

**SEATTLE CHEMICAL INDUSTRIES
ENGINEERING DEVELOPMENT LABORATORY
SEATTLE, WASHINGTON 98195**

TO: Team A

FROM: Engineering Management

SUBJECT: Pump Characteristics

As a small division, we must sometimes use surplus equipment in our operations. We have just received two surplus pumps, and would like to know where these pumps could be used. Unfortunately, we don't have information on their operating characteristics. We therefore request the following:

1. For both pumps, measure the head, power consumption, and efficiency as a function of pump speed and flow rate. Your objective should be the preparation of charts similar to Fig. 10-29, page 10-25, Perry's Handbook, 7th Edition., but with efficiency vs. flow rate at various speeds on one plot, and head and power consumption vs. flow rate at various speeds on another.
2. We would also like to know the extent to which the centrifugal pump obeys the "Affinity Laws" (see, e.g., Table 10-7, page 10-25 in Perry's 7th Edition).

Be sure to estimate the uncertainty in your results.