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22 February 1977

MEMORANDUM FOR: The Director of Central Intelligence
FROM : William W. Wells
Deputy Director for Operations
SUBJECT : MILITARY THOUGHT (USSR): Measures Taken
in Advance to Prepare the US Economy for War

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. This article dwells on US industrial war preparations, and is based on an analysis of US planning and instructions. The measures the author discusses include underground location of plants and management centers, restoration of destroyed enterprises and electric power stations, and advance preparations for the "special period" as applied to various industries, including fuel and food, with electricity the highest priority. This article appeared in Issue No. 1 (83) for 1968. The Russian-language version was disseminated as FIRDB-312/02490-75.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies. For ease of reference, reports from this publication have been assigned the [redacted] Codeword [redacted]

[redacted]
William W. Wells

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Intelligence Information Special Report

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COUNTRY USSR

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SUBJECT

MILITARY THOUGHT (USSR): Measures Taken in Advance to
Prepare the US Economy for War

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 1 (83) for 1968 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The author of this article is Lieutenant Colonel A. Koltsov. This article discusses US industrial war preparations, indicating the advantages of locating plants, storage areas and management centers underground. Other measures, based on an analysis of US planning and instructions, include restoration of destroyed enterprises and electric power stations, and advance preparations for the "special period" as applied to electric power, fuel, food, transportation and heavy industries, with electricity the highest priority. End of Summary

Comment:

The SECRET version of Military Thought was published three times annually and was distributed down to the level of division commander. It reportedly ceased publication at the end of 1970. The Russian-language version of this article was disseminated as FIRDB-312/02490-75.

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Measures Taken in Advance to Prepare
the US Economy for War

by
Lieutenant Colonel A. Koltsov

When preparing for war, the ruling circles of the US devote a great deal of attention to increasing the reliability of the operation of vitally important sectors of the economy in time of war.

American industry is known to have a very high degree of concentration in certain areas, which puts it in an especially disadvantageous position under conditions of nuclear war. More than 70 percent of US production capacity is concentrated in the 50 largest cities of the country, about 54 percent of the total labor force is employed at these enterprises, 72 percent of the steel production capacity is concentrated in four states, and the aviation industry is concentrated in five main regions.

One method of reducing the vulnerability of industry is to disperse it. The Americans began working on this problem immediately after the end of the Second World War. By 1948 recommendations had already been developed, which directed that new construction be carried out only in cities with less than 50 thousand population and that industrial enterprises under construction be located five to ten kilometers from each other. In 1954 the Department of Defense issued a special instruction concerning methods of determining the degree of industrial vulnerability, and planning for restoration of production. It indicated that the vulnerability of an industrial enterprise depends on such factors as its location, terrain conditions, its proximity to targets favorable to the enemy, the resistance of its design to shock wave and thermal radiation, production links with other enterprises, etc.

Locating industrial and other important installations underground is considered the most effective method of protecting them. To that end the experience of underground construction in Fascist Germany, Sweden, Great Britain and France has been studied in detail.

The US government and civil defense agencies widely propagandize among industrialists the idea of underground location of enterprises, depots of strategic raw materials, repositories for duplicates of highly important

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technical documents, and alternate points for managing the enterprises. The scientific research institutes have been given the task of developing the most economical ways of locating the major industrial enterprises and vitally important installations underground, taking foreign experience into account. With this purpose in mind the US in recent years has inspected more than 300 mines, caves, tunnels and mountain excavations with a total area of more than 62 million square meters.

According to the rough estimates of the American specialists, underground construction of metallurgical plants and heavy machine-building plants is unprofitable, its cost being extremely high. It is more desirable to locate medium machine-building enterprises, electric power and chemical plants underground. The appropriate underground sectors must be prepared in advance; in so doing, provision for the location of depots for raw materials and finished products, and for the location of access roads is recommended (this was the weak point in the operation of the underground plants in Germany).

The responsibility for developing measures to increase the stability of the enterprises will be borne by their directors and proprietors, who have to establish well-protected and equipped working accommodations, work out a system for interchanging the management of the enterprises, and select and equip sheltered management sites, where data on the technical manufacturing process, patents, contracts, projects and other valuable documents and microfilms will be kept and regularly updated.

The managers and proprietors of the enterprises must plan measures to restore the enterprises in the event they are partially destroyed, and to continue production. For that event they are obligated to have new machines, equipment and stocks of raw materials. It is recommended that the production of the most important types of products be dispersed in several areas and, when constructing new plants, that underground shops be set up to turn out the most important products.

The US has developed a list of equipment for restoring production in 13 branches of industry. The production of this most important equipment, which has a decisive effect on the duration of restoration operations in a number of branches of industry (aircraft construction, engine building, chemicals, oil refining, aluminum, manganese, bearings, machine tools, radioelectronics, rubber, ordnance, vacuum tubes) was concentrated mainly in 178 plants, of which 162 are located in cities of the industrial North.

The plans for protection of the enterprises drawn up by government order must reflect such problems as partial or full shutdown of an enterprise, starting it up, disconnecting equipment from the power sources, ensuring the safety of certain kinds of highly sensitive equipment, communications and warning, fire-fighting measures, availability of stocks of raw materials, fuel, spare parts and equipment, medicines and individual means of protection for the industrial and office workers.

However, despite persistent recommendations and conceded advantages, American industrialists are proceeding reluctantly with underground location of their newly constructed enterprises and management sites for them. By 1966 only 500 of the largest industrial corporations and 19 of the 35 largest banks of the US had sheltered management sites.

Sheltered industrial management sites as a rule are located in abandoned mountain excavations. For example, a large complex of underground shelters was established in the abandoned mine galleries at Iron Mountain, 185 kilometers north of New York; these shelters are rented by approximately 700 industrial and commercial firms, for keeping valuable documents and microfilms. Several management sites for major industrial enterprises have been set up here.

In recent years the US has produced a whole series of scientific research studies which have examined the problems of the effects of the destructive elements of a nuclear burst on industrial installations, analyzed their potential destruction, and indicated ways of restoring them and the time required.

The Americans as a rule discern three degrees of destruction:

- insignificant, when the production process can be resumed immediately after the debris is cleared away;
- moderate, when expensive restoration work is required to reactivate the enterprise;
- significant, when restoring an enterprise is not economically feasible.

When assessing the vulnerability of installations the Americans arbitrarily assume that nuclear strikes of various yields from 1.5 to 10 megatons will be delivered against them. The largest installations are chosen as targets. It is arbitrarily assumed that the enterprises subject to enemy nuclear attack will be shut down, then restarted after radiation is reduced to a safe level.

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Specialists consider electric power systems to be one of the most vulnerable sectors of the American economy. On 1 January 1966 electric power plant capacity totalled 252 million kilowatts. There are a total of 3,600 state, private and public power plants in the country. The power supply of the American economy is so great that the normal life of the country is now inconceivable without electricity.

Attaching enormous importance to the power supply in a period of emergency, American specialists are investigating the vulnerability of the electric power engineering of the country should massed nuclear strikes be delivered against the US. One of these exercises in assessing the vulnerability of the 3,600 American electric power plants was conducted on order of the Office of Civil Defense. It specifically examined a case in which 296 supposed 1.5 to 10-megaton nuclear strikes would be delivered simultaneously against 200 targets on US territory. Major administrative-industrial centers, important military installations and certain high-capacity electric power plants were selected as targets. In estimating the electric power engineering capabilities and electric power requirements, it was thought that the time required to restore the electric power plants, substations and power transmission lines with slight damage would be seven to 30 days, and with moderate damage 30 to 120 days. Heavily damaged installations were not to be restored. A radiation dose of 200 roentgens received over four days, or 360 roentgens over 30 days, was considered lethal.

The following data characterizing US electric power engineering capabilities were obtained during the investigation (see table).

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It was concluded that the surviving US electric power plants will be able to satisfy the requirements of the remaining population and produce a significant amount of electric power for the work of industry, transportation and other similar purposes.

To increase the stability of the existing electric power installations it is considered absolutely necessary to prepare plans to ready them for the "special period"; these plans are developed by all the enterprises and provide for reducing the aftereffects of nuclear attack to the minimum and restoring the production of electric power for defense needs. These plans basically envision ringing the electric power plants and substations, establishing close links between energy systems, organizing efficient centralized regulatory control over the power systems, introducing more reliable systems and means of relay protection and means for automatically ensuring the systems against sudden overloads, constructing shelters for servicing personnel and sheltered control and distribution stations, and establishing an internal communications and warning system.

In addition, the plans project the construction of alternate centralized regulatory control posts for the power systems, the creation of mobile power supply sources (power trains, mobile diesel electric power plants and other sources of emergency electric power supply) both for the needs of the power systems themselves and for other installations, as well as the order of priority for restoring junctions and aggregate plants, allocation of the repair and restoration team personnel to perform restoration operations, the availability and location of emergency stocks of tubes, poles, line equipment cables and other repair and restoration materials and necessary equipment.

The US Government plan to prepare the country for an emergency situation states that the restoration and utilization of the electric power plants, substations and power transmission lines destroyed during war is the highest priority task of the federal authorities. The Department of Interior is responsible for preparing electric power installations for an emergency situation; a special power supply administration was established for this purpose. This administration has representatives in the 19 major regions producing electric power for military purposes, as well as on the regional, state and municipal civil defense staffs.

When an emergency situation is declared the power supply administration monitors the production and distribution of electric power country-wide. Administration representatives, in conjunction with the state authorities acting in accordance with previously developed plans,

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establish the order of priority of supplying the most important installations with electric power, allocate additional personnel and equipment to certain electric power plants, and deal with the problems of restoring the power installations.

Power engineering specialists in the US think that up to 50 (?) inoperative electric power plants and enterprises which they have supplied with power, can be restored in six months if fuel and materials are available. According to their data, municipal electric power plants have stocks of equipment, materials and spare parts in peacetime to meet their requirements for three to six months, which is considered sufficient to begin repair and restoration operations and restore power transmission lines to bypass destroyed sectors.

The plan to prepare the country for an emergency situation also devotes a great deal of attention to the wartime operation of the oil refining and gas industries, in view of the risk of explosion and fire with large concentrations of these enterprises, especially of storage tanks near large industrial centers.

In the Department of Interior a special Office of Oil and Gas was established which in conjunction with the Offices of Emergency Planning and Civil Defense directs all activities in respect to preparing the oil and gas corporations and companies for an emergency situation.

US requirements for petroleum products in the event of limited war are assessed at 510 to 520 (?) million tons per year, and the consumption of petroleum products by the armed forces in the event of nuclear war at 148 million tons per year. The armed forces consumed approximately 37.5 million tons of petroleum products in 1961, and the total production of petroleum products, counting imports, totaled 510 million tons in 1962 (?).*

The US has prepared a number of government instructions for the proprietors of the oil and gas companies, which give detailed instructions on ensuring the continuity of industrial management, on protecting personnel and equipment, on training and preparing the industrial and office workers to work under emergency conditions, and on organizing repair and restoration work, etc.

* Some numbers are uncertain.



To maintain continuity of industrial management, it has been stipulated that managerial councils be set up, and sheltered accommodations for reserve staffs be constructed in safe areas, supplying them with communications means and everything necessary for managing a plant.

In planning the construction of shelters for the protection of industrial personnel it is recommended that their capacity be calculated on the basis of two shifts and that everything necessary for people to stay in them a long time, be provided. The instructions also recommend setting up shelters for keeping spare parts for unique instruments and equipment, and valuable documents.

In preparing the personnel of the enterprises, a great deal of attention is devoted to ensuring that the industrial and office workers are interchangeable in the main production cycles, and to training all personnel in fire-fighting, giving first aid, carrying out emergency rescue operations and using dosimetric devices.

The instructions provided for establishing fire teams with water supplies and fire-fighting inventories at all enterprises of the oil refining and gas industries, and for working out a clear-cut signaling system. They recommend that fire-fighting equipment be kept in several easily accessible places around the perimeter of the plant area. Barriers must be erected in all enterprises to prevent the spread of fire.

To resolve all the problems connected with protecting and restoring the enterprises, special organs and centers have been established in each of them. Their responsibilities include communications with civil defense agencies, shutting down and starting up the enterprises, warning and protecting the industrial and office workers, assembling and using fire, medical, emergency rescue and radioactive decontamination teams, and informing and instructing all personnel in the actions to take when an alert is signaled. These centers must have detailed floor plans for all production buildings indicating the location of first-aid posts, shelters, depots of spare parts, materials and equipment, networks of water, steam, gas and air ducts, documents on the technological process and organization of production, description of the most important machines and equipment, and lists of the suppliers of raw materials and semifinished products.

To reduce the time required for restoration work it is recommended that the proprietors have stocks of the basic types of equipment, scarce types of raw materials, materiel and spare parts; work out a duplicate water, steam, gas and electric power supply to the enterprises, and bring

in mobile compressors, generators, pumps, electrical cable, pipes, systems for supplying carbon dioxide, and fire extinguishers on mobile units.

In working out the problems of increasing the stability of the gas-extracting areas, special attention is given to introducing equipment for capping the wells with remote-controlled shutoff valves, reinforcing the durability of gas collection and distribution systems, and constructing bypass lines in the vicinity of gas distribution stations. Particular emphasis is placed on setting up underground reservoirs for compressed gas. Thus, according to its 1965 status, the capacity of US underground compressed gas storage tanks totaled 12 million square meters.

The fires which may be caused by nuclear strikes represent a special danger to the oil refining and gas industries. The destruction of ground level metal storage tanks will result in the overflow of burning oil over a considerable area. Therefore operations are being planned in peacetime to bank the gushing wells and storage tanks with earth as well as construct barrier dams and set up channeled runoffs for the burning oil to flow out into safe areas.

The terminal storage tanks of the oil fields, the oil refining enterprises and end product depots are particularly prone to fire and explosion. Therefore the plans for "special period" preparations provide for immediate shutdown of the enterprise, emptying the basic technological equipment systems, and cutting off the main pipelines connecting the enterprise with the oil fields and end product depots. The erection of protective shafts and walls is planned to prevent the overflow of liquid products toward other installations.

To restore oil and gas pipelines it has been recommended that a broad network of depots of repair and restoration materials and equipment be established, and to eliminate the damage and restore oil and gas pipelines -- that repair and recovery teams be trained and, having been supplied with the necessary equipment, that they be assigned to certain sections of the oil and gas pipelines.

The ruling circles of the US also are giving a great deal of consideration to supplying the population and armed forces with food under the conditions of the "special period". US scientific research institutions have made an analysis of the vulnerability of food industry enterprises and worked out measures for increasing their stability.

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In the opinion of American specialists, the food industry enterprises are not as vulnerable as the other branches of industry. The breakdown of a number of these installations would not be a great catastrophe for the US population, because of the great food stockpiles and reserve capacity of the food industry. The specialists estimate that the internal food stockpiles in the US are sufficient to maintain the population of the country for at least 110 days, and together with the unprocessed produce, for several years.

Food industry enterprises and farms are spread throughout the country, which significantly reduces their vulnerability. In the event of nuclear strikes the main damage to these enterprises will be caused only by shock wave; the probability of destruction by thermal radiation is insignificant, and the threat of fire seems to be serious only at canneries.

A characteristic trait of the food industry is that it can change food production and technological processes, replace natural goods with artificial ones, and specially process food products to extend their shelf life. All this considerably increases the stability of the food industry enterprises and the food supply as a whole.

During a war the Department of Agriculture will be responsible for the production, processing, distribution and storage of food products. In order to implement its measures in the "special period" it plans to create a national staff and send representatives to the regional and state civil defense staffs. In peacetime the Department of Agriculture, in cooperation with other authorities, is engaged in developing measures which permit the stability of the food industry enterprises to be increased, and in drawing up plans to restore them in the event they are destroyed.

Among the most important branches of the food industry the Americans include: flour milling, edible oils production, sugar, meat, canning, and the manufacture of packaging. The destruction of these branches, and particularly the means of transporting the food products, can disrupt food supply to the population and army.

In the opinion of American specialists the greatest bottleneck will be not the industry itself, but the organization of the transport of products and its dependence on transportation means and the fuel supply.

The creation of a Department of Transportation has been proposed to centralize the management of all types of transportation in the US. The introduction of full government monitoring over all types of transportation

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in the "special period" is planned. A number of federal agencies have been created to manage the entire operation of civilian transportation in this period.

The federal agencies which are to control transportation in the "special period" have representatives in all the civil defense regions, who in the event of damage to communications with the center act independently within the geographic regions subordinate to them. The responsibility of the federal agencies includes helping the states, counties and communities and estimating transportation resources.

"Special period" data are being prepared on the requirements for ground and air transportation means, and also on the necessary number of ports and piers, and their traffic capacity; the POL capacity at the ports and airfields is being calculated; information is being collected on the capacity of shipyards, aircraft and motor vehicle plants and transportation machine-building enterprises. Thus, the Atomic Energy Commission calculates that after nuclear strikes are delivered against the US the volume of transportation conveyances for its enterprises will be 810 million ton-miles per year, that is, 93 thousand vans and 19 thousand trucks will be required. Hauling food products on the basis of 530 kilograms per person per year (a total of 86 million tons per year) will require 120 billion ton-miles, of which 97 billion will be carried by rail transport.

In order to satisfy the requirements of the country for transportation means, the following reserves have been created: 410 four-engine transport aircraft, which are at the disposal of private aviation companies and will be transferred to the government to reinforce military transport aviation no later than 48 hours after mobilization is declared. It has been planned to mobilize approximately 800 heavy transport aircraft with a freight capacity of six tons or more to carry freight for civil defense purposes.

The national reserve of commercial ships is under the control of the Maritime Commission. In 1964 the reserve consisted of 1,800 ocean-going commercial ships, of which 1,400 are in mothballs. These ships are located at eight strategic points on the seacoast.

Motor transport occupies a major place in the overall US internal transport system. There are more than 85 million motor vehicles in the country, serviced by 200 thousand filling stations. In the opinion of American specialists the bottleneck in the operation of motor transport in the "special period" will be its fuel supply.

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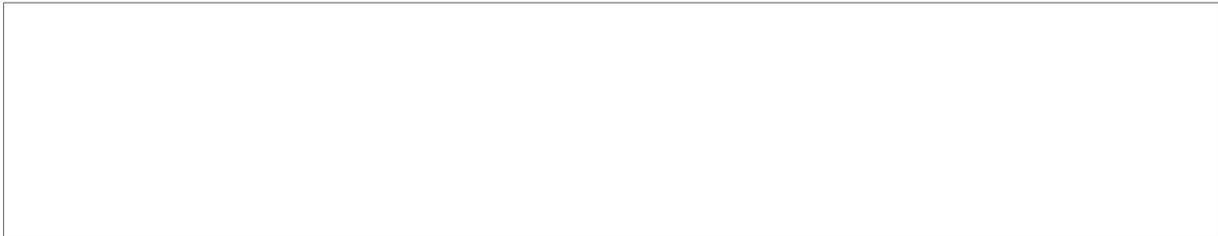
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The facts state that with the emergence of missile/nuclear weapons the US began speeding up the implementation of measures to increase the stability of vitally important sectors of the economy. This is an indication that aggressive circles in the US are strenuously preparing for world-wide nuclear war.



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