



# Haulage Efficiency Improvement Project Report

**Global Barrier Coatings, Inc.  
Western Mesquite Mines, Inc.  
Brawley, California USA**

Presented to: Western Mesquite Mines, Inc.

Date: October 7, 2010

Submitted By: Gordon Davies  
President, Director  
Global Barrier Coatings, Inc.



**Certified EcoLogo™ Licensee**

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	Exhibit A – MR-100 Spec Sheet	

# 1.0 Project Overview

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**Global Barrier Coatings, Inc.** personnel were on site at **Western Mesquite Mines, Inc.**'s mine site in Brawley, California from October 4-6, 2010 to perform a demonstration of the **MRA** product. The project is designed to demonstrate the effectiveness of the **MRA** product in preventing materials from building up in the trays of haul trucks.

Information collected from **Western Mesquite Mines** prior to the site visit indicates that the trays of the haul trucks can accumulate significant (10-15%) ore build-up (carryback) over a very short period of time (estimate < 4 x load/haul/dump cycles). Carryback is caused primarily by the high moisture content (approx. 20%) of the ore being hauled and is not weather related.

These conditions create carryback that;

- Reduces the actual payload of the truck by 10-15%
- Requires additional cycles per truck, resulting in increased wear on equipment, tires, etc.
- Increase the amount of time it takes to clean the mine haul trucks
- Increase the frequency of cleaning
- Increase the potential for damage to truck trays from cleaning using an excavator (backscratching)

**Global Barrier Coatings, Inc.** and **Western Mesquite Mines, Inc.** initiated a trial demonstration to apply the **MRA** product to the trays of selected haulers. The success and effectiveness of the product has been measured as a function of increased throughput and reduced cycles.

The data from the Trial Demonstration Project shows that use of the **MRA** product:

- Substantially reduces, if not eliminates, the occurrence of carryback in haul truck trays, thereby maximizing payload
- Reduces the number of cycles required per truck through maximizing payload
- Maximizes throughput by utilizing 99% of haulage potential
- Substantially reduces the time and frequency of cleaning the trays, thereby decreasing downtime and increasing availability
- Reduces wear on equipment, tires, etc. through fewer cycles
- Reduced potential for damage to truck trays by cleaning with excavator

The Project Application Procedures have been designed to provide operational continuity not only for the trial demonstration, but also as standard operating procedure going forward. The procedures and process can be integrated into the existing maintenance and production system.

Specifics:

- The average application volume per truck of the **MRA** product was 2 gallons.
- The Project series included 2 x Terex MT3700 200 t heavy haulers (trucks #502 & #504). Other trucks of the same model were left untreated over the course of the demonstration for benchmarking purposes.
- Both trucks were thoroughly cleaned out prior to demonstration project – Note that #502 had a small amount of build-up in the left front of the tray that could not be removed. #504 was 100% clean.
- #502 went online at 12:00 pm and #504 went online at 4:00 pm.
- Both trucks ran for a total of 48 hours
- Total of 19 applications of **MRA** between the two trucks
- 130 loads per truck (260 loads total) using 40 gallons of **MRA**
- At the conclusion of the demonstration, only #502 had a small amount of build-up on the left front corner that was not clean to begin with. #504 was completely clean.
- Haulers that were sprayed with the **MRA** product averaged 25 cycles between sprays and shows little to no accumulation of carryback.
- Haulers that are not sprayed with the **MRA** product average < 4 cycles before accumulating 10-15% carryback.
- The Project haulers assigned to the Demonstration Project were monitored, inspected and photographed to document the progress of carryback build up.

***It is important to note that that the longer MRA is in use, the better it performs. Extended usage allows the product to effectively penetrate the metal of the truck tray, creating a longer lasting, highly slick surface. Application frequency may drop to once per shift after 60-90 days of continuous use.***

**UNTREATED HAUL TRUCKS WITH 10% - 15% CARRYBACK**



**TRUCKS #504 & #502 WERE USED FOR THE DEMONSTRATION**



**#504 – Tues. a.m. – after 12 hours on 1 spray**

**#504 – Tues. p.m. – after 12 hours on 2 sprays**



**#502 – Tues. p.m. – after 12 hours on 2 sprays    #502 – Wed. a.m. – after 12 hours on 1 spray**  
*(note chunk on left front corner – could not be removed during original cleaning)*



**#504 – Wed. a.m. – after 12 hours on 1 spray**

**#504 – Wed. a.m. – after 12 hours on 1 spray**



## 2.0 Business Case

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### **General Business Considerations and Assumptions for Western Mesquite Mines, Inc.**

- 16 x **Terex MT3700 AC drive 200 ton haulers**
- 14 haulers in operation at any given time
- 3-4 x load/haul/dump cycles per truck per hour (15-20 minutes cycle time)
- Average application of 2 gallons **MRA** per truck
- Application frequency = 2 x per shift (once at shift change, once at either of 2 breaks)
- 120 applications per unit monthly (30 days) x 14 units x 2 gallons = 3,360 gallons/month
- Costs associated with shipping and logistics
- Costs associated with training and technical support
- Costs associated with application systems and maintenance
- Savings associated with reduced truck cycles resulting from use of **MRA**
- Savings associated with reduced equipment/tire wear and operational costs resulting from use of **MRA**
- Savings associated with reduced risk of damage to truck trays from cleaning with excavator

## 3.0 Proposal

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### **Ongoing Use of MRA Product & Application Equipment**

Based upon the results of the Project described above, we propose the full scale implementation of the **MRA** product and application equipment at the **Mesquite Mine**.

Application of the **MRA** product can be via portable, hand-held spray systems or via fully automated, drive-under system. We recommend that **Western Mesquite Mine** begin with three (3) portable, spray application units as an interim measure in order to determine whether or not a fully-automated, drive-under system is desired. Two systems are to be in regular use and the third is to be held in reserve as a backup. These units will be electrically powered, hand spray systems that will draw directly out of a 275 gallon IBC tote container.

**Global Barrier Coatings, Inc.** will train designated **Mesquite Mine** employees on the correct application procedures for the **MRA** product and on the operation & maintenance of the powered spray systems.

## 4.0 Scope of Supply

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**Global Barrier Coatings, Inc.** proposes to supply the following product(s), equipment and services:

### 4.1 MRA PRODUCT

### 4.2 EQUIPMENT

Three (3) gas powered hand spray systems. Each system is comprised of:

- One (1) engine – Honda GX OHV
- One (1) diaphragm direct drive pump – 5 gpm @ 350 psi
- One (1) 100 gallon onboard tank with extra thick walls
- One (1) flow meter
- One (1) stainless steel spray wand
- One (1) spray handle with trigger
- One hundred and fifty (150) feet of 3/8" hose
- One (1) manual rewind hose reel
- One (1) steel 2.5" tube frame
- Skid for truck mounting
- Three (3) appropriately sized spray tips
- One (1) spare parts kit
- One (1) operation and maintenance manual

### 4.3 SITE PERSONNEL

One (1) **Global Barrier Coatings, Inc.** Application Technician for a period of two (2) days on site for equipment set-up/calibration, and operator training.

### 4.4 PRODUCT & EQUIPMENT DELIVERY

**MRA™** product and Electric Powered Spray Application Systems to be shipped Ex-Works **Global Barrier Coatings, Inc.** blending & fabrication facility in San Clemente, CA.

## 5.0 Commercial

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Pricing for the product(s), equipment and services described above is as follows:

**5.1 GLOBAL BARRIER COATINGS, INC. MRA:**

\$ per gallon

**5.2 GASOLINE POWERED MANUAL SPRAY SYSTEMS**

As described in 5.2 above  
Detailed breakdown attached – Exhibit A

\$ per unit

**5.3 FREIGHT & LOGISTICS**

Billed at cost against receipts or handled directly by Western Mesquite Mine

**5.4 SITE PERSONNEL**

As described in Section 5.3 above for set-up, calibration of application equipment, operation and maintenance training:

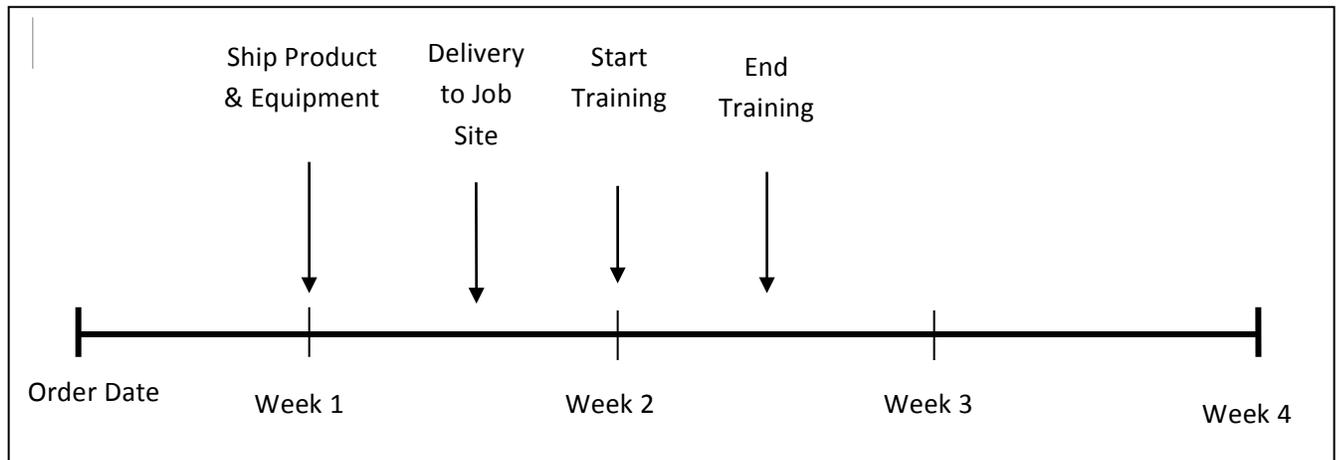
1 man @ \$650 per day x 2 days site time	\$
Hotel & meals x 2 days	\$
Mileage – no charge	\$

\_\_\_\_\_

\$

## 6.0 Estimated Timeline

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## 7.0 Validity

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**This Proposal is valid for a period of 30 days.**

Thank you very much for affording us the opportunity to work with you on this important project. Please feel free to call on us if you would like clarification or any additional information. We are looking forward to working with you and the Mesquite Mine team on this project.

Sincerely,  
**Global Barrier Coatings, Inc.**

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President, Director  
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## 8.0 Proposal Acceptance

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This document acts as a binding Contract between **Global Barrier Coatings, Inc.** and **Western Mesquite Mines, Inc.** (Client).

As per the Contract, **Global Barrier Coatings, Inc.** will complete the scope of services and provide final deliverables. **Global Barrier Coatings, Inc.** will complete the project per the specifications put forth in the Contract.

By initialing acceptance of project scope and signing below, **Western Mesquite Mines, Inc.** agrees to award the work outlined in this proposal to **Global Barrier Coatings, Inc.** per the Contract specifications.



10/7/10

\_\_\_\_\_  
Gordon Davies  
President, Director  
Global Barrier Coatings, Inc.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date