.9	JUNE 18, 1965	246.4	AUG. 7, 1967	246.61
OCT. 13	244.5	AUG. 13	245.3	JULY 19	246.0	OCT. 27	246.18
NOV. 12	245.5	SEP. 16	245.0	AUG. 23	245.6	NOV. 20	246.21
DEC. 11	247.5	OCT. 17	245.2	SEP. 28	245.5	DEC. 20	246.25
JAN. 10, 1964	245.9	NOV. 9	246.3	NOV. 2	245.62	JAN. 22, 1968	246.40
FEB. 11	245.15	DEC. 14	245.65	DEC. 30	245.6	FEB. 22	246.50
MAR. 9	245.8	JAN. 14, 1965	244.65	JAN. 24, 1967	246.35	MAR. 21	246.71
APR. 20	245.9	FEB. 11	245.5	APR. 4	246.90	APR. 24	251.48
MAY 13	246.2	APR. 16	247.2	MAY 24	247.11	MAY 28	247.15
JUNE 12	246.4	MAY 18	246.6	JUNE 16	247.30	JULY 2	246.79

1/ DEPTH TO WATER SURFACE GREATER THAN 2170 FEET.

WELL 209/1946. MAINOK VILLAGE. ON MAIDUGURI-BENESHEIK ROAD ABOUT 35.2 MILES W OF MAIDUGURI POLICE STATION. WELL IS AT W EDGE OF TOWN, ABOUT 100 YARDS S OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 0.7 FT. ABOVE LSD. TD 169.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1120 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 154.40 BELOW LSD, JAN. 14, 1965,
 LOWEST WATER LEVEL 168.02 BELOW LSD, APR. 4, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 12, 1963	161.3	JULY 22, 1964	161.27	JUNE 18, 1965	157.1	OCT. 27, 1967	162.25
OCT. 13	162.5	AUG. 13	155.35	JULY 19	161.3	NOV. 20	162.17
NOV. 12	164.35	SEP. 16	156.8	AUG. 23	158.7	DEC. 20	161.48
DEC. 11	160.35	OCT. 17	160.7	SEP. 28	158.8	JAN. 22, 1968	160.97
JAN. 10, 1964	159.7	NOV. 9	159.2	NOV. 2	163.56	FEB. 22	161.58
FEB. 11	164.38	DEC. 14	157.5	DEC. 30	164.2	MAR. 24	163.90
MAR. 9	162.0	JAN. 14, 1965	154.4	APR. 4, 1967	168.02	APR. 24	158.79
APR. 20	164.9	FEB. 11	159.3	MAY 24	163.17	MAY 28	158.93
MAY 13	164.1	APR. 16	162.0	JUNE 16	167.82	JULY 2	156.52
JUNE 12	157.4	MAY 18	163.3	AUG. 7	158.65		

GSN 2737 (KAGAGAWARU 1). KAGAGAWARU VILLAGE. ON MAINOK-BORNU YESSU TRACK ABOUT 8 MILES FROM MAINOK. BOREHOLE IS ABOUT 200 YARDS SE OF TOWN. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.5 FT. ABOVE LSD. TD 330 FT. CASING 3 IN. ID MP TO 310 FT. SCREENED 310 TO 330 FT. 10 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1095 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 143.93 BELOW LSD, SEP. 12, 1963,
 LOWEST WATER LEVEL 145.46 BELOW LSD, MAY 27, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 6, 1963	144.31	JULY 23, 1964	144.31	JUNE 18, 1965	144.70	AUG. 7, 1967	145.10
SEP. 12	143.93	AUG. 13	144.05	JULY 19	144.65	OCT. 27	145.03
OCT. 13	144.15	SEP. 14	144.00	AUG. 23	144.38	NOV. 20	145.08
NOV. 12	144.45	OCT. 14	144.22	SEP. 28	144.28	DEC. 20	145.07
DEC. 11	144.45	NOV. 9	144.40	NOV. 1	144.75	JAN. 22, 1968	145.37
JAN. 10, 1964	144.67	DEC. 14	144.65	DEC. 30	144.91	FEB. 22	145.44
FEB. 10	144.65	JAN. 14, 1965	144.71	JAN. 24, 1967	145.24	MAR. 21	145.46
MAR. 9	144.62	FEB. 11	144.78	APR. 4	145.34	APR. 24	145.40
APR. 18	144.70	APR. 16	144.85	MAY 24	145.26	MAY 27	145.46
MAY 10	144.63	MAY 18	144.54	JUNE 16	145.32	JULY 2	145.07
JUNE 12	144.63						

GSN 2872 (LOWANTI 1). LOWANTI VILLAGE. ON MAINOK-BORNU YESSU TRACK ABOUT 15 MILES FROM MAINOK. BOREHOLE IS ABOUT 300 YARDS E OF TRACK AND 300 YARDS N OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 1.55 FT. ABOVE LSD. TD 738 FT. CASING 2-1/2 IN. ID MP TO 718 FT. SCREENED 718 TO 738 FT. 10 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1795 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 130.60 BELOW LSD, SEP. 12, 1963,
 LOWEST WATER LEVEL 132.11 BELOW LSD, MAR. 21, 1968, MAY 27, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 6, 1963	130.87	JULY 23, 1964	131.31	JUNE 18, 1965	131.42	AUG. 7, 1967	131.67
SEP. 12	130.60	AUG. 13	130.83	JULY 19	131.42	OCT. 27	131.61
OCT. 13	130.80	SEP. 14	130.76	AUG. 23	131.09	NOV. 20	131.78
NOV. 12	131.36	OCT. 14	131.09	SEP. 29	130.85	DEC. 20	131.90
DEC. 11	131.15	NOV. 9	131.21	NOV. 1	131.40	JAN. 22, 1968	130.63
JAN. 10, 1964	131.03	DEC. 14	131.20	DEC. 30	131.56	FEB. 22	132.08
FEB. 10	131.35	JAN. 14, 1965	131.47	JAN. 24, 1967	131.90	MAR. 21	132.11
MAR. 9	131.30	FEB. 11	131.49	APR. 4	131.87	APR. 24	131.09
APR. 18	131.75	APR. 16	131.53	MAY 24	131.88	MAY 27	132.11
MAY 18	131.35	MAY 18	131.58	JUNE 16	132.00	JULY 2	131.93
JUNE 12	131.41						

GSN 2742 (KAJIDIRI 1). ON MAINOK-BORNU YESSU TRACK ABOUT 26 MILES FROM MAINOK. BOREHOLE IS ABOUT 1/2 MILE S OF KAJIDIRI VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 2.1 FT. ABOVE LSD. TD 754 FT. CASING 2-1/2 IN. ID MP TO 734 FT. SCREENED 734 TO 754 FT. 20 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1090 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 125.80 BELOW LSD, OCT. 14, 1964, LOWEST WATER LEVEL 128.96 BELOW LSD, MAY 27, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 6, 1963	126.01	JULY 23, 1964	127.0	JUNE 18, 1965	127.66	AUG. 7, 1967	128.50
SEP. 12	125.95	AUG. 13	126.80	JULY 19	127.58	OCT. 27	128.41
OCT. 13	126.1	SEP. 14	126.64	AUG. 23	127.25	NOV. 20	128.59
NOV. 12	126.28	OCT. 14	125.80	SEP. 29	127.43	DEC. 20	128.66
DEC. 11	126.50	NOV. 9	127.10	NOV. 1	127.72	JAN. 22, 1968	128.70
JAN. 10, 1964	126.68	DEC. 21	127.30	DEC. 30	128.01	FEB. 22	128.81
FEB. 10	126.75	JAN. 14, 1965	127.43	JAN. 24, 1967	128.49	MAR. 21	128.89
MAR. 9	126.80	FEB. 11	127.47	APR. 4	128.68	APR. 24	128.89
APR. 18	126.85	APR. 16	127.62	MAY 24	128.72	MAY 27	128.96
MAY 18	126.93	MAY 18	127.70	JUNE 16	128.77	JULY 2	128.25
JUNE 12	126.96						

GSN 2736 (BORNU YESSU 1). BORNU YESSU VILLAGE. ABOUT 50 MILES NW OF MAIDUGURI ON DIRECT MAIDUGURI-GEIDAM TRACK. BOREHOLE IS IN FIELD NE OF VILLAGE, ABOUT 100 FT. FROM CONCRETE WELL. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 1.5 FT. ABOVE LSD. TD 898 FT. CASING 2-1/2 IN. ID MP TO 878 FT. SCREENED 878 TO 898 FT. 10 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 68.80 BELOW LSD, OCT. 13, 1963, LOWEST WATER LEVEL 71.39 BELOW LSD, JULY 2, 1968. 3/ RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 13, 1963	69.12	JUNE 12, 1964	69.60	MAY 18, 1965	69.80	JUNE 16, 1967	70.40
SEP. 12	68.95	JULY 23	69.4	JUNE 18	69.63	AUG. 7	70.24
OCT. 13	68.8	AUG. 13	69.12	JULY 19	69.64	OCT. 27	70.17
NOV. 12	69.26	SEP. 14	68.97	AUG. 23	69.33	NOV. 20	70.34
DEC. 11	69.35	OCT. 14	69.15	NOV. 1	69.65	DEC. 20	70.46
JAN. 10, 1964	69.53	NOV. 9	69.30	DEC. 30	69.74	FEB. 22, 1968	70.57
FEB. 10	69.5	DEC. 21	69.43	JAN. 24, 1967	70.25	MAR. 21	70.59
MAR. 9	69.48	JAN. 24, 1965	69.49	APR. 4	70.27	APR. 24	70.69
APR. 18	69.55	FEB. 11	69.57	MAY 24	70.41	JULY 2	71.39 3/
MAY 16	69.60	APR. 16	69.69				

3/ AFFECTED BY DRAWDOWN FROM PUMPAGE.

WELL -NN-. BORNU YESSU VILLAGE. VILLAGE IS ABOUT 50 MILES NW OF MAIDUGURI ON DIRECT MAIDUGURI-GEIDAM TRACK. WELL IS IN FIELD NE OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE RINGS, 1.6 FT. ABOVE LSD. TD 186.2 FT. CASING CONCRETE RINGS MP TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 174.30 BELOW LSD, SEP. 14, 1964, LOWEST WATER LEVEL 186.50 BELOW LSD, MAY 21, 1963. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
MAY 21, 1963	186.5	JUNE 12, 1964	175.9	JUNE 18, 1965	175.4	AUG. 7, 1967	176.50
AUG. 13	175.37	JULY 23	175.52	JULY 19	175.2	OCT. 27	180.18
SEP. 12	175.6	AUG. 13	175.2	AUG. 23	175.0	NOV. 20	183.35
OCT. 13	176.95	SEP. 14	174.3	SEP. 29	178.6	DEC. 20	182.03
NOV. 12	183.3	OCT. 14	177.75	NOV. 1	179.35	JAN. 22, 1968	182.22
DEC. 11	183.1	NOV. 9	179.05	DEC. 30	185.7	FEB. 22	183.98
JAN. 10, 1964	184.4	DEC. 21	185.1	JAN. 24, 1967	182.29	MAR. 21	182.04
FEB. 10	181.8	JAN. 14, 1965	182.9	APR. 4	182.04	APR. 24	181.17
MAR. 9	183.1	FEB. 11	185.9	MAY 24	183.60	MAY 27	178.70
APR. 18	182.3	APR. 16	182.4	JUNE 16	183.65	JULY 2	175.16
MAY 16	183.35	MAY 18	182.8				

GSN 2703 (YASKU 1). YASKU VILLAGE. ON DIRECT MAIDUGURI-GEIDAM TRACK ABOUT 10.6 MILES NW OF BORNU YESSU. BOREHOLE IS ABOUT 200 FT. S OF TRACK AND 100 FT. W OF WELL. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.5 FT. ABOVE LSD. TO 1021 FT. CASING 2-1/2 IN. ID MP TO 1001 FT. SCREENED 1001 TO 1021 FT. 20 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1060 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 59.77 BELOW LSD, SEP. 14, 1964,
 LOWEST WATER LEVEL 62.56 BELOW LSD, MAR. 21, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 13, 1963	59.82	JULY 23, 1964	60.3	JUNE 18, 1965	60.64	AUG. 7, 1967	61.35
SEP. 12	60.84	AUG. 13	59.83	JULY 19	60.68	OCT. 28	61.04
OCT. 13	60.3	SEP. 14	59.77	AUG. 23	60.41	NOV. 20	61.20
NOV. 12	60.79	OCT. 14	60.01	SEP. 29	60.2	DEC. 20	61.29
DEC. 11	60.14	NOV. 9	60.14	NOV. 1	60.58	JAN. 22, 1968	61.40
JAN. 10, 1964	60.36	DEC. 21	60.38	DEC. 30	60.65	FEB. 22	61.34
FEB. 10	60.35	JAN. 15, 1965	61.47	JAN. 24, 1967	61.09	MAR. 21	62.06
MAR. 9	60.41	FEB. 11	61.51	APR. 4	61.17	APR. 24	61.79
APR. 18	60.45	APR. 16	60.64	MAY 24	61.35	MAY 27	61.60
MAY 16	60.47	MAY 19	60.68	JUNE 16	61.35	JULY 2	61.50
JUNE 12	60.68						

WELL -NN-. YASKU VILLAGE. ON DIRECT MAIDUGURI-GEIDAM TRACK ABOUT 10.6 MILES NW OF BORNU YESSU. WELL IS ON S SIDE OF TRACK, ABOUT 200 YARDS S OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.0 FT. ABOVE LSD. TO 170.6 FT. CASING CONCRETE RINGS 3 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1060 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 167.25 BELOW LSD, DEC. 30, 1965,
 LOWEST WATER LEVEL 169.84 BELOW LSD, APR. 24, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 12, 1963	168.2	JULY 23, 1964	168.02	JULY 19, 1965	168.5	OCT. 28, 1967	168.55
OCT. 13	168.3	AUG. 13	168.00	AUG. 23	168.3	NOV. 20	169.51
NOV. 12	169.1	SEP. 14	168.00	SEP. 29	168.2	DEC. 20	169.07
DEC. 11	168.8	OCT. 14	168.10	NOV. 1	168.85	JAN. 22, 1968	168.95
JAN. 10, 1964	169.5	NOV. 9	169.10	DEC. 30	167.25	FEB. 22	168.77
FEB. 10	169.5	JAN. 15, 1965	168.6	JAN. 24, 1967	168.54	MAR. 21	169.61
MAR. 9	168.4	FEB. 11	168.15	APR. 4	168.52	APR. 24	169.84
APR. 18	167.9	APR. 16	167.8	MAY 24	168.85	MAY 27	168.81
MAY 16	168.35	MAY 19	168.3	JUNE 16	168.68	JULY 2	168.59
JUNE 12	168.5	JUNE 19	168.2	AUG. 7	168.59		

GSN 2705 (DANA 1). DANA VILLAGE. ON DIRECT MAIDUGURI-GEIDAM TRACK ABOUT 23.9 MILES NW OF BORNU YESSU. BOREHOLE IS ABOUT 150 FT. S OF TRACK AND 300 FT. W OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 2.0 FT. ABOVE LSD. TO 939 FT. CASING 2-1/2 IN. ID MP TO 919 FT. SCREENED 919 TO 939 FT. 10 SLOT EVERDUR. LAND SURFACE APPROX. 1765 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 63.30 BELOW LSD, AUG. 13, 1963,
 LOWEST WATER LEVEL 67.55 BELOW LSD, APR. 4, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
AUG. 13, 1963	63.30	JUNE 12, 1964	64.30	MAY 19, 1965	64.19	AUG. 7, 1967	64.55
SEP. 12	63.45	JULY 23	64.05	JUNE 18	64.20	OCT. 28	64.33
OCT. 13	63.9	AUG. 13	63.75	JULY 19	64.28	NOV. 20	64.44
NOV. 12	64.01	SEP. 14	63.42	AUG. 23	63.88	DEC. 20	64.54
DEC. 11	64.10	OCT. 14	63.64	SEP. 29	63.87	JAN. 22, 1968	64.59
JAN. 10, 1964	64.17	NOV. 9	63.78	NOV. 1	64.14	FEB. 22	64.64
FEB. 10	64.15	DEC. 21	63.91	JAN. 24, 1967	64.54	MAR. 21	64.69
MAR. 9	64.20	JAN. 15, 1965	64.00	APR. 4	64.55	APR. 24	64.72
APR. 18	64.23	FEB. 11	64.03	MAY 24	64.53	MAY 27	64.78
MAY 16	64.32	APR. 16	64.12	JUNE 16	64.61	JULY 2	64.70

WELL -NN-. DANA VILLAGE. ON DIRECT MAIDUGURI-GEIDAM TRACK ABOUT 23.9 MILES NW OF BORNU YESSU. WELL IS ABOUT 100 YARDS S OF ROAD IN FIELD W OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS NAIL IN LOG AT TOP OF WELL, AT LSD. TD 158.5 FT. WELL IS NOT CASED. LAND SURFACE APPROX. 1065 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 155.50 BELOW LSD, JULY 2, 1968, DRY, WATER LEVEL NOT MEASURABLE, APR. 24, 1968, MAY 27, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
NOV. 9, 1963	157.0	AUG. 13, 1964	157.0	JUNE 18, 1965	155.8	NOV. 20, 1967	160.60
DEC. 21	158.4	SEP. 14	156.1	JULY 19	155.8	DEC. 20	157.35
JAN. 10, 1964	158.1	OCT. 14	156.2	AUG. 23	155.7	JAN. 22, 1968	157.80
FEB. 10	158.05	NOV. 9	157.0	SEP. 29	155.6	FEB. 22	156.95
MAR. 9	158.2	DEC. 21	159.4	NOV. 1	156.0	MAR. 21	160.29
APR. 18	158.5 2/	JAN. 15, 1965	159.2 2/	MAY 24, 1967	158.38	APR. 24	158D5
MAY 16	159.7 2/	FEB. 11	158.4	JUNE 16	157.62	MAY 27	158D5
JUNE 12	158.1	APR. 16	158.1	AUG. 7	156.42	JULY 2	155.50
JULY 23	157.33	MAY 19	157.2	OCT. 28	156.46		

2/ DOUBTFUL READING, SOFT MUD IN BOTTOM OF WELL.

WELL -NN-. LUMUSU VILLAGE. ON DIRECT MAIDUGURI-GEIDAM TRACK ABOUT 36.1 MILES NW OF BORNU YESSU. WELL IS ABOUT 400 YARDS N OF TRACK. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.0 FT. ABOVE LSD. TD 175.6 FT. CASING CONCRETE RINGS 3 FT. DIAM. MP TO TD. LAND SURFACE IS APPROX. 1070 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 169.90 BELOW LSD, SEP. 29, 1965, LOWEST WATER LEVEL 174.29 BELOW LSD, APR. 4, 1967. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 11, 1963	170.5	SEP. 14, 1964	170.1	AUG. 23, 1965	170.0	NOV. 21, 1967	170.29
JAN. 10, 1964	170.3	NOV. 9	170.0	SEP. 29	169.9	DEC. 20	170.26
FEB. 10	170.8	DEC. 21	170.7	NOV. 1	169.95	JAN. 22, 1968	170.49
MAR. 9	170.4	JAN. 15, 1965	173.6	JAN. 24, 1967	173.28	FEB. 22	170.70
APR. 18	171.3	FEB. 11	171.4	APR. 4	174.29	MAR. 21	172.60
MAY 16	170.65	APR. 16	170.4	MAY 24	170.93	APR. 24	172.54
JUNE 12	171.3	MAY 19	170.3	JUNE 16	173.92	MAY 27	172.17
JULY 23	170.33	JUNE 18	170.7	AUG. 7	170.51	JULY 2	170.55
AUG. 13	170.3	JULY 19	170.0	OCT. 28	170.38		

WELL -NN-. NEAR SHILAWA VILLAGE. WELL IS ABOUT 0.1 MILE SW OF DIRECT MAIDUGURI-GEIDAM TRACK AT A POINT ABOUT 37.3 MILES NW OF BORNU YESSU. THE TRACK CROSSES A SLIGHT RISE JUST E OF THE WELL. DUG WELL TO WATER TABLE. USED TO WATER LIVESTOCK. MP IS TOP OF CONCRETE CASING, 1.0 FT. ABOVE LSD. TD 159.3 FT. CONCRETE CASING 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1070 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 145.30 BELOW LSD, AUG. 14, 1964, LOWEST WATER LEVEL 156.40 BELOW LSD, JAN. 15, 1965. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 11, 1963	150.7	SEP. 15, 1964	147.0	AUG. 23, 1965	147.4	NOV. 21, 1967	151.10
JAN. 10, 1964	150.4	NOV. 9	147.2	SEP. 29	147.3	DEC. 20	150.54
FEB. 10	147.2	DEC. 21	150.05	NOV. 1	147.75	JAN. 22, 1968	151.68
MAR. 9	148.4	JAN. 15, 1965	156.4	JAN. 24, 1967	155.94	FEB. 22	150.63
APR. 18	151.2	FEB. 11	149.76	APR. 4	154.72	MAR. 21	152.03
MAY 16	150.7	APR. 16	148.4	MAY 24	149.68	APR. 24	150.68
JUNE 12	147.4	MAY 19	149.4	JUNE 16	155.25	MAY 27	150.54
JULY 22	147.2	JUNE 18	148.1	AUG. 7	149.42	JULY 2	150.58
AUG. 14	145.3	JULY 19	147.5	OCT. 28	149.71		

GSN 2722 (KUSAR 1). KUSAR VILLAGE. VILLAGE IS ABOUT 23 MILES SSE OF GEIDAM. BOREHOLE IS AT S EDGE OF MARKET AREA, S OF TOWN. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.4 FT. ABOVE LSD. TD 561 FT. CASING 2-1/2 IN. ID MP TO 541 FT. SCREENED 541 TO 561 FT. 20 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 122.90 BELOW LSD, JAN. 10, 1964, LOWEST WATER LEVEL 125.98 BELOW LSD, DEC. 20, 1967. RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 10, 1964	122.90	DEC. 21, 1964	124.66	SEP. 29, 1965	123.62	NOV. 21, 1967	125.56
FEB. 10	124.15	JAN. 15, 1965	124.54	NOV. 1	124.37	DEC. 20	125.98
APR. 18	125.26	FEB. 11	124.78	JAN. 24, 1967	125.20	JAN. 22, 1968	125.54
MAY 16	125.30	APR. 16	124.82	APR. 4	125.55	FEB. 22	125.62
JUNE 12	125.30	MAY 19	125.08	MAY 24	125.40	MAR. 22	125.58
JULY 22	124.82	JUNE 18	124.88	JUNE 16	125.38	APR. 24	125.70
AUG. 14	124.52	JULY 19	125.12	AUG. 7	125.34	MAY 27	125.71
SEP. 15	124.19	AUG. 23	124.60	OCT. 28	125.44	JULY 2	125.63
NOV. 9	125.45						

WELL -NN-. KUSAR VILLAGE. VILLAGE IS ABOUT 23 MILES SSE OF GEIDAM. WELL IS AT W EDGE OF TOWN. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.2 FT. ABOVE LSD. TD 137.7 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1085 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 130.20 BELOW LSD, AUG. 14, 1964, LOWEST WATER LEVEL 137.01 BELOW LSD, MAR. 22, 1968. RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JAN. 10, 1964	135.1	DEC. 21, 1964	132.9	SEP. 29, 1965	131.4	NOV. 21, 1967	135.35
FEB. 10	134.4	JAN. 15, 1965	134.3	NOV. 1	131.86	DEC. 20	133.46
APR. 18	133.75	FEB. 11	131.9	JAN. 24, 1967	136.97	JAN. 22, 1968	132.89
MAY 16	135.1	APR. 16	134.2	APR. 4	136.22	FEB. 22	133.68
JUNE 12	131.3	MAY 19	134.4	MAY 24	134.05	MAR. 22	137.01
JULY 22	130.7	JUNE 18	132.2	JUNE 16	133.30	APR. 24	132.65
AUG. 14	130.2	JULY 19	132.4	AUG. 7	132.93	MAY 27	133.12
SEP. 15	132.0	AUG. 23	131.5	OCT. 23	134.71	JULY 2	133.77
NOV. 9	132.4						

WELL 394/51. BULAMA VILLAGE. ON DIRECT MAIDUGURI-GEIDAM TRACK ABOUT 1/2 MILE SE OF JUNCTION WITH LANTEWA-GEIDAM TRACK. WELL IS ABOUT 50 YARDS S OF TRACK. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.5 FT. ABOVE LSD. TD 75.8 FT. CASING CONCRETE RINGS 4-1/2 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1060 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 71.75 BELOW LSD, MAY 24, 1967, LOWEST WATER LEVEL 77.30 BELOW LSD, MAY 25, 1964. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 11, 1963	73.8	SEP. 15, 1964	73.15	AUG. 23, 1965	71.9	NOV. 21, 1967	72.10
JAN. 11, 1964	73.7	NOV. 9	73.4	SEP. 29	72.0	DEC. 20	72.03
FEB. 10	74.1	DEC. 21	72.94	NOV. 1	72.15	JAN. 22, 1968	72.35
MAR. 9	73.25	JAN. 15, 1965	73.5	JAN. 24, 1967	72.67	FEB. 22	72.90
APR. 18	73.75	FEB. 11	73.06	APR. 4	72.42	MAR. 22	72.10
MAY 25	77.3	APR. 16	73.3	MAY 24	71.75	APR. 24	73.21
JUNE 12	73.95	MAY 19	73.0	JUNE 16	73.39	MAY 27	72.48
JULY 22	73.11	JUNE 18	72.5	AUG. 7	71.77	JULY 2	72.51
AUG. 14	73.1	JULY 19	72.2	OCT. 28	71.84		

WELL 387/51. GEIDAM TOWN. GEIDAM IS A LARGE TOWN ABOUT 110 MILES NW OF MAIDUGURI. WELL IS IN LARGE OPEN AREA IN FRONT OF DISTRICT HEAD'S COMPOUND, AND JUST TO THE SW OF THE WATER TANK. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY WHEN PUMPS ARE NOT WORKING. MP IS TOP OF CONCRETE CASING, 2.4 FT. ABOVE LSD. TD 54.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1040 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 47.75 BELOW LSD, JAN. 15, 1965,
 LOWEST WATER LEVEL 52.85 BELOW LSD, APR. 18, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
OCT. 14, 1963	49.55	AUG. 14, 1964	50.3	AUG. 24, 1965	50.7	NOV. 21, 1967	48.69
DEC. 12	48.5	SEP. 15	50.6	SEP. 29	49.3	DEC. 20	48.35
JAN. 11, 1964	50.05	OCT. 15	49.4	NOV. 1	49.76	JAN. 22, 1968	48.73
FEB. 11	48.75	DEC. 22	47.8	JAN. 24, 1967	48.00	FEB. 22	48.74
MAR. 9	52.4	JAN. 15, 1965	47.75	APR. 4	48.72	MAR. 22	49.00
APR. 18	52.85	FEB. 11	48.59	MAY 24	49.44	APR. 24	49.24
MAY 15	50.9	APR. 16	51.2	JUNE 16	49.42	MAY 27	51.51
JUNE 12	51.2	JUNE 19	49.5	AUG. 7	49.50	JULY 2	49.31
JULY 23	50.07	JULY 19	49.8	OCT. 28	49.03		

GSN 2717 (GEIDAM 1). GEIDAM TOWN. GEIDAM IS A LARGE TOWN ABOUT 110 MILES NW OF MAIDUGURI. BOREHOLE IS IN LARGE OPEN AREA IN FRONT OF DISTRICT HEAD'S COMPOUND. BOREHOLE IS ABOUT HALFWAY BETWEEN THE TWO COVERS OF THE PRODUCTION BOREHOLFS. DRILLED WELL TO UPPER ZONE(?) AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.8 FT. ABOVE LSD. TD 130 FT. CASING 2-1/2 IN. ID MP TO 120 FT. SCREENED 120 TO 130 FT. 15 SLOT 1-1/4 IN. DIAM. EVERDUR. LAND SURFACE APPROX. 1040 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 41.03 BELOW LSD, DEC. 22, 1964,
 LOWEST WATER LEVEL 45.45 BELOW LSD, JULY 23, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
OCT. 13, 1963	43.9	AUG. 14, 1964	45.25	AUG. 24, 1965	44.28	NOV. 21, 1967	42.60
DEC. 12	42.57	SEP. 15	44.52	SEP. 29	44.54	DEC. 20	42.91
JAN. 11, 1964	43.34	OCT. 15	43.29	NOV. 1	42.62	JAN. 22, 1968	43.56
FEB. 11	43.70	DEC. 22	41.03	JAN. 24, 1967	42.94	FEB. 22	44.07
MAR. 9	44.30	JAN. 15, 1965	41.67	APR. 4	43.93	MAR. 22	44.46
APR. 18	44.80	FEB. 11	42.49	MAY 24	44.66	APR. 24	44.86
MAY 15	45.12	APR. 16	43.69	JUNE 16	44.88	MAY 27	45.09
JUNE 12	45.36	JUNE 19	44.53	AUG. 7	45.15	JULY 2	45.31
JULY 23	45.45	JULY 19	44.68	OCT. 28	43.38		

GSN 3166. BELLE VILLAGE. ON GEIDAM-GASHUA TRACK ABOUT 17 MILES W OF GEIDAM. BOREHOLE IS ABOUT 500 FT. S OF TRACK ABOUT 1/4 MILE E OF VILLAGE. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A STEVENS TYPE F WATER LEVEL RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, AT LSD. TD 290 FT. CASING 8 IN. ID MP TO 267.25 FT., 3 IN. ID 267.25 TO 270 FT. SCREENED 270 TO 280 FT. WITH 15 SLOT EVERDUR, 280 TO 290 FT. WITH 20 SLOT EVERDUR. LAND SURFACE APPROX. 1100 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 63.52 BELOW LSD, JAN. 15, 1965,
 LOWEST WATER LEVEL 65.10 BELOW LSD, JUNE 12, 1964.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 12, 1964	65.10	FEB. 12, 1965	63.76	MAY 24, 1967	64.58	JAN. 22, 1968	64.30
JULY 23	64.90	APR. 17	64.18	JUNE 16	64.87	FEB. 22	64.46
AUG. 14	64.96	JUNE 18	64.57	AUG. 7	64.91	MAR. 22	64.61
SEP. 14	64.37	JULY 20	64.66	OCT. 28	64.05	APR. 24	64.77
OCT. 15	64.15	JAN. 25, 1967	64.47	NOV. 21	63.96	MAY 28	64.88
DEC. 21	64.25	APR. 5	64.41	DEC. 20	64.03	JULY 3	64.99
JAN. 15, 1965	63.52						

WELL 392/51. BELLE VILLAGE. ON GEIDAM-GASHUA TRACK ABOUT 17 MILES W OF GEIDAM. WELL IS IN CENTER OF VILLAGE A FEW BLOCKS N OF TRACK. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 65.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1100 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 59.50 BELOW LSD, OCT. 15, 1964, JAN. 15, 1965,
 LOWEST WATER LEVEL 65.15 BELOW LSD, MAY 24, 1967.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL						
JUNE 13, 1964	62.9	APR. 17, 1965	63.4	JAN. 25, 1967	60.94	DEC. 20, 1967	62.27
JULY 23	61.74	JUNE 19	61.9	APR. 5	61.37	JAN. 22, 1968	63.70
AUG. 14	62.0	JULY 20	59.8	MAY 24	65.15	FEB. 22	64.28
SEP. 15	61.3	NOV. 1	60.35	JUNE 16	64.54	MAR. 22	64.09
OCT. 15	59.5	FEB. 28, 1966	62.45	AUG. 7	62.79	APR. 24	63.79
DEC. 21	59.95	APR. 21	60.00	OCT. 28	62.84	MAY 28	62.66
JAN. 15, 1965	59.5	JULY 22	63.2	NOV. 21	60.88	JULY 3	63.04
FEB. 12	61.3	SEP. 23	59.8				

GSN 2714 (GUMSA 1). GUMSA VILLAGE. ON GEIDAM-LANTEWA TRACK ABOUT 24.2 MILES S OF GEIDAM. BOREHOLE IS ABOUT 500 FT. E OF ROAD AND ABOUT 300 FT. N OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS TOP OF CASING, 0.48 FT. ABOVE LSD. TD 390 FT. CASING 2-1/2 IN. ID MP TO 370 FT. SCREENED 1-1/4 IN. DIAM. 20 SLOT EVERDUR 370 FT. TO 390 FT. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 96.02 BELOW LSD, OCT. 2, 1965,
 LOWEST WATER LEVEL 98.26 BELOW LSD, MAY 25, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	97.05	JAN. 15, 1965	97.32	APR. 21, 1966	97.20	OCT. 29, 1967	97.07
JAN. 11, 1964	97.13	FEB. 12	97.45	JULY 23	97.31	NOV. 21	97.06
APR. 18	97.62	APR. 17	97.47	SEP. 23	96.92	DEC. 21	97.26
MAY 14	97.44	JUNE 19	97.50	JAN. 25, 1967	97.06	JAN. 23, 1968	97.48
MAY 25	97.40	JULY 20	97.42	APR. 5	97.40	FEB. 23	97.59
JUNE 13	97.50	OCT. 2	96.02	MAY 25	98.26	MAR. 22	97.68
SEP. 15	96.19	NOV. 2	96.20	JUNE 17	97.54	APR. 25	97.07
NOV. 9	96.51	MAR. 1, 1966	96.84	AUG. 8	97.50	MAY 28	97.69
DEC. 22	97.03						

WELL -NN-. GUMSA VILLAGE. ON GEIDAM-LANTEWA TRACK ABOUT 24.2 MILES S OF GEIDAM. WELL IS IN CENTER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.5 FT. ABOVE LSD. TD 232.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 30.7 FT., 3 FT. DIAM. 30.7 FT. TO TD. LAND SURFACE APPROX. 1075 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 27.14 BELOW LSD, DEC. 22, 1964,
 LOWEST WATER LEVEL 33.35 BELOW LSD, MAY 28, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	29.8	DEC. 22, 1964	27.14	APR. 21, 1966	30.85	OCT. 29, 1967	31.97
JAN. 11, 1964	30.55	JAN. 15, 1965	27.17	JULY 23	31.1	NOV. 21	31.54
FEB. 11	30.8	FEB. 12	27.9	SEP. 23	31.2	DEC. 21	30.67
MAR. 10	31.0	APR. 17	29.2	JAN. 25, 1967	29.94	JAN. 23, 1968	30.66
APR. 18	32.10	JUNE 19	30.4	APR. 5	32.00	FEB. 23	30.68
MAY 14	31.0	JULY 20	30.3	MAY 25	32.25	MAR. 22	30.70
JUNE 13	32.2	OCT. 2	30.96	JUNE 17	31.77	APR. 25	32.46
SEP. 15	31.0	NOV. 2	30.22	AUG. 8	32.27	MAY 28	33.35
NOV. 9	27.4	MAR. 1, 1966	29.7				

WELL -NN-. LANTEWA VILLAGE. ON DAMATURU-GASHUA ROAD ABOUT 40 MILES N OF DAMATURU. WELL IS ABOUT 100 FT. E OF JUNCTION OF ROAD AND TRACK TO GEIDAM. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TO 232.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1110 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 211.40 BELOW LSD, MAR. 1, 1966,
 LOWEST WATER LEVEL 231.85 BELOW LSD, APR. 19, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	225.8	NOV. 9, 1964	212.5	MAR. 1, 1966	211.4	OCT. 29, 1967	216.71
JAN. 11, 1964	212.4	DEC. 22	212.4	APR. 21	224.1	NOV. 21	213.45
FEB. 11	212.2	JAN. 15, 1965	212.3	JULY 23	213.2	DEC. 21	212.86
MAR. 10	213.9	FEB. 12	212.27	SEP. 23	211.8	JAN. 23, 1968	212.57
APR. 19	231.85	APR. 17	211.7	JAN. 25, 1967	211.9	FEB. 23	214.10
MAY 14	229.0	JUNE 19	212.8	APR. 5	223.53	MAR. 22	215.17
JUNE 12	216.2	JULY 20	212.4	MAY 25	215.78	APR. 25	215.00
JULY 22	212.83	OCT. 2	213.7	JUNE 16	226.42	MAY 28	216.07
AUG. 14	212.4	NOV. 2	212.8	AUG. 8	212.81	JULY 3	214.32
SEP. 15	212.3						

WELL 534/53. KALALAWA VILLAGE. ON DAMATURU-GASHUA ROAD ABOUT 15.9 MILES N OF DAMATURU. WELL IS IN VILLAGE ABOUT 50 FT. E OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP TOP OF CONCRETE CASING, 2.4 FT. ABOVE LSD. TO 280.6 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1225 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 206.60 BELOW LSD, JAN. 11, 1964,
 LOWEST WATER LEVEL 281.09 BELOW LSD, MAR. 22, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	217.5	SEP. 15, 1964	228.9	MAR. 1, 1966	250.64	OCT. 29, 1967	244.49
JAN. 11, 1964	206.6	NOV. 9	244.3	APR. 21	266.3	NOV. 21	236.90
FEB. 11	207.2	DEC. 22	244.4	JULY 23	256.6	DEC. 21	238.97
MAR. 10	209.8	JAN. 15, 1965	244.6	SEP. 23	259.1	JAN. 23, 1968	246.79
APR. 18	242.3	FEB. 12	244.97	JAN. 25, 1967	265.66	FEB. 23	279.76
APR. 20	242.92	JUNE 19	247.2	APR. 5	267.11	MAR. 22	281.09
MAY 14	244.4	JULY 20	242.2	MAY 25	275.06	APR. 25	249.70
JUNE 13	243.5	OCT. 2	244.1	JUNE 17	279.22	MAY 28	239.41
JULY 22	227.60	NOV. 2	242.8	AUG. 8	227.26	JULY 3	231.51
AUG. 14	218.7						

WELL 173/1937. IN DAMATURU. ON DAMATURU-GASHUA ROAD ABOUT 0.9 MILES N OF MAIDUGURI-KANO ROAD. WELL IS ABOUT 50 FT. E OF ROAD, NEAR THE DISPENSARY. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TO 172.2 FT. CASING CONCRETE RINGS 3 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1220 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 151.10 BELOW LSD, MAR. 1, 1966,
 LOWEST WATER LEVEL 167.70 BELOW LSD, MAR. 10, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	158.0	OCT. 17, 1964	161.8	MAR. 1, 1966	151.1	OCT. 29, 1967	157.76
JAN. 11, 1964	155.6	NOV. 9	158.6	APR. 21	164.3	NOV. 22	153.25
FEB. 11	163.45	DEC. 22	155.75	JULY 22	165.95	DEC. 21	155.59
MAR. 10	167.7	JAN. 16, 1965	158.2	SEP. 24	162.9	JAN. 23, 1968	157.23
APR. 20	162.74	FEB. 12	153.47	JAN. 25, 1967	167.39	FEB. 23	159.34
MAY 13	166.3	APR. 17	164.3	APR. 5	166.09	MAR. 22	158.97
JUNE 12	163.5	JUNE 19	161.7	MAY 25	165.40	APR. 25	157.61
JULY 22	165.52	JULY 20	162.0	JUNE 17	167.02	MAY 28	160.27
AUG. 14	160.2	OCT. 2	157.76	AUG. 8	158.35	JULY 3	158.05
SEP. 16	157.5	NOV. 2	155.22				

WELL 583/53. M.O.W. ROAD CAMP MILE 74. ON MAIDUGURI-KANO ROAD ABOUT 73.5 MILES FROM MAIDUGURI (OPPOSITE MILEPOST 74). WELL IS S OF ROAD ABOUT 75 YARDS, AT W SIDE OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.1 FT. ABOVE LSD. TD 211.2 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1250 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 205.00 BELOW LSD, DEC. 12, 1963,
 LOWEST WATER LEVEL 211.73 BELOW LSD, FEB. 23, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	205.0	OCT. 17, 1964	205.9	MAR. 1, 1966	206.87	OCT. 29, 1967	206.41
JAN. 11, 1964	206.6	NOV. 9	206.2	APR. 21	207.4	NOV. 22	206.90
FEB. 11	207.55	DEC. 14	206.05	JULY 23	206.3	DEC. 21	206.66
MAR. 10	206.3	JAN. 16, 1965	206.1	SEP. 24	206.2	JAN. 23, 1968	207.52
APR. 20	206.15	FEB. 12	206.54	JAN. 25, 1967	208.62	FEB. 23	211.73
MAY 13	207.8	APR. 17	206.9	APR. 5	207.43	MAR. 22	208.44
JUNE 13	207.0	JUNE 19	206.1	MAY 25	207.04	APR. 25	205.36
JULY 22	205.94	JULY 20	206.1	JUNE 17	206.98	MAY 28	206.89
AUG. 14	206.0	OCT. 2	206.1	AUG. 8	206.54	JULY 3	206.22
SEP. 16	206.0	NOV. 2	206.2				

WELL 692/54. KUKARETTA VILLAGE. ON MAIDUGURI-KANO ROAD ABOUT 67.5 MILES FROM MAIDUGURI. WELL IS ABOUT 25 YARDS S OF ROAD IN W SECTION OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TD 261.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1275 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 222.20 BELOW LSD, DEC. 12, 1963,
 LOWEST WATER LEVEL 262.69 BELOW LSD, MAR. 22, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	222.2	OCT. 17, 1964	222.9	MAR. 1, 1966	252.14	OCT. 29, 1967	222.98
JAN. 11, 1964	223.5	NOV. 9	223.2	APR. 21	260.8	NOV. 22	223.15
FEB. 11	226.57	DEC. 14	230.0	JULY 23	223.7	DEC. 21	222.93
MAR. 10	260.7	JAN. 16, 1965	225.5	SEP. 24	223.1	JAN. 23, 1968	231.97
APR. 20	258.26	FEB. 12	259.02	JAN. 25, 1967	227.1	FEB. 23	260.58
MAY 13	261.55	APR. 17	261.2	APR. 5	262.31	MAR. 22	262.69
JUNE 13	256.9	JUNE 19	236.6	MAY 25	262.25	APR. 25	262.19
JULY 22	223.56	JULY 20	223.5	JUNE 17	261.82	MAY 28	252.49
AUG. 14	223.7	OCT. 2	223.2	AUG. 8	223.57	JULY 3	224.47
SEP. 16	223.3	NOV. 2	223.2				

WELL 859/57. NGAMDU VILLAGE. ON MAIDUGURI-KANO ROAD ABOUT 61.9 MILES FROM MAIDUGURI. WELL IS ABOUT 20 YARDS S OF ROAD AT W END OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TD 138.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1175 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 103.30 BELOW LSD, SEP. 16, 1964,
 LOWEST WATER LEVEL 138.62 BELOW LSD, JUNE 17, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
DEC. 12, 1963	118.1	OCT. 17, 1964	104.5	MAR. 1, 1966	136.7	OCT. 29, 1967	130.00
JAN. 11, 1964	128.2	NOV. 9	105.3	APR. 21	136.9	NOV. 22	131.36
FEB. 11	131.65	DEC. 14	112.25	JULY 23	132.15	DEC. 21	138.36
MAR. 10	135.2	JAN. 16, 1965	115.4	SEP. 24	132.2	JAN. 23, 1968	137.97
APR. 20	135.85	FEB. 12	128.98	JAN. 25, 1967	135.9	FEB. 23	138.20
MAY 13	135.2	APR. 17	134.1	APR. 5	138.24	MAR. 22	137.83
JUNE 13	127.4	JUNE 19	125.9	MAY 23	138.40	APR. 25	137.76
JULY 22	126.47	JULY 20	123.5	JUNE 17	138.62	MAY 28	135.23
AUG. 14	115.1	OCT. 2	121.1	AUG. 8	131.09	JULY 3	136.85
SEP. 16	103.3	NOV. 2	123.45				

WELL 172/1937. BENESHEIK VILLAGE. ON MAIDUGURI-KANO ROAD ABOUT 45.1 MILES FROM MAIDUGURI. WELL IS IN SQUARE IN FRONT OF DISTRICT HEAD'S HOUSE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP TOP OF CONCRETE RINGS, 2.3 FT. ABOVE LSD. TD 152.9 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1120 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 133.30 BELOW LSD, JAN. 11, 1964,
 LOWEST WATER LEVEL 144.23 BELOW LSD, APR. 5, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
MAY 21, 1963	142.4	JULY 22, 1964	137.69	OCT. 2, 1965	138.75	AUG. 8, 1967	139.00
SEP. 12	133.7	AUG. 14	135.6	NOV. 2	138.58	OCT. 29	141.03
OCT. 13	134.9	SEP. 16	134.0	MAR. 1, 1966	139.2	NOV. 22	138.59
NOV. 12	134.7	OCT. 17	134.2	APR. 21	139.75	DEC. 21	142.30
DEC. 12	135.00	NOV. 9	134.7	JULY 23	140.0	JAN. 23, 1968	139.25
JAN. 11, 1964	133.3	DEC. 14	134.3	SEP. 24	138.1	FEB. 23	139.90
FEB. 11	134.44	JAN. 16, 1965	134.45	JAN. 25, 1967	139.7	MAR. 22	140.72
MAR. 10	135.7	APR. 17	137.8	APR. 5	144.23	APR. 25	140.20
APR. 20	136.34	JUNE 19	138.2	MAY 25	143.27	MAY 28	140.55
MAY 13	136.8	JULY 20	138.5	JUNE 17	140.49	JULY 3	143.31
JUNE 12	136.84						

GSN 2730 (BENESHEIK 1). ON MAIDUGURI-KANO ROAD ABOUT 45.5 MILES FROM MAIDUGURI. BOREHOLE IS ABOUT 100 YARDS S OF ROAD, AT W END OF VILLAGE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL 21 MAY 1963 TO 2 NOV. 1965, SINCE THEN AS VILLAGE SUPPLY. MP WAS NOT RECORDED, ASSUMED AT LSD. TD 441 FT. CASING 2-1/2 IN. ID FROM BELOW SWL TO 421 FT. SCREENED 1-1/4 IN. DIAM. 15 SLOT EVERDUR 421 FT. TO 441 FT. LAND SURFACE APPROX. 1120 FT. ABOVE SEA LEVEL. MEASUREMENTS DISCONTINUED WHEN WELL PUT INTO PRODUCTION.
 HIGHEST WATER LEVEL 81.95 BELOW LSD, NOV. 2, 1965,
 LOWEST WATER LEVEL 82.64 BELOW LSD, MAY 13, 1964.
 RECORDS AVAILABLE 1963-65.

DATE	WATER LEVEL						
MAY 21, 1963	82.45	FEB. 11, 1964	82.51	AUG. 14, 1964	82.06	FEB. 12, 1965	82.45
JULY 25	82.40	MAR. 10	82.45	SEP. 16	82.01	APR. 17	82.58
SEP. 12	81.96	APR. 20	82.55	OCT. 17	82.21	JUNE 19	82.57
OCT. 13	82.2	MAY 13	82.64	NOV. 9	82.27	JULY 20	82.52
NOV. 12	82.33	JUNE 12	82.55	DEC. 14	82.37	OCT. 20	82.12
DEC. 12	82.35	JULY 22	82.18	JAN. 4, 1965	82.49	NOV. 2	81.95
JAN. 11, 1964	82.43						

Kauwa Run

<u>Well No.</u>	<u>Location</u>
-NN-	Gajigana village
-NN-	Gajiram village
GSN 3024 GSN 3026 GSN 3025	near Sabaswa village
-NN-	Gudwari village
-NN-	Furta village
*-NN-	Checheno village
-NN-	Dogoshe village
*-NN-	Kauwa village
GSN 3020 *GSN 3021	near Kauwa village

* - A complete chemical analysis is available in Kiser (1968)

WELL -NN-. GAJIGANA VILLAGE. ON MAIDUGURI-BAGA ROAD ABOUT 30.6 MILES FROM MAIDUGURI. WELL IS AT W EDGE OF VILLAGE, ABOUT 500 FT. NE OF NA SCHOOL AND 150 FT. E OF VILLAGE BOREHOLE. DUG WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CONCRETE CASING, 1.5 FT. ABOVE LSD. TO APPROX. 200 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 985 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 194.00 BELOW LSD, JUNE 1, 1963,
 LOWEST WATER LEVEL 205.80 BELOW LSD, MAY 27, 1965.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNF 1, 1963	194.	SEP. 9, 1964	200.5	SFP. 17, 1965	199.95	MAY 17, 1967	200.50
OCT. 7	200.	OCT. 13	203.7	OCT. 13	200.05	OCT. 18	200.50
NOV. 6	202.	NOV. 20	201.0	NOV. 16	200.36	NOV. 14	200.49
DEC. 2	202.	DEC. 11	200.9	DEC. 4	200.2	DEC. 18	200.47
JAN. 3, 1964	205.5	JAN. 8, 1965	200.84	JAN. 12, 1966	200.15	JAN. 18, 1968	203.27
FEB. 5	201.8	FEB. 5	200.9	FEB. 4	200.35	FEB. 19	200.66
MAR. 15	201.5	APR. 1	203.1	APR. 5	200.3	MAR. 19	200.55
APR. 12	201.5	MAY 6	201.8	MAY 6	200.3	APR. 22	201.53
MAY 4	201.3	MAY 27	205.8	JULY 27	200.2	MAY 20	202.02
JUNE 7	201.45	JULY 7	200.4	JAN. 3, 1967	200.76	MAY 30	201.02
JULY 7	201.5	AUG. 13	200.3	MAR. 17	201.20	JUNE 19	200.43
AUG. 7	201.2						

WELL -NN-. GAJIRAM VILLAGE. ON MAIDUGURI-BAGA ROAD ABOUT 48.7 MILES FROM MAIDUGURI. WELL IS AT N EDGE OF TOWN. DUG WELL TO WATER TABLE. USED AS OBSERVATION WELL. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TO 145.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 960 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 139.00 BELOW LSD, JUNE 1, 1963,
 DRY, WATER LEVEL NOT MEASUREABLE, NOV. 16, 1965, DEC. 4, 1965, FEB. 19, 1968, MAR. 19, 1968,
 MAY 30, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNF 1, 1963	139.	JULY 7, 1964	144.2	MAY 27, 1965	145.2	MAR. 16, 1967	144.19
OCT. 10	144.1	AUG. 7	144.1	JULY 7	144.2	MAY 17	144.20
NOV. 6	144.4	SEP. 9	144.2	AUG. 13	144.2	OCT. 18	144.33
DEC. 2	144.6	OCT. 13	144.1	SEP. 17	144.2	NOV. 14	144.44
JAN. 3, 1964	146.0	NOV. 18	144.5	OCT. 13	143.1	DEC. 18	144.48
FEB. 5	144.3	DEC. 11	144.1	NOV. 16	145D4	JAN. 18, 1968	144.77
MAR. 15	144.55	JAN. 8, 1965	144.15	DEC. 4	145D4	FEB. 19	145D4
APR. 12	144.25	FEB. 5	144.15	JAN. 12, 1966	143.4	MAR. 19	145D4
MAY 4	148.0	APR. 1	144.0	JAN. 3, 1967	144.4	MAY 30	145D4
JUNE 7	144.5	MAY 7	144.2				

GSN 3024 (SABSAWA 2, USGS 4). NEAR SABSAWA VILLAGE. VILLAGE IS ABOUT 7.2 MILES NW OF GAJIRAM, BOREHOLE IS ABOUT 1 MILE S OF VILLAGE. BOREHOLE IS ABOUT 500 FT. N OF CONCRETE SHELTER OVER GSN 3025 AND ABOUT 300 FT. N OF GSN 3026. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS CONCRETE BLOCK NEXT TO BOREHOLE, AT LSD. TO 1106 FT. CASING 2-1/2 IN. ID MP TO 1086 FT. SCREENED 15 SLOT EVERDUR 1086 FT. TO 1106 FT. LAND SURFACE APPROX. 965 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 37.20 ABOVE LSD, DEC. 2, 1963,
 LOWEST WATER LEVEL 27.91 ABOVE LSD, MAR. 19, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNF 13, 1963	+ 37.0	OCT. 13, 1964	+ 34.15	NOV. 16, 1965	+ 32.73	NOV. 14, 1967	+ 32.78
DEC. 2	+ 37.2	DEC. 11	+ 33.25	DEC. 4	+ 35.53	DEC. 18	+ 31.87
JAN. 3, 1964	+ 36.15	JAN. 8, 1965	+ 35.43	JAN. 12, 1966	+ 34.53	JAN. 18, 1968	+ 31.66
FEB. 5	+ 35.40	APR. 1	+ 35.54	FEB. 4	+ 32.49	FEB. 19	+ 31.51
MAR. 25	+ 35.2	MAY 6	+ 35.50	APR. 5	+ 34.51	MAR. 19	+ 27.91
APR. 12	+ 34.75	MAY 27	+ 35.32	MAY 6	+ 35.08	APR. 22	+ 28.94
MAY 4	+ 35.26	JULY 7	+ 35.47	JULY 27	+ 35.36	MAY 20	+ 32.98
JULY 7	+ 33.95	AUG. 13	+ 35.84	FEB. 2, 1967	+ 33.58	MAY 30	+ 28.99
AUG. 7	+ 35.43	SEP. 17	+ 36.18	MAY 17	+ 33.03	JUNE 19	+ 32.17
SEP. 9	+ 34.52	OCT. 13	+ 35.76	OCT. 18	+ 32.14		

GSN 3026 (SABSAWA 4, USGS 48). NEAR SABSAWA VILLAGE. VILLAGE IS ABOUT 7.2 MILES NW OF GAJIRAM, BOREHOLE IS ABOUT 1 MILE S OF VILLAGE. BOREHOLE IS ABOUT 200 FT. N OF CONCRETE SHELTER OVER GSN 3025 AND ABOUT 300 FT. S OF GSN 3024. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS CONCRETE BLOCK NEXT TO BOREHOLE, AT LSD. TO 1106 FT. CASING 2-1/2 IN. ID MP TO 1086 FT. SCREENED 15 SLOT EVERDUR 1086 FT. TO 1106 FT. LAND SURFACE APPROX. 965 FT. ABOVE SFA LEVEL. HIGHEST WATER LEVEL 35.60 ABOVE LSD, DEC. 2, 1963, LOWEST WATER LEVEL 25.20 ABOVE LSD, MAY 20, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 13, 1963	+ 35.5	OCT. 13, 1964	+ 34.20	NOV. 16, 1965	+ 31.56	NOV. 14, 1967	+ 33.45
DEC. 2	+ 35.6	DEC. 11	+ 33.70	DEC. 4	+ 33.86	DEC. 18	+ 33.03
JAN. 3, 1964	+ 32.6	JAN. 8, 1965	+ 33.38	JAN. 12, 1966	+ 33.82	JAN. 18, 1968	+ 31.56
FEB. 5	+ 33.75	APR. 1	+ 33.87	FEB. 4	+ 31.21	FEB. 19	+ 31.60
MAR. 25	+ 33.5	MAY 6	+ 33.86	APR. 5	+ 33.14	MAR. 19	+ 26.61
APR. 12	+ 31.95	MAY 27	+ 33.76	MAY 6	+ 32.32	APR. 22	+ 25.25
MAY 4	+ 33.67	JULY 7	+ 33.86	JULY 27	+ 32.74	MAY 20	+ 25.20
JULY 7	+ 32.35	AUG. 13	+ 34.13	FEB. 2, 1967	+ 30.13	MAY 30	+ 27.62
AUG. 7	+ 33.76	SEP. 17	+ 34.47	MAY 17	+ 31.55	JUNE 19	+ 25.50
SEP. 9	+ 33.68	OCT. 13	+ 34.17	OCT. 18	+ 33.78		

GSN 3025 (SABSAWA 3, USGS 4A). NEAR SABSAWA VILLAGE. VILLAGE IS ABOUT 7.2 MILES NW OF GAJIRAM, BOREHOLE IS ABOUT 1 MILE S OF VILLAGE. BOREHOLE IS ABOUT 500 FT. S OF GSN 3024 AND ABOUT 200 FT. S OF GSN 3026. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A FOXBORO PRESSURE RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF SHELTER, AT LSD. TO 1107 FT. CASING 4-1/2 IN. ID MP TO 1068 FT., 3 IN. ID 1068 FT. TO 1087 FT. SCREENED 4 IN. DIAM. EVERDUR 1087 FT. TO 1107 FT. LAND SURFACE APPROX. 965 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 35.10 ABOVE LSD, OCT. 7, 1963, LOWEST WATER LEVEL 31.18 ABOVE LSD, MAR. 19, 1968. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 13, 1963	+ 35.	OCT. 13, 1964	+ 33.95	NOV. 16, 1965	+ 33.57	OCT. 18, 1967	+ 33.44
OCT. 7	+ 35.1	DEC. 11	+ 33.40	JAN. 12, 1966	+ 32.94	NOV. 14	+ 32.67
DEC. 2	+ 34.2	JAN. 8, 1965	+ 33.41	FEB. 4	+ 33.15	DEC. 18	+ 31.81
FEB. 5, 1964	+ 33.42	APR. 1	+ 33.58	FEB. 10	+ 32.89	JAN. 18, 1968	+ 31.87
MAR. 25	+ 33.35	MAY 6	+ 33.42	APR. 5	+ 32.84	FEB. 19	+ 31.96
APR. 12	+ 34.05	MAY 27	+ 33.42	MAY 6	+ 32.98	MAR. 19	+ 31.18
MAY 4	+ 33.45	JULY 7	+ 33.52	JULY 27	+ 33.32	APR. 22	+ 32.32
JUNE 7	+ 33.52	AUG. 13	+ 33.78	FEB. 2, 1967	+ 32.00	MAY 20	+ 31.46
JULY 7	+ 33.55	SEP. 17	+ 34.10	MAR. 16	+ 33.20	MAY 30	+ 32.62
AUG. 7	+ 33.60	OCT. 13	+ 33.89	MAY 17	+ 32.52	JUNE 19	+ 33.03
SEP. 9	+ 33.55						

WELL -NN-. GUDWARI VILLAGE. ON OLD GAJIRAM-MONGONU TRACK ABOUT 15 MILES FROM GAJIRAM. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP AT LSD. TO ESTIMATED 110 FT. UNCASSED. LAND SURFACE APPROX. 940 FT. ABOVE SFA LEVEL. MEASUREMENTS DISCONTINUED BECAUSE WELL COLLAPSED. HIGHEST WATER LEVEL 105.50 BELOW LSD, JAN. 3, 1964, NOV. 18, 1964, SEP. 17, 1965, LOWEST WATER LEVEL 108.60 BELOW LSD, JAN. 12, 1966. RECORDS AVAILABLE 1963-66.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 7, 1963	106.8	JUNE 7, 1964	107.1	APR. 1, 1965	106.4	NOV. 16, 1965	107.55
NOV. 6	106.4	JULY 7	105.9	MAY 7	106.6	DEC. 4	108.1
DEC. 2	106.2	OCT. 14	106.7	MAY 27	106.8	JAN. 12, 1966	108.6
JAN. 3, 1964	105.5	NOV. 18	105.5	JULY 7	106.0	FEB. 4	106.8
FEB. 5	106.2	DEC. 11	106.6	AUG. 14	106.2	APR. 5	107.2
MAR. 25	107.5	JAN. 8, 1965	106.31	SEP. 17	105.5	MAY 6	106.2
APR. 12	106.4	FEB. 5	106.1	OCT. 13	105.6	JULY 27	105.95
MAY 4	106.3						

WELL -NN-. FURTA VILLAGE. ON OLD GAJIRAM-MONGONU TRACK ABOUT 20 MILES FROM GAJIRAM. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP AT LSD. TD ESTIMATED 95 FT. UNCASSED. LAND SURFACE APPROX. 940 FT. ABOVE SEA LEVEL. MEASUREMENTS DISCONTINUED BECAUSE WELL COLLAPSED. HIGHEST WATER LEVEL 87.53 BELOW LSD, OCT. 18, 1967, LOWEST WATER LEVEL 93.40 BELOW LSD, MAY 7, 1965. RECORDS AVAILABLE 1963-67.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 8, 1963	92.0	JULY 7, 1964	91.3	MAY 27, 1965	89.4	FEB. 4, 1966	90.8
NOV. 6	90.2	SEP. 10	89.0	JULY 7	89.9	APR. 5	89.05
DEC. 2	91.1	OCT. 13	90.1	AUG. 14	88.8	MAY 6	88.8
JAN. 3, 1964	90.2	NOV. 18	92.5	SEP. 17	88.8	JULY 27	87.8
FEB. 5	90.3	DEC. 11	91.4	OCT. 13	89.9	JAN. 4, 1967	89.39
MAR. 25	93.1	JAN. 8, 1965	91.1	NOV. 16	90.6	MAR. 17	92.40
APR. 12	89.6	FEB. 5	89.77	DEC. 4	90.9	MAY 17	88.35
MAY 4	88.2	APR. 1	92.6	JAN. 12, 1966	89.5	OCT. 18	87.53
JUNE 7	91.25	MAY 7	93.4				

WELL -NN-. CHECHENO VILLAGE. ON MAIDUGURI-BAGA ROAD ABOUT 91.4 MILES FROM MAIDUGURI. WELL IS ABOUT 200 YARDS E OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS BENT NAIL IN LOG AT TOP OF WELL, AT LSD. TD 57.2 FT. LINED WITH SMALL STICKS. LAND SURFACE APPROX. 930 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 53.73 BELOW LSD, JUNE 19, 1968, DRY, WATER LEVEL NOT MEASUREABLE, SEP. 18, 1965, OCT. 14, 1965. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 8, 1963	57.9	OCT. 13, 1964	58.7	AUG. 14, 1965	55.4	NOV. 14, 1967	54.77
NOV. 6	56.3	NOV. 18	57.1	SEP. 18	57D2	DEC. 18	54.83
DEC. 2	57.8	DEC. 11	56.5	OCT. 14	57D2	JAN. 18, 1968	55.00
JAN. 2, 1964	57.8	JAN. 9, 1965	56.4	FEB. 4, 1966	57.4	FEB. 19	55.38
FEB. 6	56.7	FEB. 5	56.6	JULY 27	55.0	MAR. 19	55.50
MAR. 25	56.9	APR. 2	56.5	JAN. 4, 1967	56.80	APR. 22	54.86
APR. 13	56.8	MAY 7	56.5	MAR. 16	55.09	MAY 20	54.45
MAY 5	57.2	MAY 27	57.2	MAY 17	55.28	MAY 30	54.31
JULY 8	56.0	JULY 7	56.4	OCT. 18	55.63	JUNE 19	53.73
SEP. 11	56.4						

WELL -NN-. DOGOSHE VILLAGE. ON MAIDUGURI-BAGA ROAD ABOUT 96.8 MILES FROM MAIDUGURI. VILLAGE IS ON E SIDE OF ROAD, AND WELL IS IN NE CORNER OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF LOG AT SIDE OF WELL NEAREST VILLAGE, AT LSD. TD 54.2 FT. LINED WITH SMALL STICKS. LAND SURFACE APPROX. 930 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 49.05 BELOW LSD, OCT. 18, 1967, LOWEST WATER LEVEL 55.30 BELOW LSD, JAN. 2, 1964. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 8, 1963	55.0	NOV. 18, 1964	53.5	NOV. 16, 1965	52.60	OCT. 18, 1967	49.05
NOV. 6	54.7	DEC. 11	53.6	DEC. 5	52.70	NOV. 14	50.23
DEC. 2	54.2	FEB. 5, 1965	53.64	JAN. 12, 1966	52.00	DEC. 18	50.26
JAN. 2, 1964	55.3	APR. 2	53.30	FEB. 4	51.8	JAN. 18, 1968	50.22
FEB. 6	53.8	MAY 7	53.30	APR. 6	52.1	FEB. 19	50.09
MAR. 25	53.9	MAY 27	53.20	MAY 6	51.7	MAR. 19	49.92
APR. 13	54.1	JULY 7	53.0	JULY 27	51.2	APR. 22	50.05
MAY 4	55.1	AUG. 14	52.9	JAN. 4, 1967	50.09	MAY 20	49.95
JULY 8	53.9	SEP. 18	52.75	MAR. 16	50.58	MAY 30	49.88
SEP. 11	53.7	OCT. 14	52.7	MAY 17	50.92	JUNE 19	49.86
OCT. 13	54.0						

WELL -NN-. KAUWA VILLAGE. VILLAGE IS ABOUT 1.8 MILES E OF ROUNDABOUT WHERE KUKAUWA SPUR JOINS MAIDUGURI-BAGA ROAD. WELL IS IN FRONT OF VILLAGE HEAD'S HOUSE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS BENT NAIL IN LOG AT TOP OF WELL, AT LSD. TO 49.4 FT. LINED WITH SMALL STICKS. LAND SURFACE APPROX. 925 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 44.78 BELOW LSD, MAY 20, 1968,
 LOWEST WATER LEVEL 53.80 BELOW LSD, JUNE 22, 1963.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 22, 1963	53.8	JULY 8, 1964	51.2	JUNE 7, 1965	50.3	DEC. 18, 1967	46.27
OCT. 8	52.0	SEP. 11	50.7	JULY 7	49.8	JAN. 18, 1968	46.33
NOV. 6	52.3	OCT. 13	53.2	AUG. 14	49.5	FEB. 19	45.86
DEC. 2	52.5	NOV. 18	50.4	SEP. 18	49.4	MAR. 19	46.31
JAN. 2, 1964	51.3	DEC. 11	50.4	MAR. 16, 1967	47.48	APR. 22	46.10
FEB. 6	51.9	JAN. 9, 1965	50.4	MAY 17	47.10	MAY 20	44.78
MAR. 25	51.3	FEB. 5	50.46	OCT. 18	46.35	MAY 30	45.73
APR. 13	51.5	MAR. 2	50.4	NOV. 14	46.9	JUNE 19	45.16
MAY 4	52.0	MAY 7	50.2				

GSN 3020 (KAUWA 2, USGS 3). NEAR KAUWA VILLAGE. ON KAUWA-BAGA TRACK ABOUT 3.7 MILES FROM KAUWA VILLAGE, IN SIGHT OF NEW MAIDUGURI-BAGA ROAD. BOREHOLE IS ABOUT 500 FT. E OF SHELTER OVER GSN 3021. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS CONCRETE BLOCK NEXT TO BOREHOLE, AT LSD. TO 1200 FT. CASING 2-1/2 IN. ID MP TO 1180 FT. SCREENED 15 SLOT EVERDUR 1180 FT. TO 1200 FT. LAND SURFACE APPROX. 920 FT. ABOVE SEA LEVEL.
 HIGHEST WATER LEVEL 66.21 ABOVE LSD, AUG. 14, 1965,
 LOWEST WATER LEVEL 22.93 ABOVE LSD, MAY 17, 1967.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNF 21, 1963	+ 63.	JULY 8, 1964	+ 64.17	FEB. 4, 1966	+ 64.11	DEC. 18, 1967	+ 52.81
OCT. 8	+ 64.6	SEP. 11	+ 63.53	APR. 6	+ 63.09	JAN. 18, 1968	+ 58.08
NOV. 6	+ 63.5	OCT. 13	+ 64.40	MAY 6	+ 62.39	FEB. 19	+ 58.26
DEC. 2	+ 64.7	AUG. 14, 1965	+ 66.21	JULY 27	+ 63.11	MAR. 19	+ 59.63
JAN. 2, 1964	+ 65.5	SEP. 18	+ 64.84	FEB. 3, 1967	+ 63.03	APR. 22	+ 57.82
FEB. 6	+ 65.0	OCT. 14	+ 64.55	MAY 17	4/	MAY 20	+ 57.85
MAR. 25	+ 64.45	NOV. 16	+ 64.40	OCT. 18	+ 59.76	MAY 30	+ 58.38
APR. 13	+ 64.4	DEC. 5	+ 64.17	NOV. 14	+ 57.96	JUNE 19	+ 57.50
MAY 4	+ 64.20	JAN. 12, 1966	+ 61.69				

4/ READING IN ERROR, MANOMETER LEAKING.

GSN 3021 (KAUWA 3, USGS 3A). NEAR KAUWA VILLAGE. ON KAUWA-BAGA TRACK ABOUT 3.7 MILES FROM KAUWA VILLAGE, IN SIGHT OF NEW MAIDUGURI-BAGA ROAD. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A FOXBORO PRESSURE RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF SHELTER, 0.7 FT. ABOVE LSD. TO 1266 FT. CASING 2-1/2 IN. ID MP TO 1246 FT. SCREENED 1-1/4 IN. DIAM. 10 SLOT 1246 FT. TO 1266 FT. LAND SURFACE APPROX. 920 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 65.40 ABOVE LSD, NOV. 6, 1963,
 LOWEST WATER LEVEL 59.69 ABOVE LSD, JUNE 19, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUNE 8, 1963	+ 63.15	JULY 8, 1964	+ 63.15	JUNE 27, 1966	+ 61.99	JAN. 18, 1968	+ 60.04
OCT. 8	+ 63.2	SEP. 11	+ 62.95	FEB. 3, 1967	+ 62.15	FEB. 19	+ 60.05
NOV. 6	+ 65.4	OCT. 13	+ 62.85	MAR. 16	+ 63.30	MAR. 19	+ 60.35
DEC. 2	+ 64.4	NOV. 18	+ 64.12	MAY 17	+ 61.00	APR. 22	+ 60.17
JAN. 2, 1964	+ 63.7	DEC. 11	+ 63.70	OCT. 24	+ 61.00	MAY 20	+ 60.04
FEB. 6	+ 63.85	APR. 6, 1966	+ 60.00	NOV. 14	+ 60.15	MAY 30	+ 59.99
MAR. 25	+ 63.85	MAY 6	+ 60.85	DEC. 18	+ 60.04	JUNE 19	+ 59.69
MAY 4	+ 63.65						

Ngala Run

<u>Well No.</u>	<u>Location</u>
	Mileage is measured along the Ft. Lamy road from the corner of the Bama road.
298/49	Maiduguri Reform School
263/48	Galameri
*-NN-	Kariari village
1053/59	Bukarti village
-NN-	Mafa village
-NN-	Ajiri village
*GSN 2266	Observation borehole . At mile 42.1
-NN-	Koye village
983/58	At mile 58.4
*GSN 3027	Gajibo village. The observation borehole is actually about 2 miles east of the village
1007/58	Gajibo village
-NN-	Musone village
*1026/58	Ngala village. Well is in M.O.W. Road camp, which is separate from the main village.
GSN 3029	near Ngala village
1006/58	Gamberu village

* - A complete chemical analysis is available in Kiser (1968)

WELL 298/49. IN MAIDUGURI. ON MAIDUGURI-FT. LAMY ROAD JUST BEYOND CUSTOMS AREA. WELL IS N OF ROAD, IN CENTER OF REFORM SCHOOL COMPOUND. DUG WELL TO WATER TABLE. USED AS PARTIAL SUPPLY FOR REFORM SCHOOL. MP IS TOP OF CONCRETE CASING, 1.0 FT. ABOVE LSD. TD 35.7 FT. CASING CONCRETE RINGS 5 FT. DIAM. MP TO 29.2 FT., 3 FT. DIAM. 29.2 FT. TO TD. LAND SURFACE APPROX. 1045 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 26.15 BELOW LSD, DEC. 19, 1963,
 LOWEST WATER LEVEL 35.53 BELOW LSD, JUNE 11, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 23, 1963	27.7	OCT. 26, 1964	28.2	NOV. 12, 1965	27.5	APR. 20, 1967	33.58
OCT. 15	27.0	NOV. 27	27.5	DEC. 17	28.0	MAY 29	34.05
NOV. 24	26.6	JAN. 6, 1965	27.5	JAN. 8, 1966	27.7	SEP. 4	34.27
DEC. 19	26.15	JAN. 20	27.4	FEB. 7	28.0	OCT. 10	32.42
JAN. 20, 1964	27.3	FEB. 19	28.3	MAR. 5	29.0	NOV. 10	30.82
FEB. 20	27.2	APR. 8	30.7	APR. 16	30.8	DEC. 14	30.47
MAR. 23	28.6	MAY 10	31.4	MAY 10	31.8	JAN. 11, 1968	30.49
APR. 25	29.35	JUNE 10	31.95	JUNE 24	32.4	FEB. 12	30.99
MAY 22	30.8	JULY 13	32.18	JULY 19	32.8	MAR. 13	34.09
JUNE 20	30.65	AUG. 10	31.4	SEP. 14	32.0	APR. 11	33.20
JULY 22	31.3	SEP. 14	29.3	DEC. 29	29.73	MAY 13	34.50
AUG. 21	31.4	OCT. 7	28.2	MAR. 4, 1967	31.06	JUNE 11	35.53
SEP. 24	29.5						

WELL 263/48. GALAMERI VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 7.5 MILES FROM MAIDUGURI. WELL IS N OF ROAD ABOUT 100 YARDS. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.5 FT. ABOVE LSD. TD 131.3 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1015 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 116.00 BELOW LSD, AUG. 7, 1963,
 LOWEST WATER LEVEL 130.30 BELOW LSD, FEB. 20, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
MAY 8, 1963	121.5	JULY 22, 1964	121.6	SEP. 14, 1965	120.4	MAR. 4, 1967	129.29
JUNE 10	118.5	AUG. 21	121.1	OCT. 7	120.35	APR. 20	128.20
JULY 22	121.	SEP. 24	120.8	NOV. 12	121.18	MAY 29	124.88
AUG. 7	116.	OCT. 26	122.2	DEC. 17	122.0	SEP. 4	120.57
SEP. 23	120.9	NOV. 27	121.9	JAN. 8, 1966	122.68	OCT. 10	120.35
OCT. 15	120.7	JAN. 6, 1965	122.4	FEB. 7	123.7	NOV. 10	121.30
NOV. 24	122.7	JAN. 20	122.75	MAR. 5	128.0	DEC. 14	123.39
DEC. 19	122.25	FEB. 18	124.73	APR. 16	128.35	JAN. 11, 1968	121.50
JAN. 20, 1964	124.1	APR. 8	129.8	MAY 10	129.3	FEB. 12	122.71
FEB. 20	130.3	MAY 12	129.9	JUNE 24	122.4	MAR. 13	124.00
MAR. 23	130.1	JUNE 10	124.0	JULY 19	120.95	APR. 11	125.66
APR. 25	126.6	JULY 13	121.4	SEP. 14	120.4	MAY 13	123.40
MAY 22	129.2	AUG. 10	121.0	DEC. 29	122.4	JUNE 11	122.79
JUNE 20	122.4						

WELL -NN-. KARIARI VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 9.9 MILES FROM MAIDUGURI. WELL IS ABOUT 75 YARDS S OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TD 151.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1015 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 133.00 BELOW LSD, AUG. 7, 1963,
 LOWEST WATER LEVEL 142.00 BELOW LSD, APR. 16, 1966.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
MAY 8, 1963	137.	JULY 22, 1964	137.7	SEP. 14, 1965	137.2	MAR. 4, 1967	141.18
JUNE 10	133.5	AUG. 21	137.6	OCT. 7	137.2	MAY 20	141.94
JULY 22	134.	SEP. 24	137.6	NOV. 12	137.7	JUNE 29	141.40
AUG. 7	133.	OCT. 26	137.8	DEC. 17	138.1	SEP. 4	136.42
SEP. 23	137.8	NOV. 27	137.7	JAN. 8, 1966	137.66	OCT. 10	136.78
OCT. 15	137.9	JAN. 6, 1965	138.0	FEB. 7	137.7	NOV. 10	137.09
NOV. 24	138.3	JAN. 20	137.75	MAR. 5	138.3	DEC. 14	137.03
DEC. 19	138.2	FEB. 18	137.94	APR. 16	142.0	JAN. 11, 1968	136.74
JAN. 20, 1964	138.2	APR. 8	139.2	MAY 10	141.9	FEB. 12	137.45
FEB. 20	138.3	MAY 10	140.7	JUNE 24	137.4	MAR. 13	136.93
MAR. 23	139.5	JUNE 10	139.1	JULY 19	137.05	APR. 11	138.64
APR. 25	138.5	JULY 13	137.3	SEP. 14	136.8	MAY 13	140.63
MAY 22	141.0	AUG. 10	137.3	DEC. 29	138.33	JUNE 11	137.04
JUNE 20	137.73						

WELL 1053/59. BUKARTI VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 22.5 MILES FROM MAIDUGURI. WELL IS ABOUT 50 YARDS N OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 192.4 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 1015 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 181.00 BELOW LSD, AUG. 7, 1963, LOWEST WATER LEVEL 191.40 BELOW LSD, MAY 22, 1964. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
MAY 8, 1963	182.	JULY 22, 1964	186.2	SEP. 14, 1965	186.1	MAR. 4, 1967	186.40
JUNF 10	181.5	AUG. 21	186.15	OCT. 7	186.17	APR. 20	187.58
AUG. 7	181.	SEP. 24	186.1	NOV. 12	186.4	MAY 29	189.35
SEP. 23	186.0	OCT. 26	186.3	DEC. 17	186.9	SEP. 4	186.18
OCT. 15	186.0	NOV. 27	186.5	JAN. 8, 1966	186.2	OCT. 10	186.17
NOV. 24	186.2	JAN. 6, 1965	186.65	FEB. 7	186.35	NOV. 10	186.64
DEC. 19	186.3	JAN. 20	186.45	MAR. 5	186.65	DEC. 14	186.31
JAN. 20, 1964	186.9	FEB. 18	186.37	APR. 16	186.35	JAN. 11, 1968	186.19
FEB. 20	187.0	APR. 8	187.0	MAY 10	187.9	FEB. 12	186.59
MAR. 23	188.4	MAY 10	188.9	JUNE 24	187.0	MAR. 13	186.39
APR. 25	187.9	JUNE 10	187.1	JULY 19	186.55	APR. 11	186.69
MAY 22	191.4	JULY 13	186.3	SEP. 14	186.2	MAY 13	188.75
JUNE 20	186.3	AUG. 10	186.2	DEC. 29	186.14	JUNE 11	186.47

WELL -NN-. MAFA VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 30.5 MILES FROM MAIDUGURI. WELL IS IN NW CORNER OF VILLAGE, IN A CLEARING SURROUNDED BY COMPOUNDS. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 146.3 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 990 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD). HIGHEST WATER LEVEL 128.05 BELOW LSD, JAN. 8, 1966, LOWEST WATER LEVEL 145.10 BELOW LSD, JUNE 29, 1967. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JULY 22, 1963	135.	SEP. 25, 1964	132.9	NOV. 12, 1965	129.45	MAY 20, 1967	143.11
SEP. 23	133.1	OCT. 26	130.8	DEC. 17	128.3	JUNE 29	145.10
OCT. 15	133.1	NOV. 27	129.5	JAN. 8, 1966	128.05	SEP. 4	137.39
NOV. 24	133.3	JAN. 6, 1965	128.75	FEB. 7	128.3	OCT. 10	135.53
DEC. 19	133.4	JAN. 20	128.77	MAR. 5	128.6	NOV. 10	133.40
JAN. 20, 1964	134.0	FEB. 18	129.3	APR. 16	129.9	DEC. 14	132.93
FEB. 20	134.0	APR. 8	130.2	MAY 10	131.9	JAN. 11, 1968	131.48
MAR. 23	134.4	MAY 10	135.6	JUNE 24	132.7	FEB. 12	131.54
APR. 25	136.8	JUNE 10	132.9	JULY 19	132.2	MAR. 13	131.9
MAY 22	137.2	JULY 13	132.7	SEP. 14	132.8	APR. 11	132.92
JUNE 20	135.95	AUG. 10	133.0	DEC. 29	134.1	MAY 13	133.34
JULY 22	135.6	SEP. 14	132.7	MAR. 4, 1967	135.75	JUNE 11	134.04
AUG. 21	134.6	OCT. 7	131.65				

WELL -NN-, AJIRI VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 39.0 MILES FROM MAIDUGURI. WELL IS N OF VILLAGE. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, AT LSD. TD 190.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 980 FT. ABOVE SEA LEVEL. HIGHEST WATER LEVEL 124.50 BELOW LSD, AUG. 7, 1963, LOWEST WATER LEVEL 140.77 BELOW LSD, MAY 29, 1967. RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
MAY 8, 1963	128.	JULY 22, 1964	131.2	SEP. 14, 1965	128.7	MAR. 4, 1967	134.40
JUNE 10	127.	AUG. 21	129.2	OCT. 7	128.5	APR. 20	140.23
AUG. 7	124.5	SEP. 25	129.0	NOV. 12	128.21	MAY 29	140.77
SEP. 23	129.1	OCT. 26	128.9	DEC. 17	127.8	SEP. 4	128.50
OCT. 15	129.1	NOV. 27	128.8	JAN. 8, 1966	127.7	OCT. 10	129.15
NOV. 24	129.2	JAN. 6, 1965	128.55	FEB. 7	128.3	NOV. 10	127.66
DEC. 19	129.0	JAN. 20	129.2	MAR. 5	129.9	DEC. 14	127.89
JAN. 20, 1964	129.0	FEB. 18	136.98	APR. 16	131.4	JAN. 11, 1968	126.59
FEB. 20	128.9	APR. 8	138.4	MAY 10	131.7	FEB. 12	126.36
MAR. 23	134.5	MAY 10	139.5	JUNE 24	131.8	MAR. 13	127.42
APR. 25	133.1	JUNE 10	135.3	JULY 19	131.7	APR. 11	129.39
MAY 22	135.5	JULY 13	129.8	SEP. 14	127.3	MAY 13	131.67
JUNE 20	132.8	AUG. 10	129.1	DEC. 29	133.1	JUNE 11	131.33

GSN 2266 (OBSERVATION 1). ON MAIDUGURI-FT. LAMY ROAD ABOUT 42.1 MILES FROM MAIDUGURI. BORE-HOLE IS N OF ROAD, AT N SIDE OF DRY SEASON TRACK. A SMALL CONCRETE BLOCK HOUSE ENCLOSES THE BORE-HOLE. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF CONCRETE HOUSE, 1.65 FT. ABOVE LSD. TO 806 FT. CASING 2-1/2 IN. ID MP TO 766 FT. 1-1/4 IN. ID 786 FT. TO 806 FT. SCREENED 1-1/4 IN. DIAM. 1/3 MM. EVERDUR 766 FT. TO 776 FT. AND 1/2 MM. EVERDUR 776 FT. TO 786 FT. LAND SURFACE APPROX. 970 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

MEASUREMENTS PRIOR TO 1963 CALCULATED FROM P. 38 OF GSN BULL. 35 (BARBER, 1965). MP MAY NOT HAVE BEEN THE SAME.

HIGHEST WATER LEVEL 49.15 ABOVE LSD, JULY 22, 1963,

LOWEST WATER LEVEL 44.41 ABOVE LSD, MAY 29, 1967.

RECORDS AVAILABLE 1960-68.

DATE	WATER LEVEL						
JUNE 11, 1960	+ 47.	JAN. 9, 1962	+ 44.80	JUNE 23, 1964	+ 45.95	MAR. 5, 1966	+ 45.69
JULY 14	+ 44.70	FEB. 27	+ 44.76	JULY 22	+ 46.35	APR. 16	+ 45.96
AUG. 3	+ 45.13	APR. 22	+ 44.83	AUG. 21	+ 46.70	MAY 10	+ 46.07
AUG. 23	+ 45.30	JUNE 7	+ 44.80	SEP. 25	+ 46.00	JUNE 24	+ 46.06
SEP. 2	+ 45.25	AUG. 12	+ 44.84	OCT. 26	+ 46.54	SEP. 14	+ 45.97
SEP. 8	+ 45.27	NOV. 2	+ 44.80	NOV. 27	+ 46.15	MAR. 2, 1967	+ 45.73
OCT. 20	+ 45.34	JULY 22, 1963	+ 49.15	JAN. 4, 1965	+ 46.14	APR. 20	+ 45.80
NOV. 1	+ 45.43	AUG. 7	+ 47.6	JAN. 20	+ 45.66	MAY 29	+ 44.41
NOV. 7	+ 45.25	SEP. 23	+ 47.2	APR. 8	+ 46.19	OCT. 10	+ 46.12
DEC. 9	+ 45.26	OCT. 15	+ 47.3	MAY 10	+ 46.21	NOV. 10	+ 45.28
DEC. 26	+ 45.08	NOV. 24	+ 46.60	JULY 13	+ 46.40	DEC. 14	+ 45.34
FEB. 20, 1961	+ 45.11	DEC. 19	+ 46.95	AUG. 10	+ 46.54	JAN. 11, 1968	+ 45.02
MAR. 24	+ 44.91	JAN. 20, 1964	+ 45.65	SEP. 14	+ 47.05	FEB. 12	+ 44.54
APR. 19	+ 44.72	FEB. 20	+ 45.10	OCT. 7	+ 46.07	MAR. 13	+ 44.71
JUNE 9	+ 44.76	MAR. 23	+ 46.10	NOV. 12	+ 46.18	APR. 11	+ 44.74
AUG. 8	+ 44.75	APR. 25	+ 46.15	DEC. 17	+ 46.28	MAY 17	+ 45.00
OCT. 11	+ 44.76	MAY 22	+ 45.20	JAN. 8, 1966	+ 45.40	JUNE 11	+ 44.89
NOV. 29	+ 44.83	JUNE 20	+ 45.90	FEB. 7	+ 45.11		

2/ DOUBTFUL READINGS.

WELL -NN-. KOYE VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 50.4 MILES FROM MAIDUGURI. WELL IS ABOUT 50 FT. N OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.0 FT. ABOVE LSD. TO 143.8 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 139.4 FT., 3 FT. DIAM. 139.4 FT. TO TD. LAND SURFACE APPROX. 965 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).

HIGHEST WATER LEVEL 123.00 BELOW LSD, AUG. 7, 1963,

LOWEST WATER LEVEL 143.86 BELOW LSD, MAY 13, 1968.

RECORDS AVAILABLE 1963-69.

DATE	WATER LEVEL						
AUG. 7, 1963	123.	SEP. 25, 1964	128.2	NOV. 12, 1965	128.4	APR. 20, 1967	140.55
SEP. 23	128.0	OCT. 26	128.1	DEC. 17	129.2	MAY 29	138.35
OCT. 15	128.05	NOV. 27	129.1	JAN. 8, 1966	132.57	SEP. 4	128.54
NOV. 24	128.50	JAN. 6, 1965	134.35	FEB. 7	132.8	OCT. 10	128.50
DEC. 20	130.2	JAN. 20	130.55	MAR. 5	133.8	NOV. 10	128.50
JAN. 20, 1964	129.5	FEB. 18	131.98	APR. 16	136.0	DEC. 14	128.62
FEB. 20	134.3	APR. 8	136.0	MAY 10	135.4	JAN. 11, 1968	130.82
MAR. 23	134.75	MAY 10	135.45	JUNE 24	128.8	FEB. 12	133.70
APR. 25	138.9	JUNE 10	131.8	JULY 10	128.7	MAR. 13	136.76
MAY 22	137.9	JULY 13	128.5	SEP. 14	128.5	APR. 11	137.83
JUNE 20	128.66	AUG. 10	128.4	DEC. 29	133.54	MAY 13	143.86
JULY 22	128.4	SEP. 14	128.3	MAR. 4, 1967	138.58	JUNE 11	136.25
AUG. 21	128.2	OCT. 6	128.3				

WELL 983/58. ON MAIDUGURI-FT. LAMY ROAD ABOUT 58.4 MILES FROM MAIDUGURI. WELL IS ABOUT 100 YARDS N OF ROAD. DUG WELL TO WATER TABLE. USED FOR WATERING CATTLE. MP IS TOP OF CONCRETE CASING, 2.0 FT. ABOVE LSD. TD 91.7 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 960 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 85.00 BELOW LSD, AUG. 7, 1963,
 LOWEST WATER LEVEL 93.20 BELOW LSD, MAY 22, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 24, 1963	89.	SEP. 25, 1964	90.9	NOV. 12, 1965	90.80	APR. 20, 1967	90.93
AUG. 7	85.	OCT. 26	90.8	DEC. 17	90.75	MAY 29	91.02
OCT. 15	90.8	NOV. 27	90.7	JAN. 8, 1966	90.78	SEP. 4	90.85
NOV. 24	90.85	JAN. 6, 1965	90.94	FEB. 7	90.75	OCT. 10	90.74
DEC. 19	90.8	JAN. 20	90.94	MAR. 5	90.70	NOV. 10	90.69
JAN. 20, 1964	90.9	FEB. 19	90.95	APR. 16	90.73	DEC. 14	90.67
FEB. 20	91.4	APR. 9	91.0	MAY 10	90.75	JAN. 11, 1968	90.68
MAR. 23	91.2	MAY 10	91.1	JUNE 24	90.75	FEB. 12	90.70
APR. 25	92.2	JUNE 10	91.1	JULY 19	90.7	MAR. 13	90.66
MAY 22	93.2	JULY 13	91.0	SEP. 14	90.7	APR. 11	90.68
JUNE 20	91.4	AUG. 10	91.0	DEC. 29	90.85	MAY 13	91.27
JULY 22	91.2	SEP. 14	90.8	MAR. 4, 1967	90.82	JUNE 11	90.72
AUG. 21	91.1	OCT. 6	90.8				

GSN 3027 (GAJIBO 2, USGS 5). NEAR GAJIBO VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 59.5 MILES FROM MAIDUGURI. BOREHOLE IS ABOUT 150 FT. S OF ROAD. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A FOXBORO PRESSURE RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF CONCRETE SHELTER, 0.6 FT. ABOVE LSD. TD 816 FT. CASING -1/2 IN. ID MP TO 796 FT. SCREENED 15 SLOT EVERDUR 796 FT. TO 816 FT. LAND SURFACE APPROX. 555 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 41.20 ABOVE LSD, AUG. 7, 1963,
 LOWEST WATER LEVEL 35.25 ABOVE LSD, JUNE 11, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
AUG. 7, 1963	+ 41.2	SEP. 25, 1964	+ 40.10	JAN. 8, 1966	+ 39.13	MAY 29, 1967	+ 37.94
NOV. 24	+ 39.15	OCT. 26	+ 40.05	FEB. 7	+ 39.64	SEP. 4	+ 37.92
DEC. 19	+ 39.85	NOV. 27	+ 39.84	FEB. 17	+ 39.33	OCT. 10	+ 36.25
JAN. 20, 1964	+ 38.70	JAN. 4, 1965	+ 39.61	MAR. 5	+ 39.19	NOV. 10	+ 36.20
JAN. 30	+ 38.83	JAN. 20	+ 38.13	APR. 16	+ 39.07	DEC. 14	+ 35.60
FEB. 20	+ 38.80	APR. 8	+ 39.67	MAY 10	+ 39.13	JAN. 11, 1968	+ 35.81
MAR. 23	+ 38.75	MAY 10	+ 39.35	JUNE 24	+ 38.95	FEB. 12	+ 36.05
APR. 28	+ 38.79	JUNE 10	+ 39.43	JULY 19	+ 38.90	MAR. 13	+ 36.01
MAY 22	+ 38.90	JULY 12	+ 39.63	SEP. 14	+ 39.43	APR. 11	+ 35.62
JUNE 23	+ 38.85	SEP. 14	+ 40.29	MAR. 3, 1967	+ 37.62	MAY 13	+ 35.40
JULY 22	+ 39.35	NOV. 12	+ 38.33	APR. 20	+ 38.00	JUNE 11	+ 35.25
AUG. 21	+ 39.53	DEC. 17	+ 39.81				

2/ Doubtful reading

WELL 1007/58. GAJIBO VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 61.8 MILES FROM MAIDUGURI. WELL IS ABOUT 200 FT. S OF ROAD, NEAR NA SCHOOL. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 3.0 FT. ABOVE LSD. TD 42.6 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 37.2 FT., 3 FT. DIAM. 37.2 FT. TO TD. LAND SURFACE APPROX. 955 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 36.00 BELOW LSD, JUNE 24, 1963,
 LOWEST WATER LEVEL 38.85 BELOW LSD, JUNE 23, 1964.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
JUNE 24, 1963	36.	JULY 23, 1964	38.2	SEP. 14, 1965	37.6	MAR. 4, 1967	38.79
AUG. 7	37.	AUG. 21	37.85	OCT. 6	37.46	APR. 20	38.75
SEP. 23	36.9	SEP. 25	37.6	NOV. 12	37.35	MAY 29	38.58
OCT. 15	37.6	OCT. 26	37.5	DEC. 17	37.4	SEP. 4	37.80
NOV. 24	37.85	NOV. 27	37.6	JAN. 8, 1966	37.5	OCT. 10	37.58
DEC. 19	37.9	JAN. 6, 1965	37.86	FEB. 7	37.6	NOV. 10	37.47
JAN. 20, 1964	37.95	JAN. 20	37.9	MAR. 5	37.66	DEC. 14	37.57
FEB. 20	38.1	FEB. 18	38.13	APR. 16	38.3	JAN. 11, 1968	37.72
MAR. 23	38.25	APR. 8	38.3	MAY 10	38.2	FEB. 12	37.96
APR. 25	38.4	MAY 10	38.3	JUNE 24	37.85	MAR. 13	38.15
MAY 22	38.55	JUNE 10	38.6	JULY 19	37.85	APR. 11	38.56
JUNE 20	38.7	JULY 13	38.3	SEP. 14	37.5	MAY 13	38.56
JUNE 23	38.85	AUG. 10	38.0	DEC. 29	37.91	JUNE 11	38.62

WELL -NN-. MUSONE VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 74.2 MILES FROM MAIDUGURI. WELL IS ABOUT 300 FT. NW OF NW CORNER OF VILLAGE AND IS THE ONE NOT OF STANDARD M.O.W. DESIGN. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.5 FT. ABOVE LSD. TO 66.5 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO TD. LAND SURFACE APPROX. 955 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 61.40 BELOW LSD, AUG. 21, 1964, SEP. 25, 1964, OCT. 6, 1965,
 LOWEST WATER LEVEL 63.46 BELOW LSD, JUNE 11, 1968.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP. 23, 1963	61.5	SEP. 25, 1964	61.4	OCT. 6, 1965	61.4	APR. 20, 1967	62.20
OCT. 15	61.7	OCT. 24	61.7	NOV. 12	61.75	MAY 29	61.99
NOV. 24	61.7	NOV. 27	61.7	DEC. 17	61.95	OCT. 10	61.52
DEC. 19	62.5	JAN. 6, 1965	62.04	JAN. 8, 1966	61.68	NOV. 10	61.60
JAN. 20, 1964	62.15	JAN. 20	62.95	FEB. 7	62.7	DEC. 14	62.83
FEB. 20	61.8	FEB. 18	62.3	MAR. 5	61.8	JAN. 11, 1968	61.85
MAR. 23	62.3	APR. 8	62.9	APR. 16	61.7	FEB. 12	62.37
APR. 25	62.1	MAY 10	62.2	MAY 10	61.8	MAR. 13	62.40
MAY 22	62.0	JUNE 10	61.8	JUNE 24	62.1	APR. 11	62.23
JUNE 20	61.6	JULY 13	62.4	JULY 9	62.55	MAY 13	62.20
JULY 23	61.5	AUG. 10	61.6	DEC. 29	61.67	JUNE 11	63.46
AUG. 21	61.4	SEP. 14	61.6	MAR. 4, 1967	62.10		

WELL 126/58. M.O.W. ROAD CAMP NEAR NGALA. ON MAIDUGURI-FT. LAMY ROAD ABOUT 83.3 MILES FROM MAIDUGURI. WELL IS ABOUT 100 FT. S OF ROAD. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 1.8 FT. ABOVE LSD. TO 67.3 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 59.8 FT., 3 FT. DIAM. 59.8 FT. TO TD. LAND SURFACE APPROX. 930 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 59.03 BELOW LSD, JUNE 11, 1968,
 LOWEST WATER LEVEL 73.40 BELOW LSD, MAY 22, 1964.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 22, 1964	73.4	MAY 10, 1965	62.5	MAR. 5, 1966	61.9	OCT. 10, 1967	61.52
JULY 23	62.7	JUNE 10	62.8	APR. 16	62.3	NOV. 10	61.44
AUG. 21	62.3	JULY 13	62.2	MAY 10	62.5	DEC. 14	61.35
SEP. 25	62.0	AUG. 10	61.2	JUNE 24	62.0	JAN. 11, 1968	61.20
OCT. 28	61.9	SEP. 14	62.1	JULY 19	62.0	FEB. 12	60.93
NOV. 27	61.8	OCT. 6	62.1	SEP. 14	61.9	MAR. 13	60.51
JAN. 6, 1965	61.9	NOV. 12	62.12	DEC. 29	62.00	APR. 11	60.01
JAN. 20	61.8	DEC. 17	62.0	MAR. 4, 1967	61.90	MAY 13	59.32
FEB. 18	61.94	JAN. 8, 1966	62.0	APR. 20	61.80	JUNE 11	59.03
APR. 8	62.1	FEB. 7	61.95	MAY 29	61.80		

GSN 3029 (NGALA 3, USGS 6A). NEAR NGALA VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 83.9 MILES FROM MAIDUGURI. BOREHOLE IS ABOUT 150 FT. S OF ROAD. A CONCRETE SHELTER ENCLOSES THE BOREHOLE AND A FOXBORO PRESSURE RECORDER. DRILLED WELL TO MIDDLE ZONE AQUIFER, CHAD FORMATION. USED AS OBSERVATION WELL. MP IS FLOOR OF SHELTER, 0.2 FT. ABOVE LSD. TO 954 FT. CASING 4-1/2 IN. ID MP TO 922 FT., NOT RECORDED 922 FT. TO 934 FT. SCREENED 1-1/4 IN. DIAM. 15 SLOT EVERDUR 934 FT. TO 954 FT. LAND SURFACE APPROX. 930 FT. ABOVE SEA LEVEL. ALL WATER LEVEL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 43.35 ABOVE LSD, SEP. 14, 1965,
 LOWEST WATER LEVEL 33.00 ABOVE LSD, SEP. 23, 1963.
 RECORDS AVAILABLE 1963-68.

DATE	WATER LEVEL						
SEP. 23, 1963	+ 33.	SEP. 25, 1964	+ 43.15	NOV. 12, 1965	+ 40.85	APR. 20, 1967	+ 39.24
NOV. 24	+ 33.1	NOV. 27	+ 41.88	DEC. 7	+ 41.48	MAY 29	+ 39.23
DEC. 19	+ 38.9	JAN. 4, 1965	+ 41.84	JAN. 8, 1966	+ 42.22	OCT. 10	+ 39.95
JAN. 20, 1964	+ 39.95	JAN. 20	+ 41.68	FEB. 7	+ 42.01	NOV. 10	+ 39.95
JAN. 30	+ 40.23	FEB. 18	+ 42.6	MAR. 5	+ 41.79	DEC. 14	+ 39.14
FEB. 20	+ 40.65	APR. 9	+ 41.89	APR. 16	+ 41.27	JAN. 11, 1968	+ 39.35
MAR. 23	+ 40.68	MAY 10	+ 41.79	MAY 10	+ 41.32	FEB. 12	+ 39.02
APR. 25	+ 40.98	JUNE 10	+ 41.45	JUNE 24	+ 41.80	MAR. 13	+ 38.88
MAY 22	+ 40.88	JULY 13	+ 42.05	JULY 19	+ 40.922/	APR. 11	+ 38.48
JUNE 23	+ 40.6	AUG. 10	+ 43.33	SEP. 14	+ 40.94	MAY 13	+ 37.87
JULY 23	+ 41.98	SEP. 14	+ 43.35	MAR. 3, 1967	+ 39.69	JUNE 11	+ 37.22
AUG. 21	+ 42.99						

2/ DOUBTFUL READING

WELL 1006/58. GAMBERU VILLAGE. ON MAIDUGURI-FT. LAMY ROAD ABOUT 87.0 MILES FROM MAIDUGURI. WELL IS N OF ROAD AND INSIDE M.O.W. ROAD CAMP COMPOUND, JUST WHERE ROAD BEGINS TO RISE TO BRIDGE WHICH IS INTERNATIONAL FRONTIER. DUG WELL TO WATER TABLE. USED AS VILLAGE SUPPLY. MP IS TOP OF CONCRETE CASING, 2.2 FT. ABOVE LSD. TO 27.7 FT. CASING CONCRETE RINGS 4 FT. DIAM. MP TO 23.2 FT., 3 FT. DIAM. 23.2 FT. TO TD. LAND SURFACE APPROX. 930 FT. ABOVE SEA LEVEL. ALL MEASUREMENTS ARE WITH RESPECT TO MP (NOT LSD).
 HIGHEST WATER LEVEL 16.06 BELOW LSD, JAN. 11, 1968,
 LOWEST WATER LEVEL 25.60 BELOW LSD, SEP. 14, 1966.
 RECORDS AVAILABLE 1964-68.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 22, 1964	21.25	MAY 10, 1965	19.5	MAR. 5, 1966	20.4	OCT. 10, 1967	21.98
JUNE 20	23.9	JUNE 10	21.7	APR. 16	22.2	NOV. 10	21.57
AUG. 21	22.6	JULY 13	22.4	MAY 10	22.7	DEC. 14	17.89
SEP. 25	21.9	AUG. 10	24.1	JUNE 24	23.85	JAN. 11, 1968	16.06
OCT. 28	21.3	SEP. 14	23.4	JULY 19	25.1	FEB. 12	16.39
NOV. 27	19.5	OCT. 7	21.46	SEP. 14	25.6	MAR. 13	17.67
JAN. 6, 1965	16.4	NOV. 12	21.50	DEC. 29	19.64	APR. 11	18.82
JAN. 20	16.35	DEC. 17	18.8	MAR. 4, 1967	19.89	MAY 13	21.28
FEB. 18	16.77	JAN. 8, 1966	18.2	APR. 20	21.54	JUNE 11	22.34
APR. 8	18.9	FEB. 7	18.86	MAY 29	24.49		

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