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XSNM-3060

July 7, 2000

Dear Ms. Dedik:

Report on Visit by ANL Personnel to SGN

On June 30, 2000, A. Travelli (RERTR Program Manager, ANL) and George F. Vandegrift (Senior Chemist, ANL) visited SGN (Saint-Quentin-en-Yvelin, France) to assess the progress by MDS Nordion toward LEU conversion of their Mo-99 production process. SGN is under subcontract to AECL to develop a calcination process for the wastes resulting from the MDS Nordion Mo-99 production process, and calcination has been identified by MDS Nordion as the only important obstacle to conversion.

The meeting at SGN began at 9:30 a.m. In attendance, in addition to A. Travelli and G. F. Vandegrift, were:

1. Grant R. Malkoske, Vice-President for Engineering and Technology, MDS Nordion
2. Jim A. Bond, Manager of Isotope Processing Techniques, Chalk River Laboratories, AECL
3. Serge Merlin, Director of Western European Operations, SGN
4. Henri Zaccai, Vice-President for International Operations, SGN
5. Robert Gattegno, Director of North American/Asian Operations, SGN
6. Giller Clement, Deputy Director for North American Operations, SGN, and
7. Elisabeth Nicaise, Deputy Director for North American Operations, SGN

Most of the meeting, which lasted until 4:00 p.m. with a break for lunch, centered on a commercial/confidential viewgraph presentation by S. Merlin. This presentation provided a detailed description of SGN development of a calcinations process for the current HEU-based MDS Nordion New Production Facility (NPF) design and of their feasibility study for using LEU in that process. Both the presentation and the related discussions were very informative, open, and cordial.

The SGN study has identified two main obstacles to LEU conversion:

a. Approximately twice the solvent volume might need to be used to separate the Mo-99 from the LEU targets because of the greater amount of uranium in solution, and

b. Approximately five times more uranium will be present in the wastes to be calcined.

These two conditions were part of a set of boundary conditions assigned by MDS Nordion and AECL to SGN to define scope of the SGN feasibility study. Another important boundary condition was that the production capacity of the converted NPF should continue to be able to supply the entire world

demand for Mo-99.

The greater amount of solvent would reduce by approximated a factor of two the time available for decay of the liquid wastes before calcination, because the volume of the delay tanks in which the solution is to be kept before calcinations cannot be increased. This would increase significantly the heat generation in the cans where the calcined material is to be stored, and cause several related difficulties.

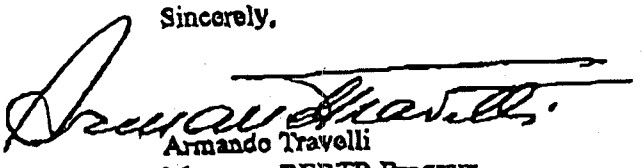
The greater amount of uranium in solution would make it impossible to implement the current plan to evaporate in a single can most of the liquid used in a batch (corresponding to two days of reactor operation) prior to calcining. The problem is caused by the increased temperature and viscosity that the solution would acquire when the uranium concentration reaches 1,500 grams per liter in the allowed can volume, and would cause great strain on the operating schedule and excessive can storage requirements.

During the discussion it became apparent that these obstacles were serious but not insurmountable. On the basis of new information that became available since the boundary conditions for the SGN feasibility study were defined, G. Malkoske (MDS Nordion) expressed his conviction that the MDS Nordion Mo-99 extraction process can be modified so that the volume of solvent required to process LEU targets is not significantly different from that required to process HEU targets.

The amount of uranium in solution cannot be reduced, but some suggestions made by ANL personnel during the meeting could help to resolve the related difficulties. In particular, it appears that addition of an uranium-precipitating agent (such as oxalic acid or hydrogen peroxide) to the can where evaporation takes place might enable evaporation of most of the liquid of an entire batch in a single can without excessive temperature or viscosity. S. Merlin (SGN) verified that addition of a line to introduce a controlled precipitating agent into the calciner would not present special difficulties even after the facility had begun operation with HEU.

In conclusion, the meeting was open and informative. SGN appeared to have performed a detailed assessment of how the current calcination process would be affected by LEU conversion under the boundary conditions initially specified, and have identified the main obstacles. In the opinion of ANL, MDS Nordion, and AECL personnel, these obstacles appear to be resolvable. The next step is to develop a plan for the resolution of the obstacles, and G. Malkoske (MDS Nordion) has stated the intention to prepare such a plan by September 2000. Technical implementation of the plan might require about 18 months, and safety approvals and environmental impact statements might require three years or more. These timetables appear to be reasonable.

Sincerely,



Armando Travelli
Manager, RERTR Program

Xc: S. Tyson
G. F. Vandegrift

AT:jt

United States Department of State

Washington, D.C. 20520

BUREAU OF NONPROLIFERATION AFFAIRS
OFFICE OF NUCLEAR ENERGY AFFAIRS

July 7, 2000

TO: **Mr. William M. Hill, Jr.**
Office of the Secretary
U.S. NUCLEAR REGULATORY COMMISSION
11555 Rockville Pike
Rockville, MD 20852-2738
Ph: 301 415 1661 fax: 301 415 ~~1101~~ /672

REC'D BY

FROM: **NP/NE – Robin DeLaBarre**
7 JL 0 **ph: 202 647 3978;fax: 202 647 0775**

SUBJECT: **July 10, 2000 Public Meeting Concerning XSNM03060**

REF: **June 29, 1999 Memorandum and Order in the matter of Transnuclear, Inc. (Export of 93.3% Enriched Uranium) CLI-99-20, 49 NRC 469 (1999)**

Transmitted is the Argonne National Laboratory report.