

URANIUM FROM THE U.S.S.R.

Determination of the Commission in
Investigation No. 731-TA-539
(Preliminary) Under the Tariff Act of
1930, Together With the Information
Obtained in the Investigation

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**United States International Trade Commission
Washington, DC 20436**



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Note.--Information that would reveal confidential operations of individual concerns may not be published and therefore has been deleted from this report. Such deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 731-TA-539 (Preliminary)

URANIUM FROM THE U.S.S.R.

Determination

On the basis of the record¹ developed in the subject investigation, the Commission determines,² pursuant to section 733(a) of the Tariff Act of 1930 (19 U.S.C. § 1673b(a)), that there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of imports from the U.S.S.R.³ of uranium,⁴ provided for in subheadings 2612.10.00, 2844.10.10, 2844.10.20, 2844.10.50, and 2844.20.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value (LTFV).

Background

On November 8, 1991, a petition was filed with the Commission and the Department of Commerce by counsel on behalf of the Ad Hoc Committee of Domestic Uranium Producers and the Oil, Chemical and Atomic Workers International Union, alleging that an industry in the United States is materially injured or threatened with material injury by reason of LTFV

¹ The record is defined in sec. 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR § 207.2(f)).

² Commissioners Crawford, Nuzum, and Watson not participating.

³ For purposes of this investigation, the U.S.S.R. includes each and every Republic that was a member of the U.S.S.R. on November 8, 1991.

⁴ The product covered by this investigation is uranium from the U.S.S.R. This includes natural uranium in the form of uranium ores and concentrates; natural uranium metal and natural uranium compounds; alloys, dispersions (including cermets), ceramic products and mixtures containing natural uranium or natural uranium compounds; uranium enriched in U₂₃₅ and its compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing uranium enriched in U₂₃₅ or compounds of uranium enriched in U₂₃₅.

imports of uranium from the U.S.S.R. Accordingly, effective November 8, 1991, the Commission instituted antidumping investigation No. 731-TA-539 (Preliminary).

Notice of the institution of the Commission's investigation and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of November 19, 1991 (56 F.R. 58397). The conference was held in Washington, DC, on December 3, 1991, and all persons who requested the opportunity were permitted to appear in person or by counsel.

VIEWS OF THE COMMISSION

Based on the record obtained in this preliminary investigation, we unanimously determine that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of uranium from the U.S.S.R. that allegedly are sold at less than fair value (LTFV).¹

The legal standard for the Commission's determination in a preliminary antidumping investigation is set forth in section 733(a) of the Tariff Act of 1930.² The Commission determines, based on the best information available at the time of the preliminary determination, whether there is a reasonable indication of material injury to a domestic industry, or threat thereof, or whether the establishment of such an industry is materially retarded, by reason of imports alleged to be sold at LTFV. The "reasonable indication" standard requires more than a finding that there is a possibility of such injury.³ In American Lamb Co. v. United States,⁴ the U.S. Court of Appeals for the Federal Circuit upheld the Commission's longstanding practice of determining in preliminary investigations whether: "(1) the record as a whole contains clear and convincing evidence that there is no material injury or threat of such injury; and (2) no likelihood exists that contrary evidence will arise in a final investigation."

¹ Commissioner Rohr also determines that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of uranium from the U.S.S.R. allegedly sold at LTFV. See Additional Views of Commissioner Rohr at 29.

² 19 U.S.C. § 1673b(a).

³ American Lamb Co. v. United States, 785 F.2d 994, 1003 (Fed. Cir. 1986).

⁴ 785 F.2d 994, 1001 (Fed. Cir. 1986). Under this standard, the Commission may weigh evidence in making a negative determination. Id. at 1003-04.

LIKE PRODUCT

We begin our analysis by defining the "like product." The "like product" is a "product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."⁵ The imported product subject to this investigation, which is determined by the Department of Commerce, is uranium from the U.S.S.R.⁶

Uranium is a silvery-white radioactive metal principally used as a fuel for nuclear reactors. Domestic uranium "like" that subject to the petition undergoes at least four stages of processing. In the initial, or mining, stage, uranium is extracted from rocks and minerals. The resulting product is uranium ore.⁷ Uranium ore is then milled. At the mill, which is typically located near the mine, uranium ore is crushed, ground, and leached to produce uranium concentrate.⁸

The third processing stage is that of conversion, in which the uranium concentrate is transformed into natural uranium hexafluoride.⁹ The fourth stage is enrichment, in which the concentration of the fissible U_{235} isotope in natural uranium hexafluoride is increased to a level sufficient to sustain a nuclear chain reaction in a light-water reactor, the predominant nuclear power generator.¹⁰

⁵ 19 U.S.C. § 1677(10).

⁶ See 56 Fed. Reg. 63711 (December 5, 1991).

⁷ Tr. at 13-14 (Moyer); Energy Information Administration, Uranium Industry Annual: 1990 at 3 (September 1991).

⁸ Tr. at 14 (Moyer). Uranium concentrate can also be produced as a byproduct of the mining of other minerals. Tr. at 15 (Moyer).

⁹ Tr. at 15 (Moyer).

¹⁰ Tr. at 15 (Moyer).

The principal like product issue in this investigation concerns whether enriched uranium and natural uranium hexafluoride constitute distinct like products. Petitioners¹¹ request that the Commission designate a single like product coextensive with the articles under investigation. Respondents,¹² by contrast, argue that the Commission should designate three like products: (1) uranium concentrate and uranium ores; (2) natural uranium hexafluoride, and (3) enriched uranium.

A threshold question that we must consider concerns the analytical technique we should utilize in resolving these like product issues. We have determined to use the analysis that the Commission generally utilizes in resolving like product issues involving semifinished products.¹³ Under this analysis, the Commission examines five factors to determine whether components or semifinished products should be included in the same like product as finished products.¹⁴ Because the articles subject to this investigation are

¹¹ Petitioners are the Ad Hoc Committee of Domestic Uranium Producers, a group of 13 millers and miners, and the Oil, Chemical and Atomic Workers Union, which represents more than 2,500 workers employed in U.S. enrichment and conversion facilities.

¹² Respondents are Nuexco Trading Corp. ("Nuexco"), an importer of Soviet uranium; Global Nuclear Services and Supply, Ltd., a joint venture between Nuexco and the only known exporter of Soviet uranium; and Energy Fuels, Ltd. ("Energy Fuels"), a U.S. uranium producer.

¹³ Although Commissioner Rohr concurs with his colleagues that it is appropriate in this preliminary investigation to find a single like product, he finds the use of the semifinished product analysis to be problematical. See Additional Views of Commissioner Rohr at 30.

¹⁴ These factors are: (1) the necessity for, and costs of, further processing; (2) the degree of interchangeability of articles at different stages of production; (3) whether the article at an earlier stage of production is dedicated to use in the finished article; (4) whether there are significant independent uses or markets for the finished and unfinished articles; and (5) whether the article at an earlier stage of production embodies or imparts to the finished article an essential characteristic or

(continued...)

various forms of a product that have undergone different degrees of processing necessary for commercial use, use of the semifinished product analysis is consistent with Commission practice.¹⁵ As noted below, however, we intend to evaluate thoroughly the basis of the current semifinished products analysis in any final investigation.

¹⁴(...continued)

function. See, e.g., Ball Bearings, Mounted and Unmounted, and Parts Thereof from Argentina, Austria, Brazil, Canada, Hong Kong, Hungary, Mexico, the People's Republic of China, Poland, the Republic of Korea, Spain, Taiwan, Turkey, and Yugoslavia, Invs. Nos. 701-TA-307 and 731-TA-498-511 (Preliminary), USITC Pub. 2374 at 13 & n.34 (April 1991) ("Ball Bearings"); Certain Telephone Systems and Subassemblies Thereof from Japan and Taiwan, Invs. Nos. 731-TA-426 and 428 (Final), USITC Pub. 2237 at 5 n.9 (November 1989).

¹⁵ See, e.g., Fresh and Chilled Atlantic Salmon from Norway, Invs. Nos. 701-TA-302, 431-TA-454 (Final), USITC Pub. 2371 at 8-9 (April 1991) (semifinished product analysis used to determine whether salmon smolt and adult salmon should be included in same like product); 3.5" Microdisks and Media Therefor from Japan, Invs. No. 731-TA-389 (Final), USITC Pub. 2170 at 7, 13-18 (March 1989) (semifinished product analysis used to determine whether complete microdisks and the coated media from which microdisks were made should be included within the same like product); Certain Granite from Italy and Spain, Invs. Nos. 701-TA-289, 731-TA-381-382 (Final), USITC Pub. 2110 at 8-10 (August 1988) (semifinished product analysis used to determine whether granite slab and finished granite should be included within same like product).

Respondents' only real argument against the use of such analysis is that the semifinished product analysis is inapplicable in this investigation because the "finished" product, enriched uranium, is subject to further processing by fabricators. The fact that an article sold in commerce may be subject to further processing, assembly, or combination does not establish, however, that it is insufficiently "finished" for purposes of application of the semifinished product analysis. What is "finished" for purposes of the Commission's analysis is the product analogous to the furthest downstream product within Commerce's scope of investigation. See High-Information Content Flat Panel Displays and Subassemblies Thereof from Japan, Inv. No. 731-TA-469 (Preliminary), USITC Pub. 2311 at 10-13 (September 1990) (semifinished product analysis used with respect to display components; the "finished" products, completed displays, were themselves used as components in computers, medical and office equipment, and military instrumentation); Portland Hydraulic Cement and Cement Clinker from Colombia, France, Greece, Japan, Mexico, the Republic of Korea, Spain, and Venezuela, Invs. Nos. 731-TA-356-363 (Preliminary), USITC Pub. 1925 at 6 (December 1986) (semifinished product analysis used with respect to cement clinker; the "finished" product, cement, needed to be combined with other articles for use as concrete).

We next examine the factors that the Commission traditionally applies in its semifinished products analysis. Regarding the necessity for, and costs of, further processing, the record indicates that uranium concentrate must undergo both conversion and enrichment in order to be used as nuclear fuel.¹⁶ Petitioners indicate that these processing costs are fairly substantial.¹⁷

Regarding interchangeability, uranium concentrate, uranium hexafluoride, and enriched uranium are not interchangeable in use. Uranium that has not been enriched cannot be used as fuel in light-water reactors, the type of fuel reactors used in the United States.¹⁸

As a practical matter, all forms of uranium are "dedicated for use" in enriched uranium; the current record indicates that virtually all uranium concentrate consumed in the United States is used for nuclear fuel.¹⁹ Although there appear to be some independent markets for uranium concentrate, uranium hexafluoride, and enriched uranium, each market involves the same participants -- utilities, the ultimate consumers of enriched uranium.²⁰

Regarding whether the unfinished articles embody or impart an essential characteristic to the finished articles, enriched uranium is valuable to the nuclear fuel industry because it contains U_{235} , the only naturally-existing

¹⁶ Tr. at 15 (Moyer).

¹⁷ Petitioners' Postconference Brief at 9.

¹⁸ Tr. at 15 (Moyer); Report at A-6.

¹⁹ The best information available in this preliminary investigation on this issue has been submitted by petitioners and the U.S. Department of Energy (DOE). Petitioners estimate that between 0.25 and 0.5 percent of U.S. uranium consumption is for uses other than nuclear fuel. Petitioners' Postconference Brief at 13-14. DOE estimates the figure to be less than one percent. See DOE Postconference Brief at 15 n.11.

²⁰ See Report at A-9-11. The existence of independent markets appears to be attributable to utilities' practice of engaging in "swaps" of product. Id.

fissionable isotope.²¹ The U_{235} isotope is present both in uranium concentrate and uranium hexafluoride; the enrichment process only increases its concentration.²² Thus, the "essential characteristic" of enriched uranium -- its U_{235} content -- is imparted by uranium ore and embodied by uranium hexafluoride.

Reviewing the five semifinished products criteria, those criteria concerning the necessity for further processing and interchangeability appear to militate against treating the various forms of uranium at issue as a single like product. The "significant independent uses or markets" criterion generally, although not unambiguously, supports single like product treatment. The "dedication for use" and "essential characteristic" criteria strongly support single like product treatment.

On balance, we conclude that the lack of significant independent uses for unenriched forms of uranium other than for nuclear fuel and the presence of the "essential" U_{235} isotope in all pertinent forms of uranium outweigh the countervailing criteria and support designation of a single like product coextensive with the articles under investigation. This result is consistent with Commission practice in similar cases when both finished and semifinished articles were subject to investigation.²³ In these cases, unfinished articles with a single ultimate use going through a multi-stage production process were

²¹ Report at A-4.

²² Uranium Industry Annual at 3-4; Report at A-5.

²³ In Tungsten Ore Concentrates from the People's Republic of China, Inv. No. 731-TA-497 (Preliminary), USITC Pub. 2367 at 8-9 (March 1991), the Commission indicated that it would not utilize the semifinished products analysis for "finished" products beyond the scope of an investigation. It did not, however, purport to limit the scope of the semifinished products analysis in any other fashion.

found to be within the same like product as the downstream, "finished" product, although substantial value may have been added during the production process.²⁴

Nevertheless, we intend to consider further the like product issue in any final investigation. We believe that a number of issues pertaining to the semifinished products analysis warrant further examination. One such issue concerns whether the same like product analysis is necessary for all the articles -- "semifinished products," "parts," and "components" -- to which the current semifinished products analysis has been applied or only for a subset of these articles.²⁵ Another issue concerns whether additional or different criteria should be used to analyze semifinished products and parts and components issues. We request the parties in any final investigation to address the utility of, and suggest any modifications to, the Commission's

²⁴ See, e.g., Certain Laser-Light Scattering Instruments and Parts Thereof from Japan, Inv. No. 731-TA-455 (Final), USITC Pub. 2328 at 10-14 (November 1990) (components dedicated for use in finished product deemed to be in same like product as finished product, notwithstanding that processing was complicated and involved substantial costs); 3.5" Microdisks and Media Therefor from Japan, Inv. No. 731-TA-389 (Final), USITC Pub. 2170 at 13-18 (March 1989) (coated media and completed microdisks found to be in same like product when media had no independent use except in the production of microdisks, notwithstanding that substantial value was added during processing and there were some independent markets for coated media and microdisks); Certain Forged Steel Crankshafts from the Federal Republic of Germany and the United Kingdom, Invs. Nos. 731-TA-351 and 353 (Final), USITC Pub. 2014 at 7 (September 1987) (unfinished and finished crankshafts deemed single like product when unfinished crankshafts could be used only to make finished crankshafts, notwithstanding that significant value was added during finishing).

²⁵ Chairman Newquist and Vice Chairman Brunsdale also believe that the extent to which both the semifinished and the finished articles like those subject to investigation are produced by integrated producers, and whether producers at different stages of processing share common economic interests, may be pertinent factors in considering the scope of any semifinished products analysis. Cf. Tungsten Ore Concentrates from the People's Republic of China, Inv. No. 731-TA-497 (Preliminary), USITC Pub. 2367 at 9 & n.20 (March 1991).

current semifinished products analysis.

DOMESTIC INDUSTRY

Section 771(4)(A) of the Tariff Act of 1930 defines the relevant domestic industry as the "domestic producers as a whole of a like product, or those producers whose collective output of the like product constitutes a major proportion of the total domestic production of that product."²⁶ This investigation presents two issues concerning the composition of the pertinent domestic industry. The first concerns whether the uranium enrichment operations of the U.S. Department of Energy ("DOE") should be treated as part of the domestic uranium industry. The second concerns whether Energy Fuels, Ltd., a domestic producer of uranium concentrate, should be excluded from the domestic industry pursuant to section 771(4)(B) as a related party.

DOE's Status as a Domestic Industry Participant

We have determined to include DOE's uranium enrichment operations within the domestic uranium industry. We do not believe that either of respondents' arguments in opposition to DOE's inclusion is meritorious.

Respondents' first argument, that DOE is not a "producer," but merely provides the "service" of uranium enrichment, is spurious.²⁷ At the conference, respondents' counsel conceded that enriched uranium is a "product" that some entity produced.²⁸ If enriched uranium is a product, however, then enrichment constitutes an integral part of the production process and DOE must

²⁶ 19 U.S.C. § 1677(4)(A).

²⁷ We note that if this argument were accepted, converters, who provide "services" to utilities on the same basis as DOE, would have to be excluded from the domestic industry as well.

²⁸ Tr. at 174 (Leibowitz).

be deemed to be a "producer."²⁹

Respondents' second argument is that a government-owned entity cannot be included within any "domestic industry" for purposes of title VII. This argument, however, is premised upon a number of inaccurate propositions.

The most serious flaw in respondents' argument is its basic premise: that the language of section 771(4)(A) is ambiguous and must be construed by reference to extrinsic matter.³⁰ The statute, however, expressly delineates what constitutes the domestic industry: "the domestic producers as a whole of the like product." The statute, as worded, encompasses all producers.³¹ It does not state that domestic producers must be profit-making entities, or that they must be individuals, corporations, partnerships, or joint ventures. We see no basis for the Commission administratively inserting such restrictions into the statute. Because DOE is a domestic producer of the like product, it

²⁹ Cf. Gray Portland Cement and Cement Clinker from Mexico, Inv. No. 731-TA-451 (Preliminary), USITC Pub. 2235 at 17-18 (November 1989) ("If the like product includes cement, the grinding and blending of clinker to produce cement constitutes domestic production."). Furthermore, DOE's status as a producer is unaffected by the fact that it enriches uranium pursuant to toll agreements with utilities that hold title to the uranium. See Tr. at 45-46 (Schmitt). The Commission has previously deemed firms that produce the like product pursuant to toll agreements to be part of the pertinent domestic industry. Sweaters Wholly or in Chief Weight of Manmade Fibers from Hong Kong, the Republic of Korea, and Taiwan, Invs. Nos. 731-TA-448-450 (Final), USITC Pub. 2312 at 23, A-21 (September 1990); see Certain Brass Sheet and Strip from France, Italy, Sweden, and West Germany, Invs. Nos. 701-TA-270 and 731-TA-313, 314, 316, and 317 (Final), USITC Pub. 1951 at A-56 (February 1987).

³⁰ See Respondents' Postconference Brief at 22.

³¹ That Title VII expressly defines the term "industry" in the context of production activities distinguishes it from the statutory schemes at issue in the cases relied upon by respondents. The Sherman Act provision construed in United States v. Cooper Corp., 312 U.S. 600 (1941), involved the term "person," which the statute did not define. The Fair Labor Standards Act provision construed in Kennedy v. Silas Mason Co., 68 F. Supp. 576 (W.D. La. 1946), rev'd on other grounds, 70 F. Supp. 929 (W.D. La. 1947), vacated, 334 U.S. 249 (1948), defined an "industry" as a "trade or business."

must be included in the domestic industry absent some statutory basis for exclusion. No such basis exists.

Furthermore, respondents have not furnished and we cannot discern support in the legislative history of Title VII for their more general assertion that the antidumping laws are intended to treat governmental and private activities differently.³² To the contrary, section 771(20) of the Tariff Act of 1930 indicates that antidumping and countervailing duties are generally applicable to importations by the United States.³³ The legislative history of this provision states that:

The Government is obliged to enforce vigorously the unfair trade laws, even as they apply to its own activities. . . [I]f a product is freely traded and available on a commercial basis, the U.S. Government shall be treated like any other U.S. importer of that product.³⁴

We similarly believe that, in light of the manner in which the statute defines the term "industry," if a product is sold on the commercial market, a government-owned entity should be treated the same as any private producer of the product.³⁵

³² U.S. antidumping law does not exempt the activities of foreign governments or their instrumentalities from its scope. Nor does it treat production or export entities owned by foreign governments any differently from privately-owned entities. Instead, the antidumping law applies no matter what type of enterprise produced or exported the articles subject to investigation. If the law were limited to activities of privately-owned entities, the instant investigation could never have been initiated.

³³ 19 U.S.C. § 1677(20). The statute provides a limited exception for imports of goods with exclusively military uses by the Department of Defense.

³⁴ S. Rep. No. 71, 100th Cong., 1st Sess. 121 (1987).

³⁵ Consideration of federal law generally -- which is unnecessary in light of the clarity of the statute -- does not indicate recognition of the type of bright-line distinction between "government" and "industry" asserted by respondents. At least one federal statute expressly defines the term "industry" to include governmental activities. The Civil Rights Act of 1964,

(continued...)

The record also does not support respondents' contention that treating DOE as a domestic producer is illogical because DOE is "discharging its duties as a sovereign -- not conducting a business" by operating uranium enrichment facilities.³⁶ There is no basis in federal law for a conclusion that uranium enrichment is a "sovereign" activity. The Atomic Energy Act does not require DOE to operate a commercial enrichment facility, and DOE has sought for years to divest its enrichment operations.³⁷ Nor does the law preclude non-governmental parties from operating such facilities. A private firm, Louisiana Energy Services, currently has a licensing application pending before the Nuclear Regulatory Commission for operation of a commercial enrichment facility.³⁸ DOE's enrichment operation possesses certain aspects

³⁵(...continued)

42 U.S.C. § 2000e(h), defines the term "industry affecting commerce" to encompass "any governmental industry, business, or activity." More modern case authority than that cited by respondents also recognizes that "governmental" and "business" functions are not always readily distinguishable in the United States today. For example, the Supreme Court, in holding that a state-owned cement plant was not subject to the same type of Commerce Clause restrictions as state regulatory activities, stated that:

When a State buys or sells, it has the attributes of both a political entity and a private business. . . . [W]e cannot ignore the similarities of private businesses and public entities when they function in the marketplace.

Reeves, Inc. v. Stake, 447 U.S. 429, 439 n.12 (1980). The Supreme Court has similarly held governmental entities subject to provisions of antitrust laws when they function as market participants. See Jefferson County Pharmaceutical Ass'n v. Abbott Laboratories, 460 U.S. 150 (1983) (purchases of government-owned entity made for purpose of competing in retail market subject to Robinson-Patman Act); City of Lafayette v. Louisiana Power & Light Co., 435 U.S. 389, 403 (1978) (municipally-owned utility subject to provisions of Sherman Act; opinion acknowledges concept of publicly-owned "business enterprise").

³⁶ Respondents' Postconference Brief at 30.

³⁷ Tr. at 89-90 (Schmitt).

³⁸ Tr. at 89 (Schmitt); Petitioners' Postconference Brief, Attachment D.

of a commercial business. It maintains a marketing force, sets prices in response to commercial conditions, and is statutorily mandated to recover its costs over a reasonable period of time.³⁹ Although DOE's enrichment operation differs in some respects from a commercial business, most notably in that it does not exist to return a profit for its owner, these distinctions are not sufficiently substantial to warrant DOE's exclusion from the domestic industry.

Related Parties

Under section 771(4)(B) of the Tariff Act of 1930, producers which are related to exporters or importers, or which are themselves importers of allegedly dumped or subsidized merchandise, may be excluded from the domestic industry in appropriate circumstances.⁴⁰ Energy Fuels, Ltd., a domestic producer of uranium, shares common ownership and control with Nuexco, which imports uranium from the U.S.S.R.⁴¹ Energy Fuels is thus a related party and we consequently must decide whether appropriate circumstances exist to exclude it from the domestic industry pursuant to the related parties provision. Petitioners request that Energy Fuels be excluded from the domestic industry. Respondents Nuexco and Energy Fuels did not brief the issue.

Application of the related parties provision is within the Commission's discretion based upon the facts presented in each case.⁴² If a company qualifies as a related party under section 771(4)(B), the Commission

³⁹ Tr. at 52-56 (Schmitt); DOE Postconference Brief at 35 and ex. 28; 42 U.S.C. § 2201(v)(iii).

⁴⁰ 19 U.S.C. § 1677(4)(B).

⁴¹ Report at A-15.

⁴² Empire Plow Co. v. United States, 675 F. Supp. 1348, 1352 (CIT 1987).

determines in view of the producer's related status whether "appropriate circumstances" exist for excluding the company in question from the definition of the domestic industry.⁴³ The related parties provision may be employed to avoid any distortion in the aggregate data bearing on the condition of the domestic industry that might result from including related parties whose operations are shielded from the effects of the subject imports.⁴⁴ The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude the related parties include:

- (1) the percentage of domestic production attributable to related producers;
- (2) the reason why importing producers choose to import the articles under investigation -- to benefit from the unfair trade practice or to enable them to continue production and compete in the domestic market; and
- (3) the competitive position of the related domestic producer vis-a-vis other domestic producers.⁴⁵

The Commission has also considered whether each company's books are kept separately from its "relations" and whether the primary interests of the related producers lie in domestic production or in importation.⁴⁶

Much of the information pertaining to application of these factors with respect to Energy Fuels is proprietary. We can note that Energy Fuels has

⁴³ See, e.g., Digital Readout Systems and Subassemblies Thereof from Japan, Inv. No. 731-TA-390 (Final), USITC Pub. 2150 at 15 (January 1989).

⁴⁴ Heavy Forged Handtools from the People's Republic of China, Inv. No. 731-TA-457 (Final), USITC Pub. 2357 at 18 (February 1991).

⁴⁵ See, e.g., Thermostatically Controlled Appliance Plugs and Internal Probe Thermostats Therefor from Canada, Japan, Malaysia and Taiwan, Invs. Nos. 701-TA-292, 731-TA-400, 402-404 (Final), USITC Pub. 2152 (January 1989); Granular Polytetrafluoroethylene Resin from Italy and Japan, Invs. Nos. 731-TA-385-386 (Final), USITC Pub. 2112 (August 1988); Rock Salt from Canada, Inv. No. 731-TA-239 (Final), USITC Pub. 1798 (January 1986).

⁴⁶ See, e.g., Rock Salt, USITC Pub. 1798 at 12.

been a related party by virtue of its common ownership and control with Nuexco only since 1991.⁴⁷ Thus, a relatively small amount of the pertinent data in this investigation is affected by Energy Fuels's related party status. The Commission has previously indicated that a producer's obtaining related party status late in the period of investigation is a factor militating against exclusion.⁴⁸

Additionally, we have reviewed aggregate data bearing on the condition of the domestic industry both with and without Energy Fuels to ascertain whether its inclusion might cause any distortion in the data. This review indicates that Energy Fuels's exclusion from the domestic industry will not affect overall domestic industry trends.⁴⁹

Accordingly, for purposes of this preliminary investigation, we have determined not to exclude Energy Fuels from the domestic industry.

CONDITION OF THE DOMESTIC INDUSTRY

In determining the condition of the domestic industry, we consider, among other factors, domestic consumption, domestic production, capacity, capacity utilization, shipments, inventories, employment, market share, financial performance, the ability to raise capital, and investment.⁵⁰ In addition, we evaluate all of these factors in the "context of the business cycle and conditions of competition that are distinctive to the affected

⁴⁷ See Petitioners' Postconference Brief at 19.

⁴⁸ Polychloroprene from France and the Federal Republic of Germany, Invs. Nos. 731-TA-446-447 (Preliminary), USITC Pub. 2233 at 19 (November 1989); cf. Minivans from Japan, Inv. No. 731-TA-522 (Preliminary), USITC Pub. 2402 at 29 n.91 (July 1991) (exclusion inappropriate when producer did not obtain related party status until after period of investigation).

⁴⁹ See Report, Appendix C.

⁵⁰ 19 U.S.C. § 1677(7)(C)(iii).

industry."⁵¹

The uranium industry features a number of distinct "conditions of competition" that influence our determination. One such condition is the incidence of long-term contracts in the uranium industry. DOE provides enrichment services only pursuant to long-term contracts, and requires each contracting utility to specify five years in advance the percentage of its enriched uranium requirements that DOE will furnish.⁵² Consequently, DOE's current performance reflects purchasing decisions made years before. Similarly, contract periods for conversion services range from five to eight years in length and contain annual minimum and maximum amounts of the product to be toll-produced.⁵³

Uranium concentrate producers, by contrast, contract on both single-year and multiple-year bases.⁵⁴ Thus, uranium concentrate producers' trade and financial data are more likely to reflect current market conditions and any effects caused by recent Soviet uranium imports than are data from converters or DOE.⁵⁵ Some of the older multiyear contracts that are still in effect, however, have either fixed prices or base-price escalators and were

⁵¹ 19 U.S.C. § 1677(7)(C)(iii).

⁵² DOE Postconference Brief at 25-26.

⁵³ Report at A-44.

⁵⁴ Report at A-44.

⁵⁵ Additionally, data from the remaining domestic industry participants, enriched uranium oxide producers, are of little commercial significance. Enriched uranium oxide is produced as an intermediate step in the fuel fabrication process, and all domestic transactions in enriched uranium oxide are intracompany transfers. See Report, Table 17; Tr. at 82 (Moyer). The Commission was able to obtain very little usable data concerning enriched uranium oxide production operations in this preliminary investigation. Report at A-34 & n.26. Consequently, these operations will not be discussed further.

negotiated when market conditions for producers were relatively favorable.⁵⁶ To the extent that uranium concentrate producers benefit from such long-term contracts, their operating and financial results also may not fully reflect the effect of recent Soviet imports.

As the preceding discussion indicates, different sectors of the uranium industry face distinct conditions of competition. Although we have designated one like product and one domestic uranium industry and must assess the condition of this industry as a whole,⁵⁷ we have analyzed some data on a sector-by-sector basis for purposes of this preliminary investigation in light of these conditions. Moreover, sector-by-sector analysis is necessary for certain types of trade data. We have discussed output-related measures on an individual sector basis because aggregated data could result in the double- and triple-counting of product in various stages of processing; moreover, DOE measures output in different units than do uranium concentrate producers.⁵⁸ Finally, analysis of some indicators on a sector-by-sector basis is helpful in this preliminary investigation because questionnaire coverage varies for the different industry sectors.⁵⁹ Questionnaire coverage is complete for the uranium concentrate industry and DOE's enrichment operation.⁶⁰ By contrast, we did not obtain meaningful questionnaire responses from any uranium

⁵⁶ See Report at A-21, A-44.

⁵⁷ See Sandvik AB v. United States, 721 F. Supp. 1322, 1330 (CIT 1989); Copperweld Corp. v. United States, 682 F. Supp. 552, 569 (CIT 1988). Compare Gifford-Hill Cement Co. v. United States, 615 F. Supp. 577, 582-82 (CIT 1985) (Commission permissibly evaluated sub-markets within regional industry).

⁵⁸ Compare Report at A-16 with id. at A-28.

⁵⁹ Should we find a single like product in any final investigation, we intend to reexamine the propriety of sector-specific analysis.

⁶⁰ Report at A-16.

converter.⁶¹

The most meaningful data on the first factor that we examine, domestic consumption, are industrywide statistics. The best information available on this factor is the calculation of U.S. nuclear reactor requirements published by the Uranium Institute.⁶² These data indicate that utilities' domestic consumption of uranium concentrate rose slightly during the period of investigation. Consumption rose by 0.7 percent between 1988 and 1990, despite declining between 1988 and 1989, and rose by 6.2 percent between January-September 1990 and January-September 1991 ("the interim period comparison").⁶³ An industrywide statistic, based on the Uranium Institute consumption data, also provides the most meaningful measure of market share. These data indicate that the percentage of domestic consumption supplied by U.S. uranium concentrate producers declined from 29.0 percent in 1988 to 18.5 percent in 1990 and to 18.0 percent during the interim period of 1991.⁶⁴

U.S. production of uranium concentrates declined by 29.4 percent between 1988 and 1990 and by 18.5 percent in the interim period comparison.⁶⁵

⁶¹ Report at A-27. We intend to pursue vigorously data from uranium converters in any final investigation, and will consider taking adverse inferences against the converters if they persist in refusing to provide data.

⁶² Report at A-11-14. We have not utilized the Commission's usual approach of calculating a consumption figure based on shipment data. The industry practice of engaging in sales, exchanges, and loans of product without any physical product movement taking place renders aggregate shipment data an unreliable measure of consumption. See Report at A-11.

⁶³ Report, Table 1.

⁶⁴ Report, Table 21. Vice Chairman Brunsdale and Commissioner Rohr do not believe that the data the Commission currently possesses with regard to the relationship between shipments and apparent consumption are sufficiently reliable to provide a clear understanding of trends in market share.

⁶⁵ Report, Table 2.

Shipments of uranium concentrate produced in U.S. producers' plants declined both in quantity and value throughout the period of investigation.⁶⁶ Capacity of uranium concentrate producers showed irregular trends, increasing by 5.0 percent between 1988 and 1989, decreasing by 13.4 percent between 1989 and 1990, and increasing by 3.6 percent during the interim period comparison. Capacity utilization, which was at a low level when the period of investigation began, nonetheless declined sharply, from 45.6 percent in 1988 to 33.1 percent in 1990 and to 27.4 percent in the first three quarters of 1991.⁶⁷

Similar output-related measures for DOE's enrichment operations are more positive.⁶⁸ Production increased significantly throughout the period of investigation. The quantity and value of shipments increased slightly between 1988 and 1990, notwithstanding a decline between 1989 and 1990.⁶⁹ Because capacity remained stable throughout the period of investigation, capacity utilization also increased sharply; nonetheless, there was substantial unused capacity throughout the period.⁷⁰

Inventories of uranium concentrate producers were at extremely high levels throughout the period of investigation. Inventories amounted to 82.0

⁶⁶ Report, Table 3.

⁶⁷ Report, Table 2.

⁶⁸ Specific data pertaining to DOE's enrichment operations are proprietary. We have, however, been granted permission by DOE to discuss performance trends in a general manner. DOE did not report any 1991 data in its questionnaire response.

⁶⁹ Report, Table 14.

⁷⁰ Report, Table 13. Production and capacity utilization increased whether measured under DOE's actual operating tails assay or under a fixed 0.2 percent operating tails assay. Id.

percent of 1988 production, 93.0 percent of 1989 production, 139.5 percent of 1990 production, and 126.5 percent of interim period 1991 production.

Absolute levels of inventories moved irregularly.⁷¹ DOE's inventory levels, which were also high compared to its level of production, declined sharply during 1988 and 1989, but rose in 1990.⁷²

Employment-related indicators were generally negative for uranium concentrate producers. The record indicates that uranium concentrate producers undertook a substantial number of employment reductions, many related to plant closures, throughout the period of investigation.⁷³ Indeed, the number of production and related workers declined by 22.9 percent between 1988 and 1990 and by 19.7 percent during the interim period comparison. Hours, aggregate wages, aggregate compensation, and productivity also fell.⁷⁴ For DOE's enrichment operation, by contrast, the number of production and related workers and hours worked rose slightly; aggregate wages and aggregate compensation rose moderately.⁷⁵

Uranium concentrate producers showed positive but declining operating income throughout the period of investigation.⁷⁶ Over half the reporting producers, however, reported operating losses during each year in the period; a number of the profitable producers indicated that their experience was

⁷¹ Report, Table 5.

⁷² Report, Table 14.

⁷³ Report at A-21, Table 7.

⁷⁴ Report, Table 6.

⁷⁵ Report, Table 15.

⁷⁶ Report, Table 9.

principally the result of older long-term contracts.⁷⁷ The DOE enrichment enterprise's operating income increased very sharply between 1988 and 1989, and moderately between 1989 and 1990.⁷⁸

Investment-related indicators for uranium concentrate producers were mixed. Capital expenditures displayed very wide fluctuations, rising by over 200 percent between 1988 and 1989, falling by 76.8 percent between 1989 and 1990, and increasing by 58.8 percent in the interim period comparison.⁷⁹ Research and development expenditures declined by 66.2 percent between 1988 and 1990, but rose by 23.0 percent in the interim period comparison.⁸⁰

Many indicators pertaining to the condition of the uranium industry are negative. The industry overall has a very low and declining market share. The performance of uranium concentrate producers has been dismal -- characterized by declining production and shipments, very low and declining capacity utilization, enormous inventories, falling employment and numerous plant shutdowns, and deteriorating profitability. We believe the difficulties of this sector, whose performance is less closely tied than the others' to long-term contracts, are a critical indication of overall industry weakness today.⁸¹

⁷⁷ Report at A-21, Table 9.

⁷⁸ Report, Table 16.

⁷⁹ Report, Table 11.

⁸⁰ Report, Table 12.

⁸¹ Commissioner Rohr views the indicators of this industry's performance as at least mixed. He concurs in the conclusion that the performance of those uranium concentrate producers that do not have the benefit of long-term contracts has been poor but notes that those producers generally have not accounted, over the period of investigation, for a large percentage of domestic production. He concludes that an affirmative finding of present

(continued...)

Other indicators, however, are unknown or positive. We do not have any data concerning the condition of uranium converters. DOE's enrichment enterprise shows generally positive results on production, employment, and operating performance. On balance, and considering the condition of the industry as a whole, we believe the record contains a reasonable indication that the domestic industry is materially injured.⁸²

REASONABLE INDICATION OF MATERIAL INJURY
BY REASON OF ALLEGEDLY LTFV IMPORTS

In making preliminary determinations in antidumping investigations, we consider whether there is a reasonable indication that the material injury being suffered by the domestic industry is "by reason of" the imports under investigation.⁸³ We consider the volume of imports, their effect on prices for the like product, and their impact on domestic producers.⁸⁴ In doing so, we consider whether import volumes or increases in volume are significant, whether there has been significant underselling by imports, whether imports significantly depress or suppress prices for the like product, and such factors as domestic production, sales, capacity utilization, inventories,

⁸¹(...continued)

injury is warranted because, as required by American Lamb, there is not clear and convincing evidence that there is no reasonable indication of injury. See also his Additional Views for a discussion of the vulnerability of the industry.

⁸² Vice Chairman Brunsdale does not reach a separate legal conclusion concerning the presence or absence of material injury based on this information. Although she does not believe an independent determination is either required by the statute or helpful, she finds the discussion of the condition of the domestic industry to be helpful in determining whether any injury resulting from the allegedly LTFV imports is material.

⁸³ 19 U.S.C. § 1673b(a).

⁸⁴ 19 U.S.C. § 1677(7)(B)(i).

employment, and profits.⁸⁵

Although we may consider information that indicates that injury to the industry is caused by factors other than the allegedly LTFV imports, we cannot weigh causes.⁸⁶ The imports need only be a cause of material injury.^{87 88}

The volume of uranium imports from the U.S.S.R. increased substantially in both absolute and relative terms during the period of investigation. Customs data show that the value of all uranium imports from the U.S.S.R. increased by 136.9 percent between 1988 and 1989 and by a further 467.7 percent between 1989 and 1990.⁸⁹ The Customs data additionally indicate that the quantity of both enriched and natural imports increased dramatically

⁸⁵ 19 U.S.C. § 1677(7)(C).

⁸⁶ "Current law does not . . . contemplate that the effects from the subsidized (or LTFV) imports be weighted against the effects associated with other factors (e.g. the volume and prices of nonsubsidized imports, contraction in demand or changes in patterns of consumption, domestic producers, developments in technology, and the export performance and productivity of the domestic industry) which may be contributing to overall injury to an industry." S. Rep. No. 249, 96th Cong., 1st Sess. 57 (1979). See also H.R. Rep. No. 317, 96th Cong., 1st Sess. 46-47 (1979).

⁸⁷ E.g., United Engineering & Forging v. United States, slip op. 91-101 at 36 (CIT, November 18, 1991); Citrosuco Paulista, S.A. v. United States, 704 F. Supp. 1075, 1101 (CIT 1988); Hercules, Inc. v. United States, 673 F. Supp. 454, 481-82 (CIT 1987).

⁸⁸ Vice Chairman Brunsdale agrees that the Commission is not to weigh causes. It must nonetheless determine that the injury "by reason of" the subject imports is material in order to reach an affirmative determination. While the a-cause-of-material-injury formulation used in the text has received some favorable commentary in judicial dicta, it finds no support in the language of the statute or in the legislative history. For a full treatment of this issue, see Certain Telephone Systems and Subassemblies Thereof from Japan and Taiwan, Invs. Nos. 731-TA-426 and 428 (Final), USITC Pub. 2237 at 147-249 and particularly 228-248 (November 1989) (Dissenting Views of Vice Chairman Cass).

⁸⁹ Report, Table E-1.

throughout the period of investigation.⁹⁰ Commission questionnaire data, computed on an industrywide basis, similarly show large increases in both import quantities and market penetration for Soviet uranium throughout the entire period of investigation.⁹¹ Market penetration had reached significant levels in 1990 and the interim period of 1991.^{92 93}

The record concerning pricing and the incidence of underselling is incomplete. Information concerning delivered prices of uranium concentrate based on spot market sales reported by producers and the one responding importer showed the imported Soviet product to be priced higher than the domestic product during the period surveyed.⁹⁴ Information on delivered prices of uranium concentrate based on spot market sales during the same period reported by the purchasing electric utilities, however, showed underselling by the Soviet product in the majority of price comparisons.⁹⁵ We will attempt to develop information to reconcile this discrepancy during any

⁹⁰ Report, Table E-1. Customs figures for 1988 are not available. Additionally, meaningful market penetration figures cannot be derived using the Customs data.

⁹¹ Report, Tables 20, 21. The questionnaire data are proprietary, although we have been granted permission by the single responding importer to discuss trends.

⁹² Report, Table 21. Moreover, the questionnaire data understate U.S.S.R. import levels and market penetration because all known importers did not furnish questionnaire responses.

⁹³ We note that in investigations in which changes of inventories are significant, the Commission traditionally uses shipments of imports rather than imports themselves to analyze market share because shipments reflect inventories. The Commission was unable to do so in this investigation due to data problems. Market penetration levels may therefore be misleading and additional information will be sought in any final investigation.

⁹⁴ Report at A-51, Table 26.

⁹⁵ Report, Table 27.

final investigation. We will additionally attempt to develop a meaningful method for comparing prices of imported and U.S.-produced uranium products sold under contractual arrangements.⁹⁶

There is a reasonable indication that the subject imports have had significant price effects on the domestic like product. Uranium is a fungible product produced to standard industry specifications, increasing the likelihood that Soviet imports can affect domestic prices.⁹⁷ Many indices of domestic prices declined during the period of investigation, at a time of rising Soviet imports. Spot market price levels for uranium concentrate have generally declined since 1989.⁹⁸ Tolling fees charged by U.S. uranium converters have fallen sharply since 1990.⁹⁹ Enrichment fees charged by DOE declined during 1991.¹⁰⁰ We cannot dismiss a causal connection between these price declines and the simultaneous entry of large quantities of Soviet imports into the U.S. market on the basis of this record.

Consequently, the current record provides a sufficient basis for an affirmative determination. Considering the condition of the domestic industry and the information in the record showing sharp increases in the quantity, value, and market penetration of Soviet imports and declining price levels, we

⁹⁶ Although the record contains price comparisons for Soviet and domestically-produced uranium concentrate sold pursuant to contractual arrangements, these comparisons may be biased because the contracts being compared were not negotiated at the same time. See Report at A-51. Meaningful pricing data for Soviet enriched uranium sold under contract could not be developed from the questionnaire responses. See Report at A-47.

⁹⁷ Report at A-42-43; Tr. at 21 (Moyer), 164 (Peterson).

⁹⁸ Report, Table 22.

⁹⁹ Report, Table 24.

¹⁰⁰ Report, Table 25.

conclude that there is a reasonable indication that the domestic uranium industry has been materially injured by reason of allegedly LTFV Soviet imports.¹⁰¹

Moreover, there is considerable pertinent information that is not currently in the record but potentially may be obtained in a final investigation. This includes trade, employment, and financial data concerning U.S. uranium converters, import data from at least one, and possibly numerous, significant importers of the Soviet product, data that would permit pricing comparisons between Soviet and domestically-produced enriched uranium and uranium hexafluoride, material permitting more meaningful price comparisons concerning uranium concentrate, and information concerning the Soviet uranium industry that may be pertinent to threat analysis. Under American Lamb, the incomplete nature of the current record provides further grounds supporting our affirmative preliminary determination.

¹⁰¹ Due to the incomplete data on both prices and volumes of imports, Commissioner Rohr believes the affirmative finding is based on the lack of clear and convincing evidence that allegedly LTFV imports are not a cause of injury.

ADDITIONAL VIEWS OF COMMISSIONER DAVID B. ROHR

I concur with my colleagues that an affirmative determination is warranted in this preliminary investigation concerning uranium from the Union of Soviet Socialist Republics that is alleged to be sold in the U.S. market at less than fair value (LTFV). I find, however, that I have serious reservations with respect to several aspects of the analysis of my two colleagues who participated in this investigation, Chairman Newquist and Vice Chairman Brunsdale. These reservations prompt me to add these additional views.

Specifically, while I agree that, for purposes of this preliminary investigation, the finding that there is a single like product is appropriate, I disagree with the use of the semifinished product analysis that my two colleagues have employed. I believe that the domestic product in this investigation is more analogous to that considered by the Commission in its recent investigation of *Tungsten Ore Concentrates from the People's Republic of China*.¹ While there are certain factual aspects of this investigation which may compel a different like product answer from that arrived at in *Tungsten*, I believe the analysis is much more appropriate.

Second, while I also agree that the information obtained in this preliminary investigation is insufficient to meet the "clear and convincing" test of no present injury set forth in *American Lamb*,² I believe there is a serious question of whether the industry can be said to be *currently* experiencing material injury by reason of the Soviet imports. I am therefore making the determination that there is a reasonable indication that the domestic industry is *materially injured or threatened with material injury* by reason of the allegedly LTFV Soviet imports. My analysis of the like product issue and the threat posed by the allegedly LTFV Soviet imports are set forth in these additional views.

¹ Inv. No 731-TA-497 (Final), USITC Pub. 2447 (November 1991); Inv. No. 731-TA-497 (Preliminary), USITC Pub. 2367 (March 1991).

² 785 F.2d 994 (Fed. Cir. 1986).

Like Product

The uranium currently being imported from the U.S.S.R. consists of uranium ore concentrates and enriched uranium hexafluoride.³ These are two of the intermediate products of nuclear reactor fuel. Other raw or intermediate products include unconcentrated uranium ore, natural (unenriched) uranium hexafluoride, and the fabricated fuel rods themselves. This investigation has posed the difficult question of what domestic product is "like" the two imported intermediates, the ore concentrates and the enriched hexafluoride.

My two colleagues have determined there is a domestic product "like" the two imported intermediates consisting of all forms of uranium up to and including enriched uranium hexafluoride, but not including the further processed fuel rods and assemblies. I agree with my colleagues to the extent that in the absence of clear and convincing information suggesting the use of multiple like products in a preliminary investigation, the more appropriate course for the Commission is to base its further analysis on a single like product and seek further information on the like product issue in any final investigation.

My two colleagues have indicated, however, that they have reached their conclusion on the basis of the Commission's semifinished product analysis. I believe this mode of analysis to be highly questionable in the present circumstances. I decline to support its use.

The Commission developed the semifinished product analysis in the mid-1980's in investigations such as *64K DRAMS*.⁴ Its initial and quite appropriate articulation was in investigations involving assembled products and their components.⁵ It has also been used in

³ Import statistics also show small quantities of natural (unenriched) uranium hexafluoride also being imported from the U.S.S.R. The Commission will continue to investigate the existence or nonexistence of such imports.

⁴ *64K Dynamic Random Access Memory Components from Japan*, Inv. No. 731-TA-270 (Final), USITC Pub. 1862 (1986). I note also that initially the analysis was viewed as supplemental to the Commission's traditional like product analysis. *Erasable Programmable Read Only Memories from Japan*, Inv. No. 731-TA-288 (Final), USITC Pub. 1927 (December 1986). It is not clear it was ever intended to replace that analysis.

⁵ See, e.g., *Ball Bearings, Mounted and Unmounted, and Parts Thereof from Argentina, Austria, Brazil, Canada, Hong Kong, Hungary, Mexico, the People's Republic of China, Poland, the Republic of Korea, Spain, Taiwan, Turkey and Yugoslavia*, Inv. Nos. 701-TA-307 and 731-TA-498-511 (Preliminary), USITC Pub. 2374 (April 1991) and *Certain Telephone Systems and Subassemblies Thereof from Japan and Taiwan*, Inv. Nos. 731-TA-426 and 428 (Final), USITC

a separate line of cases involving what have been characterized as "finishing" operations.⁶ In such investigations, an initial manufacturing process imparts the essential "character" of the article under investigation, while a separate set of processes make it ready for use by bringing it into specific tolerances or adding some additional subsidiary characteristic which improves its usability.

The semifinished products analysis is a recognition of the increased complexity of modern production processes and it has proved its usefulness, at least as a supplementary mode of analysis, in many cases in which it has been employed. It is not, however, necessarily appropriate in all circumstances involving complex production processes. In the recent *Tungsten* decision the Commission declined to apply this mode of analysis to a mineralogical product. I believe this decision to be correct.

Tungsten is mined as an ore. It is then subject to an essentially mechanical milling process in which it is concentrated to remove waste material and thereby increase the tungsten content in the product. It is then subject to a chemical process which converts the concentrate into ammonium paratungstate (APT). In further chemical processes, the APT is converted into tungstic acid, tungstic oxide, and/or tungsten carbide before being made into a variety of end products. In the *Tungsten* investigation, the Commission declined to find a single like product which would have included tungsten at multiple processing stages, specifically the ore concentrates and APT.

The Commission provided several reasons for its decision not to view the different tungsten intermediates as a single like product. In my view, the principal reason was the

Pub. 2237 (November 1989).

⁶ See, e.g., *Certain Forged Steel Crankshafts from the Federal Republic of Germany and the United Kingdom*, Inv. Nos. 731-TA-351 and 353 (Final), USITC Pub. 2014 (September 1987) and *Certain Granite from Italy and Spain*, Inv. Nos. 701-TA-289 & 731-TA-381 and 382 (Final), USITC Pub. 2120 (August 1988).

very separate production of the two forms. The ore concentrates are mined and then concentrated by a mechanical production process. APT is produced by separate chemical processes.

In footnote 18 to the *Tungsten* preliminary decision,⁷ the Commission addressed the semifinished product analysis which it was urged to apply to find that APT and the concentrates were a single like product. We declined to apply that analysis explaining its inappropriateness. We indicated that the semifinished or component analysis was designed for a different kind of production process. We also indicated that had we applied the analysis, the facts of the investigation supported a finding of multiple like products.

The present investigation presents facts both similar to and different from those of the *Tungsten* investigation. In the present investigation, at least two separate intermediate uranium products, concentrates and enriched hexafluoride, are within the scope of the investigation. Only one intermediate, concentrate, was the subject of the investigation in *Tungsten*. It is not clear to me, however, why this difference in the articles subject to investigation should be an outcome determinative fact for a determination of the domestic like product. The Commission can make, and often has made, broader or more narrow like product determinations than the articles subject to investigation. Why there should necessarily be a distinction between upstream and downstream products, apart from the unique facts of particular cases, is not obvious.

What then are the similarities and differences between tungsten and uranium? Both are mined and subjected to a process of concentration to remove waste material at the mine site. Unlike tungsten, however, the concentration process for uranium appears to be more chemically oriented than the mostly mechanical concentration process used for tungsten. This is, at least in part, due to the fact that the most modern, and perhaps cost effective, method of mining uranium involves *in situ* leaching, a partly chemical process.

⁷ *Tungsten Preliminary* at 8-9.

Both tungsten and uranium concentrates are then sold or moved to chemical production facilities where they are transformed into other intermediates, APT and uranium hexafluoride. As the Commission indicated in footnote 18, tungsten ore concentrates and APT are not interchangeable and the concentrate does not impart the "essential physical and function characteristics that distinguish APT from other intermediate products that use APT or, distinguish these intermediates from each other."

In the case of uranium, the situation may be similar. On the one hand, an essential characteristic of both uranium concentrates and uranium hexafluoride, both natural and enriched, can be said to be their uranium content.⁸ However, by the same token an essential characteristic of tungsten concentrates and APT, as well as the other tungsten intermediates, is their tungsten content. Just as APT was distinguishable from, and not interchangeable with, the concentrate, uranium hexafluoride can be distinguished by the essential characteristic which the conversion of concentrate into hexafluoride imparts to the uranium. That is, uranium hexafluoride is distinguishable by its ability to be vaporized into a gaseous state necessary to the separation of the fissionable 235 isotope from the 238 isotope. This is a characteristic not shared by the concentrate.

Another factor which may be important is the channels of distribution for tungsten and uranium. In both instances there were few relationships between companies operating at different levels of production. In *Tungsten*, in fact, one company operated at both the TOC and APT levels. In this investigation, no companies operate at more than one level of production. Further, the very fact that the Commission cannot gather coherent data on a single product industry basis is itself suggestive of the need to deal with uranium intermediates as separate like products. Unlike tungsten, however, it appears, although additional information is needed on this issue, that once uranium concentrate is sold, it is

⁸ Even more specifically the essential physical characteristic from the point of view of the end users is the content of uranium 235, the fissionable isotope of uranium.

owned essentially by its end users, electric utilities, who contract with converters and the DOE to provided a manufacturing service for them. This direct ownership of the uranium by its end users may be a significant factor distinguishing uranium from tungsten.

In conclusion, there are three real possibilities for dealing with the like product issue in this investigation. The first, which I adopt solely for purposes of this preliminary investigation, is to deal with all of the uranium intermediates subject to this investigation as a single like product.

A second possibility is to deal with uranium ores and concentrates as one like product and uranium hexafluoride, both enriched and unenriched, as a second like product. In such a situation, it may be appropriate to analyze the question of whether the enriched and unenriched forms of uranium hexafluoride are one or more like products on the basis of the Commission's traditional semifinished product criteria.

The third possibility is to find three separate like products. In this situation, we would distinguish between enriched and unenriched uranium hexafluoride as separate like products either on the basis of a *Tungsten*-type analysis or a semifinished product analysis. I expect the Commission to gather additional information and the parties to address this issue more fully should this matter return to the Commission for a final investigation.

Threat of Material Injury by Reason of Allegedly LTFV Imports

In making a determination as to whether there is a reasonable indication that imports threaten a domestic industry with material injury, I customarily employ a two stage analysis. First, I look at the state of the domestic industry to determine the extent of its vulnerability to the deleterious effects of allegedly LTFV imports. Second, I look at the "capabilities and intentions"⁹ of the exports with respect to the causing of material injury. In making my

⁹ I use the term "capabilities and intentions" in the broad sense that a threat of injury exists when there is the capability to cause injury and the evidence that those capabilities are being or will be exercised in such a manner as to cause the injury. The statutory factors listed in section 771 are the means by which I determine the capabilities and intentions of the exports.

determination in this investigation, I note the many gaps in the Commission's information which make conclusions with regard to either stage very difficult.

With regard to vulnerability, I note that I have preliminarily concurred in the Commission's conclusion that there is a reasonable indication that this industry is currently experiencing material injury. I did so because I cannot find there is clear and convincing evidence to the contrary, and I expect further information that might be obtained in the final will clarify the situation. Nonetheless, I also note that several aspects of the data before the Commission are more suggestive of vulnerability to material injury than they are of current material injury.

First, I note that the Commission possesses virtually no data regarding the condition of the "converters," those companies which chemically process uranium concentrates into natural uranium hexafluoride. Second, our data on the operation of the DOE enrichment operations does not appear to be indicative of material injury at the present time. Third, our data with regard to the operation of the miners and millers is more extensive, but by no means complete.¹⁰ Fourth, while there is a record of DOE designations of this industry as "nonviable", it is not clear at this time how the methodology used to make such determination relates to the Commission's determination of material injury.

While the data on production and shipments clearly show declines, it is difficult to relate either of these two figures to consumption, which is a computer generated estimate of nuclear reactor requirements. The large movements of inventories and other transactions makes what is happening to production and shipments difficult to measure.

The financial picture of this industry is also unclear. Overall operating returns appear to have dropped a little but remain among the strongest the Commission has examined. On the other hand, this performance is largely the result of only a very limited number of the producers. As the Commission notes, the spectacular performance of some companies is largely

¹⁰ While we do have responses from all known producers in this sector, additional information is necessary on several key issues, including such matters as inventories and financial performance.

the result of old contracts.¹¹ I do not feel this explanation of the profitability of the companies requires the Commission to discount such companies in its assessment of the condition of the industry. To base a conclusion of material injury solely on the performance of that segment of the industry that does not have long term contracts is contrary to the Commission's statutory requirement to assess the condition of the industry as a whole.

The different performance of companies without old long term contracts is, however, important as it may indicate how even those companies who have benefitted from such contracts will perform in the absence of such contracts. It clearly indicates a vulnerability to injury in the absence of the contracts. Because we also know that these contracts are expiring, and are likely not to be renewed, the likelihood of rapid significant declines in the performance of the industry as a whole is very great.

I believe therefore that, whether or not the domestic industry is currently experiencing material injury, there is certainly a reasonable indication of extreme vulnerability to such injury.

The second element in my threat determination involves my assessment of the imports. I do this by looking at the factors set forth in section 771(7)(F) of the Tariff Act of 1930. To wit:

- (I) if a subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the subsidy is an export subsidy inconsistent with the Agreement),
- (II) any increase in production capacity or existing unused capacity in the exporting country likely to result in a significant increase in imports of the merchandise to the United States,
- (III) any rapid increase in United States market penetration and the likelihood that the penetration will increase to an injurious level,
- (IV) the probability that imports of the merchandise will enter the United States at prices that will have a depressing or suppressing effect on domestic prices of the merchandise,
- (V) any substantial increase in inventories of the merchandise in the United States,
- (VI) the presence of underutilized capacity for producing the merchandise in the exporting country,

¹¹ Views of the Commission at 21-22.

(VII) any other demonstrable adverse trends that indicate the probability that the importation (or sale for importation) of the merchandise (whether or not it is actually being imported at the time) will be the cause of actual injury,

(VIII) the potential for product-shifting if production facilities owned or controlled by the foreign manufacturers, which can be used to produce products subject to investigation(s) under section 1671 or 1673 of this title or to final orders under section 1671e or 1673e of this title, are also used to produce the merchandise under investigation,

(IX) in any investigation under this subtitle which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both), and

(X) the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the like product.¹²

Of course, in assessing the threat posed by imports I look to whether it is real and imminent and not based upon mere conjecture. Of course, not all factors are important in every investigation and several involve an analysis of related factual phenomena.

The subject of this investigation is allegedly dumped rather than subsidized imports. Factor (I) is therefore not relevant.

Factors (II) and (VI) relate to foreign capacity to produce the articles subject to investigation. The Commission was able to collect virtually no information on these issues. I hope that we will be able to obtain additional information in any final investigation.

Factor (III) relates to increases in market penetration. As indicated in the Commission's Views, imports have increased dramatically in 1990 and again in interim 1991.¹³ The same is true whether examined on an absolute basis or in terms of market share. However, as indicated in the footnotes in the Commission's Views with regard to market share,¹⁴ the differing basis for statistics on consumption, shipments and imports make the collection of an

¹² 19 U.S.C. § 1677(7)(F)(i), as amended by 1988 Act sections 1326(b), 1329.

¹³ Views of the Commission at 24-25.

¹⁴ See Views of Commission at 19 n.64, 25 n.93.

accurate market share number somewhat questionable. Nevertheless, while an exact number is difficult to compute, the increasing trend seems rather clear.

Factor (IV) relates to pricing. I believe the Commission's Views accurately analyze the state of the Commission's limited record with regard to pricing.¹⁵ Uranium concentrate producers appear in many cases to be fulfilling their requirements with imports of spot priced Soviet concentrate, which costs them less to buy than to domestically produce. Spot prices themselves have been declining. Contracts are not being renewed or are liable to be renewed at considerably lower prices for the Soviet product. There is a clear reasonable indication that Soviet imports are being sold at prices that will depress or suppress domestic prices.

Factor (V) relates to inventories. As I indicated previously, one of the factors making market share analysis so difficult in this case is the presence and movements of large amounts of inventories of uranium in its various forms throughout the production and marketing system. Again, our actual data for Soviet inventories is very limited. We have virtually no information on Soviet inventories themselves and information from only one importer on its inventories of Soviet materials here in the United States. Inventories are increasing, but by rather less than the anecdotal evidence would have suggested. In view of the critical importance of inventories to this industry I expect the Commission to attempt to gather considerably more information on this issue in any final.

With regard to Factor (VII), it may be relevant with regard to enrichment that the DOE has been attempting for some time to privatize its operations, without considerable success, while one private company that has been attempting to establish enrichment operations has also been experiencing considerable difficulties.

Based on our preliminary conclusion that there is a single like product, Factor (VIII), product shifting, is not relevant. I do note that if, in any final, the Commission were to make a finding of multiple like products this factor would become very important to our analysis.

Uranium is not an agricultural product. Factor (IX) is therefore not relevant.

¹⁵ Views of the Commission at 25-26.

Finally, with regard to Factor (X), development projects, there are alternatives to the enrichment technology currently in use by the DOE. Some of these alternatives have been under active development for some time. There has been at least the suggestion that Soviet imports may be having the kind of effect on these efforts contemplated by Congress in adding this provision to the statutory list of threat factors. Much of this information is business confidential and cannot be discussed further.

I conclude that there is, therefore, also a reasonable indication that the domestic industry is threatened with material injury by reason of the allegedly LTFV Soviet imports.

INFORMATION OBTAINED IN THE INVESTIGATION

INTRODUCTION

On November 8, 1991, the Commission received a petition filed by counsel on behalf of the Ad Hoc Committee of Domestic Uranium Producers and the Oil, Chemical and Atomic Workers International Union. The names and addresses of the petitioners are as follows: Ferret Exploration Co., Inc., Denver, CO; First Holding Co., Denver, CO; Geomex Minerals, Inc., Denver, CO; Homestake Mining Co., San Francisco, CA; IMC Fertilizer, Inc., Northbrook, IL; Malapai Resources Co., Houston, TX; Pathfinder Mines Corp., Bethesda, MD; Power Resources, Inc., Denver, CO; Rio Algom Mining Corp., Oklahoma City, OK; Solution Mining Corp., Laramie, WY; Total Minerals Corp., Houston, TX; Umetco Minerals Corp., Danbury, CT; Uranium Resources, Inc., Dallas, TX; and Oil, Chemical and Atomic Workers International Union, Denver, CO.

The petition alleges that an industry in the United States is materially injured or threatened with material injury by reason of imports from the U.S.S.R. (and each and every Republic that was a member of the U.S.S.R. on the filing date of the petition) of uranium,¹ provided for in subheadings 2612.10.00, 2844.10.10, 2844.10.20, 2844.10.50, and 2844.20.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value (LTFV).

Accordingly, the Commission instituted, effective November 8, 1991, antidumping investigation No. 731-TA-539 (Preliminary), under section 733(a) of the Tariff Act of 1930, to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from the U.S.S.R.² of uranium that are alleged to be sold in the United States at LTFV.

Notice of the institution of the Commission's investigation and of a conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of November 19, 1991 (56 F.R. 58397).³ The conference was held on December 3, 1991,⁴ and the Commission voted on this investigation on December 18, 1991. The Commission must complete preliminary antidumping investigations in 45 days, or in this case by December 23, 1991.

¹ The product covered by this investigation is uranium from the U.S.S.R. This includes natural uranium in the form of uranium ores and concentrates; natural uranium metal and natural uranium compounds; alloys, dispersions (including cermet), ceramic products and mixtures containing natural uranium or natural uranium compounds; uranium enriched in U₂₃₅ and its compounds; alloys, dispersions (including cermet), ceramic products, and mixtures containing uranium enriched in U₂₃₅ or compounds of uranium enriched in U₂₃₅.

² According to the petition (p. 26), "it is petitioners' intent that the petition apply to each individual Republic so that the withdrawal of a Republic from the U.S.S.R. subsequent to the filing of the petition will not in any way abrogate the relief accorded the domestic industry."

³ Copies of the Commission's and Commerce's notices are shown in app. A.

⁴ A list of witnesses appearing at the conference is presented in app. B.

OTHER COMMISSION INVESTIGATIONS CONCERNING URANIUM

On September 25, 1991, the Commission instituted investigation No. 332-315 under section 332(g) of the Tariff Act of 1930 (56 F.R. 49905, October 2, 1991). This investigation was instituted following receipt on July 26, 1991, of a request from the Committee on Finance of the U.S. Senate. The purpose of that investigation is described in the Commission's Federal Register notice.

THE PRODUCT

Description⁵

Uranium (U) is a heavy, naturally radioactive, metallic element (atomic number 92). Natural uranium contains three isotopes--uranium-238 (U_{238}) (99.285 percent), uranium-235 (U_{235}) (0.71 percent), and uranium-234 (U_{234}) (0.005 percent). U_{235} is the only naturally occurring fissionable nuclide. Its content in natural uranium varies slightly, from 0.7103 to 0.7113 weight-percent. Effective July 1, 1963, the accepted value of 0.711 percent was established unless an actual measured U_{235} value is determined.

The half-lives of U_{235} and U_{238} are 7.13×10^8 and 4.51×10^9 years, respectively. Because of these slow rates of radioactive decay, natural uranium is only mildly radioactive.

Elemental uranium (uranium metal) is highly reactive chemically. A fresh surface of elemental uranium is silvery gray in color, but rapidly oxidizes to black oxide in air at room temperature. Chips and powder of uranium are highly pyrophoric (igniting spontaneously when exposed to air), and the metal is a strong reducing agent.

Uranium is one of the less common elements but its compounds are readily soluble and widely distributed in many mineral and rock types throughout the world. Most of the large economic deposits have a uranium content of 0.10 to 0.30 percent triuranium octoxide (U_3O_8). Uranium does not occur in nature in the elemental state but in chemical combinations with other elements. It is an important constituent in 155 minerals and a measurable constituent in nearly 500 minerals. Uraninite, the most common uranium mineral, is UO_2 but commonly contains UO_3 . Pitchblende is the massive form of uraninite. As a primary mineral, uraninite is found throughout the world, concentrated in sedimentary deposits. Coffinite, a uranium silicate, occurs in unoxidized sedimentary ores of the Western States. The secondary (oxidized) uranium minerals include a large variety of hydrated oxides, sulfates, phosphates, vanadates, silicates, and carbonates. Carnotite, a hydrated potassium uranium vanadate, is an important secondary uranium-vanadium ore mineral. Therefore, as a first step, natural uranium is mined or recovered from naturally occurring mineral deposits.

⁵ Much of the material for this section was obtained from the U.S. Bureau of Mines publication "URANIUM," Mineral Facts and Problems, 1975 Edition, Bulletin 667.

"Yellowcake" is the term often applied to the concentrate produced at uranium mills.⁶ The exact composition of uranium concentrate is variable and the industry generally includes purified natural uranium oxides in its definition of uranium concentrate. In the United States, the terms uranium concentrate, yellowcake, and natural uranium oxides are used interchangeably in the industry. As previously noted, the industry has adopted U_3O_8 equivalent as the standard quantitative measure for natural uranium. Most uranium concentrates contain a minimum of 75 percent U_3O_8 and average 80 to 85 percent U_3O_8 .

Of the four oxidation states of uranium, +3, +4, +5, and +6, only the +4 and +6 states are stable enough to be of practical importance. The chemistry of uranium oxides is actually quite complex.⁷ Four oxides, UO , UO_2 , U_3O_8 , and UO_3 are known, but pure UO has been definitely established only as a thin surface layer on the metal. U_3O_8 , a uranium-uranyl oxide, is olive green in color and contains 84.8 percent uranium. UO_2 , or "brown oxide," is commonly found in nature and is the chemical form of enriched uranium usually used in fabricating fuel elements for nuclear power reactors; UO_2 is also used as an intermediate in the production of other uranium compounds. UO_3 exists in at least six polymorphic modifications distinct from each other by their crystallographic properties and their color.

"Enriched uranium" is uranium in which the concentration of isotope U_{235} has been increased (i.e., the product has been "enriched in U_{235} "). U_{235} is indispensable to the nuclear energy industry because it is the only isotope existing in nature, to any appreciable extent, that is fissionable by thermal neutrons. Enrichment of uranium fuel lowers the size of the "critical mass" assemblies of "light-water"⁸ nuclear reactors and, therefore, lowers capital cost requirements for the reactors. Enriched uranium, for use by commercial power plants in the United States, generally has 2 to 5 percent U_{235} by weight. The standard unit of quantity for enriched uranium is kilograms of uranium (kg U).

Uranium is enriched by gaseous-diffusion or gas-centrifuge technology.⁹ In order to use these processes, the uranium must be present in a compound that can be easily converted to a gas. For a number of technical reasons, uranium hexafluoride is well suited for this purpose. Uranium hexafluoride

⁶ Yellowcake is not a stoichiometric compound, but a mixture of compounds having the approximate composition $(NH_4)_2U_2O_7$ or $(NH_4)_2(UO_2)_2SO_4(OH)_4 \cdot nH_2O$. The uranium industry has adopted the practice of expressing the natural uranium content of these mixtures in terms of U_3O_8 equivalent. The gravimetric factor to convert measured uranium (U) content to U_3O_8 equivalent is 1.17925; uranium (U) content can be obtained from data expressed in U_3O_8 equivalent by multiplying by 0.84799.

⁷ For a technical discussion of uranium oxide(s), see Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed., vol. 23, John Wiley & Sons, Inc., 1983, pp. 538-540.

⁸ "Light water" is normal water (H_2O). "Heavy water" is deuterium oxide, consisting chiefly of molecules containing hydrogen with mass number greater than one.

⁹ In the United States, only the gaseous diffusion method is currently in use.

(UF₆) is a white solid at ambient temperature and pressure and is obtained by the chemical treatment of uranium concentrate or oxides. UF₆ forms a vapor at temperatures above 56 degrees Centigrade and is the form of uranium used for the enrichment process. Therefore, two types of UF₆ are of commercial significance (i.e., "natural" and "enriched").

After enrichment in U₂₃₅, the uranium hexafluoride is converted to a fuel form for use in the manufacture of nuclear fuel assemblies. These forms include the oxides (usually enriched UO₂), or metals, alloys, carbides, nitrides, and salt solutions of enriched uranium. Pelletized ceramic UO₂ is the most common fuel form used in light-water reactors, which are the type of reactors used by utilities in the United States. Enriched uranium is then encapsulated in protective metal sheaths to produce a "fuel rod." Fuel rods are then assembled into the required configuration for use in a power plant's nuclear reactor.

Uses

Other than for Government-sponsored nuclear programs, including weapons, propulsion, underground tests, research and development, and space applications, uranium is used as a nuclear fuel for Government and commercial power reactors for the generation of electricity. Nuclear fuel is the predominant commercial application for uranium.¹⁰

Relatively small quantities of uranium, depleted in U₂₃₅, are used in specialized nonenergy applications, principally for military ordnance. Depleted uranium readily forms alloys with other metals, has a very high density, and is easy to fabricate, which makes it useful for some applications.

Production Processes¹¹

For the most part, "conventional" uranium mining involves large earthmoving equipment for open pit operations and standard underground mining equipment for underground mines. In the United States, stripping of overburden for open pit mining is generally done by tractors with rippers, rubber-tired scrapers and tractor-pushers, diesel power shovels, and large truck fleets. Drilling and blasting are often not necessary. Open pit mining equipment includes bulldozers, front-end loaders, diesel shovels, draglines, and backhoes.

The principal underground mining methods for the conventional sandstone-type ore bodies have been room-and-pillar, open stope, and long wall. Backfilling is a common practice. Slushers are often used in moving ore to the ore pass. Underground haulage may be either by truck, electric or diesel locomotive, or trackless rubber-tired equipment.

¹⁰ According to the petition at p. 14, scientific and medical applications account for less than 0.25 percent of uranium consumption.

¹¹ Much of the material for this section was obtained from the U.S. Bureau of Mines publication "URANIUM," Mineral Facts and Problems, 1975 Edition, Bulletin 667.

In the uranium industry, the milling operation comprises the entire mechanical and chemical processing from the crushing and grinding of the ore to the precipitation of a marketable hydrometallurgical chemical concentrate. Mine-run ores are crushed before going to the grinding circuit. Jaw or impact-type crushers are commonly used for the primary crush, and impact, cone, or gyratory crushers are used for the secondary crushing stage.

Uranium is leached from the ore slime by either alkaline treatment (sodium carbonate or sodium bicarbonate) or acid treatment (usually sulfuric acid). In both techniques, oxidation is necessary to convert tetravalent uranium to the more soluble hexavalent state. Uranium in leach solutions is recovered and purified by solvent extraction or ion exchange. Uranium is precipitated as uranium concentrate that is then filtered, dried, and packaged for shipment.

In-situ and heap leaching are employed to recover uranium from low-grade ores that may not be economically recoverable by conventional mining methods. The in-situ method involves leaching uranium from mineralized ground in place and is also referred to as "solution mining." The leaching solution is generally a dilute acid or a carbonate. An oxidant, such as sodium chlorate, may be added to improve leaching, and a flocculent may be added to improve flow. Uranium concentrates are also produced as a byproduct of phosphoric acid production; from gold, copper, and other minerals mining; and from mine water. These methods accounted for about *** percent of 1990 production of uranium concentrates.

Conversion of uranium concentrate to natural uranium hexafluoride (UF_6) is not done in the United States at the mills but is done by "converters." Several processes have been used to convert uranium concentrate to UF_6 . In one such process, uranium concentrate is dissolved in nitric acid, the solution is purified by solvent extraction, the uranium is eluted with a dilute nitric acid solution, and the resulting uranium nitrate solution is subjected to heat and decomposed to UO_3 . The UO_3 is reduced with hydrogen to UO_2 , which is then treated by anhydrous hydrofluoric acid to produce UF_4 . The UF_4 is reacted with pure elemental fluorine to produce UF_6 . The natural UF_6 is then held as inventories until instructions are issued for shipment to an enrichment plant.

Gaseous diffusion enrichment technology originated in the United States in connection with development of the atomic bomb during World War II and, until about 1975, was the only enrichment technology developed on a large commercial scale. Gaseous diffusion operates on the principle that the average velocities of gas molecules at a given temperature depend on the molecular mass. The lighter molecules will more frequently contact the walls of a porous containment vessel through which the molecules are diffused. The barrier contains hundreds of millions of submicroscopic openings per square inch. The degree of enrichment in a single diffusion stage is very small, but the desired enrichment level is achieved by repeating the process through hundreds, or thousands, of stages arranged in cascades. The gaseous diffusion process requires enormous amounts of electricity to run the compressors that force the gaseous UF_6 through the cascades; therefore, the search for more energy-efficient processes lead to the development of gas centrifuge technology.

Enrichment by gas centrifuges is based on the principle that a partial separation of the components of a gaseous mixture results when the gas is subjected to a pressure gradient. The isotopic separation of UF_6 is effected by the high-speed rotation in centrifuges in which the lighter U_{235} isotope moves at a greater velocity in the pressure gradient in the centrifuges. In 1977, the U.S. Government authorized the construction of a gas centrifuge enrichment plant at Portsmouth, OH, but that plant was never completed. However, several countries (including the U.S.S.R.) now have operating gas centrifuge plants for the enrichment of uranium. Gas centrifuge plants reportedly use substantially less electricity than gaseous diffusion plants; however, the savings in electricity are partially offset by higher capital costs for gas centrifuge plants.

Currently, isotopic enrichment by laser technology is under development. Laser methods, if practical, may produce a higher level of separation and enrichment than can be attained from established enrichment techniques.

U.S. Tariff Treatment

U.S. imports of uranium ores and concentrates, natural uranium compounds, and all forms of enriched uranium enter free of duty under subheadings 2612.10.00, 2844.10.20, and 2844.20.00, respectively, from all countries. U.S. imports of natural uranium metal and forms of natural uranium other than compounds, entered under subheadings 2844.10.10 and 2844.10.50, are subject to a 5.0 percent ad valorem duty rate if from countries entitled to the column 1-general (most-favored-nation (MFN)) duty rate, and a 45 percent ad valorem duty applicable to imported goods from all countries enumerated in general note 3(b) to the HTS, whose products are dutied at the rates set forth in column 2. Imports from the U.S.S.R. are subject to the column 2 rates.

THE NATURE AND EXTENT OF ALLEGED SALES AT LTFV

Petitioners were unable to obtain actual sales prices of uranium from the U.S.S.R. sold to importers in the United States and, instead, used a calculated weighted average f.o.b. value based on official statistics of the U.S. Department of Commerce for both natural and enriched imported U.S.S.R. uranium during January 1990-August 1991.

The petition states that the U.S.S.R. is a state-controlled economy and as such, pursuant to 19 U.S.C. §1677b(c), foreign market value cannot be determined on the basis of sales of uranium in its home market or to third countries. Therefore, petitioners base their alleged LTFV margins on calculated "factors of production" analysis. Petitioners allege that in this case, Canada is an appropriate surrogate country for the U.S.S.R. for the purpose of determining the foreign market value of natural U_3O_8 . Further, petitioners allege that the United Kingdom is an appropriate surrogate country for the purpose of determining the cost of enriching uranium in the U.S.S.R.

Petitioners' alleged LTFV margins are as follows:

<u>Product</u>	<u>LTFV margin</u> <u>(percent ad valorem)</u>
Natural uranium.....	159.77
Uranium hexafluoride enriched in U ₂₃₅ : ¹²	
Calculation based on Capenhurst No. 1.....	132.40
Calculation based on Capenhurst No. 2.....	157.69

Pages 29 through 45 of the petition contain an explanation of the methodology used by petitioners for LTFV margin calculations.

Commerce adjusted certain factors and arrived at alleged dumping margins that range from 41.53 percent to 136.64 percent ad valorem for uranium from the U.S.S.R. These adjustments are described in Commerce's initiation notice (appendix A).

THE DOMESTIC MARKET AND CHANNELS OF DISTRIBUTION

The commercial demand for uranium has its primary origin in the utilities that have nuclear reactors for the generation of electric power. These utilities must fuel the original reactors with uranium and periodically replace spent uranium fuel with new fuel containing enriched uranium.

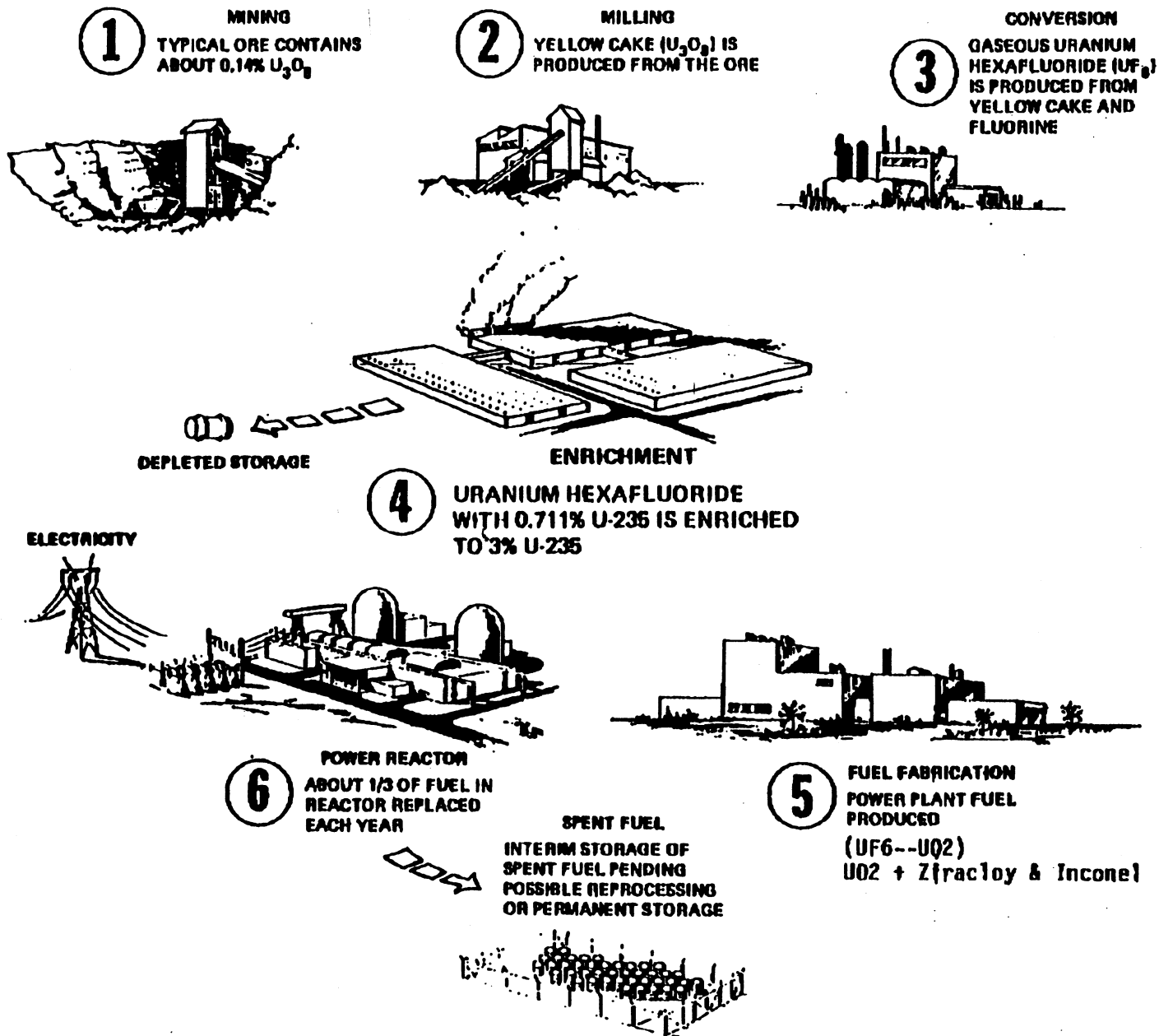
Activity in the uranium industry is tracked in annual surveys by the Energy Information Administration (EIA), which is part of the U.S. Department of Energy. EIA reports its survey data in publications, the most recent of which is the Uranium Industry Annual 1990, September 1991.

At first glance, the "nuclear fuel cycle" is quite simple, as illustrated in figure 1. In the United States, uranium is mined from the earth in the form of ores that are milled and processed into uranium concentrate. Uranium concentrate is also recovered as a byproduct, leached from uranium-containing deposits, or recovered from mine water. Uranium concentrate is shipped to a "converter" who converts the uranium concentrate to uranium hexafluoride. Next, the natural uranium goes to an "enricher" who processes the natural uranium hexafluoride into enriched uranium hexafluoride. After enrichment, the enriched uranium hexafluoride goes to a "nuclear fuel fabricator" who converts the enriched uranium hexafluoride to enriched uranium oxide that is then encapsulated into fuel rods and reactor fuel assemblies. Finally, the fuel assemblies are transported to utilities for initial fueling of their nuclear reactors or replacement of spent fuel.

¹² Capenhurst Nos. 1 and 2 are enrichment plants in the United Kingdom.

Figure 1

NUCLEAR FUEL CYCLE



Source: U.S. Department of Energy.

In practice, tracking the movement of uranium is anything but simple. EIA describes "uranium marketing activities" in its annual publication, and an illustration of those activities for natural uranium (published by EIA) is reproduced here as figure 2.¹³ The marketing of enriched uranium or enrichment "services" is equally complex.

In past years, utilities used less uranium than contracted for; therefore, there was a buildup of inventories. These inventories are generally held for the utilities' accounts at converters, enrichers, and fuel fabricators. Uranium inventories or uranium enrichment services in excess of a utility's immediate or projected needs can be sold, exchanged, or loaned through "paper transactions" without any product movement. Although, these transactions are quite common, they tend to mask the value of the product when it is finally used and to mask the quantity actually consumed. Therefore, actual uranium consumption is difficult to measure through shipment data because transactions exceed consumption.

However, it is important to keep in mind that the United States is the world's largest single market for uranium. Existing nuclear power plants in the United States require, and will continue to require, approximately 40 million pounds U_3O_8 annually to replace spent fuel (figure 3).¹⁴

U.S. Consumption

Because of the complexity of marketing natural and enriched uranium, the Commission's usual approach for computing apparent consumption (production, plus imports, minus exports; or producers' domestic shipments plus shipments of imports) is difficult, if not impossible, to apply in this preliminary investigation. Further, trade in natural uranium cannot be simply added to trade in enriched uranium to obtain a meaningful statistic, except possibly for value.

This report discusses why this is true in more detail in the section dealing with market penetration by imports. Suffice it to say that a measure for domestic consumption proved to be very elusive.

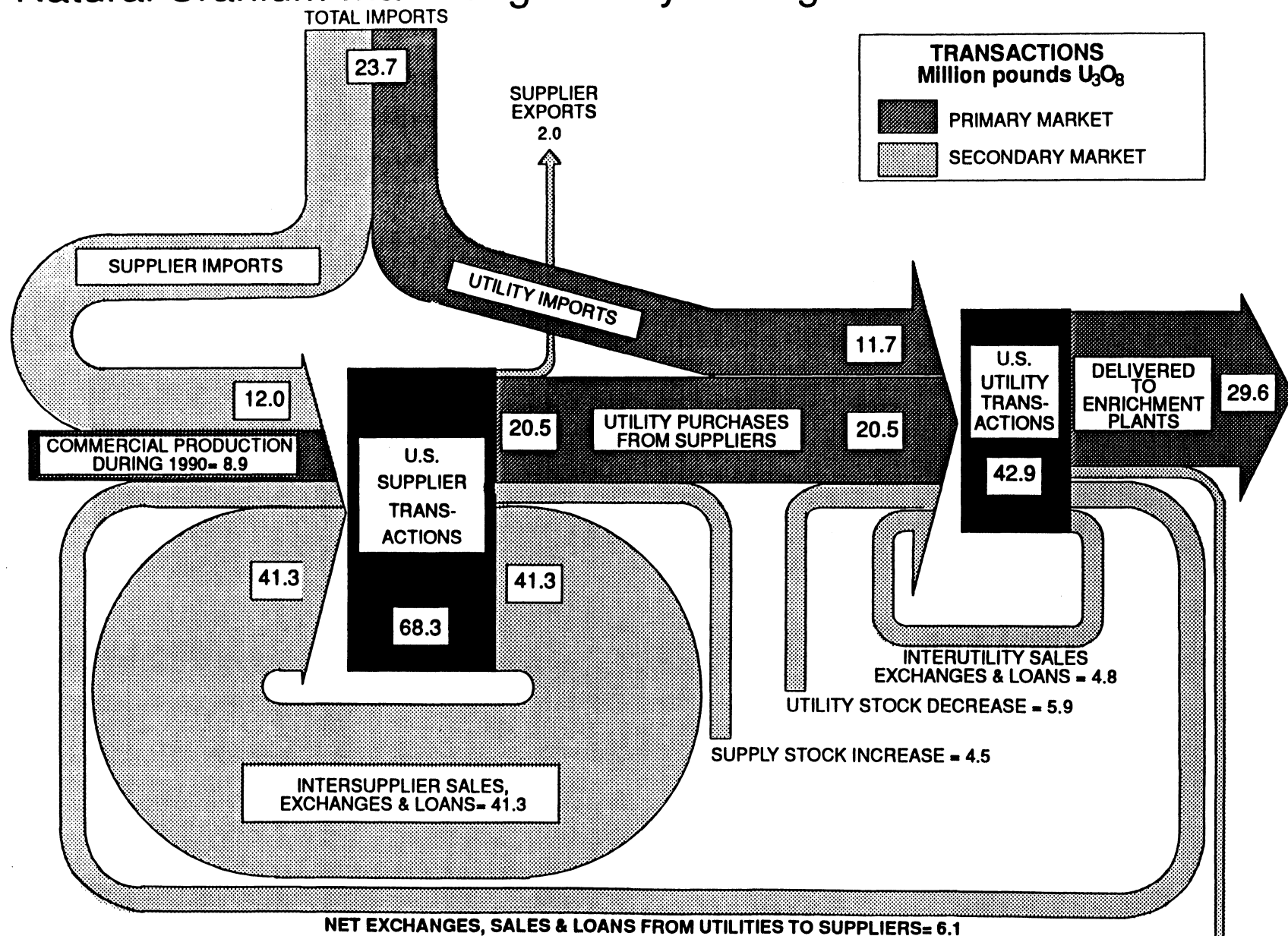
However, The Uranium Institute in London, England, published a study of the demand for natural uranium that presents that organization's analyses of actual reactor requirement in major uranium consuming-markets (including the United States).¹⁵ According to that study, "The Uranium Institute's model is capable of carrying out sensitivity analyses of the impact of different load factors, burnups, and enrichment levels on uranium requirements." Therefore, for this preliminary investigation, U.S. nuclear reactor requirements, as

¹³ Energy Information Administration, Uranium Industry Annual 1990, September 1991, p. 45.

¹⁴ Ibid, p. 64.

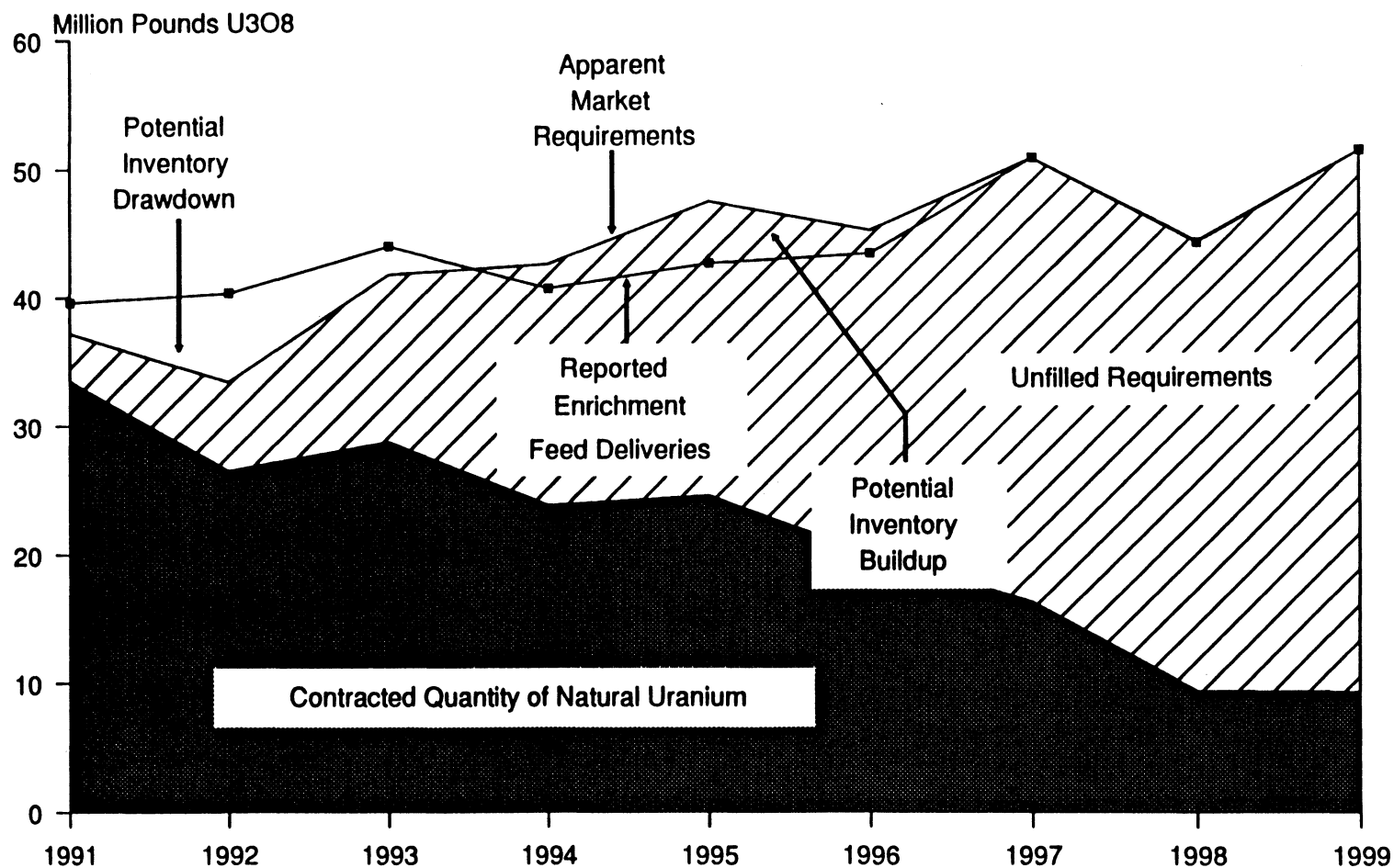
¹⁵ Phillip Crowson and Wolf Gehrisch, "Nuclear Fuel: Supply and Demand to 2010: A World View," Annual Symposium 1991, The Uranium Institute, London, England.

Figure 2
Natural Uranium Marketing Activity During 1990



^aThe adjustment quantity represents an amount of uranium needed to make the inputs and outputs equal.
Source: Energy Information Administration, Form EIA-858, "Uranium Industry Annual Survey" (1990)

Figure 3
Apparent Uranium Market Requirements of U.S. Utilities, 1991-1999,
as of December 31, 1990



Source: Energy Information Administration, Form EIA-858
 "Uranium Industry Annual Survey" (1990).

published in the Uranium Institute's study, are taken as the best available measure of U.S. consumption of uranium. These data are presented in table 1 for the United States. According to the study, the United States accounted for 30.3 percent of world nuclear reactor requirements for uranium in 1990.

Table 1
Natural uranium: U.S. nuclear reactor requirements, 1988-90, January-September 1990, and January-September 1991

(In thousands of pounds U ₃ O ₈) ¹					
Item	1988	1989	1990	Jan.-Sept.-- ²	
				1990	1991
U.S. nuclear reactor requirements.....	40,739	37,370	41,020	30,765	32,674

¹ Quantity of uranium was converted to quantity of U₃O₈ by multiplying by 1.17925.

² Estimated by taking 75 percent of 1990 reactor requirements and 75 percent of projected 1991 requirements.

Source: Phillip Crowson and Wolf Gehrisch, "Nuclear Fuel - Supply and Demand to 2010: A World View," Annual Symposium 1991, The Uranium Institute, London, England.

U.S. Producers

The following tabulations present names and addresses of U.S. producers of uranium in various forms:

Producers of Uranium Concentrates

<u>Company</u>	<u>Address</u>
Albuquerque Uranium Corp.....	Westminster, CO
Chevron Resources Co.....	San Ramon, CA
Energy Fuels, Ltd.....	Denver, CO
Everest Exploration, Inc.....	Corpus Christi, TX
Ferret Exploration Co., Inc.....	Denver, CO
Firs Holding Co.....	Denver, CO
Freeport Uranium Recovery Co.....	New Orleans, LA
Geomex Minerals, Inc.....	Denver, CO
Homestake Mining Co.....	San Francisco, CA
IMC Fertilizer, Inc.....	Northbrook, IL
Malama Resources Co.....	Houston, TX
Pathfinder Mines Corp.....	Bethesda, MD
Power Resources, Inc.....	Denver, CO
Rio Algom Mining Corp.....	Oklahoma City, OK
Solution Mining Corp.....	Laramie, WY
Total Minerals Corp.....	Houston, TX
Umetco Minerals Corp.....	Danbury, CT
Uranium Resources, Inc.....	Dallas, TX
U.S. Energy Corp./Crested Corp.....	Riverton, WY

Questionnaires were sent to all of the producers of uranium concentrates and responses were received from all the firms, although some of the firms had no production during January 1988-September 1991. Of the firms listed above, ***. Petitioners argue in their postconference brief that the data of Energy Fuels, Ltd., should be excluded because Energy Fuels is a "related party."¹⁶ Therefore, statistical data excluding Energy Fuels is presented in appendix C for the Commission's consideration.

*** indicated that they had no production during the period covered by the questionnaires.

* * * * *

Uranium Concentrate Converters

<u>Company</u>	<u>Address</u>
Allied-Signal, Inc.....	Morristown, NJ
Sequoyah Fuels Corp.....	Oklahoma City, OK

***. ***.

Uranium Enricher

<u>Organization</u>	<u>Address</u>
U.S. Department of Energy	
Office of Uranium Enrichment.....	Germantown, MD

The U.S. Department of Energy responded to the Commission's questionnaire.

Uranium Fuel Fabricators

<u>Company</u>	<u>Address</u>
Combustion Engineering.....	Windsor, CT
Babcock & Wilcox Co.....	Lynchburg, VA
General Electric Nuclear Energy.....	Wilmington, NC
Siemens Nuclear Power Corp.....	Bellevue, WA
Westinghouse Electric Corp.....	Columbia, SC

***. ***. ***.

¹⁶ Petitioners' postconference brief, pp. 17-21.

U.S. Importers

Information provided by the petitioner and the U.S. Customs Service identified *** firms that were importers of uranium from the U.S.S.R. Questionnaires were sent to the firms named in the petition and identified through Customs documents. In addition, importers' questionnaires were sent to all domestic producers and to firms active in trading uranium because these firms were potential importers of uranium from the U.S.S.R.

A questionnaire response was received from one importer, Nuexco Trading Corp., of uranium from the U.S.S.R. ***. ***.

CONSIDERATION OF ALLEGED MATERIAL INJURY

There are distinct steps in the uranium fuel cycle and the Commission requested information from producers at each step of the fuel cycle. Therefore, four different types of producers' questionnaires were issued in order to provide the Commission with the maximum amount of information for its determination.

It is important to note that the data provided by the different producers' questionnaires are not additive. For example, the conversion of uranium concentrates to uranium hexafluoride does not produce any additional uranium or "new" uranium but converts one uranium compound into another compound. At the enrichment stage, however, many more pounds of natural uranium are required to produce enriched uranium than are received in pounds of enriched uranium product. Therefore, it is generally necessary to separately discuss activities at different points in the nuclear fuel cycle.

For example, financial information was provided on uranium operations by 13 miners/millers, the sole enricher (Department of Energy), and ***. These data, representing 100 percent of 1990 uranium-milling operations, 100 percent of uranium-enriching operations, and an unknown percent of uranium fuel fabrication operations, are presented in separate sections. ***. Accordingly, because of the scarcity of data for some operations and the disparate nature of the respective processes, available financial data have been reported separately for each industry sector.

Producers of Uranium Concentrates

U.S. Capacity, Production, and Capacity Utilization

In accordance with industry practice, quantity data for uranium concentrates are presented in pounds, or thousands of pounds, U_3O_8 . Currently, most of the uranium concentrates are produced as byproducts of phosphoric acid production; from gold, copper, and other minerals mining; from mine water; and by in-situ leaching. Consequently, "mine capacity," to the extent it is applicable, does not provide a representative measurement of industry production potential. Instead, data pertaining to facilities that produce uranium concentrates provide the best measure of total U.S. production of natural uranium.

Average capacity to produce uranium concentrates increased by 5.0 percent from 1988 to 1989 and dropped by 13.4 percent from 1989 to 1990 (table 2). Reported capacity during January-September 1991 was 3.5 percent greater than capacity during January-September 1990.

Production of uranium concentrates increased 15.6 percent from 1988 to 1989 before plummeting 38.9 percent from 1989 to 1990. Production of uranium concentrates during January-September 1991 was 18.5 percent below production during January-September 1990.

Capacity utilization increased from 45.6 percent in 1988 to 46.7 percent in 1989 and then dropped to 33.1 percent during 1990. Capacity utilization was 27.4 percent during January-September 1991 compared with 33.5 percent during January-September 1990.

U.S. Producers' Shipments

Total U.S. shipments of uranium concentrates (company shipments and domestic market shipments) declined 6.3 percent, based on quantity, from 1988 to 1989 and fell 31.2 percent from 1989 to 1990 (table 3). U.S. shipments during January-September 1991 were 3.3 percent below shipments during January-September 1990.

On the basis of value, total U.S. shipments fell 10.6 percent from 1988 to 1989 and 15.9 percent from 1989 to 1990. The value of U.S. shipments during January-September 1991 was 8.5 percent below the value of shipments during January-September 1990. ***.

Based on quantity, exports jumped *** percent from 1988 to 1989 and 38.2 percent from 1989 to 1990. The quantity of exports during January-September 1991 was 63.4 percent above exports during January-September 1990. Based on value, exports followed the same trends.

Shipments reported in table 3 are shipments of uranium concentrates produced in U.S. producers' plants and do not include shipments of purchased uranium concentrates.

U.S. producers' purchases are reported in table 4. As can be seen from table 4, U.S. producers' purchases of uranium concentrates from importers, brokers, and traders, increased rapidly during 1988-90. According to some of these producers, when the spot market price of uranium fell below their cost of production, they reduced or stopped plant production and fulfilled their contractual obligations by purchasing low-cost uranium concentrates.

U.S. Producers' Inventories

U.S. producers' inventories of uranium concentrates were high, amounting to 82.0 percent of 1988 production, 93.0 percent of 1989 production, and 139.5 percent of 1990 production (table 5). Inventories during January-September 1991 were 133.6 percent of annualized production compared with 126.0 percent of annualized production during January-September 1990.

Table 2

Uranium concentrates: U.S. capacity, production, and capacity utilization, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Average-of-period capacity (1,000 pounds).....	28,875	30,312	26,246	20,019	20,747
Production (1,000 pounds)....	12,248	14,155	8,647	6,688	5,450
Capacity utilization (percent).....	45.6	46.7	33.1	33.5	27.4

Note.--Capacity utilization is calculated using data of firms providing both capacity and production information. Data were collected on a U₃O₈ basis.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 3

Uranium concentrates: Shipments by U.S. producers, by types, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Quantity (1,000 pounds)					
Company transfers.....	***	***	***	***	***
Domestic shipments.....	***	***	***	***	***
Subtotal.....	11,794	11,046	7,604	6,081	5,880
Exports.....	***	1,600	2,211	1,118	1,827
Total.....	***	12,646	9,815	7,199	7,707
Value (1,000 dollars)					
Company transfers.....	***	***	***	***	***
Domestic shipments.....	***	***	***	***	***
Subtotal.....	230,021	205,567	172,815	132,063	120,883
Exports.....	***	45,845	55,069	27,424	38,317
Total.....	***	251,412	227,884	159,487	159,200
Unit value (per pound)					
Company transfers.....	\$***	\$***	\$***	\$***	\$***
Domestic shipments.....	***	***	***	***	***
Average.....	19.50	18.61	22.73	21.72	20.56
Exports.....	***	28.65	24.91	24.53	20.97
Average.....	***	19.88	23.22	22.15	20.66

Note.--Quantity data were collected on a U₃O₈ basis.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 4

Uranium concentrates: Purchases by U.S. producers, by types, 1988-90, January-September 1990, and January-September 1991

	Jan.-Sept.--				
Item	1988	1989	1990	1990	1991
<hr/>					
	Quantity (1,000 pounds)				
<hr/>					
Purchases from other producers.....	***	***	***	***	***
Purchases from other sources.....	651	1,045	2,916	2,732	703 ¹
Total.....	***	***	***	***	*** ¹
<hr/>					
	Value (1,000 dollars)				
<hr/>					
Purchases from other producers.....	***	***	***	***	***
Purchases from other sources.....	14,122	12,130	32,757	26,510	4,609
Total.....	***	***	***	***	***
<hr/>					
	Unit value (per pound)				
<hr/>					
Purchases from other producers.....	\$***	\$***	\$***	\$***	\$***
Purchases from other sources.....	21.69	11.61	11.23	9.70	6.56 ¹
Average.....	***	***	***	***	*** ¹

¹ Quantity figures include 212,000 pounds for which no value was provided. Unit value calculations exclude these quantities.

Note.--Quantity data were collected on a U₃O₈ basis.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Employment and Wages

The number of production and related workers producing uranium concentrates increased 9.5 percent from 1988 to 1989 before dropping 29.6 percent from 1989 to 1990 (table 6). The number of production and related workers during January-September 1991 was 19.7 percent below the number of such workers during January-September 1990. Hours worked, wages paid, and total compensation tracked, as could be expected, trends in employment. Productivity, measured in pounds U₃O₈ per hour, peaked at 7.7 pounds per hour

Table 5

Uranium concentrates: End-of-period inventories of U.S. producers, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Inventories (1,000 pounds)...	10,039	13,167	12,087	11,912	10,673
Ratio of inventories to--					
Production (percent).....	82.0	93.0	139.5	133.6	126.5

Note.--Ratios are calculated using data of firms supplying both numerator and denominator information. Data were collected on a U₃O₈ basis. January-September ratios are computed from annualized data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 6

Average number of production and related workers producing uranium concentrates, hours worked,¹ wages and total compensation paid to such employees, and hourly wages, productivity, and unit labor costs,² 1988-90, January-September 1990, and January-September 1991³

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Production and related workers (PRWs).....	846	926	652	671	539
Hours worked by PRWs (1,000 hours).....	1,702	1,834	1,292	1,051	835
Wages paid to PRWs (1,000 dollars).....	21,139	23,335	16,849	13,385	11,515
Total compensation paid to PRWs (1,000 dollars).....	27,126	30,489	21,767	17,304	14,544
Hourly wages paid to PRWs....	\$12.42	\$12.72	\$13.04	\$12.74	\$13.79
Hourly total compensation paid to PRWs.....	\$15.94	\$16.62	\$16.85	\$16.46	\$17.42
Productivity (pounds per hour).....	7.1	7.7	6.7	6.4	6.5
Unit labor costs (per pound).....	\$2.23	\$2.16	\$2.52	\$2.59	\$2.66

¹ Includes hours worked plus hours of paid leave time.

² On the basis of total compensation paid.

³ Firms providing employment data accounted for 100 percent of reported total U.S. shipments (based on quantity) in 1990.

Note.--Ratios are calculated using data of firms supplying both numerator and denominator information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

in 1989 and then fell to a low of 6.4 pounds per hour during January-September 1990. Unit labor costs per pound U_3O_8 were at a minimum in 1989, with the highest unit labor costs reported during January-September 1991. The difference between the lowest and highest unit labor costs was 23.1 percent. A number of producers of uranium concentrate reported substantial reductions in employment during January 1988-September 1991. A summary of those reductions is presented in table 7.

Table 7

Uranium concentrates: Reductions in employment by U.S. producers, January 1988-September 1991

Firm	Date of Reduction	Number of Workers	Duration of Reduction	Reason for Reduction
*	*	*	*	*

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Financial Experience of U.S. Uranium Concentrate Producers

Overall establishment income-and-loss data for uranium mining/milling are presented in table 8; product income-and-loss in table 9. The difference in the overall and the mining/mill operations is primarily related to trading on the spot market and tolling activities that are not shown in the production of uranium concentrates. Both "conventional" and "nonconventional" mining operations are included in table 9. Conventional mining includes open-pit and underground mines, while nonconventional methods include in-situ leaching (solution production)¹⁷ and U_3O_8 produced as a byproduct of phosphate and copper mining. Milling operations, usually located in close proximity to the mines, use chemical leaching to produce the uranium concentrate. None of the producers submitted separate income-and-loss data for the uranium ore operations; i.e., these operations were included in the uranium concentrates' income-and-loss.

According to some producers, the relatively low price of uranium concentrate on the spot market compared to the costs of producing domestically made it attractive for some operations to shutdown "temporarily," while contract obligations are fulfilled from current inventories and spot market purchases. *** indicated in their questionnaire responses that their income-and-loss experience is primarily the result of long-term contracts effective during the period of investigation; however, these producers stated that the relatively low spot market price for the uranium products will severely impact their ability to obtain profitable long-term contracts in the future as the current contracts expire. Utilities signed 49 uranium procurement contracts with domestic suppliers in 1990; 38 spot-market purchases and 11 long-term

¹⁷ In solution mining, uranium is leached from the ore "in place" without removing the ore from the ground.

Table 8

Income-and-loss experience of U.S. producers on the overall operations of their establishments wherein uranium concentrates are produced, fiscal years 1988-90, January-September 1990, and January-September 1991¹

Item	1988	1989	1990	Jan.-Sept.-- 1990	1991
Value (1,000 dollars)					
Net sales.....	251,976	272,812	257,476	196,285	163,420
Cost of goods sold.....	194,700	208,525	180,180	144,752	134,630
Gross profit.....	57,276	64,287	77,296	51,533	28,790
Selling, general, and administrative expenses....	16,222	16,368	23,804	17,134	15,449
Operating income or (loss)...	41,054	47,919	53,492	34,399	13,341
Shutdown expenses.....	***	***	***	***	***
Interest expense.....	***	***	***	***	***
Other income or (loss), net..	***	***	***	***	***
Net income or (loss) before income taxes.....	12,418	15,872	38,975	26,851	14,019
Depreciation and amorti- zation included above.....	66,074	79,410	37,445	32,555	25,182
Cash flow ²	78,492	95,282	76,420	59,406	39,201
Share of net sales (percent)					
Cost of goods sold.....	77.3	76.4	70.0	73.7	82.4
Gross profit.....	22.7	23.6	30.0	26.3	17.6
Selling, general, and administrative expenses....	6.4	6.0	9.2	8.7	9.5
Operating income or (loss)...	16.3	17.6	20.8	17.5	8.2
Net income or (loss) before income taxes.....	4.9	5.8	15.1	13.7	8.6
Number of firms reporting					
Operating losses.....	7	6	6	7	6
Net losses.....	7	6	6	7	6
Data.....	11	12	13	13	12

¹ Companies whose fiscal periods did not end December 31, together with their respective fiscal year ends are as follows: ***.

² Cash flow is defined as net income or loss plus depreciation and amortization. Cash flow as presented may be significantly understated in all periods due to numerous and large writedowns, items recorded as expenses that did not require cash.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 9

Income-and-loss experience of U.S. producers on their operations producing uranium concentrates, fiscal years 1988-90, January-September 1990, and January-September 1991

	Jan-Sept--				
Item	1988	1989	1990	1990	1991
<hr/>					
	Quantity (1,000 pounds)				
Net sales.....	7.696	8.265	8.831	6.657	6.327
<hr/>					
	Value (1,000 dollars)				
Net sales.....	212,127	225,112	207,396	155,549	146,433
Cost of goods sold.....	152,453	166,537	148,424	119,307	120,300
Gross profit.....	59,674	58,575	58,972	36,242	26,133
Selling, general, and administrative expenses....	12,781	14,327	21,841	15,654	13,575
Operating income or (loss)...	46,893	44,248	37,131	20,588	12,558
Shutdown expenses.....	***	***	***	***	***
Interest expense.....	***	***	***	***	***
Other income or (loss), net..	***	***	***	***	***
Net income or (loss) before income taxes.....	28,007	3,205	17,280	11,912	12,942
Depreciation and amorti- zation included above.....	47,405	77,113	37,367	32,495	25,111
Cash flow ¹	75,412	80,318	54,647	44,407	38,053
<hr/>					
	Share of net sales (percent)				
Cost of goods sold.....	71.9	74.0	71.6	76.7	82.2
Gross profit.....	28.1	26.0	28.4	23.3	17.8
Selling, general, and administrative expenses....	6.0	6.4	10.5	10.1	9.3
Operating income or (loss)...	22.1	19.7	17.9	13.2	8.6
Net income or (loss) before income taxes.....	13.2	1.4	8.3	7.7	8.8
<hr/>					
	Per pound				
Net sales.....	\$27.56	\$27.24	\$23.48	\$23.37	\$23.14
Cost of goods sold.....	19.81	20.15	16.81	17.91	19.01
Gross profit.....	7.75	7.09	6.68	5.44	4.13
Selling, general, and administrative expenses....	1.66	1.73	2.47	2.35	2.15
Operating income or (loss)...	6.09	5.35	4.20	3.09	1.98

See footnote at end of table.

Table 9--Continued

Income-and-loss experience of U.S. producers on their operations producing uranium concentrates, fiscal years 1988-90, January-September 1990, and January-September 1991

				Jan.-Sept.--	
Item	1988	1989	1990	1990	1991

¹ Cash flow is defined as net income or loss plus depreciation and amortization. Cash flow as presented may be significantly understated in all periods due to numerous and large writedowns, items recorded as expenses that did not require cash.

Note.--Because of rounding, figures may not add to the totals shown. Data provided by ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

contracts.¹⁸ On a per-unit basis (table 9), the cost of producing and selling (cost of goods sold and selling, general and administrative expenses) U₃O₈, \$21 per pound in January-September 1991, is considerably above the spot market price of approximately \$7 per pound in 1991.

The financial indicators of the uranium mining/milling operations are mixed. Slightly fewer than half of the producers are profitable and the remainder are not, although in the aggregate the industry is profitable, albeit at a declining rate since 1988. Although it is difficult to determine from the questionnaire responses the exact nature of the operations, it appears that the conventional mining operations that utilize open-pit and underground mines are currently the least profitable, because of the relatively high fixed costs compared to in-situ and byproduct uranium operations. Four of the 13 producers responding indicated significant shutdown expenses and practically all had to writedown inventories, mineral rights, and other assets to reflect decreasing values due to current market conditions. Generally Accepted Accounting Principles (GAAP) require that inventories be valued at the "lower of cost or market," which for the affected producers in this case required writedowns to the lower market value of the uranium products.

Investment in productive facilities

The value of property, plant, and equipment and return on total assets for the U.S. producers of uranium concentrates are presented in table 10.

¹⁸ Energy Information Administration, Uranium Industry Annual 1990, September 1991, p. 47.

Table 10

Assets of U.S. producers as of the end of fiscal years 1988-90,
September 30, 1990, and September 30, 1991

Item	As of the end of fiscal year--			As of Sept. 30--	
	1988	1989	1990	1990	1991
<hr/> <u>Assets (1,000 dollars)</u> <hr/>					
All products of establish- ments:					
Fixed assets:					
Original cost.....	600,459	700,351	735,333	789,870	691,499
Book value.....	232,730	263,385	231,168	283,326	238,003
Total assets ¹	498,634	527,723	553,417	547,752	530,922
Uranium concentrates:					
Fixed assets:					
Original cost.....	568,590	673,218	717,613	771,878	679,091
Book value.....	208,808	242,757	224,210	274,896	240,777
Total assets ²	464,428	497,178	541,029	533,021	536,830
<hr/> <u>Return on total assets (percent)³</u> <hr/>					
All products of establish- ments:					
Operating return ⁴	8.8	10.1	10.1	(⁵)	(⁵)
Net return ⁶	3.7	4.4	9.7	(⁵)	(⁵)
Uranium concentrates:					
Operating return ⁴	10.7	10.0	7.3	(⁵)	(⁵)
Net return ⁶	7.3	2.1	5.9	(⁵)	(⁵)

¹ Defined as the book value of fixed assets plus current and noncurrent assets.

² Total establishment assets are apportioned, by firm, to uranium concentrates on the basis of the ratios of the respective book values of fixed assets.

³ Computed using data from only those firms supplying both asset and income-and-loss information, and as such, may not be derivable from data presented.

⁴ Defined as operating income or (loss) divided by segment total assets.

⁵ Not applicable.

⁶ Defined as net income or (loss) divided by segment total assets.

Note.--*** did not provide total assets.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Capital expenditures

The capital expenditures reported by the U.S. producers of uranium concentrates are presented in table 11.

Table 11

Capital expenditures by U.S. producers, fiscal years 1988-90, January-September 1990, and January-September 1991

(In thousands of dollars)					
Item	1988	1989	1990 ¹	Jan.-Sept.-- 1990 ¹	1991
All products of establish- ments:					
Land and land improve- ments.....	***	***	***	***	***
Building or leasehold improvements.....	***	***	***	***	***
Machinery, equipment, and fixtures.....	***	***	***	***	***
Total.....	***	***	***	***	***
Uranium concentrates:					
Land and land improve- ments.....	***	***	***	***	***
Building or leasehold improvements.....	***	***	***	***	***
Machinery, equipment, and fixtures.....	***	***	***	***	***
Total.....	***	***	***	***	***

¹ Capital expenditures of *** are not included ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Research and development expenses

The research and development expenses by the U.S. producers of uranium concentrates are presented in table 12. The expenses were identical for overall establishment and uranium concentrate operations.

Table 12

Research and development expenses of U.S. producers of uranium concentrates, fiscal years 1988-90, January-September 1990, and January-September 1991

(In thousands of dollars)					
Item	1988	1989	1990	Jan-Sept--	
				1990	1991
Uranium concentrates.....	14,115	7,679	4,766	4,001	4,921

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Capital and investment

The Commission requested the U.S. producers to describe any actual or potential negative effects of the subject imports on the firm's growth, investment, ability to raise capital, and production efforts. The responses are presented in appendix D.

Uranium Concentrate Converters

U.S. producers of uranium concentrates do not have the specialized equipment required to convert their concentrate to uranium hexafluoride; therefore, the converters provide an essential service. Uranium hexafluoride is, at present, the only form of uranium used in the enrichment process, so all uranium concentrates and oxides of natural uranium, domestic or imported, are processed into natural uranium hexafluoride, which is then sent to an enrichment plant.

Nuclear Regulatory Commission regulations require that the converters account for the country of origin of the uranium entering their conversion process. Domestic and imported concentrates are commingled during the conversion process, because the concentrates are required to meet converters' specifications for fungibility. At the end of the conversion process, the converter holds the uranium for the owners' accounts, by country of origin, until instructions are issued for the disposition of the product. The actual uranium atoms cannot be identified by country of origin; therefore, all accounting is on a "book transaction" basis. Converters generally do not own the material, but charge a processing fee for converting uranium concentrate into uranium hexafluoride. Converters tend to hold large inventories of natural uranium concentrates and converted uranium hexafluoride. Uranium concentrates and uranium hexafluoride held by converters can, and frequently do, change ownership through book transactions at the converters. ***.¹⁹

¹⁹ ***.

According to the petition, the Oil, Chemical and Atomic Workers International Union represents the workers at one of the converters.²⁰

Uranium Enricher

The U.S. Department of Energy (DOE) is, at present, the only organization in the United States that enriches natural uranium hexafluoride.²¹ DOE keeps its normal production and accounting records on a U.S. Government fiscal year (October 1 through September 30) basis.

DOE's "enrichment services" are provided in terms of separative work units (SWU), which are a measure of the work expended in separating a quantity of uranium (in kilograms) at a given assay into two fractions--one enriched in U_{235} to a specified grade, and the other deficient or depleted in U_{235} to a specified tailings grade. Specifically, the effort expended in separating a mass F of feed assay x_f into a mass P of product of assay x_p and waste of mass W and assay x_w is expressed in terms of the number of separative work units needed, given by the expression:

$$SWU = W V(x_w) + P V(x_p) - F V(x_f)$$

where $V(x)$ is the "value function," defined as:²²

$$V(x) = (1-2x) \ln ((1-x)/x).$$

It is important to recognize that a given quantity of enriched uranium does not actually contain separative work. Rather, separative work was accomplished in producing the enriched uranium and a corresponding quantity of depleted uranium. Therefore, an enrichment "customer" must specify the required kilograms of enriched uranium and pick a "transaction" product assay and a tails assay in percent U_{235} . The following examples are presented to help grasp the significance of the SWU concept:

Customer A wants 1,000 kg U product with an assay 3.6 percent U_{235} , and customer A picks a transaction tails assay of 0.2 percent U_{235} . Then, customer A must provide DOE with (or pay for) 6,654 kg U natural uranium feed and pay DOE for 5,635 Kg SWU.

Customer B wants 1,000 kg U product with an assay 3.6 percent U_{235} , and customer B picks a transaction tails assay of 0.3 percent U_{235} . Then, customer B must provide DOE with (or pay for) 8,029 kg U natural uranium feed and pay DOE for 4,525 Kg SWU.

²⁰ Petition, p. 8.

²¹ Another organization, Louisiana Energy Services, has announced plans to develop the first privately owned uranium enrichment plant in the United States. The planned capacity is 1.5 million SWU per year with a projected start date in 1995. The plant would use gas centrifuge technology currently in use in Germany, the Netherlands, and the United Kingdom. Louisiana Energy Services is a "joint venture limited partnership" among Duke Power, Northern States Power, Louisiana Power & Light, Fluor Daniel, and Urenco.

²² Although $V(x)$ is "value" per unit of material, it should never be confused with price or cost of material.

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U.S. Capacity, Production, and Capacity Utilization

SWU. ***. ***. ***.

U.S. Producer's Shipments

U.S. Government SWU transfers *** from fiscal year 1988 to 1989, and from 1989 to 1990 (table 14).²⁴ Domestic SWU shipments *** from fiscal year 1988 to 1989 and then *** from 1989 to 1990. Export SWU shipments followed the same general trend as domestic shipments, as did total SWU shipments.

The value of U.S. Government SWU transfers *** from fiscal year 1988 to 1989 and then *** from 1989 to 1990. The value of domestic shipments, export shipments, and total shipments followed the same trends as those noted above for SWU.

The unit value per SWU *** for U.S. Government transfers during fiscal years 1988-90, while it *** for domestic shipments. The unit value per SWU *** for export shipments from fiscal year 1988 to 1990.

In fiscal year 1990, *** percent of domestic SWU shipments were produced from domestic natural uranium and *** percent were produced from material from countries other than the U.S.S.R. ***.

U.S. Producer's Inventories

Reported inventories of SWU *** from period to period as indicated in table 14.

Employment and Wages

Employment of workers producing enriched uranium hexafluoride in DOE's enrichment plants *** during fiscal years 1988-90 (table 15). The same trend was evident for hours worked, wages paid, total compensation, and average hourly wages.

According to DOE, the enrichment of uranium hexafluoride ***. ***.

The production and related workers at DOE's enrichment plants are represented by the Oil, Chemical and Atomic Workers International Union and the United Plant Guard Workers of America.

²³ Transcript of conference, pp. 72-73.

24 *** , *** ,

Enriched uranium hexafluoride: Practical capacity,¹ U.S. production, and capacity utilization, fiscal years 1988-90, January-September 1990, and January-September 1991

(In thousands of SWU, except as noted)					
Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Practical capacity: ¹					
Average-of-period.....	***	***	***	***	***
U.S. production at					
0.20 percent U ₂₃₅					
tails assay.....	***	***	***	***	***
U.S. production at					
operating					
tails assay.....	***	***	***	***	***
Operating tails assay					
(percent U ₂₃₅)..	***	***	***	***	***
Capacity utilization:					
Average-of-period:					
At 0.20 percent U ₂₃₅					
tails assay..(percent)..	***	***	***	***	***
At operating tails assay					
(percent)..	***	***	***	***	***

¹ Practical capacity was defined as the greatest level of output a plant can achieve within the framework of a realistic work pattern. Producers were asked to consider, among other factors, a normal product mix and an expansion of operations that could be reasonably attained in their industry and locality in setting capacity in terms of the number of shifts and hours of plant operations. ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Financial Experience of DOE

Income-and-loss data for uranium enriching operations are presented in table 16. In the enrichment process for commercial nuclear fuel, the concentrates of U_{235} are increased from naturally occurring 0.711 percent to about 3.5 percent. The DOE owns and operates the only North American facilities for the enrichment of uranium. In the U.S. commercial nuclear fuel market, electric utilities do not purchase enriched uranium from DOE. Typically, utilities purchase natural uranium in concentrate (U_3O_8) form from a producer or broker. The utility then contracts separately with conversion services companies and DOE to convert and enrich the U_3O_8 it has purchased from the producer or broker.

Table 14

Enriched uranium hexafluoride:¹ Shipments and inventories of the U.S. producer, fiscal years 1988-90, January-September 1990, and January-September 1991

	Jan.-Sept.--				
Item	1988	1989	1990	1990	1991
Quantity (1,000 SWU)					
U.S. Government					
transfers.....	***	***	***	***	***
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Total shipments.....	***	***	***	***	***
Value (1,000 dollars)					
U.S. Government					
transfers.....	***	***	***	***	***
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Total shipments.....	***	***	***	***	***
Unit value (per SWU)					
U.S. Government					
transfers.....	\$***	\$***	\$***	\$***	\$***
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***
Beginning-of-period inventories (1,000 SWU).....	***	***	***	***	***
End-of-period inventories (1,000 SWU).....	***	***	***	***	***

¹ ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The gaseous diffusion process used by DOE results in two product streams. One stream is enriched; i.e., it contains an increased concentration of U₂₃₅ and the other is "depleted," i.e., it contains a decreased concentration of U₂₃₅. The enriched uranium is used to fabricate nuclear fuel, while the depleted uranium is generally considered worthless (except for limited military applications), but there will eventually be a significant cost for removal of the radioactive waste. DOE's financial statements show environmental restoration costs that include expenses for current periods and accruals for future periods. Domestic and foreign uranium concentrates are fungible, and are processed identically. ***. ***. ***.²⁵ ***.

²⁵ ***.

Table 15

Average number of employees in the U.S. uranium hexafluoride enrichment plant; production and related workers producing enriched uranium hexafluoride; and hours worked by and wages, total compensation, and average hourly wages paid to such workers, fiscal years 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Average number of employees.....	***	***	***	***	***
Production and related workers producing enriched uranium hexafluoride.....	***	***	***	***	***
Hours worked by production and related workers producing enriched uranium hexafluoride (1,000 hours).....	***	***	***	***	***
Wages paid to production and related workers producing enriched uranium hexafluoride (1,000 dollars).....	***	***	***	***	***
Total compensation paid to production and related workers producing enriched uranium hexafluoride (1,000 dollars).....	***	***	***	***	***
Average hourly wages paid to production and related workers producing enriched uranium hexafluoride.....	\$***	\$***	\$***	\$***	\$***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Capital and Investment

The Commission requested DOE to describe any actual or potential negative effects of the subject imports on the its growth, investment, ability to raise capital, and production efforts. DOE's response is presented in appendix D.

Table 16

Income-and-loss experience of DOE on its uranium enriching operations, fiscal years 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.-- 1990	1991
<u>Quantity (1,000 SWU)</u>					
Net sales.....	***	***	***	***	***
<u>Value (In millions of dollars)</u>					
Net sales.....	***	***	***	***	***
Cost of goods sold.....	***	***	***	***	***
Gross profit.....	***	***	***	***	***
Selling, general, and administrative expenses....	***	***	***	***	***
Operating income or (loss)...	***	***	***	***	***
Shutdown expenses.....	***	***	***	***	***
Interest expense ¹	***	***	***	***	***
Other income or (loss), net..	***	***	***	***	***
Net income or (loss) before income taxes.....	***	***	***	***	***
Depreciation and amorti- zation included above.....	***	***	***	***	***
Cash flow ²	***	***	***	***	***
<u>Share of net sales (percent)</u>					
Cost of goods sold.....	***	***	***	***	***
Gross profit.....	***	***	***	***	***
Selling, general, and administrative expenses....	***	***	***	***	***
Operating income or (loss)...	***	***	***	***	***
Net income or (loss) before income taxes.....	***	***	***	***	***
<u>Value (Per SWU)</u>					
Net sales.....	\$***	\$***	\$***	\$***	\$***
Cost of goods sold.....	***	***	***	***	***
Gross profit.....	***	***	***	***	***
Selling, General, and administrative expenses....	***	***	***	***	***
Operating income or (loss)...	***	***	***	***	***

¹ Primarily imputed interest on government investment; normally not included in costs on GAAP basis.

² Cash flow is defined as net income or loss plus depreciation and amortization.

Note.--Because of rounding, figures may not add to totals shown. Significant unusual and nonrecurring expenses of ***, for fiscal periods ending September 30 in 1988, 1989, and 1990, respectively, are not included in data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Uranium Fuel Fabricators

Uranium fuel fabricators receive enriched uranium hexafluoride from DOE or imported enriched uranium hexafluoride from importers, traders, brokers, or utilities. The fuel fabricators generally do not own or take title to the enriched uranium at their facilities. Like the converters and DOE, the fuel fabricators maintain accounts in which enriched uranium product can be sold, traded, loaned, and so forth through paper transactions without the product moving from their plants.

Ultimately, the fuel fabricators convert enriched uranium hexafluoride into a stable solid form, usually uranium oxide, which is then further processed into finished fabricated fuel assemblies suitable for installation in nuclear reactors.

Certain salient data compiled from responses from the Commission's questionnaires are presented in table 17. Quantity data are presented in kilograms of enriched uranium, which is the standard unit of quantity used for commerce in enriched uranium. It is important to note that the data are not complete because not all fuel fabricators responded to the Commission's questionnaires.²⁶ Therefore, caution should be exercised when drawing conclusions from table 17.

Income-and-loss experience for uranium fuel fabrication operations is presented in table 18. After enrichment, the enriched uranium is processed into nuclear reactor fuel in the form of solid, cylinder-pellets that are placed in zirconium stainless-steel alloy hollow rods at nuclear fabrication plants. These uranium-filled rods provide the basic form of nuclear fuel used by nuclear power plants. ***.

CONSIDERATION OF THE QUESTION OF THREAT OF MATERIAL INJURY

Section 771(7)(F)(i) of the Tariff Act of 1930 (19 U.S.C. § 1677(7)(F)(i)) provides that--

In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of any merchandise, the Commission shall consider, among other relevant factors²⁷--

²⁶ Questionnaire responses were received from *** of the five fuel fabricators. Of the *** questionnaire responses, only those of *** provided reasonably complete data.

²⁷ Section 771(7)(F)(ii) of the act (19 U.S.C. § 1677(7)(F)(ii)) provides that "Any determination by the Commission under this title that an industry in the United States is threatened with material injury shall be made on the basis of evidence that the threat of material injury is real and that actual injury is imminent. Such a determination may not be made on the basis of mere conjecture or supposition."

Table 17

Enriched uranium oxide: Certain salient data of U.S. producers, 1988-90,
January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Average-of-period capacity					
(1,000 kg U).....	***	***	***	***	***
Production (1,000 kg U).....	***	***	***	***	***
Average-of-period capacity					
utilization (percent).....	***	***	***	***	***
Company transfers					
(1,000 kg U).....	***	***	***	***	***
Domestic shipments					
(1,000 kg U).....	***	***	***	***	***
U.S. shipments					
(1,000 kg U).....	***	***	***	***	***
Export shipments					
(1,000 kg U).....	***	***	***	***	***
Total shipments					
(1,000 kg U).....	***	***	***	***	***
End-of-period inventories					
(1,000 kg U).....	***	***	***	***	***
Ratio of inventories to					
total shipments (percent)..<	***	***	***	***	***
Production and related					
workers (PRWs).....	***	***	***	***	***
Hours worked by PRWs					
(1,000 hours).....	***	***	***	***	***
Wages paid to PRWs (1,000					
dollars).....	***	***	***	***	***
Total compensation paid to					
PRWs (1,000 dollars).....	***	***	***	***	***
Hourly wages paid to PRWs....	\$***	\$***	\$***	\$***	\$***
Hourly total compensation					
paid to PRWs.....	***	***	***	***	***
Productivity (kg U per					
hour).....	***	***	***	***	***
Unit labor costs (per					
kg U).....	\$***	\$***	\$***	\$***	\$***

Note.--Averages and ratios are calculated using data of firms supplying both numerator and denominator information. Part-year inventory ratios are annualized.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 18

Income-and-loss experience of *** on its uranium fuel fabrication operations, fiscal years 1988-90, January-September 1990, and January-September 1991

	<u>Jan.-Sept.--</u>				
<u>Item</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1990</u>	<u>1991</u>
	<u>Quantity (1.000 pounds)</u>				
Net sales.....	***	***	***	***	***
	<u>Value (1.000 dollars)</u>				
Net sales.....	***	***	***	***	***
Cost of goods sold.....	***	***	***	***	***
Gross profit.....	***	***	***	***	***
Selling, general, and administrative expenses....	***	***	***	***	***
Operating income or (loss)...	***	***	***	***	***
	<u>Share of net sales (percent)</u>				
Cost of goods sold.....	***	***	***	***	***
Gross profit.....	***	***	***	***	***
Selling, general, and administrative expenses....	***	***	***	***	***
Operating income or (loss)...	***	***	***	***	***
	<u>Per pound</u>				
Net sales.....	\$***	\$***	\$***	\$***	\$***
Cost of goods sold.....	***	***	***	***	***
Gross profit.....	***	***	***	***	***
Selling, general, and administrative expenses....	***	***	***	***	***
Operating income or (loss)...	***	***	***	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

(I) If a subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the subsidy is an export subsidy inconsistent with the Agreement),

(II) any increase in production capacity or existing unused capacity in the exporting country likely to result in a significant increase in imports of the merchandise to the United States,

(III) any rapid increase in United States market penetration and the likelihood that the penetration will increase to an injurious level,

(IV) the probability that imports of the merchandise will enter the United States at prices that will have a depressing or suppressing effect on domestic prices of the merchandise,

(V) any substantial increase in inventories of the merchandise in the United States,

(VI) the presence of underutilized capacity for producing the merchandise in the exporting country,

(VII) any other demonstrable adverse trends that indicate the probability that the importation (or sale for importation) of the merchandise (whether or not it is actually being imported at the time) will be the cause of actual injury,

(VIII) the potential for product-shifting if production facilities owned or controlled by the foreign manufacturers, which can be used to produce products subject to investigation(s) under section 701 or 731 or to final orders under section 736, are also used to produce the merchandise under investigation,

(IX) in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both), and

(X) the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the like product.²⁸

No subsidies were alleged in this case; information on the volume, U.S. market penetration, and pricing of imports of the subject merchandise (items (III) and (IV) above) is presented in the section entitled "Consideration of the causal relationship between imports of the subject merchandise and the alleged material injury;" and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts (item (X)) is presented in the section entitled "Consideration of alleged material injury." Available information on U.S. inventories of the subject products (item (V)); foreign producers' operations, including the potential for "product-shifting" (items (II), (VI), and (VIII) above); any other threat indicators, if applicable (item (VII) above); and any dumping in third-country markets, follows. Other threat indicators have not been alleged or are otherwise not applicable.

U.S. Inventories of Uranium from the U.S.S.R.

Nuexco's reported end-of period inventories are presented in table 19.

***.

Ability of Foreign Producers to Generate Exports and the Availability of Export Markets Other Than the United States

Counsel for Global Nuclear Services and Supply, Ltd. (GNS) was requested to provide the Commission with information on the producers of uranium in the U.S.S.R. The information requested consisted of the number and names of producing entities; production, capacity, capacity utilization, home-market shipments, exports to the United States, and total exports, for each of the periods 1988-90, January-September 1990, and January-September 1991; projected changes in production, capacity, or capacity utilization in 1991; and intentions or projections as to the quantity of exports of the subject uranium in its various forms to the United States in 1992.

GNS is a joint venture between Nuexco and what is believed to be the sole exporter of uranium from the U.S.S.R.²⁹ Both the production and export of uranium was believed to be under central government control in the U.S.S.R. Therefore, it was expected that counsel for GNS would be able to obtain complete responses to the Commission's request for data. ***. ***.

²⁸ Section 771(7)(F)(iii) of the act (19 U.S.C. § 1677(7)(F)(iii)) further provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other GATT member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

²⁹ Petition, exhibit 17-9.

Table 19

Uranium from the U.S.S.R.: Nuexco's end-of-period inventories, by types, December 31, 1988-90, September 30, 1990, and September 30, 1991

Item	Dec. 31--			Sept. 30--	
	1988	1989	1990	1990	1991
Natural uranium					
(1,000 pounds U_3O_8).....	***	***	***	***	***
Enriched uranium					
(1,000 kg U).....	***	***	***	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Substantially the same request for information on the uranium industry in the U.S.S.R. was transmitted through diplomatic channels, but no response was received.

Therefore, at present, the best available information about the uranium industry in the U.S.S.R. is the information contained in the petition.³⁰

CONSIDERATION OF THE CAUSAL RELATIONSHIP BETWEEN IMPORTS OF THE SUBJECT MERCHANDISE AND THE ALLEGED MATERIAL INJURY

U.S. Imports and Exports

Official U.S. Department of Commerce import and export data for natural and enriched uranium are presented in appendix E. Several problems arose when using the Commerce trade statistics. First, there are numerous TSUSA, HTS, and schedule B numbers involved and, prior to 1989, natural and enriched uranium imports were reported together. Second, quantity data are in gross weight and overstate uranium (or U_3O_8) content. Third, there are apparent errors in the data. And fourth, simply adding together natural and enriched uranium introduces additional errors in the interpretation of quantity data. Nevertheless, the official statistics are the best available information for some purposes, such as considering value or unit values.

However, questionnaire data are believed to be the best available information concerning the quantity of imports from the U.S.S.R. and for interpreting the significance of imports of natural uranium compared with imports of enriched uranium. Import data compiled from Nuexco's questionnaire response are presented in table 20. ***. Therefore, the data in table 20 are understated. ***.

As shown in table 20, ***. Imports of enriched uranium are particularly significant because a relatively small quantity of enriched uranium is

³⁰ Petition, pp. 70-73.

Table 20

Uranium: U.S. imports from the U.S.S.R. by Nuexco, by types, 1988-90, January-September 1990, and January-September 1990

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Natural uranium					
(1,000 pounds					
U ₃ O ₈).....	***	***	***	***	***
Enriched uranium					
(1,000 kg U).....	***	***	***	***	***
Product assay					
(percent U ₂₃₅)....	***	***	***	***	***
Tails assay					
(percent U ₂₃₅)....	***	***	***	***	***
Separative work					
(1,000 kg SWU)....	***	***	***	***	***
Natural uranium					
feed (1,000					
pounds U ₃ O ₈).....	***	***	***	***	***
Total natural uranium					
(1,000 pounds					
U ₃ O ₈).....	***	***	***	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

equivalent to a very large amount of natural uranium. Further, enriched uranium has all of the conversion and enrichment factors included. Table 20 has all of the quantitative transaction elements for enriched uranium necessary to compute the natural uranium feed requirements and the SWU required in the enrichment process. As can be seen from table 20, the quantity of enriched uranium imported from the U.S.S.R. *** during 1988-90, as did the SWU and natural uranium feed equivalents.

U.S. Market Penetration by the Subject Imports

U.S. nuclear reactor fuel requirements are actual consumption of uranium. Because of the difficulties associated with the use of Commerce data, reactor requirements as presented in table 1 are used as the best available estimate for apparent consumption of uranium in this preliminary investigation and are included in table 21. The apparent consumption is of natural uranium equivalents and takes into account transaction assays (product and tails assays) as well as variable reactor load and burn rates. Therefore, to compare imports to consumption, total natural U₃O₈ must be used, including natural uranium feed for enriched uranium.

Based on these data, the market penetration by imports of uranium from the U.S.S.R. increased from *** percent in 1988, to *** percent in 1989, and *** percent in 1990. Market penetration was *** percent during January-September 1991 compared with *** percent during January-September 1990.

Table 21

Uranium: Apparent U.S. consumption,¹ imports from the U.S.S.R.² and all other sources, U.S. producers' domestic shipments of concentrates, ratios of imports from the U.S.S.R. to consumption, and ratios of U.S. producers' domestic shipments to consumption, 1988-90, January-September 1990, and January-September 1991

	Jan.-Sept.--				
Item	1988	1989	1990	1990	1991
	Quantity (1,000 pounds U ₃ O ₈)				
Apparent U.S. consumption.....	40,739	37,370	41,020	30,765	32,674
U.S. imports from--					
U.S.S.R.....	***	***	***	***	***
All other sources ³	***	***	***	***	***
Total.....	***	***	***	***	***
U.S. producers'					
U.S. shipments.....	11,794	11,046	7,604	6,081	5,880
	Ratios to apparent U.S. consumption (percent of quantity)				
U.S. imports from--					
U.S.S.R.....	***	***	***	***	***
All other sources ³	***	***	***	***	***
Total.....	***	***	***	***	***
U.S. producers'					
U.S. shipments.....	29.0	29.6	18.5	19.8	18.0

¹ Domestic reactor requirements in quantities of natural U₃O₈ equivalent.

² ***. ***.

³ Calculated from apparent consumption minus imports from the U.S.S.R. minus U.S. producers' domestic shipments of uranium concentrates.

Note.--Because of rounding, figures may not add to the totals shown.

Source: Apparent consumption from table 1. Imports from the U.S.S.R. and U.S. producers' domestic shipments of uranium concentrates are compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Domestic uranium concentrate producers' share of apparent consumption increased from 29.0 percent in 1988 to 29.6 percent in 1989 before dropping to 18.5 percent in 1990. Domestic producers' market share was 18.0 percent during January-September 1991 compared with 19.8 percent during January-September 1990.

The "balance" of consumption is simply the difference between apparent consumption less imports from the U.S.S.R. less U.S. producers' domestic shipments. This balance is approximately the net amount provided by imports from other countries.

Prices

Prices and processing fees of the various subject domestic and imported U.S.S.R. uranium products may vary because of differences in quantities purchased or committed, and because some purchasers perceive differences in the reliability among various suppliers.³¹ Prices and processing fees may also vary between customers because prices/processing fees associated with earlier contracts were negotiated when market conditions were different than prices/processing fees associated with more recent contracts.³² Over the last few years, ***.³³ Both U.S. enrichment fees and prices of the imported U.S.S.R. enriched uranium hexafluoride vary depending on the specific product stream U₂₃₅ assay (enrichment level) and the tails U₂₃₅ assay; the higher the product stream assay and/or the lower the tails assay the higher the enrichment fee or price. On the other hand, prices and processing fees of the domestic and imported uranium products do not appear to vary because of any variations in product quality. All these products are produced to standard industry specifications and are sold or toll-processed based on the output product being acceptable to the next downstream processor.³⁴

Marketing Practices

U.S. produced and imported U.S.S.R. uranium concentrate and the imported U.S.S.R. enriched uranium hexafluoride are sold on both a spot and a contract basis, although some contracts specify that prices are those prevailing in the spot market at the time of delivery or in some way are based on such prices. The prices of these uranium products are negotiated between buyer and seller and based, to varying degrees, on several different sources of published world spot market prices.³⁵ According to questionnaire responses of uranium concentrate producers, the various published spot market prices have become increasingly important in the U.S. uranium concentrate market, as spot sales have reportedly become a larger share of total sales and many new multiyear

³¹ Telephone conversation with ***.

³² Prices of uranium concentrate could also vary as a result of litigation settlements. ***.

³³ Many of the contract prices were negotiated *** and are higher than current spot prices.

³⁴ Any added downstream-processor costs resulting from poor quality upstream uranium products are the responsibility of the upstream processor.

³⁵ NUEXCO's exchange value (NEV) is the oldest and most widely used published price among several for information on current world spot market prices of uranium concentrate. The NEV is published monthly and is NUEXCO's judgement of the spot price of uranium concentrate based on its observed prices of sales of significant quantities on the last day of the month. NUEXCO and other firms also publish world prices of maturing contracts for uranium concentrate. In addition the reporting firms publish world spot and maturing-contract prices for enriched and natural uranium hexafluoride, as well as the conversion and enrichment fees. DOE publishes enrichment fees for its maturing contracts.

NUEXCO reports in its questionnaire response that ***.

contracts reference spot market prices.³⁶ Payment terms for the domestic and imported U.S.S.R. uranium concentrate and for the imported U.S.S.R. enriched uranium hexafluoride are generally 30 days from the date of shipment.

U.S. conversion and enrichment fees are almost always offered on a contract basis with prices either ***.³⁷ ***. Payment terms for conversion or enrichment services are generally 30 days from the date the output product is shipped.

It is not known how any imports of U.S.S.R. natural uranium hexafluoride are priced ***.

Swaps are exchanges of ownership titles of the subject uranium products among market participants.³⁸ Swaps between firms of uranium products occur frequently and make it difficult to track sales values and actual consumption levels. Swaps require a high level of homogeneity of products within a specific uranium product category,³⁹ and tend to lead to a more efficient market.⁴⁰ *** swaps also lead to more price uniformity and stability, and do not inherently affect the price of uranium. On the other hand, *** asserted that swaps have destabilized the U.S. uranium market by easing entry of U.S.S.R. uranium into the U.S. market, thereby contributing to the already existing oversupply and low prices of uranium in the United States. The level of swap activity in uranium products in the U.S. market may be high in recent years because of reportedly large uranium inventories worldwide as well as in the United States. See appendix F for a discussion of the various types of swaps.

³⁶ In addition to their use as price barometers in spot sales transactions, the published spot prices of uranium concentrate and enriched uranium hexafluoride are used as one component of information in determining prices in new multiyear contracts. The price in these more recent contracts is increasingly formulated based on spot market conditions at the time of shipment. Published spot prices also are used in contract release provisions for the seller or buyer if the contract price differs by more than a specified amount from the prevailing spot market price as shown in a specified published price series.

³⁷ In addition, ***.

³⁸ Participants include producers of uranium concentrate, converters, fabricators, electric utilities, and traders, which may be located in different countries. Brokers frequently help facilitate swaps among the different participants, but do not take title to the products themselves. Transaction costs associated with swaps were generally reported in questionnaire responses to be minimal, adding less than 1 percent to the cost of the material being traded.

³⁹ ***.

⁴⁰ Once inventories have been established at converters', enrichers', and fabricators' locations, swaps minimize the physical movement of products as they are sold.

Contracts

Uranium concentrate.--Contracts to supply/purchase domestic and imported U.S.S.R. uranium concentrate are negotiated for single-year or multiyear commitments, although most of the ***.⁴¹ Older multiyear contracts for uranium concentrate were generally for contract periods of 10 years or more and had either fixed prices or base-price escalators and no price floors or ceilings. In the last few years, multiyear contracts have typically ranged from 3-7 years, with an option to extend the period under similar terms. Prices specified in the recent multiyear contracts often are either set to the level of spot prices at the time of delivery or otherwise related to market conditions at the time of shipment, frequently with price ceilings and sometimes price floors.⁴² Market participants still negotiate fixed and base-price escalated contracts. These tend to have higher prices than the spot or otherwise market-related contract prices.

Selling prices of uranium concentrate are in dollars per pound of U_3O_8 ,⁴³ and cover the uranium concentrate, the containers, weighing and sampling at the mill and at the converter, and freight to the converter.⁴⁴

Contract quantities in multiyear contracts are either requirements-based or a fixed/estimated amount with delivery dates specified,⁴⁵ usually quarterly or semiannually to fulfill a specific order. If an estimated amount, shipment quantities can be adjusted up or down by the purchaser, by as much as 30 percent with 6-month advance notice.⁴⁶ Contracts require the purchaser to notify the supplier within a prescribed lead time which conversion facility to send the uranium concentrate to. Contracts also specify the country(ies) of origin acceptable to the purchaser. All contract sales of uranium concentrate require that the supplier of the uranium concentrate must meet the converter's specifications.⁴⁷

U.S. conversion services.--Contract periods for conversion services in the United States typically range from 5 to 8 years. Conversion fees typically include the conversion service, weighing and sampling, shipment to DOE, and the use and return of containers to the converter. Fees charged by

⁴¹ Single-year contracts are typically for a single delivery within one year of the contract date.

⁴² Price floors and ceilings are sometimes also subject to specified escalator adjustments over the life of the contract.

⁴³ Uranium concentrate is a solid and is chemically available most frequently as U_3O_8 .

⁴⁴ Spot prices are quoted on the same basis.

⁴⁵ A requirement-type contract specifies that the purchaser, typically an electric utility company, must purchase a certain percentage, usually 70 percent or more, of its annual volume requirements of uranium concentrate from the particular supplier that it contracts with.

⁴⁶ Annual deliveries of a quantity-based contract can be accelerated or deferred for up to 12 months with 6- to 12-month advance notice by the purchaser.

⁴⁷ Spot sales of uranium concentrate are also based on this requirement.

U.S. converters to process the concentrate into natural uranium hexafluoride are in dollars per kilogram or pound of natural uranium contained in the natural UF_6 compound.⁴⁸

The contract usually specifies a minimum and maximum amount of natural uranium hexafluoride to be toll-produced over the total period of the agreement, as well as a yearly minimum and maximum amount of the product to be toll-produced.⁴⁹ In addition, the contract requires that converter must meet DOE's specifications for the natural uranium hexafluoride.

U.S. enrichment services.--

* * * * *

Imported U.S.S.R. enriched uranium hexafluoride.--

* * * * *

Transportation and Packaging

The U.S. producers (including toll producers) and the responding importer sell the subject uranium products nationwide and reported in their questionnaire responses that U.S. inland freight costs, which are less than 1 percent of the delivered selling price, are not a significant consideration of purchasers.⁵⁰ Both the domestic and imported U.S.S.R. products are shipped by truck, typically in full-truckload quantities. Uranium concentrate is sold most frequently in U.S. Department of Transportation (DOT)-approved 55-gallon steel drums (DOT No. 17H), but some imported U.S.S.R. concentrate is also sold in DOT-approved 330-liter steel drums.⁵¹ The natural uranium hexafluoride is sold in DOT-approved steel cylinders (DOT 30B and DOT 48Y) and the enriched uranium hexafluoride is sold in the DOT 30B cylinders.⁵² The portion of the

⁴⁸ Natural uranium hexafluoride (UF_6) becomes a gas when heated, and it is obtained from uranium concentrate by chemical conversion.

⁴⁹ The contract requires the purchaser to notify the converter within a prescribed lead time exactly how much natural uranium hexafluoride will be needed in the upcoming year and the months that delivery must be made.

⁵⁰ Actual shipments to a converter, DOE, or a fabricator designated by the purchasing electric utility may have taken place prior to the delivery request of the utility. Beginning with converters, firms at each stage of uranium processing usually store the upstream input product at no cost, and other times at a nominal cost, to the input suppliers. As a result, delivery of the product to an electric utility at a designated processor's location is typically understood to be by actual shipment or by book transfer (change ownership for a specified quantity of the uranium product in inventory at the processor's facility from the input supplier to the electric utility.)

⁵¹ The 55-gallon drums hold about 900-1,000 pounds of uranium concentrate, while the 330-liter drums hold about 1,600 pounds.

⁵² The 30B cylinder holds 2,273 kilograms of natural uranium hexafluoride and the DOT 48Y cylinder holds about 12,000 kilograms of natural uranium hexafluoride. The 30B cylinder holds about 1,500 kilograms of enriched uranium hexafluoride.

selling price or toll fee accounted for by the cost or use of the various containers to transport the different subject uranium products is less than 1 percent and not considered a significant pricing factor by purchasers.⁵³

Questionnaire Price Data

The Commission requested quarterly selling price data for product 1 from U.S. producers of uranium concentrate and for products 1-3 from U.S. importers during January 1989-September 1991. The Commission requested U.S. converters and DOE to report quarterly processing charges for their U.S. toll-produced products 2 and 3 during January 1989-September 1991. The Commission also requested electric utilities to report quarterly purchase price data for the U.S.-produced and imported U.S.S.R. product 1, the imported U.S.S.R. products 2 and 3, and quarterly U.S. conversion and enrichment fees paid to obtain U.S.-produced products 2 and 3 during January 1990-September 1991.

PRODUCT 1: Uranium concentrate (U_3O_8), commonly called yellowcake, which has NOT been converted or enriched.

PRODUCT 2: Uranium hexafluoride (UF_6) in the natural (unenriched) state. This is the uranium concentrate converted to a gaseous form.

PRODUCT 3: Uranium hexafluoride (UF_6) enriched to 3.5 percent of the U_{235} isotope with an enrichment tails assay of 0.3 percent of U_{235} .⁵⁴

The price/processing-fee data were requested on a net U.S. f.o.b. and delivered basis for the responding firms' largest quarterly sales/purchases and total quarterly sales/purchases.⁵⁵ Fourteen U.S. producers of uranium

⁵³ ***.

⁵⁴ These particular product stream and tails assays were suggested by DOE as an assay combination frequently ordered by U.S. electric utilities in the last few years. The current tails assay of 0.3 percent is typically specified today instead of the previously traditional level of 0.2 percent because uranium concentrate is available at lower cost than previously.

⁵⁵ All the requested selling and purchase price/processing-fee data were requested by the following three types of sales/purchase-price agreements:

(A) Combined sales/purchases of (1) uranium that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor and/or ceiling;

(B) Uranium that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID specify a price floor and/or ceiling; and

(C) Uranium that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

In addition, responding U.S. producers and importers were requested to report the date of contracts in contract-based shipments, and to report the level of any price floors or price ceilings in contract-based shipments.

concentrate provided the requested price data for the U.S.-produced uranium concentrate product,⁵⁶ and DOE provided enrichment fee data.⁵⁷ ***.

* * * * *

The electric utilities reported the requested purchase price data for U.S.-produced and imported U.S.S.R. uranium concentrate.⁵⁸ The utilities also reported the U.S. conversion fees they paid to obtain natural uranium hexafluoride, and enrichment fees they paid DOE for enriched uranium hexafluoride. The enriched uranium hexafluoride for which the utilities reported enrichment fees, however, encompassed a mix of product stream assays of the enriched uranium and a mix of tails assays; no meaningful prices could be developed from such aggregate product data.

Price trends

Uranium concentrate.--Price trends of the U.S.-produced and imported U.S.S.R. uranium concentrate are based on net U.S. delivered selling prices that were reported in producer and importer questionnaire responses. Quarterly selling prices⁵⁹ and quantities of uranium concentrate are shown, by type of sales agreement, in table 22 for sales of the domestic product and table 23 for sales of the product imported from the U.S.S.R.. Prices of the domestic product were reported for each of the three types of sales agreements; spot sales and contract sales where prices were set at the spot market prices (spot market), contract sales where prices were subject to a floor or ceiling (market-related contract), and contract sales where prices were fixed or were base-prices subject to a specified escalator (fixed-price contract). Prices of the imported product were reported for spot market sales and fixed-price contract sales. Market-related contract sales shown in table 22 are for U.S. producers' contracts dated from 1986 to 1988 and fixed-price contract sales shown in table 22 are for U.S. producers' contracts dated from 1983 to 1989.⁶⁰ Fixed-price contract sales shown in table 23 are for the

⁵⁶ The price information reported by U.S. producers of uranium concentrate covered about 68 percent by weight of total reported domestic shipments of the U.S.-produced uranium concentrate during January 1989-September 1991.

⁵⁷ The enriched uranium hexafluoride for which enrichment fees were reported by DOE was based on differing product stream assays of the enriched uranium and sometimes different tails assays. As a result, trends in enrichment processing fees could not be developed on a product-quantity basis, but were possible on a SWU basis.

⁵⁸ Twenty-nine electric utilities reported the requested price data for the domestic and imported U.S.S.R. uranium concentrate and for U.S. conversion fees for natural uranium hexafluoride, but not necessarily for every period requested. Purchase quantities reported by electric utilities appear to have accounted for most of the reported shipments of U.S.-produced uranium concentrate and imports of the U.S.S.R. product during January 1990-September 1991. These shares may be overstated, however, as purchases from brokers and traders may have resulted in some double counting.

⁵⁹ Selling prices are shown in dollars per pound of U₃O₈.

⁶⁰ One U.S. producer, ***, also reported sales of its domestic uranium concentrate ***, and another U.S. producer, ***, also reported sales of its

(continued...)

Table 22

Net delivered selling prices and quantities of U.S.-produced uranium concentrate, by type of sales agreement and by quarter, January 1989-September 1991¹

Period	Spot market sales ²		Contract sales--			
			Restricted market-related price ³		Fixed price/base-price escalator ⁴	
	Price	Quantity	Price	Quantity	Price	Quantity
	<u>\$/lb</u> <u>of</u> <u>U₃O₈</u>	<u>1,000</u> <u>lbs</u> <u>of U₃O₈</u>	<u>\$/lb</u> <u>of</u> <u>U₃O₈</u>	<u>1,000</u> <u>lbs</u> <u>of U₃O₈</u>	<u>\$/lb</u> <u>of</u> <u>U₃O₈</u>	<u>1,000</u> <u>lbs</u> <u>of U₃O₈</u>
1989:						
Jan.-March...	\$8.08	630	\$15.85	253	\$23.48	503
April-June...	8.81	1,216	16.43	481	27.30	545
July-Sept....	6.17	704	15.84	443	27.85	750
Oct.-Dec.....	6.52	760	21.66	172	27.23	309
1990:						
Jan.-March...	5.93	1,068	15.23	335	23.67	414
April-June...	7.26	703	20.84	15	23.21	709
July-Sept....	7.55	348	17.06	557	26.69	401
Oct.-Dec.....	8.91	1,008	16.26	158	23.96	457
1991:						
Jan.-March...	6.36	941	15.99	302	23.78	341
April-June...	6.41	458	17.30	111	22.21	712
July-Sept....	6.71	573	21.98	22	25.95	334

¹ Prices of the domestic uranium concentrate are averages of the net U.S. delivered quarterly selling prices of the responding U.S. producers' largest quarterly sales weighted by each firm's total quarterly sales quantity of its uranium concentrate.

² Combined sales of (1) uranium concentrate that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor or ceiling.

³ Uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID specify a price floor and/or ceiling. The reported prices were at or near the specified floors.

⁴ Uranium concentrate that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Note: The contract sales prices shown separately in this table were based on contracts signed during 1983-89.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

⁶⁰ (...continued)

domestic product ***. ***. Both reported price series are shown in appendix G, table G-1, and are substantially higher than any prices shown in table 22, reflecting ***.

Table 23

Net delivered selling prices and quantities of imported U.S.S.R. uranium concentrate, by type of sales agreement and by quarter, October 1990-June 1991¹

Period	<u>Spot market sales²</u>		<u>Contract sales--</u>	
			<u>Fixed price/base price escalator³</u>	
	<u>Price</u>	<u>Quantity</u>	<u>Price</u>	<u>Quantity</u>
	<u>\$/lb of</u>	<u>1,000 lbs</u>	<u>\$/lb of</u>	<u>1,000 lbs</u>
	<u>U₃O₈</u>	<u>of U₃O₈</u>	<u>U₃O₈</u>	<u>of U₃O₈</u>
1990:				
Oct.-Dec.....	***	***	***	***
1991:				
Jan.-March...	***	***	***	***
April-June...	***	***	***	***

¹ Prices of the imported U.S.S.R. uranium concentrate are the net U.S. delivered quarterly selling prices of the responding U.S. importer's largest quarterly sales. The quantities shown represent the responding importer's total quarterly U.S. sales of its imported U.S.S.R. uranium concentrate.

² Combined sales of (1) uranium concentrate that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor or ceiling.

³ Uranium concentrate that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Note: The fixed price/base-price escalated long term contract sales prices shown in this table were based on contracts signed in ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

responding importer's contracts dated from 1989 to 1991. Quarterly changes in contract prices should be viewed with caution, as such changes involve various quarterly mixes of contract prices that were negotiated at different times when prices were generally falling.

Quarterly prices of the U.S.-produced uranium concentrate sold in the spot market fluctuated but tended to fall over the period January 1989-September 1991, while prices of the domestic uranium concentrate sold under market-related contract or fixed-price contract agreements fluctuated without clear trends but ended the period higher than the initial-period prices.⁶¹

⁶¹ Based on the three types of sales agreements involving domestic uranium concentrate, prices in the spot market were the lowest throughout the period, prices based on market-related contract prices were higher, and prices based on fixed-price contract agreements were the highest in each quarter.

Spot market selling prices fell from \$8.08 per pound in January-March 1989 to \$6.71 per pound in July-September 1991, or by about 17 percent. The reported market-related contract prices were at or slightly above reported price floors specified in the contracts and averaged \$15.85 per pound in January-March 1989, fell to a period low of \$15.23 per pound in January-March 1990, but then rose during January-September 1991 to end at a period high of \$21.98 per pound in July-September 1991.⁶² Fixed-price contracts rose from \$23.48 per pound in January-March 1989 to a period high of \$27.85 per pound in July-September 1989, then tended to fall until recovering somewhat in July-September 1991 to end the period at \$25.95 per pound.⁶³

Quarterly prices of the imported U.S.S.R. uranium concentrate sold in the spot market fluctuated but *** over the limited period reported, from *** per pound in October-December 1990 to *** per pound in April-June 1991, or by about *** percent. Prices of the imported uranium concentrate sold under fixed-price contract agreements *** during the two quarters reported, from *** per pound in October-December 1990 to *** per pound in April-June 1991, or by about *** percent.

Natural uranium hexafluoride. --Trends in U.S. conversion fees were based on largest quarterly purchase data reported by U.S. utilities purchasing the conversion services to obtain their toll-produced natural uranium hexafluoride. Quarterly conversion fees, expressed in dollars per kilogram of the natural uranium contained in the toll-produced natural UF₆ compound, and the quantities of the toll-produced natural uranium contained in the natural uranium hexafluoride, are shown in table 24 during the period January 1990-September 1991. These fees are based on fixed-price contract agreements. The U.S. conversion fees generally fell dramatically during the period, from \$19.23 per kilogram in January-March 1990 to \$7.66 per kilogram in July-September 1991.

Enriched uranium hexafluoride. --Trends in U.S. enrichment fees were based on largest quarterly sales data reported by DOE. Quarterly enrichment fees, expressed in both dollars per kilogram of the enriched uranium hexafluoride compound UF₆ and dollars per SWU, and the quantities of the toll-produced enriched uranium compound, are shown in table 25 during the period January 1989-September 1991. These fees are based on fixed-price contract agreements. The U.S. enrichment fees in dollars per kilogram of the enriched uranium compound fluctuated without trend as different enrichment levels were reported each period. ***.

Price comparisons

Two sets of quarterly price comparisons between U.S.-produced and imported U.S.S.R. uranium concentrate were possible, one developed from net delivered spot and contract prices that were reported in U.S. producer and importer questionnaires and another developed from net delivered spot and contract prices reported in purchaser questionnaires returned by the U.S.

⁶² ***.

⁶³ ***.

Table 24

U.S. conversion fees and quantities of natural uranium hexafluoride, based on net tolling fees reported in electric utilities' purchaser questionnaires, by quarter, January 1990-September 1991¹

Period	Price	Quantity
	<u>\$/kg of</u> <u>U in UF₆²</u>	<u>1,000 kgs</u> <u>of U in</u> <u>UF₆²</u>
1990:		
January-March.....	\$19.23	617
April-June.....	12.63	4,334
July-September.....	12.77	914
October-December.....	7.58	9,303
1991:		
January-March.....	8.30	1,702
April-June.....	10.32	3,548
July-September.....	7.66	1,648

¹ Quarterly U.S. conversion fees were reported by purchasing U.S. electric utilities and are averages of the net U.S. quarterly fees of the responding U.S. electric utilities' largest quarterly U.S. toll-processed purchase weighted by each firm's total quarterly purchases of U.S. toll-processed natural uranium hexafluoride. U.S. conversion fees include delivery of the natural uranium hexafluoride to DOE and are based on fixed price or base-price escalator contracts.

² The quantity unit is the weight of only the uranium in the natural UF₆ compound.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

electric utilities. Delivered price comparisons based on the producer and importer questionnaires are shown in table 26, and delivered price comparisons based on purchaser questionnaires are shown in table 27. The reported quarterly domestic and import contract prices may result in biased price comparisons, tending to show underselling by the imported product. Based on producer and importer questionnaires, contract prices of the imported product were typically negotiated more recently when prices were lower than contract prices of the domestic product, which were negotiated earlier when prices were generally higher.

Based on delivered prices reported by producers and the responding importer, five quarterly price comparisons were possible between the domestic and imported U.S.S.R. uranium concentrate (table 22). All three quarterly price comparisons based on spot market sales showed the imported U.S.S.R. product to be priced higher than the domestic product during ***. Both quarterly price comparisons based on fixed-price contract agreements showed the imported product to be priced less than the domestic product, by almost *** percent during *** and by about *** percent during ***.

Table 25

U.S. enrichment fees and quantities of enriched uranium hexafluoride reported by DOE in its questionnaire response, by quarter, January 1989-September 1991¹

Period	<u>Price</u>		<u>Quantity</u>		<u>Product</u>	
	Per unit	Per	Weight	Separative	stream	Tails
	of weight	SWU		work units	assay	assay
	<u>\$/kg of</u>		<u>Kgs of</u>	<u>Number</u>	<u>Percent</u>	<u>Percent</u>
	<u>enriched</u>		<u>enriched</u>	<u>of</u>	<u>U₂₃₅</u>	<u>U₂₃₅</u>
	<u>UF₆</u>	<u>\$/SWU</u>	<u>UF₆</u>	<u>SWU's</u>		
1989:						
Jan.-March.....	\$***	\$***	***	***	***	***
April-June.....	***	***	***	***	***	***
July-Sept.....	***	***	***	***	***	***
Oct.-Dec.....	***	***	***	***	***	***
1990:						
Jan.-March.....	***	***	***	***	***	***
April-June.....	***	***	***	***	***	***
July-Sept.....	***	***	***	***	***	***
Oct.-Dec.....	***	***	***	***	***	***
1991:						
Jan.-March.....	***	***	***	***	***	***
April-June.....	***	***	***	***	***	***
July-Sept.....	***	***	***	***	***	***

¹ Quarterly U.S. enrichment fees were reported by DOE and are the net U.S. quarterly fees of DOE's largest quarterly U.S. toll-processed sale. The quantities shown represent DOE's reported largest quarterly sale of its processed enriched uranium hexafluoride. U.S. enrichment fees do not include delivery of the enriched uranium hexafluoride to the fabricator. All of DOE's enrichment fees are based on fixed price or base-price escalator contracts, although the contracts allow DOE to change the price during the contract period with sufficient advance notice.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 26

Margins of under/overselling¹ between U.S.-produced and imported U.S.S.R. uranium concentrate, based on quarterly net delivered selling prices reported in U.S. producer and importer questionnaires, by type of sales agreement and by quarter, October 1990-June 1991

Period	<u>Spot market sales²</u>		<u>Contract sales--</u>	
			<u>Fixed price/base price</u>	
	<u>Per pound</u>	<u>Percentage</u>	<u>escalator³</u>	<u>Per pound</u>
	<u>\$/lb of</u>		<u>\$/lb of</u>	<u>Percentage</u>
	<u>U₃O₈</u>		<u>U₃O₈</u>	
1990:				
Oct.-Dec.....	\$***	***	\$***	***
1991:				
Jan.-March...	***	***	***	***
April-June...	***	***	***	***

¹ The percentage price differences between the U.S. and imported U.S.S.R. uranium concentrate were calculated as differences from the U.S. producers' price. Figures in parentheses indicate that the price of the imported product was higher than the price of the domestic product during that quarter.

² Combined sales of (1) uranium concentrate that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor or ceiling.

³ Uranium concentrate that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 27

Margins of under/overselling¹ between U.S.-produced and imported U.S.S.R. uranium concentrate, based on quarterly net delivered purchase prices reported in electric utilities' purchaser questionnaires, by type of sales agreement and by quarter, October 1990-September 1991

Period	<u>Spot market sales²</u>		<u>Contract sales--</u>			
			<u>Restricted market-</u>		<u>Fixed price/base</u>	
			<u>related price³</u>		<u>price escalator⁴</u>	
	Per		Per		Per	
	pound	Percentage	pound	Percentage	pound	Percentage
	<u>\$/lb of</u>		<u>\$/lb of</u>		<u>\$/lb of</u>	
	<u>U₃O₈</u>		<u>U₃O₈</u>		<u>U₃O₈</u>	
1990:						
Oct.-Dec....	\$1.26	11.3	-	-	\$23.98	72.4
1991:						
Jan.-March..	(0.51)	(5.1)	\$3.17	24.6	-	-
April-June..	-	-	8.21	55.8	14.19	55.2
July-Sept...	0.11	1.2	3.51	32.7	24.19	73.1

¹ The percentage price differences between the U.S. and imported U.S.S.R. uranium concentrate were calculated as differences from the price of the U.S.-produced product. Figures in parentheses indicate that the price of the imported product was higher than the price of the domestic product during that quarter.

² Combined purchases of (1) uranium concentrate that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor or ceiling.

³ Uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID specify a price floor and/or ceiling.

⁴ Uranium concentrate that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Based on delivered prices reported by the purchasing electric utilities, 9 quarterly price comparisons were possible between the domestic and imported U.S.S.R. uranium concentrate (table 27). Two of three quarterly price comparisons based on spot market sales showed the imported U.S.S.R. product to be priced lower than the domestic product, by about 11 percent during October-December 1990 and by about 1 percent during July-September 1991. One quarterly price comparison showed the imported product to be priced about 5 percent higher than the domestic product in January-March 1991. All three quarterly price comparisons based on contract market-price agreements showed the imported product to be priced less than the domestic product, by an average of almost 38 percent during January-September 1991.⁶⁴ All three quarterly price comparisons based on fixed-price contract agreements also showed the imported product to be priced less than the domestic product, by an average of almost 67 percent during October 1990-September 1991.

Exchange Rates

Useable market exchange-rate data for the U.S.S.R. ruble are not available. The U.S.S.R. limits convertibility of its currency with other currencies.⁶⁵

Lost Sales And Lost Revenues

U.S. producers of uranium concentrate were unable to identify in their questionnaire responses specific sales they allegedly lost to the imported U.S.S.R. product, or where they were forced to allegedly lower their prices as a result of competition with uranium concentrate imported from the U.S.S.R.⁶⁶ However, seven U.S. producers indicated in their questionnaire responses that U.S. market prices have decreased as U.S. imports from the U.S.S.R. have increased.

⁶⁴ In all three quarters the imported U.S.S.R. uranium concentrate was purchased from U.S. producers.

⁶⁵ Beginning in January 1991, the U.S.S.R. reduced the more than 2,000 officially administered exchange rates to 3 administered rates and allowed for a market rate to be determined at currency auctions in the U.S.S.R.. Instability in the country, however, has led to panic sales of the ruble and retarded the full development of the currency auction market. It is not clear what transactions this market rate can be used for.

⁶⁶ The petition alleged, however, that the U.S. Yankee Group utility companies recently negotiated for future purchases of U.S.S.R. enrichment services that will cause or threaten injury to the U.S. uranium industry. The Yankee Group explained in their post-conference brief that ***.

APPENDIX A

FEDERAL REGISTER NOTICES

**INTERNATIONAL TRADE
COMMISSION**

[Investigation No. 731-TA-539
(Preliminary)]

Uranium From the U.S.S.R.

AGENCY: United States International
Trade Commission.

ACTION: Institution and scheduling of a
preliminary antidumping investigation.

SUMMARY: The Commission hereby gives notice of the institution of preliminary antidumping investigation No. 731-TA-539 (Preliminary) under section 733(a) of the Tariff Act of 1930 (19 U.S.C. 1673b(a)) to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from the U.S.S.R. of uranium,¹ provided for in subheadings 2612.10.00, 2844.10.10, 2844.10.20, 2844.10.50, and 2844.20.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value. The Commission must complete preliminary antidumping investigations in 45 days, or in this case by December 23, 1991.

For further information concerning the conduct of this investigation and rules of general application, consult the Commission's rules of practice and procedure, part 201, subparts A through E (19 CFR part 201), and part 207, subparts A and B (19 CFR part 207).

EFFECTIVE DATE: November 8, 1991.

FOR FURTHER INFORMATION CONTACT: Tedford Briggs (202-205-3181), Office of Investigations, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436. Hearing-impaired persons can obtain information on this matter by contacting the

¹ For purposes of this investigation, "uranium" includes the following: natural uranium in the form of uranium ores and concentrates; natural uranium metal and natural uranium compounds; alloys, dispersions (including cermets), ceramic products and mixtures containing natural uranium or natural uranium compounds; uranium enriched in U₂₃₅ and its compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing uranium enriched in U₂₃₅ or compounds of uranium enriched in U₂₃₅.

Commission's TDD terminal on 202-205-1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202-205-2000.

SUPPLEMENTARY INFORMATION:

Background

This investigation is being instituted in response to a petition filed on November 8, 1991, on behalf of the Ad Hoc Committee of Domestic Uranium Producers and the Oil, Chemical and Atomic Workers International Union.

The names and addresses of the petitioners are as follows: Ferret Exploration Company, Inc., Denver, CO; First Holding Company, Denver, CO; Geomex Minerals, Inc., Denver, CO; Homestake Mining Company, San Francisco, CA; IMC Fertilizer, Inc., Northbrook, IL; Malapai Resources Company, Houston, TX; Pathfinder Mines Corporation, Bethesda, MD; Power Resources, Inc., Denver, CO; Rio Algom Mining Corporation, Oklahoma City, OK; Solution Mining Corporation, Laramie, WY; Total Minerals Corporation, Houston, TX; Umetco Minerals Corporation, Danbury, CT; Uranium Resources, Inc., Dallas, TX; and Oil, Chemical and Atomic Workers International Union, Denver, CO.

Participation in the Investigation and Public Service List

Persons (other than petitioners) wishing to participate in the investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided in §§ 201.11 and 207.10 of the Commission's rules, not later than seven (7) days after publication of this notice in the Federal Register. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to this investigation upon the expiration of the period for filing entries of appearance.

Limited Disclosure of Business Proprietary Information (BPI) Under an Administrative Protective Order (APO) and BPI Service List

Pursuant to § 207.7(a) of the Commission's rules, the Secretary will make BPI gathered in this preliminary investigation available to authorized applicants under the APO issued in the investigation, provided that the application is made not later than seven (7) days after the publication of this notice in the Federal Register. A separate service list will be maintained by the Secretary for those parties

authorized to receive BPI under the APO.

Conference

The Commission's Director of Operations has scheduled a conference in connection with this investigation for 9:30 a.m. on December 3, 1991, at the U.S. International Trade Commission Building, 500 E Street SW., Washington, DC. Parties wishing to participate in the conference should contact Tedford Briggs (202-205-3181) not later than November 29, 1991, to arrange for their appearance. Parties in support of the imposition of antidumping duties in this investigation and parties in opposition to the imposition of such duties will each be collectively allocated one hour within which to make an oral presentation at the conference. A nonparty who has testimony that may aid the Commission's deliberations may request permission to present a short statement at the conference.

Written Submissions

As provided in §§ 201.8 and 207.15 of the Commission's rules, any person may submit to the Commission on or before December 6, 1991, a written brief containing information and arguments pertinent to the subject matter of the investigation. Parties may file written testimony in connection with their presentation at the conference no later than three (3) days before the conference. If briefs or written testimony contain BPI, they must conform with the requirements of §§ 201.6, 207.3, and 207.7 of the Commission's rules.

In accordance with §§ 201.16(c) and 207.3 of the rules, each document filed by a party to the investigation must be served on all other parties to the investigation (as identified by either the public or BPI service list), and a certificate of service must be timely filed. The Secretary will not accept a document for filing without a certificate of service.

Authority: This investigation is being conducted under authority of the Tariff Act of 1930, title VII. This notice is published pursuant to § 207.12 of the Commission's rules.

By order of the Commission.

Dated: November 12, 1991.

Kenneth R. Mason,

Secretary.

[FR Doc. 91-27729 Filed 11-18-91; 8:45 am]

BILLING CODE 7020-02-M

Washington, DC 20230; telephone (202) 377-5414 or (202) 377-5055, respectively.

Initiation

The Petition

On November 8, 1991, we received a petition in proper form filed by the Ad Hoc Committee of Domestic Uranium Producers and its individual members. Ferret Exploration Company, Inc., First Holding Company, Geomex Minerals, Inc., Homestake Mining Company, IMC Fertilizer, Inc., Malapai Resources Company, Pathfinder Mines Corporation, Power Resources, Inc., Rio Algom Mining Corporation, Solution Mining Corporation, Total Minerals Corporation, Umetco Minerals Corporation, Uranium Resources, Inc., and the Oil, Chemical, and Atomic Workers International Union. We received a supplemental submission from petitioners on November 27, 1991.

In compliance with the filing requirements of the Department's regulations (19 CFR 353.12), petitioners allege that imports of uranium from the Union of Soviet Socialist Republics ("Soviet Union") are being, or are likely to be sold in the United States at less than fair value within the meaning of section 731 of the Tariff Act of 1930, as amended ("the Act"), and that these imports are materially injuring, or threaten material injury to, the U.S. industry.

Petitioners have stated that they have standing to file the petition because they are interested parties, as defined under section 771(9) (C) and (D) of the Act, and because they have filed on behalf of the U.S. industry producing the product that is subject to this investigation. Any interested party, as described under paragraphs (C), (D), (E), or (F) of section 771(9) of the Act, who wishes to register support for, or opposition to, this petition, should file written notification with the Assistant Secretary for Import Administration.

Under the Department's regulations, any producer or reseller seeking exclusion from a potential antidumping duty order must submit its request for exclusion within 30 days of the date of the publication of this notice. The procedures and requirements regarding the filing of such requests are contained in 19 CFR 353.14.

United States Price and Foreign Market Value

Petitioners have calculated United States price ("USP") using an estimated weighted average f.o.b. import price based on U.S. Bureau of Census statistics on imports of natural and

[A-461-801]

Initiation of Antidumping Duty Investigation: Uranium from the Union of Soviet Socialist Republics

AGENCY: Import Administration, International Trade Administration, Commerce.

EFFECTIVE DATE: December 5, 1991.

FOR FURTHER INFORMATION CONTACT: Roy A. Malmrose or Stephanie L. Hager, Investigations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW..

enriched uranium from the Soviet Union during the period January 1990 through August 1991.

Petitioners allege that the Soviet Union is a nonmarket economy ("NME") country within the meaning of section 773(c) of the Act. Accordingly, petitioners calculated foreign market value ("FMV") on the basis of constructed value ("CV"), using the factors of production methodology specified in section 773(c)(3) of the Act. Petitioners calculated two separate CVs for mined and enriched uranium. Petitioners relied upon Canada as a surrogate for the factors of production for mined uranium and adjusted the Canadian labor and energy factors to reflect differences in Soviet mining using information from Eastern European mines and public reports by the U.S. Bureau of Mines. Petitioners relied upon the U.K. as a surrogate for the factors of production for enriched uranium. In valuing the factors of production for both mining and enrichment, petitioners relied upon Portugal, a third country that produces a comparable product and whose economy is market driven and comparable to the economy of the Soviet Union.

We adjusted the factors of production related to capital costs and depreciation. We used capital costs for Canadian mining operations rather than the Portuguese values submitted by petitioners. Petitioners had derived the Portuguese capital costs by applying the Canadian capital-to-operating-cost ratio to Portuguese operating costs. Because capital costs are largely fixed costs, there is no reason to assume they would vary with the changes between the Portuguese and Canadian operating costs. For depreciation, we used the average site depreciation for enrichment based on the fiscal year 1990 financial statements of Urenco adjusted to 1991 figures, rather than the depreciation for two different plants in the United Kingdom developed for the petition. We disallowed the petitioners' adjustment related to the quantity of energy used in the Soviet Union because sufficient support was not provided.

Based on the petitioner's comparison of USP and FMV, adjusted to reflect the Department's methodology, the dumping margins for uranium from the Soviet Union range from 41.53 to 136.64 percent.

Initiation of Investigation

Under section 732(c) of the Act, the Department must determine, within twenty days after a petition is filed, whether the petition sets forth the allegations necessary for the initiation of an antidumping duty investigation,

and whether the petition contains information reasonably available to the petitioner supporting the allegations.

We have examined the petition on uranium from the Soviet Union and found that the petition meets the requirements of section 732(b) of the Act. Therefore, in accordance with section 732 of the Act, we are initiating an antidumping duty investigation to determine whether imports of uranium from the Soviet Union are being, or are likely to be, sold in the United States at less than fair value. If our investigation proceeds normally, we will make our preliminary determination by April 16, 1991.

Pursuant to section 771(18) of the Act and based on prior investigations, the Soviet Union is a NME. Parties will have the opportunity to comment on this issue and whether FMV should be based on prices or costs in the NME in the course of this investigation. The Department further presumes, based on the extent of central control in the NME, that a single antidumping margin is appropriate for all exporters. Only if NME exporters can demonstrate an absence of central government control with respect to the pricing of exports, both in law and in fact, will they be entitled to separate, company-specific margins. (See Final Determination of Sales at Less than Fair Value: Sparkles from the People's Republic of China (56 FR 20588, May 6, 1991) for a discussion of the information the Department considers in this regard.)

In accordance with section 773(c), FMV in NME cases is based on NME factors of production (valued in a market economy country). Absent evidence that the Soviet government has selected which mines or plants produce for the United States market, for purposes of this investigation we intend to base FMV only on those factories in the Soviet Union which produce uranium for export to the United States.

Scope of Investigation

The product covered by this investigation is uranium from the Soviet Union. This includes natural uranium in the form of uranium ores and concentrates; natural uranium metal and natural uranium compounds; alloys, dispersions (including cermets), ceramic products and mixtures containing natural uranium or natural uranium compounds; uranium enriched in U235 and its compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing uranium enriched in U235 or compounds of uranium enriched in U235. Imports of these products are currently classifiable under the following Harmonized Tariff

Schedule ("HTS") subheadings:

2612.10.00.00, 2844.10.10.00, 2844.10.20.10, 2844.10.20.25, 2844.10.20.50, 2844.10.20.55, 2844.10.50.00, 2844.20.00.10, 2844.20.00.20, 2844.20.00.30, and 2844.20.00.50.

Although the HTS subheadings are provided for convenience and customs purposes, our written description of the scope of this proceeding is dispositive.

Preliminary Determination by International Trade Commission

The International Trade Commission ("ITC") will determine by December 23, 1991, whether there is a reasonable indication that imports of uranium from the Soviet Union are materially injuring or threaten material injury to a U.S. industry. If its determination is negative, the investigation will be terminated; otherwise, the investigation will proceed according to statutory and regulatory time limits.

This notice is published pursuant to section 732(c)(2) of the Act (19 U.S.C. 1673a).

Dated: November 29, 1991.

Francis J. Sailer,

Acting Assistant Secretary for Import Administration.

[FR Doc. 91-29200 Filed 12-4-91; 8:45 am]

BILLING CODE 3510-06-M

APPENDIX B

LIST OF WITNESSES APPEARING AT THE COMMISSION'S CONFERENCE

CALENDAR OF PUBLIC CONFERENCE

Investigation No. 731-TA-539 (Preliminary)

URANIUM FROM THE U.S.S.R.

Those listed below appeared at the United States International Trade Commission conference held in connection with the subject investigation on December 3, 1991, in the Hearing Room of the USITC Building, 500 E Street SW., Washington, DC.

In support of the imposition of antidumping duties

Akin, Gump, Hauer & Feld--Counsel
Washington, DC
on behalf of--

The Ad Hoc Committee of Domestic Uranium Producers and the Oil,
Chemical and Atomic Workers International Union

Pathfinder Mines, Inc.
Bethesda, MD
Robert E. Moyer, Marketing Manager

Uranium Resources, Inc.
Dallas, TX
Joseph Card, Vice President, Marketing

Oil, Chemical and Atomic Workers International Union
Dean Alexander, Assistant to the President

Nuclear Assurance Corp.
Norcross, GA
Dan Collier

U.S. Department of Energy
Washington, DC
Eugene Schmitt
Director, Office of Business Operations
Uranium Enrichment
Lawrence S. Leiken, Counsel
U.S. Department of Energy
Stewart A. Baker, Counsel
Steptoe & Johnson

ICF Consulting Associates, Inc.
Daniel Klett

Valerie A. Slater)
Nicholas D. Giordano)--OF COUNSEL
Ann Doherty)

CALENDAR OF PUBLIC CONFERENCE--Continued

In opposition to the imposition of antidumping duties

Hogan & Hartson--Counsel
Washington, DC
on behalf of--

Nuexco Trading Corp.
Denver, CO

Global Nuclear Services and Supply, Ltd.
Washington, DC

Energy Fuels, Ltd.
Denver, CO

Charles H. Peterson, Vice Chairman
Clark Beyers, Vice President

Putnam, Hayes & Bartlett

Walter H.A. Vandaele
Julie R. Solomon

The Stern Group, Inc.

Paula Stern

Frank J. Fahrenkopf, Jr.)
Lewis E. Leibowitz)--OF COUNSEL
Timothy C. Stanceu)

APPENDIX C

SELECTED STATISTICAL DATA EXCLUDING ENERGY FUELS, LTD.

Table C-1

Uranium concentrates: U.S. capacity, production, and capacity utilization (excluding Energy Fuels), 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
	*	*	*	*	*

Note.--Capacity utilization is calculated using data of firms providing both capacity and production information. Data were collected on a U_3O_8 basis.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-2

Uranium concentrates: Shipments by U.S. producers (excluding Energy Fuels), by types, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
	*	*	*	*	*

Note.--Ratios are calculated using data of firms supplying both numerator and denominator information. Data were collected on a U_3O_8 basis.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-3

Average number of production and related workers producing uranium concentrates (excluding Energy Fuels), hours worked,¹ wages and total compensation paid to such employees, and hourly wages, productivity, and unit production costs,² 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
	*	*	*	*	*

¹ Includes hours worked plus hours of paid leave time.

² On the basis of total compensation paid.

Note.--Ratios are calculated using data of firms supplying both numerator and denominator information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-4

Uranium concentrates: Reductions in employment by U.S. producers (excluding Energy Fuels), January 1988-September 1991

Firm	Date of Reduction	Number of Workers	Duration of Reduction	Reason for Reduction
*	*	*	*	*

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-5

Income and loss experience of U.S. producers (excluding Energy Fuels) on the overall operations of their establishments wherein uranium concentrates are produced, fiscal years 1988-90, January-September 1990, and January-September 1991¹

Item	1988	1989	1990	Jan.-Sept.-- 1990	1991
*	*	*	*	*	*

¹ Companies whose fiscal periods did not end December 31, together with respective fiscal year ends are as follows: ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-6

Income and loss experience of U.S. producers (excluding Energy Fuels) on their operations producing uranium concentrates, fiscal years 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.-- 1990	1991
*	*	*	*	*	*

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-7

Assets of U.S. producers (excluding Energy Fuels) as of the end of fiscal years 1988-90, September 30, 1990, and September 30, 1991

(In thousands of dollars)						
Item	As of the end of fiscal year--			As of Sept 30--		
	1988	1989	1990	1990	1991	
	*	*	*	*	*	*

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-8

Capital expenditures by U.S. producers (excluding Energy Fuels), fiscal years 1988-90, January-September 1990, and January-September 1991

(In thousands of dollars)						
Item	1988	1989	1990 ¹	Jan.-Sept.--		
				1990 ¹	1991	
	*	*	*	*	*	*

¹ ***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-9

Research and development expenses of U.S. producers (excluding Energy Fuels) of uranium concentrates, fiscal years 1988-90, January-September 1990, and January-September 1991

(In thousands of dollars)						
Item	1988	1989	1990	Jan-Sept--		
				1990	1991	
	*	*	*	*	*	*

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-10

Net delivered selling prices and quantities of U.S.-produced (excluding Energy Fuels) uranium concentrate, by type of sales agreement and by quarter, January 1989-September 1991¹

Period	Spot market sales ²		Contract sales--			
			Restricted market-		Fixed price/base-	
			related price ³		price escalator ⁴	
	Price	Quantity	Price	Quantity	Price	Quantity
	<u>\$/lb</u>	<u>1,000</u>	<u>\$/lb</u>	<u>1,000</u>	<u>\$/lb</u>	<u>1,000</u>
	<u>of</u>	<u>lbs</u>	<u>of</u>	<u>lbs</u>	<u>of</u>	<u>lbs</u>
	<u>U₃O₈</u>	<u>of U₃O₈</u>	<u>U₃O₈</u>	<u>of U₃O₈</u>	<u>U₃O₈</u>	<u>of U₃O₈</u>
	*	*	*	*	*	*

¹ Prices of the domestic uranium concentrate are averages of the net U.S. delivered quarterly selling prices of the responding U.S. producers' largest quarterly sales weighted by each firm's total quarterly sales quantity of its uranium concentrate.

² Combined sales of (1) uranium concentrate that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor or ceiling.

³ Uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID specify a price floor and/or ceiling. The reported prices were at or near the specified floors.

⁴ Uranium concentrate that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Note: The contract sales prices shown separately in this table were based on contracts signed during 1983-89.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table C-11

Margins of under/overselling¹ between U.S.-produced (excluding Energy Fuels) and imported Soviet uranium concentrate, based on quarterly net delivered selling prices reported in U.S. producer and importer questionnaires, by type of sales agreement and by quarter, October 1990-June 1991

Period	<u>Spot market sales²</u>		<u>Contract sales--</u>	
			<u>Fixed price/base price</u>	
			<u>escalator³</u>	
	<u>Per pound</u>	<u>Percentage</u>	<u>Per pound</u>	<u>Percentage</u>
	<u>\$/lb of</u>		<u>\$/lb of</u>	
	<u>U₃O₈</u>		<u>U₃O₈</u>	
	*	*	*	*

¹ The percentage price differences between the U.S. and imported Soviet uranium concentrate were calculated as differences from the U.S. producers' price. Figures in parentheses indicate that the price of the imported product was higher than the price of the domestic product during that quarter.

² Combined sales of (1) uranium concentrate that was shipped on an immediate or near-term basis from the time of order, where such orders were not subject to any prearranged supply contract, and (2) uranium concentrate that was shipped on a contract basis, but prices were based on market conditions at the time of shipment and the contract DID NOT specify a price floor or ceiling.

³ Uranium concentrate that was shipped on a contract basis where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX D

IMPACT OF IMPORTS ON U.S. PRODUCERS' GROWTH, INVESTMENT,
ABILITY TO RAISE CAPITAL, AND EXISTING DEVELOPMENT
AND PRODUCTION EFFORTS

Response of U.S. producers to the following questions:

1. Since January 1, 1988, has your firm experienced any actual negative effects on its growth, investment, ability to raise capital, or existing development and production efforts, including efforts to develop a derivative or more advanced version of the product, as a result of imports of uranium from the U.S.S.R.?

* * * * *

2. Does your firm anticipate any negative impact of imports of uranium from the U.S.S.R.?

* * * * *

3. Has the scale of capital investments undertaken been influenced by the presence of imports of uranium from the U.S.S.R.?

* * * * *

APPENDIX E

OFFICIAL U.S. DEPARTMENT OF COMMERCE IMPORT AND EXPORT DATA
FOR NATURAL AND ENRICHED URANIUM

Table E-1

Natural and enriched uranium: U.S. imports, by products and by sources, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Quantity (1,000 pounds)					
Natural uranium:					
U.S.S.R.....	1/	0	4,174	75	5,529
Australia.....	1/	3,592	7,365	2,115	5,993
Canada.....	1/	26,930	24,138	17,315	17,505
China.....	1/	101	3,161	0	0
France.....	1/	1,419	1,628	1,083	699
Germany.....	1/	114	557	33	2/
Namibia.....	1/	0	1,288	0	600
United Kingdom.....	1/	1,529	2,279	2,250	710
Other sources.....	1/	286	1,042	331	7
Total.....	1/	33,971	45,631	23,201	31,043
Enriched uranium:					
U.S.S.R.....	1/	76	288	288	0
Australia.....	1/	0	168	168	0
Canada.....	1/	0	0	0	58
China.....	1/	0	0	0	0
France.....	1/	151	302	182	603
Germany.....	1/	236	684	503	15,029
Namibia.....	1/	0	0	0	0
United Kingdom.....	1/	80	276	94	249
Other sources.....	1/	63	405	77	203
Total.....	1/	606	2,122	1,311	16,143
Natural and enriched uranium:					
U.S.S.R.....	29	76	4,462	363	5,529
Australia.....	4,060	3,592	7,533	2,283	5,993
Canada.....	26,021	26,930	24,138	17,315	17,564
China.....	0	101	3,161	0	0
France.....	3,888	1,570	1,930	1,265	1,301
Germany.....	47	350	1,240	536	15,029
Namibia.....	0	0	1,288	0	600
United Kingdom.....	8,287	1,609	2,554	2,344	959
Other sources.....	229	348	1,446	408	210
Total.....	42,562	34,576	47,753	24,513	47,186

See footnotes at end of the table.

Table E-1--Continued

Natural and enriched uranium: U.S. imports, by products and by sources, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Value (1,000 dollars)					
Natural uranium:					
U.S.S.R.....	1/	0	51,792	15,721	56,395
Australia.....	1/	110,213	97,857	48,337	123,245
Canada.....	1/	403,991	226,957	158,265	166,676
China.....	1/	1,531	36,734	0	0
France.....	1/	108,340	26,247	21,170	10,409
Germany.....	1/	24,255	15,421	9,823	5
Namibia.....	1/	0	14,571	0	12,264
United Kingdom.....	1/	18,642	49,602	44,923	5,196
Other sources.....	1/	12,099	10,330	4,295	1,744
Total.....	1/	679,071	529,512	302,535	375,934
Enriched uranium:					
U.S.S.R.....	1/	21,704	71,430	71,430	0
Australia.....	1/	0	5,045	5,045	0
Canada.....	1/	0	0	0	6,322
China.....	1/	0	0	0	0
France.....	1/	68,044	82,737	46,524	110,642
Germany.....	1/	49,150	139,961	135,048	67,498
Namibia.....	1/	0	0	0	0
United Kingdom.....	1/	62,615	72,767	28,695	73,274
Other sources.....	1/	21,717	46,854	25,953	12,985
Total.....	1/	223,230	418,794	312,696	270,721
Natural and enriched uranium:					
U.S.S.R.....	9,160	21,704	123,223	87,151	56,395
Australia.....	118,703	110,213	102,903	53,382	123,245
Canada.....	374,537	403,991	226,957	158,265	172,998
China.....	0	1,531	36,734	0	0
France.....	314,682	176,383	108,983	67,694	121,051
Germany.....	11,436	73,406	155,382	144,872	67,503
Namibia.....	0	0	14,571	0	12,264
United Kingdom.....	218,681	81,257	122,369	73,618	78,470
Other sources.....	8,351	33,816	57,184	30,248	14,729
Total.....	1,055,551	902,302	948,306	615,230	646,654

See footnotes at end of the table.

Table E-1--Continued

Natural and enriched uranium: U.S. imports, by products and by sources, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan. - Sept. --	
				1990	1991
				Unit value (per pound)	
Natural uranium:					
U.S.S.R.....	1/	3/	\$12.41	\$210.34	\$10.20
Australia.....	1/	\$30.68	13.29	22.85	20.56
Canada.....	1/	15.00	9.40	9.14	9.52
China.....	1/	15.20	11.62	3/	3/
France.....	1/	76.36	16.13	19.55	14.90
Germany.....	1/	212.81	27.70	296.86	244.75
Namibia.....	1/	3/	11.31	3/	20.43
United Kingdom.....	1/	12.19	21.77	19.96	7.32
Other sources.....	1/	42.35	9.92	12.98	249.35
Average.....	1/	19.99	11.60	13.04	12.11
Enriched uranium:					
U.S.S.R.....	1/	284.81	247.80	247.80	3/
Australia.....	1/	3/	30.10	30.10	3/
Canada.....	1/	3/	3/	3/	108.42
China.....	1/	3/	3/	3/	3/
France.....	1/	451.19	273.56	255.58	183.52
Germany.....	1/	208.35	204.76	268.41	4.49
Namibia.....	1/	3/	3/	3/	3/
United Kingdom.....	1/	782.52	264.06	306.65	294.15
Other sources.....	1/	346.62	115.77	338.34	63.90
Average.....	1/	368.62	197.35	238.46	16.77
Natural and enriched uranium:					
U.S.S.R.....	\$310.64	284.81	27.62	240.09	10.20
Australia.....	29.24	30.68	13.66	23.39	20.56
Canada.....	14.39	15.00	9.40	9.14	9.85
China.....	3/	15.20	11.62	3/	3/
France.....	80.94	112.38	56.47	53.53	93.01
Germany.....	243.18	209.80	125.29	270.16	4.49
Namibia.....	3/	3/	11.31	3/	20.43
United Kingdom.....	26.39	50.49	47.91	31.41	81.83
Other sources.....	36.42	97.08	39.53	74.20	70.07
Average.....	24.80	26.10	19.86	25.10	13.70

1/ Not available.

2/ Less than 500 pounds.

3/ Not applicable.

Note.--Because of rounding, figures may not add to the totals shown; unit values are calculated from unrounded figures.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table E-2

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

	Jan. - Sept. --				
Item	1988	1989	1990	1990	1991
	Quantity (pounds)				
Domestic exports:					
Natural uranium:					
Canada.....	22,394	320,043	14,645	14,645	82
France.....	1,762,707	1,057,912	51	51	41,482
Italy.....	0	49	0	0	0
Japan.....	1,364,423	792,628	293,565	293,565	231,298
Netherlands.....	0	481	961	580	26,974
South Korea.....	138,852	9,577	174	174	0
Spain.....	0	1/	0	0	32,000
Sweden.....	92,714	22	0	0	40
Taiwan.....	230	1/	1/	1/	0
Germany.....	495,807	1/	4,912	4,912	8,558
Other sources.....	2,040,043	813,058	367,724	366,999	8,071
Total.....	5,917,170	2,993,769	682,033	680,926	348,505
Enriched uranium:					
Canada.....	116,203	84,210	569	569	35
France.....	46,521	90,888	60,175	58,828	34,178
Italy.....	319	0	0	0	0
Japan.....	120,449	1,753,940	2,580,385	1,841,160	1,468,206
Netherlands.....	518	86	23,962	0	0
South Korea.....	0	131,978	161,533	74,693	91,926
Spain.....	40,232	53,949	122,043	0	419,394
Sweden.....	3,631	54,150	80,059	51,965	42,900
Taiwan.....	504	479,384	88,937	39,167	1,488
Germany.....	53	763,769	1,652,085	1,427,270	1,441,638
Other sources.....	1,729	147,549	38,841	38,766	111,316
Total.....	330,159	3,559,903	4,808,588	3,532,418	3,611,081
Natural and enriched uranium:					
Canada.....	138,597	404,253	15,214	15,214	117
France.....	1,809,228	1,148,800	60,226	58,879	75,660
Italy.....	319	49	0	0	0
Japan.....	1,484,872	2,546,568	2,873,950	2,134,725	1,699,504
Netherlands.....	518	567	24,923	580	26,974
South Korea.....	138,852	141,554	161,707	74,867	91,926
Spain.....	40,232	53,949	122,043	0	451,394
Sweden.....	96,345	54,172	80,059	51,965	42,939
Taiwan.....	734	479,384	88,937	39,167	1,488
Germany.....	495,860	763,769	1,656,997	1,432,182	1,450,196
Other sources.....	2,041,772	960,607	406,565	405,765	119,387
Total.....	6,247,329	6,553,673	5,490,621	4,213,345	3,959,586

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan. - Sept. --	
				1990	1991
Quantity (pounds)					
Foreign exports:					
Natural uranium:					
Canada.....	0	0	1/	1/	1/
France.....	221,531	0	0	0	0
Japan.....	0	13,849	21,608	21,608	57,252
South Korea.....	232,694	0	0	0	0
Other sources.....	0	231	701	0	0
Total.....	454,225	14,081	22,309	21,608	57,252
Enriched uranium:					
France.....	0	547	143	106	0
Japan.....	1,945	49,542	40,021	40,021	14,570
South Korea.....	0	46,337	46,394	46,394	0
Other sources.....	0	399	0	0	187
Total.....	1,945	96,825	86,558	86,520	14,758
Natural and enriched uranium:					
Canada.....	0	0	1/	1/	1/
France.....	221,531	547	143	106	0
Japan.....	1,945	63,392	61,628	61,628	71,822
South Korea.....	232,694	46,337	46,394	46,394	0
Other sources.....	0	631	701	0	187
Total.....	456,170	110,906	108,866	108,128	72,010
All exports:					
Natural uranium:					
Canada.....	22,394	320,043	14,645	14,645	82
France.....	1,984,238	1,057,912	51	51	41,482
Italy.....	0	49	0	0	0
Japan.....	1,364,423	806,477	315,173	315,173	288,550
Netherlands.....	0	481	961	580	26,974
South Korea.....	371,546	9,577	174	174	0
Spain.....	0	1/	0	0	32,000
Sweden.....	92,714	22	0	0	40
Taiwan.....	230	1/	1/	1/	0
Germany.....	495,807	1/	4,912	4,912	8,558
Other sources.....	2,040,043	813,289	368,425	366,999	8,071
Total.....	6,371,395	3,007,850	704,342	702,534	405,757
Enriched uranium:					
Canada.....	116,203	84,210	569	569	35
France.....	46,521	91,435	60,318	58,934	34,178
Italy.....	319	0	0	0	0
Japan.....	122,394	1,803,482	2,620,406	1,881,181	1,482,776
Netherlands.....	518	86	23,962	0	0
South Korea.....	0	178,315	207,927	121,087	91,926
Spain.....	40,232	53,949	122,043	0	419,394
Sweden.....	3,631	54,150	80,059	51,965	42,900
Taiwan.....	504	479,384	88,937	39,167	1,488
Germany.....	53	763,769	1,652,085	1,427,270	1,441,638
Other sources.....	1,729	147,948	38,841	38,766	111,503
Total.....	332,104	3,656,728	4,895,146	3,618,938	3,625,839

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.-- 1990	1991
Quantity (pounds)					
All exports--Continued:					
Natural and enriched uranium:					
Canada.....	138,597	404,253	15,214	15,214	117
France.....	2,030,759	1,149,347	60,369	58,985	75,660
Italy.....	319	49	0	0	0
Japan.....	1,486,817	2,609,960	2,935,578	2,196,353	1,771,326
Netherlands.....	518	567	24,923	580	26,974
South Korea.....	371,546	187,891	208,101	121,261	91,926
Spain.....	40,232	53,949	122,043	0	451,394
Sweden.....	96,345	54,172	80,059	51,965	42,939
Taiwan.....	734	479,384	88,937	39,167	1,488
Germany.....	495,860	763,769	1,656,997	1,432,182	1,450,196
Other sources.....	2,041,772	961,238	407,266	405,765	119,574
Total.....	6,703,499	6,664,579	5,599,487	4,321,473	4,031,596
Value (1,000 dollars)					
Domestic exports:					
Natural uranium:					
Canada.....	442	7,174	9,297	2,889	42
France.....	57,131	24,174	5	5	1,520
Italy.....	0	5	0	0	0
Japan.....	442,340	192,431	7,381	7,381	18,247
Netherlands.....	0	74	75	56	479
South Korea.....	5,469	174	44	38	0
Spain.....	0	5	0	0	3,397
Sweden.....	37,631	9	0	0	4
Taiwan.....	14	2	59	59	0
Germany.....	109,006	207	233	180	75
Other sources.....	40,744	29,718	8,127	8,065	521
Total.....	692,777	253,974	25,221	18,673	24,285
Enriched uranium:					
Canada.....	1,862	1,907	1,825	1,825	586
France.....	697	30,990	12,363	12,180	16,676
Italy.....	35	0	0	0	0
Japan.....	34,188	539,839	598,391	473,301	411,964
Netherlands.....	120	13	1,649	0	0
South Korea.....	0	51,248	76,433	35,791	24,946
Spain.....	1,376	2,303	858	0	4,750
Sweden.....	385	17,138	29,277	18,764	10,688
Taiwan.....	439	66,661	48,239	21,134	224
Germany.....	520	104,878	97,472	83,783	87,783
Other sources.....	749	66,346	17,140	17,130	20,945
Total.....	40,370	881,323	883,645	663,907	578,562

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan. - Sept. - -	
				1990	1991
Value (1,000 dollars)					
Domestic exports--Continued:					
Natural and enriched uranium:					
Canada.....	2,304	9,081	11,122	4,714	628
France.....	57,828	55,164	12,368	12,185	18,196
Italy.....	35	5	0	0	0
Japan.....	476,528	732,270	605,772	480,682	430,211
Netherlands.....	120	87	1,724	56	479
South Korea.....	5,469	51,422	76,477	35,830	24,946
Spain.....	1,376	2,309	858	0	8,148
Sweden.....	38,016	17,147	29,277	18,764	10,692
Taiwan.....	453	66,663	48,298	21,193	224
Germany.....	109,526	105,085	97,704	83,963	87,858
Other sources.....	41,493	96,064	25,267	25,195	21,466
Total.....	733,147	1,135,296	908,866	682,581	602,847
Foreign exports:					
Natural uranium:					
Canada.....	0	0	3,688	5	8,802
France.....	6,833	0	0	0	0
Japan.....	0	418	106	106	19,690
South Korea.....	8,221	0	0	0	0
Other sources.....	0	25	20	0	0
Total.....	15,054	443	3,815	111	28,492
Enriched uranium:					
France.....	0	81	34	25	0
Japan.....	38	18,057	20,912	20,912	402
South Korea.....	0	27	23,337	23,337	0
Other sources.....	0	4	0	0	4
Total.....	38	18,169	44,282	44,274	405
Natural and enriched uranium:					
Canada.....	0	0	3,688	5	8,802
France.....	6,833	81	34	25	0
Japan.....	38	18,475	21,018	21,018	20,092
South Korea.....	8,221	27	23,337	23,337	0
Other sources.....	0	29	20	0	4
Total.....	15,092	18,612	48,097	44,385	28,897

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Value (1,000 dollars)					
All exports:					
Natural uranium:					
Canada.....	442	7,174	12,985	2,894	8,843
France.....	63,964	24,174	5	5	1,520
Italy.....	0	5	0	0	0
Japan.....	442,340	192,849	7,488	7,488	37,937
Netherlands.....	0	74	75	56	479
South Korea.....	13,690	174	44	38	0
Spain.....	0	5	0	0	3,397
Sweden.....	37,631	9	0	0	4
Taiwan.....	14	2	59	59	0
Germany.....	109,006	207	233	180	75
Other sources.....	40,744	29,743	8,148	8,065	521
Total.....	707,831	254,417	29,035	18,785	52,777
Enriched uranium:					
Canada.....	1,862	1,907	1,825	1,825	586
France.....	697	31,071	12,396	12,205	16,676
Italy.....	35	0	0	0	0
Japan.....	34,226	557,896	619,302	494,212	412,366
Netherlands.....	120	13	1,649	0	0
South Korea.....	0	51,275	99,770	59,128	24,946
Spain.....	1,376	2,303	858	0	4,750
Sweden.....	385	17,138	29,277	18,764	10,688
Taiwan.....	439	66,661	48,239	21,134	224
Germany.....	520	104,878	97,472	83,783	87,783
Other sources.....	749	66,350	17,140	17,130	20,949
Total.....	40,408	899,492	927,927	708,181	578,967
Natural and enriched uranium:					
Canada.....	2,304	9,081	14,810	4,719	9,429
France.....	64,661	55,244	12,402	12,210	18,196
Italy.....	35	5	0	0	0
Japan.....	476,566	750,745	626,790	501,700	450,303
Netherlands.....	120	87	1,724	56	479
South Korea.....	13,690	51,449	99,814	59,167	24,946
Spain.....	1,376	2,309	858	0	8,148
Sweden.....	38,016	17,147	29,277	18,764	10,692
Taiwan.....	453	66,663	48,298	21,193	224
Germany.....	109,526	105,085	97,704	83,963	87,858
Other sources.....	41,493	96,093	25,287	25,195	21,470
Total.....	748,239	1,153,908	956,963	726,966	631,744

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

	Jan.-Sept.--				
Item	1988	1989	1990	1990	1991
	Unit value (per pound)				
Domestic exports:					
Natural uranium:					
Canada.....	\$19.74	\$21.90	\$22.70	\$22.70	\$22.52
France.....	32.41	22.83	100.35	100.35	36.64
Italy.....	2/	43.02	2/	2/	2/
Japan.....	324.20	241.15	25.13	25.13	78.70
Netherlands.....	2/	139.34	78.10	96.16	17.77
South Korea.....	39.39	16.27	36.68	36.68	2/
Spain.....	2/	1/	2/	2/	106.17
Sweden.....	405.88	97.32	2/	2/	97.63
Taiwan.....	58.91	1/	1/	1/	2/
Germany.....	219.86	1/	36.64	36.64	1.93
Other sources.....	19.97	36.14	21.48	21.46	40.87
Average.....	117.08	84.15	23.28	23.25	68.73
Enriched uranium:					
Canada.....	16.02	22.65	3,207.27	3,207.27	16,732.57
France.....	14.98	340.97	205.45	207.05	487.90
Italy.....	109.46	2/	2/	2/	2/
Japan.....	283.84	307.79	231.90	257.07	280.59
Netherlands.....	231.66	152.37	68.80	2/	2/
South Korea.....	2/	388.31	473.17	479.18	271.37
Spain.....	34.20	42.69	7.03	2/	11.33
Sweden.....	105.96	316.49	365.69	361.09	249.13
Taiwan.....	871.18	139.06	542.39	539.58	150.42
Germany.....	9,818.38	137.32	59.00	58.70	60.89
Other sources.....	432.99	449.65	441.27	441.88	188.16
Average.....	122.27	247.57	183.76	187.95	160.22
Natural and enriched uranium:					
Canada.....	16.62	22.06	141.81	141.81	5,021.26
France.....	31.96	48.00	205.36	206.95	240.49
Italy.....	109.46	43.02	2/	2/	2/
Japan.....	320.92	287.04	210.78	225.17	253.11
Netherlands.....	231.66	141.32	69.16	96.16	17.77
South Korea.....	39.39	363.14	472.70	478.15	271.37
Spain.....	34.20	42.69	7.03	2/	18.05
Sweden.....	394.58	316.40	365.69	361.09	248.99
Taiwan.....	616.65	139.06	542.39	539.58	150.42
Germany.....	220.88	137.32	58.93	58.63	60.54
Other sources.....	20.32	99.66	61.59	61.63	178.20
Average.....	117.35	172.92	163.83	161.33	152.17

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
				Unit value (per pound)	
Foreign exports:					
Natural uranium:					
Canada.....	2/	2/	1/	1/	1/
France.....	\$30.84	2/	2/	2/	2/
Japan.....	2/	\$24.98	\$4.92	\$4.92	\$343.92
South Korea.....	35.33	2/	2/	2/	2/
Other sources.....	2/	109.25	29.18	2/	2/
Average.....	33.14	26.36	5.68	4.92	343.92
Enriched uranium:					
France.....	2/	147.85	235.93	235.85	2/
Japan.....	19.49	364.48	522.52	522.52	27.56
South Korea.....	2/	.59	503.02	503.02	2/
Other sources.....	2/	10.03	2/	2/	20.22
Average.....	19.49	187.65	511.59	511.72	27.46
Natural and enriched uranium:					
Canada.....	2/	2/	1/	1/	1/
France.....	30.84	147.85	235.93	235.85	2/
Japan.....	19.49	290.31	341.04	341.04	279.75
South Korea.....	35.33	.59	503.02	503.02	2/
Other sources.....	2/	46.33	29.18	2/	20.22
Average.....	33.08	167.17	407.92	410.44	279.07
All exports:					
Natural uranium:					
Canada.....	19.74	21.90	22.70	22.70	22.52
France.....	32.24	22.83	100.35	100.35	36.64
Italy.....	2/	43.02	2/	2/	2/
Japan.....	324.20	237.43	23.74	23.74	131.32
Netherlands.....	2/	139.34	78.10	96.16	17.77
South Korea.....	36.85	16.27	36.68	36.68	2/
Spain.....	2/	1/	2/	2/	106.17
Sweden.....	405.88	97.32	2/	2/	97.63
Taiwan.....	58.91	1/	1/	1/	2/
Germany.....	219.86	1/	36.64	36.64	1.93
Other sources.....	19.97	36.16	21.50	21.46	40.87
Average.....	111.10	83.88	22.72	22.69	107.56

See footnotes at end of the table.

Table E-2--Continued

Natural and enriched uranium: U.S. exports, by types, products, and markets, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Unit value (per pound)					
All exports--Continued:					
Enriched uranium:					
Canada.....	\$16.02	\$22.65	\$3,207.27	\$3,207.27	\$16,732.57
France.....	14.98	339.81	205.52	207.10	487.90
Italy.....	109.46	2/	2/	2/	2/
Japan.....	279.64	309.34	236.34	262.71	278.10
Netherlands.....	231.66	152.37	68.80	2/	2/
South Korea.....	2/	287.55	479.83	488.31	271.37
Spain.....	34.20	42.69	7.03	2/	11.33
Sweden.....	105.96	316.49	365.69	361.09	249.13
Taiwan.....	871.18	139.06	542.39	539.58	150.42
Germany.....	9,818.38	137.32	59.00	58.70	60.89
Other sources.....	432.99	448.47	441.27	441.88	187.88
Average.....	121.67	245.98	189.56	195.69	159.68
Natural and enriched uranium:					
Canada.....	16.62	22.06	141.81	141.81	5,021.26
France.....	31.84	48.05	205.43	207.01	240.49
Italy.....	109.46	43.02	2/	2/	2/
Japan.....	320.53	287.12	213.51	228.42	254.19
Netherlands.....	231.66	141.32	69.16	96.16	17.77
South Korea.....	36.85	273.73	479.46	487.67	271.37
Spain.....	34.20	42.69	7.03	2/	18.05
Sweden.....	394.58	316.40	365.69	361.09	248.99
Taiwan.....	616.65	139.06	542.39	539.58	150.42
Germany.....	220.88	137.32	58.93	58.63	60.54
Other sources.....	20.32	99.62	61.53	61.63	177.96
Average.....	111.62	172.82	168.57	167.56	154.43

1/ Not available.

2/ Not applicable.

Note.--Quantity data are not available for Schedule B item 2844.10.5000; exports under this classification (such domestic exports amounted to \$2,058 thousand in 1989, \$9,345 thousand in 1990, \$2,840 thousand in Jan.-Sept. 1990, and \$333 thousand in Jan.-Sept. 1991) are included in value data presented. Because of rounding, figures may not add to the totals shown; unit values are calculated from unrounded figures, using those items for which both quantity and value data are available.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table E-3

Uranium hexafluoride: U.S. imports, by products and by sources, 1988-90, January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan. -Sept. --	
				1990	1991
				Quantity (1,000 pounds)	
Natural uranium hexafluoride:					
U.S.S.R.....	1/	0	75	75	2/
Canada.....	1/	17,141	18,661	13,811	13,025
France.....	1/	1,419	153	153	23
Germany.....	1/	72	33	33	0
United Kingdom.....	1/	1,056	1,873	1,845	704
Other sources.....	1/	29	0	0	0
Total.....	1/	19,717	20,795	15,917	13,752
Enriched uranium hexafluoride:					
U.S.S.R.....	1/	76	288	288	0
Australia.....	1/	0	2	2	0
Canada.....	1/	0	0	0	36
France.....	1/	104	278	173	602
Germany.....	1/	146	298	298	263
United Kingdom.....	1/	35	212	72	172
Other sources.....	1/	63	242	0	190
Total.....	1/	424	1,320	833	1,263
Natural and enriched uranium hexafluoride:					
U.S.S.R.....	29	76	363	363	2/
Australia.....	0	0	2	2	0
Canada.....	21,436	17,141	18,661	13,811	13,060
France.....	3,581	1,522	431	326	625
Germany.....	47	218	331	331	263
United Kingdom.....	8,287	1,092	2,086	1,918	876
Other sources.....	25	92	242	0	190
Total.....	33,406	20,141	22,115	16,750	15,015

See footnotes at end of the table.

Table E-3--Continued

Uranium hexafluoride: U.S. imports, by products and by sources, 1988-90,
January-September 1990, and January-September 1991

Item	1988	1989	1990	Jan.-Sept.--	
				1990	1991
Value (1,000 dollars)					
Natural uranium hexafluoride:					
U.S.S.R.....	1/	0	15,721	15,721	2
Canada.....	1/	178,523	152,537	110,873	116,335
France.....	1/	108,336	6,857	6,857	2,840
Germany.....	1/	17,478	9,823	9,823	0
United Kingdom.....	1/	12,447	45,406	40,733	5,184
Other sources.....	1/	8,998	0	0	0
Total.....	1/	325,783	230,344	184,008	124,361
Enriched uranium hexafluoride:					
U.S.S.R.....	1/	21,704	71,430	71,430	0
Australia.....	1/	0	17	17	0
Canada.....	1/	0	0	0	5,557
France.....	1/	40,879	65,560	39,723	110,569
Germany.....	1/	32,532	75,939	75,939	57,636
United Kingdom.....	1/	27,346	37,109	15,138	49,970
Other sources.....	1/	21,717	2,965	0	9,438
Total.....	1/	144,177	253,019	202,248	233,170
Natural and enriched uranium hexafluoride:					
U.S.S.R.....	9,160	21,704	87,151	87,151	2
Australia.....	0	0	17	17	0
Canada.....	311,671	178,523	152,537	110,873	121,891
France.....	300,963	149,216	72,417	46,581	113,409
Germany.....	11,436	50,010	85,763	85,763	57,636
United Kingdom.....	218,677	39,793	82,514	55,871	55,154
Other sources.....	3,669	30,715	2,965	0	9,438
Total.....	855,575	469,961	483,364	386,256	357,531

See footnotes at end of the table.

Table E-3--Continued

Uranium hexafluoride: U.S. imports, by products and by sources, 1988-90,
January-September 1990, and January-September 1991

	Jan.-Sept.--				
Item	1988	1989	1990	1990	1991
	Unit value (per pound)				
Natural uranium hexafluoride:					
U.S.S.R.....	1/	3/	\$210.34	\$210.34	\$41.89
Canada.....	1/	\$10.42	8.17	8.03	8.93
France.....	1/	76.36	44.88	44.88	124.24
Germany.....	1/	243.02	296.86	296.86	3/
United Kingdom.....	1/	11.78	24.24	22.08	7.36
Other sources.....	1/	310.78	3/	3/	3/
Average.....	1/	16.52	11.08	11.56	9.04
Enriched uranium hexafluoride:					
U.S.S.R.....	1/	284.81	247.80	247.80	3/
Australia.....	1/	3/	10.55	10.55	3/
Canada.....	1/	3/	3/	3/	156.38
France.....	1/	394.04	236.07	228.97	183.52
Germany.....	1/	222.06	255.08	255.08	218.98
United Kingdom.....	1/	774.36	174.63	209.31	291.24
Other sources.....	1/	346.62	12.24	3/	49.55
Average.....	1/	339.71	191.67	242.69	184.58
Natural and enriched uranium hexafluoride:					
U.S.S.R.....	\$310.64	284.81	240.09	240.09	41.89
Australia.....	3/	3/	10.55	10.55	3/
Canada.....	14.54	10.42	8.17	8.03	9.33
France.....	84.05	98.01	168.21	142.76	181.35
Germany.....	243.18	228.96	259.26	259.26	218.98
United Kingdom.....	26.39	36.45	39.56	29.14	62.96
Other sources.....	146.38	335.29	12.24	3/	49.55
Average.....	25.61	23.33	21.86	23.06	23.81

1/ Not available.

2/ Less than 500 pounds.

3/ Not applicable.

Note.--Data presented for 1988 and 1989 are for uranium fluorides, which are believed to be essentially all uranium hexafluoride; data on uranium hexafluoride per-se was not collected separately until 1990. Because of rounding, figures may not add to the totals shown; unit values are calculated from unrounded figures.

Source: Compiled from official statistics of the U.S. Department of Commerce.

APPENDIX F

DISCUSSION OF THE DIFFERENT TYPES OF SWAPS

DISCUSSION OF THE DIFFERENT TYPES OF SWAPS

The different types of swaps identified by the responding U.S. producers and importers of uranium are location swaps, origin swaps, deconversion swaps, and displacement swaps. These types of swaps are discussed below.

Location swaps involve a single type of uranium product and occur where a seller's uranium product is at location 'A' but his customer requires the product at location 'B'.¹ The seller can make the sale, but instead of physically delivering his product to location 'B', he swaps ownership of the required quantity of his product at location 'A' for ownership of the same type and quantity of uranium product of another firm already at location 'B'. The seller now owns the required quantity of uranium product at location 'B' and sells it to his customer.

Origin swaps involve a single type of uranium product and occur where a seller's uranium product was produced in country 'X', but his customer requires the product to be of country 'Y' origin.² The seller makes the sale by swapping ownership of the required quantity of his product from country 'X' for ownership of the same type and quantity of uranium product from country 'Y' of another firm. The seller now owns the required quantity of uranium product from country 'Y' and sells it to his customer.³ Origin swaps can also be effected by first borrowing the amount of country 'Y' origin material needed and "paying" back the loaned material at a later date with the same type and quantity of uranium product but not necessarily of the same country origin. Some U.S. producers assert that Nuexco is borrowing large amounts of mostly U.S.- and Canadian- origin uranium products in the U.S. market and selling it in the United States, but plans to pay back these loans in like kind and quantity of imported U.S.S.R. products when prices are expected to be lower.⁴

Deconversion swaps involve at least two types of uranium products and occur where firm 'A' sells, for example, natural uranium hexafluoride to firm 'B' and receives in return the amount of uranium concentrate required to produce that same amount of converted product plus an amount of cash equal to

¹ If the customer has a preference for the country of origin, the seller would be restricted to swapping for the uranium product not only at a specific location but also of a particular country of origin.

² Assume for simplicity that both the country 'X' and country 'Y' uranium products were at the same location, which was where the customer required the product. In actual practice, the seller typically swaps for the country 'Y' product that is at the location required by the customer, but the country 'X' product may or may not be at this location.

³ Origin swaps sometimes involve a type of exchange called flag swaps, where two firms swap the country identities of a like quantity and kind of uranium product that they own. They still own the same physical material at the same locations as before the swap, but after the swap each has the other firm's country designation for a particular quantity of the product. (Tr., p. 107).

⁴ *** reported that such outstanding loans, if paid back in like kind and quantity of uranium, will maintain or increase the supply of uranium in the U.S. market and thereby keep prices suppressed or act to depress prices further.

the value of conversion services. Such a value is generally based on the conversion value shown in one of the uranium price publications. Firm 'A' then sells the uranium concentrate to firm 'C'.⁵ Deconversion swaps make it difficult to determine sales quantities and values as they often entail a combination of some quantity of a physical product and dollar remuneration for a service component.

Displacement swaps are a type of location swap and may include uranium of different country origins. These reportedly involve European utilities' U.S. inventories of uranium products and occur when an European utility swaps ownership of a particular quantity of uranium product in the United States for a like quantity of the same type of uranium in Europe belonging to another firm. The uranium product now owned by the European utility is likely to be of a different country of origin than the product it initially owned in the United States.⁶ Although it is not currently known how much displacement could take place,⁷ some U.S. producers assert that such "freeing-up" of U.S. uranium stocks could continue even with trade sanctions.

⁵ Firm 'A' could have sold enriched uranium hexafluoride instead of the natural product and gotten in return the amount of natural uranium hexafluoride to produce the particular amount of enriched product and cash for the value of enrichment services to produce this product. Alternatively, the seller of the enriched product could have gotten in return the amount of uranium concentrate required for the particular amount of enriched product and cash for both the conversion and enrichment services needed to produce this product.

⁶ *** asserts in its questionnaire response that most of the displacement swaps involve U.S.S.R. uranium. The firm feels this type of swap frees-up for sale previously committed uranium in the U.S. market and tends to lower prices in the U.S. market.

⁷ *** indicated that the European Atomic Agency reported that about 2 million pounds (U_3O_8 equivalent) of such swaps involving U.S. uranium occurred in 1990. It is not known what share of such activity involved Soviet uranium.

APPENDIX G

REPORTED SELLING PRICES OF U.S.-PRODUCED URANIUM CONCENTRATE
SUBJECT TO *** CONTRACTS

Table G-1

Net delivered selling prices and quantities of U.S.-produced uranium concentrate based on *** contract agreements, by type of sales agreement and by quarter, January 1989-September 1991¹

Period	<u>Restricted market-related price²</u>		<u>Fixed price/base price escalator³</u>	
	Price	Quantity	Price	Quantity
	<u>\$/lb of U₃O₈</u>	<u>1,000 lbs of U₃O₈</u>	<u>\$/lb of U₃O₈</u>	<u>1,000 lbs of U₃O₈</u>
1989:				
January-March.....	\$***	\$***	\$***	\$***
April-June.....	***	***	***	***
July-September.....	***	***	***	***
October-December...	***	***	***	***
1990:				
January-March.....	***	***	***	***
April-June.....	***	***	***	***
July-September.....	***	***	***	***
October-December...	***	***	***	***
1991:				
January-March.....	***	***	***	***
April-June.....	***	***	***	***
July-September.....	***	***	***	***

¹ Prices of the domestic uranium concentrate are averages of the net U.S. delivered quarterly selling prices of two responding U.S. producers' largest quarterly sales, based on *** contracts, by each firm's total quarterly sales quantity under these contracts.

² Sales of uranium concentrate reported by ***. The uranium concentrate was shipped based on a *** contract agreement, where prices were based on market conditions at the time of shipment and the contract DID specify a price floor. The reported prices were at or near the specified floor.

³ Sales of uranium concentrate reported by ***. The uranium concentrate was shipped based on a *** contract agreement, where prices were fixed or were a base-period price subject to an escalator adjustment specified in the contract.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

