

**DELIVERY SHEET**

**NAME OF THE PROJECT: DIRECT COAL LOADING AT SANTA MARTA MARITIME TERMINAL.**

**CATEGORY: ENVIRONMENT IMPROVEMENTS.**

**PORT FACILITY: SANTA MARTA PORT SOCIETY (SOCIEDAD PORTUARIA DE SANTA MARTA S.A.) - SANTA MARTA COAL OPERATOR LTDA. (OPERADORA DE CARBON DE SANTA MARTA LTDA. - CARBOSAN LTDA.)**

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**REPORT TITLE: DIRECT COAL LOADING AT SANTA MARTA MARITIME  
TERMINAL**

**NAME OF PETITIONER: SANTA MARTA PORT SOCIETY (SOCIEDAD  
PORTUARIA DE SANTA MARTA S.A) - SANTA MARTA COAL OPERATOR  
LTDA. (OPERADORA DE CARBON DE SANTA MARTA LTDA. - CARBOSAN  
LTDA.)**

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**DELIVERY DATE: JUNE 15, 2007**

## **INDEX OF SUBJECTS.**

### **INTRODUCTION**

#### Outstanding points

This is a project that has had a unique ingredient; the compromise and responsibility of confronting the social, that it is reflected not only in a healthier environment but among other aspects, the workers, welfare that are directly involved with the project and their families, which makes it the most ambitious project of mitigation impacts, well-known in a port facility coal handling, which by means of using edge technology, gets to migrate towards the systematic mitigation of fundamental impacts on the visual, in the quality of water, air, and the relations with the community.

It also assists categorically the sustainable development in all its dimension, to get a friendly environmental operation, on the social, generating employment and supporting the community, and the development, giving a substantial contribution to the of Colombian exterior commerce.

It was developed with own investment, the implementation of a direct coal shipping and all the technology installed, it was a motor so that during the month of December, the certifying SGS headquarter, gave its certification to its Integrated Management based on the norms ISO 14001-2004 and ISO 9001-2000.

## **a) GOALS AND OBJECTIVES**

Developing a project which minimizes the environmental impacts, produced by the operation of loading and unloading coal with barges realized at the Port Facility and Santa Marta Bay, so that optimizes and modernizes the process of receiving, transporting, gathering and loading coal into the vessels.

### **OBJECTIVES**

- Minimizing the emissions of particle material due to the handling of coal in the yards, since its unloading until its loading into the vessel.
- To eliminate the risks inherent to barge operations. Three accidents have happened with barges for the last seven years, one of these barges is still submerged at 30 meters deep, and the other two of them were rescued and set afloat again.
- To minimize the impacts caused by coal operations at the Port Facility, in order that could coexist a friendly way of tourism and coal in the Bay.
- To get constituted as a social development generating project in the city.

## **DISCUSSION**

### I) Fondo

The project of technological renovation for the direct coal loading represents an effort that in environmental matters is carrying into effect Sociedad Portuaria de Santa Marta through its filial CARBOSAN. The project was conceived as an engineering project, designed especially for mitigating the impact that produces the coal operation at Santa Marta Port Facility. With over 20 million dollars investment; Santa Marta Port Society (Sociedad Portuaria de Santa Marta) became the only maritime terminal for direct coal shipping in the region.

Santa Marta Port Society (Sociedad Portuaria de Santa Marta) and its filial Carbosan Ltda. in its desire to consolidate the concept port-city within the local context, designed a project that permitted to conciliate the two activities: tourism and coal, in such a way that the latter does not affect the interest of the former, and on the contrary, that it could become one more attraction way, due to the high level of specialization and the particular characteristics of the machinery performing there.

For the development of the document, it is done a brief description on how was carried out the operation, the intention of this purpose it is to present how was performed to mitigate the impacts caused by the emission of particles and the draw off of barges in the Bay of Santa Marta. The project was developed based on

the detection of 7 important points for improving with respect to the initial operation.

The discharge of trucks

The conforming of the gathering

The loading of trucks

The discharge of trucks into the hopper

The loading of barges

The loading of vessels with floating crane

Reduction of water consumption

The designed system is in capacity of attending vessels up to 75.000 of dead weight and 47 feet draught.

## II) OBJECTIVES AND METHODOLOGY

### COMPONENTS OF THE PROJECT OF TECHNOLOGICAL RENOVATION FOR DIRECT EMBARKING OF COAL

System of receiving and gathering:

For handling the impacts produced by trucks discharging, there were constructed and installed two (2) Turning platforms in capacity of discharging (240 trucks daily = 8400 ton daily).

#### BEFORE



#### NOW



At the time of discharging it is applied an AE-35 foamy agent to the coal, and it is also applied at the gathering and storage the sealing agent Impercar 100 to the coal in order to minimize the particle emissions, permitting a better environmental control and reducing the consumption of water.

NOW



It was installed a system for transporting material through covered conveyor belts and a pipe conveyor to eliminate the gathering with fork lift trucks and hydraulic backhoes, these two devices minimize the emissions of coal dust, and a radial gatherer that makes the hoarding progressively while it grows, reducing the emissions of dust by the fall of the coal.

BEFORE





NOW



For controlling the emissions during the coal gathering, there were constructed perimeter fences that fulfill two functions, the first one acts as a protection barrier for the hoardings against the winds, and at the same time isolate the material to get in contact with the hill that surrounds the gathering yard, it was additionally installed a sprinkle system with canons and hoses through which it is applied foam that form a layer to protect the gatherings of the eolian action. Finally, the gathering yards are surrounded by windbreak meshes in order to minimize the winds.

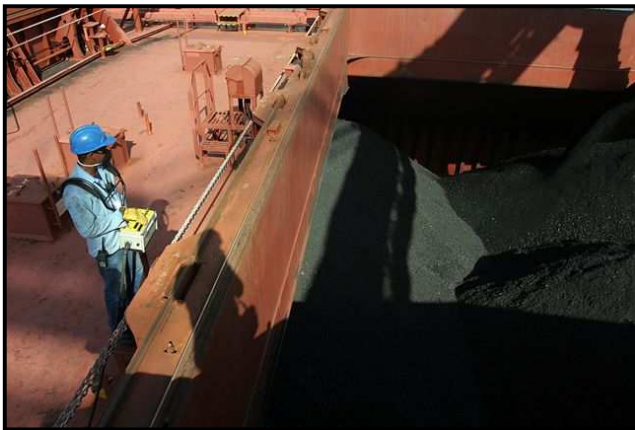
#### LOADING SYSTEM

It consist of a radial vessel loader, the first of this type on tires, with an elevation of 29 meters, with a band of 48", variable velocity, and a designed capacity for gross loading of 2000 ton/hour.

#### BEFRORE



NOW



The variable velocity permits to handle special coals with minimal degradation and minimal dust emissions.

This loader has a remote control system operated from the deck of the vessel. This guarantees the success of the operation. Its movement is radial and it can fill up three warehouses at the same time.

III) How is fulfilled the project with the prize and the criterion.

The level and nature of benefits to environmental quality, beautification or community involvement;

With this project, Santa Marta Port Society (Sociedad Portuaria de Santa Marta) through its filial Carbosan Ltda., has improved Santa Marta Bay environment quality, getting rid of the continuous trafficking of barges with their inherent risks to this type of operations; such as sinking or running aground.

It minimized the emissions of particular material, achieving the environmental legislation fulfillment in matters of air quality.

The project, in its construction stage and assembling generates 2200 employments like this: 1750 indirect employments, 450 direct employments, which 50% are about local manpower. It generates 90 employment linked exclusively with the operation at the moment, in this way 90 families of the city have improved their living standards.

The level of independent involvement and effort by the port.

Santa Marta Port Society (Sociedad Portuaria de Santa Marta) through its filial Carbosan Ltda., invested more than US\$20 million dollars on a project of rationalization technology adopted by the Environment Ministry, on a modern infrastructure for direct coal shipping coming from Cesar and La Guajira with all the standards for a satisfactory environmental performing. For the storage of the

coal, the Port facility is in possession of two yards with a total capacity of 5 million tons a year. Both, Santa Marta Port Society (Sociedad Portuaria de Santa Marta) and Carbosan Ltda. count with the certification ISO 9001-2000 in its quality management system and ISO 14001-2004 in its environmental management system.

The creativity of solution, or program solutions

All of this technology was acquired through the investigation of experiences in other fields, such as the handling of fair bulk, conveyor belts that work at major, or lesser scale in different places of the world, and as part of projects different than coal and from which were obtained analysis of environment and technological advantages that makes of this actual project a friendly project with the environment, with edge technology and high operating performance.

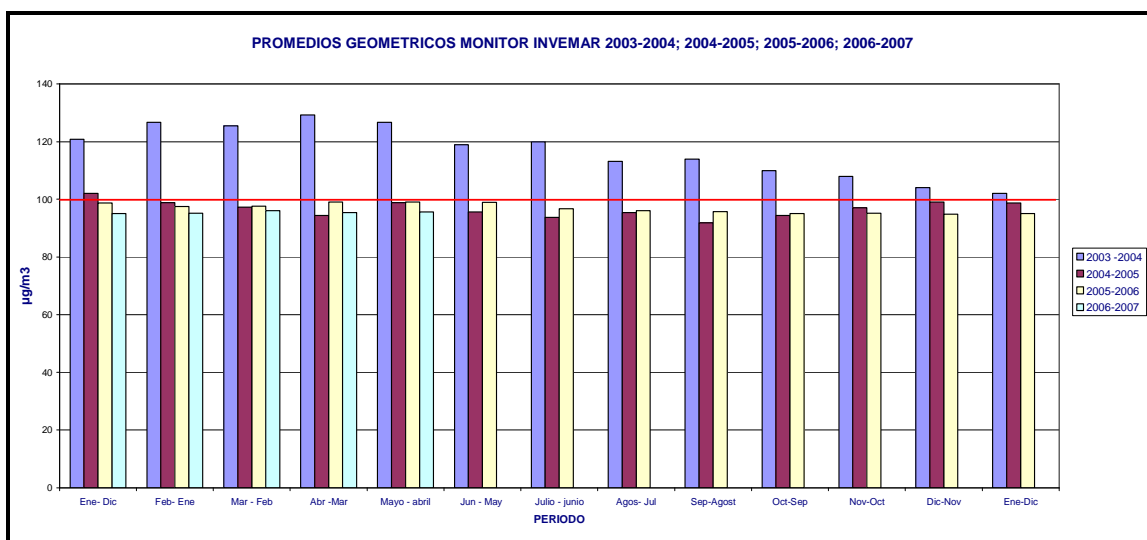
Whether the project or program results are apparent (the project must be complete through some beneficial increment)

The benefits of the project are reflected in benefit for the community, thanks that it was eliminated the indirect shipping through barges, it was decreased the emissions of particle material into the atmosphere, last year were moved more

than 300% tons of coal, with emissions that comply with the requirements of the environment competent authority, which reaches a decrease of 23% with respect to previous direct loading results. All of this added to the generation of employment, that it is given to local people, and the economic benefits and welfare that this brings to families that are going to be benefited.

Reducing up to 23% on concentration of particle material during the operation of receiving, storing, and loading into vessels. (Invemar Monitor), with respect to levels obtained in former operations.

### **Invemar Monitor Geometric Averages 2003-2004:2004-2005:2005-2006-2006:2006-2007**



The red line in the graphic shows the maximum permitted limit by the actual established norms, for particle materials in the air, you can note the decrease and compliance with the geometric average (average demanded by established norms).

The activity efficient expenses, or the program.

Thanks to this project, Santa Marta, City and Maritime Terminal have attended ten cruise ships up to now in 2007, the Port Facility has assisted more than 17.200 international tourists, this, needless to say, that during the last touristic seasons, the city has overcome 90% of hotel occupancy.

The transferability of the technology or idea to the port industry.

After the implementation of the direct loading project at Santa Marta Bay, the national government has found a project that complies with the philosophy of sustained development, and so, at the moment, it is carrying out a study about the implementation of direct loading systems in other Maritime Terminals in the city and Magdalena, Department.

## CONCLUSION

The direct loading project implemented by The Santa Marta Port Society (Sociedad Portuaria de Santa Marta) through its filial Carbosan Ltda. have effectively produced impacts in the community, positive impacts that are reflected on none operation with barges, a coal loading through a modern, clean, optimum process

that contributes on improving the workers of the sector a better level and standards of living, and in general to the sustainable development of the city.