																							PROTE	CTIVE	DEVICES	S AND	THFIR (FSIGNA	TIONS																									—
	TO R	15 KV. INC	DMING LIN	E NO.3		115 KV.	LINE TO	NAVA NAK	KHON 1 SU	JBSTATIO	115	KV. LINE	TO ROTCH	IANA 2 SU	JBSTATION	1 1	15 KV. LI	NE TO BA	NG KRAS	SAN 2 SU	BSTATION				NCOMING LIN 2 SUBS1					O BAN I	LANE 2 S	UBSTATIO	ON 115	KV. LINE	TO BAN	LATSAI	SUBSTAT	TION 1	15 KV. LI	INE TO BA	NG KRASA	N 1 SUBST	ATION		115 K	V. INCOM	ING LINE N	O.2 N(EGAT)		115 kV		115 kV	115 k	κν
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	LINE CURRENT DIFFERENTIAL RELAT (MAIN 1 ONL.) DISTANCE RELAY PHASE & GROUND ZONE #1 OR TELE PROTECTION	DISTANCE RELAY PHASE & GROUND ZONE #2 DISTANCE RELAY PHASE & GROUND	ZONE #3 DIRECTIONAL RELAY PHASE & GROUND OVERVINEENT RELAY WITH TELE PROTECTION		IAND FROM 50BF	DISTANCE RELAY PHASE & GROUND ZONE #1	PHASE	DISTANCE RELAY PHASE & GROUND ZONE #3 DIRECTIONAL RELAY PHASE & GROUND	OVERCURRENT RELAY LINE BREAKER FAILURE RELAYING	ACTINITED ANY TACK BELAY	DISTANCE RELAY PHASE & GROUND	DISTANCE RELAY PHASE & GROUND ZONE #2	DISTANCE RELAY PHASE & GROUND Zone #3	DIRECTIONAL RELAY OVERCURRENT RELAY	LINE BREAKER FALURE RELAYING	AC.UNDER/OVER VOLTAGE RELAY	DISTANCE RELAT PHASE & GROUND ZONE #1 OR TELE PROTECTION DISTANCE RELAY PHASE & GROUND		ZONE #3 DIRECTIONAL RELAY PHASE & GROUND	OVERCURRENT RELAY WITH TELE PROTECTION LINE BREAKER FAILURE RELAYING	AC.UNDER/OVER VOLTAGE RELAY	FFERENT	DISTANCE RELAY PHASE & GROUND ZONE #1 OR TELE PROTECTION DISTANCE RELAY PHASE & GROUND	ZONE #2	DISTANCE RELAY PHASE & GROUND ZONE #3 DIRECTIONAL RELAY PHASE & GROUND		AC.UNDER/OVER VOLTAGE RELAY TRIP COMMAND FROM 50BF EGAT	DISTANCE RELAY PHASE & GROUND ZONE #1	PHASE		DIRECTIONAL RELAY PHASE & GROUND OVERCURRENT RELAY		AC.UNDER/OVER VOLTAGE RELAY DISTANCE RELAY PHASE & GROUND	CONE #1 DISTANCE RELAY PHASE & GROUND ZONE #2	DISTANCE RELAY PHASE & GROUND ZONE #3	DIRECTIONAL RELAY PHASE & GROUND OVERCURRENT RELAY	LINE BREAKER FAILURE RELAYING	AC.UNDER/OVER VOLTAGE RELAY DISTANCE RELAY PHASE & GROUND	DISTANCE RELAT PRASE & UNCOND ZONE #1 OR TELE PROTECTION DISTANCE RELAY PHASE & GROUND	HASE B	ZONE #3 DIRECTIONAL RELAY PHASE & GROUND OVERCURRENT RELAY WITH TELE PROTECTION	ו רו	AC.UNDER/OVER VOLTAGE RELAY	LINE CURRENT DIFFERENTIAL RELAY (MAIN 1 ONLY) DISTANCE RELAY PHASE & GROUND	ZONE #1 OR TELE PROTECTION DISTANCE RELAY PHASE & GROUND ZONE #2	JONE #2 DISTANCE RELAY PHASE & GROUND ZONE #3	DIRECTIONAL RELAY PHASE & GROUND OVERCURRENT RELAY WITH TELE PROTECTION	LINE BREAKER FAILURE RELAYING AC.UNDER/OVER VOLTAGE RELAY	TRIP COMMAND FROM 50BF EGAT	BUS COUPLING BREAKER FAILURE RELAYING	RIS DIFFFRENTIAL RELAY	DIFFERENTIAL	S DIFFERENTIAL	CT SUPERVISION RELAY
LOCATION OF DEVICE (PNL.NO.)		LRP9	& LCP9				<u> </u>	RP8 & LO	CP8			-	LRP7 &	LCP7				LRP	6 & LC	P6	-			LF	P5 & LC	P5				LRP4 &c	LCP4			-	LRP3 &	LCP3				LRP	2 & LCP	2				LRP1 &	: LCP1		1	ВСР			BZP	
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NOTES

- 1. EACH RELAY LINE TERMINAL SHALL UTILIZE A LINE CURRENT DIFFERENTIAL RELAY OR A DISTANCE RELAY AS A DOUBLE MAIN PROTECTION WITH/WITHOUT PILOT TRIPPING SCHEME FOR PROTECTION OF 115 kV LINE AGAINST BOTH PHASE AND GROUND FAULTS AS FOLLOWS:
 - -FOR 115 kV. INCOMING LINE, A LINE CURRENT DIFFERENTIAL RELAY OR A DISTANCE RELAY SHALL BE USED WITH A DEDICATED FIBER-OPTIC CABLE AS A MAIN PROTECTION. THE DEDICATED FIBER-OPTIC CABLE SHALL BE USED AS A COMMUNICATION LINK TO PERMIT HIGH SPEED THREE-POLE INTERTRIPPING OF BREAKERS AT BOTH ENDS OF THE LINE. THE RECLOSURE FOR BOTH LINE CURRENT DIFFERENTIAL RELAY AND DISTANCE RELAY ZONE#1 SHALL BE DONE THROUGH A SYNCHRO-CHECK RELAY.
 - -FOR 115 kV. OUTGOING LINE, A LINE CURRENT DIFFERENTIAL RELAY OR A DISTANCE RELAY SHALL BE USED AS A MAIN PROTECTION WITH PILOT TRIPPING SCHEME. DISTANCE RELAY ZONE#1 SHALL BE USED FOR HIGH SPEED THREE-POLE TRIPPING AND RECLOSING. THE RECLOSURE SHALL BE DONE THROUGH A SYNCHRO-CHECK RELAY.
 - -FOR ZONE#2 AND ZONE#3 OF EACH DISTANCE RELAY, SHALL BE FURNISHED WITH A TIMING RELAY WITH TWO SEPARATE TIMING UNITS THAT WILL PROVIDE TIME-DELAYED TRIP FOR ZONE#2 AND ZONE#3.
 - -THE MAIN PROTECTION OF BOTH TYPES 115 kV LINES, SHALL BE LINE CURRENT DIFFERENTIAL RELAY, PHASE/GROUND DISTANCE RELAY AND DIRECTIONAL PHASE/GROUND OVERCURRENT RELAY FOR PHASE AND GROUND FAULT PROTECTION.
 - -FOR BOTH TYPES OF THE 115 kV LINE, EACH PHASE AND GROUND RELAY SHALL BE PROVIDED WITH A PROVISION OF VOLTAGE-POLARIZED DIRECTIONAL UNIT.
- 2. THE BREAKER FAILURE AUXILIARY TRIPPING AND LOCKOUT RELAY (86BF) SHALL BE INITIATED BY LINE OR TRANSFORMER PROTECTION, AND IT SHALL TRIP ALL BUS NO.1 BREAKERS AND THE BUS COUPLING BREAKER WHEN THE FAILED BREAKER IS CONNECTED WITH THE BUS NO.1 OR TRIP ALL BUS NO.2 BREAKERS AND THE BUS COUPLING BREAKER WHEN THE FAILED BREAKER IS CONNECTED WITH THE BUS NO.2.
- 3. ALL PROTECTIVE TRIPPING FUNCTION ENERGIZED BOTH TRIP COILS OF 115 kV. CIRCUIT BREAKER.
- 4. THE CONTRACTOR SHALL PROVIDE ALL AUXILIARY EQUIPMENT AND ACCESSORIES TO COMPLETE THE ABOVE FUNCTION.

LRP9& LCP9	 	 LRP5& LCP5	 	 	ВСР	BZP

SWING RACK TYPE CONTROL AND PROTECTIVE RELAY PANEL

BZP - BUS ZONE PROTECTION PANEL

BCP - BUS CONTROL PANEL

LRP - LINE RELAY PROTECTION PANEL

LCP - LINE CONTROL PANEL

LEGEND	EXPLANATION
Y HS ER SR TR T L TL1	YES HIGH SPEED ELECTRICAL RESET SELF RESET 3-POLE TRIP AND RECLOSE 3-POLE TRIP- NO RECLOSING 3-POLE TRIP AND LOCKOUT BREAKER TRIP FOR CB FAIL (TIME DELAY) VIA BUSBAR PROTECTION TRIP BY GOOSE DIRECT TRANSFER TRIPPING
T ₁	LOCKOUT RELAY TRIP FROM INCOMING 50BF VIA REMOTE I/O MODULE

				BI	B-P
กองออกแบบสถานีไฟฟ้า ฝ่ายงานสถานีไฟฟ้า	การไฟฟ้าส่ว	นภูมิภาค		บบ โดยแบบ	
ผู้เขียน สุวิกรม ผู้สำรวจ สุวิกรม ศุภชัย วิศณาร สวิกรม	ผู้ว่าการ	(แทน)	์ เขียนเสร็		M.A. 2564
หัวหน้าแผนก <u>วรเวช</u> ผู้อำนวยการกอง	สถานีไฟฟ้าบางปะอิน 2 จั พังก์ชั่นการทำงานขอ		มิติเป็น_ มาตราส่		
รองผู้ว่าการวิศวกรรม 	BANG PA IN 2 PHRA NAKHON SI AYL PROTECTIVE DEVI	ITTHAYA PROVINCE		ที <u>่ FA4-01</u> _ของจำนว	<u> 11/64048</u> วน_1_แผ่น

REFERENCE DRAWING

- SINGLE LINE-METERING AND RELAYING DIAGRAM......DWG NO. FA4-011/64047