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OCI No. 2373/63

CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
22 October 1963

INTELLIGENCE MEMORANDUM

SUBJECT: Interim Assessment of Hurricane Damage in Cuba

SUMMARY

Between 5 and 9 October, Cuba was struck by Hurricane Flora, one of the worst natural disasters in the island's history. Damage from the hurricane was sustained primarily in the two eastern provinces of Oriente and Camaguey. Further west, Las Villas Province was subjected to heavy rains and high winds but damage was considerably less severe than in the two easternmost provinces. In general, Cuban agriculture was dealt the heaviest blow by the hurricane, but transportation, communications, and electric power also suffered extensive damage. Industrial facilities and the military establishment in the hurricane zone appear to have escaped with relatively light damage. The population in Oriente and Camaguey suffered heavy loss of personal property and homes. According to the most recent estimates, more than 1,000 Cuban deaths resulted from the hurricane.

This memorandum presents an interim analysis of the economic consequences of the storm based on data presently available. It discusses a variety of factors bearing on the short-term effects of Flora on the Cuban economy, some of which may tend to mitigate and others to magnify the damage. It concludes that the long-term effects of the disaster are likely to be more serious than those faced immediately by the Castro regime.

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Between 5 and 9 October, Cuba was struck by Hurricane Flora, one of the worst natural disasters in the island's history. Damage from the hurricane was sustained primarily in the two eastern provinces of Oriente and Camaguey. Further west, Las Villas Province was subjected to heavy rains and high winds but damage was considerably less severe than in the two easternmost provinces. In general, Cuban agriculture was dealt the heaviest blow by the hurricane, but transportation, communications, and electric power also suffered extensive damage. Industrial facilities and the military establishment in the hurricane zone appear to have escaped with relatively light damage. The population in Oriente and Camaguey suffered heavy loss of personal property and homes. According to the most recent estimates, more than 1,000 Cuban deaths resulted from the hurricane.

The economic consequences of the storm are important but present indications are that the economy can probably absorb the short-run effects without serious strain. The loss in volume of exports from the 1964 sugar crop may be largely offset by the fact that prices for sugar exports to free world countries will be substantially higher than the 1963 average price. On the other hand, the total value of additional imports required to replace the crop damage due to the storm probably will be about $25 million, less than four percent of total imports

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estimated for 1963. The longer term effects of the hurricane may be more significant, however, as the reconstruction of storm-damaged buildings will divert resources from new investment activity and thus further restrict the ability of the economy to achieve some improvement over the next few years.

DISCUSSION

I. AGRICULTURE

1. Oriente and Camaguey are the leading agricultural provinces in Cuba, supplying the more densely populated western half of the island with a large part of its food. Many of Cuba's important crops were in or were about to enter the harvest stage when the hurricane struck. In the case of several of these--for example, cotton, coffee, and cocoa--it will be another year before a new harvest can be brought in. For other crops, however, such as beans, corn, and several additional vegetables, important to the Cuban diet, replanting has already begun and a new harvest will be ready in considerably less than a year. A new rice harvest will be brought in during the spring; however, the size of this crop normally is considerably smaller than that of the fall since it receives less rainfall and available irrigation facilities are inadequate to make up the difference.

Sugar Cane Production

2. Together, Oriente and Camaguey contain over 50 percent of the sugar cane area of Cuba. Moreover, the cane grown in these provinces has the highest sugar content of Cuban grown cane. Although normally a hurricane affects the hardy bamboo-like cane plant much less severely than other more succulent plants, the severity of Flora and the length of time she remained over Cuba make it highly probable that large areas of cane were damaged. On the basis of present evidence, however, it appears unlikely that the total reduction in the 1964 sugar harvest resulting from cane damage will exceed 400,000 metric tons, about ten percent of the previously estimated crop. The Rio Cauto basin, which was the most heavily flooded area, normally produces no more than 150,000 metric tons of sugar. Although much of this sugar might have been destroyed, reports indicate that cane damage outside the Rio Cauto valley was not extensive. (See photograph no. 1 in annex).

3. It will be virtually impossible to salvage the uprooted and damaged cane by milling it now. The cane is presently too immature to contain much sugar and most of the sugar mills have not yet been overhauled and put in readiness for 1964 operations.

Moreover, the labor force necessary to salvage the sugar from the damaged cane could not be mobilized in time since the sucrose content of cane severed from the rootstock decreases rapidly.

4. Reports indicate that large areas of cane planted this year in anticipation of the 1965 harvest were washed out in both Oriente and Camaguey Provinces. Newly planted cane requires approximately 18 months to reach maturity and it is not likely that the washed-out cane areas can be replanted in time to contribute to the 1965 harvest. The effects of Flora will be felt therefore not only in 1964 but also in the 1965 sugar harvest.

5. Although several sugar mills reportedly sustained wind and water damage, this probably will not have a significant impact on 1964 sugar production. Virtually all of Cuba's sugar mills have been operating below capacity for the last two years and would have done so again in 1964 even if cane had not been destroyed by the hurricane. Damage to the mills appears to have been confined to the roofs of four or five relatively small installations, with some of the milling machinery receiving a soaking. It is highly probable that most of the necessary repairs can be made before the 1964 harvest begins. (See photographs no. 2 and 3 in annex.)

6. A substantial number of railroad tracks, roads, and bridges have been washed out throughout the two eastern provinces. Consequently, the transportation of sugar cane from the fields to the mills probably will be slowed down in 1964. Although the Cubans have about three months before the harvest is scheduled to begin, it is unlikely that all of the destruction can be repaired in that short a time. Recovery problems will be aggravated if the heavy rains that usually occur during this season of the year continue and prevent the draining of the flooded areas.

7. Even in the absence of a hurricane, the shortage of labor which has hampered the production of sugar during the last two years was expected to be a major limiting factor on the 1964 harvest. With extensive hurricane damage throughout eastern Cuba that must be repaired, competing demands upon labor will be increased during 1964. It is highly probable, therefore, that

the problem of inadequate cane-harvesting manpower so evident during the last two years may well be further compounded.

8. Cumulatively, the effects of the hurricane on sugar milling capacity, transportation, and the availability of labor may amplify the loss of sugar production from the next harvest beyond the tentative figure of 400,000 metric tons. A quantitative estimate covering these factors, however, cannot be made at this time.

Other Crops

9. About 90 percent of the coffee produced in Cuba is grown in areas of Oriente Province that were hard hit by the hurricane. The coffee harvest was partly completed when the hurricane struck, however, and some of the crop can be salvaged by simply picking up from the ground the berries that were blown down. Probably no more than 25 percent of the total Cuban coffee crop (or 9,000 metric tons) was destroyed by the storm.

10. Almost all of the nation's small cocoa crop is produced in Baracoa and Santiago de Cuba, areas severely hit by Flora. It is likely that much of this crop has been destroyed.

11. Rice is a basic component of the Cuban diet and about one fourth of the island's total requirements is harvested from October to December in Oriente and Camaguey. The Rio Cauto basin is a primary rice producing area and it is likely that about half of the rice crop in Oriente and Camaguey has been destroyed. This would amount to a loss of about 40,000 metric tons of milled rice or about 12 percent of total domestic requirements.

12. Cuba produces about 25 percent of its cotton fiber requirements and of this amount about 50 percent is produced in Oriente. This crop was also entering its harvest season and it has been reported from Havana that about 50 percent of the cotton crop in Oriente has been lost. This would amount to a loss of about 1,000 metric tons of ginned cotton.

13. Oriente and Camaguey are also the main producers of several other crops all of which probably were severely hit by the hurricane. The primary banana producing area is in the vicinity of Baracoa in eastern Oriente which was battered very heavily by the storm. Important orange growing districts are located in both Camaguey and Oriente. Oriente leads all the provinces in the production of Cuba's staple vegetable, beans. The most important area for bean cultivation is near Holguin, which was one of the regions hardest hit by Flora. Cuba's chief agricultural official, Carlos Rafael Rodriguez, has estimated that as much as 19,000 metric tons of corn might have been destroyed. This is almost ten percent of total Cuban annual production of this crop.

14. One major Cuban crop which apparently was not significantly damaged by the hurricane was tobacco. Only a very small amount of tobacco is grown in Oriente, and the tobacco grown in Camaguey is located in the far western area which was not severely hit by the storm. Moreover, this is the planting season for tobacco and it should be a relatively easy matter to replant any damaged tobacco seed beds.

Livestock

15. It has been reported that large numbers of livestock have been drowned by the flooded rivers. Oriente and Camaguey together contain about 50 percent of the cattle population of Cuba and it seems reasonable to assume that some cattle were lost. It is probable, however, that many of the cattle were simply scattered rather than killed. It is highly unlikely that more than 30,000 head of cattle or about one half of one percent of the total Cuban cattle population was drowned. With respect to other livestock such as swine and poultry, important sources of meat for the Cuban diet, it is probable that losses were much higher. Unless adequate measures are taken to prevent the spread of livestock diseases, the number of livestock killed might increase substantially.

II. TRANSPORTATION AND COMMUNICATIONS

16. Next to agriculture, the most serious loss to the Cuban economy from Hurricane Flora almost

certainly was sustained by the transportation sector. In addition, reporting indicates that internal Cuban communications and radio both have sustained fairly extensive damage. Floods and landslides have rendered many railroads and highways impassable. Segments of highways and railroads and bridges have been washed out (see photographs no. 3,4, and 5, in annex). Virtually all of the reported damage to land transportation was in Oriente Province; currently available information indicates that Camaguey Province appears to have sustained very little railroad and highway damage.

17. At one time or another, the cities of Antilla, Bayamo, Gibara, Holguin, Manzanillo, Puerto Padre, Sagua de Tanamo, and Victoria de las Tunas, all were reported to have been isolated by the storm. Some of these cities are accessible by sea, but Bayamo, Holguin, and Victoria de las Tunas are landlocked. For the cities served by ports, the damage to land transportation probably can be offset to some extent by increased usage of coastal shipping. The fleet of ships available to Cuba for this purpose, however, is not very large.

18. Most of the ports probably did not sustain serious damage to their piers and wharves. Santiago de Cuba, the largest port in the eastern half of the island, was almost completely unscathed (for example, see photograph no. 6 in annex). Some damage to port facilities is evident, however, and Cuban radio has reported that the port of Antilla suffered considerable damage.

19. Civil air facilities in Cuba appear to have suffered very little from the hurricane. Aircraft were moved to safe areas on the island. The runways and associated airfield buildings in Oriente and Camaguey provinces have not been reported as being seriously damaged; only fields at Bayamo and Baracoa were unusable. Civil air communications probably suffered more damage than any other part of the air transport sector.

20. The transportation system in the two eastern provinces probably can be restored to an adequate level of operability within a matter of a few weeks; the complete restoration of the system probably will require a great deal of time as well as the allocation

of considerable resources of manpower, materials, and equipment. Temporary repair of washed-out roadbeds and bridges may be carried out in a fairly short time if priority is given to the job so that men and equipment are made available. Furthermore, many of the bridges and sections of railroads and highways that have been knocked out appear to be on secondary rather than main lines.

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III. ELECTRIC POWER

22. Electric power services, in general, do not appear to have incurred extensive long-term damage. Service poles and lines were down in some locations and electricity was off in a number of areas for various periods of time during the hurricane. According to Cuban reports, Gibara and Holguin will be without electricity until about 25 October. The only power plant of any consequence that was reported to be out of operation was the 13-megawatt plant at Camaguey, which was flooded with six feet of water. Within a week of this early report, Cuban radio stated that work was in progress on restoring 25 motors that got wet and that the plant was expected to go back into operation almost immediately. This expectation probably was overly optimistic; but even if the plant is not yet back in operation, it is likely to be so shortly. The Hector Pazon powerplant in Santiago, which accounts for more than half of the installed capacity of the eastern power system, appears from photography to have suffered no damage at all (see photograph no. 6 in annex). Cuban radio did, however, report that some of the plant's motors were wet, but

they apparently were not so wet that production was seriously affected. The pylon located in the middle of Santiago de Cuba Bay, which supports the power line from the Hector Pazon plant to the petroleum refinery, was still standing after the hurricane. There have been no reports that the line itself was knocked down and photography does not indicate whether the line is still up or not.

IV. INDUSTRY

23. As more evidence becomes available, the picture of hurricane damage to Cuba's industrial sector becomes a little clearer than it was at the time of our last assessment. In general, industrial facilities in Camaguey and Oriente provinces do not appear to have sustained significant damage. Photography since the hurricane of the Santiago area, the major industrial center in eastern Cuba, reveals little or no damage to plants such as the Hermanos Diaz petroleum refinery, the Jose Merceron cement plant, the Rente thermal power plant being constructed by the USSR, or the large-scale Frank Pais flour mill (see photographs no. 7,8, and 9, in annex). Cuban radio reports tend to support this assessment except in the case of the Rente plant which, according to an early Havana statement, suffered severe damage. A reassessment of photography of the Rente plant has been requested. Damage to other industrial plants in Camaguey and Oriente provinces has been assessed from photography as relatively minor (see photographs no. 10,11, and 12, in annex). Although no damage was observed at the Nicaro and Moa Bay nickel plants, somewhat more serious damage appears to have been sustained by mining operations, not only of Nicaro and Moa but of other mines as well. The manganese mine of Charco Redondo in Jiguani, the Ponupu mines at El Cobre, and the El Cristo mines all were seriously flooded. Some time probably will be required to pump out the mines and to dry and repair damaged equipment.

V. MILITARY

24. The military establishment in Camaguey and Oriente provinces apparently lost only a few personnel, but there appears to have been a fairly substantial loss of ammunition, miscellaneous equipment, and military housing. The naval port at Caimanera was

reported to be under three feet of water at one time, and the military camp at Felicidad reportedly was destroyed and its supplies lost.

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CRAF (Cuban air force) facilities, however, were not damaged very extensively. On Balance, Cuban military organizations appear to have sustained losses that essentially are of short-term consequences.

VI. PUBLIC WELFARE

25. The population suffered heavy loss of homes and personal property, and Castro reported on 13 October that more than 1,000 men, women, and children had lost their lives up to that time. As the flood waters recede and a more accurate assessment by the Cubans becomes possible, recorded losses of life and property very probably will climb much higher. One of the biggest problems for Cuba in these two provinces will be that of public health. Disease will need to be controlled, the population will need to be vaccinated, and safe drinking water will need to be assured. The aqueduct at Bayamo was reported to be out of order, and the town of Mayari reportedly had no drinking water. Emergency supplies of medicines, food, and clothing donated by both bloc and nonbloc countries have begun to arrive in Cuba, and shipments of food and medicines apparently have been started from western Cuba to the flood-ravaged provinces. However, currently available evidence does not permit assessment as to the adequacy of the measures being taken to offset the health threat in the stricken areas.

VII. ECONOMIC IMPACT OF FLORA

26. It is clear that the effects of Hurricane Flora were felt chiefly by agriculture, the foundation of the Cuban economy. While the impact of the storm will hurt, the evidence indicates that the economy can probably absorb the short-run effects without serious strain. The hurricane will force adjustments, however, which will further retard the ability of the economy to achieve some measure of growth over the next few years.

27. The short-term economic effects of the storm will appear principally as a reduction in the domestic supply of foods and fibers and a reduction in the

exportable surplus of basic agricultural products over the next year. The estimated reduction in foreign exchange income resulting from damage to the sugar crop will depend upon the price applied to the sugar loss. If the current world market price of 11.5 cents per pound is applied, the estimated loss of 400,000 metric tons would be worth about $100 million; if the average bloc price of about 5 cents per pound is applied, the loss would be valued at $44 million. Total export income will be reduced by more than this amount, however, as a result of damage to other export crops such as fruits and vegetables and damage to mines and mineral production. Probably about $10 million would be added to the foreign exchange loss from these factors.

28. In spite of the magnitude of these losses, it seems likely that Cuba's foreign exchange income for 1964 will be about that of the current year: that is, it will fall within a range of $450 to $500 million. This results from the fact that current free world sugar prices are substantially higher than the average price which Cuba received for sales to free world countries in 1963. Because of the current tight supply situation in the world sugar market, a situation compounded by Hurricane Flora, high prices may be expected to continue through most of 1964. If exports of Cuba's 1964 sugar to all areas are sold at an average price of only a little more than one half of one cent per pound higher than the 1963 average, foreign exchange income from sugar will remain substantially unchanged next year, even considering the storm loss.

29. The effects of Flora on the supply of foods and fibers will force the Cuban Government either to reduce domestic consumption or make larger expenditures of scarce foreign exchange in order to import additional amounts of these goods. The cost of additional imports required by the estimated damage of the storm probably would be about $25 million, less than four percent of the total value of imports in 1963. Since export earnings are not expected to change much in 1964, these additional imports would mean an added $25 million to Cuba's foreign trade deficit, currently running at $200 to $250 million annually. It seems probable that the bloc would be willing to finance such a modest increase in the trade

imbalance, particularly in view of the circumstances which gave rise to it. If additional aid is not forthcoming, however, a 12 to 15 percent reduction in Cuba's capital goods imports would probably free enough foreign exchange to finance the necessary imports.

30. Repair of hurricane damage to buildings and to the transport and communication system will probably require an extended period of time, perhaps as long as several years before full restoration is made. The diversion of manpower, materials, and equipment from new construction to repair work will restrict the amount of new capital formation possible during the next year or so. To the extent that imports of capital goods may need to be cut in order to finance additional food and raw materials imports, new investment activity will be further retarded. In view of these factors, it seems possible that the long-term effects of Flora may be more important than its short-term impact. The hurricane is thus one additional factor, among a number of others, which will restrict the ability of the Cuban economy to register any improvement over the next few years.

PHOTO #1 RIO CAUTO BASIN

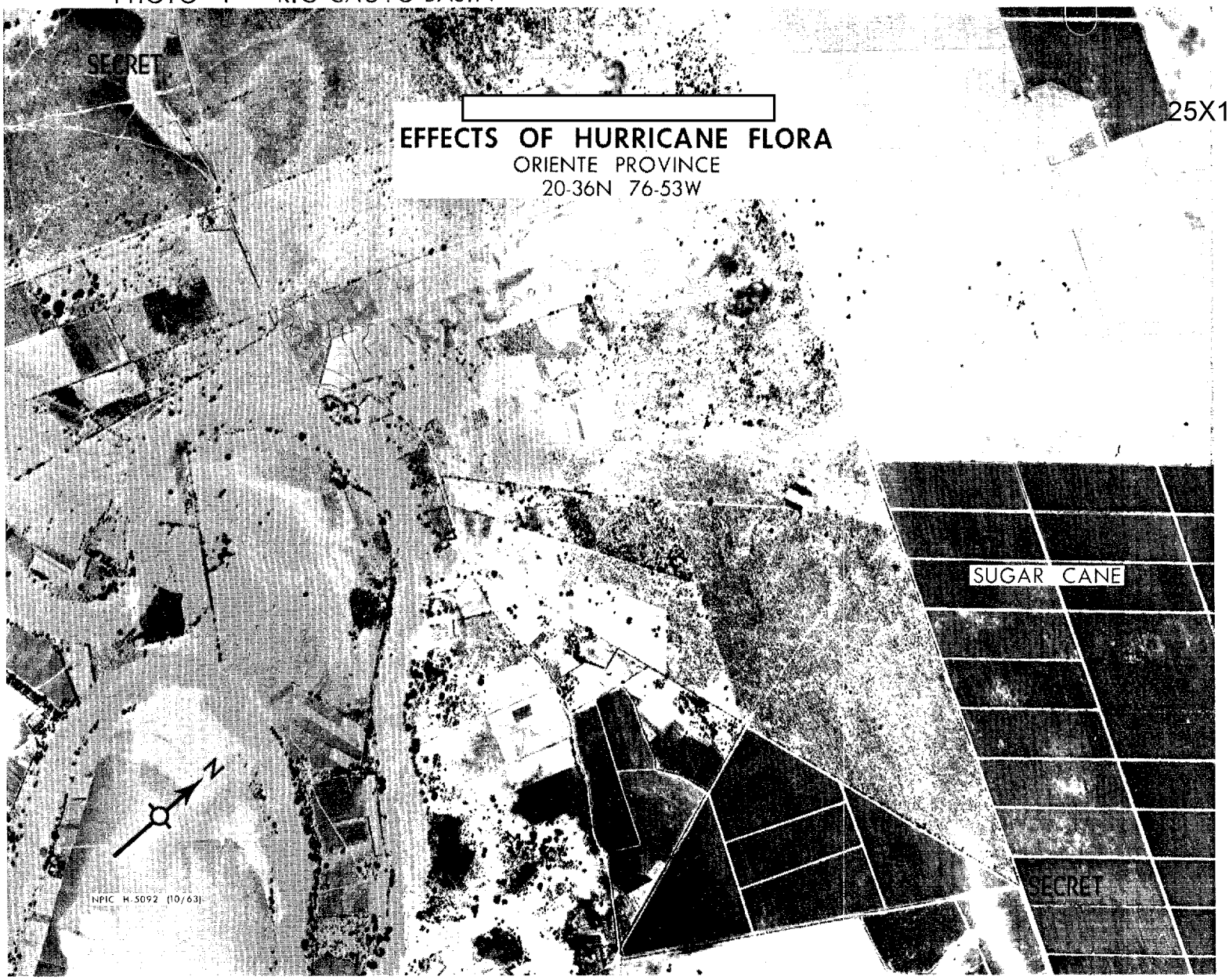

PHOTO #2 TACAJO SUGAR MILL

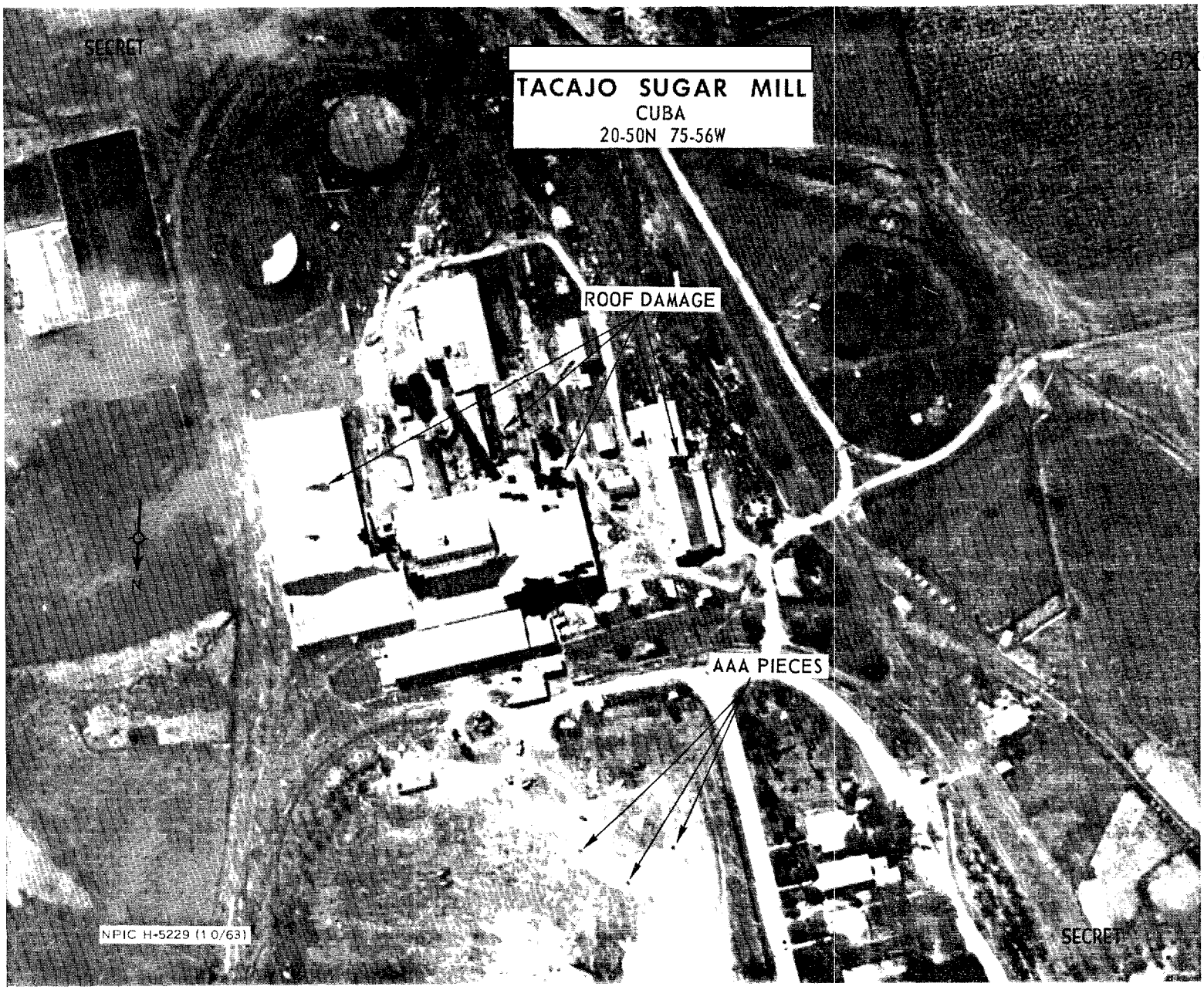

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PHOTO #3 DAMAGED BRIDGE

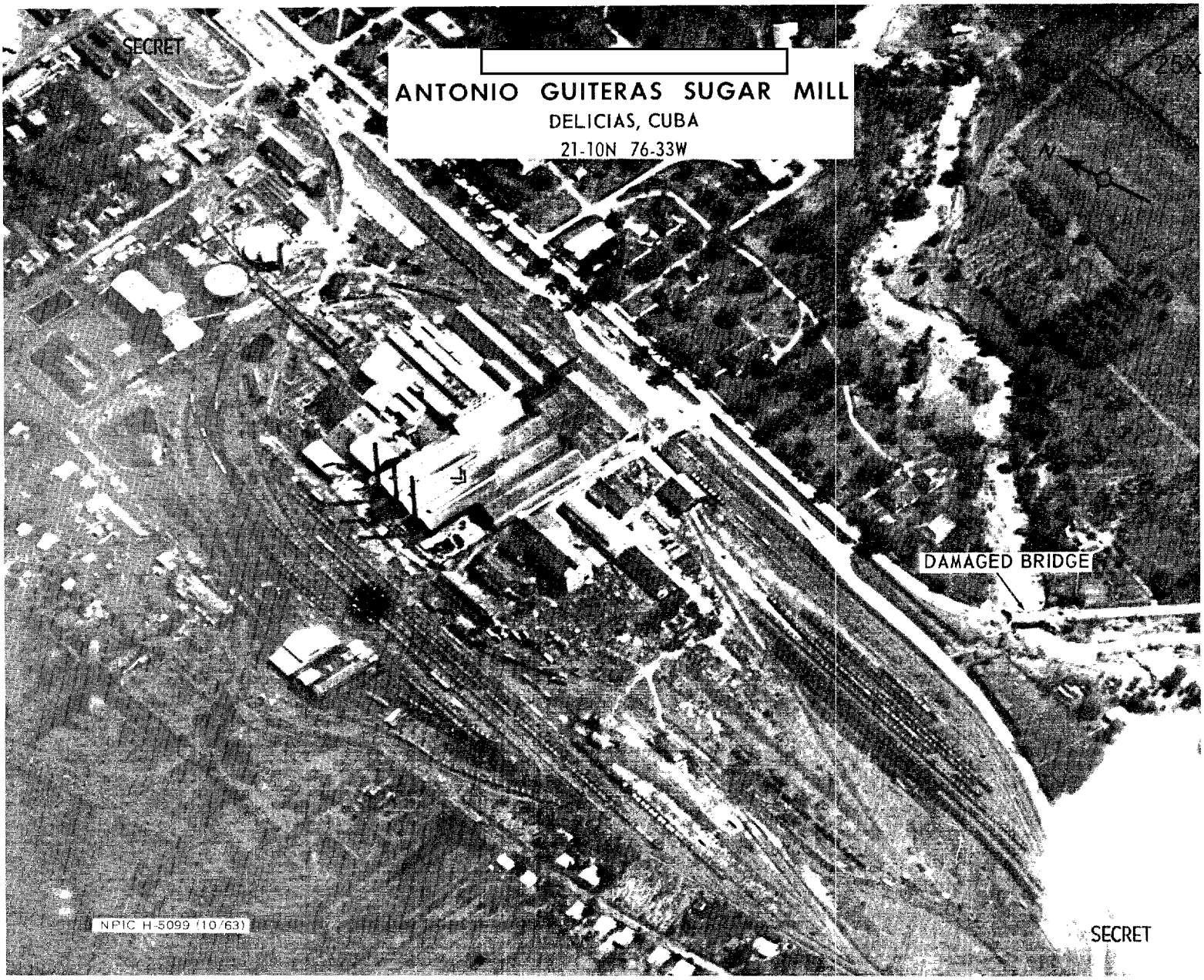

PHOTO #4 ROAD WASHOUT

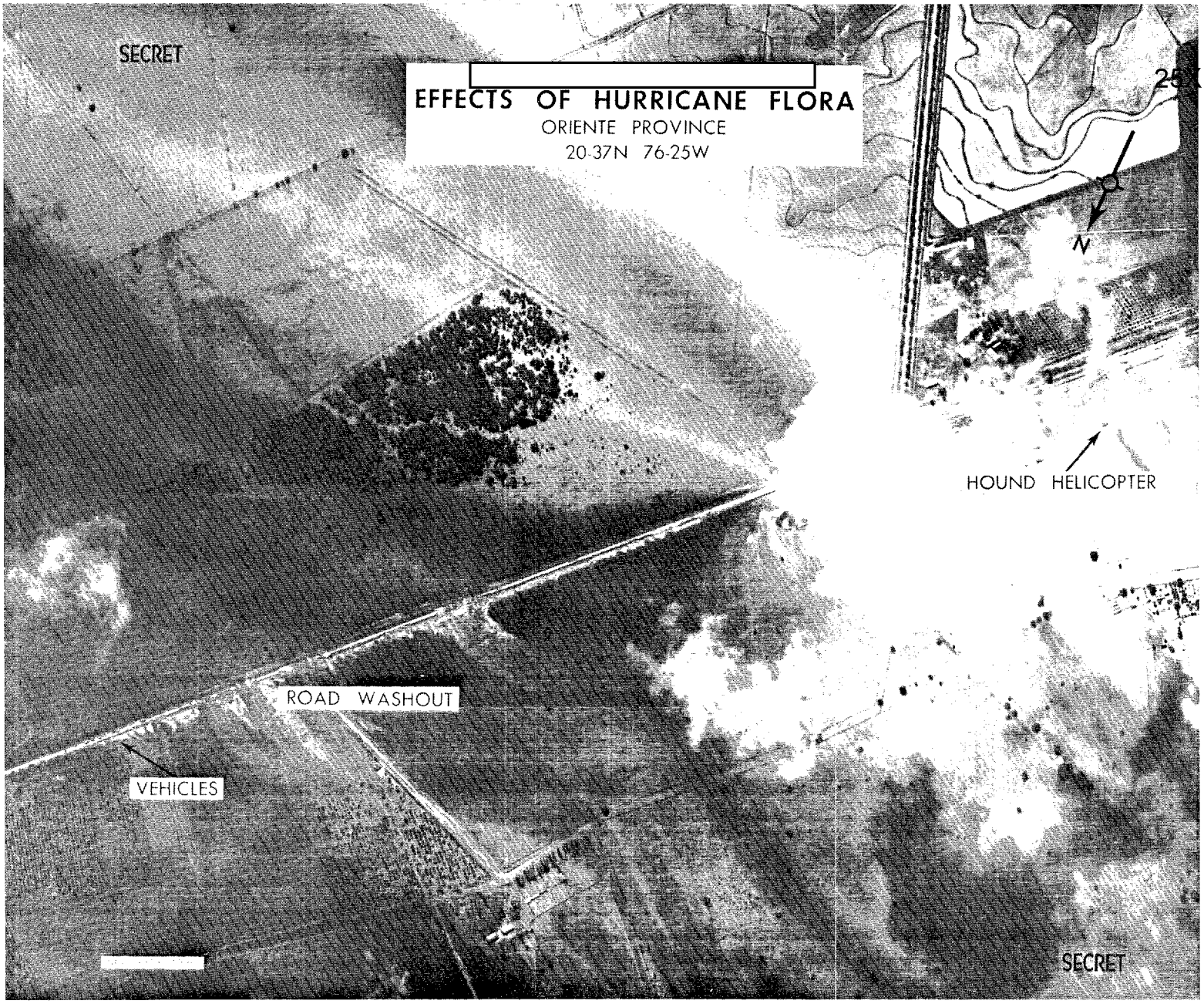

PHOTO #5 HIGHWAY BRIDGE WASHOUT

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NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

[redacted] 25X1

FLOOD DAMAGE WEST OF MAYARI
CUBA
20-40N 75-50W

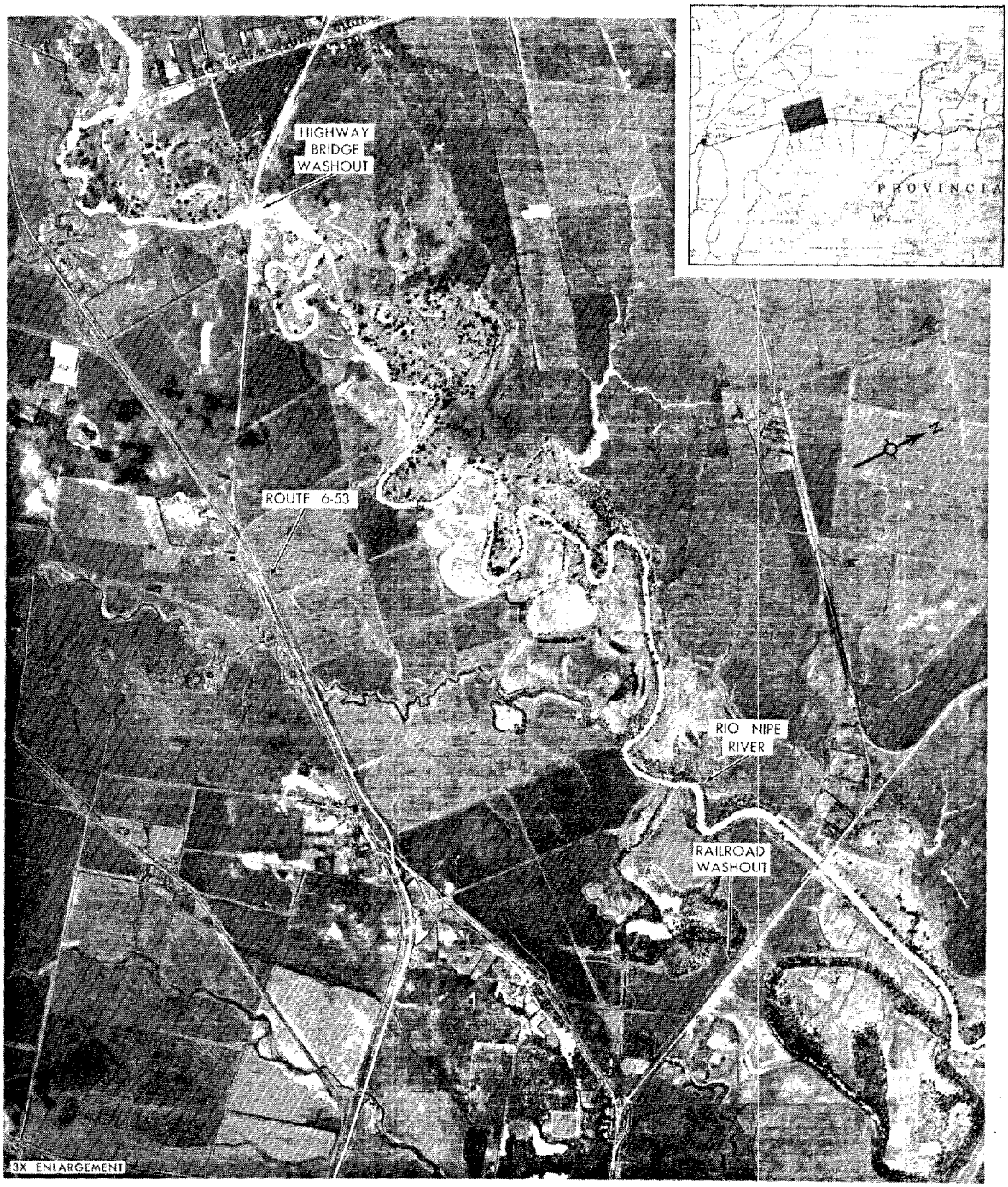

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PHOTO #6 HECTOR PAZON POWER PLANT

PHOTO #7 HERMANOS DIAZ PETROLEUM REFINERY, SANTIAGO DE CUBA

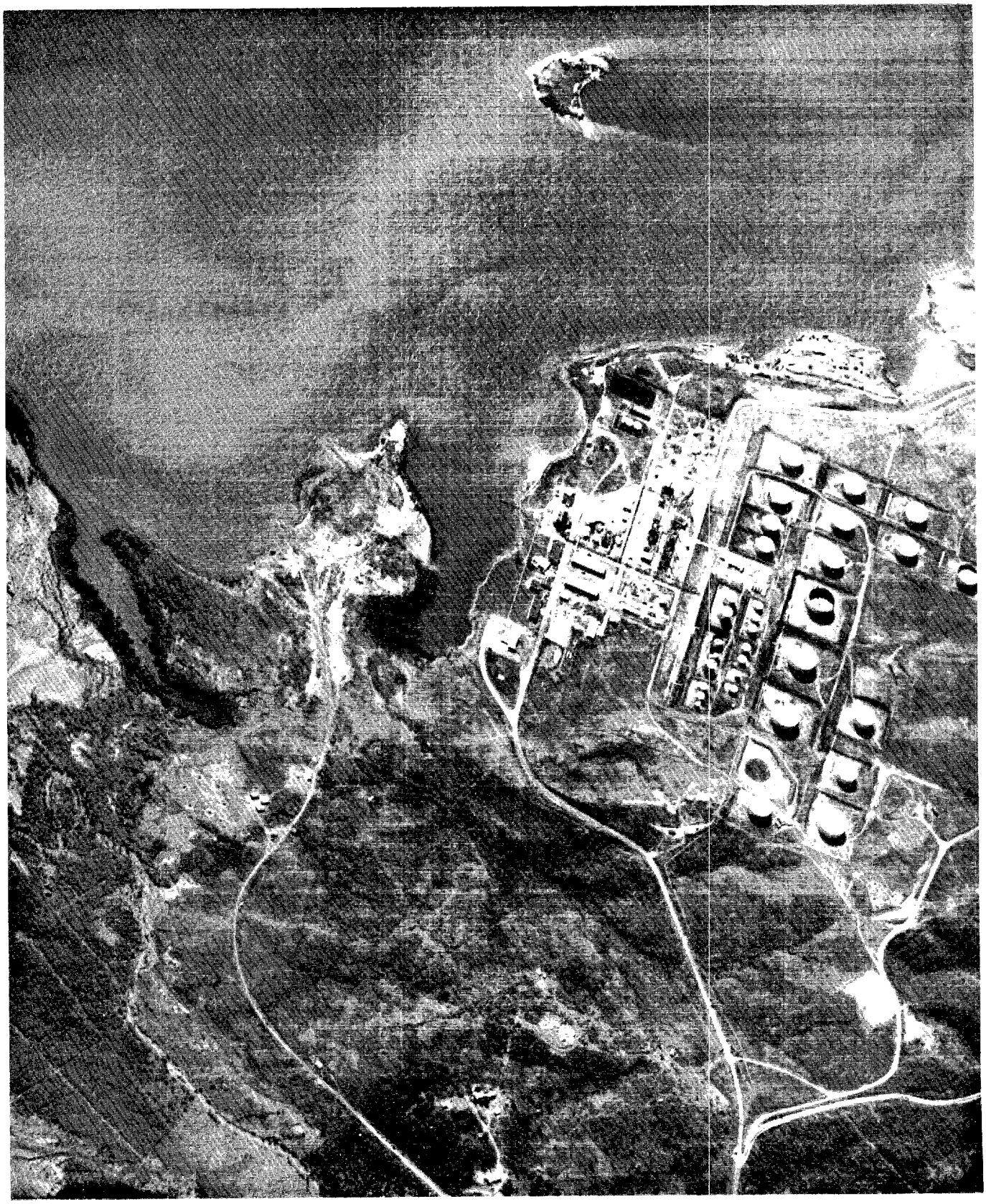

PHOTO #8 JOSE MERCERON CEMENT PLANT

PHOTO #9 RENTE POWER PLANT

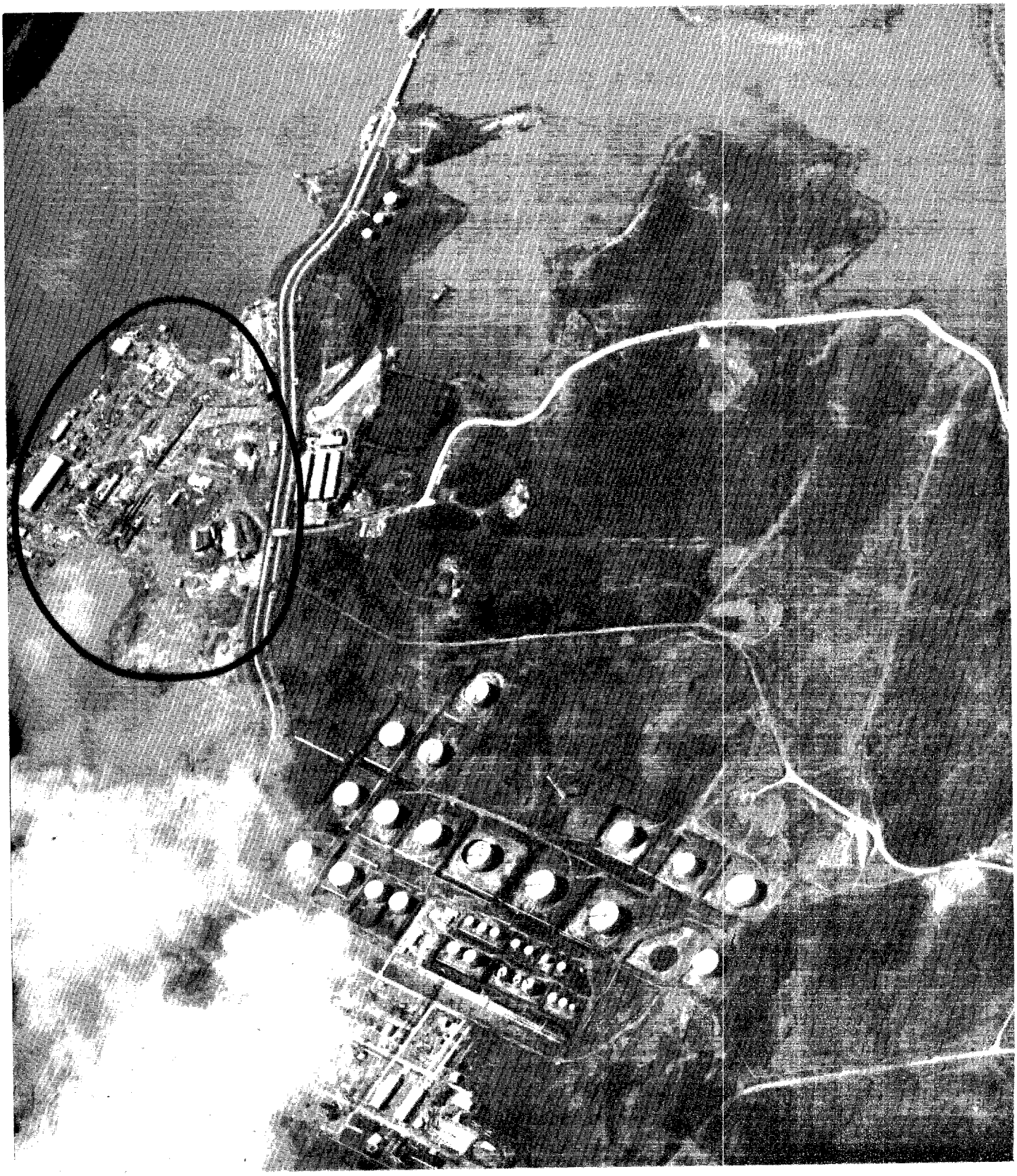

PHOTO #10 INEJIRO ASANUMA SPINNING MILL

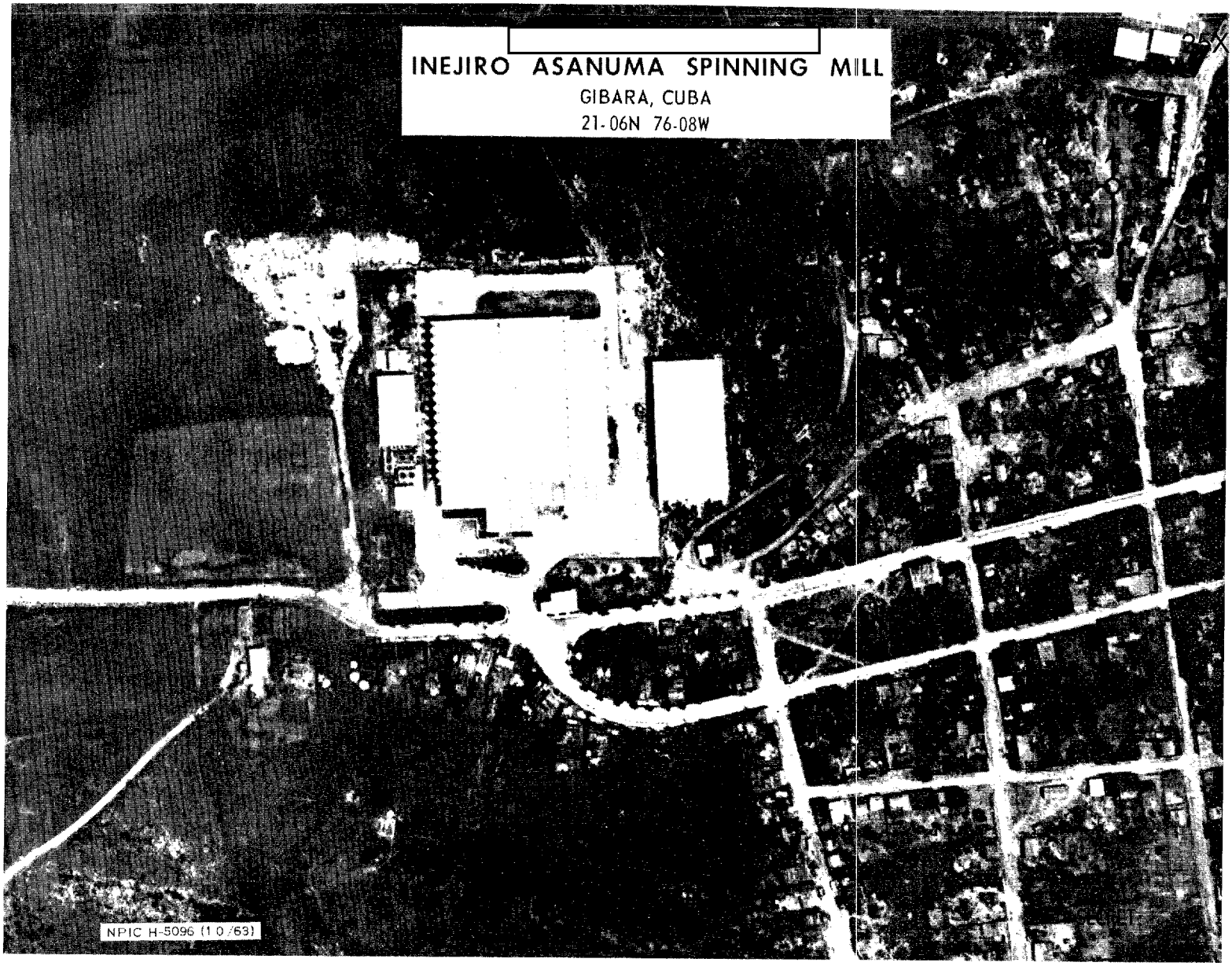

PHOTO #11 NICARO NICKEL PLANT

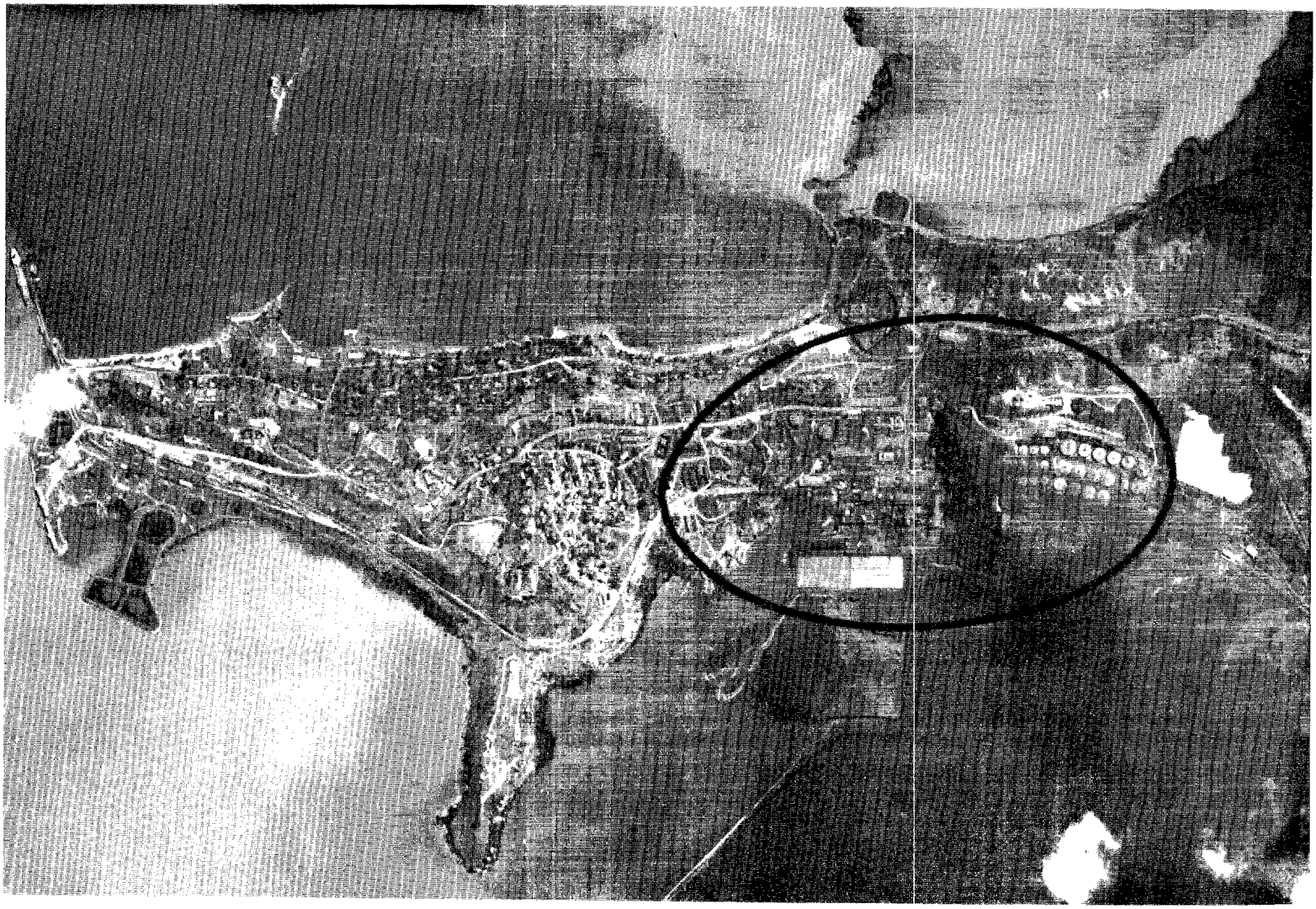

PHOTO #12 MOA NICKEL PLANT