



GOBIERNO DE PUERTO RICO
Autoridad de Energía Eléctrica de Puerto Rico

August 23 2021

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San Juan Plant Manager

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STEAM UNIT 5 / UNIT 6 STEAM / CT REPORT ON AUGUST 22, 2021

Facts

1. Units was generating 330 MW in combine cycle:
 - a. Unit 5
 - i. CT 122 MW
 - ii. STG 43 MW
 - b. Unit 6
 - i. CT 123 MW
 - ii. STG 42 MW
2. At 12:25 p.m. an electrical disturbance in the transmission line system affected the voltage at San Juan Power Plant, causing steam units 5 and 6 to shut down.
3. At 12:05:04 p.m. the automatic transfer from gas to diesel was activated for both units`
 - a. Steam Unit 5 was taken out of service at 12:25:03 pm by opening the exit switch.



b. Steam unit 6 went out of service at 12:25:05 p.m. by losing the servo control system due to voltage variation.

c. Combustion unit 6 began to have problems with the levels of the boilers due to the firing of the steam turbine that affected the temperature of the high-pressure boiler, taking the unit out of service at 12:30 p.m. with 100 MW.

d. Combustion Unit 5 remained in service with approximately 50 MW.

4. Combustion Unit 6 go in service at 1:46 p.m on August 22.
5. Steam unit 6 entered service at 4:17 p.m. on August 22
6. Steam unit 5 entered service at 10:26 a.m. on August 23, 2021

Reference

Alarms: Steam Unit 6 forced shutdown

Green arrow –12: 05: 02 pm began the voltage fluctuation affecting equipment of the unit.

Yellow arrow - 12:05:04 pm activates the automatic transfer of gas to diesel fuel.

Blue arrow- 12:25:05 pm forced shutdown of steam unit due to low pressure of the servo control system.

STEAM UNIT 5/ UNIT 6 STEAM / CT REPORT ON AUGUST 22, 2021

Date/Time	Alarm Type	Code	Point Name	Point Description	AP	Value	Q	Units(A) State
08/22/2021 12:24:51	RETURN	6HRTE0003AC-DEV.UNITS@NET6	HR TBPV OTL TMP TX	3	NORM	0		
08/22/2021 12:25:00	ALARM	6SLQSL2223.UNITS@NET6	STG LO HDR PRESS	1	ALARM	0		
08/22/2021 12:25:02	RETURN	6SLQPPA0009.UNITS@NET6	STG EBRG LO PP 000	2	READY	1		
08/22/2021 12:25:02	RETURN	6HRTE0003AC-DEV.UNITS@NET6	HR TBPV OTL TMP TX	3	DEV	1		
08/22/2021 12:25:02	ALARM	6CDPMP52AOVRLD.UNITS@NET6	6 CD PMP 2A OVERLO	1	OK	0		
08/22/2021 12:25:03	ALARM	6FOMOV000404B.UNITS@NET6	DCS HEALTHY TO PR	1	TRUE	1		B
08/22/2021 12:25:02	SENSOR	6FOMOV000404B.UNITS@NET6	FUEL OIL MOV ALRM	3	NORMAL	0		B
08/22/2021 12:25:02	SENSOR	6FOMOV000404B.UNITS@NET6	FUEL OIL MOV CLSD	4	FALSE	0		B
08/22/2021 12:25:02	SENSOR	6FOMOV000404B.UNITS@NET6	FUEL OIL MOV OPEN	4	FALSE	0		B
08/22/2021 12:25:02	ALARM	6FOMOV0004A-STAT.UNITS@NET6	FUEL OIL MOV OPEN	1	OK	0	0000000000000000	
08/22/2021 12:25:03	ALARM	6EGCEMS0517.UNITS@NET6	CTG 6 CEMS COMMO	2	ALARM	1		
08/22/2021 12:25:03	ALARM	6SLQPPA0009.UNITS@NET6	STG EBRG LO PP 000	2	ALARM	1		
08/22/2021 12:25:03	RETURN	6SLQSL2228.UNITS@NET6	STG LO HDR PRESS	1	NORM	1		
08/22/2021 12:25:03	RETURN	6HRTE0003AC-DEV.UNITS@NET6	HR TBPV OTL TMP TX	3	NORM	0		
08/22/2021 12:25:03	RETURN	6FOMOV000404B.UNITS@NET6	DCS HEALTHY TO PR	1	TRUE	1		
08/22/2021 12:25:03	RETURN	6FOMOV000404B.UNITS@NET6	FUEL OIL MOV CLOSE	4	FALSE	0		
08/22/2021 12:25:03	RETURN	6FOMOV000404B.UNITS@NET6	FUEL OIL MOV OPEN	4	FALSE	0		
08/22/2021 12:25:03	RETURN	6CDPMP52AOVRLD.UNITS@NET6	6 CD PMP 2A OVERLO	1	OK	0		
08/22/2021 12:25:03	RETURN	6FOMOV0004A-STAT.UNITS@NET6	FUEL OIL MOV OPEN	1	OK	0	0000000000000000	
08/22/2021 12:25:03	ALARM	6WATERBATH-9-STS.UNITS@NET6	Water Bath Blower B St	1	ALARM	0		
08/22/2021 12:25:04	RETURN	6EGCEMS0517.UNITS@NET6	CTG 6 CEMS COMMO	2	NORMAL	0		
08/22/2021 12:25:04	ALARM	6-AUTO-WFER-TRIG.UNITS@NET6	EMERGENCY TRANSF	1	ALARM	1		
08/22/2021 12:25:04	RETURN	6FOMOV000404B.UNITS@NET6	FUEL OIL MOV ALARM	3	AL	1		
08/22/2021 12:25:04	RETURN	6HVOLT001.UNITS@NET6	US MAIN XFMR OIL LE	1	NORM	0		
08/22/2021 12:25:05	RETURN	6SLQPS2257L.UNITS@NET6	STM TRB BRG MOP B	1	FALSE	0		
08/22/2021 12:25:05	ALARM	6HCP32277.UNITS@NET6	STG HYD FLUID SUPP	2	LOW	0		
08/22/2021 12:25:05	ALARM	6HCP32278.UNITS@NET6	STM TURB HYD SKE	1	TRIP	0		
08/22/2021 12:25:05	ALARM	6HCP32279.UNITS@NET6	STM TURB HYD MANA	1	TRIP	0		
08/22/2021 12:25:05	ALARM	6HCP32280.UNITS@NET6	STM TURB EMER TRIP	2	TRIP	0		
08/22/2021 12:25:05	ALARM	6HCP32281.UNITS@NET6	STM TURB TRIP SOL	4	TRIP	0		
08/22/2021 12:25:05	ALARM	6HCP32282.UNITS@NET6	STM TURB EMER TRIP	2	TRIP	0		
08/22/2021 12:25:05	ALARM	6HCP32283.UNITS@NET6	STM TURB TRIP SOL	4	TRIP	0		
08/22/2021 12:25:05	ALARM	6MV52C0001.UNITS@NET6	MVCB-001 STG BREAK	2	OPEN	0		
08/22/2021 12:25:05	ALARM	6MV52C0001.UNITS@NET6	STG BKR VCB-001 CLO	3	OPEN	0		
08/22/2021 12:25:05	ALARM	6STG600001P.UNITS@NET6	STG GEN LOCKOUT-2	2	TRIP	0		
08/22/2021 12:25:05	ALARM	6STG600001S.UNITS@NET6	STG GEN LOCKOUT-1	2	TRIP	0		
08/22/2021 12:25:05	ALARM	6STG0PR19MTRIP.UNITS@NET6	6STG SIMUL TANGOU	1	ALARM	1		
08/22/2021 12:25:05	ALARM	6STG0PR2001.UNITS@NET6	6STG SQUENTIAL P	2	ALARM	1		
08/22/2021 12:25:05	ALARM	6STG0PR23MTRIP.UNITS@NET6	6STG SIMUL TANGOU	1	TRIP	1		
08/22/2021 12:25:05	ALARM	6STG0PR24MTRIP.UNITS@NET6	ST GEN PROT TRIP	1	TRIP	1		
08/22/2021 12:25:05	ALARM	6STTRIP.UNITS@NET6	STEAM TURBINE TRIP	1	ALARM	1		
08/22/2021 12:25:05	RETURN	6STP20001A.L.UNITS@NET6	HR STM PRESS LIMIT	1	OFF	0		
08/22/2021 12:25:05	ALARM	6HSFT4005.RQ.UNITS@NET6	HP SH NO2 OUTLET F	3	BAD	1		
08/22/2021 12:25:05	ALARM	6HSFT4005-DEV.UNITS@NET6	HP SH NO2 OUTLET F	3	DEV	1		
08/22/2021 12:25:05	RETURN	6HSFT4003-RO.UNITS@NET6	HP REHTR NO2 OTL FL	3	NORM	0		
08/22/2021 12:25:05	RETURN	6HSFT4003-DEV.UNITS@NET6	HP REHTR NO2 OTL FL	3	NORM	0		
08/22/2021 12:25:06	ALARM	6HCP32277.L.UNITS@NET6	STG HYD FLUID SPLY	3	TRUE	1		
08/22/2021 12:25:06	ALARM	6HCP32277.L.UNITS@NET6	STG HYD FLUID SUPP	3	LO	1		
08/22/2021 12:25:06	ALARM	6EGCEMSAMP.PRESS.UNITS@NET6	CTG 6 CEMS COMMO	2	ALARM	1		
08/22/2021 12:25:06	ALARM	6MV52C0001A.UNITS@NET6	CTG 6 CEMS SAMPLE	3	ALARM	1		
08/22/2021 12:25:06	ALARM	6MV52C0001B.UNITS@NET6	MVCB-001 STG BREAK	2	TRIP	1		
08/22/2021 12:25:06	ALARM	6MV52C0001C.UNITS@NET6	MVCB-001 STG BREAK	2	TRIP	1		
08/22/2021 12:25:06	ALARM	6HPT5VPRRISE.UNITS@NET6	6HP TBV PRIORITY R	1	RISE	1		
08/22/2021 12:25:06	RETURN	6STDVOC001-AOP.UNITS@NET6	SV-1 DSC HFT SEAT	3	TRUE	1		
08/22/2021 12:25:07	ALARM	6WATERBATH-9-STS.UNITS@NET6	Water Bath Blower B St	1	NORMAL	0		
08/22/2021 12:25:07	RETURN	6HCPD5H2286.UNITS@NET6	STG HYD PMP B DUC	4	ALARM	0		
08/22/2021 12:25:07	LOW2	6STDLT0700.UNITS@NET6	HP STM PRESS LIMIT	1	OFF	0		
08/22/2021 12:25:07	RETURN	6STDLT0700.UNITS@NET6	LP FW 2 HTR LEVEL	2	15.66			IN
08/22/2021 12:25:07	RETURN	6FOP12015.UNITS@NET6	FUEL OIL SUPPLY HDR	1	141.60			PSIG
08/22/2021 12:25:07	RETURN	6FOP2015.LL.UNITS@NET6	FUEL OIL SUPPLY HDR	3	FALSE	0		
08/22/2021 12:25:07	RETURN	6FOP2015.LL.UNITS@NET6	FUEL OIL SUPPLY HDR	3	FALSE	0		
08/22/2021 12:25:08	SENSOR	6STPT2206.UNITS@NET6	STEAM TURBINE IP IN	3	4.73			PSIG
08/22/2021 12:25:09	RETURN	6MV52C0001A.UNITS@NET6	MVCB-001 STG BREAK	2	N/A	0		
08/22/2021 12:25:09	RETURN	6MV52C0001B.UNITS@NET6	MVCB-001 STG BREAK	2	N/A	0		

Alarm forced shutdown Unit Steam 5

STEAM UNIT 5/ UNIT 6 STEAM / CT REPORT ON AUGUST 22, 2021

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8/22/2021 4:54:56 PM	RETURN	5STVHH2357	ST5 BENTLY RACK CH 2	1	U
8/22/2021 4:32:34 PM	ALARM	5STDMOVA2381	STM TURB DRN MOV ALARM	1	A
8/22/2021 3:54:35 PM	ALARM	5SLOZSH2223	STG TG ENGAGED	3	A
8/22/2021 3:00:34 PM	ALARM	5STSS2227	ST5 BENTLY RACK CH 6	1	U
8/22/2021 3:00:25 PM	RETURN	5STXDXD2304	ST TURB ZERO SPEED	1	A
8/22/2021 2:58:54 PM	ALARM	5SLOZSL2223	STG TG DISENGAGED	3	A
8/22/2021 12:52:28 PM	ALARM	0SACMPA0001BA	SERVICE AIR CPRSR B ALARM	3	C
8/22/2021 12:34:34 PM	ALARM	0SACMPR0001AA	SERVICE AIR CPRSR A RUM	2	C
8/22/2021 12:28:01 PM	RETURN	5-FG-PRESS-HHDEV	FG PRESS HHDEV FROM STPT	1	G
8/22/2021 12:28:01 PM	RETURN	5-FG-PRESS-HDEV	FG PRESS HDEV FROM STPT	1	G
8/22/2021 12:26:07 PM	RETURN	5STDLS0760-L	LP FW HTR-2 LEVEL LO	3	A
8/22/2021 12:25:22 PM	RETURN	5EXRC0010-CLSF	EXT STM REV CURR VLV FAIL CLS	2	A
8/22/2021 12:25:05 PM	RETURN	5STGEXD010	5STG EXCITATION ON	3	A
8/22/2021 12:25:03 PM	RETURN	5STGEXD0004	EXT XFMR MVR MODE SELECTED	2	A
8/22/2021 12:25:03 PM	RETURN	5MV52RC8001	ST5 BKR VCB-001 STATUS	3	A
8/22/2021 12:25:03 PM	RETURN	5MV52GC8001	MVCB-001 STG BREAKER OPEN	1	A
8/19/2021 8:43:11 AM	ALARM	5HVOLT001	5HV0FMR001 OIL LEVEL LOST	1	H
8/17/2021 5:05:05 PM	ALARM	5OFFSITESP	STOP OFF SITE MILLING PUMP	3	A
8/17/2021 9:35:10 AM	ALARM	5EXAOVC0032-CLSF	EXT STM DRIF MOV FAIL CLS	2	A
8/17/2021 8:16:32 AM	SENSOR	5CDTE0561	COND EXT PUMP A DISCHG TEMP	3	A
8/17/2021 3:18:15 AM	ALARM	5OWUA0001	TBN BLDG SUMP A TRBL ALM	2	A
8/17/2021 12:02:31 AM	ALARM	5CCWMOV80PW	FO STG TNK 18 OIL RET VLV OPN	2	A
8/16/2021 12:29:18 PM	ALARM	5-39V3AA	BEARING 3 VIBRATION 3 IPS ALAR	1	A
8/16/2021 9:19:16 AM	ALARM	5MV0FMR63FA	UNT AUX XFMR001 OIL FLTR TRBL	1	U
8/14/2021 5:46:54 PM	ALARM	5FOPPA0002A	FUEL OIL DELIVERY PUMP A ALARM	3	A
8/13/2021 11:31:03 AM	ALARM	5DROP61			
8/12/2021 4:57:29 PM	SENSOR	5COTTE34503A	COLL AIR OUTLET TEMP (XT 037)	1	-
8/12/2021 4:19:32 PM	ALARM	0IANT0023AA	IA DRYER A OUT DEWPOINT	2	A
8/10/2021 2:25:25 PM	ALARM	0IAUA0013BA		1	C

Alarm forced shutdown Unit CT 6 12:32:35 pm

Date/Time	Type	Code	Point Name	Point Description	AP	Value	Q	Units(A) State
08/22/2021 12:32:16	ALARM		6HPSOVC0100.UNIT6@NET6	HP TBV OVERRIDE CL	3	OVERDE		
08/22/2021 12:32:20	RETURN		6CDTE0091-BQ.UNIT6@NET6	COND DRN TNK TEM	3	NORM	0	
08/22/2021 12:32:21	ALARM		6CDTE0091-BQ.UNIT6@NET6	COND DRN TNK TEM	3	BAD	1	
08/22/2021 12:32:22	RETURN		6CDTE0091-BQ.UNIT6@NET6	COND DRN TNK TEM	3	NORM	0	
08/22/2021 12:32:23	ALARM		6CDTE0091-BQ.UNIT6@NET6	COND DRN TNK TEM	3	BAD	1	
08/22/2021 12:32:26	ALARM		6CDLIT07AC-DEV.UNIT6@NET6	CONDENSER LEVEL T	3	DEV	1	
08/22/2021 12:32:30	RETURN		6EGAJ0502M-6.UNIT6@NET6	CTG 6 Stack NOX @	1	33.7		PPM
08/22/2021 12:32:35	ALARM		6CTGDI39103.UNIT6@NET6	CT EMERGENCY BOP	1	TRIP	0	
08/22/2021 12:32:35	ALARM		CT6BOPTRIP.UNIT6@NET6	CT6 BOP DROP 5 TRI	1	TRIP	0	
08/22/2021 12:32:36	ALARM		6CTGTI391TRIP.UNIT6@NET6	CT6 MSTR TRP RELA	1	TRIP	0	
08/22/2021 12:32:37	ALARM		6CTGTR39101.UNIT6@NET6	CT6 MSTR TRP BY FI	1	TRIP	0	
08/22/2021 12:32:37	ALARM		6-BLDPTH-TRIP-TRAP.UNIT6@NE	BLADE PATH GRAPHI	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-BOP-TRAP.UNIT6@NET6	BOP TRAP	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-BOP-TRIP.UNIT6@NET6	BOP TRIP	1	TRIP	1	
08/22/2021 12:32:37	RETURN		6-DEAD-RELAY-TRIP.UNIT6@NET	DEAD RELAY TRIP	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-GEN-BRKR-CLOSED.UNIT6@NE	SELECTED GEN BREA	2	OPEN	0	
08/22/2021 12:32:37	ALARM		6-LOAD-DUMP.UNIT6@NET6	LOAD DUMP	2	LD_REJ	1	
08/22/2021 12:32:37	ALARM		6-MASTER-TRIP.UNIT6@NET6	MASTER TRIP	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-NL4.UNIT6@NET6	TURBINE NOT RUNNI	3	N_RUN	1	
08/22/2021 12:32:37	ALARM		6-SEQUENCE-3-TRIP.UNIT6@NET	SEQUENCE 3 TRIP	1	TRIP	1	
08/22/2021 12:32:37	RETURN		6-SHUTDOWN-DUMP.UNIT6@NE	TURBINE SHUTDOW	2	LD_REJ	1	
08/22/2021 12:32:37	ALARM		6-L4.UNIT6@NET6	TURBINE RUNNING	3	NO	0	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-1-ACTIVE.UNIT6@N	ACTIV TRIP ON TRAP	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-1-LOCKED.UNIT6@N	TRAP SHT. 1 LOCK	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-2-ACTIVE.UNIT6@N	ACTIV TRIP ON TRAP	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-2-LOCKED.UNIT6@N	TRIP TRAP SHT. 2 LO	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-3-ACTIVE.UNIT6@N	ACTIV TRIP ON TRAP	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-3-LOCKED.UNIT6@N	TRAP SHT. 3 LOCKOU	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-4-ACTIVE.UNIT6@N	ACTIV TRIP ON DLN T	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6-TRIP-TRAP-4-LOCKED.UNIT6@N	TRAP SHT. 4 (DLN) LO	1	TRIP	1	
08/22/2021 12:32:37	ALARM		6CTGALSITRP.UNIT6@NET6	STM INJ TRIP	1	TRUE	1	
08/22/2021 12:32:37	ALARM		6CTGIGV-DEV.UNIT6@NET6	6 CTG IGV DEMAND D	1	TRUE	1	
08/22/2021 12:32:37	RETURN		6CTGMC15649.UNIT6@NET6	FUEL FORWARD PUM	2	OFF	0	
08/22/2021 12:32:37	ALARM		6CTG-EHC-DEV-ALM.UNIT6@NET	CTG SERVO DEVIATIO	1	ALARM		
08/22/2021 12:32:37	ALARM		PLANT-ESD-6.UNIT6@NET6	Plant ESD				
08/22/2021 12:32:37	ALARM		6CTGBS61422C.UNIT6@NET6	Plant ESD				

c Ing. Víctor L. Ortiz
Ingenieros de Turno