

ACC C/1

10000/150/799

COL COOL  
WITH P.B  
(DEC. 194  
FEB. - AT

000/150/799

COL COOLEY P.B.S. CORRESPONDENCE  
WITH P.B.S. LEGHORN  
(DEC. 1944);  
FEB. - APR. 1945

SOCIETÀ ELETTRICA SELT - VALDARNO

C/1

COL COOLEY

P.B.S.

Correspondence with P.B.S.

Leghorn



COL COOLEY

P.B.S.

Correspondence with P.B.S.

Leghorn



Opened. 15 - Feb 45  
 Closed - 28 - April 45

10000 / 150 / 799

THIS FOLDER

CONTAINS PAPERS

FROM FEB 45

TO APR 45

CONTAINS

ADVANCED SECTION  
ELECTRICAL DIVISION  
PUBLIC WORKS & UTILITIES SUB-COMMISSION  
ALLIED COMMISSION

Florence, 6 Via Corretani

Telephone n° 1153

April 28th 1945

SUBJECT: Release of electric generating plants from P.B.S. control to Allied Commission.

Ref. : A/1 CSW/ab

TO : Chief Electrical Division  
Public Works & Utilities Sub-Commission  
H.Q. Allied Commission  
A.P.O. 394

1. - In accordance with verbal agreement the P.B.S. Electrical Engineer has released control of the following electric generating installations:

| <u>Installation</u>      | <u>Company</u> | <u>Remarks</u>         |
|--------------------------|----------------|------------------------|
| Castelmovo Garfagnana    | Valdarno       | Rebuild                |
| Corfino                  | "              | Reassemble             |
| Gallignano               | "              | Rebuild                |
| Iina (+)                 | "              | 3rd unit only          |
| Riofreddo                | "              | Rebuild                |
| Sestaione                | "              | Rebuild                |
| Sillano                  | "              | Reassemble             |
| Sillico                  | "              | Reassemble             |
| Sperando                 | "              | Rebuild                |
| Valpiana                 | S. E. M.       | Rebuild                |
| Leghorn                  | Valdarno       | Steam plant            |
| Le Piane                 | Bolognese Co.  | Destroyed              |
| Santa Maria              | "              | Rebuild                |
| Pavana                   | FF.SS.         | Destroyed              |
| Suviana                  | "              | Destroyed              |
| Castelmovo Val di Cecina | Larderello     | Rebuild<br>steam plant |

(+) NOTE: Work on second unit will continue by P.B.S. Engineer.

Copy to: Lt-Col. Lapper (2)  
Col. Cooley  
Sgt-Valdarno  
File

*Major*  
Major

3101

N. E. Stations

|     |                       |                                     |
|-----|-----------------------|-------------------------------------|
| ↑   | Castelmura            | Valpiana                            |
|     | Corfino               | Galliciano                          |
| set | Sillano               | Linna                               |
|     | Sillio                | { 3 <sup>rd</sup> Unit & possibly   |
|     | Sestione              | { 2 <sup>nd</sup> Unit - coordinate |
|     | Rio Fredolo           | with St. Naves.                     |
|     | Sperandolo            | Lytham "Lodolo" Steam Station.      |
|     | St. Maria (Bolognese) | Castelmura Val di Cembra.           |
|     | Le Piane              |                                     |
|     | Surviana (FESS)       |                                     |
|     | ?                     | ( " )                               |

Handed by Col. Cooley to Major Wilcox on April 27th 1945

ADVANCED SECTION  
ELECTRICAL DIVISION  
PUBLIC WORKS & UTILITIES SUB-COMMISSION  
ALLIED COMMISSION

Florence, 6 Via Garretani  
Telephone n° 1153  
April 9th 1945

SUBJECT: Iron and concrete pylons.

Ref. : C/1 AG/ab

TO : Lt-Col. Cooley  
Engineers Section P.B.S.

The attached is forwarded in response to your request by telephone calling for information on types of pylons iron or concrete used by the FF.SS. on the 120 KV lines.

*AG.*  
A. Growther,  
Major R.E.

1 enclosure.

3099

April 9th 1945

Attached are drawings and details of <sup>iron</sup> ~~concrete~~ towers.

- The concrete towers, when slightly damaged can be repaired. If heavily damaged or on the ground it is necessary to replace the concrete towers with iron towers.

- It is not possible to dismantle cross arms of concrete towers as they are in one piece. Cross arms of iron towers are all bolted in section and plate and can be easily and quickly dismantled.

- The Railways have no stocks of concrete poles.

- The railways have another type of iron tower with conductors in the same plain, but the Florence Office have not the drawings or details.

This information can be given by Eng. Albertoni, FF.SS. Rome office, Direzione Generale FF.SS. Servizio Lavori - Ufficio Settimo.

ENGINEER SERVICE  
PENINSULAR BASE SECTION  
A.P.O. 782

GC/fp

19 January 1945

SUBJECT: Inspection of Santa Maria Hydro Electric Station  
(572-411, Italy 1:100,000)

Inspection of the power station was made on 13th January by Lt-Col. G. Cooley, Engineer Service, P.B.S. and Major F.W.H. Tuckett, 543rd Electrical and Mechanical Company, R.E. Information regarding the reservoir, dam and flow lines was obtained from the Chief of the Station, Sig. De Sordi. The station is the property of "Società Bolognese di Eletticità" and is connected to its 50 Kv transmission system.

Reservoirs, Dams and Flow Lines.

A masonry dam 158 meters long with maximum height of 33.5 meters is located on the Brasimone River above the plant. Full lake elevation is 829.5 meters above sea level. Storage capacity is 7,000,000 cu.m.; the dam and control gates (which are of the butterfly valve type located in the exit pipe) are reported to be undamaged.

The pipe line consists of a single 3600 meter section of 1200 mm. pipe extending from the dam at an elevation of 805 meters to a surge tank. From this surge tank a single steel penstock 800 mm. diameter and 900 meters in length drops to the power station. All this is said to be undamaged.

Power Station.

The elevation of the tail race is 509 meters giving a maximum static head of 320 meters.

The principal items of the installation consisted of:

a) - 3 2000 KW (2300 KVA), 5000 volt 3 phase, 42 cycle, 420 rpm, A.E.G. generators direct connected to Escher Wyss, impulse, horizontal shaft turbines. One of these machines was suitable for 50 cycle operation.

b) - 2 110 volt, 700 ampere exciter direct connected to horizontal shaft impulse turbines.

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c) - 3 2500 KVA, 5/50 KV, 3 phase, 42 cycle, water cooled transformers.

1 2000 KVA, 5/15 KV, 3 phase, 42 cycle, water cooled transformer.

d) - Switchgear of 5.15 and 50 KV.

e) - 1 18 ton traveling crane in turbine room

1 14 ton crane at end of transformer room

The entire roof over the turbine room and the outer wall which supported one of the crane rails have been entirely demolished by enemy charges.

The 18 ton crane was twisted by falling and blasts, but can be repaired. The 14 ton crane is undamaged.

Each of the generators and turbines were severely damaged by enemy charges.

Bearings, supports and shafts are damaged to various degrees. All of the shafts would require straightening, if they can be reused. Generators would require complete rewinding and probably replacement of part of the electrical steel in both the rotors and stators. Turbines would require replacement or extensive repairs to casings and rotors. Hydraulic governors are probably not repairable.

The two exciters and their turbines are believed to be damaged beyond repair.

Each of the four transformers has a hole torn in the case by demolition charges. One or more coils was damaged in each. However, oil has been drained previously and no fire resulted. These transformers can be repaired within a month or two and require only a relatively small amount of welding and insulating materials plus transformer oil.

Practically no spare parts are available at the station. Switchgear is practically undamaged.

#### Conclusions.

Due to extreme damage to the turbine room superstructure and the machines it would not be possible to restore a machine in less than six or eight months. A more detailed inspection may indicate a much longer period.

Although the plant was damaged 3½ months ago, practically

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nothing has been done to clean it up or prepare it for rehabilitation.

Because of the excellent condition of the hydraulic system together with its storage capacity, this station should be rehabilitated as a long term project. Consideration should be given to moving a unit with governor from some other station if one of suitable characteristics is found to be available. In either case, a large amount of work is involved and at present no skilled personnel is available at the station.

G. COOLEY  
Lt-Colonel, C.E.

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ENGINEER SERVICE  
PENINSULAR BASE SECTION  
APO 782

GC/fa

16 December 1944

SUBJECT: Electric Power Situation - "Leghorn" System.

TO : Col. Donald S. Burns.

1. Since the failure of a 3000 Kw turbine generator set at Larderello on 22 November 1944 it has been necessary to curtail electric power to civilian installations and limit the amount delivered to distribution centers on the "Leghorn" system to 1600 Kw.

## 2. Capacities:

## a. 15 December 1944.

|                              | <u>Units available</u> | <u>Output capacity</u> |
|------------------------------|------------------------|------------------------|
| Leghorn<br>(Diesel)          | 4-400 Kw               | 1600 Kw                |
| Solvay<br>(Steam)            | 2-1000 "               | 1600 " <i>X</i>        |
| Larderello<br>(vulcanic gas) | 1-3000 "<br>1- 900 "   | 2700 "<br>700 "        |
| Total                        |                        | 6600 Kw                |
| Losses                       |                        | 1100 "                 |
| Available at load            |                        | 5500 Kw                |

## b. 25 December 1944.

Copies To Major Burns - Major Butler - *Excess - Inj Collateral - Company Report File.*  
Capt. Vannoy.  
Capt. Laughlin.  
1st Lt.

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|                                      | <u>Output<br/>capacity</u> |
|--------------------------------------|----------------------------|
| as of 15/12/44                       | 6600 Kw                    |
| Piano della Rocca 1-11000 Kw (Hydro) | 3000 " (note A)            |
| Total                                | 9600 Kw                    |
| less losses                          | 1300 "                     |
| Available at load                    | 8300 Kw                    |
| c. 1 January 1945.                   |                            |
| as of 20/12/44                       | 9600 Kw                    |
| Solvay (Steam) 1-3000 Kw             | 2500 " (note B) *          |
| Total                                | 12100 Kw                   |
| less losses                          | 1800 "                     |
| Available at load                    | 10300 Kw                   |
| d. 1 February 1945.                  |                            |
| as of 1/1/45                         | 12100 Kw                   |
| Lima (Hydro) 1-1500 Kw               | 1500 "                     |
| Total                                | 13600 Kw                   |
| less losses                          | 2000 "                     |
| Available at load                    | 11600 Kw                   |

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g. 15 February 1945.

|                                         | Output<br>Capacity |
|-----------------------------------------|--------------------|
| as of 1/2/45                            | 13600 Kw           |
| Larderello 1-12000 Kw<br>(volcanic gas) | 11400 "            |
| Total                                   | 25000 Kw           |
| less losses                             | 3500 "             |
| Available at load                       | 21500 Kw           |

f. 1 March 1945.

|                                        |                  |
|----------------------------------------|------------------|
| as of 15/2/45                          | 25000 Kw         |
| Pian della Rocca 1-11000 Kw<br>(Hydro) | 19000 " (note A) |
| Total                                  | 44000 Kw         |
| less losses                            | 6000 "           |
| Available at load                      | 38000 Kw         |

NOTE A: Estimated capacity of Piano della Rocca is based on (1) water available only from local run-off prior to 1/3/45 and (2) Serchio river stream flow thereafter providing for full output of 2 units.

\* NOTE B: Extensive repairs to circulating water system of canals and pipes which suffered severe bomb damage will be completed making this unit available.

*Total Capacity 38000*  
*Less Standing 6000*  
*32000*  
*3092*

\* 10 lbs coal/1000 ft of pipe required at 1000 ft

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3. Loads:

It is anticipated that loads will increase as rapidly as capacity increases. However, these increases will generally consist of lower priority civilian loads which can be curtailed in the event of failure of power supply thereby insuring service to military installations.

Estimates of Leghorn local load (including Pisa) are given below:

|                  |         |
|------------------|---------|
| 20 December 1944 | 3500 Kw |
| 1 January 1945   | 4000 "  |
| 1 February 1945  | 5000 "  |
| 1 March 1945     | 6000 "  |

Loads elsewhere on this system will be supplied.

G. COOLEY,  
Lt. Colonel, C.E.

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