

2. RELIABILITY OF SUPPLY

There were 167 faults, 37 of which caused no interruption to supply. Several faults were cumulative, affecting more than one district. Some of these were due to the system being overloaded.

A detailed analysis of interruptions is shown on the following table. These do not include pre-arranged shutdowns due to load rationing :—

Description.	Year ended 31st March, 1947: Number.	Year ended 31st March, 1948.		Distributing Authorities affected.
		Number.	Duration.	
			h. m.	
1. 110 kV. lines : Defects	6	2	0 8	..
2. 110 kV. lines : External causes ..	6	6	1 30	4
3. 33 kV., 50 kV., or 66 kV. lines : Defects	11	2	1 23	1
4. 33 kV., 50 kV., or 66 kV. lines : External causes	13	2	0 30	2
5. 6-6 kV. or 11 kV. lines : Defects ..	3	10	48 46	3
6. 6-6 kV. or 11 kV. lines : External causes	2	1	5 29	1
7. Lightning	49	29	13 12	21
8. Storms : Nature of trouble not found ..	2	2	0 2	1
9. 110 kV. apparatus	2	7	203 37	5
10. 33 kV., 50 kV., or 66 kV. apparatus ..	9	6	0 24	4
11. 5 kV., 6-6 kV., 11 kV., or 22 kV. apparatus	30	8	5 24	6
12. Generators or synchronous condensers ..	1	4	11 58	..
13. Relays	5	12	0 46	7
14. Control circuits and batteries	10	4	0 6	2
15. Operation : Mistakes	6	12	0 54	10
16. Operation : Accidents	7	4	0 4	6
17. Faults and overloads on consumers' system	..	..	..	..
18. Other causes	82	32	13 54	23
19. Cause unknown	17	24	2 45	10
Totals	261	167	310 52	106

B. OPERATION AND MAINTENANCE

1. POWER-STATIONS

King's Wharf.—There was a fairly consistent demand on the station throughout the year. The oil-pump of No. 14 turbine gave trouble, which resulted in extensive repair work, including the replacement of shafts, bushes, and all driving-wheels. It was also necessary to rebuild the governor and its associated driving-gear. During the test run of the repaired turbine the lagging caught fire, due to an accumulation of oil. The services of the city brigade were necessary when the supply of chemical fire-fighting equipment, which had proved adequate for similar outbreaks in the past, became exhausted, but no damage was suffered by the plant. Severe vibration in No.12 turbine resulted in an investigation, which disclosed several rotor-blades shed, and the body blading and a delivery nozzle in bad condition. Pending the arrival of ordered spare parts, including a new rotor, the unit was made serviceable by the removal of the balance of the blades on the defective wheel. A cracked thrust-collar and several sets of pads were replaced in No. 11 turbine, the oil changed, the inlet flume drained, cleaned out, and extensive repair work carried out on a faulty construction joint. While the flume was dry the opportunity was taken to install the valve and bend for No. 10 circulating pump. All boilers were inspected and passed by the Marine Department. Specifications have been issued for oil-firing and ash-handling, and tenders analysed for grit-arresters. Coal consumed was 50,020 tons, deliveries amounting to 49,291 tons, and 104 tons were sold under orders from the Mining Controller. Of the coal received, 33,210 tons came from the South Island and 16,081 tons from the North Island. The stock in hand at 31st March, 1948, was 1,335 tons.