

✓ 19/7.
Note to Dr. Maycock

POSSIBLE FURTHER EXPANSION OF ATF PRODUCTIONS

AT ESTREE

Requirement: Assuming revised target of 35M in, including 100,000 units cryoprecipitate and Oxford contribution

No. of in / unit of cryoppt. is difficult to assess. Recently higher yields have been claimed, using improved freezing and thawing conditions. Assuming a somewhat higher figure of 80 in / donation, this will give 8M in from 100,000 donations. If Oxford fractionate 200 L / week this will give 2.13M in / year. This leaves 25M in to be prepared by fractionation elsewhere.

This requires fractionation of 112,500 L. of plasma p.a (assuming 222 in per L.) or 2450 L. / week for 46 weeks, i.e. more than double the present rate envisaged. It would be difficult to fractionate this amount without major changes. Relevant factors are as follows:

1. STORAGE OF INCOMING 5L. BAGS PLASMA PENDING TEST RESULTS (+ SORTING)

Must be carried along with plasma for PPF.

4 weeks' storage = 2000 bags
6 = 3000 bags
8 = 4000 bags

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2. OVERNIGHT SUFFERING

Another sack required

3. THAWING

Second thawing vessel assembly required

4. CENTRIFUGATION Possibilities:

- III
- (a) Double no. of centrifuges
 - (b) Extend working day by say 3-hours
(but this may raise staffing problems)
 - (c) Increase flow-rate. Some increase may be possible.

(a) is not practicable; no more is possible. A combination of this + (b) and (c) would be workable.

5. REMOVAL OF "COLD-INSOLUBLE PRECIPITATE", AND $M(OH)_3$ ADSORPTION

At present this is done in centrifuge pots in Australia (4 pots per centrifuge-load). For present max production this will involve spinning about 40 pots per each batch - which is already close to the limits of practicality.

Changing to a continuous-flow centrifuge ~~could make~~ (e.g. Westphalia) would involve, say 2 centrifuges at £6000 - raise the problem of siting them (= possibly ~~at~~ some processing problems).

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if feasible
to the way

6 FILTRATION We are likewise at the upper limit of ~~now~~ what is practical for the present type of equipment (293 mm. plate filter holders -- not to three in parallel). A larger scale would mean going over to cartridge-type filters.

7 FILLING Should not present problems.

8 FREEZING FOR DRYING At least 1 more freezer required (+ site services + site for its compressor)

9 DRYING Additional plant required.

10. HOLDING PENDING CLEARANCE

As originally planned this should be in Room 1.09 at Packing Room rather than 027 which it was hoped would be used for R. D. work & storage rejects etc.

11 HOLDING FOR ISSUE

Requirement should be limited with new distribution system. However if Oxford's observation of improved storage at -45°C is confirmed would have to be taken into account.

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12. GENERAL SPACE SITUATION IN MAIN PROCESSING AREA

The following would require more space:-

- 13 SORTING - RECORDING OF PLASTIC
- CR2 2nd SORTING RACK
- CR2 TURNING VESSEL, STIRRER - SERVICES
- CR2 ? 1 or 2 MORE SAMPLES
- ? AT(CH)₃ CENTRIFUGE (WESTPITZLIA?)

GENERALLY MORE SPACE FOR HANDLING
ABOVE, AND ALSO TROLLEYS, SUPERNATANT
VESSELS, FILTERS etc

In addition to the following required
for the proposed Factor IX release:

SITE COLUMNS

STORAGE SPACE FOR COLUMNS

STANDING ROOM FOR TANK - TROLLEY

GENERAL WORKING SPACE

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13. 'BACK-UP' SERVICES All of the following would ~~not~~ be affected:

- (a) STORES
- (b) WASH-UP AREA.

In addition automatic real washing machine would be required & also space for washing membrane filters* and DE32 columns. Also location for re-cycling DE32.

- (c) STORAGE CLEAN EQUIPMENT
- (d) ASSEMBLY
- (e) AUTOCLAVING
- (f) STERILE EQUIPMENT STORE
- (g) DISTILLED WATER SUPPLY

(Most of the above are already fairly tight, ^{even} without doubling the AHF work. The following might also affect provision in these areas:

Progn. of Factor IX

Increase in PPF

Increase in Di. Harford's work.)

Provision of distilled water in AHF package (2500 lbs/week)

* It present washed in Room 13, but would be moved to wash-up.

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BATCH SIZES, TIMING AND STAFFING

Increasing production could be achieved either by increasing the batch size, or by doing more batches per week. The former is preferable, if permissible from repetitive point of view, because

- (a) it is generally more efficient
- (b) there are heavy quality control requirements

Either way would involve a longer working day - which may raise staffing problems. It is difficult at the moment to recruit staff - we have not found a single recruit, either lab. asst. or SLT since last December & currently have 3 vacancies (4 counting Behaviour).

CONCLUSIONS & OBSERVATIONS

Expansion to this level of production (25M in Factor VIII per year) would cause serious over-crowding of facilities, unless some additional building were done. The planning of any such building would obviously be part of an over-all scheme to allow for other new commitments in

PPE

Factor IX

Dr. Stanford's work

New Freeze-drying Installation

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It should be noted that the existing ATF facility was not designed for the work being done and that it might be undesirable just to add extensions.

Stepping problems should be kept in mind.

- B A limited expansion would be possible (say 30-40% increase) ~~xxx~~ without building, but only as a stop-gap measure.
[NO INCREASE AT ALL IS POSSIBLE WITHOUT
ADDITIONAL FREEZING AND FREEZE-DRYING CAPACITY]

This could be achieved (a) by increasing centrifuge flow-rate (b) lengthening the work-day (stepping permitting) (c) possibly adding one centrifuge.

- C If yield could be improved this would have the effect of increasing production. Recently substantial increases in yield have been claimed for cryoprecipitate by improved freezing and thawing techniques. If it should prove possible to translate this into increased yield for concentrate this would mean effective output. There is thus a strong case for an intensive R.D. (70/7) effort, I would suggest with some work at Oxford

- D In view of these better yields with eggs considered, should be given to the possibility of retaining eggs as a major source of RHF, at least in the meantime possibly until it is seen whether a modified large-scale procedure will give higher yields.

eg. Eggs, perhaps in the form of 6-unit pods, or 8-unit pods, could be used for major course, and concentrate for home treatment.

- E Whatever developments are adopted I should like to consider the possibility some re-distribution of the work done in the area covered by Norms 13-19. This would involve a moderate expense in say 1977-78, if any changes were made.

30.6.76

GRO-C

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MEMO TO DR. MAYCOUR

Mr. Bailey asked me to let him know if our present staff establishment is correct for the volume of work. I told him "yes" - for making AMF up to 1000 litres plasma per week, and bottling in 250 in quantities in 400 ml Transfusion bottles.

To prepare Factor IX to the eluate stage, from 400 litres plasma (total) per week (not recycling the DE52 here) would require approximately 1 additional technician or SLT.

For my own information I have compiled a list of developments which may affect staffing, costing and area requirements and I thought you might like to have a copy. I do not know what future use is envisaged for Rooms 11 and 12, but if Room 12 were not required for another purpose it could be added to this section.

Any of the points on my list could affect estimates for areas, staff or expenditure in 1977-78 & thereafter.

24.5.76

GRO-C

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