APPENDIX C ELECTRICAL OPERATION DIAGRAM

C.2 SEWERAGE FACILITIES

Abbreviation Table

CS	Control Switch
COS	Change Over Switch
PBS	Push Button Switch
MCC	Motor Control Center
LOP	Local Operation Panel
LCD	Liquid Crystal Display
INP	Instrumentation Panel
MONI	Monitor
CRT	Cathode Ray Tube
PRN	Printer
VCB	Vacuum Circuit Breaker
SG	Switch-gear
INST.	Instrumentation
H.H.	High-high (Emergency High)
L.L.	Low-low (Emergency Low)
T (Alarm)	Trip

FACI	ILITY NAME		SLUDGE TREATMENT BUILDIN	NG				6770 D	LOCAL (SITE)	ELECTRICAL ROOM	SLUDO 1	GE TREATMENT BU MONITORING ROO	ILDING M	
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TAG No. S08LVP01	EQUIPMENT NAME TRANSFORMER SECONDARY PANEL CAPACITY DRIVE SYSTEM	-		ITEM	CONDITION	LP	LV	CRT	OPERATION	PR	NOT
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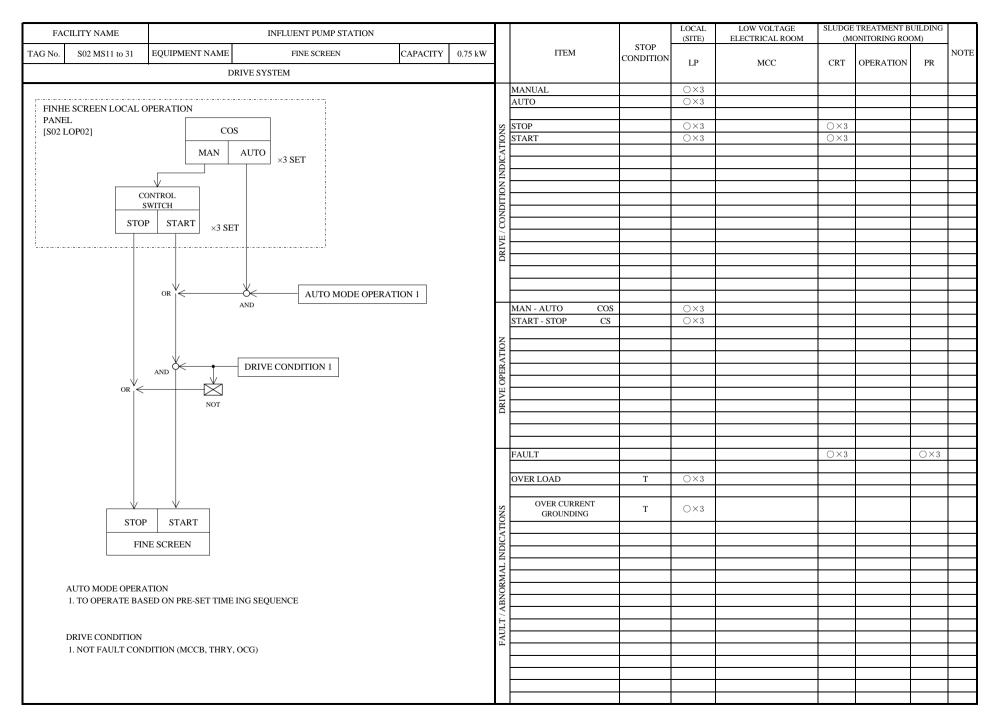
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FACI	LITY NAME		ELECTRICAL HOUSE				STOP	LOCAL (SITE)	ELECTRICAL ROOM	SLUDO	GE TREATMENT BU MONITORING ROOI	ILDING M	
No.	S08HVP03/05	EQUIPMENT NAME	TRANSFORMER PRIMARY PANEL	CAPACITY -	IT	EM	CONDITION	LP	HV	CRT	OPERATION	PR	NOT
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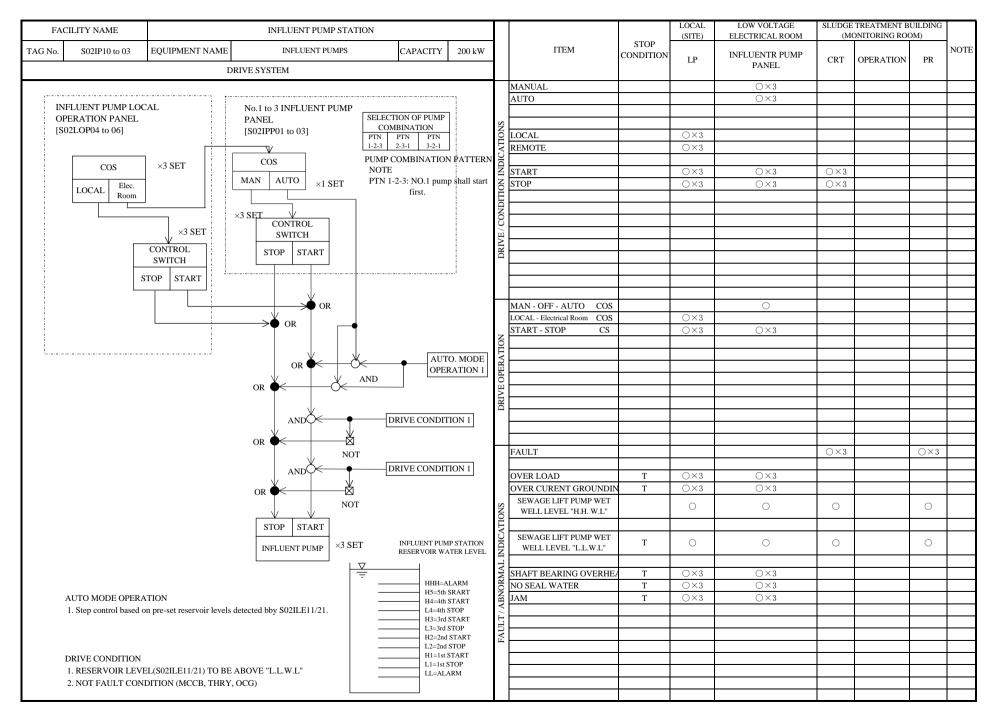
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		AND Ŏ<	CLOSING CONI	DITION								
		\downarrow										
	OR	•	NOT									
			NOT		ži							-
					FAULT				$\bigcirc \times 2$		$\bigcirc \times 2$	
	_	\downarrow \downarrow			OVER CURRENT	Т		$\bigcirc \times 2$				
		OFF ON						-				
		ACB ×2 S	ET	-	2							
					ICA							
					ONI							
	CLOSING CONDITI 1. NOT FAULT CON				T							-
	I. NOT PAULI CON				ABNOKMALINDICATIONS							┢
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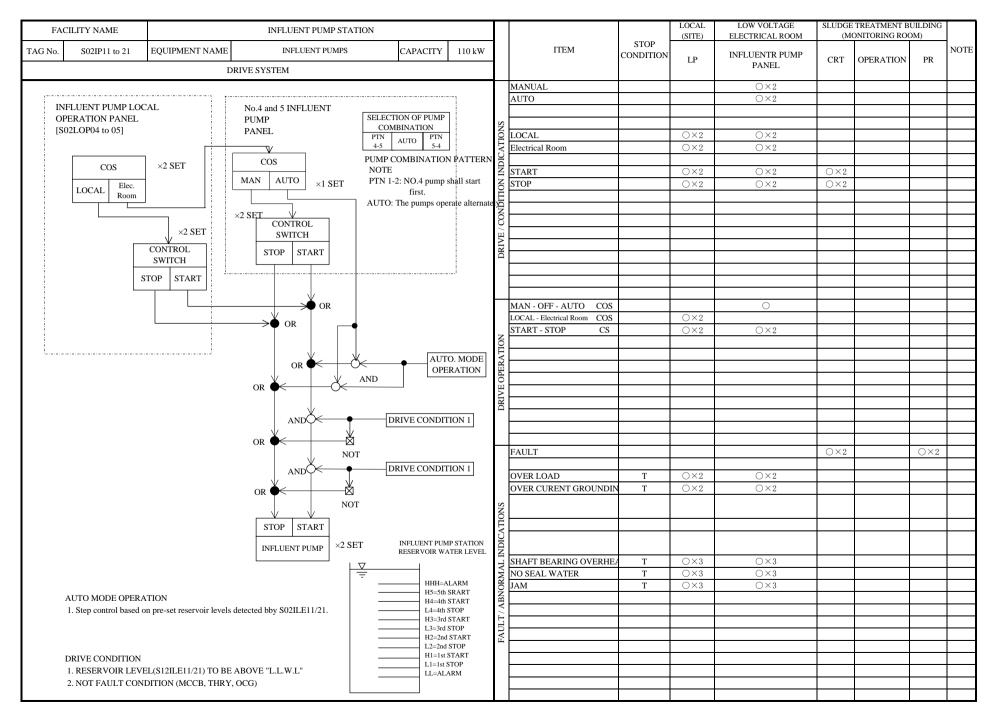
FAC	ILITY NAME		INLET CHAMBER					LOCAL (SITE)	INFLUENT PUMP STATION LV ELECTRICAL ROOM	SLUDGI (M	E TREATMENT BU IONITORING ROC	UILDING M)	
TAG No.	S01MG01	EQUIPMENT NAME		CAPACITY 2.2	κW	ITEM	STOP CONDITION	LP	PLC	CRT	OPERATION	PR	NOT
r			DRIVE SYSTEM			OPEN			0	0			
			PAGED SCREEN ON			STOP			0	0			
	CON	TROL SWITCH	LCD BUILT-IN THE INFLUENT PUMP		s	CLOSE			0	0			
	MAN	IUAL OFF	STATION PLC PANEL		ICATIONS								
			[S02PLC01]		CAT								
		↓			IONI								
	CONTRO	DL SWITCH											
	CLOSE S	TOP OPEN			NOITION								_
	CLOSE S	IOP OPEN			CON								
!			j										
					DRIVE						┥		+
	\downarrow										+		\vdash
	AND O	\downarrow											1
		AND	DRIVE CONDITION 1			MAN - OFF	COS		0				
	OF					OPEN - STOP - CLOSE	CS		0				
	AND K				7								
		AND C	DRIVE CONDITION 2		ATION								
	OF				ERA'								
	V.	NOT			OPER/								
	AND Ö	AND	DRIVE CONDITION 3		DRIVE								
					DF								
	OF	NOT											
		ψ				DALK T				~			<u> </u>
	CLOSE S	TOP OPEN				FAULT				0		0	
	INILET CI	IAMBER GATE				OVER LOAD	Т		0				
	INLET CI	IAMBER GATE											<u> </u>
					SNS	OVER TORQUE	Т		0				
					OITV								
	DRIVE CONDITIO				DIC/								
			closing directional not to be actuated during d closing directional TS not to be actuated durin		tively Z								
		NDITION (MCCB, THRY	-	8 -r88	IV								
					tively rely ABNORMAL INDICATIC								
					ABI						+		+
					ILT /								
					FAULT								
													+
								1					
													1

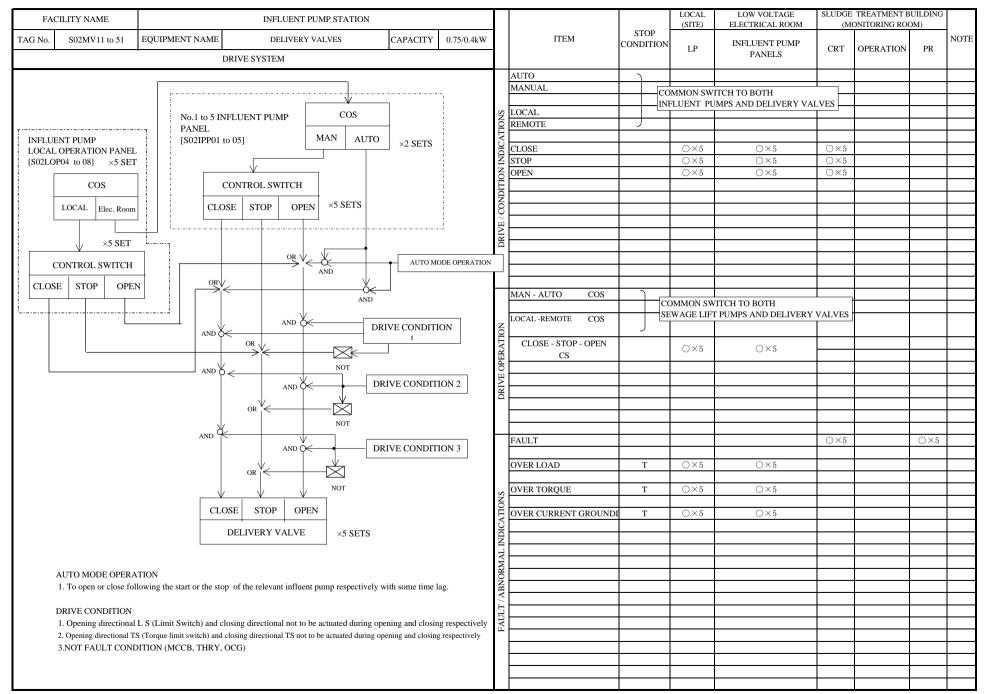


FAC	ILITY NAME			INFLUENT PUMP STATION					LOCAL (SITE)	INFLUENT PUMP STATION LV ELECTRICAL ROOM		E TREATMENT B		
TAG No.	S02MG11 to	31 EQUIPM	IENT NAME		CAPACITY 0.4	4 kW	ITEM	STOP CONDITION	LP	МСС	CRT	OPERATION	PR	NOTE
				DRIVE SYSTEM										
							OPEN STOP		○ x 3 ○ x 3		○ x 3 ○ x 3			
	IEL GATE	CHANGE OV	FR SWITCH	Ŧ			CLOSE		O x 3		O x 3			
LOCAL OPERA				•		SI								
PANEL		MANUAL	OFF			SNOLLE JIGNI NOLLIGUOJ								
						IC A'								
						CN N								
	CONT	ROL SWITCH	[NO								
	CLOSE	STOP OI	DEN			DIT								
	CLOSE	STOP OI	PEN			NO								
l														
1						DRIVE								
1														
	AND K]			<u> </u>							
		AND (∛←───੶	DRIVE CONDITION 1		_								
								OS	O x 3					
	AND		NOT				OPEN - STOP - CLOSE	S	○ x 3		-			
		AND	ሄ←	DRIVE CONDITION 2		NO								
						ATI								
			NOT			DRIVE OPERATION								
	AND Y					AF C								
		AND	∛<•	DRIVE CONDITION 3		LI AC								
		OR V												
			NOT											
	CLOSE	STOP OF	V PEN				FAULT				O x 3		O x 3	
1	CLOSE	STOP OF	'EIN											
	СН	ANNEL GATE					OVER LOAD	Т		○ x 3				
							OVER TORQUE	Т		○ x 3				
						SNOL	o (Lat Folige L			0 1 0				
							OVER CURRENT GROU	NDI T		○ x 3				
	DRIVE CONDIT		t Switch) and	closing directional not to be actuated during	opening and electing resp									
				d closing directional TS not to be actuated during		tively								
	3.NOT FAULT	-		-		MA								
						ectively tively								
						AB								
						L.	-							
1						FAIILT								
1						[_								
l														

FACILITY NAM	Е		INFLUENT PUMP S	TATION					LOCAL (SITE)	INFLUENT PUMP STATION LV ELECTRICAL ROOM		E TREATMENT B		
TAG No. S02MG13	8 to 43	EQUIPMENT NAME	CONNECTION VAL	VES CA	PACITY 3.7 k	N	ITEM	STOP CONDITION	LP	МСС	CRT	OPERATION	PR	NOTE
			DRIVE SYSTEM											
;							OPEN		O x 4		O x 4			
CONNECTION	CILA	NGE OVER SWITCH	T				STOP CLOSE		○ x 4 ○ x 4		○ x 4 ○ x 4			
VALVE LOCAL	СПА	INGE OVER SWITCP	1			SI	CLOSE		U A T		0 1 1			
OPERATION PANEL	MA	NUAL OFF				ATION								
			x 1 SET			CAT								
		/				INDIC/								
СС	NTROL S	SWITCH				Z								
						CONDITIO								
CLOS	E STO	P OPEN x	4 SET			INO								
						~								
						DRIVE								
						D								
AND			1											
		AND K	DRIVE CONDITION 1											
	or ↓<	NOT					MAN - OFF COS		○ x 4					
X		NOT					OPEN - STOP - CLOSE CS		○ x 4					
AND Ö—		AND	DRIVE CONDITION 2			Z								
	\downarrow					OPERATION								
	OR		1			PER.								
AND X			1			ΕO								
			DRIVE CONDITION 3			DRIVE								
	or													
		NOT												
	V	V				_	FAULT				O x 4		O x 4	
CLOSE	E STO	P OPEN									0 . 1		0	
СС	NNECTIO	N VALVE					OVER LOAD	Т		○ x 4				
		X	4 SET				OVER TORQUE	Т		O x 4				
						SNG	OVER TORQUE	1		⊖ X 4				
						DIT	OVER CURRENT GROUN	DI T		O x 4				
DRIVE CON						DIC/								
			closing directional not to be actual d closing directional TS not to be act			vely Z								
		TION (MCCB, THRY		uated during opening	and closing respectiv	', IAI								
		. ,	· ·			ORI								
						vely ly BNORMALIAN								
						T/T								
						IUAUI								
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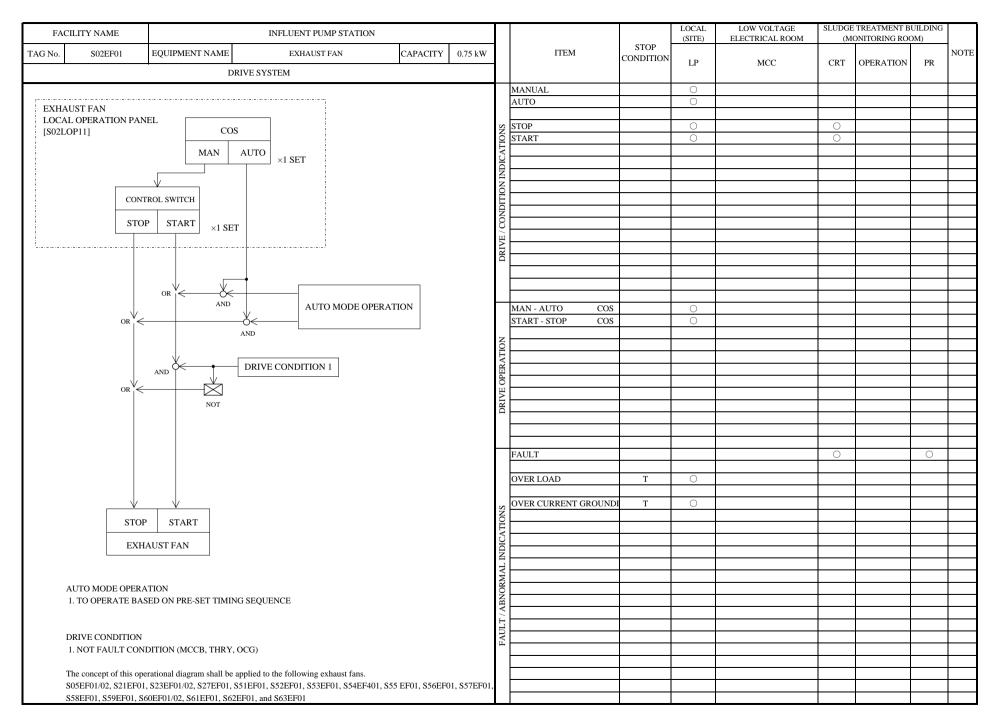


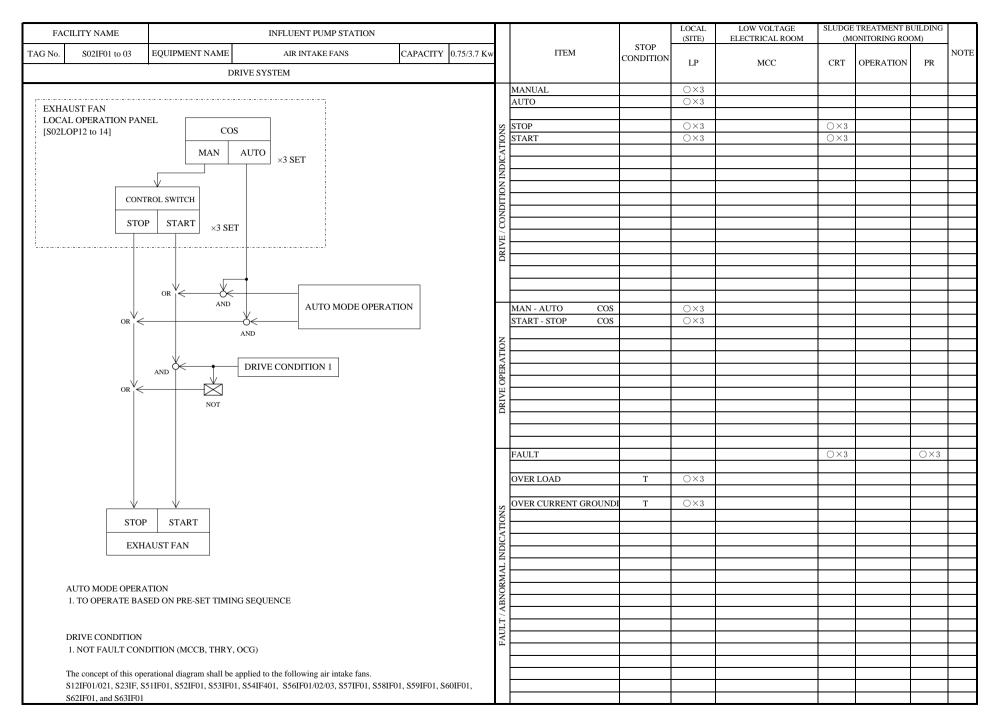


FAC	ILITY NAME		INFLUENT PUMP STATION		-				LOCAL (SITE)	INFLUENT PUMP STATION LV ELECTRICAL ROOM	SLUDGE (M	E TREATMENT BU ONITORING ROC	UILDING DM)	ŕ
AG No.	S02MV12 to 52	EQUIPMENT NAME		CAPACITY	3.7/1.5 k W		ITEM	STOP CONDITIO	N LP	MCC	CRT	OPERATION	PR	NOT
			DRIVE SYSTEM											
							OPEN STOP		○ x 5 ○ x 5		○ x 5 ○ x 5			
INFLUE LOCAL	ENT PUMP CH	IANGE OVER SWITC	н				CLOSE		O x 5		O x 5			
OPERA	TION	LOCAL Elec. Room	5 (F)7			SNG								
PANEL	1		x 5 SET			ATIC								
						DIC								
	CONTRO	L SWITCH				CONDITION INDICATIONS								
						OLLI								
	CLOSE ST	OP OPEN	x 5 SET			QNO								-
						E/O								-
						DRIVE /								
														-
	AND K]											
		AND C	DRIVE CONDITION 1					000	0.5					
	OR	× NOT						COS CS	○ x 5 ○ x 5					
	AND					7			_					
		AND OC	DRIVE CONDITION 2			TIOI								_
	OR					ERA								
	AND A	NOI	_			DRIVE OPERATION								
		AND	DRIVE CONDITION 3			RIVI								
	OR					Д								
		NOT												
	CLOSE ST	OP OPEN					FAULT				O x 5		○ x 5	
	CLOSE 51													
	SUCTIO	N VALVE X	5 SET				OVER LOAD	Т		○ x 5				
						s	OVER TORQUE	Т		○ x 5				
						NOL	OVER CURRENT GRO	UNDI T	-	○ x 5				_
1	DRIVE CONDITION	I				ICA7	OVER CORRENT ORO			0 1 3				
			closing directional not to be actuated during			IND								
		TS (Torque limit switch) an IDITION (MCCB, THRY	d closing directional TS not to be actuated durin (, OCG)	g opening and closing	g respectively	AAL								-
		,,	,)			IOR								
						ABNORMAL INDICATIONS								_
														+
						FAULT								
														+

FACI	LITY NAME		GATE CHAMBER						LOCAL (SITE)	INFLUENT PUMP STATION LV ELECTRICAL ROOM		E TREATMENT BI		:
AG No.	S01MG02	EQUIPMENT NAME	BYPASS GATE	CAPACITY	5.5 kW		ITEM	STOP CONDITION	LP	PLC	CRT	OPERATION	PR	NO
			DRIVE SYSTEM											
							OPEN			0	0			_
	CONT	ROL SWITCH	PAGED SCREEN ON				STOP CLOSE			0	0			+
			LCD BUILT-IN THE INFLUENT PUMP		ş	S	CLOSE			0	0			+
	MANU	JAL OFF	STATION PLC PANEL			ION								
			[S02PLC01]		t a construction of the co	CAT								_
	\	/				INDIC								+
	CONTROL	L SWITCH				z								+
						CONDITIO								
	CLOSE ST	OP OPEN				IN .								_
						\sim								+
						DRIVE						1		+
						ά								1
	AND K		1				-							+
		AND	DRIVE CONDITION 1											+
	OR						MAN - OFF C	OS		0				+
		NOT					OPEN - STOP - CLOSE	CS		0				T
	AND Ŏ	X.			:	z								+
		AND Č	DRIVE CONDITION 2			VTI0								+
	OR		1			OPERATION								1
	AND .	NOT												_
	AND		DRIVE CONDITION 3			DRIVE								_
					i	ā								+
	OR					l								
					_									_
	CLOSE ST	OP OPEN					FAULT				0		0	+
	DUFTCH	AMBER GATE					OVER LOAD	Т		0				+
	INLET CHA	AMBER GATE												
						SN	OVER TORQUE	Т		0				+
						0II								+
D	RIVE CONDITION					ICA'								
			closing directional not to be actuated du		g respectively	INDI								
		TS (Torque limit switch) and DITION (MCCB, THRY)	d closing directional TS not to be actuated d	luring opening and closing	g respectively	MAL								-
5	NOT FAULT CON	DITION (MCCB, TIKT	,000)			ORN								+
						ABNOR								T
					F	T / A								+
						FAUL			<u> </u>					+
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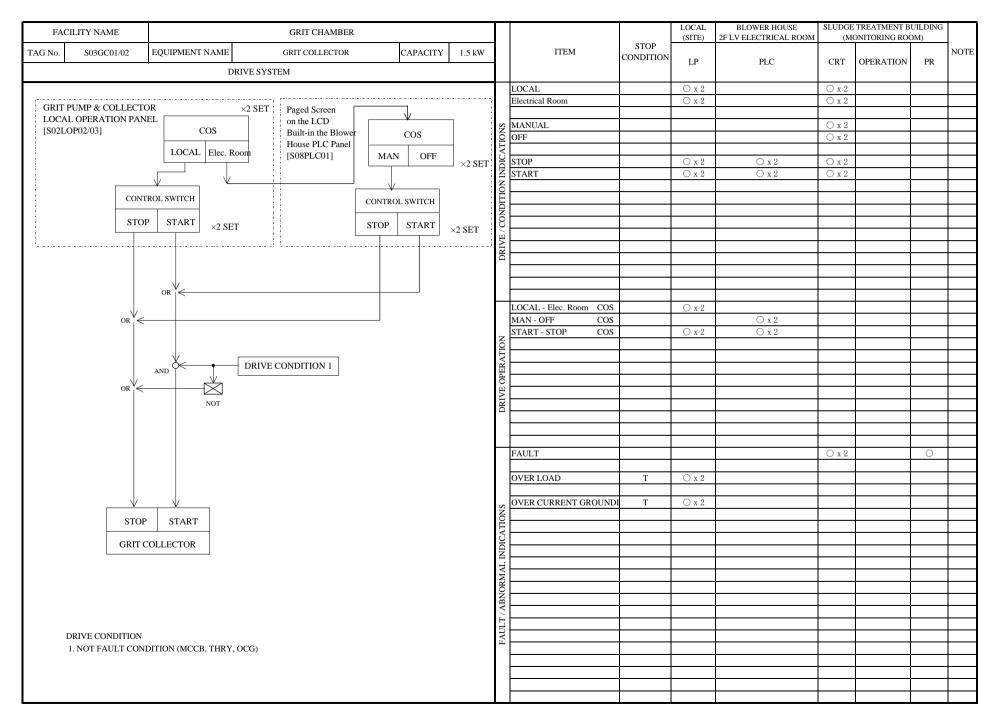
FAC	ILITY NAME		INFLUENT PUMP STATION						LOCAL (SITE)	LOW VOLTAGE ELECTRICAL ROOM		E TREATMENT B ONITORING ROO		
TAG No.	S02DP01/02	EQUIPMENT NAME		CAPACITY	1.5 kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
			DRIVE SYSTEM											
,							MANUAL		$\bigcirc \times 2$ $\bigcirc \times 2$					
	DFRAINAGE PU						AUTO		0.×2					
	L OPERATION P DP09/10]	CO	05			SV	STOP		$\bigcirc \times 2$		$\bigcirc \times 2$			
[50210	JP09/10]					LION	START		$\bigcirc \times 2$		$\bigcirc \times 2$			
		MAN	AUTO ×2 SET			CAJ					-			
						ίΩΝ								
		V				0N J								
	C	ONTROL SWITCH				OITION					-			
	S	TOP START				CON								_
		10P START ×2 SE	ET			E/C					1			+
L						DRIVI								
						D					-			
			f											
	\ \	AND	AUTO MODE OPERA	ATION			MAN - AUTO COS		$\bigcirc \times 2$					
	OR	i <	AND				START - STOP COS		$\bigcirc \times 2$					-
			AND			NO								
						ATI								
		AND	DRIVE CONDITION 1			OPERATIO								_
	OR													
		NOT				DRIVE								
			- DRIVE CONDITION 2			—								
	,	AND	DRIVE CONDITION 2											
	OR						FAULT				$\bigcirc \times 2$		$\bigcirc \times 2$	
		NOT												
							OVER LOAD	Т	$\bigcirc \times 2$					_
	\ \						OVER CURRENT GROUND	ГТ	$\bigcirc \times 2$					
						ONS								
	51	TOP START				ATI	SUMP PIT LEVEL "L.L.W.L"	Т	$\bigcirc \times 2$					
	SU	MP DRAINAGE				INDICATI								_
						RMAL								
	AUTO MODE OPI		HYY XX7 Y H		COOL C11/21									_
	1. 10 operate base	a on pre-set sump pit levels,	"H.W.L" as start and "L.W.L" as stop respec	uvery, aetected by	(5021LS11/21.	/ ABN0								+
Ι	ORIVE CONDITIO	DN				JLT.								L
		EL(S02ILS11/21) TO BE A				FAULT								
	2. NOT FAULT C	ONDITION (MCCB, THRY	7, OCG)											+
1	The concept of this	operational diagram shall be	e applied to the following sump drainage pum	ips.				+						
		P01, S12DP01/02, S21DP0		-		1								

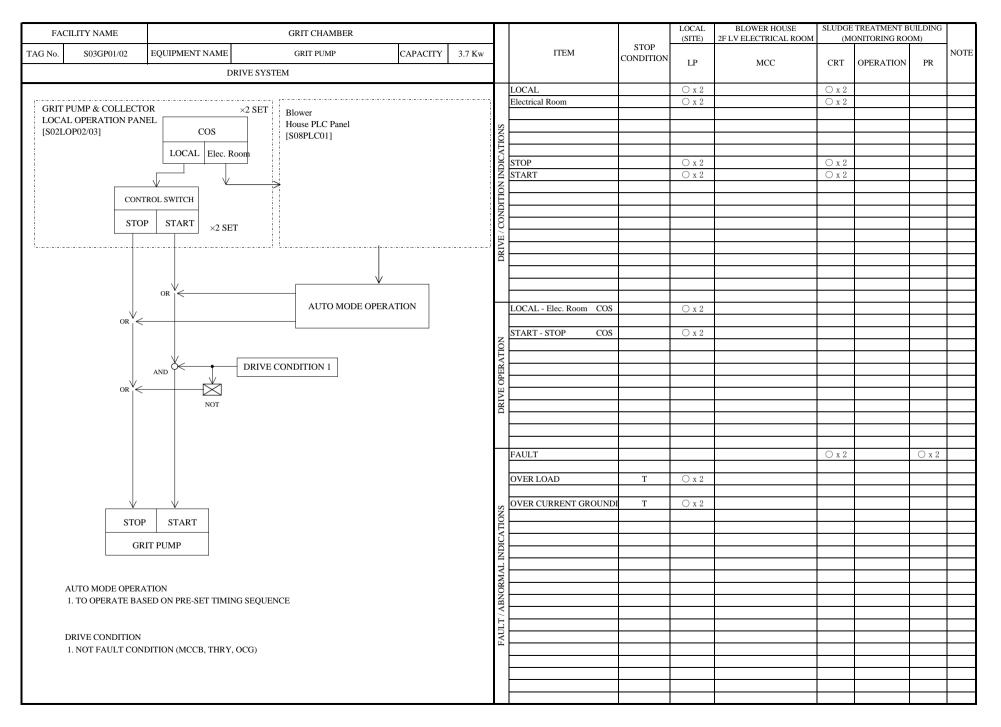




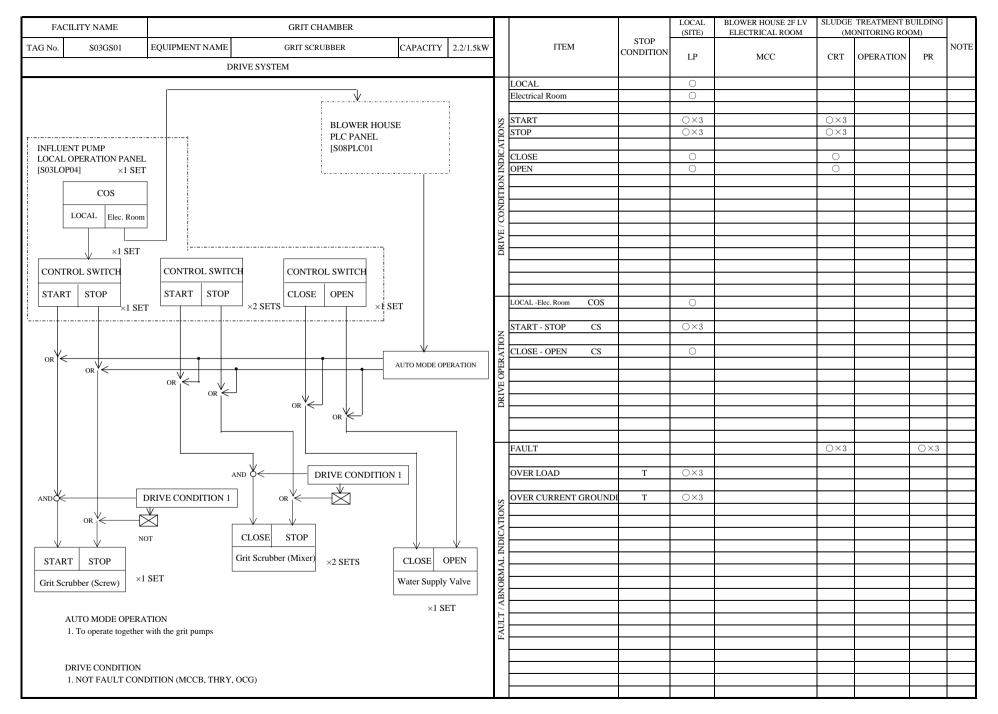
FACI	LITY NAME		GRIT CHAMBER					LOCAL (SITE)	BLOWER HOUSE 2 F LV ELECTRICAL ROOM		E TREATMENT B ONITORING ROO		
AG No.	S03MG01/02	EQUIPMENT NAME	INLET GATE	CAPACITY 1.5 Kw		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
]	DRIVE SYSTEM										
						OPEN STOP		0		0			
		COS	INLET & BYPASS			CLOSE		0		0			
		OFF	GATE LOCAL OPERATION PANEL		St								
	MAN	UAL OFF	[S03LOP01]		[OIT]								
					DICA								
		⊻			INI								
	CONTRO	L SWITCH			CONDITION INDICATION								
	CLOSE ST	TOP OPEN			NDI								
					\sim								
					IVE								\vdash
					DRI								
			-		-								_
		AND	DRIVE CONDITION 1										
	OR	×—––––––––––––––––––––––––––––––––––––				MAN - OFF COS		0					
	AND	NOT	7			OPEN - STOP - CLOSE CS		0					
		AND K	DRIVE CONDITION 2		ION								
	OR				OPERATIO								
		NOT			OPE								
	AND O	X	DRIVE CONDITION 3		DRIVE								
			DRIVE CONDITION 3		DR								
	OR	NOT											
		\bigvee				FAULT				0		0	
	CLOSE ST	TOP OPEN			-	FAULI				0		0	
	INLET GA	TE				OVER LOAD	Т	0					
						OVER TORQUE	Т	0					-
					SNC	OVERTORQUE	1	0					
					ATI	OVER CURRENT GROUND	DI T	0					
1	RIVE CONDITION	N CTIONAL L S (Limit Swit	tch) AND CLOSING DIRECTIONAL L	S NOT TO BE ACTUATED DURI	I DIC								
2	. OPENING DIREC	CTIONAL TS (Torque lim	nit switch) AND CLOSING DIRECTION	IAL TS NOT TO BE ACTUATED	RM.								
3	NOT FAULT CON	NDITION (MCCB, THRY	ELY hit switch) AND CLOSING DIRECTION PECTIVELY ', OCG)		BNC								
					T / A								
					AUL								-
					F.								
													-
					1								\vdash
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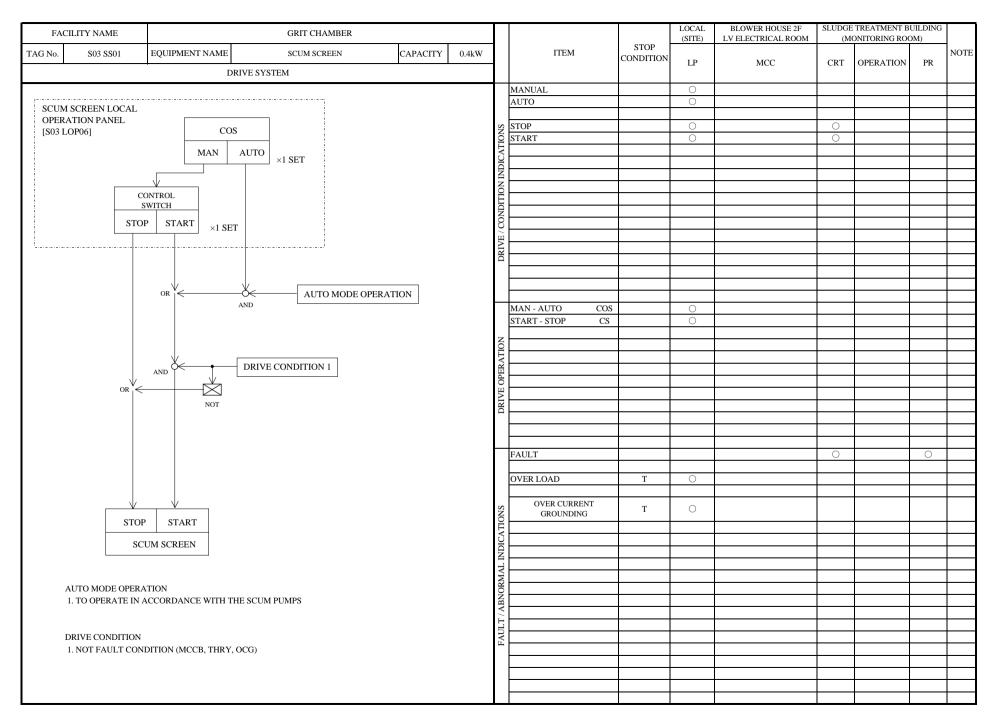
FAC	ILITY NAME		GRIT CHAMBER						LOCAL (SITE)	BLOWER HOUSE 2 F LV ELECTRICAL ROOM		TREATMENT BU		
AG No.	S03MG03	EQUIPMENT NAME	BYPASS GATE	CAPACITY	2.2 kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		I	DRIVE SYSTEM											
							OPEN STOP		0		0			-
		COS	INLET & BYPASS				CLOSE		0		0			+
		OFF	GATE LOCAL OPERATION PANEL			_								
	MANU	JAL OFF	[S03LOP01]			[0]								
						- ICA								+
	\	/												
	CONTROL	. SWITCH				LION								
	CLOSE ST	OP OPEN				LIQN								+
						0								
						DRIVE / CONDITION INDICATIONS								+
						DR								
			-			F								\bot
		AND	DRIVE CONDITION 1			-								+
	OR				F		MAN - OFF COS		0					
	AND	< NOT	_			0	OPEN - STOP - CLOSE CS		0					
	AND	AND	DRIVE CONDITION 2			NO								+
	OR					TAT								
		< NOT				DRIVE OPERATION								_
	AND K]			VE (+
		, AND C	DRIVE CONDITION 3			DRI								
	OR					-								
	\downarrow \downarrow	/ /												
	CLOSE ST	OP OPEN				F	FAULT				0		0	
						C	OVER LOAD	Т	0					+
	BYPASS GA	ATE												1
						<u> </u>	OVER TORQUE	Т	0					┢
			tch) AND CLOSING DIRECTIONAL L			0 E	OVER CURRENT GROUNDI	Т	0					+
E	RIVE CONDITION					DICA								
1	OPENING DIREC	FIONAL L S (Limit Swit	tch) AND CLOSING DIRECTIONAL LS	S NOT TO BE ACTU	ATED DURI	IN -								_
2	2. OPENING DIREC	TIONAL TS (Torque lim	it switch) AND CLOSING DIRECTION	AL TS NOT TO BE	ACTUATED	IAM								1
	DURING OPENIN	G AND CLOSING RESI	PECTIVELY			NOR								
3	3.NOT FAULT CON	DITION (MCCB, THRY	, OCG)			AB]								+
			ELY hit switch) AND CLOSING DIRECTION PECTIVELY , OCG)			JLT.								
						FAL								\vdash
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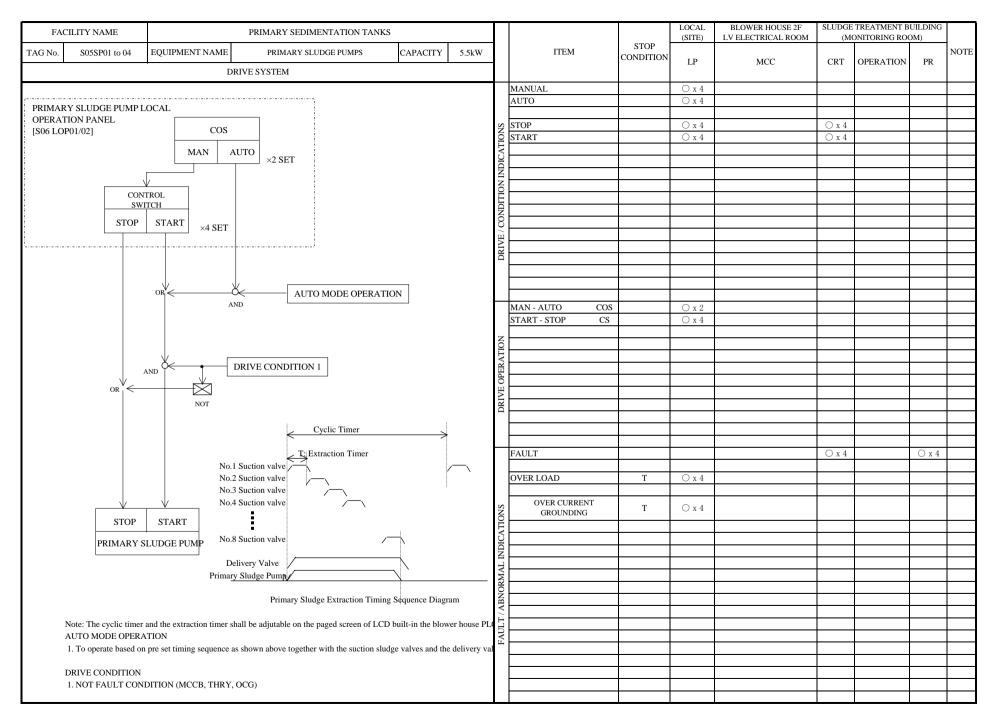
FAC	ILITY NAME		GRIT CHAMBER					LOCAL (SITE)	BLOWER HOUSE 2 F LV ELECTRICAL ROOM		E TREATMENT B ONITORING ROO		
AG No.	S03MG04/05	EQUIPMENT NAME		CAPACITY 1.5	kW	ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
			DRIVE SYSTEM									J	
						OPEN STOP		○ x 2 ○ x 2		○ x 2 ○ x 2			-
		COS	INLET & BYPASS			CLOSE		O x 2		O x 2			-
		IAI OFF	GATE LOCAL OPERATION PANEL		J.V.								
	MANU	AL OFF	[S03LOP05]		C E								
					Į.								+
		/											
	CONTROI	_ SWITCH			Č.								-
	CLOSE ST	OP OPEN										·	
						<u> </u>							
											+		┢
					2								
			7				_						
		AND C	DRIVE CONDITION 1										-
	OR					MAN - OFF COS	5	○ x 2				·	
	AND	NOT				OPEN - STOP - CLOSE CS		○ x 2					_
	ANDO	AND	DRIVE CONDITION 2		ž	5							┢
		/											
	OR		-				_						
	AND K]		Ē								-
		AND K	DRIVE CONDITION 3		Ę								
	OR												-
		NOT											-
	CLOSE ST	OP OPEN				FAULT				O x 2		O x 2	
						OVERLOAD	T	\bigcirc $^{\circ}$					
	GRIT CHAMBER	R OUTLET GATE				OVER LOAD	Т	○ x 2					+
					5	OVER TORQUE	Т	O x 2					
					NO.		DI T	\bigcirc $^{\circ}$					
Ľ	DRIVE CONDITION		rch) AND CLOSING DIRECTIONAL LS NO		t d	OVER CURRENT GROUN		○ x 2					-
1	1. OPENING DIREC	TIONAL L S (Limit Swit	ch) AND CLOSING DIRECTIONAL LS NO	T TO BE ACTUATED	DURI								
	OPNENING AND	CLOSING RESPECTIV											-
4	2. OPENING DIREC	IG AND CLOSING RESI	PECTIVELY	IS NOT TO BE ACTU	AIED								+
3	3.NOT FAULT CON	DITION (MCCB, THRY	, OCG)										
					Ē								┢
			ELY it switch) AND CLOSING DIRECTIONAL T PECTIVELY , OCG)		11 T T T			ļ					┢
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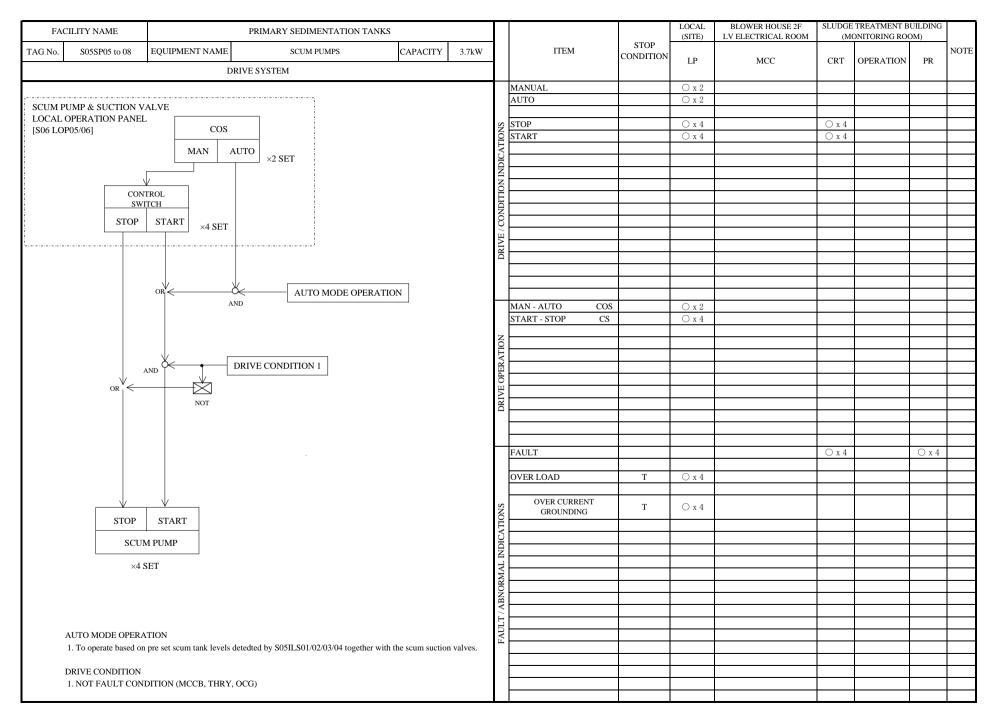


FAG	CILITY NAME			PRIMA	RY SEDIMENATATIC	N TANKS					LOCAL (SITE)	BLOWER HOUSE 2F LV ELECTRICAL ROOM		E TREATMENT B ONITORING RO		
TAG No.	S05SC01 to	0 08 E	QUIPMENT		SLUDGE COLLECTORS	CAPACITY	1.5 kW		ITEM	STOP CONDITION	LP	PLC	CRT	OPERATION	PR	NOT
				DRIVE SYS	ГЕМ											
									LOCAL		O x 2					
	GEE COLLEC			×2 SETS	Paged Screen].			Electrical Room		○ x 2					
	L OPERATIO	N PANEL		100	on the LCD	¥		SI	MANUAL			○ x 2				
[\$051	.OP01/02]		C	OS	Built-in the Blower House PLC Panel	COS		ION	OFF			○ x 2				
			LOCAL	Elec. Room	[S08PLC01]	MAN OFF		CAT			0.0		0.0			
1				·			⊥ ×2 SETS	INDIC	STOP START		○ x 8 ○ x 8	○ x 8 ○ x 8	○ x 8 ○ x 8			-
1	Г		/	V				IONI			0 4 0	0 4 0	0 4 0			
		CONTRO	DL SWITCH			CONTROL SWITCH		DITIO								
		STOP	CT ADT					CONI								
		STOP	START	×8 SETS		STOP START	$\times 8$ SETS									
								DRIVE								
								Ō								
									LOCAL - Elec. Room COS		○ x 8					
		OR K							MAN - OFF COS		0 0	O x 8				
								N	START - STOP CS		○ x 8	O x 8				
			\checkmark					ATIC								
		A	AND C	DRIVE	CONDITION 1			PER								
				×				IVE OPI								
				NOT				DRIV								
								Д								
				DRIVE	CONDITION 2											
			AND					┝	FAULT				O x 8		O x 8	
		OR <		Ň					TAOLI				0.10		0.10	
				NOT					OVER LOAD	Т	O x 8					
		V						NS	OVER CURRENT GROUND	I T	○ x 8					-
		STOP	START					OIL	OVER TORQUE	Т	O x 8					
	SI	UDGE C	OLLECTOR					DICA								
	51							IN								
								AAL								+
								ORN								
								ABN								
								T/I								-
	DRIVE COND	ITION						AUL						1		-
	2. TS (Torque	limit switcl		BE ACTUATED				Ч								
	2. NOT FAUL	T CONDII	FION (MCCB	, THRY, OCG)				1								
								1								+
								1								+

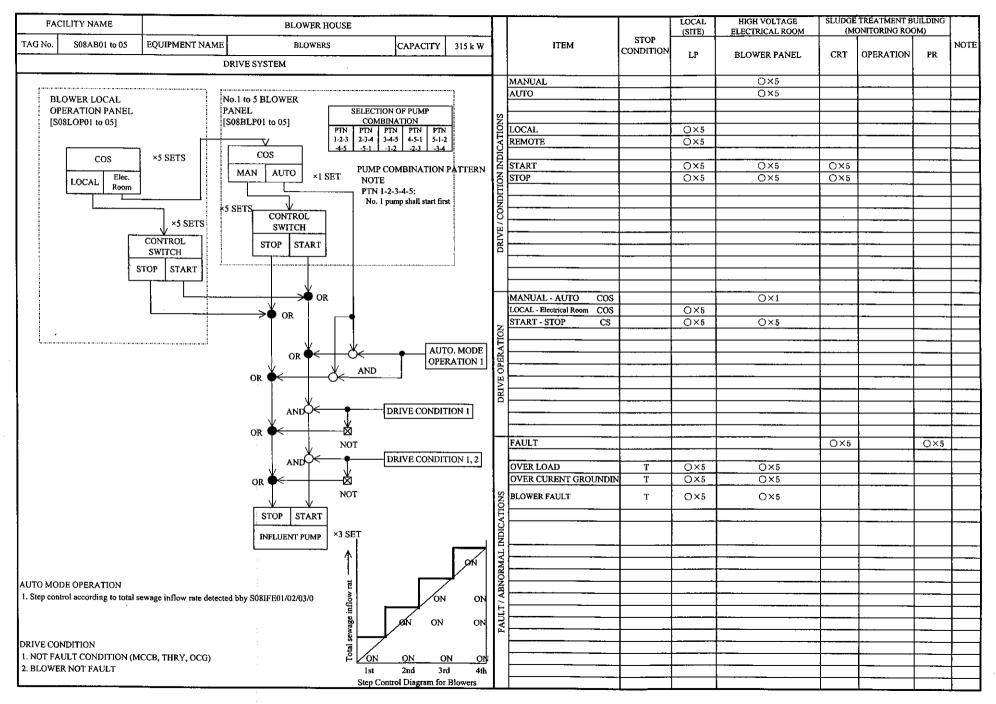
FACILITY NAME		PRIMARY SEDIMENTATION TANKS						LOCAL (SITE)	BLOWER HOUSE 2F LV ELECTRICAL ROOM	SLUDGE TREATMENT BUILDING (MONITORING ROOM)			i l
TAG No.	S05 MV01 to 08	EQUIPMENT NAME	SUCTION SLUDGE VALVES	CAPACITY	0.4kW	ITEM	STOP CONDITION	LP	МСС	CRT	OPERATION	PR	NOTE
		DR	RIVE SYSTEM										
						MANUAL		O x 8					
SUCTION SLUDGE VALVE LOCAL					AUTO		O x 8					—	
OPERATION PANEL				STOP		O x 8		O x 8			┣──		
[S06 LOP03/04] COS			START		O x 8		O x 8			<u> </u>			
		MAN A	UTO		ATA			0.10		0 1 0			-
			×8 SETS		DIC.								
	`	/			NI								<u> </u>
1	CON	FROL			TADICINE NOFFICINO2								
	SWI												
	CLOSE ST	OP OPEN			Ś								
		×8 SETS			~								
			i		DRIVE]		\square
	\bigvee		·	_	Ĺ								—
			AUTO MODE										┼───
			D OPERATION										<u> </u>
			AND			MAN - AUTO COS		O x 8					
						CLOSE - STOP - OPE CS		O x 8					
	χ				z								
	AND				ADER ATION								
	AND CONDITION 1, 2 and 3			A D									
					IdO								
	OR				IVF								
		NOT			ac								
			 Cyclic Timer 										
				>									
			<u> </u>			FAULT				O x 8		O x 8	
			Suction valve	/-	_\								
			Suction valve			OVER LOAD	Т	O x 8					—
			Suction valve			OVER CURRENT							—
					SNOIT	GROUNDING	Т	○ x 8					
	CLOSE ST	OP OPEN											
	SUCTION SI	LUDGE VALVE No.8	Suction valve /			OVER TORQUE	Т	O x 8					
			/		INI								
		De	livery Valve	``	IAI								
		riina <u>ry</u>	Shaage I uniper	1									<u> </u>
			Primary Sludge Extraction Timin	g Sequence Diagram	BNG								
1	Note: The cyclic timer	and the extraction timer sh	all be adjutable on the paged screen of LCE	D built-in the blower	nouse PL								
	AUTO MODE OPERA	TION											
	1. To operate based on	pre set timing sequence as	livery Valve Sludge Pump Primary Sludge Extraction Timin, all be adjutable on the paged screen of LCE s shown above together with the primary slu	idge pumps and the d	eliver val								──
	DRIVE CONDITION												
		L S (Limit Switch) and clo	osing directional not to be actuated during o	pening and closing re	spectivel								<u>†</u>
	2. Opening directional T	S (Torque limit switch) and c	losing directional TS not to be actuated during of										
	3. NOT FAULT CON	DITION (MCCB, THRY,	OCG)										

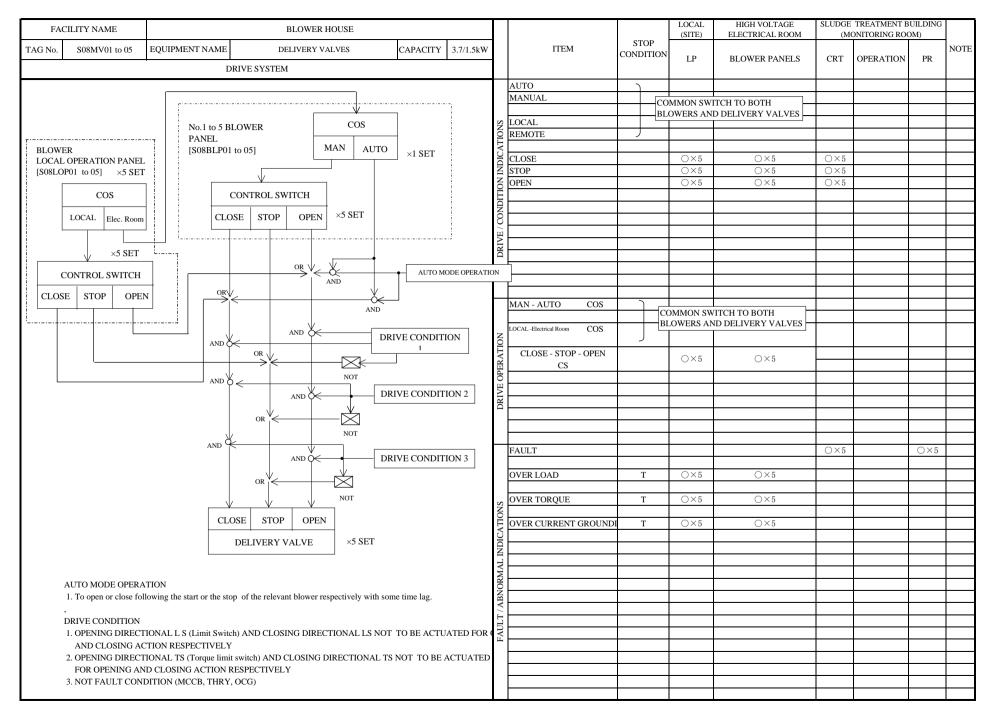


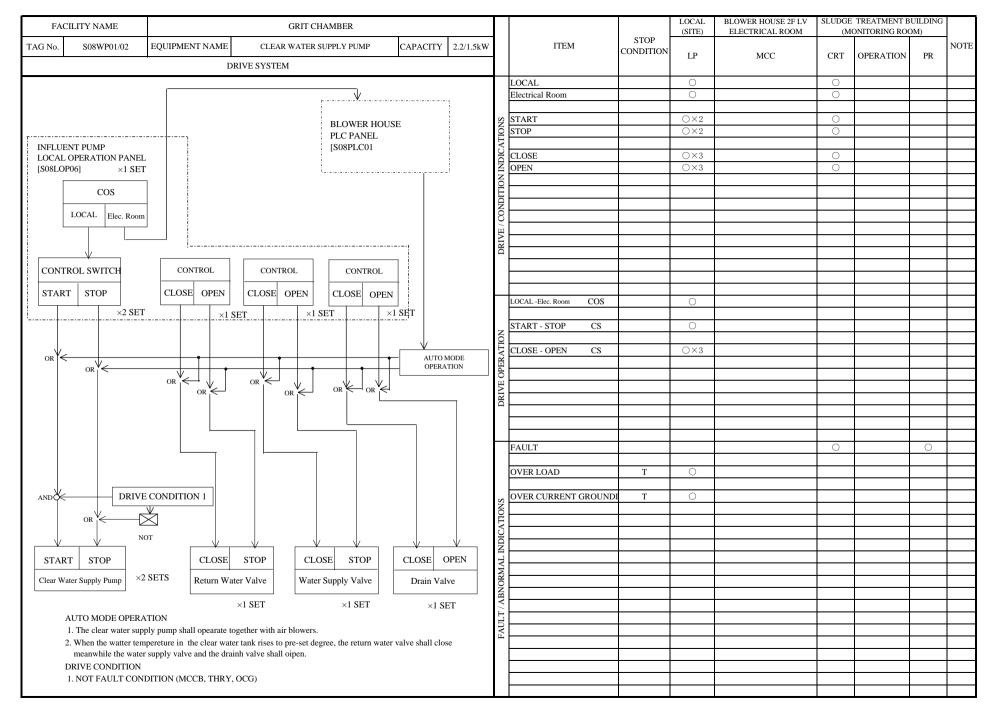
FAC	CILITY NAME		PRIMARY SEDIMENTATION TANK	XS			STOP	LOCAL (SITE)	BLOWER HOUSE 2F LV ELECTRICAL ROOM		TREATMENT BU		
TAG No.	S05 MV51/61	EQUIPMENT NAME	DELIVERY VALVES	CAPACITY 0.4kW		ITEM	CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
		D	JRIVE STSTEM		_	MANTIAL		0 9					<u> </u>
						MANUAL AUTO		○ x 2 ○ x 2					+
	N SLUDGE VALVE	LOCAL						0.15					1
OPERAT [S06 LOF	TON PANEL	COS			Ş	STOP		○ x 2		○ x 2			
[300 LOI	-03/04]				lO	START		○ x 2		○ x 2			
		MAN	AUTO ×2 SET		CAJ	-							
					Ī								
	· · · · · · · · · · · · · · · · · · ·	/			CONDITION INDICATIO								1
		TROL TCH			DITI								
					QNO								
	CLOSE ST	OP OPEN ×2 SET			\sim								<u> </u>
					DRIVE								+
			–		DR								+
		,	AUTO MODE										
	OF		AND A OPERATION										
		OR <	AND		-	MAN - AUTO COS		○ x 2					
						CLOSE - STOP - OPE CS		O x 2					
						CLOBE STOL OLE CS		0 1 2					+
	∛<				ION								
	AND				TAT								
		AND	DRIVE CONDITION 1, 2 and 3		DRIVE OPERATIC								
	OR				/E C								
		NOT			RIV								+
			Cyclic Timer	>									
			✓ T::Extraction Timer		-	FAULT				O x 2		○ x 2	
		No	.1 Suction valve	<u> </u>		FAULI				⊖ x 2		∪ x 2	+
			.2 Suction valve			OVER LOAD	Т	○ x 2					1
			.3 Suction valve										
		/ / No.	.4 Suction valve		ZZ	OVER CURRENT GROUNDING	Т	○ x 2					
	CLOSE ST	OP OPEN			NOLI								+
	DELIVE	No.	.8 Suction valve	<u> </u>	CA.	OVER TORQUE	Т	○ x 2					+
	DELIVER	I VALVE			ΠQ								
	×2	SET D	Delivery Valve		AL I								
		Prima	ry Sludge Pump		RM.								
			Primary Sludge Extraction Time	ng Sequence Diagram	3NO								+
1	Note: The cyclic timer	and the extraction timer s	shall be adjutable on the paged screen of LC	D built-in the blower house PL	AE								1
1	AUTO MODE OPERA	TION			JLT								
	1. To operate based on p	re set timing sequence as sh	.8 Suction valve Delivery Valve ry Sludge Pump Primary Sludge Extraction Timi shall be adjutable on the paged screen of LC nown above together with the primary sludge pur	mps and the suction valves.	FAL								+
	DRIVE CONDITION						<u> </u>						+
		L S (Limit Switch) and c	closing directional not to be actuated during	opening and closing respective	ŀ								+
			l closing directional TS not to be actuated during										
	3. NOT FAULT CON	DITION (MCCB, THRY	, OCG)										T



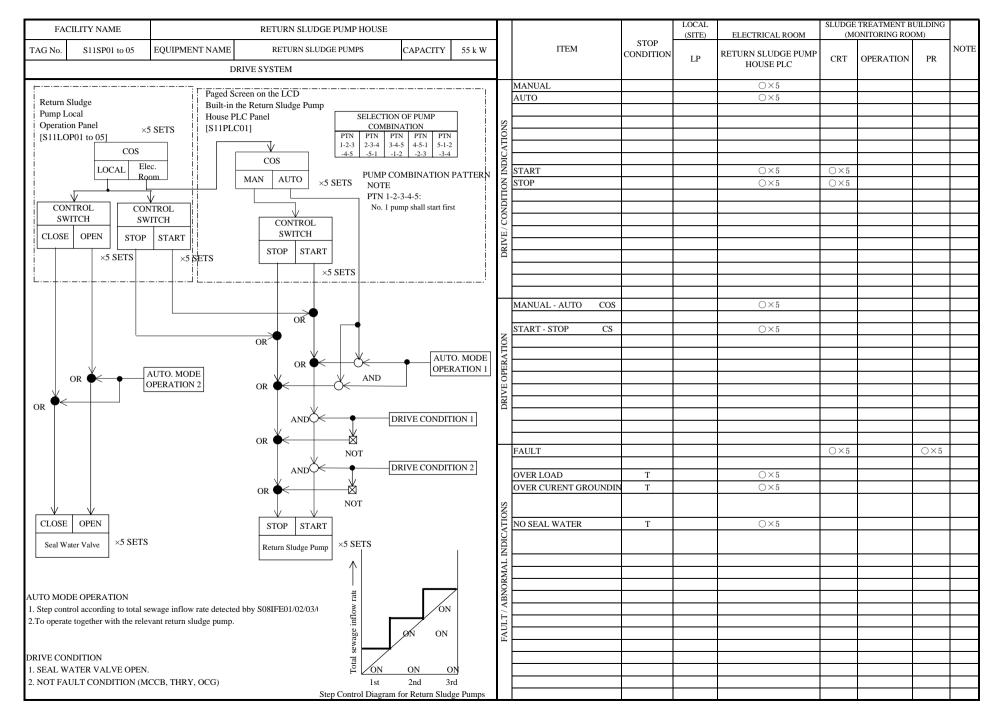
FAC	CILITY NAME		PRIMARY SEDIMENTATION TAN	KS					LOCAL (SITE)	BLOWER HOUSE 2F LV ELECTRICAL ROOM		TREATMENT B		
TAG No.	S05 MV11/41	EQUIPMENT NAME	SCUM SUCTION VALVES	CAPACITY	0.2kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
		I	DRIVE SYSTEM											
							MANUAL							
							AUTO COMM	ION SWITCH	ГО ВОТН С	F SCUM PUMPS AND SCU	M SUCTION	ON VALVE		
	UMP & SUCTION						CT O CT				<u> </u>			
VALVE LOCAL	OPERATION PANEL	COS				ATIONS	CLOSE STOP		○ x 4 ○ x 4		○ x 4 ○ x 4			
[S06 LOF						ATIC	OPEN		O x 4		$\bigcirc x 4$ $\bigcirc x 4$			
		MAN A	AUTO ×2 SET			JC /	OT LIT		0		0			
			Common Switch to Both of Scum Pumps			INDIC/								
			and Scum Suction Valves			NO								
l		TROL TCH				CONDITION								
	CLOSE ST					INO								
		VI OPEN ×4 SET				\sim								
ļ			ļ			DRIVE					1			
			↓			DR					1			
	or K		AUTO MODE											
	OF		ND OPERATION											
			AND											
							CLOSE - STOP - OPE CS		○ x 4					
							CLOSE-STOL-OLE CS		0 1 4					
						NO								
	AND					OPERATION								
		AND	DRIVE CONDITION 1, 2 and 3			PER								
	OR					ΕO								
		NOT				DRIVE								
						D								
							FAULT				O x 4		○ x 4	
									0.1					
							OVER LOAD	Т	○ x 4					
	, v						OVER CURRENT		~					
						SNC	GROUNDING	Т	○ x 4					
	CLOSE ST	OP OPEN				INDICATIONS								
	SCUM SUC	TION VALVE				OIC/	OVER TORQUE	Т	○ x 4					
	×4	SETS				ABNORMAL					<u> </u>			
						JRN					<u> </u>			
						BN(
						\sim								
	AUTO MODE OPERA					FAULT								
	1. To operate together w	ith the scum pumps.				FAI								
1	DRIVE CONDITION					1								
		L S (Limit Switch) and el	losing directional not to be actuated during	opening and closing	respectively	1								-
			closing directional TS not to be actuated during			1								
		DITION (MCCB, THRY,												







FACILITY NAME		SECONDARY SEDIMENATATION T.	ANKS			STOP	LOCAL (SITE)	BLOWER HOUSE 2F LV ELECTRICAL ROOM		TREATMENT BU		
TAG No. S12SC01 to12	EQUIPMENT NAME		CAPACITY	1.5 kW	ITEM	CONDITION	LP	PLC	CRT	OPERATION	PR	NOTE
	I	DRIVE SYSTEM										
					MANUAL			O x 12				
Paged Screen		×12 SETS			OFF			○ x 12				
on the LCD				,	2 STOP			O x 12	○ x 12			
Built-in the Return	COS							O x 12 O x 12	O x 12			
Sludge Pump	MAN OF	F						0	0			
House PLC Panel		•										
[S11PLC01]												
					<u></u>	_						
COL	NTROL SWITCH											
ST	OP START 12 S			ç								
	×12 §	SETS		c.								
_ <u>i</u>												
				ì								
					MAN - OFF COS	1		O x 12				
					START - STOP COS			O x 12				
					_							
				ç								
	×.	DRIVE CONDITION 1		E								
	AND	DRIVE CONDITION 1				_						
OR I				E	9 9							
	NOT											
				ſ								
		DRIVE CONDITION 2										
	AND	DRIVE CONDITION 2		_					-			
OR					FAULT				○ x 12		○ x 12	
	NOT				OVER LOAD	Т		O x 12		ł ł		
					OVEREDAD	1		U X 12				
\/	· · · · · · · · · · · · · · · · · · ·			7	OVER CURRENT GROUNI	DI T		○ x 12				
STO	OP START											
510					OVER TORQUE	Т		○ x 12				
SLUDO	GE COLLECTOR				ž	+			<u> </u>	<u> </u>		
				ŕ								
									1			
DDIVECONDUTION	N					+			<u> </u>	<u> </u>		
DRIVE CONDITION	N switch) NOT TO BE ACT	TUATED		ŗ	4				<u> </u>			
	NDITION (MCCB, THRY								1			
		· · ·										



FAC	CILITY NAME		RETURN SLUDGE PUMP HOU	SE					LOCAL (SITE)	ELECTRICAL ROOM		E TREATMENT B		ŕ
'AG No.	\$11 MV01 to 05	EQUIPMENT NAME	DELIVERY VALVES	CAPACITY	0.75kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		DR	IVE SYSTEM											
							LOCAL			Н ТО ВОТН				
RETURN	SLUDGE PUMP						Electrical Room	RTUR	N SLUDGE I	PUMPS AND DELIVERY V	ALVES			
	OPERATION PANEI	COS				SN	CLOSE		○ x 5		O x 5			
[SII LOP	201 to 05]					OI	STOP		○ x 5		O x 5			
		LOCAL Elec. R	Room ×5 SETS			CAT	OPEN		○ x 5					
						IQN								-
	· · · · · · · · · · · · · · · · · · ·					/ CONDITION INDICATIONS								
		TROL ITCH				JTI								
	CLOSE ST					INO								+
		×5 SETS				E/C								-
						DRIVE /								
						ā								
	OR		AUTO MODE											_
	Or							COMMON	SWITCH T	O BOTH	1			
			AND				LOCAL - Elec. Room COS			IPS AND DELIVERY VALV	/ES			
							CLOSE - STOP - OPE CS	-	O x 5					
	×					Z								_
	AND					ATIC								
		AND C DI	RIVE CONDITION 1, 2 and 3			DRIVE OPERATION								
	OR					ΕO								
		NOT				RIV					-	-		-
						D								
											0.5	-	0 F	
							FAULT				○ x 5		○ x 5	
							OVER LOAD	Т	O x 5					
						SN	OVER CURRENT GROUNDING	Т	○ x 5					
	CLOSE ST	TOP OPEN				OIT								
	DELIVER	RY VALVE				ICA	OVER TORQUE	Т	○ x 5					
						IND								
	×5	SETS				IAL								
						ORN								
						NBN								
		TION				FAULT / ABNORMAL INDICATIONS								+
	AUTO MODE OPERA 1. To open or close fol		of the relevant return sludge pump resp	ectively with some	time lag.	AUL						+		
		and start of the stop of	rete rain retain studge pump resp	some some		F,					1			+
	DRIVE CONDITION							1						
			ing directional not to be actuated durin											+
		S (Torque limit switch) and clo DITION (MCCB, THRY, O	sing directional TS not to be actuated durin	ig opening and closing	g respectively			<u> </u>				+		-

FAC	CILITY NAME		RETURN SLUDGE PUMP HOU	JSE				STOP	LOCAL (SITE)	ELECTRICAL ROOM		E TREATMENT BU IONITORING ROO		
TAG No.	S11 MV01 to 05	EQUIPMENT NAME	SUCTION VALVES	CAPACITY	0.75kW		ITEM	CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
			DRIVE SYSTEM											
							LOCAL Electrical Room			H TO BOTH PUMPS AND SUCTION VA				
	N SLUDGE PUMP							KIUKI	SLUDGEI	OWIS AND SUCTION VA		1		
1 i	OPERATION PANEI P01 to 05]	COS				SN	CLOSE		○ x 5		O x 5			
[511 LO	10110000					LIOI	STOP		O x 5		O x 5			
		LOCALElec	x. Room ×5 SETS			ICA'	OPEN		○ x 5		○ x 5			
						IND						1		
	,					DRIVE / CONDITION INDICATIONS								
		TROL ITCH				DITI								
	CLOSE ST	OP OPEN				INO								
		×5 SETS	•			E/C						1 1		
<u> </u>						RIVI								
						D								
								COMMO	N SWITCH	ТО ВОТН	<u> </u>			
							LOCAL - Elec. Room COS			JMPS AND SUCTION VAL	VES			
							CLOSE - STOP - OPE CS		○ x 5					
						N						+ +		
	AND					DRIVE OPERATION								
		AND	DRIVE CONDITION 1, 2 and 3			ERA								
	OR					OP								
	OK	NOT				IVE								
		NOT				DR								
												1 1		
							FAULT				○ x 5		○ x 5	
							OVER LOAD	Т	○ x 5			-		
							OVEREDAD	1	⊖ x J					
	CLOSE ST	TOP OPEN				FAULT / ABNORMAL INDICATIONS	OVER CURRENT GROUNDING	Т	○ x 5					
	CLOSE 5	IOI OFEN				ATI								
	SUCTION	N VALVE				DIC	OVER TORQUE	Т	○ x 5					
		SETS				ΓIN								
	~~	SEIS				MA								
						NOR								
						ABI								
						LT/								
						[NA]								
						Ŀ								
	DRIVE CONDITION	Leating to the t	In the dimensional mass of the second states								1			
			losing directional not to be actuated durin closing directional TS not to be actuated durin											
		DITION (MCCB, THRY,			, copeed very						1			

FACILITY NAME		RETURN SLUDGE PUMP HOUSE					LOCAL (SITE)	ELECTRICAL ROOM		TREATMENT BU		
TAG No. S11SP01 to 05	EQUIPMENT NAME	WASTE SLUDGE PUMPS	CAPACITY 55 k W		ITEM	STOP CONDITION	LP	RETURN SLUDGE PUMP HOUSE PLC	CRT	OPERATION	PR	NOTE
	DRIVI WASTE SLU LOCAL OPE PANEL [S11PLC06]	WASTE SLUDGE PUMPS E SYSTEM JDGE PUMP ERARATION	AUTO. MODE OPERATION 1	DERATION DRIVE / CONDITION INDICATIONS	MANUAL AUTO START STOP		(SITE)	RETURN SLUDGE PUMP	(M	ONITORING ROO	M)	
		OR AND E	DRIVE CONDITION 1	DNS DRIVE O	FAULT OVER LOAD OVER CURENT GROUNDIN	T T T		 ○×2 ○×2	○×2		○×2	
AUTO MODE OPERATION 1. To operate based on pre-set timin DRIVE CONDITION	ng sequence.	STOP START Waste Sludge Pump ×2 SETS		FAULT / ABNORMAL INDICATIO								
DRIVE CONDITION 1. NOT FAULT CONDITION (MC	CCB, THRY, OCG)											

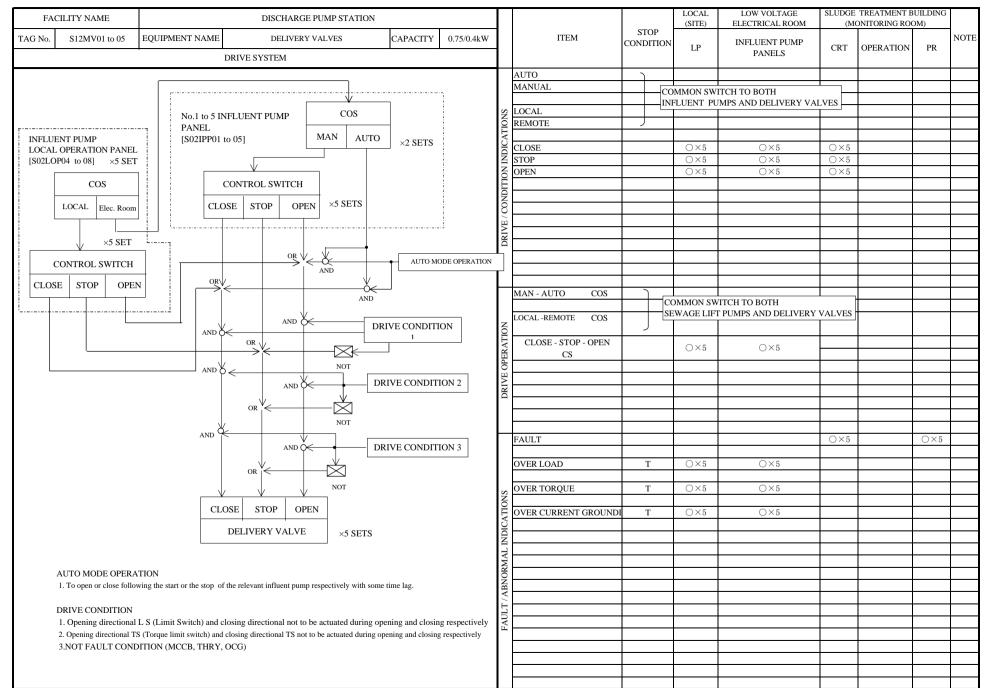
FAC	CILITY NAME		RETURN SLUDGE PUMP HOUS	SE	1			GTOD	LOCAL (SITE)	ELECTRICAL ROOM		E TREATMENT B		
ГAG No.	S11 MV01 to 05	EQUIPMENT NAME	SUCTION VALVES	CAPACITY	0.75kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
]	DRIVE SYSTEM											
							LOCAL		0					──
RETURN	N SLUDGE PUMP						Electrical Room		0					+
	OPERATION PANEL					s	CLOSE		O x 5		O x 5			
[S11 LO	P01 to 05]	COS				ATIONS	STOP		○ x 5		○ x 5			
		LOCAL Elec	. Room			CAT	OPEN		○ x 5		○ x 5			
			×1 SET			INDI								
	\	·				INC								+
		TROL TCH				CONDITION								
	CLOSE ST					R								
	CLOSE ST	OP OPEN ×5 SETS				\sim								
						DRIVE								+
						DR								
						-	LOCAL - Elec. Room COS		0					
							CLOSE - STOP - OPE CS		O x 5					-
						7								
	AND					LIO]								
			DRIVE CONDITION 1, 2 and 3			OPERATION								
			,			OPE								1
	OR					DRIVE								
		NOT				DR								
														1
							FAULT				○ x 5		O x 5	
							OVERLOAD	T	0 F					่──
							OVER LOAD	Т	○ x 5					+
		TOP OPEN				INDICATIONS	OVER CURRENT GROUNDING	Т	○ x 5					
	CLOSE 31	OF OPEN				TΗ		_						
	SUCTION	VALVE				DIC	OVER TORQUE	Т	○ x 5					
		SETS									1			+
	~5	5215				MA								
						ABNORMAL								
						ABI								+
						LT/								+
						FAULT								1
						1								+
	DRIVE CONDITION	I.S. (Limit Switch) and al	losing directional not to be actuated during	opening and electric	a respectively									+
			closing directional TS not to be actuated during											+
		DITION (MCCB, THRY,			- 1 -	1		İ			1			1

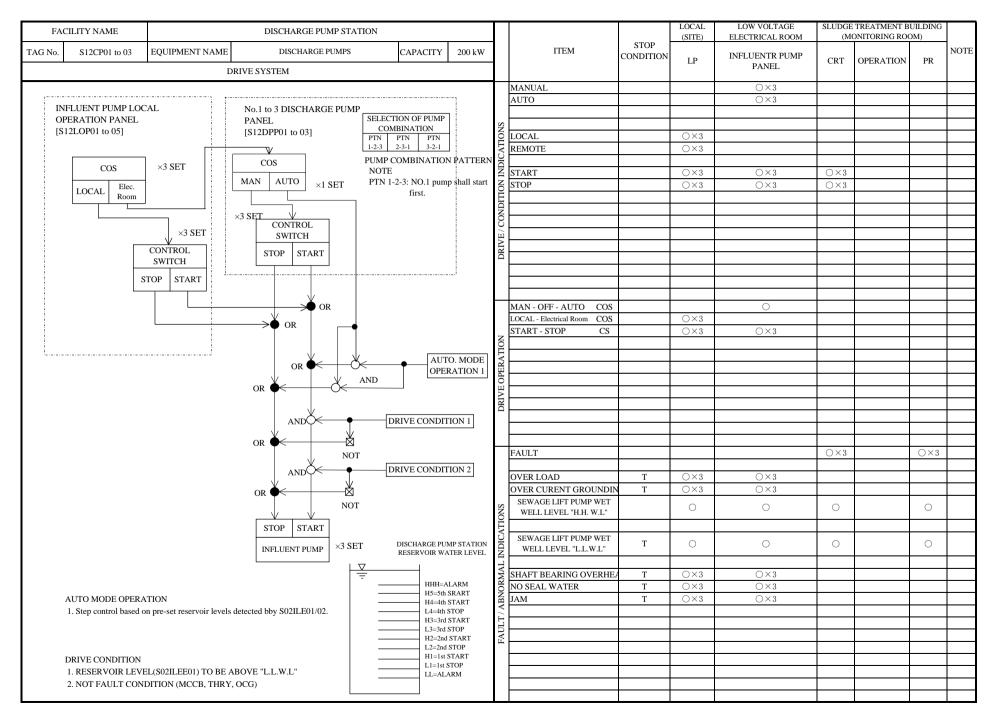
FACIL	LITY NAME		RETURN SLUDGE PUMF	HOUSE			amon	LOCAL (SITE)	ELECTRICAL ROOM		TREATMENT BU		
TAG No.	S11DP01/02	EQUIPMENT NAME	SUMP DRAINAGE PUM	PS CAPACITY	1.5kW	ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
		I	DRIVESISIEM										
						MANUAL	_	0					
SUMP DRA	AINAGE PUMP					AUTO		0			+ +		
	PERATION PANEL					No 1		0					
[S11 LOP08	8]	COS				AUTO		0			1		
		MAN	AUTO			No.2		Ō					
			×1 SET										
	,]				STOP		○ x 2		○ x 2			
1	CON					START		○ x 2		○ x 2			
	SWI									-			
	STOP	START V2 SET									+ +		
	STOP	×2 SET											
						g No.1 AUTO No.2 STOP START START			1	1	† †		
						ž				1			
		OR											
			AUTO MODE	OPERATION	_								
		1	AND			MAN - AUTO COS No.1 - AUTO - No.2 CS		0					
						No.1 - AUTO - No.2 CS START - STOP CS		○ x 2 ○ x 2					
								∪ x 2					
		-											
	A		DRIVE CONDITION 1										
	\checkmark	I ↓ 5				5							
		NOT				¥7							
										-			
					-	FAULT				○ x 2		○ x 2	
			•							0.15		0.15	
						OVER LOAD	Т	O x 2					
	STOP	START				OVER CURRENT GROUNDING	Т	○ x 2					
	5101	51/11/1									├		
	SUMP DRA	INAGE PUMP				ă					<u> </u>		
	L						+				 		
	×2 S	SETS											
AU	JTO MODE OPERA	TION									† †		
			s detedted by S11ILS01.										
	RIVE CONDITION												
1.	NOT FAULT CONI	DITION (MCCB, THRY	Y, OCG)								├		
TL	a concept of this	rational diagram ab-11 b-	a applied to the following owner days								├		
	e concept of this ope 4DP01/02/03/03	rauonai diagram shall be	e applied to the following sump drai	nage pumps.						1	+ +		
32-	-121 01/02/03/03										<u> </u>		
											<u>† </u>		

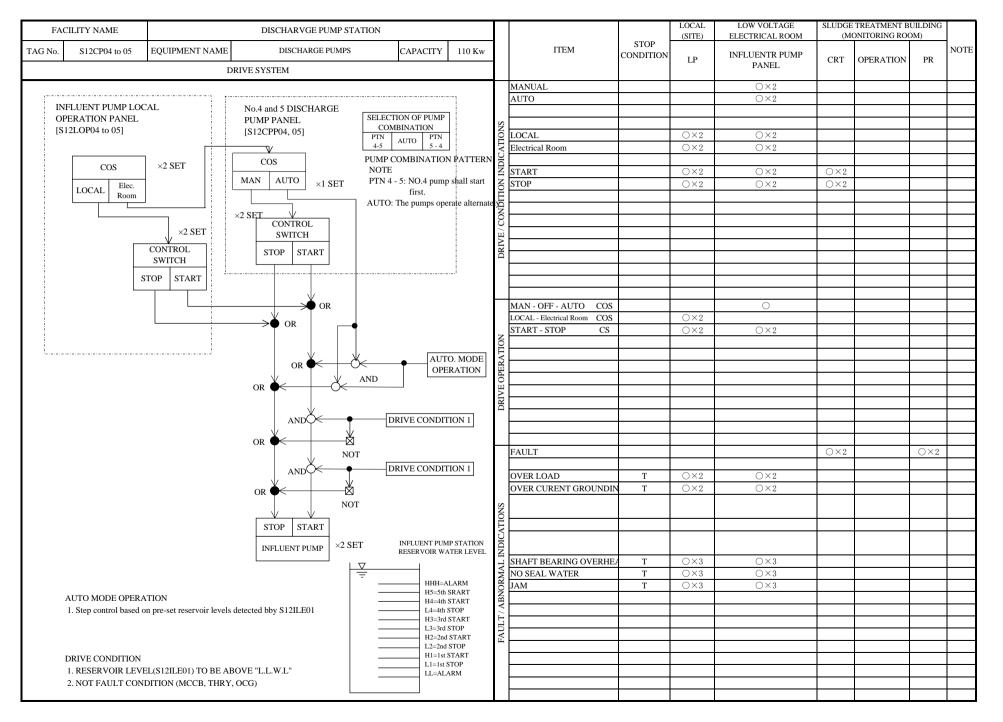
FAG	CILITY NAME		RETURN SLUDGE PUMP HOU	SE					LOCAL (SITE)	ELECTRICAL ROOM		E TREATMENT B		
TAG No.	S11 MV01 to 05	EQUIPMENT NAME	CONNECTION VALVES A	CAPACITY	5.5kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOTI
		DF	RIVE SYSTEM											
							MANUAL		0					
CONNE	CTION VALVE A						OFF		0		-			
LOCAL	OPERATION PANEI					s	CLOSE		○ x 2		O x 2			
[S11 LO	P09]	COS				NO	STOP		O x 2		O x 2			
		MANUAL OFF	7			ATI	OPEN		○ x 2		O x 2			
			×1 SET			INDICATIONS								
	,													<u> </u>
	CON	TROL				CONDITION								
	SW	ITCH				Į								
	CLOSE ST	OP OPEN ×2 SETS				CO								
)			DRIVE								
								<u> </u>			+	+		-
								1		<u> </u>	†			+
							MANUAL - OFF COS		0					
							CLOSE - STOP - OPE CS		○ x 2					
	×					Z					-			
	AND					ATIC								
			RIVE CONDITION 1, 2 and 3			OPERATION								
	OR					OP								
	UK UK	NOT				DRIVE								
		NOT				DF					-			
							FAULT				○ x 2		○ x 2	
									0.0					
							OVER LOAD	Т	○ x 2					
	, v						OVER CURRENT	_						
	CLOSE S					ONS	GROUNDING	Т	○ x 2					
	CLOSE S	TOP OPEN				INDICATIONS								
	CONNEC	TION VALVE				DIC	OVER TORQUE	Т	○ x 2					
											-			
	×2	2 SETS				ABNORMAL					1			
						OR								
						ABN								
						FAULT								
						FΑ				<u> </u>	+			
	DRIVE CONDITION							1			1			
			ing directional not to be actuated during											
			sing directional TS not to be actuated durin	ig opening and closing	g respectively									
	3. NOT FAULT CON	DITION (MCCB, THRY, O	CG)											1

FA	CILITY NAME		RETURN SLUDGE PUMP HO	JSE					LOCAL (SITE)	ELECTRICAL ROOM		TREATMENT BU		
TAG No.	S11 MV01 to 05	EQUIPMENT NAME	CONNECTION VALVE B	CAPACITY	7.5kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
		DRI	VE SYSTEM											
							MANUAL		0					<u> </u>
CONNE	CTION VALVE B						OFF		0					┿
	OPERATION PANEL					s	CLOSE		0		0			+
[S11 LO	DP10]	COS				ION	STOP		0		0			
		MANUAL OFF	1.0575			CAT	OPEN		0		0			
			×1 SET			INDI								
	\	<u> </u>												+
		TROL ITCH				CONDITION								
						QNO								
	CLOSE ST	OP OPEN ×1 SET				\sim								
						DRIVE								+
						DR					1			
						1								
						F	MANUAL - OFF COS		0					+
							CLOSE - STOP - OPE CS		0					
	\checkmark					z								
	AND					OPERATIO					-			
			IVE CONDITION 1, 2 and 3			RA								
						IdO								1
	OR					DRIVE								
		NOT				DR					-			
							FAULT				0		0	
							OVER LOAD	Т	0		-			
							OVER LOAD	1	0					
	CLOSE ST	FOP OPEN				SNOII	OVER CURRENT GROUNDING	Т	0					
		I					OVER TORQUE	Т	0					
	CONNEC	TION VALVE				INDICA	OVER TORQUE	1	0					
	×1	SET												1
						MA								
						ABNORMAL					+	├		
						\sim								+
						ILT.								
						FAULT								
	DBBUE COMPUTION										<u> </u>			–
	DRIVE CONDITION 1. Opening directional	L S (Limit Switch) and closir	ng directional not to be actuated durir	g opening and closin	g respectively						1			+
			ing directional TS not to be actuated duri								1			1
		DITION (MCCB, THRY, OC		-										Τ

FACIL	ITY NAME		DISCHARGE PUMP STATION						LOCAL (SITE)	LOW VOLTAGE ELECTRICAL ROOM		E TREATMENT B		ì
TAG No.	S12MG01	EQUIPMENT NAME		CAPACITY	3.7 kW		ITEM	STOP CONDITION	LP	PLC	CRT	OPERATION	PR	NOT
			DRIVE SYSTEM											
							OPEN STOP			0	0			
	CONT	ROL SWITCH	PAGED SCREEN ON LCD BUILT-IN THE				CLOSE			0	0			
			DISCHARGE PUMP			SI								
	MANU	JAL OFF	STATION PLC PANEL			Į0								
		·	[S12PLC011			CAT								
		/				ĨQ.			1					-
	CONTROL	_ SWITCH				II NO								+
						ITIC								
	CLOSE ST	OP OPEN				ION								
						\C0					-			⊢
		·····				IVE								+-
						DRI								+-
	↓.								1		1			
	AND O] []											
		AND	DRIVE CONDITION 1					~						
	OR						MAN - OFF CO OPEN - STOP - CLOSE CS			0				
		NOT	-				OFEN-STOF-CEOSE CS	,		0				-
		AND K	DRIVE CONDITION 2			NO								
		/				ATI								
	OR		_			PER								_
			-			ЕО			1					-
			DRIVE CONDITION 3			RIV								
	OR					Д								
	OK													
														_
	CLOSE ST	OP OPEN					FAULT				0		0	-
							OVER LOAD	Т		0	-			+-
	INLET CHA	AMBER GATE									1_			
						s	OVER TORQUE	Т		0				
						ION								+
סרו	RIVE CONDITION					CAT			}		+			+
			closing directional not to be actuated during of	pening and closin	g respectively	INDICA					1			
			d closing directional TS not to be actuated during			L D								
3.1	NOT FAULT CON	DITION (MCCB, THRY	7, OCG)			SMA								
						ABNORMAL			 					_
						AB.					+			
						LT								
						⁷ AU								
									 					+
									}		+			+
												1		

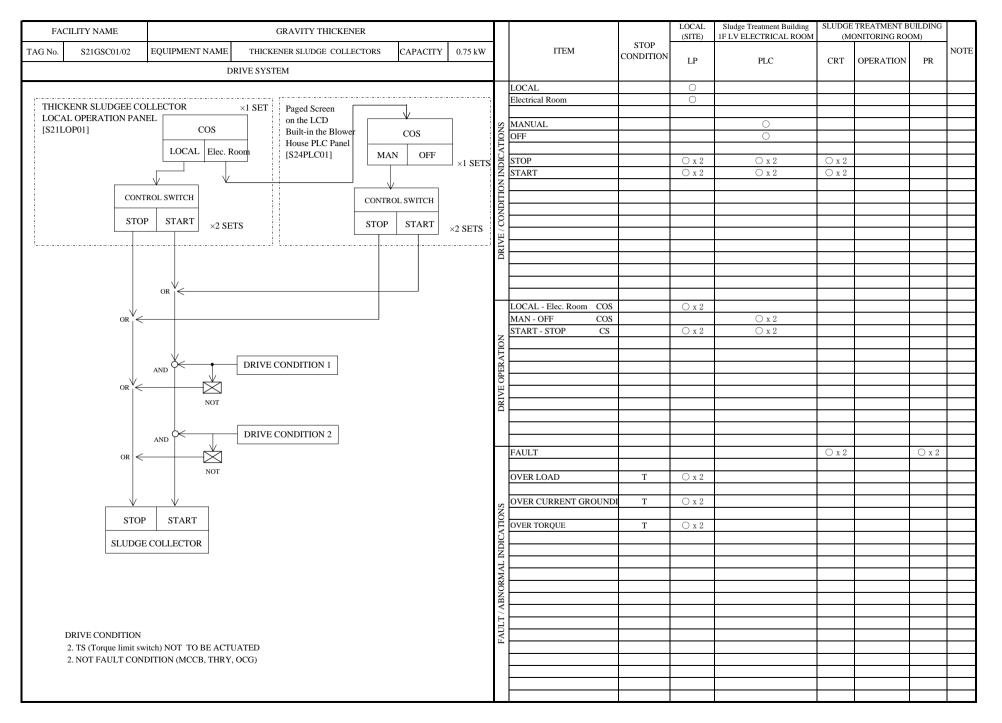


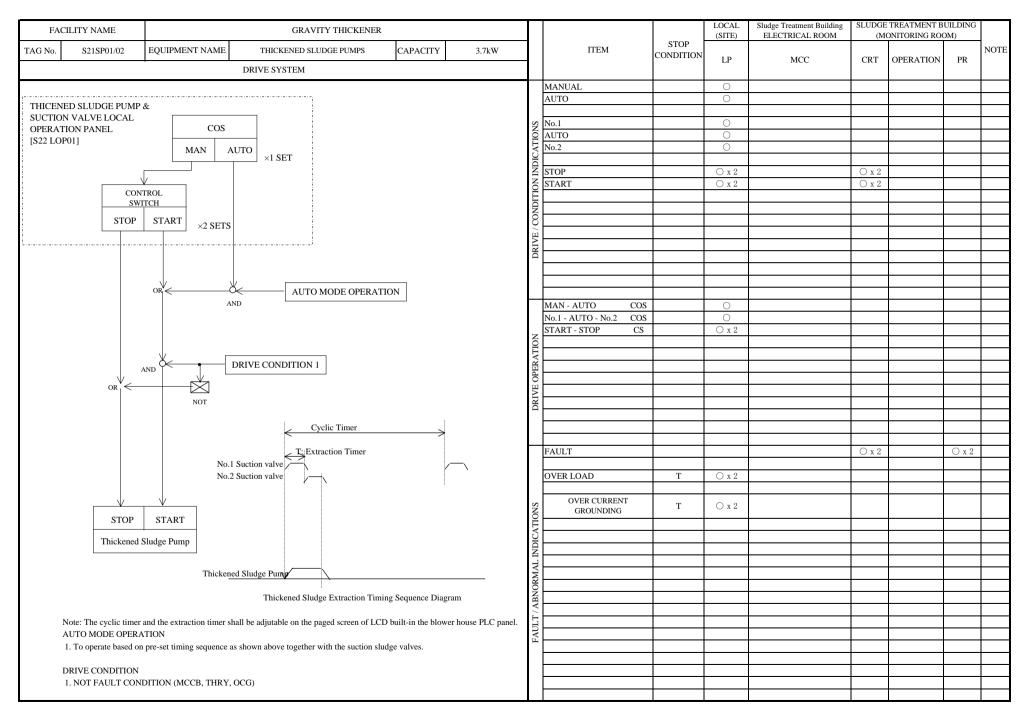


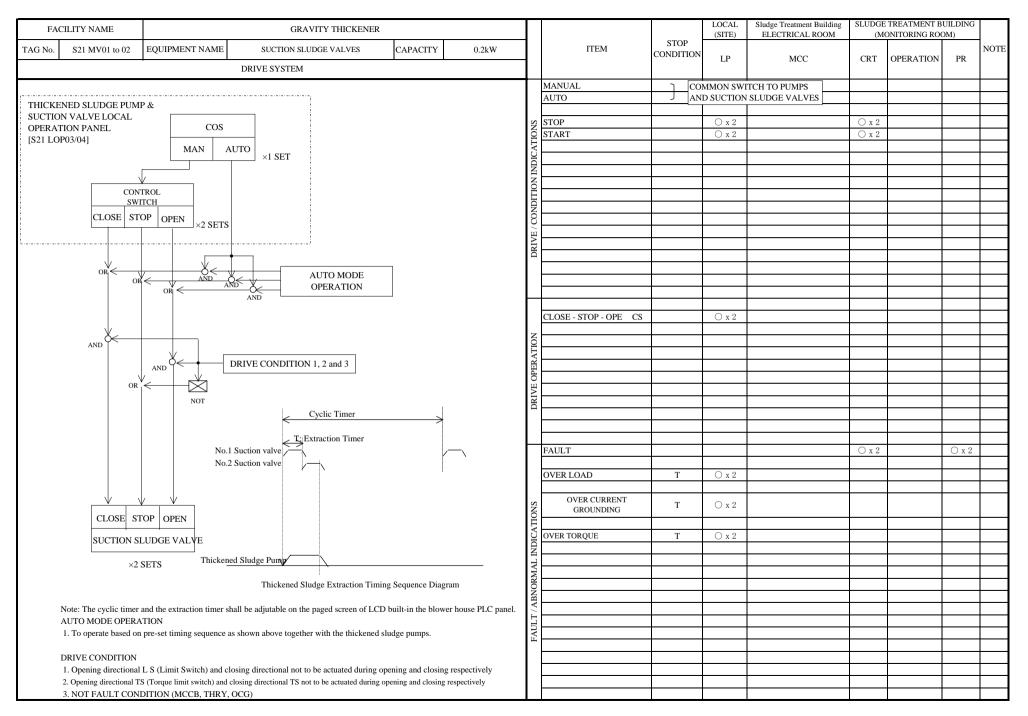


FAG	CILITY NAME			DISCHARGE PUMP	STATION		-					LOCAL (SITE)	LOW VOLTAGE ELECTRICAL ROOM		E TREATMENT B IONITORING ROO		
TAG No.	S12MV06 to	10	EQUIPMENT NAM		ES	CAPACITY	3.7/1.5 k W		ITEM	(STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOTE
				DRIVE SYSTEM													
									OPEN STOP			○ x 5 ○ x 5		○ x 5 ○ x 5			
	ENT PUMP	СНА	NGE OVER SWITC	н					CLOSE			$\bigcirc x 5$ $\bigcirc x 5$		$\bigcirc x 5$ $\bigcirc x 5$			
LOCAL OPERA				-				ş									
PANEL		LO	CAL Elec. Room	x 5 SET				TIOI									
								INDICATIC									
	[\downarrow															
	CONT	ROL S	WITCH					NDITION									
	CLOSE	STO	P OPEN	x 5 SET				IDIT									
	CLOSE	5101	OTEN					CO									
l ^l				į				/E/									
1								DRIVE									
	\downarrow							Γ									
	AND O							1									
			AND	DRIVE CONDITION 1				⊢	LOCAL - Electrical Room	COS		0 5					
		OR <	NOT						OPEN - STOP - CLOSE	COS		○ x 5 ○ x 5					
	AND 🗸 ———			「				7		0.5		0 " 0					
			AND K	DRIVE CONDITION 2				LION									
		or ↓<	NOT					OPERATIC									
			NOT					OPE									
	AND Ŏ		¥.					DRIVE									
				DRIVE CONDITION 3				DR									
		OR <	NOT														
		\checkmark															
	CLOSE	STO	P OPEN						FAULT					○ x 5		○ x 5	
				x 5 SET				1	OVER LOAD		Т		○ x 5				
	SUC	CTION	VALVE					1									
								SN	OVER TORQUE		Т		○ x 5				
								IOI	OVER CURRENT GR	OUNDI	Т		○ x 5				
	DRIVE CONDIT	ION						ICA'		toendi	•		0 # 0				
				d closing directional not to be actu				IND									
			(Torque limit switch) a TION (MCCB, THR	and closing directional TS not to be ac	tuated during oper	ning and closing	g respectively	ABNORMAL INDICA									
	Sator rately	.01101	non (meeb, mk	1,000)				ORN									
								ABN									
								\geq									-
								AULT						1			
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l								1	<u> </u>								+

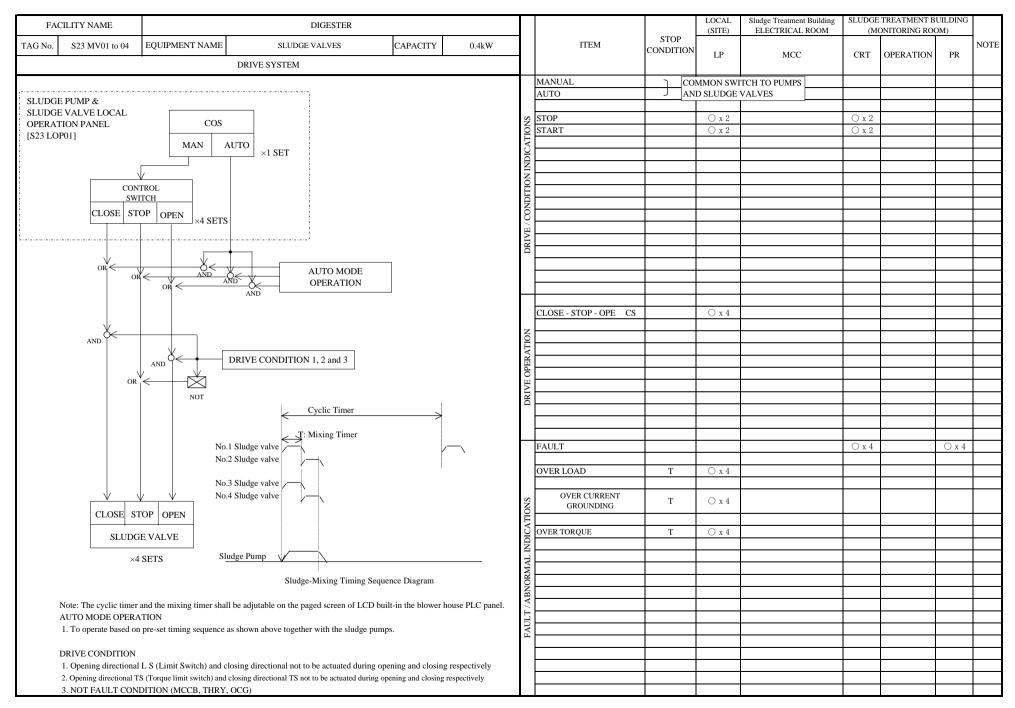
FACILITY NAME DISCHARGE PUMP STATION							LOCAL (SITE)		SLUDGE TREATMENT BUI (MONITORING ROOM					
AG No.	S12MG11 to 14	EQUIPMENT NAM	IE CONNECTION VALVES DRIVE SYSTEM	CAPACITY	3.7 kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NO
			DRIVESISIEM			_	OPEN		○ x 4		○ x 4			
			_				STOP		O x 4		O x 4			
CONNE	LOCAL C	CHANGE OVER SWIT	СН				CLOSE		O x 4		O x 4			
OPERA	TION		-			SN								
PANEL		MANUAL OFF	x 1 SET			TIO								-
						CONDITION INDICATIONS								+
						IN								
	CONTRO	OL SWITCH				ION								
	CLOSE S	STOP OPEN				DIT								
	CLOSE S	STOP OPEN	x 4 SET			NO								+
			j			~								
						DRIVE								
						Д								╇
	AND K		_											-
		AND K	DRIVE CONDITION 1											
	OI						MAN - OFF COS		O x 4					
	AND	NOT					OPEN - STOP - CLOSE CS		O x 4					_
	AND O	AND	DRIVE CONDITION 2			N								-
			DRIVE CONDITION 2			OPERATION								
	OI	OR NOT												
	AND			DRIVE OF								_		
		AND CONDITION 3												-
	OI					D								
		NOT												
											<u> </u>		0.1	
	CLOSE S	STOP OPEN					FAULT				○ x 4		○ x 4	╈
	CON	INECTION					OVER LOAD	Т		○ x 4				
		INECTION .	x 4 SET											
						SZ	OVER TORQUE	Т		○ x 4				
						IOII	OVER CURRENT GROUNDI	Т		○ x 4				+
1	DRIVE CONDITIO	N				ICA.				0				
			nd closing directional not to be actuated during			IND								
		al TS (Torque limit switch) : NDITION (MCCB, THR	and closing directional TS not to be actuated during	opening and closing	respectively	AL								
	3.NOT FAULT CC	DIDITION (MCCB, THR	(Y, OCG)			DRM								
						ABNORMAL INDI								t
						\sim								
						FAULT								+
						FA								+
						Í					1			t
						Í								L
														╞

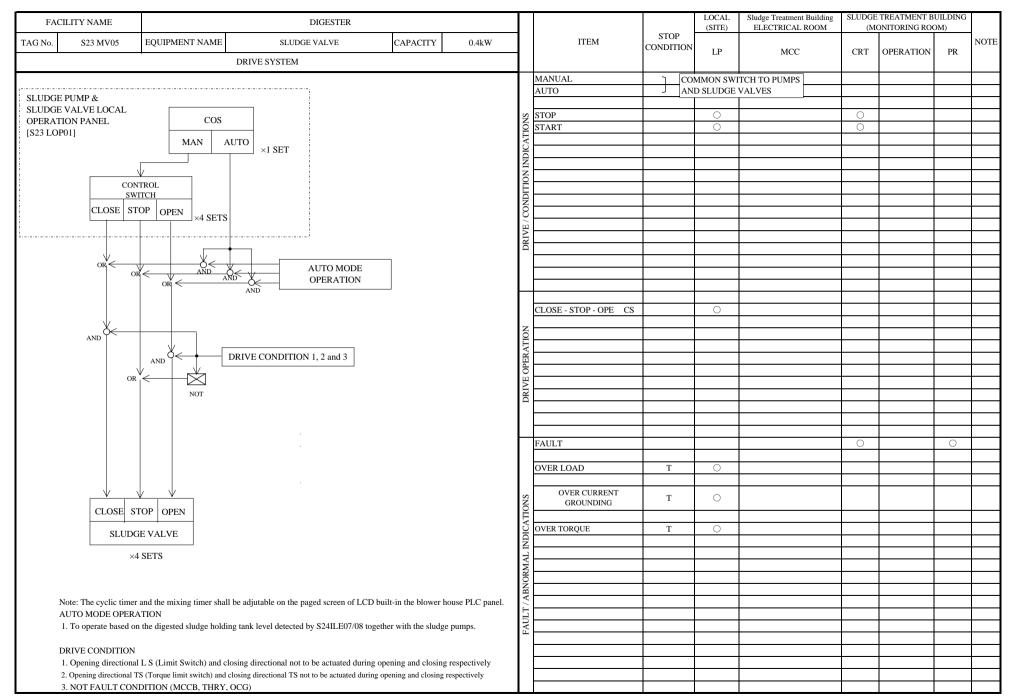


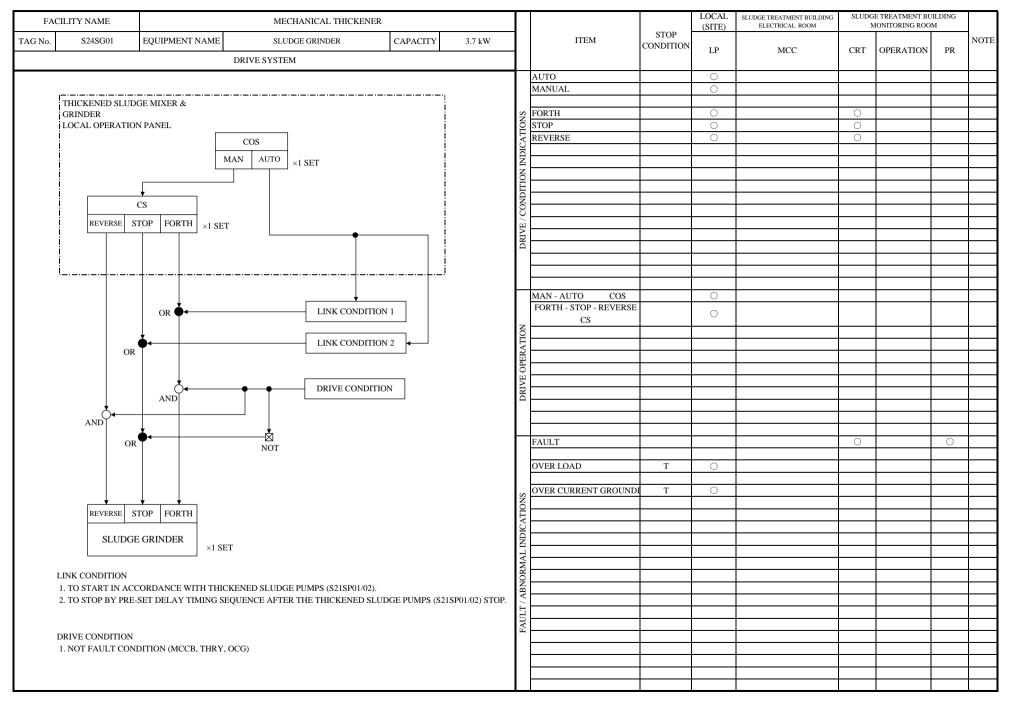




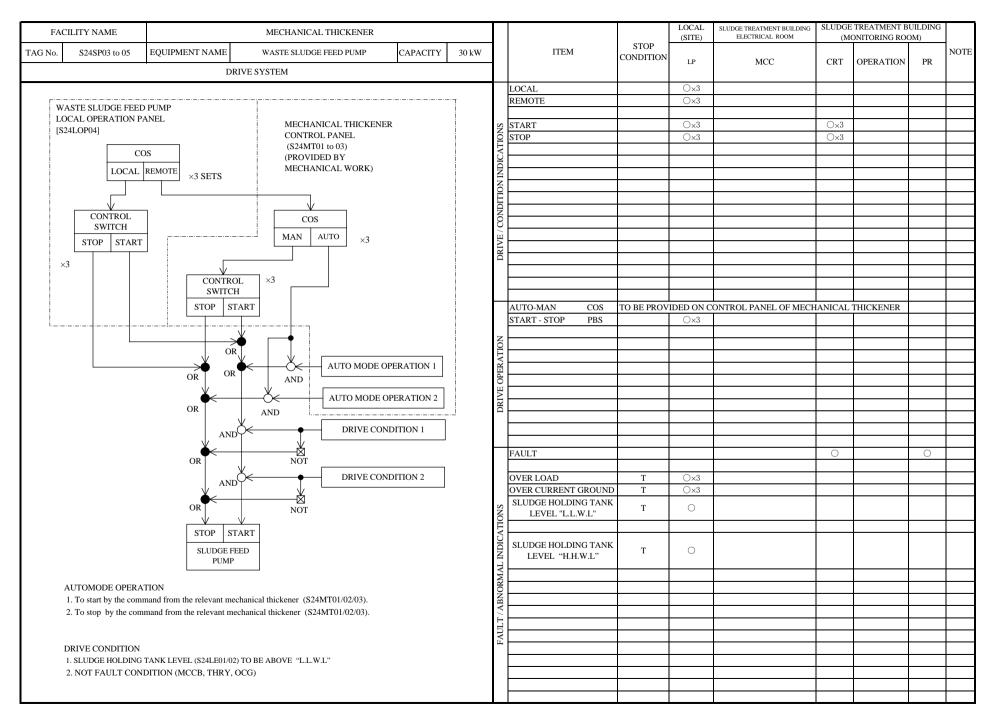
FACILITY NAME			GRAVITY THICKENER			LOCAL (SITE)		SLUDGE TREATMENT					
G No.	S23SP01/02	EQUIPMENT NAME	E SLUDGE PUMPS DRIVE SYSTEM	CAPACITY	22kW	ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
			Didid Distant			MANUAL		0					
UDOE	DID (D. 0					AUTO		0					
	PUMP & ALVE LOCAL												
	ION PANEL	COS	3			No.1	_	0					
23 LOP	01]					AUTO No.2		0					+
		MAN	AUTO ×1 SET										
						Z STOP		O x 2		O x 2			
	CON	TROL				Z START		○ x 2		○ x 2			
		ITCH				X No.1 X No.2 X No.2 X STOP X START X NO X NO	-						_
	STOP	START											
		×2 SET	rs -			E/G							
													_
													+
		OR <	AUTO MODE OPERAT	ГІОN 1, 2									
			AND		-	MAN - AUTO COS		0					
						No.1 - AUTO - No.2 COS		0					
						Z START - STOP CS		○ x 2					
													_
			DRIVE CONDITION 1										-
	\checkmark												
		NOT				DK							
			_ Cyclic Timer										+
				\longrightarrow									
			Hixing Timer		ľ	FAULT				○ x 2		○ x 2	
			lo.1 Sludge valve	/	<u> </u>			_					
		N	lo.2 Sludge valve			OVER LOAD	Т	○ x 2					
		N	lo.3 Sludge valve			OVER CURRENT							
	V	N	o.4 Sludge valve			GROUNDING	Т	○ x 2					
	STOP	START	- 7 X										
	Sludg	e Pump											
						Z							
		S	Sludge Pump										+
		-				OK							1
			Sludge-Mixing Timing See	quence Diagram		ABN							
	T (1711) · · ·	14 11 2 4			N.C. I		_						╞
	lote: The cyclic timer		all be adjutable on the paged screen of LCD	built-in the blower h	nouse PLC panel.								┢
			e as shown above together with the sludge va	lves		Ĩ	+			1			+
			ing tank level detected by ILE2407/08.										L
	ORIVE CONDITION												
	NOT FALL T CON	DITION (MCCB, THRY	V OCC)						1	1	1		1



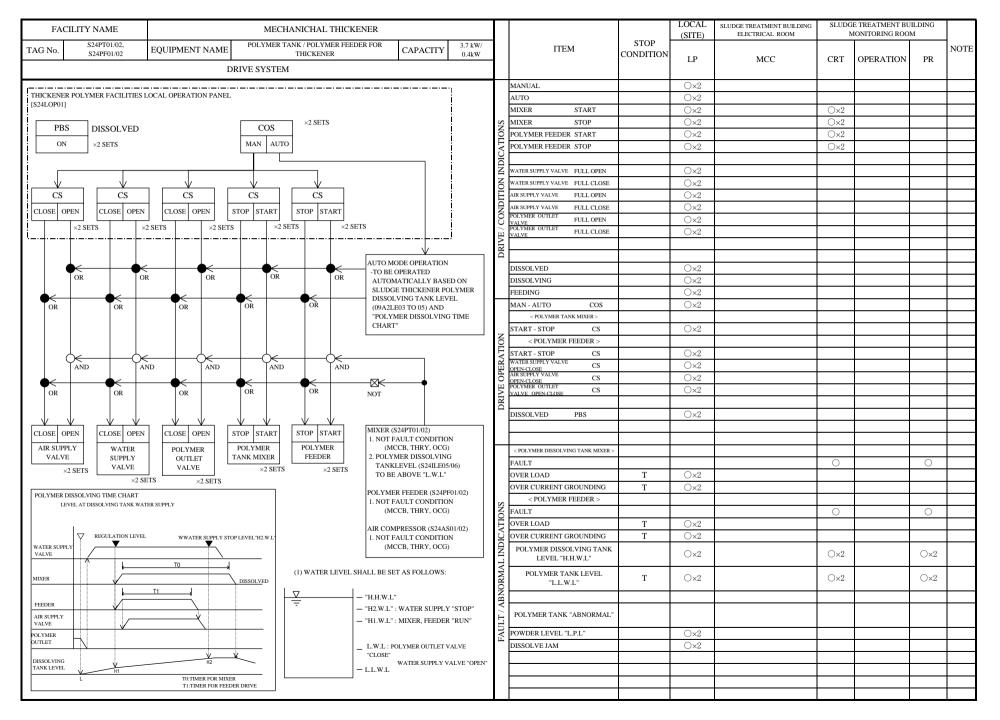


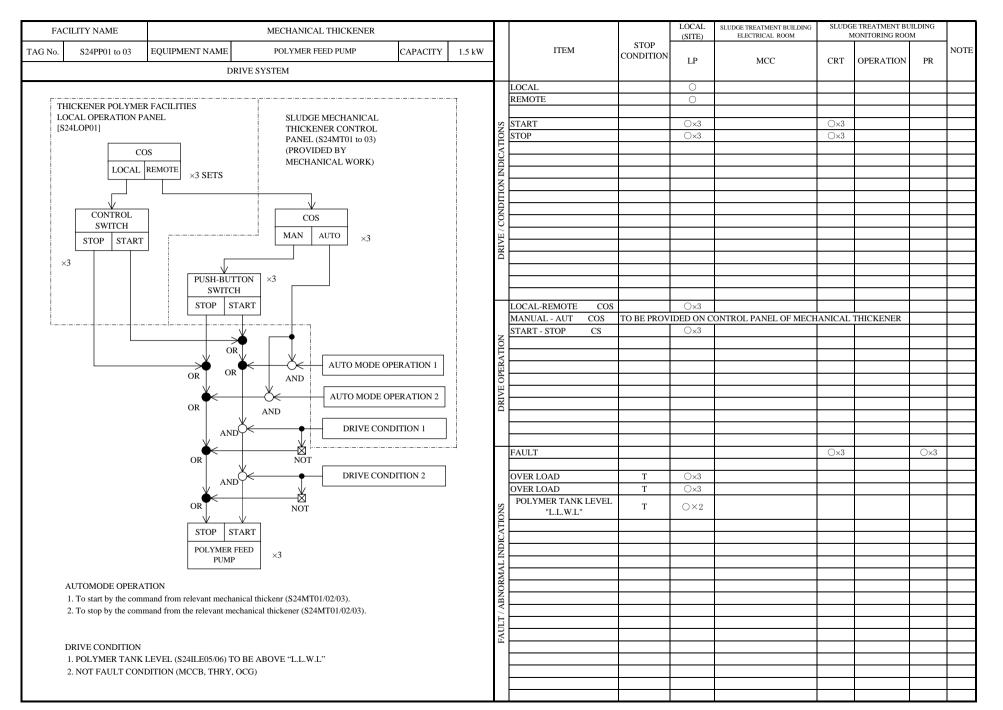


FACILITY NAME		MECHANICAL THICKENER						STOP	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM		E TREATMENT BU MONITORING ROOI		_
No.	S24SM01/02	EQUIPMENT NAME	WASTE SLUDGE	MIXER	CAPACITY	7.5 kW	ITEM	CONDITION	LP	МСС	CRT	OPERATION	PR	NO
		D	RIVE SYSTEM											
							AUTO		O×2					
-							MANUAL		O×2					
	WASTE SLUDGE M				İ		6m - 5m		0.0		0.0			
	LOCAL OPERATIO [S24LOP03]	N PANEL					START STOP		○×2 ○×2		○×2 ○×2			-
ł	[S24LOP03]						STOP		Ux2		Úx2			-
i			COS		İ									
-		1	MAN AUTO ×2 SETS			1								
			~2 3E13											
į														
		CS				f								
i							3							
į	s	TOP START ×2 SE	TS		I		ġ					1		
i							ž							
į					ļ	,								
!														-
		•+•=•=•+•=•=•=•			!									-
						- F	MAN - AUTO COS		O×2					-
				TO MODE ODER			START - STOP CS		0×2					t
		OR •	AND	TO MODE OPER	KATION I				0.12					ľ
														ľ
	0.0	•		JTO MODE OPER	RATION 2									
	OR		AND											
						Ċ	5							
		AND	•	DRIVE CONDIT	ION I									
		AND	×			, ,	D							
	OR		 NOT											┢─
		│ ॑		DRIVE CONDIT	TON 2	F	FAULT				O×2		O×2	\vdash
		AND									0		0.12	ŀ
	OR	••	×				OVER LOAD	Т	O×2			1		
			NOT				GROUNDING OVER CUR		O×2					
						5	SLUDGE HOLDING TANK LEV	EL	0		0		0	1
		<u>↓</u> ↓]					"H.H.W.L"		Ŭ.		Ŭ		0	
	S	TOP START					SLUDGE HOLDING TANK LEV "L.L.W.L"					┨────┤		\vdash
	w	ASTE SLUDGE				5	SLUDGE HOLDING TANK LEV "L.L.W.L"	EL T	0		0		0	1
		MIXER ×2 SE	ГS						<u> </u>			+		┢
									1					┢
A	UTO MODE OPERA	ATION							1			1 1		t
		e-set level, "M.W.L", det	tected by S24ILE01/02.						İ					Γ
		e-set level, "L.W.L", dete												L
														Ē
	RIVE CONDITION											1[Ľ
		DITION (MCCB, THRY												┡
2	. SLUDGE HOLDIN	G TANK LEVEL (S24IL	E01/02) TO BE ABOVE "L.]	L.W.L"					<u> </u>					┡
														┢
								+	<u> </u>			┨		┢



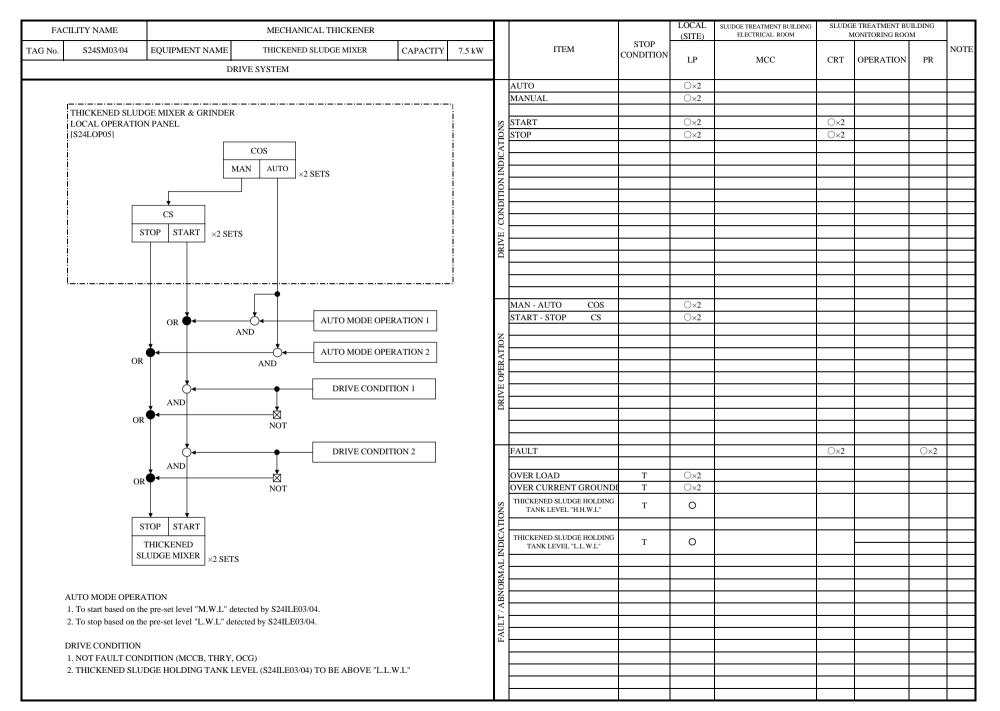
FAG	CILITY NAME		MECHANICAL THICKENER					area	LOCAI (SITE)		JDGE TREATMENT BUILDING ELECTRICAL ROOM		E TREATMENT BU MONITORING ROOM		
TAG No.	S24MT01 to 3	EQUIPM	ENT NAME	MECHANICAL THICKENER	CAPACITY 1.5+0.75x2 kW	r	ITEM	STOP CONDITION	MECHA. I	лv	MCC	CRT	OPERATION	PR	NOT
			Ι	DRIVE SYSTEM											
							START					$\bigcirc \times 3$			
							STOP					$\bigcirc \times 3$			
	MECHA	ANICAL W		ECTRICAL WORK		s									
	MECHA	<	OKK ELI	>		NO							1		
						ATI									
						DIC									
					ZIZ				μ					_	
			≦		[]				\square					+	
			ģ <	- 1 φ 220 V AC POWER SUPPLY		CONDITION INDICATION									
V			A		Q										
						\sim									
	\checkmark	1		-3ϕ 380 V AC POWER SUPPLY		DRIVE									_
	ART" AND "STOP"		H I			Ц				_					+
	CHANICAL														+
THICKENER	CRENER			AUTO CONDITION/STATUS											
			T												
						z									_
			Ę į			TIO				_					-
			MECHANICAL THICKENER CONTROL PANEL	COMMAND AND		DRIVE OPERATIO							1		
		t	7			[dO									
						IVE									
						DR				_					_
	AUTO MODE OPERAT		FL (\$2411 F01	/02) TO BE ABOVE "M.W.L" (STARTING SIGN	AT)										+
				(02) TO BE ABOVE "M.W.E (STARTING SIGNA (02) TO BE ABOVE "L.W.L" (STOPPING SIGNA											
				/02) TO BE ABOVE "L.L.W.L" (INTER-LOCKING			FAULT					0		0	
				EL (S24ILE03/04) TO BE BELOW "H1.W.L" (STA											
				EL (S24ILE01/02) TO BE BELOW "H2.W.L" (STO			OVER LOAD	Т		_					_
				EL (S24ILE03/04) TO BE BELOW "H.H.W.L" (IN BE ABOVE "L.W.L" (STOPPING SIGNAL)	TER-LOCKING SIGNAL)		SLUDGE HOLDING TANK								-
			,	BE ABOVE "L.L.W.L" (INTER-LOCKING SIGNAL)	AL)	SNG	LEVEL "L.L.W.L"	Т							
				D BE BELOW "H.H.W.L" (INTER-LOCKING SIG		DIT									
	10. MECHANICAL TH 11. RELEVANT SLU			02/03/04) SIGNAL (4-20 mA DC) TO BE GIVEN 03/04/05) "RUN"		INDICATIONS	THICKENEDSLUDGE HOLDING TANK LEVEL"H.H.W.L"	Т							
	12. RELEVANT POLY					L D									
						ABNORMAL	WASTE WATER TANK LEVEL "H.H.W.L"	Т							
						BN									\uparrow
COMMAND AND STATUS FROM MECHANICAL THICKENER						\sim	POLYMER TANK LEVEL	Т							
	1. COMMAND OF "RU		-			FAULT	"L.L.W.L"	<u> </u>		_					_
	2. RUN" AND "FAULT	I CONDITIO	UN SIGNAL F	ROM MECHANICAL THICKENER		FA				+					┢
						1			Η	+					+
						1									t
						1									1



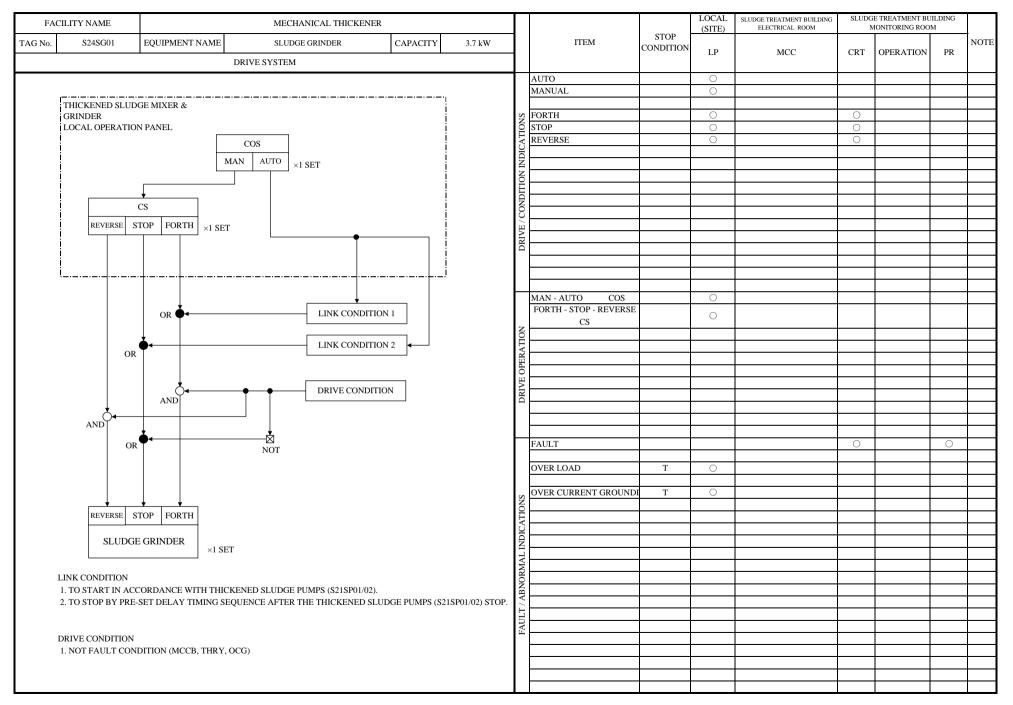


FAC	FACILITY NAME MECHANICAL THICKENER						LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDGE TREATMENT BUILDING MONITORING ROOM					
TAG No.	S24AC01/02	EQUIPMENT NAME		CAPACITY	1.5 kW	_	ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
]	DRIVE SYSTEM											
							MANUAL		0					
		AIR COMPRESSOR				OFF		0						
	I	LOCAL OPERATION PA	ANEL			s	START		O×2		O×2			
	l	[S24LOP02]				ION	STOP		O×2		O×2			
		Γ	COS			CAT								
		M	ANUAL OFF			INDICAT								
		IV.	×1 SET											
		Г				CONDITION								
						QN								
		SWIT				CO/								
			START			VE.								_
			[DRIVE								+
		×2												
									0.1					
							MANUAL - OFF COS		O×1					
	i						START - STOP CS		O×2					
						NO								
						DRIVE OPERATION								
						PEF								
						/E O								
						DRIV								
		Al	ND C DRIVE C	ONDITION 1										
			×			┝	FAULT				O×2		O×2	
		OR	NOT				TAULI				0.42		0.42	
							OVER LOAD	Т	O×2					
							OVER CURRENT GROUN	DI T	O×2					
						SZ								
			¥			ATIOI								
		STOP	START			ICA'								
		AIR COMP	PRESSOR ×2			Q								
						IAL								
						ORM								
						ABNORMAL INDIC.			1					
						~								
						FAULT								_
г	DRIVE CONDITION					FA								+
		DITION (MCCB, THRY	Y, OCG)											+
						1								
						1								
						1	1							

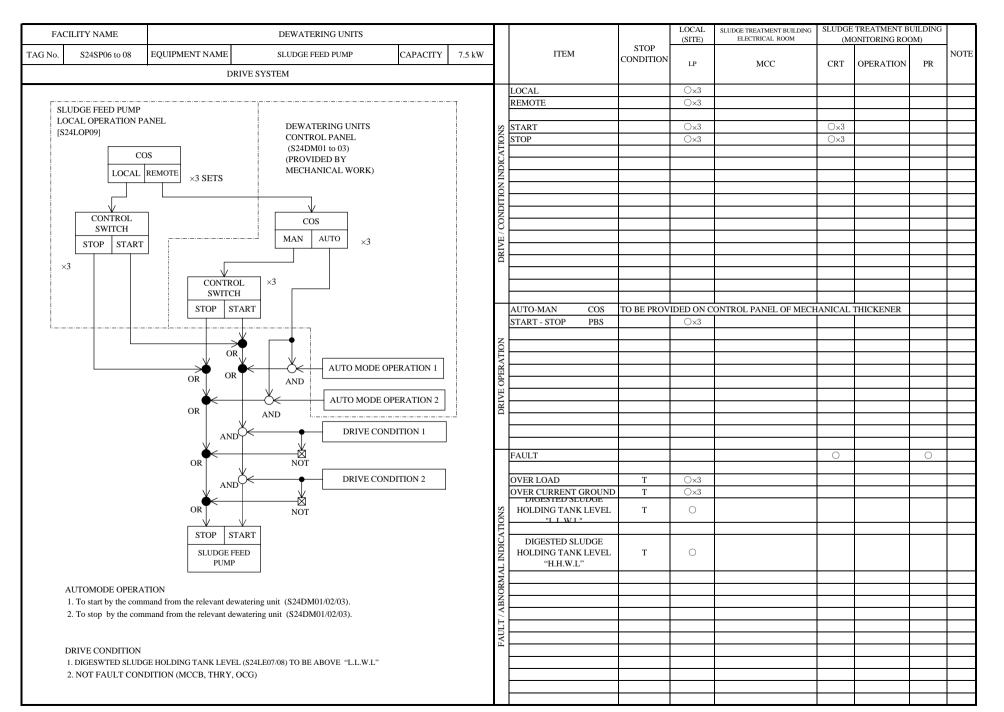
FAG	CILITY NAME		MECHANICAL THICKENER						LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDG M	E TREATMENT BU MONITORING ROOM	ILDING M	
TAG No.	S24AD01	EQUIPMENT NAME	AIR DRYER	CAPACITY	0.2 kW		ITEM	STOP CONDITION	MECHA.DIV	МСС	CRT	OPERATION	PR	NOTE
		D	DRIVE SYSTEM											
							START				0			
							STOP				0			┼──┦
	MECHANICAL WORK ELECTRICAL WORK													
						IND								
			1 φ 220VAC POWE	R		NOL								
			3 φ 380 V AC POWI			LICIN								
	\vee	AIR				COI								
	"START" AND "S OF AIR DRYE					VE/								┼──┦
		YER				DRI								┼──┤
		rop" R R PUPP												
		JIPN												+
		IEN I												+
			STATUS											
						N								┼──┦
						DRIVE OPERATION								
						PER.								
						ΕO								┼──┦
						DRIV								+
	STATUS FROM AIR I					П								
	1. "RUN" OR "FAUL"	I" CONDITION SIGNAL	L FROM AIR DRYER											┼──┦
							FAULT	Т			0		0	
														┼──┦
						s								+
1						ION								
						FAULT / ABNORMAL INDICATIONS								┼──┦
						NDI								
						AL I								
						JRM								+
						BNC								
						T/A								\square
						AUL			Η					┼──┦
						F.			1					
														╷╶┦
														+
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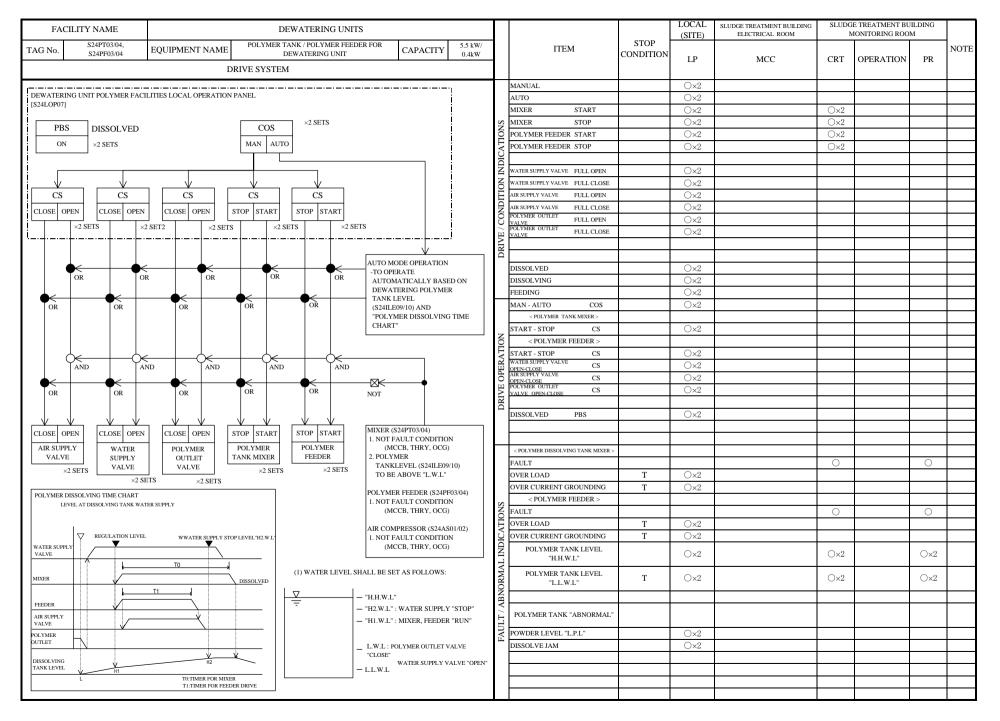
FAC	ILITY NAME		MECHANICAL THICKENER				STOP.	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM		E TREATMENT BUI IONITORING ROOM		
No.	S24SP01/02	EQUIPMENT NAME		CAPACITY 11 kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NO
		Ε	DRIVE SYSTEM										
						AUTO		0					
r						MANUAL		0					
	THICKENED SLU			i		0		0.0		0.0			
į	LOCAL OPERATIO [S24LOP06]	ON PANEL			SNC	START STOP		○×2 ○×2		O×2 O×2			-
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ł		CONTROL			DIT						↓		_
į		SWITCH		ļ	NO								_
		TOD STADT		ł	J/C		-	1					+
į		×2 SI	ET	ļ	DRIVE / CONDITION INDICATIONS								+
					DR								
į				ļ									
ļ		++	·-·-·	!									_
			□			MAN - AUTO COS		0					_
				TON 1		START - STOP CS		O×2					+
		OR •<	AUTO MODE OPERAT	ION I		START STOL CS		0.42			1		
					ON								
	OR	•	AUTO MODE OPERAT	TION 2	TAT								
	UK OK		AND		DRIVE OPERATION								_
					ΕO								-
		AND	DRIVE CONDITION	1, 2	RIV								
			×		Д								
	OI	R	NOT										
			DRIVE CONDITION	3, 4									
		AND	↓			FAULT				O×2		$\bigcirc \times 2$	_
	OI		Ř NOT			OVER LOAD	Т	O×2			+ +		+
		\downarrow \downarrow	NOT			OVER CURRENT GROUND		0×2			1		
	5	STOP START			5	THICKENED SULADGE							
		THOUTHER			NO	HOLDING TANK LEVEL	Т	0					
		THICKENED SLUDGE PUMP			AT!	"L.L.W.L"							_
					FAULT / ABNORMAL INDICATIONS								+
А	UTO MODE OPERAT	TON			LIN	DIGESTED TANK LEVEL	Т	0		0		0	
			detected by S24ILE03/04.		MA	"H.H.W.L"							
		ne pre-set level detected by			VOR								
					ABN	DIGESTED TANK	-	0		0		0	
					T/T	PRESSURE "H.H.P.L"	Т	$\bigcirc \times 2$		$\bigcirc \times 2$		$\bigcirc \times 2$	
Г	DRIVE CONDITION				AUL						+ +		+
		DGE HOLDING TANK	LEVEL (S24ILE03/04) TO BE ABOVE "L.L.W.L	."	F_{ℓ}								+
			GESTERS (S23ILE11/21) TO BE BELOW "H.H.W		1								T
			(21) TO BE BELOW "H.H.P.L"										
4	4. NOT FAULT CON	DITION (MCCB, THRY	Y, OCG)										
4	4. NOT FAULT CON	DITION (MCCB, THRY	′, OCG)										

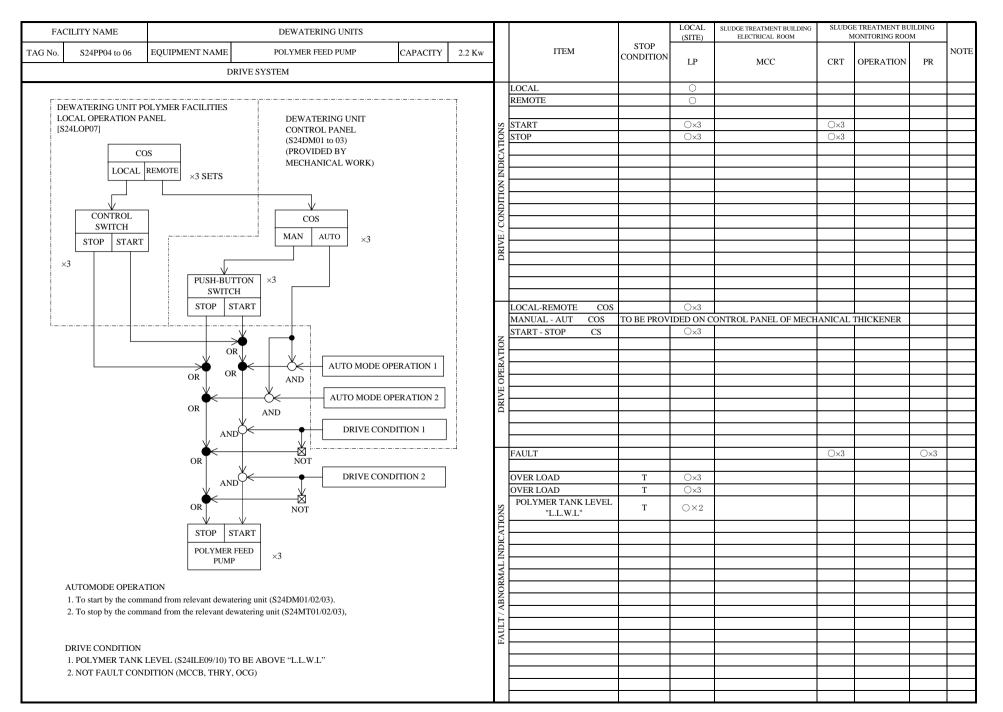


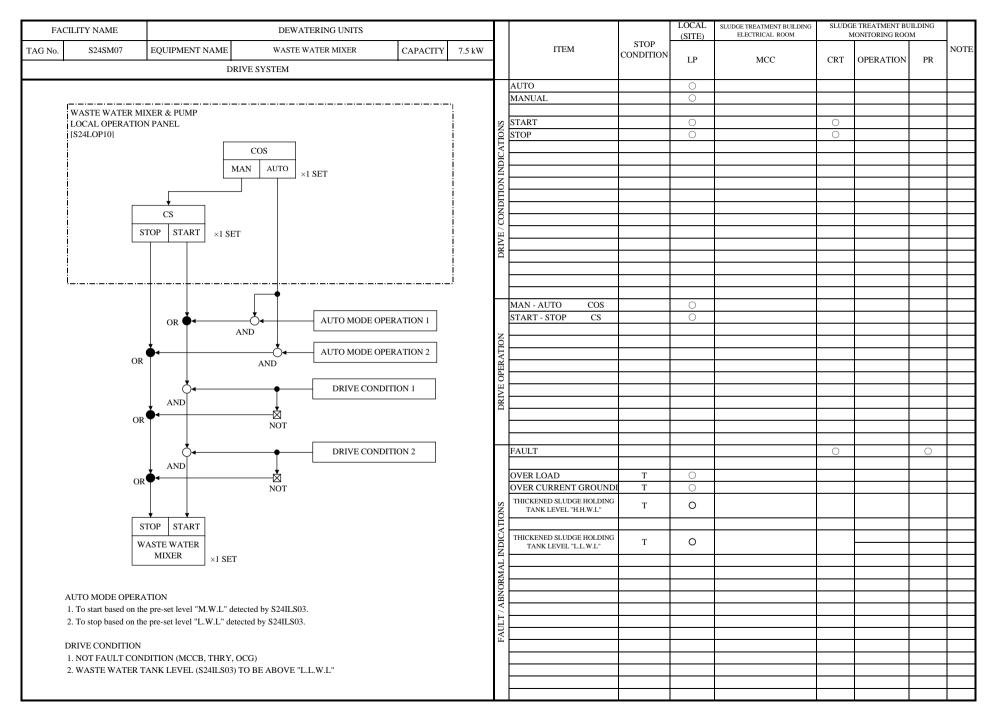
FAC	ILITY NAME		DEWA	TERING UNITS					STOP	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM		E TREATMENT BU MONITORING ROOM		
No.	S24SM05/06	EQUIPMENT NAMI		SLUDGE MIXER	CAPACITY	7.5 kW	ITEM	C	ONDITION	LP	MCC	CRT	OPERATION	PR	NC
			DRIVE SYSTEM				AUTO			⊖×2					
r							MANUAL			$\bigcirc \times 2$					
	WASTE SLUDGE M					_	OT A DT			<u> </u>		<u> </u>			-
	LOCAL OPERATIO [S24LOP08]	N PANEL				DINC	START STOP			○×2 ○×2		○×2 ○×2			-
ł	[324LOF08]	1				NOTE:				0.82		0.82			-
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			MAN AUTO ×	2 SETS											
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		CS													
į	-														
ł	S	TOP START ×2 S	ETS												_
į													ł		-
į															1
-			_												
							MAN - AUTO	COS		$\bigcirc \times 2$					
		OR •		AUTO MODE OPE	RATION 1		START - STOP	CS		$\bigcirc \times 2$					
			AND			5									
			×.		DATION 2	C L									_
	OR		AND	AUTO MODE OPE	RATION 2	יסזד א מסמה סגוומה									
			1112										<u> </u>		-
		│ ैं⊷──	•	DRIVE CONDI	FION 1										
		AND				1 d									
	OB	∳				4									
	OR		NOT												
					TIONA										
		AND	•	DRIVE CONDIT	TION 2		FAULT					O×2		$\bigcirc \times 2$	
	OR	↓	, ↓				OVERLOAR		m	0.0			↓ →		_
	UK OK		 NOT				OVER LOAD GROUNDING OVER		T T	○×2 ○×2					
							DIGESTED SLUDGE H		1						-
						NIC	TANK LEVEL "H.H	I.W.L"		0		0		0	
	s	TOP START													
						Š	DIGESTED SLUDGE H	IOLDING	Т	0		0		0	
		DIGESTED LUDGE MIXER	FTC				TANK LEVEL "L.L.	W.L"		0		<u> </u>		0	
	51	LUDGE MIXER ×2 S	E15										ļ		
		TION				TAMOUNDA							┨────┤		+
	UTO MODE OPERA	re-set level , "M.W.L", (letected by \$24H E07/	08		ON							╂───┤		\vdash
		e-set level, "L.W.L", de											 		
-	s stor subed on pr					Ē							1 1		1
D	RIVE CONDITION					T 11170						1	1 1		t
		DITION (MCCB, THR	Y, OCG)			p									
2	2. DIGESTED SLUD	GE HOLDING TANK	LEVEL (S24ILE07/08)) TO BE ABOVE "L.L.W	.L"										
															_
													ļ		_

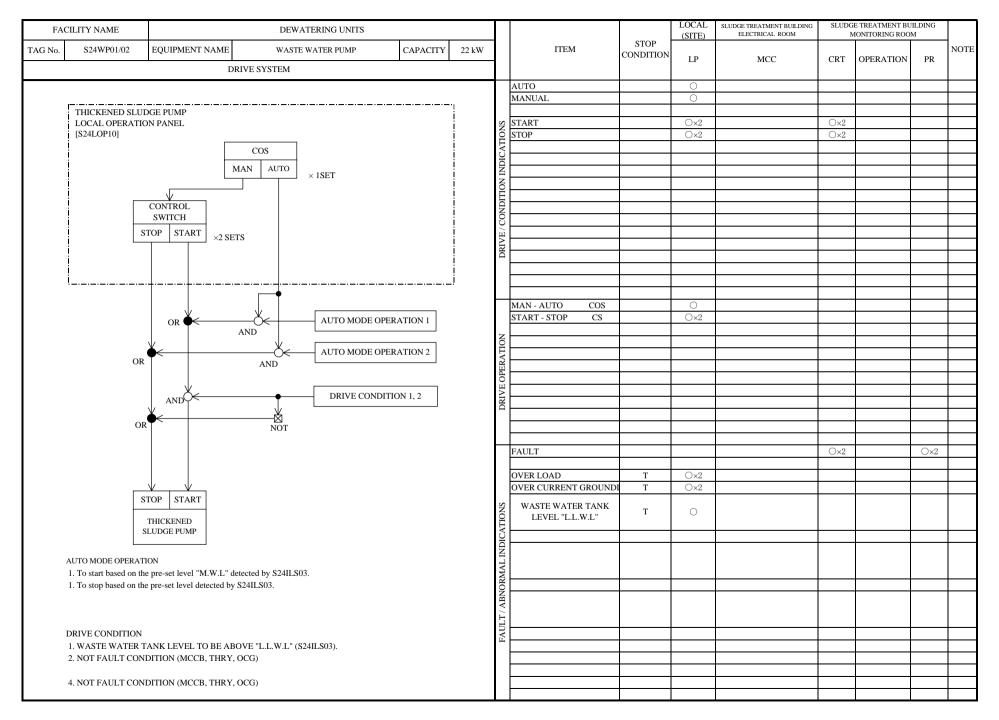


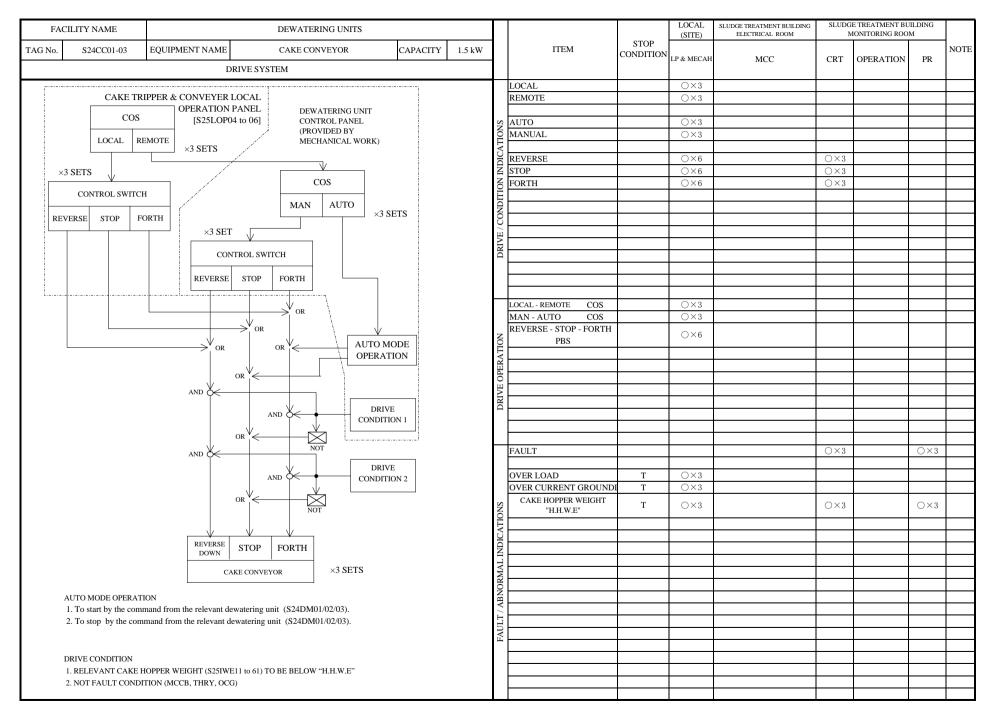
FACILITY NAME			DEWATERING UNITS			ITEM	STOP	LOCAL (SITE)	LOCAL CONTROL ROOM		NISTRATION BUI		NOTE
TAG No. S24DM01 to 03	EQUIPMEN	NT NAM	ME DEWATERING UNITS DRIVE SYSTEM	CAPACITY 3.7+1.5 kW		11EM	CONDITION	MECHA.DIV	MCC	CRT	OPERATION	PR	NOTE
			DRIVESTSTEM		-	START				$\bigcirc \times 3$			
MEGUAN.	UCAL WOR		ELECTRICAL WORK			STOP				○×3			
MECHAN	ICAL WOR	.K.	ELECTRICAL WORK		SN								
					OIL								
					ICA								
					Ð								
l l		<	1 φ 220 V AC POWER SUPPLY		NI		1						
	E	_	1 ¢ 220 v AC FOWER SUFFL1		Ĕ								
	DEWATERING UNIT CONTROL PANEL	<	3 φ 380 V AC POWER SUPPLY		CONDITION								
\checkmark	TEI				8								
	Ĩ			1	/E/								
"START" AND "STOP"	G		AUTO CONDITION/STATUS		DRIV								
DEWATERING UNIT				-	Ц								
	TO												
	<u>ğ</u>												
	TR				7								
	19		-]	Q								
	PA		COMMAND AND STATUS		LAJ								
	E				OPERA'								
					Ē								
					DRIV								
					D								
AUTO MODE OPERATI		ANKIEV	VEL (S24ILE07/08) TO BE ABOVE "M.W.L"	STARTING SIGNAL)									
			VEL (S24ILE07/08) TO BE ABOVE "I.W.L"(FAULT				$\bigcirc \times 3$		$\bigcirc \times 3$	
			VEL (S24ILE07/08) TO BE ABOVE "L.L.W.L										
) TO BE BELOW "H.H.W.L"(INTER-LOCKIN O BE ABOVE "L.W.L" (STOPPING SIGNAL)			DIGESTED SLUDGE HOLDING TANK LEVEL "L.L.W.L"	Т						
			O BE ABOVE "L.L.W.L" (INTER-LOCKING		NS								
7. DIGESTED DEWATE	ERING SLUDO	GE FLOW	W (S24IFE06/0708) SIGNAL (FI 4-20 mA) TO		ATIO]	POLYMER TANK LEVEL	Т						
8. SLUDGE CAKE HOP 9. RELEVANT SLUDGI			SLUDGE NOT TO BE OVERLOADED		ICA	"L.L.W.L"	-						
10. RELEVANT POLYN					Ð	WASTE WATER TANK LEVEL							
			R (S25CC01/02/03) "RUN"		AL I	"H.H.W.L"	Т						
					ZM/								
					NOR								
					ABI								
					Γ								
COMMAND AND STAT	US FROM DE	WATEP	ING UNIT		AUL								
1. COMMAND AND STAT					F_{F}			1					
			L FROM DEWATERING UNIT										
					1								
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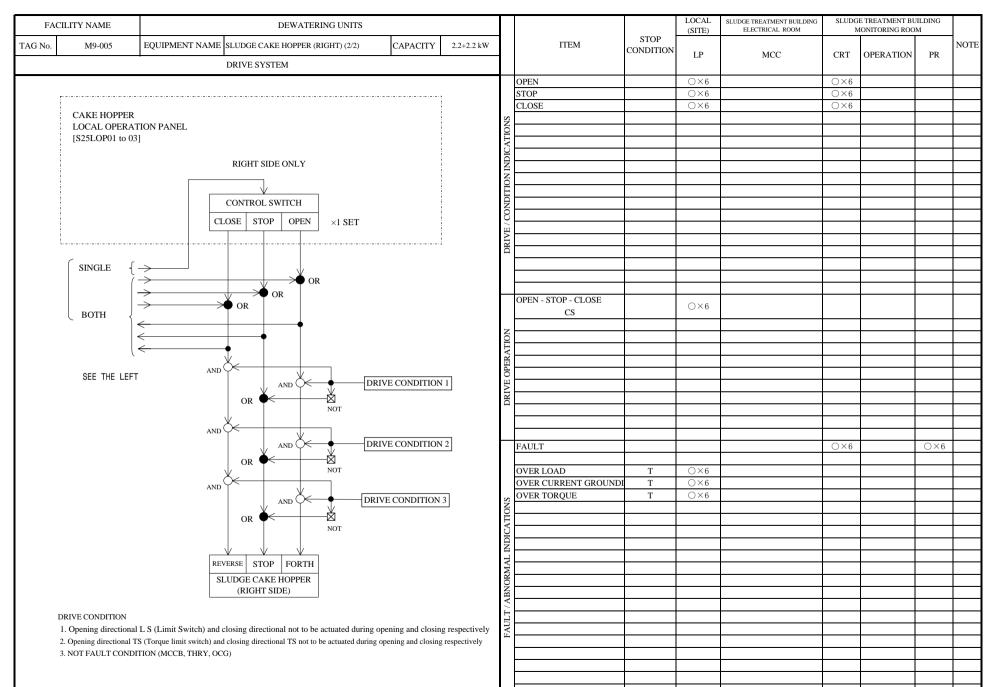


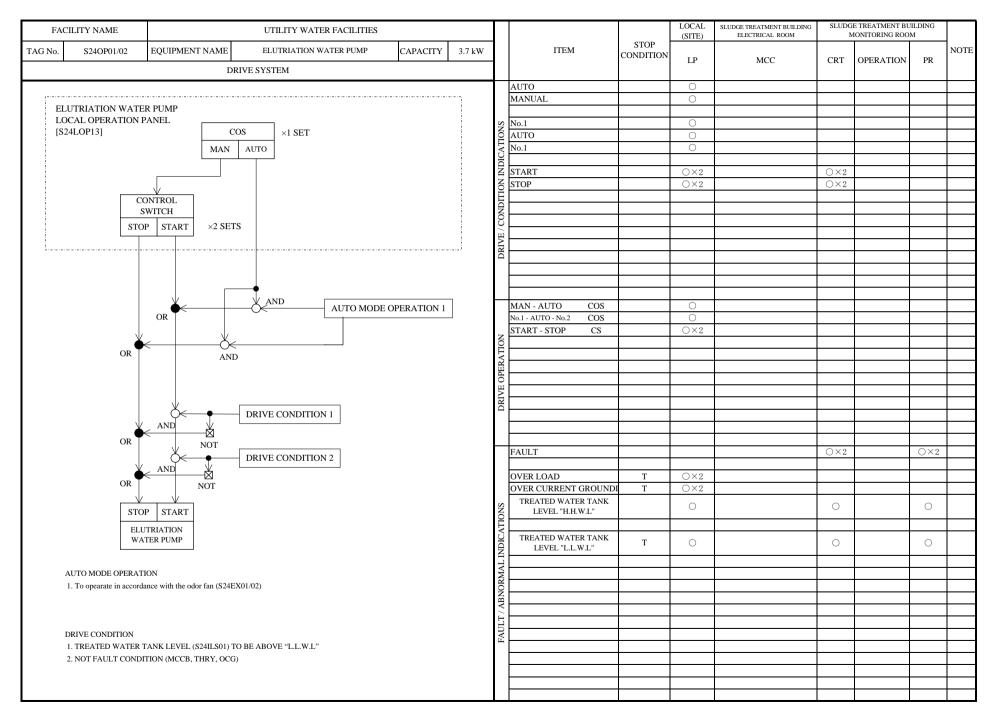


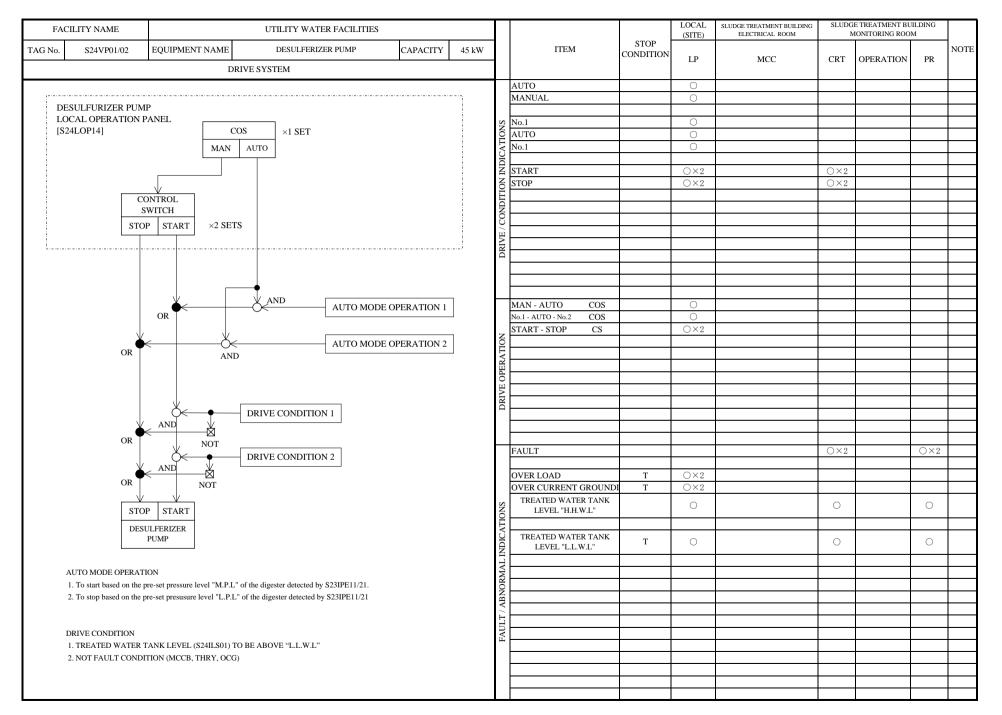


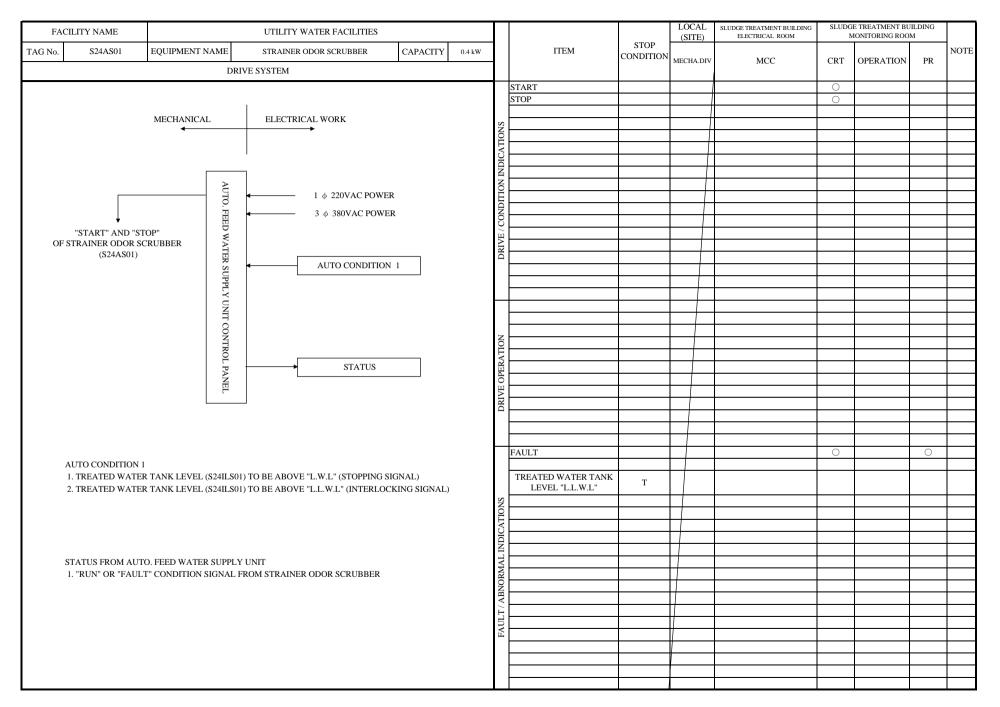
FA	CILITY NAME		DEWATERING UNITS				STOP	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM		E TREATMENT BU IONITORING ROO!		
TAG No.	S25CT01-03	EQUIPMENT NAME	CAKE CONVEYOR	CAPACITY 1.5 kV	v	ITEM	STOP CONDITION		MCC	CRT	OPERATION	PR	NOTI
		DRIVE 51	SIEM			LOCAL		0.148					
	CAKE TR	IPPER & CONVEYER LOCAL				LOCAL REMOTE	-	$\bigcirc \times 3$ $\bigcirc \times 3$					
	CARETR	OPERATION PANEL	DEWATERING UNIT			KEWIOTE		0.43					
	COS	[S25LOP04 to 06]			2	AUTO	1	$\bigcirc \times 3$					
			(PROVIDED BY		NO	MANUAL		○×3					
	LOCAL RI	EMOTE ×3 SETS	MECHANICAL WORK)		ΔT.								
					DICA	UP		$\bigcirc \times 6$		$\bigcirc \times 3$			
×	3 SETS					STOP		$\bigcirc \times 6$		$\bigcirc \times 3$			
	CONTROL SWITCH				Č	DOWN		$\bigcirc \times 6$		$\bigcirc \times 3$			
	CONTROL SWITCH	1			LICIN	UPPER POSITION		$\bigcirc \times 3$					
RE	VERSE STOP FO	ORTH			NC.	LOWER POSITION		$\bigcirc \times 3$					
		×3 SET			0/2	EOWERTOSITION		0.43					
					Z		1			1			
		CONTROL SV	WITCH		DRI								
		UP STOP	DOWN										
L													
						LOCAL - REMOTE COS MAN - AUTO COS		$\bigcirc \times 3$ $\bigcirc \times 3$					
			, \			UP - STOP - DOWN							
			· \		Z	PBS		$\bigcirc \times 6$					
		>V OR	la la la la la la la la la la la la la l		TIC								
					OPFRA								
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		AND K			DRIVE								
			DRI	IVE	DR								
			AND CONDI										<u> </u>
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			NOT		-	FAULT				$\bigcirc \times 3$		$\bigcirc \times 3$	
		AND O				111021				00		00	
			AND CONDI			OVER LOAD	Т	$\bigcirc \times 3$					
						OVER CURRENT GROUND	DI T	$\bigcirc \times 3$					
			NOT		SNC	CAKE HOPPER WEIGHT "H.H.W.E"	Т	$\bigcirc \times 3$		$\bigcirc \times 3$		$\bigcirc \times 3$	
					TIC								
			¥]		Ŭ,								L
		DOWN STOP	UP		IN		1						
		CAKE TRI	PPER ×3 SETS		ΔI								
		CAKE IKI	IIIK AUDITO		ΝM		+				}		
	AUTO MODE OPERATI	ION			ARNORMAL INDICATIO								
		nand from the relevant dewatering	gunit (S24DM01/02/03).		/ AF		1						
		mand from the relevant dewatering			A111 T								
					1145								
	DRIVE CONDITION						-						
		IOPPER WEIGHT (S25IWE11 to 61)	TO BE BELOW "H.H.W.E"										┣—
	2. NOT FAULT CONDI	TION (MCCB, THRY, OCG)											<u> </u>

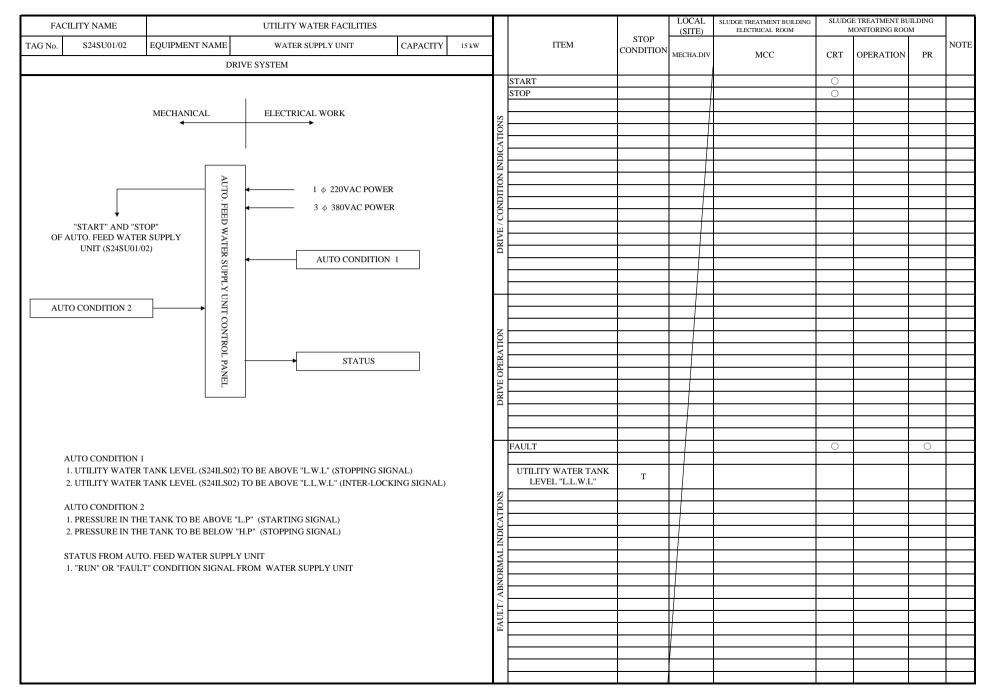
FACILITY NAME		DEWATERING UNTIS				am	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM		E TREATMENT BU MONITORING ROO!		
TAG No. S25CH04-06	EQUIPMENT NAME	CAKE HOPPER (LEFT) (1/2)	CAPACITY 2.2+2.2 kV		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		DRIVE SYSTEM										
					SINGLE		$\bigcirc \times 6$		$\bigcirc \times 6$			
CAKE HOPPER					BOTH		$\bigcirc \times 6$		$\bigcirc \times 6$			
LOCAL OPERATION P	HOPPER OP	ERATION			OPEN		$\bigcirc \times 6$		$\bigcirc \times 6$			
[S25LOP01 to 03]	COS			ONS	STOP							
	SINGLE	BOTH		ATI	CLOSE							
		×6 SETS		DIC								
LEFT SIDE ONLY				<u>UNI N</u>	WEIGHT INDICATOR							
	\checkmark			LIOI								
PUSH-BUT	TON SWITCH			OITIO								
×6 SETS CLOSE S	TOP OPEN			õ								
XU SEIS		• • • • •]		VE/								
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OR	¥ • • •	AND	`		OPEN - STOP - CLOSE PBS							-
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AND			* SEE THE RIGHT SIDE	DRIVE OPERATION								
	AND C	DRIVE CONDITION 1		ΕO								
OR	< <u>−</u> ă			RIV								
×				Д								
AND		DRUE CONDITION A										
	AND	DRIVE CONDITION 2			DALIT T				$\bigcirc \times 6$		$\bigcirc \times 6$	
OR	NOT				FAULT				0.×6		0.×6	
Ŏ<					OVER LOAD	Т	$\bigcirc \times 6$					
AND		DRIVE CONDITION 3			OVER CURRENT GROUNDI	Т	$\bigcirc \times 6$					
0.0	AND V			SZ	OVER TORQUE	Т	$\bigcirc \times 6$					
OR	NOT			10LI								
				CAJ								
	TOP FORTH			NDICA								
	HOPPER	ETC.										
(LEF	T SIDE) ×6 S	E15		RM								
				ABNORMAL								┝
DRIVE CONDITION				~								
		closing directional not to be actuated during		FAULT								
		d closing directional TS not to be actuated durin	g opening and closing respectively	FAL								
3. NOT FAULT CONI	DITION (MCCB, THRY, OC	G)										<u> </u>
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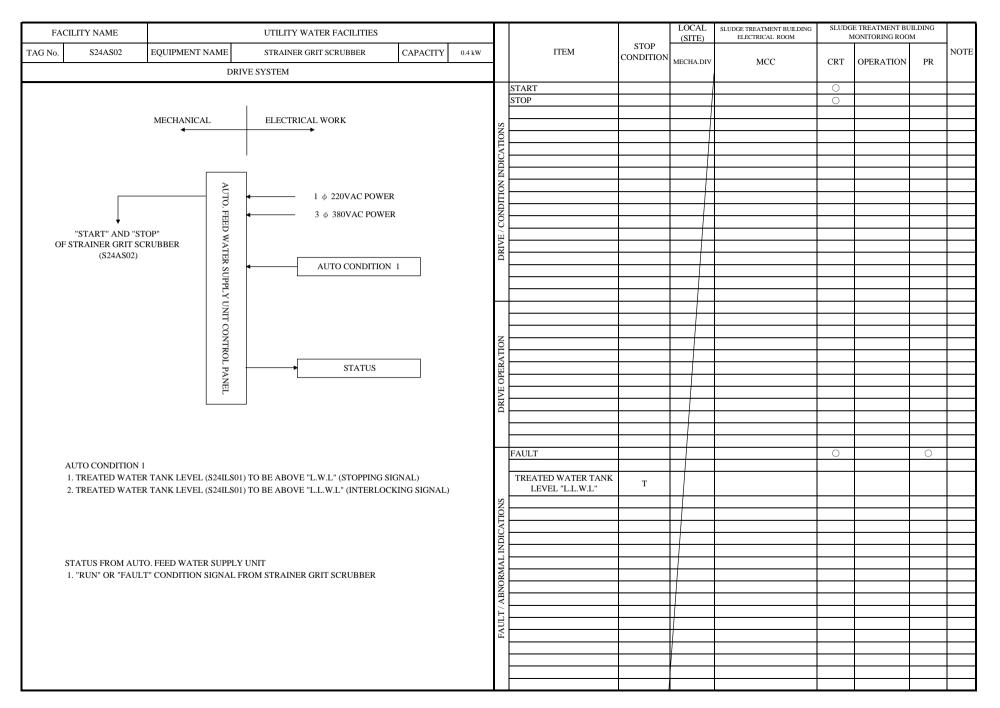


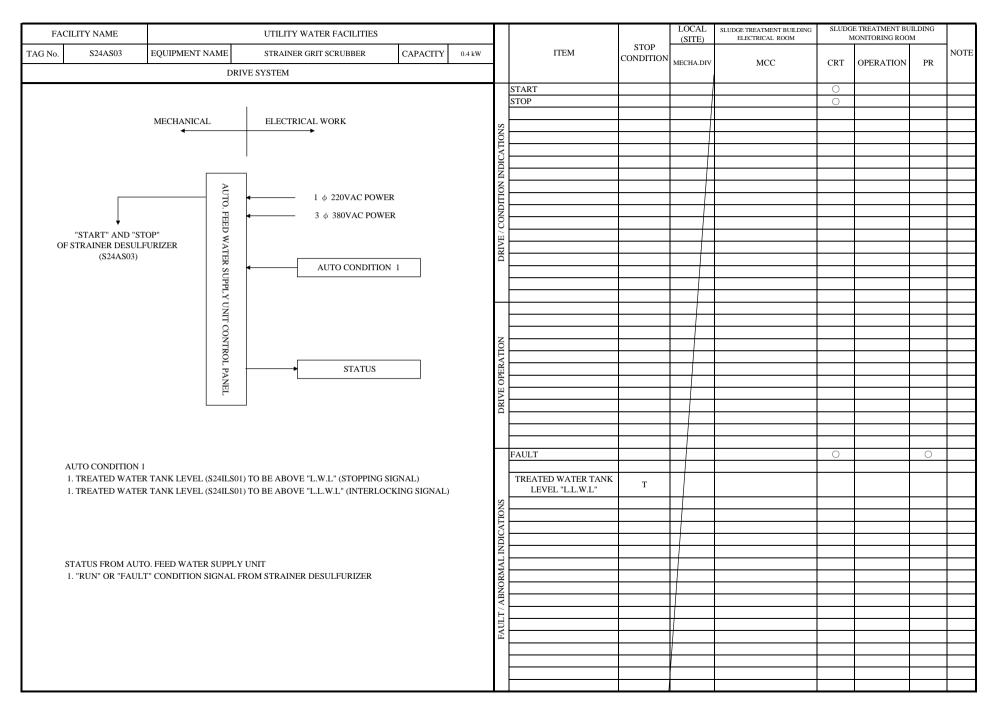


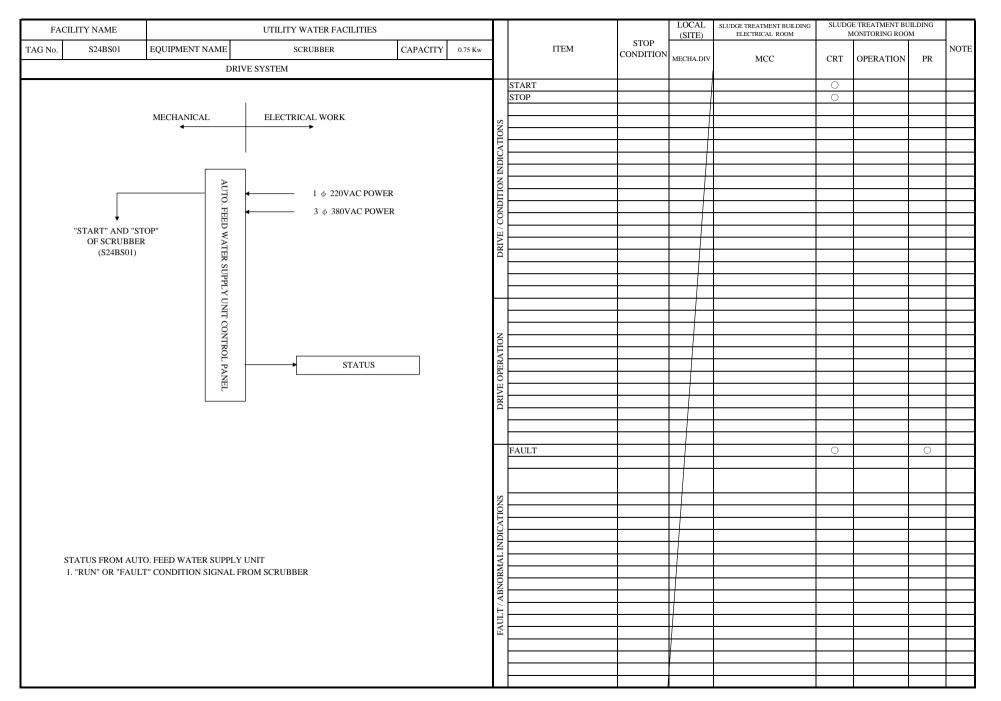












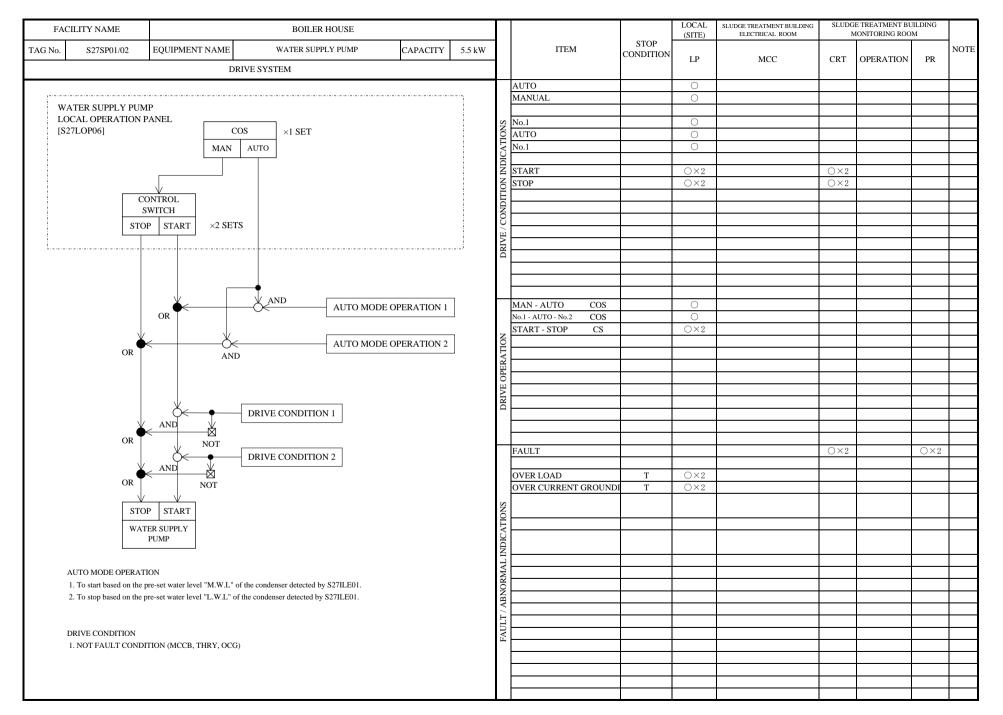
FAC	ILITY NAME						amon	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDG M	E TREATMENT BU IONITORING ROOI	ILDING M	
TAG No.	S24EF01/02	EQUIPMENT NAME	ODOR FAN	CAPACITY 3.7 kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		DR	RIVE SYSTEM										
						MANUAL		$\bigcirc \times 2$					_
						OFF		$\bigcirc \times 2$					
	ODOR FAN				~	START	-	$\bigcirc \times 2$		$\bigcirc \times 2$			
	LOCAL OPERAT	TION			4			$O \times 2$ $O \times 2$		$\bigcirc \times 2$ $\bigcirc \times 2$			
	PANEL	COS			ÅTI(5101		0.12		0.112	1		
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		NTORL SWITCH			0								+
					DRIVE / CONDITION INDICATIO								
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						START - STOP CS		$\bigcirc \times 2$					
		AND K	- DRIVE CONDITION										
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					DRIVE OPERATION								
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		, ,,				FAULT				$\bigcirc \times 2$		$\bigcirc \times 2$	
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	ST	OP START				OVER LOAD	Т	$\bigcirc \times 2$					
		ODOR FAN ×2 S	FT			OVER CURRENT GROUND	ΙТ	$\bigcirc \times 2$					
		ODOK FAN ×2 5			S								
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		DITION (MCCB , THRY ,	51GRY)		MAJ		1						1
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					Γ/Α								
					FAULT / ABNORMAL INDICATIONS								—
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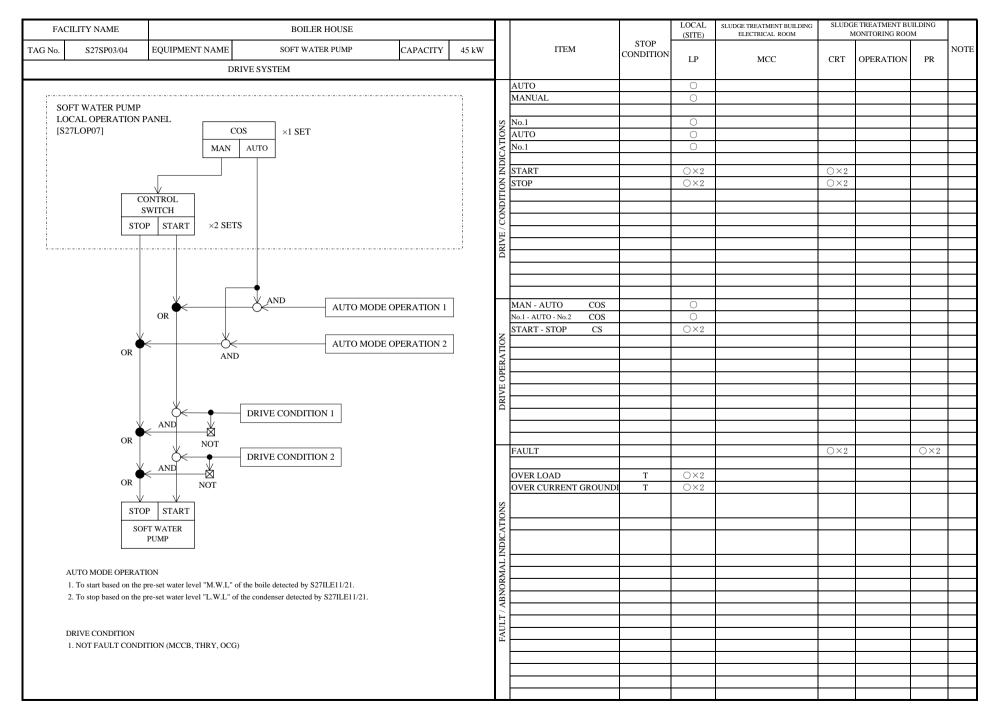
FAC	ILITY NAME		BOILER HOUSE				STOP	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDG	E TREATMENT BU IONITORING ROOI	ILDING M	
TAG No.	S27CG01/02	EQUIPMENT NAME	COAL GRINDER	CAPACITY	11 kW	ITEM	CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		DRI	IVE SYSTEM										
						MANUAL		$\bigcirc \times 2$					
						OFF		$\bigcirc \times 2$			-		
	COAL GRINDER					∽ START		$\bigcirc \times 2$		$\bigcirc \times 2$			
	LOCAL OPERAT	ION				O STOP		$\bigcirc \times 2$		$\bigcirc \times 2$			
	PANEL	COS				CAT							
	-												
	Ν	MANUAL OFF ×	2 SET										
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	CO	NTORL SWITCH				8							
						AE							
	ST	OP START ×2 SE	Т										\vdash
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						START - STOP CS		$\bigcirc \times 2$					
		AND K	- DRIVE CONDITION								-		
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	OR V	< NOT				ATI							
						DRIVE OPERATION							
						ā							
						FAULT				$\bigcirc \times 2$		$\bigcirc \times 2$	
	ST	OP START				OVER LOAD	Т	$\bigcirc \times 2$					
						OVER CURRENT GROUN		$\bigcirc \times 2$ $\bigcirc \times 2$					
	C	DAL GRINDER ×2 SE	12										L
						FAULT / ABNORMAL INDICATIONS							
						TAT							
Г	DRIVE CONDITION					ц 1	1						
		DITION (MCCB , THRY , O	OCG)			EMA							
						NOR							
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FAC	ULITY NAME		BOILER HOUSE				ares	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDG M	E TREATMENT BUI IONITORING ROOM	ILDING M	
ΓAG No.	S27CB01/02	EQUIPMENT NAME	COAL BOILER	CAPACITY 11 kW		ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		DRIVE	SYSTEM										
						MANUAL		$\bigcirc \times 2$					
						OFF		$\bigcirc \times 2$					
	COAL GRINDER				SN	START		$\bigcirc \times 2$		$\bigcirc \times 2$			
	LOCAL OPERAT	ION						$\bigcirc \times 2$		$\bigcirc \times 2$			
	PANEL	COS			CAT								
	-				DIC								
	N	MANUAL OFF ×2 SE	ET		ίIΖ								
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	CO	NTORL SWITCH			00								
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	ST	OP START ×2 SET			DRIVE / CONDITION INDICATIO								+
			<u> </u>		[+
						START - STOP CS		$\bigcirc \times 2$					
		AND C	DRIVE CONDITION										
					Z								
	OR	<			ATIC								
		NOT			ÞER.								
					DRIVE OPERATION								
					SIV								-
					Ð								
		<u> </u>				FAULT				$\bigcirc \times 2$		$\bigcirc \times 2$	
	ST	OP START				OVER LOAD	Т	$\bigcirc \times 2$					+
						OVER CURRENT GROUND		$O \times 2$ $O \times 2$					+
	C	OAL BOILER ×2 SET					-	0.14					
					NO								
					ЧT								_
					DIC								
т	DRIVE CONDITION				Ľ								+
		DITION (MCCB , THRY , OCG	i)		MAJ								
					IOR								
					ABN]		
					FAULT / ABNORMAL INDICATIONS								+
					AUL								
					F,								
]		\vdash
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FAC	CILITY NAME		BOILER HOUSE				amon	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDC N	E TREATMENT BU MONITORING ROOI	ILDING M	
TAG No.	\$27CC01	EQUIPMENT NAME	COAL CONVEYOR	CAPACITY	11 kW	ITEM	STOP CONDITION	LP	МСС	CRT	OPERATION	PR	NOT
		DRI	IVE SYSTEM										
						MANUAL		0					
						OFF		0					
	COAL CONVEY					START		0		0			
	LOCAL OPERA PANEL	TION				O STOP		0		0			
	TANEL CROW	COS											
		075											
		MANUAL OFF ×	1 SET										
		V											
	0	ONTORL SWITCH				o							
	G	TOP START											1
		×I SE				ā							
	•	+											
					-	START - STOP CS		0					
			DRIVE CONDITION										
						z							
	OR												
		NOT				EK							
						ā							
						FAULT				0		0	<u> </u>
	S	TOP START				OVER LOAD	Т	0					
		OAL CONVEYOR ×1 SE	FT			OVER CURRENT GROUN	DI T	0					
		SAE CONVETOR AT SE				St	_						<u> </u>
						é							
	DRIVE CONDITION					- TF							
	I.NOT FAULT CON	NDITION (MCCB, THRY, O	UCG)										
						BNC							1
						FAULT / ABNORMAL INDICATIONS							
													<u> </u>
						FA	+						┢
													\vdash

FAC	ILITY NAME		BOILER HOUSE				amor	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDG	E TREATMENT BUI IONITORING ROOM	ILDING M	
G No.	S27AO01/02	EQUIPMENT NAME	ASH CONVEYOR	CAPACITY	1.5 kW	ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NO
		DRIV	E SYSTEM										
						MANUAL OFF		0					
						OFF		0					
	ASH CONVEYO					♀ START		$\bigcirc \times 2$		$\bigcirc \times 2$			
	LOCAL OPERA PANEL					STOP		$\bigcirc \times 2$		$\bigcirc \times 2$			
		COS						-					-
		MANINA OFF											-
		MANUAL OFF ×2	SETS										
								-					-
		ONTORL SWITCH											+
	s	TOP START	_										L
		~2 SETS	1										
	•												╞
													┢
					F	START - STOP CS		$\bigcirc \times 2$					
			DRIVE CONDITION										
	,					z							+
	OR												+
		NOT											
						ō							
						<u> </u>							+
	, ,					FAULT				$\bigcirc \times 2$	+ +	$\bigcirc \times 2$	╞
	S	TOP START				OVER LOAD	Т	$\bigcirc \times 2$					-
		SH CONVEYOR ×2 SET	C.			OVER CURRENT GROUI		$\bigcirc \times 2$					
	A	SH CONVEYOR ×2 SET	3			2							
						<u> </u>							+
	DRIVE CONDITION												
	1.NOT FAULT CON	NDITION (MCCB, THRY, OC	2G)										╞
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FAC	ILITY NAME		BOILER HOUSE				(TOD	LOCAL (SITE)	SLUDGE TREATMENT BUILDING ELECTRICAL ROOM	SLUDG N	E TREATMENT BU	ILDING M	
G No.	S27SP05/06	EQUIPMENT NAME	HEATING PUMP	CAPACITY	11 kW	ITEM	STOP CONDITION	LP	MCC	CRT	OPERATION	PR	NOT
		DRIVE S	YSTEM										
						MANUAL		0					
						OFF		0					
	HEATING PUMP					START		$\bigcirc \times 2$		$\bigcirc \times 2$			
	LOCAL OPERAT	ION				O STOP		$\bigcirc \times 2$		$\bigcirc \times 2$			
		COS											
	-												
	N	IANUAL OFF ×1 SE	Г										
		V NTORL SWITCH											
		NIOKL SWITCH											
	ST	OP START SETS				KIVI							
		×2 SETS											
													-
					ľ	START - STOP CS		$\bigcirc \times 2$					
			RIVE CONDITION										
	\downarrow					z							-
	OR V	NOT				ATIO							
		NOT				DRIVE OPERATION							
													_
													-
						DALL T				0.148		0.14	╞
	¥	¥				FAULT				$\bigcirc \times 2$		$\bigcirc \times 2$	┢
	ST	OP START				OVER LOAD	Т	$\bigcirc \times 2$					
	ASI	H CONVEYOR ×2 SETS				OVER CURRENT GROUI	NDI T	$\bigcirc \times 2$					
	10					S							╞
													\vdash
						ICA							
	DRIVE CONDITION	DITION (MCCB , THRY , OCG)				IAL							┢
	LINOI FAULI CUNI	MININ (WILLD, THET, ULG)											┢
						FAULT / ABNORMAL INDICATIONS							\lfloor
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