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INFORMATION REPORT

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COUNTRY
Colombia

REPORT NO. [REDACTED]

SUBJECT
Asphalt Mines in the Vicinity of Sogamoso

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- a. The deposits referred to as asphalt mines consist of porous sand aggregate impregnated with a crude petroleum base. The formation is stratified between impervious layers of rock and/or clay.
- b. The Emilia mine, located 1.4 kilometers from the Sogamoso-Pesca road and approximately 18.4 kilometers SW of Sogamoso, is the most promising of three local deposits examined. To determine the extent of the economical recovery of the asphalt-impregnated aggregate would require a number of core-drilled holes. The estimated time for test drilling is approximately 30 days. Due to the length of time required to accomplish the drilling operation, plans for drilling were abandoned. A compass, hand-level survey, and drawing of the Emilia mine show that approximately 2500 cu yds of usable material has been removed from the mine by open pit excavation. Analyses of the petroleum base and sand aggregate samples show that the top exposed face of the asphalt-impregnated sand aggregate indicate a slight deficiency of asphalt, while the bottom shows an excess of asphalt. One half way down the front slope, good density under natural compaction is shown, and the material can be readily compacted to approximate the same density under working conditions. The analysis of liquid asphalt (found at the base of the pit) shows the material to be similar to slow curing liquid asphalt in many respects. The high flash point indicates a content of lighter distillates than is contained in slow curing liquid asphalt, however such lighter fractions will readily evaporate after the material is placed on a roadway surface. The residual asphalt has good qualities for pavement binder.
- c. The Chacon mine, now closed, located about one kilometer from Sogamoso, was examined for possible development. The mine is located on a rocky ridge about 300 to 400 ft above the valley floor, and has never been worked to any extent. There is very little visible indication of asphalt-impregnated aggregate, and much exploratory work would have to be done to justify opening the mine. Economic operation does not seem likely.

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- d. The Guggabo mine, located about 10 kilometers NE of Sogamoso, was examined. The mine is located on a rocky slope approximately 500 to 600 ft above the existing road, and is at present accessible by trail only. Very little asphalt-impregnated aggregate is visible, and only a small amount of exploratory work has been done by the owner. Much core-drilling would be required to determine the extent of economical recovery of the usable material. It is considered that this mine is in the same category as the Chacon mine.
- e. Information obtained from the engineering department at Sogamoso showed an area of 500 thousand sq meters as being considered for street improvement. It was further stated that 200 kilometers of roadway outside of Sogamoso and within the Dept of Boyaca were scheduled for improvement and surfacing. The paved surface of this roadway is to be eight meters wide. The engineer [no name available] in charge of the work stated that plans called for an asphalt surfacing five centimeters in thickness. From the foregoing information it is estimated that 137,500 cu yds will ultimately be required for the street and road surfacing. This is an amount approximately fifty times the estimated amount so far removed from the Emila mine.
- f. Since the time of the investigation of the asphalt mines, the Governor of Boyaca and the Officials of the City of Sogamoso have advised that liquid asphalt (for the purpose of producing an asphalt pavement mix), to meet requirements [redacted] would be transported to Sogamoso and sold [redacted] at cost. This offer was made in view of the possible limitation of the natural asphalt impregnated deposits. Written verification has been requested.
- g. The area around Sogamoso was re-examined for suitable aggregate for plant mix material. Two or more possible sources of material have been located, the most promising being at the Belencito Iron & Steel Plant located approximately 7.5 kilometers NE of Sogamoso. Two sources of material may be available at this plant. One is a high grade of limestone utilized in the production of steel, and the other is slag, being the waste product of steel manufacture. In addition to the aggregates, coal tar, a residual product from the manufacture of coke, is available for use as a binder in a plant mix pavement material. Officials of the steel plant have indicated that these materials would be made available [redacted] and are quoting prices and giving estimated quantities of production in accordance with [redacted] request.
- h. Conclusions and Recommendations: The use of asphalt-impregnated sand aggregates in the US has never been competitive with graded aggregates mixed with suitable liquid asphalt or coal for binders. For this reason it is believed that the sale of natural asphalt-impregnated materials in the area of Sogamoso will meet with the competition of a superior and possibly cheaper plant mixed product from the sources described. Information available to date indicates the Emila mine should be opened and developed by modern mechanical methods as quickly as possible in order to satisfy immediate demands. It is further indicated that an asphalt plant should be installed as near as possible to the Belencito Iron & Steel Plant."

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INDUSTRIAL REGISTER

[Available on loan from CIA ~~Map Library~~ is a sketch map of La Emilia mine; horizontal scale, 1 cm : 10 ft; vertical scale, 1 cm : 4 ft. Call No. _____

[Available for inspection and selection in CIA Graphics Register are eight photographs of La Emilia mine:

1. Entrance to the pit
2. Face of the pit
3. View giving indication of depth of overburden
4. Another view showing overburden from east side of pit
5. Entrance of pit, showing small asphalt seepage
6. Seepage at east side of pit
7. Asphalt-impregnated sand aggregate, west side of pit
8. View from above and west of the pit, showing extent of the work.]

MAP AND PHOTOGRAPHS CLASSIFIED CONFIDENTIAL

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