

The Pumps at Mill Close Mine

Peter Naylor

Abstract

A tabulation is presented of the pumps and other electrical apparatus at Mill Close Mine, Darley Dale, taken from a notebook kept by Harry Gladwyn of Winster.

INTRODUCTION

A notebook entitled "Recordings of Pumps" was given to the writer by the late Harry Gladwyn's son Derek, and is now part of the Society Collection. Harry kept the underground pumps at Mill Close Mine, up to the time when it closed. It was the inability of these pumps to cope with the sudden increase in water entering the mine that caused its closure. Harry kept a meticulous account of the pumps in his charge, and it is revealed that there were more pumps than anyone envisaged. Harry's account is reproduced here, suitably edited and tabulated.

HARRY GLADWYN

The name suggests a Welsh connection and this is not unlikely. He was born at Stanton Lees in 1903 and died at Winster in 1955 at the premature age of 52. His father was a deputy manager at Mill Close Mine and Harry joined his father in 1917. On the closure of the mine, he became a self employed lorry driver, preferring the open air to the underground. His widow, Florence Gladwyn, still lives in the family home; she is a friendly and spritely 83. Her father was at Mill Close too, John O. Smith, who was an ore getter.

THE PUMPS

The names Lawrence and Scott (LS) with Mather and Platt (MP) occur frequently and probably apply also to other pumps. The former were and still are well known manufacturers of motors; the latter are equally well known as pump manufacturers, MEDI is one of their trade names. Occasionally the phase and frequency are stated in the notebook and in all instances this is given as 3 phase and 50 Hertz ('period' in the text). The pump capacities are given as "Galls"; this is taken to mean gallons per minute. A unit is not given for the "Level" at which the machines are situated, but these are clearly fathoms. The head of the pumps and vacuum are taken as meaning feet head of water. The exception is the unit manufactured by Siemens and Sulzer in Lees Shaft, where the duty is given as m³/min and m head (4.55m³/min = 1000 gallons per minute, and 160m head = 525 feet head).

The Sulzer machine in Warrencarr Shaft appears to be given in Imperial units, from what little information there is.

The paucity of information in some areas contrasts starkly with the fullness of data elsewhere. The readings are obviously nameplate readings, and one can assume that the nameplates in question gave only the simplest data, or that access was the privilege of another pump man.

The name MET. VICK. (Metropolitan Vickers) occurs in the sub-station, as the manufacturer of the transformer and H.T. switch (HT = high tension). This very well known company is of course still in existence.

The date of the notebook is unknown, but it is safe to assume that it dates from the late 1930s, probably just prior to the mine's closure.

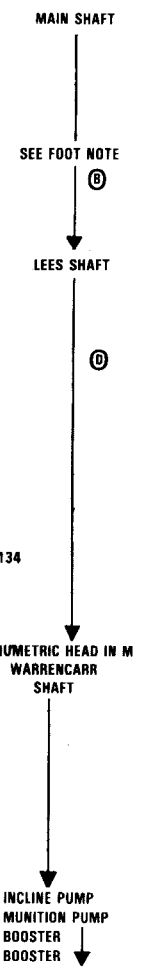
Footnotes to the Table.

A. These pumps feature on the diagrams.

B. This is most likely the pump featured in the photograph on lower page 311 of PDMHS Bulletin Volume 8, no.5, Summer 1983. The valve is the discharge valve of the twin pump, 5" diameter, before the rigid pipe changes to flexible pipe. The flexible conduits for the three phase supply are clearly visible at the rear. The 'hoses' draped round the valve are a mystery. The valve is a sluice type, commonly used on public water supplies, as manufactured by many companies at that time. The man at the far left is half sitting on a flexible pipe of smaller diameter, possibly the 4" syphon referred to on the diagram.

C. This charging station, together with the sub-station, transformer, etc. form the battery charging station at the 103 fathom level, referred to by Nash, page 67, PDMHS Bulletin, Volume 7, no. 2, October 1978. The generators given here should not be confused with the above ground ones referred to by Naylor, page 166, PDMHS Bulletin Volume 7, no. 3 April, 1979, for these provided electric power prior to connection with the national grid.

LOCATION	MOTOR								PUMP								OTHER REMARKS		
	LEVEL	SERIAL No.	VOLTS	AMPS	HP	RPM	MAKE	TYPE	SERIAL No.	GALLS	HEAD	RPM	MAKE	SIZE	VACUUM	MODEL		TYPE	MAKE
No. 1	50	48786	3300	16	100	1485			22341	550	400	1470				2-4			
No. 2		51955							24399										
No. 3		51954	3300	30	190	1470			24398	150	300					7-9.2	8T		
	112	14756	440	19.8	18			L5	26255	450	80	1440		4"		MEDI	MP	1933	(C)
	144	70191	440	49	37.9				32292	500	175	1450		4"	12	MEDI		1935	(A)
		74530	440	26	25	1440			36544	500	125	1500		5"	12		MP		(A)
	128	1346	440		15			L5	26447	350	80	1440		4"	10%			1933	(A)
	128	52365	440	41	33	1500			32307	475	150	1450		4"		MEDI			(A)
	103	8619	400	34.5	26	1440		L7	27189	1200	45	1440							(A)
	103	47408	3300	21.75	?	1475			21102	1500	210			8"	14				(A)
		48341	3300	11.5	75	1500			21650	750	210			6"	9%				
	93	03598	440	153	125	1470			35059	2000	155	1460		8"					
		71028	440	65	50	1475			33198	750	160	1450		6"					
		64247	3300	170	27	1470		L13	31948	750	500	1485		6"		2A-SCH	PL	MP	
		75886		16	100	1460		L5	13917	500	325	1450		6"					
		68556	440	48	40	1455			33038	750	160	1450		5"		MEDI		MP	2 STAGE
	120	74349	440	77	62			L5	28362	1000	135			6"		MEDI		MP	
		73579	440	110	95			L10	35978	2000	125	1465		8"				MP	
		80430	3300	47	300	1455			38540	1600	460	1500				MEDI	9/11		NEW PUMP CHAMBER
	120			66							143				12				
	103			26%							243				11%				
	144			31%							129				9				
	128			36											11				
	150			60000										2"					
	144			34							108				9				
				46%							305								
				20										3"					
	128			39							198				9				
	144	75886	3300	16	100	1460			13817	500	325	1450		8"		MEDI		1937	TWIN PUMP
	144	50934	440	92	75	1460			33818	750	180	1450		5"/8"		MEDI		1937	2 STAGE ROTOR V=335, ROTOR A=134
	144	11061	440	20	15	1500		L5	38703	440	20	1500		5"/8"		MEDI		1937	2 STAGE
		80411	440	26	22			1.6	38521	550	100	1500		4"		MEDI			NEW PUMP CHAMBER
		65439	3300	32	235		SIEMENS R281 IM4		86384	4.55	160	1450				4A/HCP	SULZER		4 STAGE 219 BHP VOLUME - M ³ /MIN. 2 STAGE
		48770	3300	67	440	1475		L14	22330	2500	410			9/11	8/9				MANUMETRIC HEAD IN M WARRENCARR SHAFT
				27							470				12				
				32							450				8/9		SULZER		"WATER STEADY"
				143							192			9/11					WORKING WITH
No. 2	50			15%							350				8%				
No. 1				16%							355				11				
No. 3	50			27%							310				9%				
				190							174			9/11					
No. 3				25							349				8%				
				164							180			9/11					
No. 3				23%							360				8				
				155										9/11					
		50772	3300	325	180	1455		L13	39481	3300	147	1475		10"	7/8	MEDI			"WATER STEADY"
				150							150				12				
No. 1				64							27				23				
No. 2				94							97				4				



GENERATORS

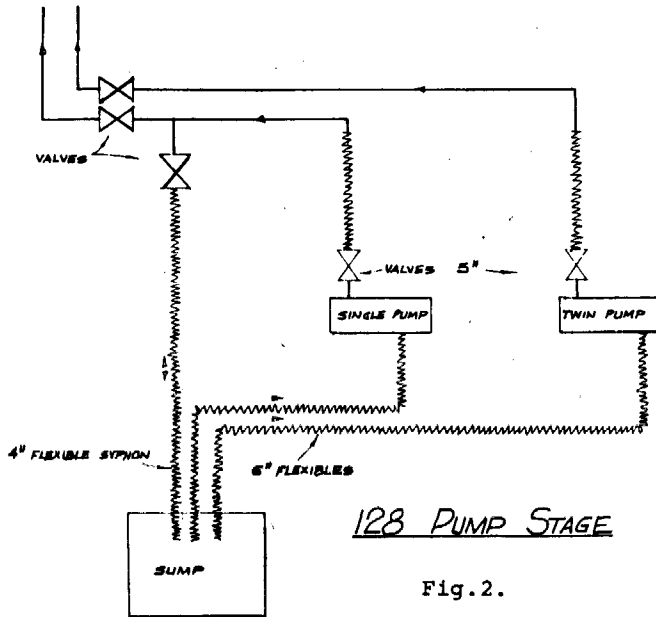
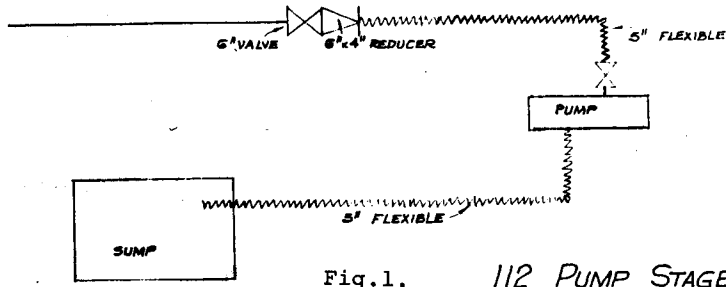
LEVEL	MOTOR SER. No.	VOLTS	AMPS	HP	RPM	GENERATOR SER. No.	VOLTS	AMPS	RPM	RATE	CHARGING BOARD	VOLTS	AMPS	TYPE
SUB-ST. 103	35741	440	22	22	1440	114237	90/60	150	1440	60/20	130692	110	200	I
CHG-ST. 103	28193	440	16	13	1445*	28194	60/100	80	1445	56/20	BSS168			CS3B
FAN-ST. 103	101553	400	47	?	1350									(C)

*INDUCTION MOTOR TYPE EDI P SC

MISCELLANEOUS

103 SUB STATION	B.I. CONDENSER	No. 6678 - 50KVA - 440V - PATENTS 139694/19 & 173320
	TRANSFORMER	No. 375340 - ELEC. SPEC. No. 81139A - MET. VICK
	H.T. SWITCH	No. 27998 - STYLE 39758 - MET. VICK.
	LIGHTING TRANSFORMER	No. 9148/2 - 5KW - 440/110V

MILL CLOSE MINE PUMPS



Figs. 1 & 2 from diagrams in Harry Gladwyn's notebook.

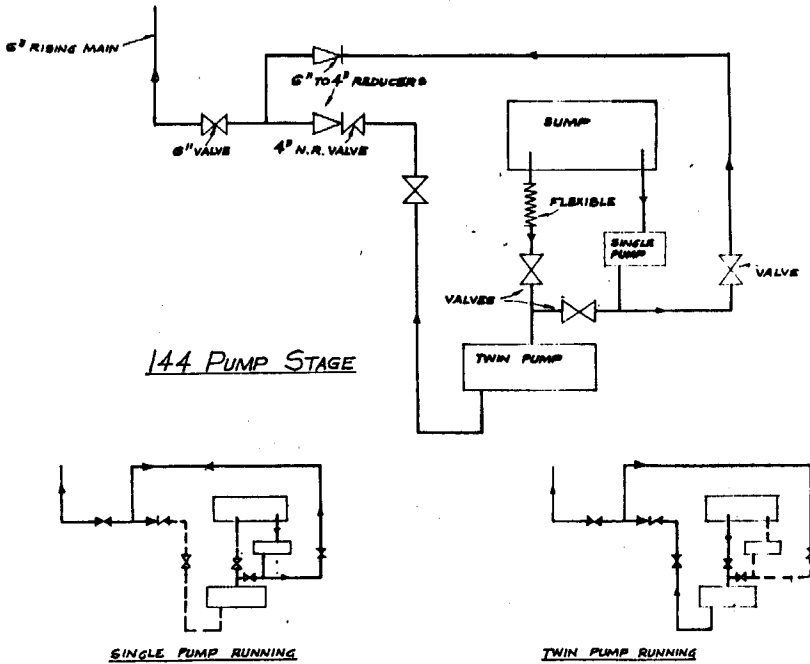


Fig. 3. Flow diagram reconstructed by the author.

D. This might be one of the two pumps referred to by Naylor, page 165 *ibid*. These reputedly had a duty of 1800 gallons per minute, 10/12" by Mather and Platt, and installed prior to 1822. Alternatively, these pumps were possibly "pensioned off" and removed, for the suction sizes stated do not agree, 8" viz 10". Pump sizes are given according to suction diameters; discharge diameters do not form part of the description, but where they are given they are invariably larger.

The diagrams in Figs. 1 and 2 are redrawn by the writer from those in the notebook. The flow diagrams, 144 pump stage (Fig. 3) are by the writer.

ACKNOWLEDGEMENTS

Thanks are due to Derek Gladwyn for donating his father's notebook, and to Florence Gladwyn for background information about her late husband.

28th August 1984