DOCKET NO. 70-90

BAKER & CO., INC.

REFINERS & WORKERS OF

GOLD **PLATINUM** SILVER

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NEWARK 5, N.J.

CABLE ADDRESS "BAKER" NEWARK

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55 EAST WASHINGTON ST.
CHICAGO 2

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LOS ANGELES

April 22, 1957

DOCKETED
U.S.A.E.C.

APR 24 1957

DOCKET OFFICER

U. S. Atomic Energy Commission
Washington 25, D. C.

Att: Mr. Lyall Johnson, Chief
Division of Civilian Application

Gentlemen:

Subject: Application for Special Nuclear Material License - Docket No. 70-90

You will recall that on March 25, 1957, we replied in part to your March 18 letter requesting additional information in order that you might be able to make a determination regarding the issuance of a special nuclear material license to Baker & Co., Inc.

On March 25, 1957, we provided you with what we believe is the information you require in order to establish our financial responsibility with regard to the project. This information was in reply to Item (b) of your letter. We now have for you the responses to Items (a), (c), and (d).

ITEM (a). Maximum Quantity of Special Nuclear Material We will Possess at Any Time.

We request permission to have possession of special nuclear material according to the following schedule:

1. Special nuclear material containing (b)(4) (b)(4)

2. Special nuclear material containing less than (b)(4) (b)(4)

3. Special nuclear material containing 5% or less U-235 enriched uranium--250 kilos maximum at any one time.

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We make these requests based upon our estimate that the pilot plant will have the bibliciated process approximately (b)(4)

ENGELHARD

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(b)(4) and perhaps twenty kilos to twenty-five kilos of low enrichment uranium each day. The maximum amounts for which we request permission to hold in possession indicate the quantities which we believe we will be required to have on hand awaiting dissolution, sampling, and analysis, including analysis of final product.

(b)(4)

Pages 3 through 6 redacted for the following reasons:

EXEMPTION (b)(4)

9. GENERAL

It is expected that two other operations will eventually be added to the present facilities. One is a stationary furnace for the burning of sludges, turnings, etc., to the oxide prior to solution and further processing. The furnace design will incorporate a leveler to prevent any portion of the bed exceeding 1 inch in height. The other prospective addition is a cold trap and sodium fluoride absorber to the present muffle furnace in order that fluorination of the UF_4 to the UF_6 can be carried out.

10. PLANT SAFETY - CRITICALITY

As noted previously, the primary assumption in the design of the plant is that all incoming material is fully enriched. The design stresses ever-safe geometry and this policy is carried throughout except for two items of equipment. These items are both located in the dissolving area. One stainless dissolver (18 inches in diamter) and one glass-lined dissolver (20 inches in diamter) for the treating of stainless steel fuels are mass controlled. In each case, the batch size is limited to 350 grams of uranium content.

The chemist in charge (Production Supervisor) has responsibility for determining the batch size and the weighing out procedure. Only the Production Supervisor may direct the addition of material to the mass dissolvers. Loading of the batch dissolvers is to be carried out only in the presence of the chemist in charge.

Storage facilities have been described in Section 1. Briefly, all storage equipment is of ever-safe design and all 5 inch diameter cylinders will be stored on a minimum of 2-foot centers radially.

Material in process will be stored in racks so that no container may be closer than 19 inches (outside measurement), nor can two containers be placed in the same slot.

All material movements in the plant area will be in accordance with marked paths on the floor.

ITEM (d). Health and Safety

1. HEALTH PHYSICS - PERSONNEL

All points of the process at which fuming or dusting can occur are adequately exhausted and the fumes are filtered.

Incoming packages and containers will be checked externally for beta and gamma activity. When opened, they will be checked for alpha, beta, and gamma activity.

Clean and dirty clothes locker systems are provided together with showers and plant clothing. All personnel will be required to wear film badges and protective glasses in work areas. Air and urine samples will be taken at frequent intervals. Protective masks and filters will be available for equipment failures and general clean-up.

Some of these procedures are already standard practice in Baker & Co. relating to the alpha and beta decontamination of AEC scrap platinum as well as in our present use of isotopes such as Iridium 192, Ruthenium 103, and Sulfur 35.

2. PLANT PROTECTION

Fire and explosion hazards are guarded against by methods acceptable to Factory Mutual Insurance Company. Fire hazards are protected against by a sprinkler system installed in the building and by locating hand fire extinguishers at suitable points. Materials which may present explosion hazards will be stored in the open under a roof cover. Solvents are stored in metal containers and the area properly indentified.

Uniformed guards make periodic rounds from nightly plant shut-down to the following morning. The guards ring ADT stations at strategic locations.

Uranium processing areas are clearly identified and no unauthorized personnel will be permitted in the area.

We trust that this is the information you require and that we have stated it clearly. If there are additional questions, we shall be pleased to hear from you.

Very truly yours,

BAKER & CO., INC.

C. R. Bergherm
Vice President

CRB:mz