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DIRECTORATE OF
INTELLIGENCE

Intelligence Memorandum

NORTH VIETNAM'S ALTERNATIVE MEANS OF MAINTAINING IMPORT TRAFFIC

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
6 October 1969

INTELLIGENCE MEMORANDUM

North Vietnam's Alternative Means of Maintaining Import Traffic

Introduction

This memorandum is our reply to a request that we assess certain measures that might be taken by North Vietnam in response to a US mining program. The analysis in this memorandum is focused specifically on the means by which North Vietnam would attempt, by using alternative transport routes, to maintain the large volume of imports that normally enters the country through the port of Haiphong. The following assumptions are used in making the analysis:

1. An extensive US mining program has successfully denied access to North Vietnam's major and minor ports, as well as all feasible lightering areas, to both oceangoing and coastal shipping.

2. The North Vietnamese have opted not to contest the mining program and to transfer all import trade to the overland routes from Communist China.

3. There is sufficient Soviet and Chinese cooperation that strains in their relations are not a limiting factor in facilitating the overland movement of traffic.

North Vietnamese Dependence on Imports

1. The limited size of its modern economy and the fact that it has always been a food-deficit country have made North Vietnam highly dependent on imports. This dependence has increased greatly during the war because North Vietnam has had to rely almost completely on external sources for combat materiel and has had to divert large amounts of manpower to nonproductive, war-related activities.

Level of Imports

2. North Vietnamese imports during the 12 months ending in June 1969 totaled 2.2 million tons. The bulk of this traffic -- about 85 percent of total imports -- was brought in through the port of Haiphong. Although rail imports amounted to only a small share of the total, rail transport is of particular significance as the principal channel for the import of combat materiel.

3. Estimated seaborne imports for the period 1 July 1968 - 30 June 1969 are shown in the following tabulation:

	Thousand Tons			
Goods	USSR and Eastern Europe	Communist China	Other	Total
Foodstuffs	330	500	50	880
Fertilizer	60	-	50	110
Petroleum	290	40	-	330
Timber	Negl.	-	30	30
General and miscellaneous	350	150	30	530
Total a/	*1,000*	*690*	*170*	*1,890*
Daily average				5.2

a. Because of rounding, components may not add to the totals shown.

4. North Vietnamese seaborne imports reached record totals this past year because of sharp increases in imports of foodstuffs and petroleum. During the 12 months ending in June 1969, for example, imports of petroleum were about 2.5 times their 1965 level. Imports of foodstuffs show an even greater increase, being some seven times greater than they were in 1965.

5. Estimates of rail imports by North Vietnam are much more tenuous than those for seaborne imports. On the basis of rather limited evidence, we estimate that rail imports during the period July 1968 - June 1969 were on the order of 300,000 tons, of which only about 50,000 tons were combat materiel. About 40 percent of total rail imports are estimated to come from the USSR and Eastern Europe and the rest from China.

6. More than 97 percent of North Vietnam's imports are from Communist countries. The USSR provides the greater share -- 44 percent -- of these imports, while Communist China accounts for almost 40 percent. The Soviets provide about one-third of North Vietnam's imports of foodstuffs, almost all of its imports of petroleum, and about one-half of its imports of fertilizers. The USSR also provides about 40 percent of North Vietnam's imports of general cargoes such as construction materials, industrial machinery, metal products, and transportation equipment. Communist China's trade with North Vietnam is dominated by foodstuffs, which accounted for almost three-fourths of the volume of seaborne imports from China during the past year. China also provides substantial imports of industrial machinery, construction materials, and transport equipment. North Vietnamese economic imports from Free World countries are dominated by fertilizer imports -- mostly from Japan -- and by timber imports from Cambodia.

Foodstuffs

7. North Vietnam's domestic output of rice has declined steadily from [redacted] million tons of polished rice in 1965 to 2.9 million tons in 1968. Since 1965 the North Vietnamese population has

increased by about 5 percent [illegible], in addition, the war effort has required more and harder work -- th[illegible] requiring a greater intake of calories. To fill the widening gap between production and consumption, North Vietnam has been forced to increase imports of foodstuffs substantially. Imports of foodstuffs by sea increased from about 120,000 and 80,000 tons in 1965 and 1966, respectively, to about 460,000 tons in 1967 and to more than 890,000 tons for the twelve months ending June 1969. Imported foodstuffs now supply one-fifth of the estimated total calories consumed by the North Vietnamese. With per capita food consumption at close to minimum levels, the continued accessibility to food imports is essential for the maintenance of the population's health and productive capacity.

Petroleum

8. Seaborne imports of petroleum during July 1968 - June 1969 exceeded 330,000 tons. Almost 85 percent of the petroleum imports originated in the USSR, and 95 percent were delivered by sea. The high level of consumption of petroleum during the past year reflects the intensity of military activity and the greater use of trucks, construction equipment, and marine craft.

Military Imports

9. There is little hard evidence with which to quantify precisely the current level of North Vietnam's imports of military goods. Historically, however, there has been sufficient information -- when combined with aerial photography, data on ammunition expenditure rates, and changes in the enemy order of battle -- to permit estimates of the volume of military imports [illegible] estimates have proved to be compatible with other intelligence occasionally obtained from collateral sources. In addition, the intelligence community estimates that all of North Vietnam's imports of combat materiel and major military hardware items are delivered by rail rather than by sea. Large amounts of war-supporting materials such as trucks and petroleum do, however, enter North Vietnam through the port of Haiphong.

10. By the end of 1968, adjustments to the cessation of the US bombing of North Vietnam, which permitted a reduced level of imports of military goods needed for air defense purposes, had probably been completed, and imports of military equipment are now estimated to be at relatively constant levels, though well below the level of the first half of 1968. The high number of attacks flown by US aircraft in the Panhandle of North Vietnam between 1 April and 31 October 1968 and the continued attacks against Laos after the 1 November bombing halt indicate a relatively constant North Vietnamese requirement so that imports of military goods such as ammunition have probably remained fairly stable during 1969. With the limited evidence on hand, we estimate that in volume terms deliveries of military goods have probably leveled off at an annual rate of nearly 50,000 tons.

Adequacy of Stockpiles

11. There is insufficient direct intelligence to permit a precise quantification of North Vietnam's reserves of essential economic goods or its stockpiles of military goods. The information that is available, however, supports a general conclusion that with but few exceptions the stockpiles of essential economic and military goods are maintained at relatively high levels.

Economic Goods

12. Photography of the port of Haiphong since the bombing halt has shown increases in the volume of cargo in open storage despite a faster removal of cargoes from the wharf area. About 60 percent of the area was occupied by cargo at the time of the total bombing halt in November. Although the monthly level of cargo in open storage has fluctuated considerably since then because of changes in the discharge rate and the effects of monsoon weather on land transport and lightering, at the end of August 1969 about 70 percent of the available area was occupied by cargo.

13. Significant increases in imports of construction material (mostly steel [illegible], vehicles,

and earthmoving equipment since the total bombing halt have considerably altered the types of cargo observed in open storage. Prior to the halt the open storage area was dominated by heavy equipment and machinery, stockpiles of sacked grain, and stockpiles of tires, most of which remained in the area for many months at a time. Since 1 November, much of the heavy equipment and machinery and tires has been moved out of Haiphong and replaced by incoming construction materials. Turnover of most of the cargo stored in the open has been at a relatively higher pace than before November, and this has been especially true of foodstuffs.

14. With but few exceptions, we estimate that North Vietnam's stockpiles of economic goods are sufficient to sustain the economy for several months at present rates of consumption. Food supplies are currently at a low level, but the harvest of the tenth-month rice crop will be available next month. Industrial equipment needed for restoring and/or maintaining industrial output has been imported during 1969 in increasing amounts, and limited observations of storage areas in August 1969 showed a variety of industrial equipment and materials on hand. A high level of petroleum imports and a well-developed dispersed storage system also point to the availability of adequate supplies of petroleum.

Supplies of Foodstuffs

15. There is no direct intelligence on the stockpiles of foodstuffs in North Vietnam. It is apparent, however, that supplies of rice are usually abundant immediately after the two rice harvests in May-June and October-November. Moreover, some subsidiary crops that are harvested between the rice harvests help to take up the slack. Assuming no measurable carryover of foodstuffs before the 1968 tenth-month rice harvest, an estimate of the food balance, based on estimated production, imports, and consumption, shows the trend in the reserve situation during 1969 (see the table). As the table shows, supplies on hand are at a low level in October but increase significantly after the tenth-month harvest in November. The availability of foodstuffs becomes most critical during the [illegible] of the year.

Estimated Food Balance in North Vietnam
1969

Thousand Metric Tons

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Carried over	1,640	1,355	1,065	795	500	225	1,545	1,245	945	655	365	2,075
Production a/	--	--	--	--	--	1,600	--	--	--	--	2,000	--
Imports	75	70	90	65	85	80	60	60	70	70	70	
Available	1,715	1,425	1,155	860	585	1,905	1,605	1,305	1,015	725	2,435	2,145
Consumption	360	360	360	360	360	360	360	360	360	360	360	360
Stock	1,355	1,065	795	500	225	1,545	1,245	945	655	365	2,075	1,785

a. Including both rice and subsidiary food crops.

Supplies of Petroleum

16. On the basis of North Vietnam's imports of petroleum during the past year and estimates of consumption patterns, we estimate that the stocks of petroleum on hand at the end of June totaled about 100,000 tons, equal to about 100 days' supply at the estimated 1968 consumption rate.

Industrial Supplies and Equipment

17. Scattered references to stockpiling of industrial equipment and supplies indicate that sufficient levels are on hand to meet North Vietnam's requirements for several months. Although current consumption requirements are difficult to gauge, the large amount of such goods seen in photography of known storage and distribution areas suggests that there is sufficient stockpiling throughout the country. For example, photography of mid-1969 of the Kinh No transshipment and storage depot north of Hanoi, one of the major storage areas in the country, revealed more than 100 mobile generators; large quantities of mobile compressors, cables, and pipe; and large stocks of crated industrial and agricultural equipment. At the An Khe Barracks and Storage Area near Cat Bi Airfield, August photography showed twice as many vehicles as in May, including significant numbers of farm tractors and construction and military vehicles. A similar high level of supplies and equipment has been noted in other storage areas in Hanoi and Haiphong.

Construction Supplies and Equipment

18. Most supplies for use in construction appear to be at low levels, although there are stockpiles of construction equipment and structural steel. Numerous articles critical of the progress of the construction industry have appeared in the North Vietnamese press since the beginning of the year. Domestic production of building materials such as bricks, tiles, and cement has not kept up with increased construction requirements. Cement production, for example, is estimated to have been only about 210,000 tons for the first nine months of 1969, less than half the consumption of cement

for a comparable period in 1965 and 1966. The tight supply situation in construction materials is not critical, however, since reconstruction projects can be deferred or the pace of reconstruction slowed if imports are denied or reduced.

Military Supplies

19. Military stocks in North Vietnam appear to be maintained in very large amounts. Data on North Vietnamese imports, information on the flow of supplies into Laos and South Vietnam, and photographic intelligence suggest that the North Vietnamese have successfully implemented a logistics doctrine that provides them a deep cushion of military supplies.

25X1X4

25X1X4A 20. We know [redacted] that North Vietnamese logistics planners call for "combat reserves" (supplies pre-positioned on the battlefield) to be adequate for three months of combat. "Campaign reserves" (supplies maintained in rear areas close to combat fronts) are planned to be adequate for six months of combat. In addition, the North Vietnamese maintain so-called strategic reserves which are massive and diversified stockpiles located in safe areas in Laos and North Vietnam.

21. There are many indications that large military stockpiles have been accumulated in North Vietnam and Laos. Although our estimates of imports of ammunition are subject to a wide margin of error, the data that are available indicate that during 1968 these imports were on the order of four times greater than the amounts expended or lost by enemy forces in both Laos and South Vietnam. Even though ammunition imports fell sharply following the cessation of the bombing of North Vietnam, the stockpiles of the particular types used in Laos and South Vietnam are apparently being maintained at high levels. Reliable intelligence on shipments to just one of the several logistics stations in North Vietnam handling traffic funneling into the Laotian Panhandle indicates a standard storage level of about 700 tons of ammunition. This amount could meet the estimated North Vietnamese-originated requirements for all Viet Cong/North Vietnamese

forces in southern Laos and South Vietnam for several weeks. Another of the military stations in the Laotian Panhandle responsible for the transshipment of supplies to South Vietnam had over 3,200 tons of supplies in storage near the end of May. The reported stockpiles for combat elements operating in Laos are also high. Analysis of recent reports from thirteen antiaircraft battalions indicated they had a six months' reserve of ammunition.

The Overland Option

22. This section of the memorandum analyzes the implementation of a decision to maintain North Vietnam's import traffic by exclusive reliance on land transport routes. It discusses the impact of the diversion of seaborne imports on the transport systems of the USSR, Communist China, and North Vietnam and estimates the capabilities of these systems and the time required to normalize the overland transport arrangements.

Impact on the Trans-Siberian Railroad

23. The diversion to rail traffic of Soviet and East European exports to North Vietnam would have a surprisingly small impact on the capabilities of the Trans-Siberian Railroad. More than 70 percent of Soviet seaborne trade with North Vietnam currently is shipped out of Vladivostok, so that the greater part of the trade has been part of the established traffic flow on the Trans-Siberian Railroad.

24. The normalization of overland traffic would mean that slightly more than 3,000 tons a day would be routed by the Trans-Siberian Railroad. However, only about 1,200 tons of this traffic would be cargo diverted from normal movement through European ports. This would be a light burden on a rail line which is estimated conservatively to have a minimum capacity of about 50 trains, or 100,000 tons, each way per day. The addition of 1,200 tons a day in real terms is the equivalent of only one additional train per day. Only about 700 additional rail cars

would be required,* out of the total Soviet inventory of more than one million cars. About 400 of the additional cars would have to be tank cars, which would amount to only about 2.5 percent of the 15,500 tank cars in the Soviet inventory. The limiting factor on traffic to China would be the restrictive section of the road which lies just to the east of Lake Baykal. A segment of approximately 290 kilometers is capable of handling only 50 trains each way per day, or approximately 100,000 tons. However, the approximately 3,000 tons per day which would be routed on the Trans-Siberian is well below 5 percent of the minimum capacity available. On the basis of fragmentary data, however, our best estimates indicate that less than 65 percent of the capacity of this sector of the Trans-Siberian Railroad is used for economic traffic. Thus the addition of one train a day should be easily absorbed.

25. Because rail traffic to Communist China has declined so drastically in recent years, and the transshipment facilities have been kept intact, it seems unlikely that transshipment of cargoes from Soviet to Chinese railroads would delay the movement of this traffic to any significant degree. The minimum capacity of the rail lines servicing the two major transshipment areas at Manchouli and Erhlien, China, is 50,000 tons per day.

26. Based on the above, it seems likely that the reorientation of traffic from Black Sea or Baltic Sea ports to the Trans-Siberian Railroad could, with the requisite priorities, be accomplished in about two weeks. By the end of a two-week period, therefore, overland traffic to North Vietnam via the Trans-Siberian Railroad should be pretty well normalized. Even if the adjustment period were to take twice as long, the flow of supplies on the Trans-Siberian Railroad would be completely reestablished well before there was a significant diminution of North Vietnam's stockpile of essential goods.

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* *Based on an average haul of 2,500 kilometers, a 20-day turnaround time, and an average of 35 tons per carload -- 40 tons per car for petroleum tank cars.*

Impact on Chinese Railroads

27. The convergence of all North Vietnamese import traffic on the Chinese railroads would represent a daily volume of 6,000 tons of goods. This volume is equivalent to what can be carried by about 200 standard-gauge freight cars or about 1,800 trucks a day. The additive burden to the Chinese railroad system would be something on the order of 5,300 tons a day, including about 1,000 tons a day of petroleum. This traffic would require the allocation of about 1,700 freight cars in constant operation and about 3[illegible] petroleum tank cars. In each case these allocations are only about 2 percent of China's inventories of freight and tank cars. The inventory of freight cars in Communist China has increased about 25 percent since 1959, but transportation performance is less now than it was in 1959. Although the railroad system is not operating as efficiently now, the evidence we have suggests that China has ample freight cars and would have no difficulty in making the required number available to transport the imports of North Vietnam that formerly moved by sea.

28. Combined Chinese rail line capacity to North Vietnam totals about 11,400 tons each way per day. The major and most direct route, via Kwangsi Province, connects with the dual-gauge rail system at Dong Dang, providing an uninterrupted standard-gauge road to within a few miles of Hanoi. A more circuitous route through Yunnan Province connects with the meter-gauge rail system at Lao Cai in northwestern North Vietnam. This latter rail line most likely would perform as an overflow or alternate route in the event of problems arising on the primary rail line. Although we cannot judge precisely how long it would take to reallocate the traffic to Chinese railroads, it would seem that the adjustments could be made well before any shortages would develop in North Vietnam because of the cessation of sea imports.

Movement from the Chinese Border

29. North Vietnam's total rail and seaborne imports during the most recent 12-month period amounted to an average of about [illegible],000 tons a day. The daily movement of [illegible],000 tons by roads should not severely tax an overland [illegible] which has a

combined rail, road, and water route capacity of almost 16,000 tons per day during the dry season and 13,000 tons per day during the wet season. As shown in the tabulation below, the capacity of North Vietnam's rail connections with China are 50 percent greater than the volume of goods that must be imported. The roads and waterways provide an additional cushion that can be used to avoid bottlenecks and to establish additional routes for moving goods from various areas of South China into North Vietnam.

	Tons per Day
Daily average imports	6,000
Route capacities	
Railroads	9,000
Roads	5,400 (2,300) a/
Red River	1,500
Total surface	*15,900 (12,800) a/*

a. The capacity of the roads declines during the wet season, which extends from June through September in the northern areas of North Vietnam.

30. The capacities given above are conservative estimates based on a wide variety of factors including the extent and conditions of facilities, the availability of equipment, and the employment of a normal labor force. Improvisation can enable normal rail capacities to be temporarily exceeded for considerable periods of time when the demand is great or the regime assigns a high priority to moving supplies over the system. Furthermore, the normal capacities could be expanded by relatively simple additional construction such as the installation of passing tracks at more frequent intervals -- expedients which could be accomplished in a week or two under high priority. The capacities of the roads could likewise be quickly increased by improved grading or the more intensive use of manpower to repair road surfaces that got washed out during the rainy season -- which involves nothing more complex than the allocation of additional construction

materials and labor. During the bombing of North Vietnam, up to 600,000 full-time and part-time employees were engaged in air defense or bomb damage repair. If even a small fraction of this labor force were mobilized to maintain and improve the main lines of communication with China, there is no doubt that the capacity of these lines could be rapidly expanded.

31. North Vietnam has adequate inventories of railroad rolling stock and motor vehicles. The inventory of railroad rolling stock currently is estimated at 115-130 locomotives* and 2,000-2,300 meter-gauge freight cars. The country's railroad system consists of dual-, standard-, and meter-gauge lines. The main rail link between China and Hanoi -- the dual-gauged Dong Dang line -- could be operated by drawing from China's inventory of standard-gauge rolling stock, which is estimated at 6,100 locomotives and 160,300 freight cars. An alternate route from the border to Hanoi via Kep and Thai Nguyen also could use Chinese standard-gauge equipment.

32. As of mid-1969 the estimated North Vietnamese motor vehicle inventory ranged between 5,500 and 11,500. The wide range stems mainly from a lack of import data, particularly for overland shipments, and the uncertainties associated with confirming the large number of vehicles reportedly destroyed by airstrikes in Laos. A lack of any evidence of a shortage of motor vehicles during 1968 through June 1969, plus a substantial amount of photointelligence revealing continuing large vehicle stockpiles within North Vietnam, suggests that a firm vehicle inventory probably would be in the upper limits of the estimated range.

33. Overland imports in North Vietnam are currently carried by standard-gauge trains which originate in China and move across the border to their terminal destination. The current level of overland traffic requires about one such train per day. If all imports were to come overland, the

* *Including the recent acquisition of 20 small diesel locomotives imported from the Soviet Union.*

6,000 tons per day would require about six standard-gauge trains and about 400 standard-gauge freight cars, in both cases a minuscule part of the Chinese inventory. On the much less likely premise that the North Vietnamese would be required to furnish rolling stock for the augmented hauls -- the impact, on North Vietnam would be fairly significant. The 6,000 tons per day would require about 18 meter-gauge trains, the only gauge presently owned by North Vietnam. In addition, about 800 meter-gauge freight cars would be required, almost 40 percent of the estimated inventory of such cars in North Vietnam.

Methods of Implementation and Problem Areas

34. The complete halt of imports by sea will obviously create problems for the foreign trade functionaries and transportation ministries of North Vietnam, China, and the USSR. If these three countries should agree to move the seaborne import tonnage via the overland route, it will be necessary to initiate time-consuming negotiations and planning. Plans for freight movement in all three countries would require some revision, and adjustments would have to be made to release the locomotives, freight cars, and personnel needed to absorb the additional freight. However, neither the tonnage involved nor the equipment required is great in terms of Chinese and Soviet resources. The added burden of one train a day would not be crippling to a line that handles as many as 180 trains a day and is not being used at full capacity.

35. Freight cars in both countries are allocated in accordance with an elaborate traffic plan. Appropriate railroad bureaus and regions in both countries would have to be instructed to revise the plan and give priority to the North Vietnamese traffic. Under the assumptions of this analysis, we assume that the required degree of Sino-Soviet cooperation exists and that along with it would come the requisite priorities. Therefore, we estimate that the adjustments would be rapid enough to attain the desired traffic levels within a fairly short time and that any extended disruptions would be at the cost of Soviet or Chinese domestic traffic rather than that bound for North Vietnam.

36. With sizable inventories of transport equipment, the time required to reorganize traffic movements within North Vietnam would probably range from two to three months. Given the priorities that would be attached to the task and the considerable experience gained in keeping traffic moving during the bombings, it seems unlikely that any disruption of traffic would be prolonged or extensive. Moreover, the North Vietnamese in all probability anticipated a mining program during the Rolling Thunder campaign and undoubtedly already have well-developed and detailed contingency plans to cope with the possibility of a mining program.

The Sea-Land Option

37. This section considers the working of a North Vietnamese option whereby the seaborne imports previously shipped through Haiphong are routed to the Chinese port at Fort Bayard and then transshipped along overland routes to North Vietnam. The analysis first discusses briefly the origin and volume of North Vietnam's seaborne imports. It then considers the decisions that would have to be made about diverting that shipping on the high seas which might be en route to Haiphong at the time the mining program was carried out. Finally, the analysis discusses the shipping of land transport problems of normalizing the flow of North Vietnamese imports through Fort Bayard.

Origin of Seaborne Traffic

38. A total of 438 ships with about 1.9 million tons of cargo called at Haiphong in the 12 months ending on 30 June 1969. The cargo was overwhelmingly of Communist origin. The small share of imports from the Free World consisted principally of timber from Cambodia and fertilizer from Japan. About 70 percent of the seaborne imports originated in Far Eastern ports. With the exception of some [illegible]0 tons from Cuba, the remainder originated in European ports. Ship arrivals in North Vietnam for the period and imports by port of origin are shown in the following tabulation:

Port of Origin	Ship Arrivals a/	Cargo (Thousand Metric Tons)
Far East	354	1,385
Soviet	164	580
North China	97	480
South China	61	210
North Korea	11	50
Japan	7	30
Cambodia	12	30
Other	2	5
Europe	79	455
Soviet b/	39	250
Eastern Europe	40	200
Western Europe c/	--	5
Cuba	5	50
Total	*438*	*1,890*

a. Excluding 42 ships that arrived in ballast principally to load coal.
b. Less than 5,000 tons originated from Soviet ports in the Baltic Sea; the remainder originated from Black Sea ports.
c. This cargo was picked up in Western Europe by ships sailing from East European ports.

39. Three-quarters of the ships engaged in the North Vietnamese trade were Communist-flag ships. The majority of the 120 Free World ships that called at Haiphong were under time charter to China and carried cargo from North China. The Chinese normally use Free World ships for this voyage to avoid the threat of harassment and seizure to their own flag ships in the area of Taiwan.

The Immediate Diversion Problem

40. Our analysis of shipping to North Vietnam during the 12 months ending 30 June 1969 indicates that on the average of the 10 ships were en route to North Vietnam at any one time -- eight ships from

ports in the Far East and eight ships from European and other ports. These ships could be carrying as much as 80,000 tons of goods, including an estimated 7,000 tons of petroleum. On the basis of the probable average disposition of these ships and assuming a decision not to recall ships that are beyond the half-way point, we believe the following decisions would be made. Four of the ships en route from European and other ports with 24,000 tons of cargo would be recalled and four ships with 24,000 tons of cargo would be diverted to Fort Bayard. Of the ships en route from Far East ports, we estimate that four ships with 16,000 tons of cargo would be recalled and four ships with 16,000 tons of cargo would be diverted to Fort Bayard. The total to be diverted to Fort Bayard would be 40,000 tons. These diversions could be made quickly by using normal shore-to-ship communications, and the voyage time would not be appreciably different than if the ships had proceeded to Haiphong.

Complete Diversion of Seaborne Traffic to Fort Bayard

41. The complete diversion of seaborne traffic to Fort Bayard should be carried out insofar as shipping is concerned with minimal disruption because it would require no fundamental reallocation of the shipping already committed to the trade. A normalization of North Vietnam's seaborne import trade through Fort Bayard would actually require the commitment of less shipping than is presently committed to the Haiphong trade and the shipping could be used more efficiently. A decision to move cargoes from Fort Bayard overland to North Vietnam would mean, for example, that the 370,000 tons of cargo previously carried on 61 voyages from South China ports would undoubtedly be diverted to rail for shipment to North Vietnam.

42. The diversion of the remainder of the shipping carrying North Vietnam's seaborne imports to Fort Bayard would involve about 377 ship calls annually. This shipping would have to move nearly 1.7 million tons of cargo, or the equivalent of about one ship per day with 4,500 tons of cargo. The total diversion would include 293 ships annually from ports in the Far East with about 1.2 million tons of cargo, and 84 ships from European and other ports with 500,000 tons of cargo.

43. The actual number of ships required to move the 1.7 million tons of cargo could be reduced slightly. Fort Bayard can handle ships with considerably greater draft than Haiphong; because of silting, the draft of ships at Haiphong is limited to about 26 feet, whereas wharves at Fort Bayard can handle ships with up to a 31-foot draft, and the harbor can accommodate drafts up to 35 feet. This greater depth and the existence of better cargo-handling facilities would mean that ships, particularly the large-hatch Soviet ships, could deliver larger loads.

44. The diversion of ships to Fort Bayard would not significantly change voyage times. Ships sailing from the Far East ports would be able to reduce their normal eight to nine day voyage to Haiphong by about one day. The voyage time from European ports to Haiphong of 35 to 50 days would remain unchanged.

Transport from Fort Bayard to the North Vietnamese Border

1. Port Problems

45. Our only estimate -- based on very limited information -- of the capacity of the port at Fort Bayard is for the discharge of military cargo with ship's gear. This estimate, 5,080 metric tons per day, undoubtedly understates the actual capacity of the port for commercial and military cargo. Storage facilities for 65,000 tons of POL also are available in the port area. The daily average volume of dry cargo (3,600 tons*) that would be diverted to Fort Bayard would be almost 70 percent of the port's daily military discharge capacity. The 900 tons of POL that would be diverted represents only 7 percent of the estimated POL unloading capacity of the port and an extremely small percentage of the storage capacity. In terms of economic costs, however, this port is believed to be the one most likely to be used for traffic that might be diverted from Haiphong. It would not

* *The actual daily volume of seaborne shipments into Haiphong is 5,200 tons, including 900 tons of POL and 700 tons of cargo from South China. The 700 tons of dry cargo from South China would not move through Fort Bayard. Estimates are based on the linear feet of wharfage, but since POL is pumped into storage it would not take up any port capacity.*

increase the sea distance from the Black Sea and North Sea ports and would provide the shortest rail route to North Vietnam. The wharfage area at Fort Bayard is limited to only two large cargo vessels; however, there are anchorages for an unlimited amount of vessels where lightering could take place and increase the port handling capacity substantially.

2. Rail Routing

46. The rail distance from Fort Bayard to P'ing-hsiang of 361 miles would result in a turn-around time of approximately four days. Considering this factor and an average load per car of 35 metric tons, about 520 cars and 35 locomotives would be required in constant operation at all times to carry 4,500 metric tons per day of imports (dry cargo plus POL) that would move from Fort Bayard, representing far less than 1 percent of the Chinese inventory of rail cars and locomotives. This volume of traffic would amount to 75 percent of the daily capacity (6,000 tons) of the rail line from the port to the North Vietnamese border. The limiting capacity of Fort Bayard would be at the port, however, because any shortage of rail capacity could easily be supplemented by trucking or the rail capacity might be increased with the addition of sidings in a very few weeks. In total, it is likely that a month to six weeks would be required before traffic through the port to North Vietnam would be normalized.

Conclusions

47. The diversion of North Vietnam's seaborne trade to overland routes via China would force Hanoi to undertake an extensive revamping of normal transportation arrangements and would require modest additional logistical adjustments by the USSR and China. In addition, the transportation organizations of all three countries would be beset with considerable administrative tasks in setting up alternative shipping routes. In no case would the costs of such adjustments be high, and it is difficult to foresee that it would be considered a decisive factor in shaping Hanoi's commitment to a continuation of the war in South Vietnam.

48. The mining program would result in the immediate diversion of seaborne traffic involving only 80,000 tons of supplies, some to be shuttled into North Vietnam via the port of Fort Bayard in South China and the remainder -- perhaps about half -- to return to their port of origin for overland transit of China.

49. The reorientation of traffic to overland routes could be accomplished in a very short time, however. The traffic from the USSR and Eastern Europe now moving by sea could be shipped on the Trans-Siberian Railroad with the addition of only one train a day. The added burden on the Chinese railroads would be somewhat greater but is still well within their traffic capacities and would require only 1 to 2 percent of China's inventories of transport equipment.

50. All aspects of the logistical readjustments would probably be completed within one month in both the USSR and China and would take no more than two to three months in North Vietnam, at which time Hanoi could expect the flow of supplies to continue at pre-mining levels. Both military and economic stockpiles in North Vietnam are adequate to support a continuation of current levels of consumption during this emergency period, with the possible exception of petroleum which could be shipped in from China in higher than normal quantities if necessary.

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