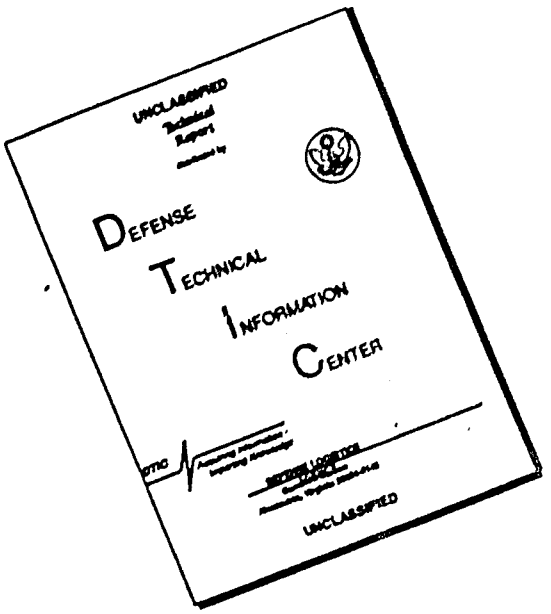
DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

OBTAINING MOBILIZATION PREPAREDNESS FOR SIGNAL CORPS WIRE AND CABLE

I am here today to talk to you about mobilization preparedness in relation to wire and cable. Now, anticipating a question which I believe will be asked, I will give you an idea of what is meant by mobilization preparedness. The definition that I like to use is this; that the readiness is such that from "M" Day on, the GI in the field will have what he needs whenever he needs it to properly fight a war. "M" Day being, of course, the day of declaration for all-out mobilization. I now wish it understood from the beginning that the relationship of the curves presented on the slides are representative rather than actual. This is necessary because if actual relationships were shown, this talk would then need to be classified.

Now at one time, preparing for mobilization was a comparatively simple process. For instance, in biblical times when David went out to meet Goliath, his preparation for mobilization was first having a sling shot and second in his picking up rocks as he went forward to meet Goliath. However, since that time, mobilization readiness has become much more complicated. Today, each prospective fighting man is supported by thousands of dollars worth of equipment.

Now, if we go a little deeper, we find that there are two types of mobilization readiness. One would be a readiness for a short duration war and the second for a long duration war. I will dismiss the first type by noting that preparation for a short war is one of having the necessary fighting equipment on hand when "M" Day is declared. Air Force fighters and bombers and Army "Nike" installations are examples of this type of preparedness. When we go to the "Long War" type of readiness, we come into a situation where industry will play a big role. This is understandable because obsolescense and other factors make it uneconomical to procure a large stocks of military supplies in peacetime to fight a long war. Consequently, the most important factor of mobilization readiness for a long war is to strike the optimum balance between a reserve end item stock and an industrial production mobilization base. Let us consider for a moment what the optimum mobilization readiness should be for military field wire and cable. As for any other item, it should be the minimum amount of reserve stocks of the end product consistent with industry's capability to produce the end product at mobilization rates in the shortest time possible.

Let us see where we stand in regard to having this optimum mobilization readiness for military field wire and cable. Field Wire WD-1/TT took the place of Field Wire W-110-B which was used

during World War II. A Spiral 4 Cable different from World War II is now used with the latest military carrier communications equipment. In the case of WD-1, action to expand the know-how for manufacturing by Industrial Preparedness Studies was initiated prior to the Korean emergency with a considerable amount of facility expansion also being accomplished during the Korean conflict. In addition, facility expansions were also accomplished on Spiral 4 Cable and its component .015" Stainless Steel Wire. But, inspite of these expansions, the "Pre-M Day Facilities"; i.e., those having the know-how and the production equipment for manufacturing at this time, are still insufficient to meet the going rate of monthly mobilization requirements. Accordingly, if "M" Day came tomorrow, additional WD-1 would be required from "Post M Day Facilities"; i.e., those where either or both the know-how and the production equipment for manufacture would of necessity be developed after "M" Day.

Slide No. 1 is an illustration of a situation similar to what it is today. This slide shows that initial production from "Pre-M Day Facilities" could be expected a few months after "M" Day with peak production from these facilities being reached approximately six months thereafter. But the initial production from "Post M Day Facilities" would not come until several months thereafter due to the need to acquire additional long lead time production equipment and also in some cases to develop manufacturing know-how.

Now, let us carry the present situation a little further and consider the reserve stocks of end items in Signal Corps depots. Slide No. 2 illustrates that when reserve stocks are considered, the present mobilization readiness position is still not good. In actuality, a shortage of field wire for an all-out war would exist for several months.

Now you may ask what is being done about this situation. Those of you here from the wire industry are probably well aware of the fact that a considerable number of taping machines, twinners, coil winders, stranders and extruders for wire manufacture were placed on order by the Signal Corps during May and June of this year. I believe it is also further understood by most of you that it is the Signal Corps' intention to procure other production equipment for manufacture of WD-1 and CX-1065/G. Besides acquiring these manufacturing production equipments, it is further the intention of the Signal Corps to develop additional manufacturing know-how in wire manufacturing concerns which already have the necessary buildings and manufacturing space. However, in planning for this expansion of the industrial capacity to make WD-1 and CX-1065, primary consideration has been given to the plants wherein the peacetime product now manufactured is such that it would not be required in as great quantities in an all-out war. Further, it is apparent that it is not economically possible to set up actual manufacturing lines. So, the solution is to have the necessary Government-owned production

equipment stored at or near the actual plant wherein it would be utilized in event of mobilization.

Slide No. 3 illustrates a readiness position after accomplishment of expansion and wherein there is no peacetime procurement of the end item.

Actions, such as just outlined, will of course materially improve mobilization readiness. In fact, optimum mobilization readiness for wire and cable could be reached in a couple of years, providing additional wire and cable were procured. But what good would optimum readiness of WD-1 be if the telephones and radio equipment with which it operates were not also at optimum readiness position. So here again, there is a plan which is to let peacetime procurement operations build up reserve stocks on a phased and equal basis insofar as the size of a mobilization army that would be supported. Taking into consideration the reserve stocks and contemplated know-how and production equipment expansion, the readiness position of WD-1 will soon be ahead of the other military items with which it nets. However, as WD-1 is never completely recoverable after peacetime army training maneuvers, it is to be expected that more WD-1/TT will be procured in future peacetime fiscal years. This in turn tends to better mobilization readiness, by shortening the lead time to reach peak production. Slide No. 4 illustrates the readiness picture with minimum economical runs of peacetime production.

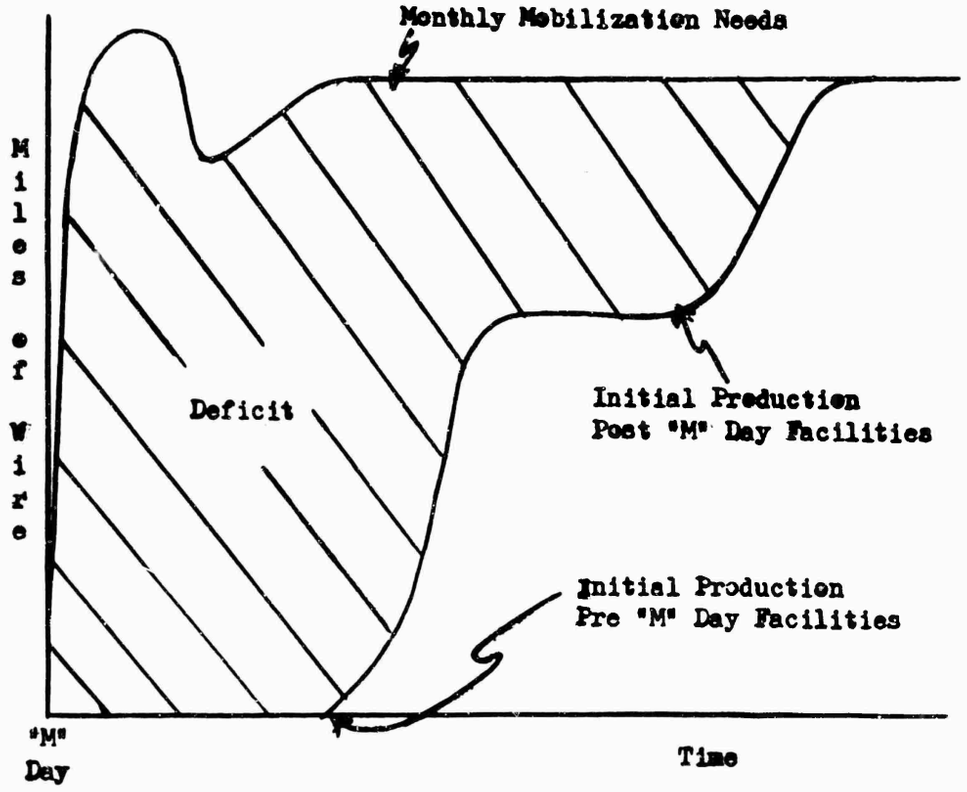
So far, I have considered the end item problems, now let us look at the material and component part of the picture. Using Wire WD-1 (See Slide No. 5) as an example, it may be seen that even as simple an item as an insulated wire still has numerous complexities. You will note that for the copper, it must first be mined, smelted and drawn through several steps into a fine wire. Also during the process, it is necessary to tin the copper wire in order to prevent corrosion. Next, if you will look at the jacket material, it is seen that nylon requires sebacic acid in its manufacturing process. Sebacic acid is also used in making jet engine lubricants. In turn, sebacic acid is derived from castor oil and the castor oil is derived from the castor bean which is grown mostly in tropical climates; South America and India being the primary sources of supply. Only recently have any great amounts been grown in the United States and even in this respect, there is insufficient amounts grown to satisfy current needs from the domestic sources. In fact, the domestic supply is decreasing since the withdrawal of Government subsidies. Because of this particular situation, castor oil is being stockpiled for an emergency. Further in the producing of the nylon zytel #36, the DuPont Corporation is presently the sole source. However, the basic compounds of zytel #36 are produced in several dispersed plants of DuPont Corp. Now, in spite of these factors, the availability of materials for both WD-1/TT and CX-1065/G has been determined as being better situated than the capacity to produce the end item.

Nevertheless there are actions being taken to better the material situation, such as, research for a single material to be used as both jacket and insulation, and determination of ways to conserve tin. As a result of Signal Corps R&D work, a non-nickel bearing steel has been developed to replace the 18-8 stainless steel in the braid of CX-1065/G. Sample lengths of cable using this substitute alloy are now being evaluated. The adoption of this new material will eliminate the requirement for nickel in this cable.

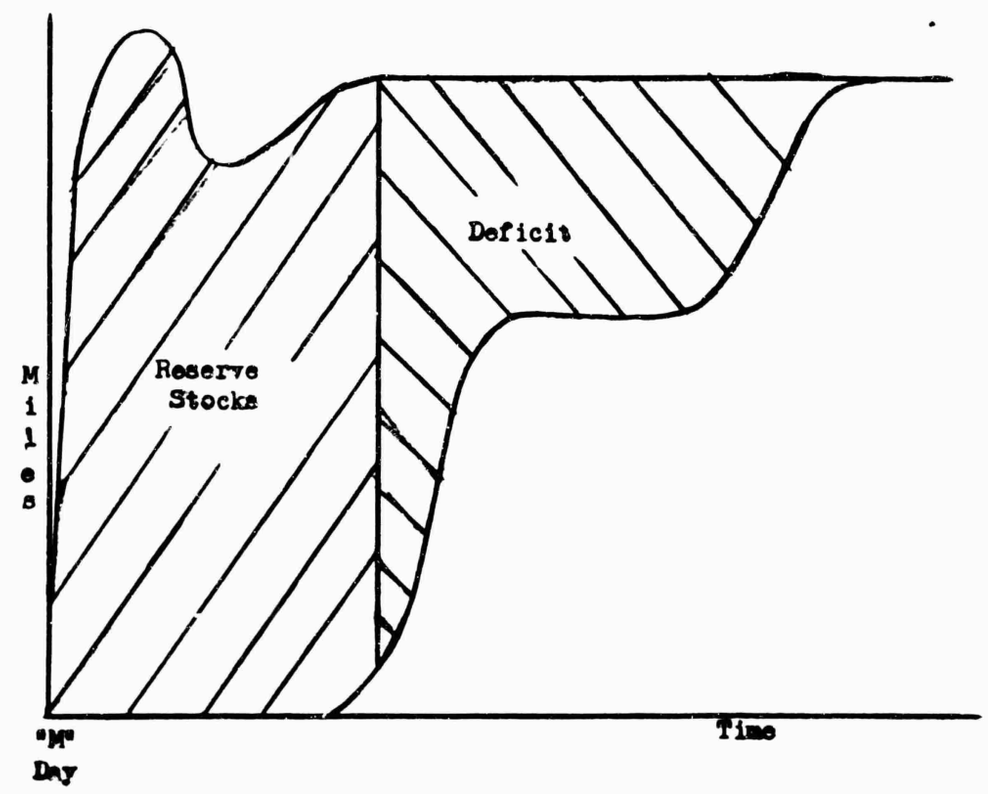
But it has been said of what use are actions such as previously outlined if the emergency does not come immediately after accomplishment of the actions. Well, for one thing, the mobilization planning is being accomplished with concerns who make a peacetime product which is at least similar to the military item with which they are planned with for mobilization. For another thing, wherever necessary, "know-how development" (or as we call it "Industrial Preparedness Studies") is made; these studies will include plans for keeping the necessary know-how at or near its peak. For another thing, the phasing of the full attainment of mobilization readiness is at least partially keeping alive know-how.

Now let me just briefly summarize the highlights of this talk. The Signal Corps is in the process of expanding manufacturing know-how and acquiring and storing away (preferably at plant site where it would be used in an emergency) long lead time items of wire manufacturing equipment. The Signal Corps is looking for less critical replacements for the critical materials such as tin and nylon now being used.

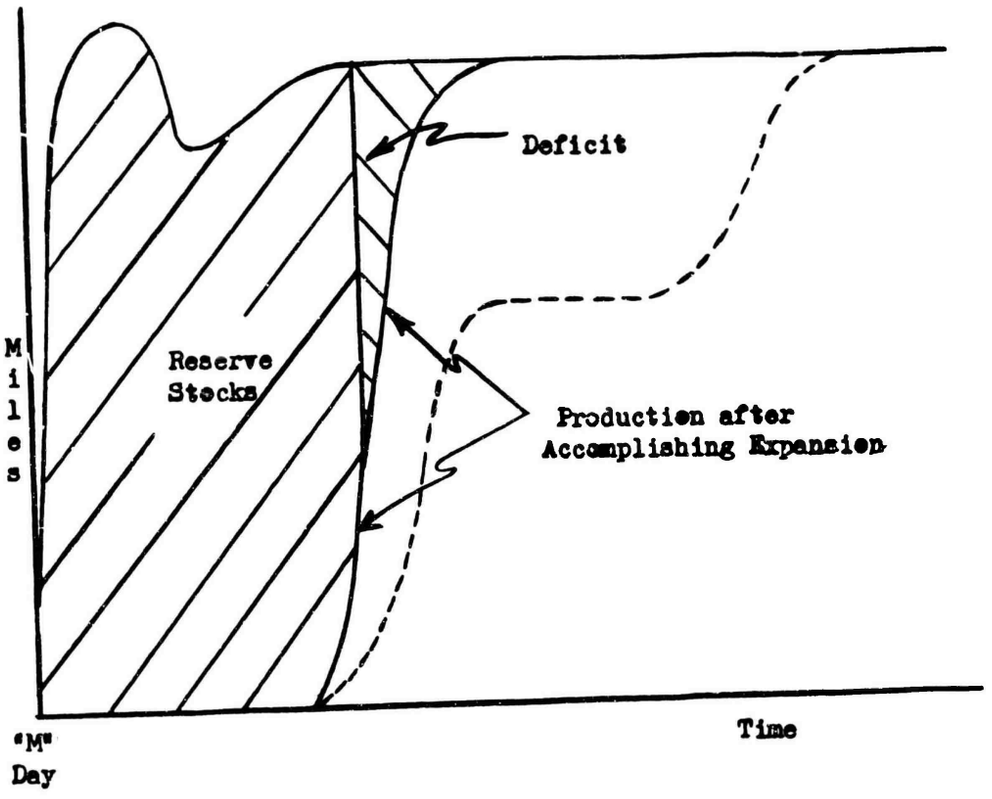
SLIDE 1



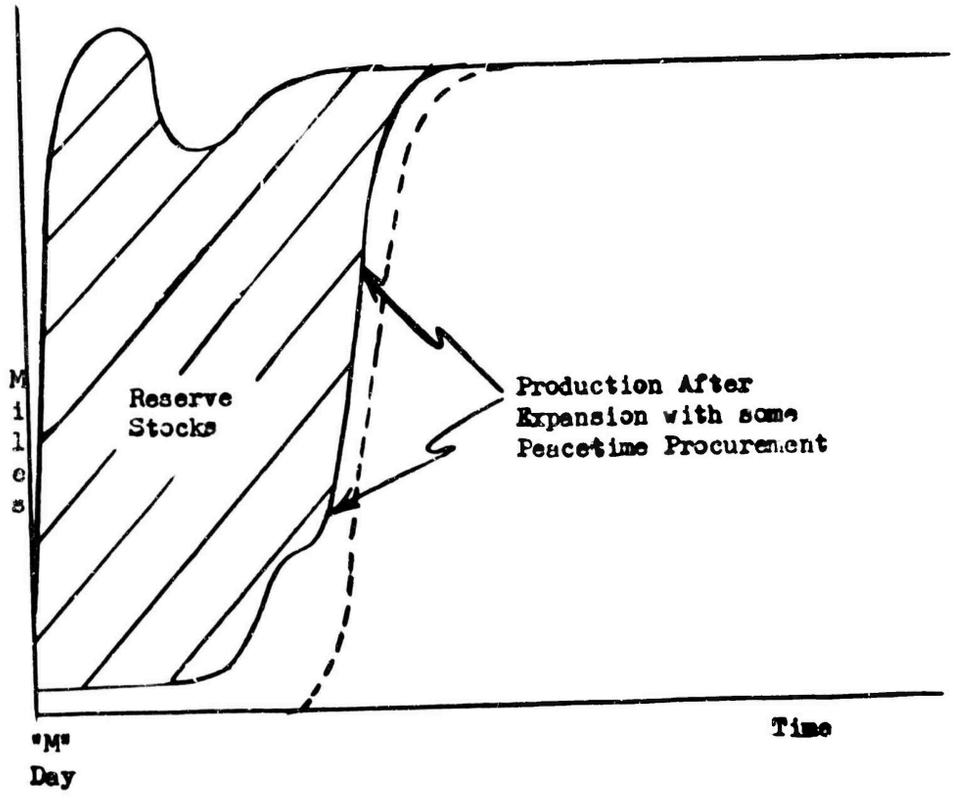
SLIDE 2



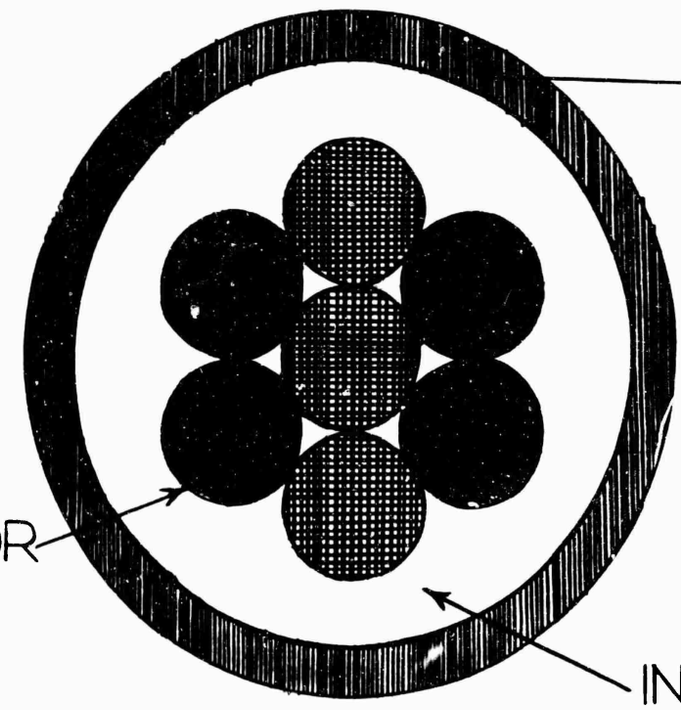
SLIDE 3



SLIDE 4



WD-1/TT



JACKET

NYLON-ZYTEL 36
SEBACIC ACID
CASTOR OIL
CASTOR BEAN

CONDUCTOR

4 COPPER STRANDS
COPPER
TIN
3 STEEL STRANDS
STEEL
.250 ROD
.051 WIRE
.011 WIRE
ZINC

INSULATION

POLYETHYLENE