

HALL INDUSTRIAL WATER REPORT

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Expert Knowledge Solves Process Problems

A hurry-up call from a Hall field engineer sent C. T. Roland, Pittsburgh headquarters expert on metal preparation and paint finishing to confer with a west coast automobile plant on a paint blistering problem. The sudden occurrence of the blistering baffled the plant engineers until Roland investigated the possibility of a change in the source of the water used in final rinsing of the metal before paint was applied. He found that the quality of the water supply had changed shortly before the blistering developed. Analysis showed that this supply was higher in pH and dissolved solids, particularly sodium chloride, than the water previously used. Mr. Roland's experience in dealing with the action of soluble salts under paint films led to the conclusion that in this case the paint was acting as a semi-permeable membrane, allowing the passage of moisture from the outside surface of the paint to the salty underlayers. Blisters formed wherever the osmotic pressure of the salt solution exceeded the bond of the paint to the metal. The higher alkalinity of the water contributed to the loss of adhesion, promoting further separation of the finish from the metal.

With the cause for the trouble established, recommendations were made to obtain a water supply low in solids until the plant could install equipment to insure the constant delivery of water of suitable quality for this operation.

In another case where specialized knowledge was useful, Ralph Thompson, specialist on paper manufacturing processes, was called in to help a paper mill out of a jam. Their calendar rolls, the polished steel rolls that "iron" paper smooth, were corroding. Regrinding to polish the rolls was costly.

Mr. Thompson's on-the-spot investigation revealed that too much alum was being used in the sizing. Alum feed was reduced and the process water was treated with a glassy phosphate corrosion inhibitor. When reliable controls of the modified process were set up, corrosion disappeared.

Water Well Capacity Increased by Treatment With Glassy Phosphate

Initial capacity of new municipal well was recently increased 63% by treatment with Calgon.* Other new wells in the field developed capacity increases up to 34%. In an old well where the capacity had fallen to only 9.5 gallons per minute per foot of drawdown, one charge of Calgon raised the capacity to 31.2 gallons per minute per foot of drawdown, an increase of 228%.

In another case, after acid cleaning had restored a municipal well to approximately the same capacity it had when new, a single charge of Calgon raised the capacity by 100%, or about twice the original capacity of the well.

The dispersive action of glassy phosphate is responsible for its efficiency as a well cleaner. Cleaning with inhibited acid removes deposits of calcium carbonate and iron oxide, but will not affect accumulations of clay, quartz, amorphous silica, mica or silt. These latter are also dispersed and removed by Calgon cleaning.

Hall Is Water Consultant For Asia's Greatest Power Station

India's \$35 million power plant, 200 miles north of Calcutta in the Damodar Valley, began operation in February. This is part of



Alex Henricks, staff engineer serving as consultant for India's new power plant, lifts water sample from container marked "This Package Opened and Examined by Customs at Calcutta."

extensive project to hasten the industrial development of a 9-million square mile area of India.

Engineers and constructors of the station, The Kuljian Engineering Corporation of Philadelphia, have retained Hall Laboratories, Inc. as water consultants.

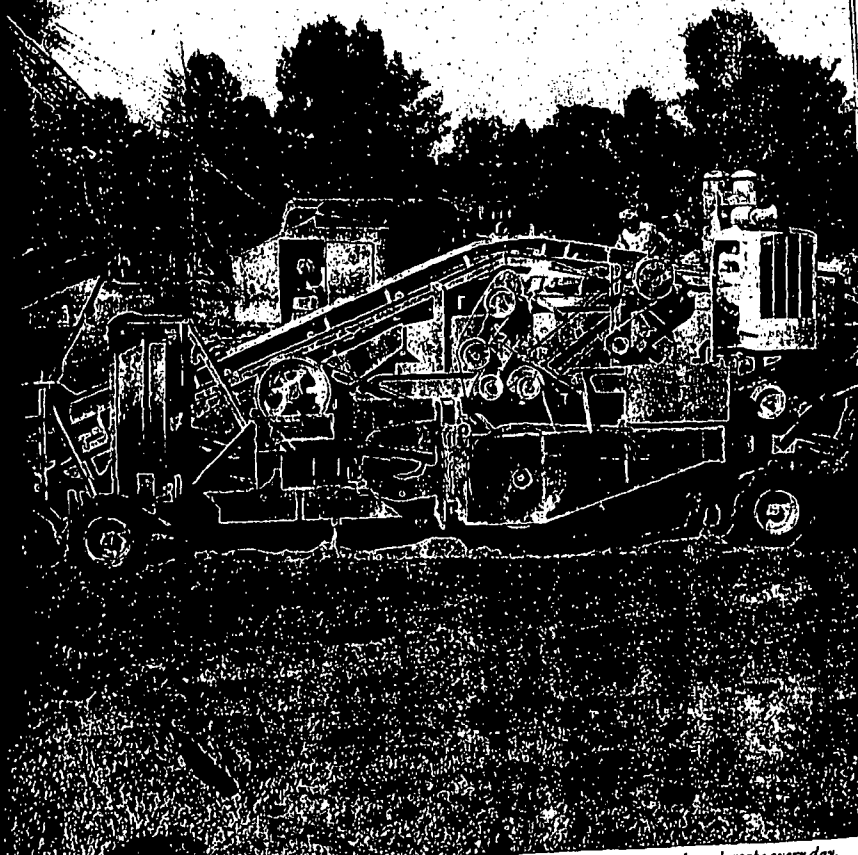
Industrial Water Problems Require Special Handling

There are no "stock answers" to industrial water problems. For information, write, wire or call Hall Laboratories, Inc., Hagan Building, Pittsburgh 30, Pa.

Water is your industry's most important raw material. Don't waste it.

*Calgon is a registered trademark.

**B. F. Goodrich
Grommet belts
at work**



There's no soft diet in this gravel pit for the iron giant that gobbles and chews more than 2000 tons of tough rocks every day.

**90 days of
use and abuse**

That big crushing unit swallows up to 300 tons of rocks every hour, carries them up a moving belt and dumps them into two crushers. But the jolting, jarring action is rough on the V belts used to keep the crusher crushing. Ordinary belts weren't lasting much more than 30 days. To find out how this problem of frequent and costly replacements was solved — see the following pages.

ADS OUT