



research and productivity council  
conseil de recherche et de productivité

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OUR FAX NUMBER IS (506) 452-1395

FAX INFORMATION SHEET

TO: KENT MOLTON DATE: JUNE 29 1988 TIME: 10.30

COMPANY: GIANT YELLOWKNIFE MINES LTD.

FROM: MINE CHAUNASY

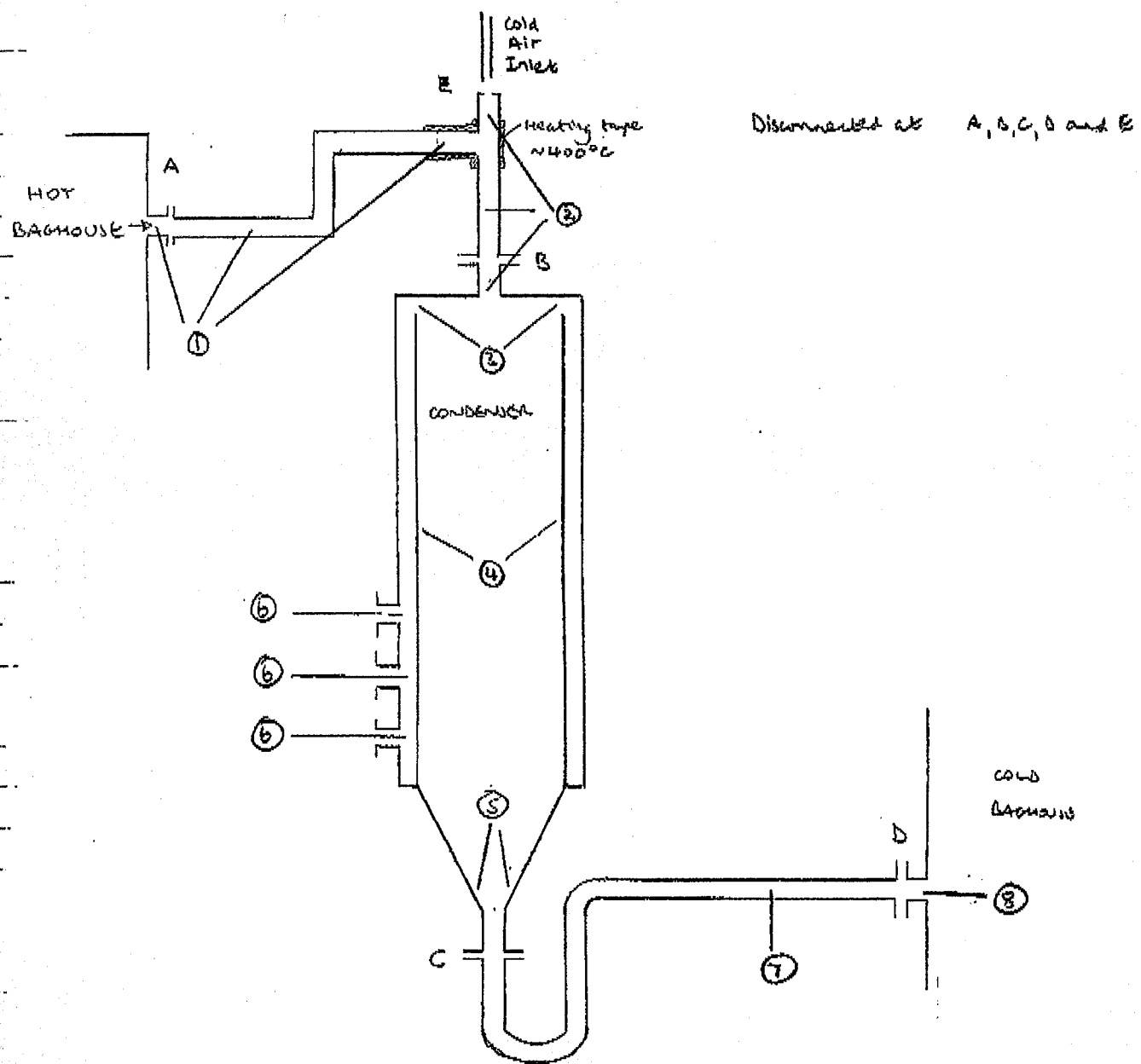
SUBJECT: INSPECTION OF PILOT PLANT AFTER SHUTDOWN

REMARKS: DURING THE INSPECTION THE SHUTTING OF RESEARCH DUST.

TOTAL NUMBER OF PAGES INCLUDING THIS COVER SHEET 5

THIS TRANSMISSION IS BEING SENT TO YOUR OFFICE BY A NEFAX PF-1 MACHINE. IN THE EVENT YOU SHOULD EXPERIENCE TROUBLE RECEIVING OUR TRANSMISSION, PLEASE CONTACT OUR OFFICE AT (506) 452-8994

SIGNED: 

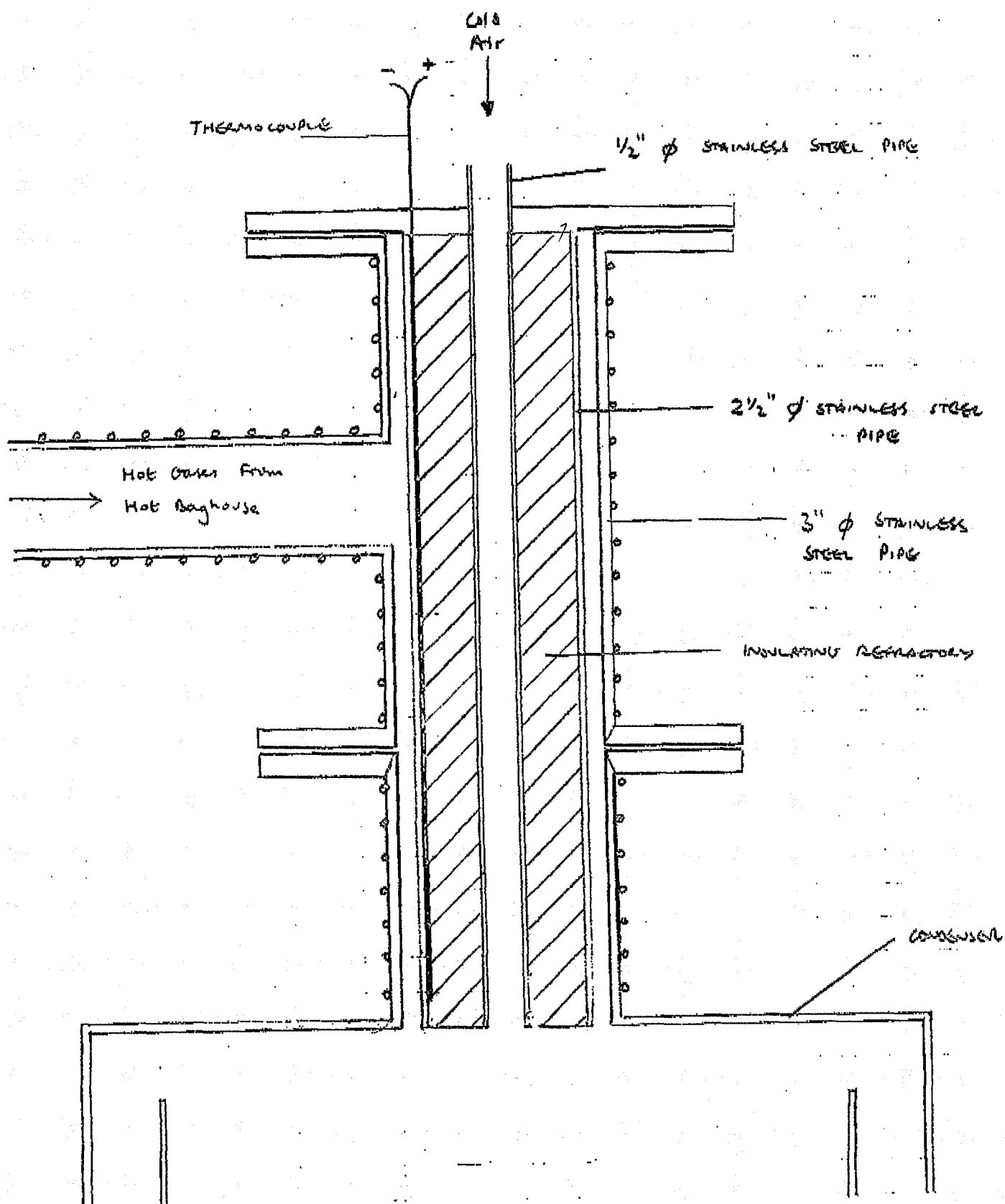
OBSERVATIONS ON OPENING PIPEWORK AND EQUIPMENTOBSERVATIONS

- ① Fine brown dust in pipework. Loose, not adhering to surface. Particle size analysis of this dust is the same as for hot baghouse product indicating the likelihood of a tear in a bag rather than opening of the welds.
- ② Vertical section of pipework almost completely plugged. The plug extended only  $\frac{1}{2}$ " along horizontal section towards hot baghouse. This indicates that the heating tape was successful in keeping the wall temperature above the condensation temperature. The cooling effect of the cold air on the walls of the vertical pipework led to condensation on those walls. The conclusion is therefore that the hot and cold gases must be mixed in a section of large diameter so that condensation can take place in the gas phase, rather than on a cold surface.

- ③ By lowering a wire into the condenser body and using an inspection mirror, I was able to view the gap at the top of the annulus. No buildup was present.
- ④ Extremely thin layers of white, arsenic trioxide was observed in patches on the inner walls. These are of no concern.
- ⑤ The core section was clean.
- ⑥ The annulus was plugged with hard material. We are attempting to remove the plugs section from the outer section of the condenser and clean the annulus.
- ⑦ The pipework (horizontal section) between the condenser and the cold baghouse contained loose, arsenic trioxide. In general the material was white with streaks and patches of brown. This would indicate an intermittent contamination with impurities, possibly coincident with hot baghouse blowback.
- ⑧ The entrance to the cold baghouse was clear.

#### Plans

- ① Attempt to clean annulus so that cold air can be introduced through annulus and hot air through top of condenser.
- ② Install heating coils on vertical pipework above condenser (section was plugged) and part way along horizontal section towards hot baghouse.
- ③ Increase diameter of vertical pipework above condenser so that an insulated cold air lance can be inserted. The insulation is to ensure no cold surface above condenser body. A schematic is shown on the next page. The cold air is introduced through a  $\frac{1}{2}$ " diameter stainless steel pipe, surrounded by a mouldable insulating refractory sleeve, which in turn is encased in a 2 1/2" diameter stainless steel pipe which will be tack welded to the inside of the top flange. A thermocouple will be located between the outer surface of the refractory and the inner surface of the 2 1/2" pipe. This temperature must be above 150°C to ensure that no condensation will take place above the condenser chamber. This set up can be tested during preheating, prior to feeding baghouse dust and will provide an alternative to

COLD AIR LANCE

• Introducing cold air through the annulus.

④ Remove top of hot baghouse and remove bags for inspection and replacement.

⑤ Modify screw feeder to give a thicker refractory lining and minimize backflow of transport air to feed hoppers.

⑥ Referring to the schematic diagram of the cold air lance, we have a concern that plugging may occur around the top of the lance. We will therefore consider the alternative of having a heated lance, with hot gases passing down the centre of the lance and cold gases around the outside. When considering these alternatives, the most promising method of introducing the gases to the converter would appear to be cold air through the annulus and hot gas through the top, perhaps via a heated lance. It is important to have a number of options available to us.

I believe that the reason that we are having problems with mixing hot and cold gases and you don't seem to have that problem in your operation is simply due to the scale of operation.

I have moved offices this week and in the move the piece of paper with the address for the shipping of the baghouse dust has been misplaced. Please fax the address to me and we will arrange for shipping.