October 6, 1926.

Mr. William Randolph Hearst,
New York American,
New York, N.Y.

Dear Mr. Hearst:

Attached is the report from the University of California chemist. I had given no explanation of conditions, so their discovery of the corrosion in the pipe (- Pine Mountain line -) was interesting. We will try out the proposed chemical solution before emptying the tank.

I have been busy getting the various materials and people in line so as to carry out your program. Thank you for the extra allowances for this. - It certainly is appreciated.

Yours very truly,

Julia Morgan
deM

JM-deM

(H) please sign & initial as it must go-

[File with Oct. 6, 1926]

Berkeley, California.
September 20, 1926.

Professor Charles Gilman Hyde,
Department of Civil Engineering,
University of California,
Berkeley, California.

Dear Professor Hyde: -

The sample of water from Mr. Hearst's ranch, which you submitted to me together with a letter from Miss Julia Morgan, Architect, has been examined by myself with the following results: -

Color	20 p.p.m.
Turbidity	None
Iron	None
Manganese	None
Algae	None
Oxygen Consumed	8.5 p.p.m.
Alkalinity to M. O.	Slight
Ph. value	6.0
Hardness	30 p.p.m.
Chloride	8.0 p.p.m.

It will be noted from these results that the water is of the type commonly referred to as soft, colored water. It contains considerable organic matter in the form of weak acids and salts, to which it owes its greenish-brown color.

Although the water is slightly alkaline to Methyl Orange, it was found to be acid to neutral indicators. This indicates the probability of serious pipe corrosion troubles, if ordinary iron pipe is used. These troubles in all probability could be obviated by treatment of the water with a silicate and the selection of brass or copper pipe for distribution.

Both systems

The water is too highly colored to be entirely satisfactory for domestic use. Several experiments, with a view to decolorizing the water with alum, were tried. It was found that alum reacts very slowly with this water but that good results can be obtained with one-half to one grain of filter alum per gallon, provided several nours of contact are provided for.

It is believed that treatment of the water with alum and silicate of soda, in a suitable basin providing for a retention period of several hours, with subsequent filtration, should furnish a water of acceptable quality.

Yours very truly

(Signed) W. F. Langelier
Associate Professor, Sanitary Engineering