



Form G5-1

PG&E LOG _____
 WO/GM _____
 D&C _____

**PACIFIC GAS AND ELECTRIC COMPANY
 GENERATION PRE-PARALLEL INSPECTION**

Name of Project: _____
 Location: _____

Transmission Line No. _____ Distance Circuit No. _____

1. Maintenance Data:

Generation Customer's Maintenance Chief _____
 Telephone Number _____
 Generation Customer's Regular Maintenance Interval _____
 Electrical Contractor _____

2. Test Reports Attached: Yes _____ No _____

If not, who has the reports: _____

3. Generation Facility Manual Disconnect Device for PG&E Line Clearances:

Manufacturer _____
 Model Number _____
 PG&E Device Number _____

4. Designated PG&E Electric Control Center _____

5. PG&E Inspector _____
 NAME PHONE NO.

Date Inspection Performed: _____
 Date Facility Placed on 30 Day Test Released: _____

Distribution:

- PG&E Designated Electric Control Center (1)
- Division Project Coordinator (1)
- Marketing Services (1)
- Power Contracts (1)
- GM&C Area Engineering (1)
- System Dispatch (1)



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(Continued)

PG&E LOG _____
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PACIFIC GAS AND ELECTRIC COMPANY GENERATION PRE-PARALLEL INSPECTION

1a. Generator Nameplate: _____ kW _____ Volts _____ Pf _____ 1φ _____ 3φ

b. Generator Type: _____ Synchronizing: _____ Connection: _____
_____ Synchronous _____ Auto _____ WYE-Ground
_____ Induction _____ Manual w/ Relay _____ WYE-Ungrounded
_____ DC w/ Inverter _____ Delta

Manufacturer _____ Serial No. _____

c. Generator Prime Mover:

Wind _____ Water _____ Steam _____ Solar _____ Fuel Cell _____

Other, specify _____

d. Generator Breaker or Contactor:

Manufacturer _____ Serial No. _____

_____ Thermal/Magnetic Overcurrent
_____ Undervoltage Release (optional under 40kW)
_____ DC Shunt Trip (required over 40kW) w/battery _____ Capacitor Trip _____
_____ Control Voltage _____ (Not acceptable for use)

2. Dedicated Transformer: Yes _____ 3φ _____ 1φ _____ 3-1φ _____
No _____ Bank of 3-1φ _____

Customer owned _____ PG&E owned _____
Bank Rating: _____ KVA Transformer _____ % _____ MVA Base

Transformer Connection: Primary _____ volts
Secondary _____ volts

Protected by: Fuse Size _____ Amps _____ Other _____

3. Ground Protection Required: Yes _____ No _____

If Yes, type of ground detection (check type):

_____ Ground Bank with overcurrent relay.
_____ Broken Delta Ground Bank with low pick up overvoltage relay.
_____ Ground Overcurrent relay in neutral or dedicated transformer.
_____ Low voltage pick up overvoltage relay in elevated neutral of dedicated transformer.
_____ Other _____



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(Continued)

GENERATION PRE-PARALLEL INSPECTION

PROTECTIVE DEVICES:

RELAY	Standard Device Number	Required Yes/No	Mfr and Model	Settings	Specific Breaker Tripped	Date of Function Test	PG&E Inspector Initials
Zone 1 Distance	21Z1						
Zone 2 Distance	21Z2						
Directional Phase O.C.	67						
Directional Ground O.C.	67N						
Non-directional O.C.	50/51						
Ground or Neutral O.C.	50/51N						
Overvoltage Ground	59N						
Overcurrent with voltage restraint	51V						
Underfrequency	81U						
Overfrequency	81O						
Synchronizing	25						
Auto Synchronizing	15/25						
Undervoltage	27						
Overvoltage	59						
Transfer Trip From:							
Transfer Trip From:							
Reclose Block at:							
Reclose Block at:							

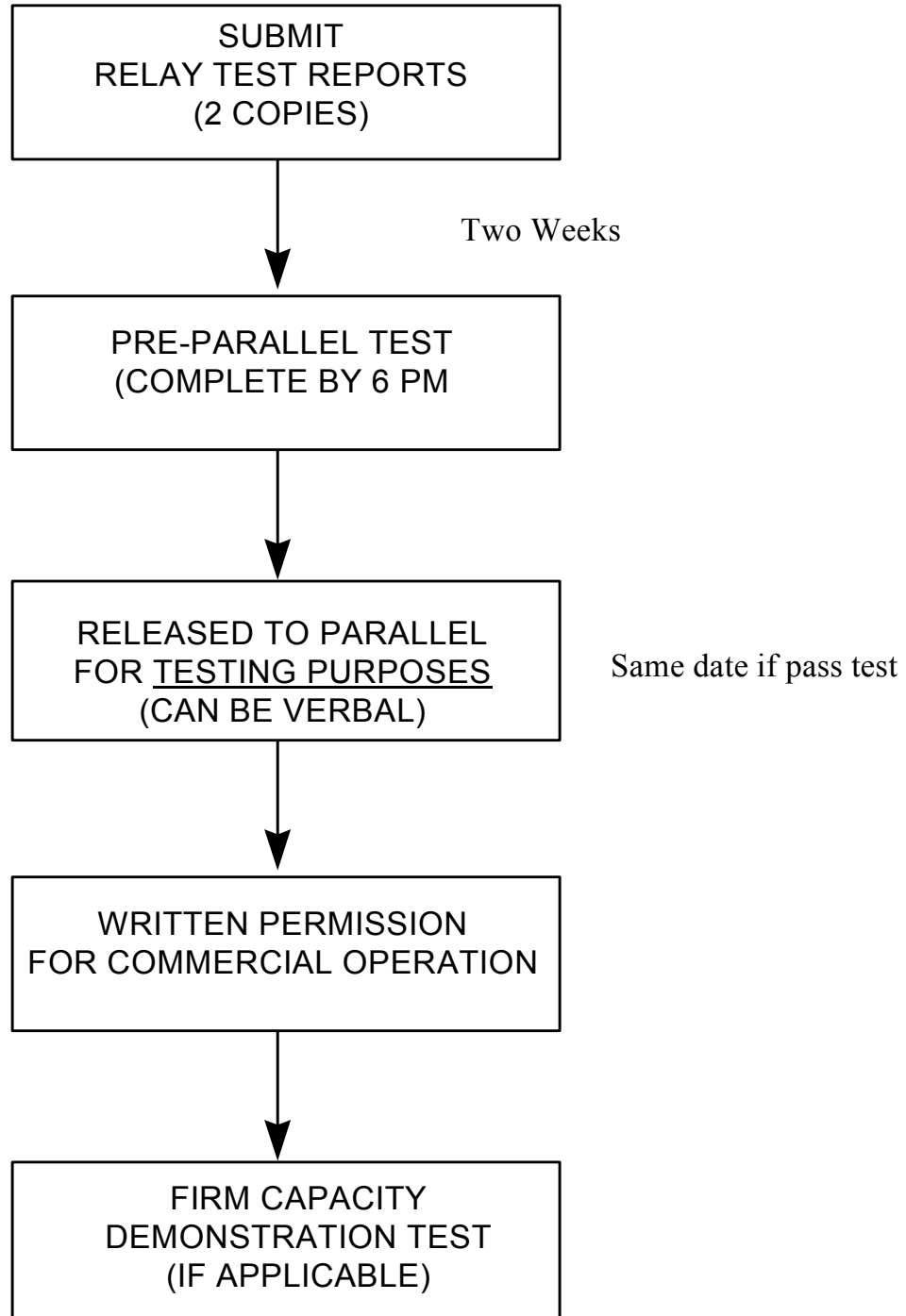
GENERATORS OPERATION:

- (A). Verify operation of the generator(s) at 0.90 P.F. lag and at 0.95 P.F. lead while delivering rated output: PG&E inspector initials _____
- (B). Verify operation of the generator(s) at 1.05 per unit voltage while delivering rated output: PG&E inspector initials _____



Figure G5-1

SIMPLIFIED FLOW CHART OF PRE-PARALLEL / PARALLEL TEST PROCEDURE





Form G5-2

POWER GENERATION - HYDRO GENERATION VOLTAGE RESTRAINT OVERCURRENT RELAY LOAD CHECK FORM #74-961

Powerhouse _____ Unit NO. _____ PT Ratio _____
 Date _____ Device NO. _____ Type _____
 Tested By: _____ Gen. Nameplate Voltage Rating _____

LOAD CONDITIONS:

AMPS _____ VOLTS _____ MW _____ (IN) (OUT) MVAR _____ (IN) (OUT)

REFERENCE PHASE ANGLES USING GENERATOR A PHASE CURRENT:

MAIN TRANSF. HIGH SIDE POTENTIAL: 5(4-0) _____ 5(6-0) _____ 5(8-0) _____

PHASE ANGLES: (SOURCE OF POTENTIAL IS) _____

GENERATOR POTENTIAL TRANSFORMERS CONNECTED: OPEN Δ _____ WYE _____

SEC. AMPS	POTENTIAL		READINGS TAKEN IN METERING BLOCKS			
	Y OR Δ		Y OR Δ		Y OR Δ	
_____	5(4-0)	(4-8)	_____	5(4-0)	(4-8)	_____
_____	7(6-0)	(6-4)	_____	5(6-0)	(6-4)	_____
_____	9(8-0)	(8-6)	_____	5(8-0)	(8-6)	_____

MAIN TRANSFORMER BANK CONNECTED: $Y/_{AB} DELTA$ _____ $Y/_{AC} DELTA$ _____

Y T TRANSFORMER CONNECTED: $AB DELTA/_{Y}$ _____ $AC DELTA/_{Y}$ _____

PHASE ANGLES: (SOURCE OF POTENTIAL IS) _____

SEC. AMPS	READINGS TAKEN AT RELAYS			
	_____	5(4-0)	_____	5(4-0)
_____	7(6-0)	_____	5(6-0)	_____
_____	9(8-0)	_____	5(8-0)	_____

	CONTACTS: OPEN / CLOSING				
	NORMAL ONE PHASE				
	CURRENT	POTENTIAL	Ø ANGLE	POTENTIAL	POT'L REMOVED
AØ RELAY	_____	_____	_____	_____	_____
BØ RELAY	_____	_____	_____	_____	_____
CØ RELAY	_____	_____	_____	_____	_____

