E. I. du Pont de Nemours & Co.
Explosives Department
Wilmington 98, Delaware.

- #2. H. Worthington - D. F. Babcock
- #3. M. H. Wahl - C. W. J. Wende - SRL
- #4. D. A. Miller - W. S. Church - SRP
- #5. A. A. Johnson - SRP
- #6. H. W. Bellas
- #7. W FILE
- #8. SP FILE

TO: J. B. TINKER (IN
W. C. KAY - TURN)
B. H. MACKAY
L. SQUIRES
S. A. McNEIGHT

DEW-55-17-2
SR/H--915
January 13, 1955.

FROM: H. W. BELLAS

WEEKLY REPORT - 100 AREAS - JANUARY 13, 1955.

Reactor Control

Installation of a new actuator lower latch assembly in all areas was recommended at the last actuator sub-committee meeting. The latch to be installed is a modification of that installed in C Area. Several tests have been run on approximately 100 of the revised C design latch with no failures.

Tests performed at SRP during the C Area dummy run indicate that reduction of flow to the reactor by throttling the rot valves appears to be a satisfactory method for checking settings of flow monitor very low flow switches. Preliminary analysis of data indicates that flow to individual Q-foils varies no more than 3/4 percent of flow from the average Q-foil at reduced flow.

Reactor Complex

Hydraulic testing of a short pump circuit revealed that piping vibration is not abnormal at any flow within the capacity of the pump. Previous testing of a long circuit produced the same results. The pump in the short circuit showed indications of cavitation at about 16,500 gpm, while a pump in a long circuit did not give indications of cavitation until a flow of 17,500 gpm was reached. This difference in the flow at which cavitation occurs appears contrary to what would be expected as a result of the longer suction piping run to the pump in the long circuit, but it can be expected that different pumps will have substantially different net positive suction head requirements as far out on the pump curve as these pumps were being operated.

Work on the "C" Thermal Shield repair is progressing in accordance with the previously reported procedures. As of January 11 two staybolt positions have been completed, five were in the process of being welded, and four more had been cut out.

The Formsprag Clutches being tested in the Central Shops continue to operate satisfactorily. One has been running for a week with only the oil retained in the clutch and no makeup oil. This resulted in cooler operation due to less oil churning in the bearings. This clutch is now being run with all the oil drained, leaving only the oil adhering to the parts. Next week

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

Classification cancelled/changed
TO UNCLASSIFIED
By Authority of
DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

1. Name Date Title
H. W. Bellas 1/13/55
C. B. 1/13/55
Reviewing Official
2/4/59

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

it is planned to run a test with the application of heat to the dead-pin, to produce an artificial difference in temperature between the inner and outer races of the bearings.

At the suggestion of Operating and Works Technical personnel at the plant, the Engineering Department has been requested to revise the bypassing of the A-C motor trip scheme. The former bypassing method bypassed only one trip relay in either group of three pumps, such that the pumps have to be started in a given order, and to shut down only one pump, three pumps might have to be shut down. The bypass was a "dead-man" pushbutton. The revised bypass requested will bypass the trip relays on all six pumps simultaneously, and will place the bypass on a key. This will permit shutting down any individual pump, and will permit starting the pumps in the present DPSOL order. The main considerations favoring the change were the necessity of occasionally shutting down a single pump to reseal seals, and the fact that with a "dead-man" bypass if the operator slipped while starting pumps and shut them down, there would be an hour's delay before they could be restarted. The key bypass will be indicated by a light at the key, an annunciator window, and at the "bypass" light on the console. It is planned to install the first A-C trip protection in K during the next shutdown.

Purification

Although the distillation columns in R Area have been removing light water at about the design rate, taking concentrations into account, the fact that for A column the enrichment ratio is about 7 when on total reflux but only 3 when drawing off at the current rate has raised questions about its efficiency. However, recent calculations by the Technical Division indicate this change to be substantially in accordance with theory.

The proposed moderator processing facility being studied by the Engineering Department has been further simplified to the point where the major equipment includes only two of the 270-gallon tanks already installed in the P resin preparation room, a pump, a filter, a decanter, and a resin bed. With the expected oil concentration of less than 50 ppm from the decanter, equipment other than the resin bed for removing this oil appears unjustified.

Water was eliminated from the seals of both blanket gas blowers in R Area on January 7 after approval of the T/A.

Disassembly

Scrap handling with the small casks provided for Dempster-Dumpster use is inconvenient and rather costly. The current project exceptions list includes two additional larger scrap casks of the C Area design, which must be handled by crane. C Area cannot use the small casks, but with minor transfer pit modification, all areas can use the large cask. For safety in handling, the small ones have been modified for crane dumping at the burial ground. ESD already has much of the basic data, and has been asked to submit a work request to determine the best operating schedules, the possible need for more casks, and the justification for eliminating entirely the use of the small casks.

The most recent cuts of flat plate fuel elements at SRL, using 600 MWD material and parallel blades in the shear, were much cleaner than previous cuts using 1,500 MWD material and scissor type shear blades. Some surface roughness and fragmentation is still evident, however. The amount of fragments was not determined, but it has been requested that this be done in the future. Arrangements are being made to observe and discuss the cutting operation at Brookhaven.

The proposed method of LM handling was reviewed in L Area with SRL representatives. It was agreed that any safety advantage of storing slugs vertically so as to be able to see all the slugs in a bucket is of a minor nature. The horizontal array in a bucket is considered simpler from an operating standpoint, and has SRL approval. Recommendations by SRL concerning the arrangement and number of buckets in a shipping cask will await the outcome of experiments at ORNL.

Turbidity of the water in shipments of fuel slugs to the 200 Area has impaired visibility for crane handling to the point where many shipments have been returned to the 100 Area. The source of turbidity appears to be mainly corrosion of mild steel parts of the cask and tank where Amercoat either has not been applied or has rubbed off. Other possibilities being investigated by Works Technical and ESD include (1) aluminum corrosion product from the slugs; (2) sediment and rust from the disassembly basin adhering to the bucket and slugs; and (3) growth of algae and bacteria after shipment. One proposal by ESD is the application of Galvicon or other zinc coating, which would afford some cathodic protection even after wearing off in spots. Some of the rust is known to come from the cooling pipes in the cask walls, which permit circulation of water into and out of the cask. The possibility of plugging these pipes is being considered.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.