



# KANSAS DEPARTMENT OF AGRICULTURE

## Division of Water Resources

### Stafford Field Office

## MEMORANDUM

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**TO:** File No 360.01

**DATE:** 10/8/15

**FROM:** Cameron R Conant

**RE:** impairment letter

Headquarters received a letter of impairment dated August 10, 2015 requesting DWR re-investigate the original claim of impairment that was resolved on September 20, 2012. Field office and HQ staff had a meeting on October 1, 2015 where it was decided that field office staff would meet Mrs. Kolbeck to discuss the current issues and obtain some more recent information regarding water levels.

Cameron met Debra Kolbeck and Lee Kolbeck at their house on October 8, 2015. Here is a summary of the discussion with some attachments.

I discussed the recent water level measurements I took at 5 nearby wells (attached). I noted to Debra and Lee that what I observed was not out of line with what has been happening and what was expected to happen. Area water level has declined ~1 foot each year since 2011. The 2363 casing in WRCP and the MW9 well both exhibited about this same declining rate from 2012-2015. The annual well measurements I took showed more decline in 2015, but both of these were irrigation wells with crops that are still being watered. I would assume that these wells will recover when the growing season is over and we will see ~1 decline in both of those wells after the 2016 annual water level measurements are completed.

I explained that there are no additional wells in the immediate area that have come into production which could negatively impact them. Also, the operation of area municipal, irrigation, and stock wells seems to be fairly consistent with past operation. To sum up this discussion I said that nothing jumped out to me that would lead me to believe something in the area has drastically changed since our investigation ended in 2012 that would suddenly be a new source of impairment. (my opinion only)

They explained their current water usage to me. They have 2 people full time in the house (3 on weekends) and 2 horses. They do not have a garden anymore, got rid of the hogs, and rarely water the yard. They explained that they have cut down on usage because they want to conserve and extend the water they have available. They stopped using the Bartel well in 2013 before Rick passed away, but will sometimes use both wells if they have company.

Their Issues (*basically the same issues as the original complaint*):

- when they used 2 wells the cost was sky high (*I ask if that was any different than before, they said no, but it's double the cost to use 2 wells and not worth the gain*)
- can't run more than 2 appliances at a time with the single well
- can't take a shower with sprinklers going due to lack of pressure
- have to clean the sand filter out every 2 months

A qualified well man has not looked at the wells. They didn't know what depth the pumps were set or what size/brand of pumps had been installed. They said Clarke equipped the well he drilled and Bartel equipped the well he drilled (Rick said it was the same pump in each hole, but now I'm not certain of this).

I was able to call Brent Clarke and he had the pump information for the well they drilled which is currently being used (attached). I called Bartel and left a message but he has not responded. It appears the pump in the Clarke well is properly sized and is operating quite well based on the timed test I did. The 13GS30 is rated for 20gpm and I tested it at 21.45gpm with 4 hydrants open discharging.

timed test: (20psi steady the entire test)	0-2 minutes, 43 gallons pumped
end meter reading: 1442352 gal	2-4 minutes, 42 gallons pumped
beg meter reading: 1442180 gal	4-6 minutes, 47 gallons pumped
quantity pumped: 172 gal	6-8 minutes, 40 gallons pumped
time: 8:01.03 min/sec	
rate: 21.5 gal/min	

This was a different meter than was installed during the original timed tests conducted on May 9, 2012. During the 2012 test, using only the Clarke well, 20.7gpm was achieved with 2 hydrants operating large sprinklers. We also timed the meter with 4 hydrants open discharging and 1 sprinkler operating and achieved a rate of 22.7gpm.

After the test, I told Debra and Lee that this was very similar to how the same, single well operated in 2012.

NEW METER installed on 10/18/12:

Make: DLJ

1" multi-jet impeller

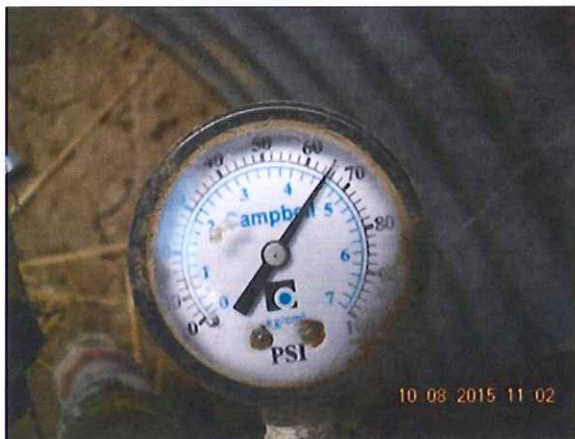
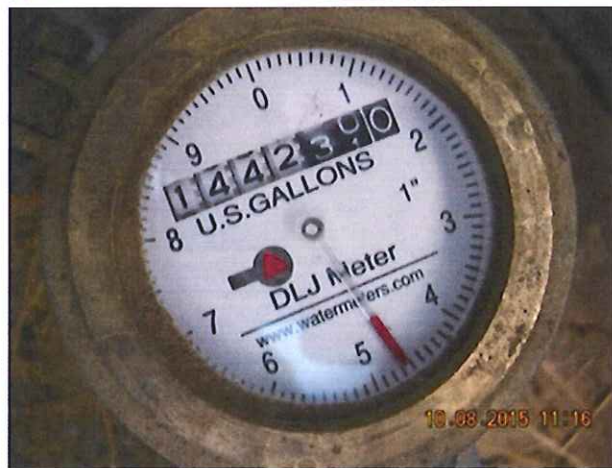
Serial #: 12 005342

Reading: 1442140 galx10

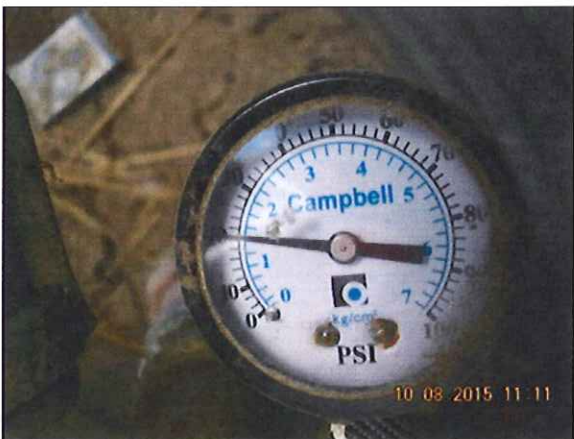
Upstream: 10" head to valve, 14" head to elbow

Downstream: 9" head to bend

Factory seal present



(well not in operation)



(well operating 20 psi steady)

4 mile radius

*wells measured on  
10/8/15*

sec.19 annual well

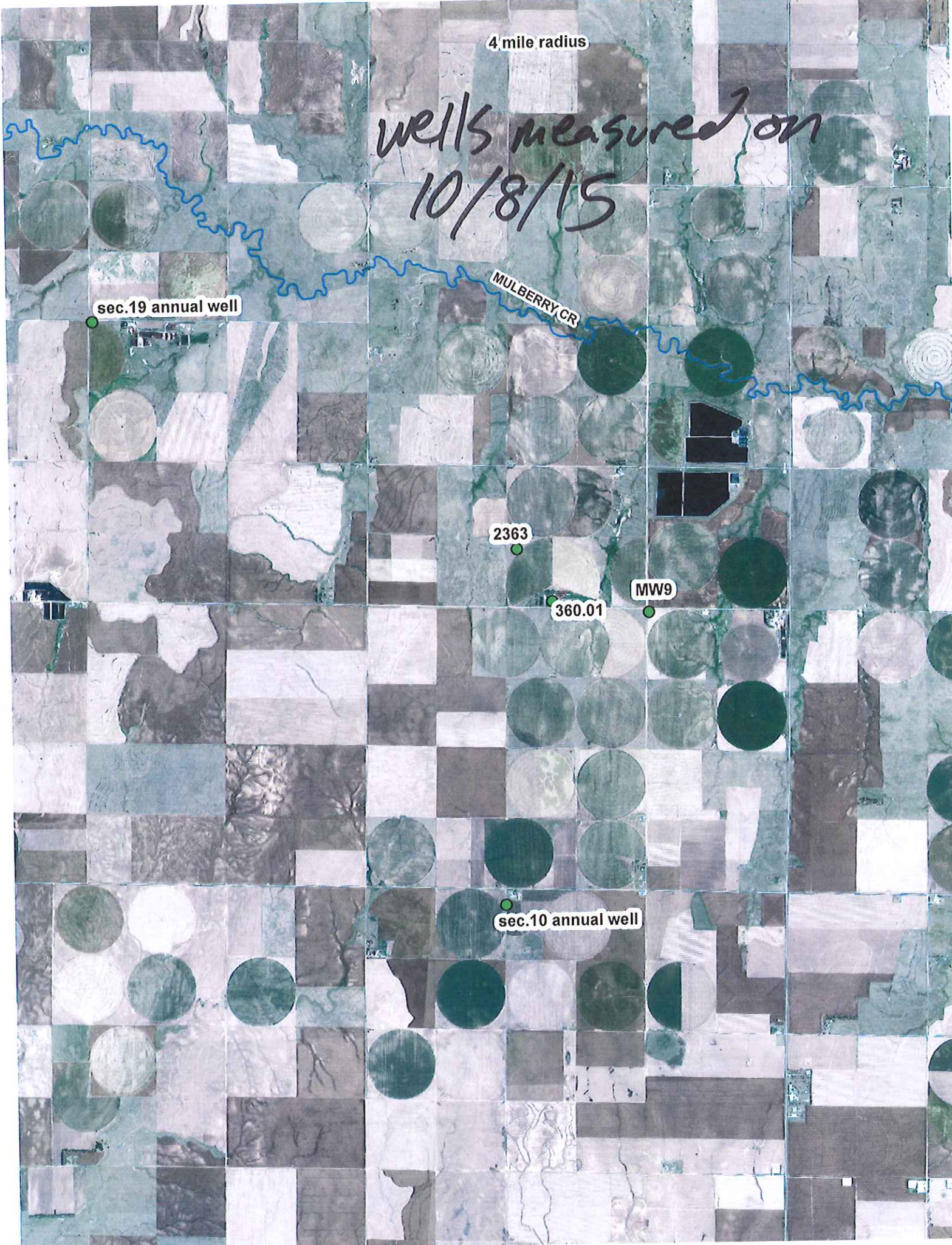
MULBERRY CR

2363

360.01

MW9

sec.10 annual well



Kolbeck OBS

Date	DTW from MP
4/7/2011	171.40
8/30/2011	170.31
9/7/2011	170.38
9/22/2011	170.30
3/29/2012	170.31
5/9/2012	170.57
7/18/2012	170.79
10/8/2015	170.59

hold	170
cut	0.59
DTW	170.59
mp=	~1.1
DBLS	169.49

notes: 10:40am

MW 9

Date	DTW from MP
8/30/2011	181.46
9/22/2011	181.92
3/29/2012	182.40
10/8/2015	185.83

hold	185
cut	0.83
DTW	185.83
mp=	~2.2
DLBS	183.63

notes: 10:00am

2363 IRR Casing

Date	DTW from MP
4/7/2011	180.25
8/30/2011	181.70
9/7/2011	181.79
9/22/2011	181.68
3/29/2012	181.48
10/8/2015	184.56

hold	180
cut	4.56
DTW	184.56
mp=	~0.6
DBLS	183.96

notes: 10:25am

NW NW NW 19-28S-25W  
annual well ~4 miles NW

Date	DBLS
1/14/2011	164.46
1/19/2012	167.46
1/17/2013	168.5
1/6/2014	168.12
1/6/2015	169.22
10/8/2015	176.81

hold	180
cut	-2.99
DTW	177.01
mp=0.2'	
DBLS	176.81

notes: IRR well, feed  
planted. Will still recover  
before Jan 2016 meas.

11:55am

NWNWNW 10-29S-25W  
annual well ~2 miles S

Date	DBLS
1/14/2011	174.57
1/19/2012	180.57
1/17/2013	179.25
1/6/2014	181.92
1/6/2015	183.34
10/8/2015	188.79

hold	190
cut	-1.11
DTW	188.89
mp=0.1'	
DBLS	188.79

notes: IRR well, milo  
planted. Will still recover  
before Jan 2016 meas.

10:10am



# ITT

**B5-25GS**

## Residential Water Systems

# Goulds Pumps

5GS, 7GS, 10GS,  
**13GS**, 18GS & 25GS

5-25 GPM, ½ – 5 HP, 60 Hz,  
Submersible Pumps

10/8/15

Cameron talked w/ Brent  
Clarke about the well  
they drilled for the Kolbecks.

They installed a 3HP

13GS30 221' deep  
in the well.



Goulds Pumps is a brand of ITT Corporation.

[www.goulds.com](http://www.goulds.com)

*Engineered for life*

## FEATURES

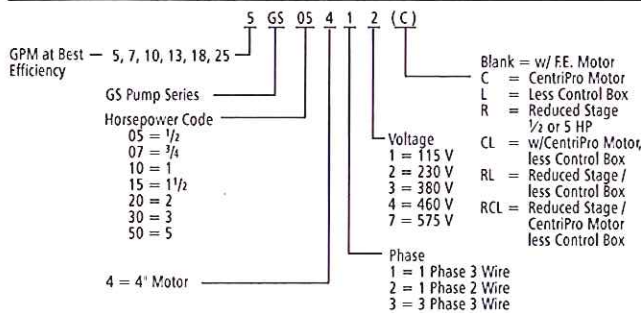
- **Powered for Continuous Operation:** All ratings are within the working limits of the motor as recommended by the motor manufacturer. Pump can be operated continuously without damage to the motor.
- **Field Serviceable:** Units have left hand threads and are field serviceable with common tools and readily available repair parts.
- **Sand Handling Design:** Our face clearance, floating impeller stack has proven itself for over 40 years as a superior sand handling, durable pump design.
- **FDA Compliant Non-Metallic Parts:** Impellers, diffusers and bearing spiders are constructed of glass filled engineered composites. They are corrosion resistant and non-toxic.
- **Discharge Head/Check Valve:** Cast 303 stainless steel for strength and durability. Two cast-in safety line loops for installer convenience. The built-in check valve is constructed of stainless steel and FDA compliant BUNA rubber for abrasion resistance and quiet operation.
- **Motor Adapter:** Cast 303 stainless steel for rigid, accurate alignment of pump and motor. Easy access to motor mounting nuts using standard open end wrench.
- **Stainless Steel Casing:** Polished stainless steel is strong and corrosion resistant.
- **Hex Shaft Design:** Six sided shafts for positive impeller drive.
- **Engineered Polymer Bearings:** The proprietary, engineered polymer bearing material is strong and resistant to abrasion and wear. The enclosed upper bearing is mounted in a durable Noryl® bearing spider for excellent abrasion resistance.

## WATER END DATA

Series	Model	Required H.P.	Stages	Water End	
				Length (in)	Wt (lbs)
5GS	5GS05R	.5	9	12.9	8
	5GS05	.5	12	15.0	9
	5GS07	.75	15	17.0	11
	5GS10	1	20	21.7	13
	5GS15	1.5	26	25.8	15
	5GS20	2	33	31.6	19
7GS	7GS05R	.5	7	11.7	6
	7GS05	.5	10	13.8	7
	7GS07	.75	13	16.0	8
	7GS10	1	17	18.8	9
	7GS15	1.5	22	23.6	12
	7GS20	2	27	27.2	13
10GS	10GS05R	.5	5	10.1	6
	10GS05	.5	7	11.5	7
	10GS07	.75	10	13.6	8
	10GS10	1	12	15.0	9
	10GS15	1.5	17	18.4	12
	10GS20	2	20	21.7	13
13GS	10GS30	3	27	27.5	18
	10GS50R	5	35	33.0	21
	10GS50	5	42	40.2	24
	13GS05	.5	5	10.1	6
	13GS07	.75	7	11.5	7
	13GS10	1	10	13.6	8
18GS	13GS15	1.5	12	15.0	9
	13GS20	2	17	18.4	12
	13GS30	3	21	22.3	15
	18GS07	.75	6	11.8	7
	18GS10	1	8	13.5	8
	18GS15	1.5	11	16.1	10
25GS	18GS20	2	14	18.6	11
	18GS30	3	19	24.1	15
	18GS50R	5	24	28.3	17
	18GS50	5	30	34.4	21
	25GS10	1	7	13.4	8
	25GS15	1.5	9	15.3	9
25GS	25GS20	2	11	17.2	10
	25GS30	3	15	20.9	14
	25GS50R	5	22	28.7	17
	25GS50	5	26	33.4	21

## NOMENCLATURE

See price book for complete order numbers.



## SPECIFICATIONS

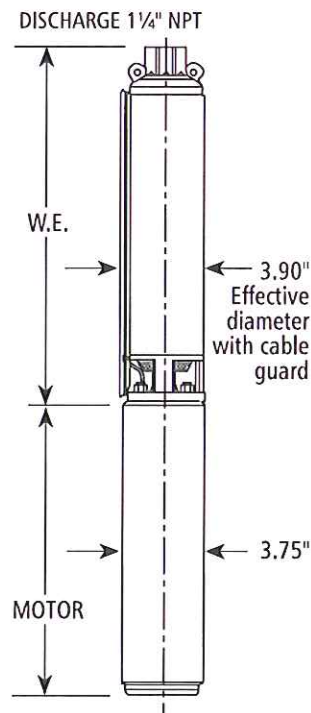
Model	Flow Range GPM	Horsepower Range	Best Efficiency GPM	Discharge Connection	Minimum Well Size	Rotation <sup>1</sup>
5GS	1.2 – 7.5	1/2 – 2	5	1 1/4	4"	CCW
7GS	1.5 – 10	1/2 – 3	7	1 1/4	4"	CCW
10GS	3 – 16	1/2 – 5	10	1 1/4	4"	CCW
13GS	4 – 20	1/2 – 3	13	1 1/4	4"	CCW
18GS	6 – 28	3/4 – 5	18	1 1/4	4"	CCW
25GS	8 – 33	1 – 5	25	1 1/4	4"	CCW

<sup>1</sup> Rotation is counterclockwise when observed from pump discharge end.

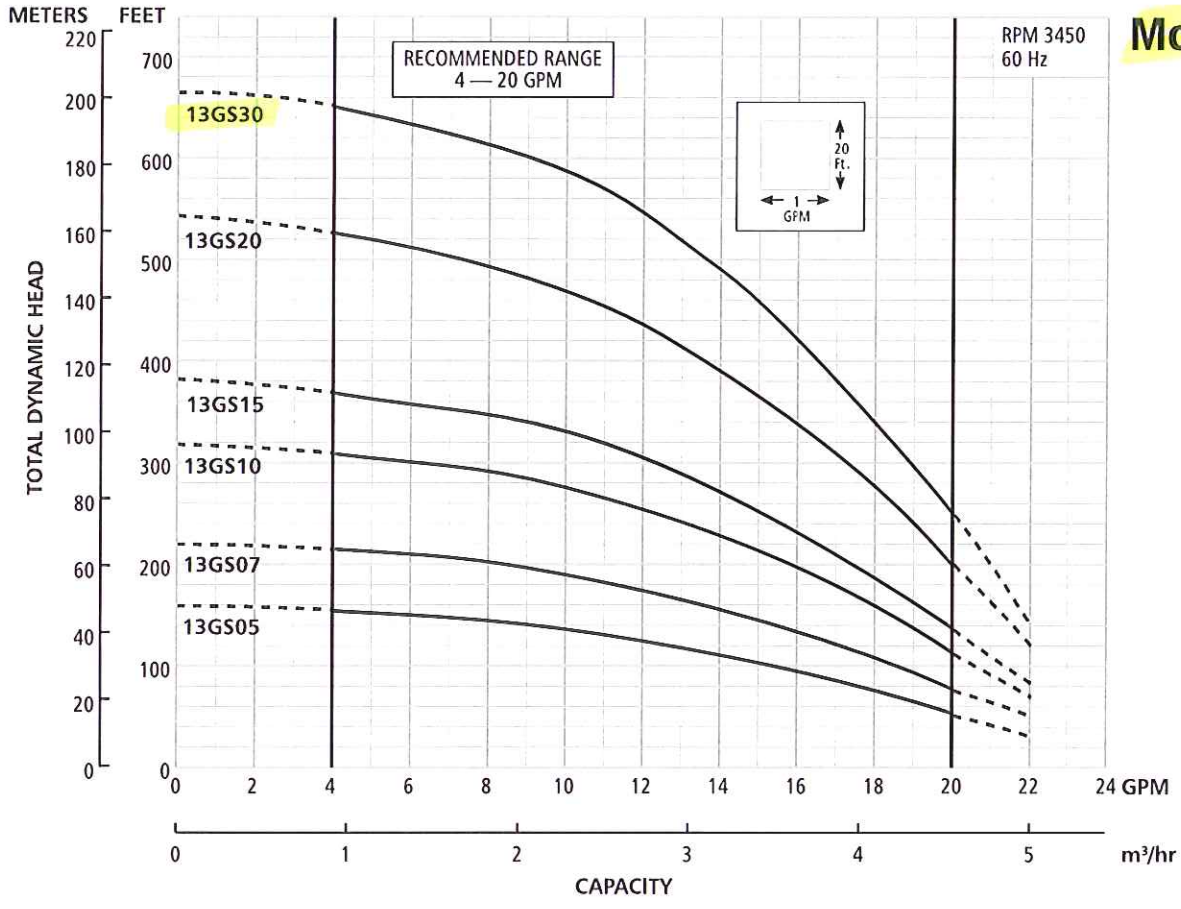
## "GS" SERIES MATERIALS OF CONSTRUCTION

Part Name	Material
Discharge Head	AISI 303 SS
Check Valve Poppet	AISI 304 SS
Check Valve Seal	BUNA, FDA compliant
Check Valve Seat	AISI 304 SS
Check Valve Retaining Ring	AISI 302 SS
Bearing Spider – Upper	Noryl <sup>®</sup> GFN2
Bearing	Proprietary Engineered Polymer
Klipring	AISI 301 SS
Diffuser	Lexan <sup>®</sup>
Impeller	Noryl <sup>®</sup>
Bowl	AISI 304 SS
Intermediate Sleeve*	AISI 304 SS, Powder Metal
Intermediate Shaft Coupling*	AISI 304 SS, Powder Metal
Intermediate Bearing Spider*	Glass Filled Engineered Composite
Intermediate Bearing Spider*	AISI 303 SS
Shim	AISI 304 SS
Screws – Cable Guard	AISI 304 SS
Motor Adapter	AISI 303 SS
Casing	AISI 304 SS
Shaft	
Coupling	AISI 304 SS, Powder Metal
Cable Guard	AISI 304 SS
Suction Screen	AISI 304 SS

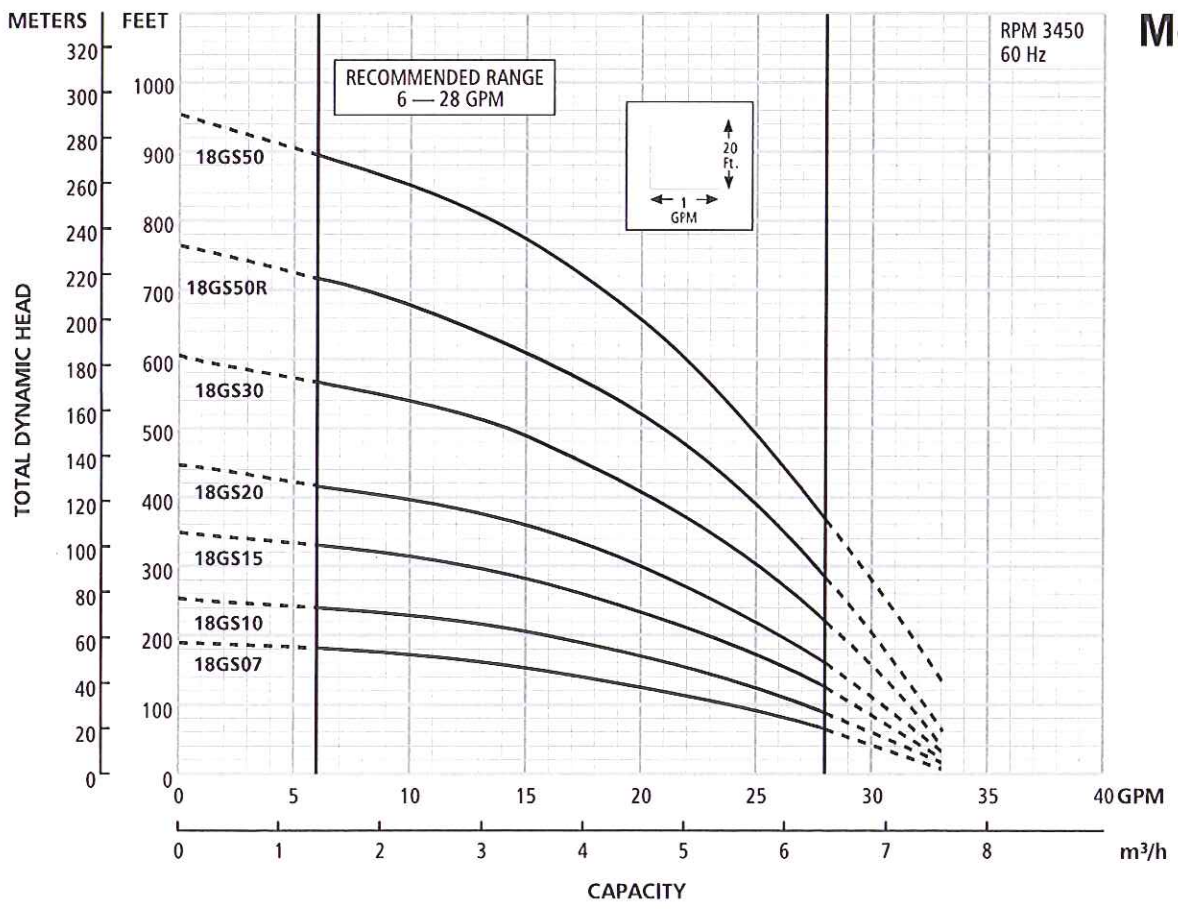
\*See repair parts for where used.



# Model 13GS



# Model 18GS





# Model 13GS

## SELECTION CHART

Horsepower Range ½ – 3, Recommended Range 4 – 20 GPM, 60 Hz, 3450 RPM

Pump Model	HP	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																												
			20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	340	380	420	460	500	540	580	620	660	700	740	780	820	
13GS05	½	0			19.0	17.5	15.3	12.5	8.2																						
		20	18.8	16.5	14.5	12.0	8.0																								
		30	16.0	13.4	11.0	4.1																									
		40	13.3	10.6	4.0																										
		50	9.8																												
		60																													
Shut-off PSI			60	52	43	35	26	17	9																						
13GS07	¾	0				19.7	18.5	17.0	15.0	13.2	11.5	8.5																			
		20		19.4	18.0	16.4	14.8	12.9	10.5	6.0																					
		30	18.9	17.5	16.0	14.6	12.5	10.0	5.0																						
		40	17.4	15.9	14.4	12.4	9.7	4.0																							
		50	15.4	13.8	12.0	9.5																									
		60	13.2	11.5	8.5																										
Shut-off PSI			86	78	69	61	52	43	35	26	17	8																			
13GS10	1	0						19.6	18.4	17.6	16.6	15.4	14.1	12.8	11.4	9.5	6.0														
		20			20.0	19.4	18.5	17.2	16.3	15.0	13.8	12.5	11.0	8.5	4.0																
		30		20.0	19.2	18.2	17.1	15.8	14.7	13.6	12.2	10.5	7.5																		
		40	19.9	19.0	18.0	17.0	15.7	14.6	13.5	12.0	10.1	7.3																			
		50	18.8	17.8	16.8	15.5	14.5	13.0	11.6	9.9	7.0																				
		60	17.6	16.6	15.4	14.1	12.8	11.4	9.5	6.0																					
Shut-off PSI			128	119	110	102	93	84	76	67	58	50	41	32	24	15	6														
13GS15	1½	0						19.7	18.9	18.2	17.3	16.3	15.2	14.2	13.2	12.1	8.7														
		20					19.5	18.4	17.9	17.0	16.0	15.1	14.1	12.9	11.8	10.2	8.8														
		30			20.2	19.4	18.6	17.6	16.8	15.8	14.9	14.0	12.6	11.5	9.9	7.9	4.0														
		40		20.0	19.3	18.5	17.5	16.6	15.7	14.8	13.9	12.5	11.4	9.5	7.3	4.0															
		50	20.0	19.1	18.3	17.4	16.4	15.5	14.5	13.6	12.3	11.0	9.2	6.3																	
		60	18.9	18.2	17.3	16.3	15.2	14.2	13.3	12.1	11.0	8.7	5.6																		
Shut-off PSI			156	147	139	130	121	113	104	95	87	78	69	61	52	43	35	17													
13GS20	2	0									20.0	19.5	19.0	18.3	17.9	17.2	15.8	14.4	12.6	10.5	7.7										
		20								19.8	19.4	18.8	18.2	17.6	17.0	16.3	15.6	14.1	12.4	10.2	6.8										
		30								19.7	19.3	18.7	18.2	17.4	16.8	16.2	15.5	14.8	13.1	11.1	8.8										
		40						19.6	19.2	18.6	18.1	17.3	16.7	16.1	15.4	14.7	13.8	12.0	9.8	6.0											
		50				20.1	19.5	19.1	18.4	18.0	17.2	16.6	16.0	15.2	14.6	13.7	12.9	10.8	8.5												
		60			20.0	19.5	19.0	18.3	17.9	17.2	16.5	15.8	15.1	14.4	13.6	12.6	11.5	9.2	5.0												
Shut-off PSI				206	198	189	180	172	163	155	146	137	129	120	111	103	85	68	51	33	16										
13GS30	3	0												19.8	19.4	18.9	18.0	17.1	16.0	14.6	13.5	11.9	10.0	7.3							
		20												19.6	19.2	18.9	18.3	17.9	17.0	15.9	14.7	13.3	11.8	9.7	6.9						
		30												20.0	19.5	19.1	18.8	18.2	17.8	17.4	16.4	15.2	13.9	12.3	10.5	8.3	4.0				
		40												20.0	19.4	19.1	18.7	18.2	17.8	17.3	16.8	15.6	14.5	13.0	11.4	9.5	6.0				
		50								19.9	19.5	19.0	18.6	18.1	17.7	17.2	16.7	16.1	14.9	13.7	12.0	10.1	7.9								
		60						19.8	19.4	18.9	18.5	18.0	17.5	17.1	16.6	16.0	15.4	14.2	12.9	11.0	9.0	5.0									
Shut-off PSI							235	226	217	209	200	191	183	174	165	157	139	122	104	87	70	53	35	18							