Original to Des Moines

I.P.B. (1/5/55)

IOWA STATE DEPARTMENT OF HEALTH
DIVISION OF PUBLIC HEALTH ENGINEERING AND INDUSTRIAL HYGIENE

GROUND WATER

Town Dayton County Webster Date Jan. 4 1955

WELL NO. 3 Active Yes Standby Abandoned Replaced by No.

LOCATION: Street Approx. 60' north & 230' west of treatment bldg. Sec. 14 T 86 N.R. 28 E.W. West

Lot Block Township

OWNERSHIP Municipal Date Installed Started June 25, 1952 Completed Sept. 10, 1952 In Operation May 21, 1953

CONTRACTOR Layne-Western drilled well Thorpe Well Co. installed pump Address Ames, Iowa Des Moines, Iowa

DATE RECONDITIONED none 19 Contractor Address

CONSTRUCTION EMPLOYED: Deep well -- drilled -- 20' of 2" temporary casing -- 443' 6" of 12" casing from 0 to 443 ft. 6 in. level, then open hole to the 665' level at which point 106' 11" of 10" casing was installed to the 762' level -- open 9 3/4" hole from 763' 3" level to bottom at 1250'. Permanent 12" casing grouted to the 446' level.

CURB ELEVATION 0.00 REFERENCE Top of concrete pedestal

TYPE OF CONSTRUCTION Deep well, drilled Depth 1250 ft. Diameter 12 in.

CASING: Material wrought iron Condition New in 1952

SCREEN: Material none Length 30" concrete pedestal surrounding ft Diameter in. Slot Opening in.

WELL SEALED yes How top of casing Approved Yes

WELL VENTED yes How 1" turned down screened casing vent Approved Yes

TYPE OF PUMP ~~Vertical turbine~~ Sumo 5 stage submersible Make ~~Pomona~~ Sumo Capacity 250 GPM Lubricated Water

DEPTH TO TOP OF BOWLS ~~CYLINDER~~ 180 ft. Tail Pipe 10 ft.

10' Bowl Section, 11 stages

PUMP CONTROL: Manual Yes Automatic Semi-Automatic

STATIC LEVEL 94 (Oct. 1955 = 102) ft. Pumping Level 108 ft. Drawdown 14 ft.

Pump test S.L.=87'; P.L.=139' at 230 gpm

OPTIMUM SPECIFIC YIELD 225 GPM Drawdown ft. Time hrs.

RATE OF DRAWDOWN First acidizing increased yield from 90 to 165 gpm, 2nd acidizing increased yield an additional Rate of Recovery 60 gpm to 225 gpm

TEMPERATURE OF WATER °F Where Measured Temp. of Atmosphere °F

DRAWDOWN GAUGE INSTALLED Yes -- Gauge line equipped with fitting where passing through pump base

TOPOGRAPHICAL POSITION OF WELL Highland -- flat

WELL SITE INVESTIGATED Yes (as outlined in report dated May 9, 1952) Approved Yes Why not

WELL CONSTRUCTION REVIEWED Yes Approved Yes Why not

PIT CONSTRUCTION: Purpose None Size and Description

CONDITION: Drainage Facilities

PUMP INSTALLATION: Approved Yes Why Not

CUTTINGS FROM WELL PRESERVED: Yes Where Iowa Geological Survey

DEPTH TO BED ROCK 350' Depth to Water-bearing Stratum Tested at 916' depth -- Main water from 1200' level

SOURCE OF WATER: Principal Formation Mississippian Other Dolomites & limestone between the 970 and 1250 level

DATE RECONDITIONED none 19 Contractor Address

CONSTRUCTION EMPLOYED: Deep well -- drilled -- 20' of 2" temporary casing -- 443' 6" of 12" casing from 0 to 443 ft. 6 in. level, then open hole to the 665' level at which point 106' 11" of 10" casing was installed to the 762' level -- open 9 3/4" hole from 763' 3" level to bottom at 1250'. Permanent 12" casing grouted to the 446' level.

CURB ELEVATION 0.00 REFERENCE Top of concrete pedestal

TYPE OF CONSTRUCTION Deep well, drilled Depth 1250 ft. Diameter 12 in.

CASING: Material wrought iron Condition New in 1952

SCREEN: Material none Length 30" concrete pedestal surrounding ft. Diameter in. Slot Opening in.

WELL SEALED yes How top of casing Approved Yes

WELL VENTED yes How 1" turned down screened casing vent Approved Yes

TYPE OF PUMP ~~Vertical turbine~~ Sumo Submersible Make ~~Pomona~~ Sumo Pumping at rate of 135 GPM Capacity 250 GPM Lubricated Water

DEPTH TO CYLINDER 10' Bowl Section, 11 stages TOP OF BOWLS 180 ft. Tail Pipe 10 ft.

PUMP CONTROL: Manual Yes Automatic Semi-Automatic

STATIC LEVEL Oct. 1959 = 102 94 ft. Pumping Level 108 ft. Drawdown 14 ft.

OPTIMUM SPECIFIC YIELD 225 GPM Drawdown Pump test S.L.=87'; P.L.=139' at 230 gpm ft. Time hrs.

RATE OF DRAWDOWN First acidizing increased yield from 90 to 165 gpm, 2nd acidizing increased yield an additional ~~Rate of Recovery~~ 60 gpm to 225 gpm

TEMPERATURE OF WATER °F Where Measured Temp. of Atmosphere °F

DRAWDOWN GAUGE INSTALLED Yes -- Gauge line equipped with fitting where passing through pump base

TOPOGRAPHICAL POSITION OF WELL Highland -- flat

WELL SITE INVESTIGATED Yes as outlined in report dated May 9,1952 Approved Yes Why not

WELL CONSTRUCTION REVIEWED Yes Approved Yes Why not

PIT CONSTRUCTION: Purpose None Size and Description

CONDITION: Drainage Facilities

PUMP INSTALLATION: Approved Yes Why Not

CUTTINGS FROM WELL PRESERVED: Yes Where Iowa Geological Survey

DEPTH TO BED ROCK 350' Depth to Water-bearing Stratum Tested at 916' depth -- Main water from 1200' level

SOURCE OF WATER: Principal Formation Mississippian Other Dolomites & limestone between the 970 and 1250 level

41.3 gpg Mineral analysis collected 3/13/53 after new well was in operation

Total Hardness 738 ppm. Total Iron 0.32 ppm. Sulfates 516.4 ppm. Fluorine 2.6 ppm.

Manganese none ppm. pH 7.0 CO₂ ~~ppm~~ Alk. P=0 T=282

REMARKS: The use of this well rotated with #1, however Well #3 is used for all drinking water produced. -- On original pump test Sept. 26, 1952 after well was completed at the 1250' depth 90 gpm was secured. The well was then acidized twice with 1000 gal. of acid used each time. After second acidizing production increased to 225 gpm which lowered the static level in the 1240' No. 1 well to 158.5 ft.

20 H.P. Kleitinghouse Motor

GEOLOGICAL DATA			CASING DATA	WELL DATA
Formation	Material and distance from surface in ft.	Series	Position, kind and extent of casing, liners, shoes, etc.	Scale: Horizontal ..... Vertical ..... Position of seals, screens, static level, etc.
Drift	0 to 50	50	To treatment plant	
Sand & gravel	50 to 200	150	S.L. = 94 P.L. = 108 Top of Bowls 180'	
Pennsylvanian	200 to 400	200	11 Stage	
Dolomite	400 to 420	20	10' Suction pipe	
	Top of Gilmore City = 430			
Limestone	420 to 550	130	Bottom of grouting = 446'	
	Top of Hampton = 550			
Dolomite	550 to 710	160		
	Top of Maple Mill = 710			
	Top of Devonian = 760			
	Top of Shell rock = 850			
	Top of Cedar Valley (?) = 970			
Dolomite, limestone, gypsum & shale	970 to 1250	280		

Switch panel.
Cutler Hammer Starting Switch

1 1/4" screened vent.

443'-6" of 12" casing

443'-6"

211'-7" open

655'-1"

106'-11" of 10" casing

762'

488' open

1250

Drawdown gauge - rubber air line equipped with tight fitting at point of passing through pump base. Line extends to 180' level.

gauge reading 180 − 86

S.L. = 94

Pennsylvanian	200 to 400	200
Dolomite	400 to 420	20
	Top of Gilmore City = 430	
Limestone	420 to 550	130
	Top of Hampton = 550	
Dolomite	550 to 710	160
	Top of Maple Mill = 710	
	Top of Devonian = 760	
	Top of Shell rock = 850	
	Top of Cedar Valley (?) = 970	
Dolomite, limestone, gypsum & shale	970 to 1250	280

Top of Gilmore City 430

11 stage

10' Suction pipe

Bottom of grouting = 446'

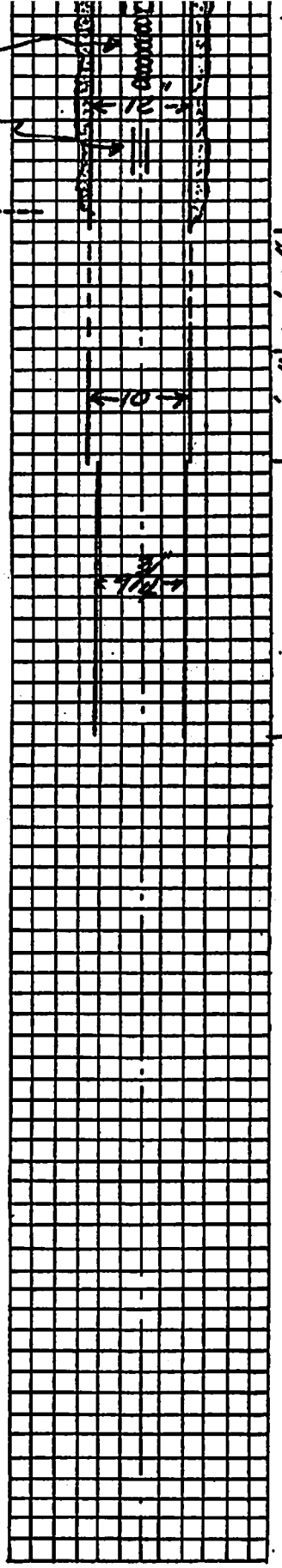
Top of Hampton 550

Top of Maple Mill 710

Top of Devonian 760

Top of Shell rock 850

Top of Cedar Valley (?) 970



Drawdown gauge - Rubber air line equipped with tight fitting at point of passing through pump base. Line extends to 180' level.

gauge reading 180 / 86

S.L. = 94

Individual frame insulated pumphouse 7' wide by 9' long having concrete floor, located in approximate center of park west of treatment building - new in 1953.

Approximately 230' of new discharge line laid from well #3 southeast to the treatment building.