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Released 1994

**Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830**

**Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute**

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By
R. Nilson

December 8, 1966

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December 8, 1966

U. S. Atomic Energy Commission
Richland Operations Office
Richland, Washington 99352

Attention: Mr. M. R. Schneller, Chief
Production Planning and Scheduling Branch

Gentlemen:

MATERIALS FORECAST REQUIREMENTS

Reference: TWX, FP Baranowski to DG Williams, dated December 5, 1966

The referenced TWX requested the identity of data required for good planning. AOP requirements are attached herewith. The reference also suggested inclusion of a sample stub column of a breakdown of data required. This is not included; however, we are developing a summary sheet format and program data sheet, which will be forwarded at a later date.

The need for coordinated, in-depth materials forecasts has long been apparent. Establishment of a Market Analysis Committee as part of AOP, was a result of this need. Every effort should be made to establish a close working relationship between the AOP Market Analysis Committee and Headquarters personnel responsible for preparing coordinated materials forecasts. Efforts of these groups can and should be complementary, and with a close working relationship will not represent duplication of effort.

Very truly yours,

DOUGLAS UNITED NUCLEAR, INC.

Concurrence:

W. J. Dowis
General Electric Company

R. Nilson, Chairman
Advanced Operational Planning

A. E. Smith
Isochem Inc.

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Enclosure

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U. S. Atomic Energy Commission
Attn: Mr. M. R. Schneller

December 8, 1966

REQUIRED MATERIALS FORECAST INFORMATION FOR PLANNING

Campaign Period - 15 Years - Define requirements: Quarterly for current budget period (2 years); semi-annually for the next 3 years; annually to the end of campaign.

Update Frequency - Quarterly for 8 quarters; semi-annually for the next 3 years; annually to the end of campaign.

Isotopic Breakdown

- Weapons Plutonium - 240 specification, other specifications as applicable.
- Nondefense Plutonium - Less than 10 percent Pu-240; 10-20 percent Pu-240; greater than 20 percent Pu-240. Identify Pu-240, Pu-241 and other isotope specifications with program when applicable.
- Plutonium-238 - Pu-238 specification, for example: 90 plus or minus 2 percent. Limits on other isotopes as applicable, for example: Pu-236 less than 0.5 ppm. Pu-239 less than 12 percent.
- Uranium-233 - Uranium 232 limits, less than 5 ppm; 5-10 ppm, greater than 10 ppm. Uranium-238 limits.
- Americium-241 - Identify limits on other isotopes when applicable.
- Curium-244 - Identify limits on other isotopes when applicable.
- Thulium-170 - Identify Tm-171 limits.
- Thulium-171 - Identify Tm-170 limits.

Chemical Purity

Identify by purity requirement, for example: weapons plutonium 99.5 percent pure or weapons plutonium 99.9 percent pure. Include other purity specifications such as required statistical statements, as applicable. Nonweapons plutonium minimum 99 percent pure; Americium-241, 95 percent pure.

Heat Sources

Identify specific activity requirements in watts/gram. Identify requirements by thermal watts at start of mission.

Product Form

Identify the product delivered from production site, for example: plutonium metal buttons, nitrate, oxide, fluoride, Curium-244 oxide or nitrate, etc. Also identify next process step or use of the product leaving production sites.

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U. S. Atomic Energy Commission
Attn: Mr. M. R. Schneller

December 8, 1966

Presentation of Uncertainties

Forecast high (maximum probable) and low (minimum possible) requirements and in addition:

1. Identify needs by specific program, for example: weapons plutonium for Poseidon, Sprint or plutonium-238 for manned orbital laboratory; heart program; communications satellite, etc.
2. Identify responsible AEC division.
3. Identify other government agencies involved, such as Navy, NASA, DOD, HEW.
4. When possible, identify agency responsible for application.
5. Identify returned material and material from other sources, such as power reactor plutonium and recovered Pu-238 from scrap.

Materials Included in Forecast

Defense	-	Pu-239
		Pu-238
		U-233
		Tritium
		Americium-241
		Others
Nondefense	-	Pu-239
		Pu-238
		Co-60
		Kr-85
		Tm-170
		Tm-171
		Po-210
		U-233
		Np-237
		Am-241
		Cm-242
		Cm-244
		Cf-252
		Cf-254
		Other heat sources
		Other transuranic isotopes

As an alternate, heat-producing isotopes could be divided into three classes: short half-life less than one year; intermediate half-life, one to six years; and long half-life, greater than six years. If classed in this manner, they should also be identified by radiation - alpha, beta or gamma.

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December 8, 1966

Suggest data be presented on a summary form, giving high and low requirements with backup program data sheets giving isotopic breakdown, product form, chemical purity, uncertainty inputs, as defined above. Also recommend that Richland AOP Market Analysis personnel meet with you after your December 9 talks, to discuss data to be reported and report format.