PLANNING FOR WARTIME PRODUCTION

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Colonel Ted E. Enter, Director of Continuity of Industry Division, Non-military Defense Programs, ODM, was born in Los Angeles, California, 5 February 1905. He was graduated from the University of Southern California, and owned and operated Chemical Manufacturing Business in California. He entered into active military service, U. S. Army, in 1937; served as director, Armament, Army Air Force Board; Assistant to A-4 Mediterranean Allied Air Force and later as director of Air Disarmament for Occupation Forces in Austria; served as chief of Air Division, U. S. Forces in Austria and later as chief, Civil Aviation, Military Air Transport Service. He left active service in 1950 and became assistant general manager of Curtiss-Wright Corporation, Airplane Division at Columbus, Ohio. He served as consultant to Chief of Staff, Air Force on air transport matters and was later assigned to Defense Production Administration to handle the military requirements programs for defense production. Under assignment to ODM, developed postattack planning program. This is his first lecture at the Industrial College of the Armed Forces.

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COLONEL DIEHL: General Greeley and gentlemen: In my talk on 29 January, I pointed out the necessity of analyzing our production base to see where any weaknesses in this base may be, and to analyze it with the viewpoint of seeing what we could do about these weaknesses. At that time I pointed out two industries which, should they be destroyed by any kind of action whatever, would have a crippling effect upon our productive capacity. Today this subject will be discussed in much greater detail.

Our speaker for today is the Director of the Continuity of Production Division of the Office of Defense Mobilization. His problem is to plan the actions necessary to insure the elimination of these weak spots in our production complex. It is a pleasure for me to present to you and to welcome to the Industrial College of the Armed Forces Colonel Ted E. Enter, of the Office of Defense Mobilization. Colonel Enter.

COLONEL ENTER: President Eisenhower recently stated:

> "We must conclude that the Soviets now have the capability of atomic attack on us, and such capability will increase with the passage of time."

This capability of atomic attack upon the continental United States develops a new scope in mobilization planning. The establishment of our mobilization base and the capacity to produce the requirements of war has been developed largely under the conventional considerations attendant to a dynamic economy under stable internal conditions.

Considerations of massive damage to the United States industrial capacity was not, until recently, a prominent factor in the mobilization base planning. Now, we are faced, in terms of this new capability, with the grim fact that if attack is possible, a major portion of the capacity thus far established may not only be vulnerable but may be unavailable when most needed.

This new dimension of nuclear attack in mobilization planning creates at least four new problems which must be considered:

1. The problem of the availability of capacity to meet defense production requirements.

2. The problem of requirements, that is, new levels and types must be considered from the standpoint of shifting programs to meet rehabilitation requirements and to adjust production in line with surviving capacity.

3. The problem of procedures, that is, emergency controls which must be established in bomb-devastated areas, including the maximum decentralization of authority so as to swiftly determine priorities and allocations and facilitate the making of other necessary decisions.

4. The problem of recuperation, that is, new techniques and measures to speed up rehabilitation and maintain the continuity of production even under attack conditions must be developed.--These include the unique and unprecedented procedures for transferring production from damaged to undamaged areas and facilities, as well as effective and expeditious procedures for facility rehabilitation, and many preattack measures such as dispersal and stockpiling.

If we are to accept the thesis of attack capability, we must accept the conclusion that our current planning assumptions must include the implications of such capability. Our conventional assumptions or those assumptions on which in the past we have based our mobilization planning, fell into four general categories under which the military and defense-supporting requirements were generated; generally, they are:

1. The length of the war.

2. Where it was likely to be fought.

3. The nature of combat.

4. The size of the armed forces and their probable distribution.

But now we come to the extension of these basic assumptions which we might call "nuclear" assumptions. These must include:

1. The measured capability of attack upon the United States.

2. The nature of the attack, that is, whether it will be on strategic targets or target systems or whether it will be a combination of strategic targets and tactical targets.--By strategic targets we mean our prime industrial centers. Preliminary investigation indicates that it is quite likely that while some tactical targets will be selected, considerable emphasis will be placed on strategic targets of industry. It is fairly evident that our industrial centers will be prime targets. Having twice attained victory in war through the mobilization of our industrial might, it is reasonable to assume that an enemy would attempt to destroy or immobilize this potential, if possible, at the outset of hostilities. Therefore, we may further assume that

our industrial centers will become "frontline" targets and that, for the first time in our history, industry may be faced with the problem of production while under attack.

3. The third "nuclear" assumption must include the weight and frequency of attack and the number of successful hits together with the radius of probable damage.

When we extend our conventional assumptions to include those which I have just mentioned, it is to be admitted that the complexities of planning are great; but, if we are to spend billions in assuring our national security by developing standby mobilization capacity, vulnerability factors must be applied to our program. Under conventional mobilization base planning, the chief concern was the existence of adequate capacity to meet requirements.

In terms of "nuclear" assumptions with the vulnerability factor being given prominent consideration, we are speaking in terms of capacity as related to vulnerability to attack which means location.

The economic patterns of industry in the past many years have necessarily developed concentrations of industrial capacity not only for purely economic reasons but also in considerable extent due to the interdependency of production.

I stated a moment ago that our industrial centers would surely be prime targets. I think this is a relatively factual statement when we consider that 71 percent of our industrial capacity and 54 percent of our industrial workers are located in 50 of our metropolitan centers. Any serious loss of capacity in the defense industry categories contained or located in these cities could have immobilizing effects upon production across the board.

To illustrate the damage assumption, I have prepared an attack assumption on 30 cities and what the impact would be on this hard core of the defense production industries. We are assuming that each city, from a damage assessment standpoint would suffer 50 percent damage as a result of the attack. However, an overall percentage of damage is not indicative of the real impact on the industrial machine. For example, one city's total production represents less than 1 percent of the national total of production (dollar value added). Yet that same city produces:

1. 95 percent of the national total of an item essential to aircraft production.

2. 74 percent of the national total of an item essential to tank production.

3. 67 percent of the national total of an item essential to automotive production.

We have been talking of industry categories and the production within those categories. Now let's take a look at the keystone or backbone of production--the individual facility and its equipment.

Because of the limited degree of convertibility of productive capacity from one product to another, it is necessary to analyze the problem of attack damage in terms of closely related facilities. This means the establishment of intraindustry working arrangements in order that the less vulnerable facilities may be considered in production planning.

It is therefore necessary that preattack planning be developed in terms of both the products and the facilities capable of producing the specific products, together with an analysis of their vulnerability to attack or in other words their specific location.

In order to do this, the Federal Government has established the Industry Evaluation Board (IEB) under the Secretary of Commerce with policy guidance from the Office of Defense Mobilization (ODM). I should like to point out that the IEB is an interagency board which reviews and approves analyses of products and facilities and recommends security ratings for the approval of the Secretary of Commerce. Under the authority of Executive Order 10421, the staff is empowered to utilize the expert knowledge and the necessary information available in Government agencies required in accomplishing its mission.

The first step in identification of products and facilities is the development of a set of criteria which enables the selection of vital defense or essential civilian plants. The following is a brief summary of the criteria developed by the IEB. Since there are varying degrees of essentiality, the IEB has developed three product ratings and four facility ratings.

The products are rated in categories I, II, and III. A category "I" product indicates the product is of the highest importance to the national defense and that there is a shortage or near-shortage of production capacity. The categories II and III are in descending order of importance.

The facilities are individually rated under the product rating. Facilities are given four ratings. Those ratings are E-1, E-2, E-3, and E-4. The highest rated facility is one whose product is in category "I" and accounts for 25 percent or more of the national total output of that product. The facility is then rated E-1. The E-2, 3 and 4 are correspondingly dependent on the importance of the product and the percentage of the national total produced in the facility.

The facilities receiving security ratings are subject to certain security requirements. I have a chart indicating the work of the IEB to date. I would like to mention that this chart points out the extent of production which is highly concentrated in a relatively few production facilities and thereby indicates the closely knit nature of war production capacity.

Furthermore, this chart reveals relative manageability of the problem of assuring continuity of production of the most essential products. It appears therefore that we can concentrate our efforts on not more than 3,500 facilities. We must recognize that we are facing two problems from a standpoint of mobilization production planning, resulting from the potential loss of capacity due to bombing attack.

The first deals with the direct loss of capacity needed for military or defense-supporting production. The second problem arises from the impact of the loss of output from the damaged plant upon the production of the undamaged facilities which are normally dependent upon the destroyed plants for supplies. For example, the loss of chromium production could easily shut down jet engine, guided missile, and ordnance plants which may be located in nontarget or safe areas and thus escaped bombing.

A "hit" on a supplier will have serious repercussions in many other industries. You have only to remember the Livonia disaster which illustrates this point on a very small scale. As you know, this was a single facility with many eggs in one basket. There was not only a great loss of production at the facility itself, but the impact on its consumers and suppliers was multiplied many times. As an illustration, although only 8,000 employees were thrown out of work at the Livonia plant itself, there were some 25,000 to 30,000 employees out of work in "dependent" facilities--either consumers or suppliers.

I have tried to present a picture of the problem that will face the country as a result of attack on our industrial capacity. We will now turn to the question of what the Government is doing about it. As I pointed out previously, this dimension or concept of mobilization planning is new. In approaching a program to cope with industrial damage due to attack, we immediately find ourselves faced with brand new problems of programming.

The first, is that the thought of bombing of industrial cities is "fantastic" in terms of anything we have previously experienced. The "It can't happen here thesis" is rapidly fading, but not rapidly enough.

Second, a program of this nature reaches into and effects all other areas of planning.

And, third, the actions that have to be taken to offset possible bomb damage are of a type which will permanently affect the nature of our industrial economy.

Most other planning for mobilization has been in the field of increasing total capacity for particular products or in the planning of procedures. In the case of continuity of industry planning to offset possible bomb damage, it is necessary to revamp the physical arrangement of our industrial complex in many directions. This will require a most effective public relations program.

Concerning continuity of Government the following activities are under way:

1. A determination of the essential wartime functions of Government.

2. A plan for the maintenance of Executive direction--this includes a predesignation of successors in command to individuals including some in nontarget areas. It also includes a predelegation of a combination of management and administrative measures necessary to assure the functioning of the organization in event of attack.

3. An Emergency Relocation Program to insure that agencies will be able to relocate the employees performing essential functions in the event of attack emergency.

4. Such additional measures as may be necessary.

As regards the continuity of industry, the October 1953 Quarterly Report of the Director of Office of Defense Mobilization states:

> "It would require only a few of the new and terrible bombs to cause millions of casualties and disrupt essential defense industry. Our cities cannot be made invulnerable, but their chances of continuing as production centers must be greatly improved. The foundation is, of course, our military defense, which is being strengthened, including the development of an adequate early warning system. In step with the improvement of our military defense, it is of primary importance that non-military defense measures be taken by industries and communities to protect themselves."

In undertaking measures of nonmilitary defense, it is necessary that the direct military effort to minimize attack must be the maximum effort possible in order to make nonmilitary measures manageable. This is because the nonmilitary defense measures pick up where the direct military efforts leave off. They do not duplicate, but complement and supplement each other. This may be illustrated by assuming that the enemy has the capability of launching an attack with a given number of bombs on our industrial cities. The greater the number of kills that the continental defense system can effect, the more manageable become the problems of nonmilitary defense.

Now, organizationally, I have mentioned only continuity of industry and continuity of Government. However, there are two other important areas of nonmilitary defense. Besides the continuity of industry and Government, there is also a program to reduce the attractiveness of urban areas as targets. This is a long-range program designed to develop and apply procedures for reducing the tendency for population and industrial concentrations in urban centers. The remaining program within the office of Nonmilitary Defense is Physical Security. This program deals with:

1. Development of standards for protective construction or the structural strengthening or reinforcement of both new and existing buildings, shelters for machinery and equipment, shelters for personnel, and underground construction.

2. Protection of plant services and utilities.

3. The provision for fire-fighting and other standby emergency equipment and their coordination with civil defense.

4. Physical measures against sabotage and subversive actions and the other elements of industrial security.

Since we are addressing ourselves chiefly to the industrial aspects, we will concern ourselves today with the continuity of industry program. Now let's review the policies and action plans being developed within the continuity of industry program. The continuity of industry program has the objective of developing the policies and procedures which will give assurance of essential production under attack conditions. Principal among these programs are "industrial dispersion and production continuity measures," as follows:

The national policy for industrial dispersion was announced by the President in August 1951 to assure relatively greater security of the Nation's industrial plant through proper spacing of productive capacity. It provides that new defense-supporting production facilities be located 10 or more miles from highly industrialized or densely populated sections or from major military installations.

Industrial dispersion is the employment of the simple military measure of using space for defense against attack. This disperses the mass which a weapon of mass destruction was designed to destroy. It thus reduces the vulnerability of industry. It is designed to disperse new and expanding industry--not to move established industry.

The long-range objective of industrial dispersion is the carrying out of the natural industrial expansion away from congested centers. This movement has been under way for a number of years and the dispersion program encourages and speeds the loosening up of the industrially congested target centers.

Today many advantages accrue to industry from locating facilities outside the highly congested urban centers. More and more dispersed sites offer attractive economic advantages as well as the security that the facilities will not be "sitting ducks" in a target zone. It also reduces the attractiveness of the target zone.

Continued emphasis must be put on industrial dispersion. Effective results can stem from the assistance given by local communities. In this regard, some 90 industrial dispersion committees in major metropolitan areas serve as local advisers to industry seeking dispersed sites.

Some progress is being made in dispersion. In the first six months of 1953, 84 percent of facilities costing 1 million dollars or more for which rapid tax amortization was granted will be located on dispersed sites.

These local industrial dispersion committees, together with industry consciousness of the vulnerability problem, contributed much to bring this about, as well as the procurement placement emphasis of the Department of Defense.

Naturally, problems and obstacles exist. Cities are concerned about their tax base, and management is concerned about certain conveniences, services, and facilities which are more readily available in congested areas. In some cases, there are too few sites available to meet the dispersion criteria within the corporate limits of a city.

These problems and others must be resolved.

The continuity of production program, unlike the dispersion program, deals principally with the established facilities in prime target cities. Established facilities obviously can't be picked up and moved out of the target zone. What can be done to assure that the output is maintained in event of damage to those plants? This type of planning involves measures relating to safe location of records, specifications, and critical data.

In addition, it involves making arrangements in advance for alternate production sources in dispersed sites; and stockpiling, at safe locations, raw materials, components, end items, and maintenance and repair equipment, including key items of long lead-time production equipment.

It also involves incorporating protective construction in the facility to minimize damage. And finally, undertaking of advance construction planning so as to have resolved, before attack, the problems of recuperation and reconstruction that must be met after attack. Currently, more than 30 key industries are at work on this problem

through task groups composed of top-management representatives from the industry called together by the Department of Commerce, working through the Industry Advisory Committee machinery. A few of these industries are:

1. Steel industry.

2. Chemical industry.

3. Photographic film.

4. Machine tool.

5. Jeweled watch movement.

6. Rubber industry.

7. Aluminum industry.

One very important and major industry has developed full-scale plans for transfer of production of their most vital defense product from vulnerably located facilities to existing facilities at dispersed sites in the event of attack damage. The result is that within approximately 90 days after attack, production in the preattack selected dispersed facilities could almost equal the output of present facilities.

Of course, much planning, thinking and resourcefulness of industry must go into such effort.

In order to effect these measures, Government has two approaches--the "direct" approach and the "indirect" approach. The direct approach is used in procurement actions and the construction of Government facilities. The indirect approach is used by aiding industry and the public to do those things which will promote the continuity of industry.

Let's take up, first, the "direct" activities of Government. Ever since World War II the Government has been actively engaged in building a stockpile of raw materials which are considered vital in event of war. Until now, the principle of setting stockpile objectives has rested upon estimates of supplies which would be available in event of war in relation to wartime requirements. Never before has it been necessary to discount a supply facility within the continental United States because of the risk of enemy attack.

However, with the recognition of vulnerability of domestic capacity, revisions are being developed in the criteria for setting stockpile goals which will make allowance for possible loss of supply from critical and vulnerable domestic sources.

Another factor in stockpiling which can reduce vulnerability is the relation of vulnerable capacity to product and component requirements. As an example, in stockpiling aluminum ingots we are stockpiling not only the finished aluminum ingot but also power, bauxite, cryolite, and alumina. Much further attention needs to be given to this type of stockpiling technique. A second mobilization readiness program similar to that of stockpiling is the expansion goal program. It deals with the establishment of capacity needed in event of war. Plans are under way to consider the relative vulnerability of our capacity in determining expansion goals.

Still another direct responsibility of the Government which is now aimed at reducing the vulnerability of vital military capacity is exercised by the Department of Defense through its Directive 5220.3 which emphasizes that to the fullest extent practicable every consideration will be given to dispersed sites in procurement placement.

Further in this regard, it is expected that as a result of the revisions of the Armed Forces Procurement Regulations much greater emphasis will be placed on contracts to suppliers in nontarget areas. New Federal construction of facilities for executive branch agencies must meet dispersal standards.

Another direct action of the Government includes applying the vulnerability factor to the establishment of the industrial reserve and the production allocation program.

With regard to the former, the Secretary of Defense is giving the fullest consideration to the vulnerability of location in contracting for special production capacity which would be included in the Industrial Reserve. The Department of Defense has a most effective opportunity to influence and to direct the safe location of vital industrial facilities both through its procurement activities and its establishment of the industrial reserve necessary to support mobilization requirements. It is essential that the expenditures of funds for acquiring defense tools and facilities be made with due regard to safe location of our strategic industrial capacity.

The decisions made by the Federal Government will be carefully watched by private industry and may well be used as a pattern for locating their own capacity. The Department of Defense is in the position to develop procedures to insure that no projects for acquiring tools or facilities are approved until the maximum consideration has been given to locating the industrial reserve capacity at dispersed sites.

Appropriate preattack measures should be made a part of the production allocation program which is designed to support the 1,000 end items that the Department of Defense has identified as the basis

for scheduling and requirements planning. The Department's planning must provide for substitute capacity in the event of loss of the original designated supplier. The planning under the production allocation program must be effectively coordinated with the Department of Commerce planning now under way with industry.

Turning to the "indirect" approach, it must be recognized that a major responsibility for assuring production lies with industry itself. However, industry cannot be expected to undertake those continuity-of-production measures which might either put it in a poor competitive position or result in disastrous economic loss. Therefore, the Government must provide assistance and guidance as may be required to assure production continuity. Most of the necessary aids are already available and are within the authority of the executive branch of the Government to apply. However, the basic objectives and the use of these financial aids as originally conceived must be enlarged to include problems created by industrial vulnerability. The various incentives for overcoming continuity of industry problems are:

1. The requirement of safe location for facilities aided by rapid tax amortization.

2. One hundred percent rapid tax amortization for protective construction.

3. The requirement of safe location in obtaining defense loans, and the use of loan funds for measures which will promote continuity of production.

4. To extend the stockpiling concept to include not only raw materials but components and supplies and vital production equipment which would be necessary to sustain the production of end products in nondestroyed facilities during the period of rehabilitation of the supplying plants.

5. The stockpiling of key long lead-time production equipment in order to reduce production "down time."

Since the problems of continuity of production are new, it is as yet difficult to know which are the appropriate measures and the extent of their application in particular cases. Therefore, we are working with industry through the Department of Commerce and other Government agencies to identify specific problems and to obtain recommendations as to appropriate measures and aids to be applied.

Our preliminary investigations indicate that these measures and aids may have to be used in combination.

In considering this problem the industrial executive actually becomes a strategist. The fundamental reasoning for industrial defense strategy or even for peacetime business analysis and decision-making falls into four parts:

1. What is the action worth in terms of continued production and national security?

2. How much does it cost?

3. How much can I afford to spend?

4. How can I get the most value for the amount spent?

The question of value can be measured by the objectives which an industrial defense program is designed to accomplish, namely:

1. To keep the plant functioning as a part of the national industrial war effort.

2. To safeguard lives, jobs, and the morale of employees.

3. To preserve the capital investment of the stockholder.

4. To maintain the competitive position of the company in the industry.

Planning, developing, and implementing the specific industrial defense measures needed to reduce the risk of attack damage can be done only by industry. Only industry has the authority, competence, resourcefulness, enterprise, and knowledge to attain effective results.

Although the planning of measures to assure production continuity develops vertically within industries, the carrying out of the plans has many horizontal or geographical ramifications.

Local communities should examine the problem of attack damage and determine a pattern for preattack and postattack actions. This type of planning involves the mapping of facilities in and out of the target zone, the development of rehabilitation planning with local construction contractors, and the advance arrangements for essential equipment and personnel located in dispersed areas, and so on.

In this regard, the San Francisco Bay Area made a study of the problems a community would face in the event of attack. Committees were formed of leading local industrialists and businessmen. They were assisted by the Stanford Research Institute. The results were compiled into a report known as: "The Community Plan for Industrial Survival."

This was a pilot study to determine the general broad problems at community level of not only the continuity of production but all of the community problems in supporting that production.

Currently we are, as a result of the general dimensions of the problems disclosed in the San Francisco report, asking the appropriate Government agencies to examine the subject and determine in what way Federal agencies can be of most assistance to communities when faced with a major disaster.

I have purposely avoided getting into the complex corollary problems of continuity of industry which are manifested in any plan of postattack industrial rehabilitation. Subsequently the Federal agency concerned will develop the necessary plans as relating to their responsibilities for inclusion in a comprehensive postattack industrial rehabilitation program necessary for the local level.

In order that the several Federal agencies having important but separate responsibilities may keep abreast with each other and be of assistance in the overall coordination, ODM created the Industrial Defense Committee. An important function in which all agencies have an interest is that of damage assessment and reporting. The successful operation of a damage assessment and reporting system will be of great importance if we are attacked. Obviously, unless we have relatively accurate and prompt information on the type and extent of damage it will be impossible to efficiently reprogram our production and allocate our resources after massive attack. Each agency is determining the type of information it will require in order to carry out its responsibility in event of attack.

I will now briefly summarize the main points I have taken up.

In this discussion on the problem of "mobilization of the national economy in the face of nuclear attack" I have divided the analysis into several areas. The first dealt with forecasts on the possible attack damage to the country; the second dealt with the problem of identifying the productive capacity necessary to wage a modern war; the third involved identification of the capacity vulnerable to attack; and the fourth discussed the development of measures to offset attack damage, or assure that at least a minimal capacity necessary to support a war effort will be available after attack.

Once these measures and the problem of vulnerability to our industrial base had been identified, then I discussed the managerial problem of taking action either through the direct controls of Government or through the encouragement of industry action by means of Government planning and leadership together with the use of financial aids and incentives.

Because of the complex nature of American industry and the variety of measures which may be possible, I attempted to bring out the necessity of coordinating the activities of Government agencies.

If we are to think in terms of industrial survival in the years hence, our industrial pattern must be deployed and resilient; unassailable by intercontinental ballistic missiles or by whatever the future may have in store.

COLONEL DIEHL: Colonel Enter, you have certainly covered a very vital area very fully. Thank you very much for coming over and explaining the functions of your office to us.

(15 Mar 1954--750)S/ijk