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ALON

Ocean Wave

PANDIMAN PHILIPPINES Inc. P&I Correspondent in the Philippines

Topics of interest relating to the Philippine Maritime Industry and Shipping

WARNING OF WET NICKEL ORE CARGO IN BULK FROM SURIGAO PHILIPPINES

Due to current frequent rain in the area of Surigao, Mindanao, we have a very high number of vessels wherein our attendance on board to monitor the loading of nickel ore is causing concern. Further that our advice the cargo is unsuitable to load in line with the IMSBC is not being considered.

This has resulted in situations locally, during loading operations where our surveyors have been seriously threatened for rejecting barges with wet cargo. That Masters of vessels despite advice not to load the cargo do so. Where a ship owner and their club have insisted that a cargo undergo independent analysis then the cargo has been found with a significantly higher moisture content than that declared on the Shippers declaration for Transportable Moisture Limit (TML) and Moisture Content.

The consequences of a nickel ore cargo liquefying can be catastrophic



Pandiman Philippines Inc.
Pandiman Building
General Luna Street
Intramuros
Manila

Tel: 527 7831 to 40

Email mis@pandiman.com

Visit us at
www.Pandiman.Com

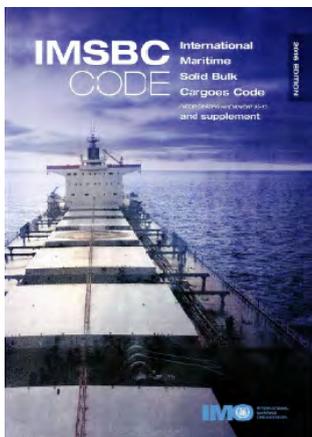
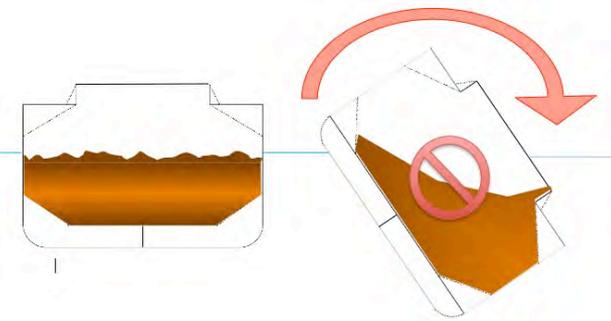


Loading of Nickel Ore Surigao, Philippines, concerns of cargo being beyond TML

Pandiman Philippines Inc., and its Surveying company Survey Specialists Inc, when appointed to attend a vessel by the owner and their P&I Club are not there to load the vessel. The role of the attending surveyor is to provide advice and raise concerns to the Master when identifying obviously wet cargo and to reject the cargo from being loaded on board the vessel. Cargo that is not rejected and loaded, should not under any circumstances, be assumed safe for carriage and in compliance with the IMSBC. The code (IMSBC) has a safety factor built into it, a 10% safety margin therefore visually a cargo can look reasonable but will fail in a laboratory. A person can not detect the moisture percentage in a cargo from visual inspection alone. The code however is the law as it is incorporated into SOLAS, (Safety Of Life At Sea) even a 0.1% fail under the code renders the cargo unsafe.

Nickel ore, when the moisture content is above the TML, (Transportable Moisture Limit) the cargo can liquefy with catastrophic results. The liquefaction of a nickel ore cargo is not like free-surface effect of a liquid but is when due to vibration and movement a solid now acts like a liquid, it is a dynamic shift. The effects of liquefaction is so dramatic that in discussions with sole survivors off two vessels we undertook search and rescue in the South China sea, the vessels rolled over and capsized in less than 30 seconds.

A picture speaks a thousand words;



2016 IMSBC

A person can not, by visual inspection alone of a cargo of nickel ore, determine that it complies with the specific parameters of the International Maritime Solid Bulk Cargoes Code. (IMSBC).

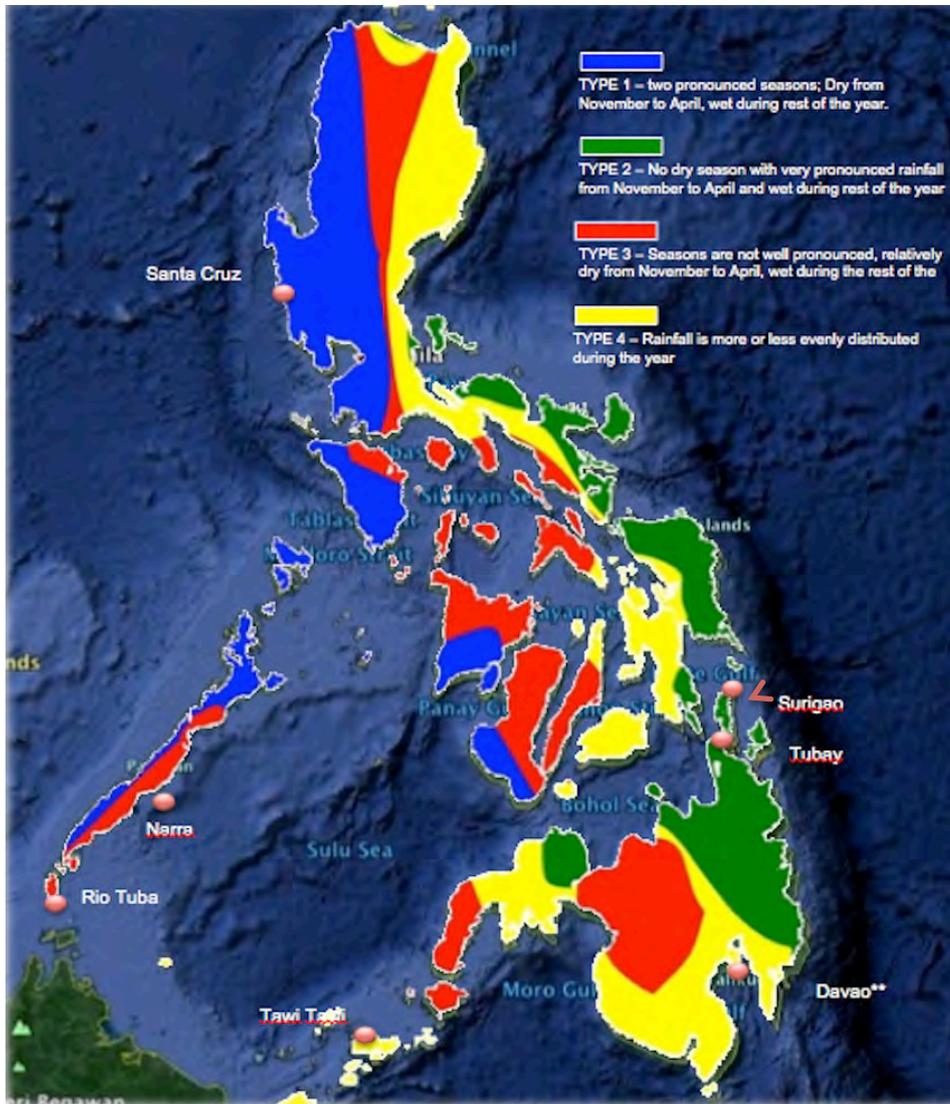
A person by conducting certain rudimentary tests in the field through observations can advise on concerns that a cargo appears to show obvious signs of high moisture and that a cargo should under go independent analysis for Moisture and FMP to determine if it complies with the code.

To load a vessel is an owners decision in conjunction with the Master of the vessel, which under his command the Master has full responsibility for the safety of the crew and the vessel. If the decision is made to load the vessel based on the certificates issued by the shipper and the local mine, then experience where samples have been tested by independent laboratories shows that these have been in some considerable error. The documents supplied to vessels prior to loading normally are not accompanied with details of the parameters of the testing of the nickel ore samples or



protocol utilized.

Climate



Surigao

TYPE 2 – No dry season with very pronounced rainfall from November to April and wet during rest of the year

There is a very common misnomer that there is a “Dry Season” for the loading of nickel ore from the Southern Philippines, this is not correct. It can rain anytime of the year and does, however there is far more pronounced rain-fall from November to April. However through September and October we have observed a very wet period.

Current concern is that all cargo located in this area is wet because of the heavy rain, the cargo is normally stockpiled exposed to the elements and carried to the vessels in open top tank landing craft. The safe carriage of nickel can only be established through laboratory analysis and a scientific test to see at what moisture content the cargo will liquefy at.

This establishes the;

- FMP - Flow Moisture Point
- TML - Transportable Moisture Limit

The relationship is fairly straight forward; the FMP is determined in a laboratory and is the moisture content at which

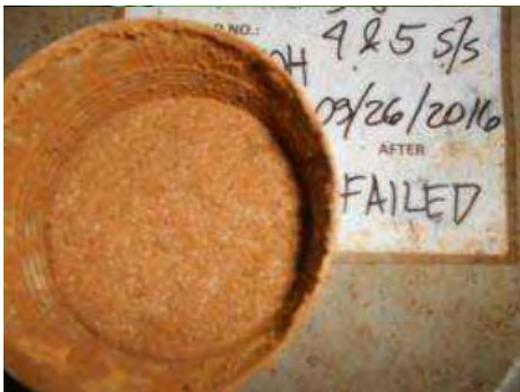


analysis of representative samples of the cargo will liquefy. The TML is calculated at 0.9 (90%) of the FMP or allows a safety margin of 10%.

There are several Field tests to evaluate a cargo for concerns as to whether it is beyond the TML,

The Can Test

This is a simple test and as the term implies (can test) a metal can is suitable, such as a coffee tin, paint tin (but must be clean). Take about 1 to 2 kg of the ore and place it in the tin, repeatedly slam the can the bulk code says 25 times, **if the ore remains the same** then there are no obvious signs of moisture, if it shows any signs of liquefying (very obvious will be where free water appears on top **or takes on a shiny flat appearance**) then the cargo should be **rejected and not loaded**.



A failed test – flat pancake appearance- - FAIL carry out laboratory analysis of cargo

A can test **should never be used as a basis alone to determine if a cargo is safe to load**, a can-test is a rudimentary field test to try and observe if there is obvious signs of moisture, it is not a method for loading a vessel. The only way to determine a cargo meets the IMSBC is through a laboratory analysis. Even cargo that can show no obvious signs of moisture in a can test will still fail an analysis when observed to Plasticise (see below) or Splatter, as for this to occur the cargo is already beyond its FMP. Can tests have become even more unreliable in the Surigao area because of the high clay content of the nickel ore.

When we discuss “obvious signs of Moisture” this is not necessarily referring to actually seeing water, if water is clearly visible at any time this is “free water”

Grab Test

This is when a sample of cargo is placed in the hand, the sample is compressed, if on opening the hand the sample retains its shape this is evidence of High moisture – FAIL carry out laboratory analysis of cargo



When a sample can be molded and retains a shape we say it has “Plasticised”, to have the ability to do this then moisture must be present.



Splat Test

A handful of product is thrown against a steel surface if any or all sticks to the steel, signs of moisture, if it sticks and stays, high moisture, all a FAIL - carry out laboratory analysis of cargo

Splatter

Any sign of splatter in the hold, large or small this indicates high moisture – FAIL - carry out laboratory analysis of cargo



The safe carriage of the cargo is determined by the IMSBC

Section 4.3.1 – “Certificates of test” – “ To obtain the information required in 4.2.1 the shipper **shall** arrange for the cargo to be properly sampled and tested. The shipper shall provide the ship’s master or his representative with the appropriate certificates of test, if required in this code”.

(The IMSBC Code now uses the word shall)

Given the geography of the Philippines and intensity of tropical rain showers, coupled with the open stockpiling of the cargo exposed to the elements then very important (however we do not see it being enforced) is Section 4.5;

4.5 Interval between sampling/testing and loading for TML and moisture content determinations

Section 4.5.2 –“Sampling and testing for moisture content shall be conducted as near as practicable to the time of loading. If there has been significant rain or snow between the time of testing and loading check tests shall be conducted to ensure that the moisture content of the cargo is still less than its TML. The interval between sampling /testing and loading shall never be more than seven days.

Given that the IMSBC is part of SOLAS (Safety Of Life At Sea), the Master has every authority for the safety of the vessel and her crew to seek testing and clarification of the moisture content of the cargo.



Political issues involving the Nickel Ore Trade

The bulk of the cargo is loaded in the Southern region of the Philippines in Mindanao, the loading areas are private enterprises. Currently the shippers/mines are not allowing any access to their facilities because we had discovered that there was no proper stockpiling and that testing procedures/protocol were flawed. This was also evidenced by experts on the occasions they accompanied our surveyors. That cargo was also coming directly from mine pits with no analysis in between the pit to the vessel.

This has led to the difficult situation wherein if our surveyors are rejecting cargo they come under very serious threats, even death threats.

It is difficult for foreign experts to currently travel to the area as most Embassies have strict travel warnings about going to the region. There are numerous terrorist groups conducting bombings and kidnappings, one sadly resulting in a Canadian Manager of a mine being beheaded. Philippine military forces are at war with several factions. You may refer to your own Embassy website the link to the UK FCO is:

<https://www.gov.uk/foreign-travel-advice/philippines>

The Foreign and Commonwealth Office (FCO) advise against all travel to south-west Mindanao and the Sulu archipelago because of on-going terrorist activity and clashes between the military and insurgent groups. The FCO advise against all but essential travel to the remainder of Mindanao for the same reasons.

A bomb attack on a market in Davao City, Mindanao, killed more than a dozen people on 2 September 2016. The FCO already advise against all but essential travel to eastern Mindanao, including Davao City, and against all travel to the rest of Mindanao.

The Philippines government has declared a "state of national emergency on account of lawless violence in Mindanao". Expect heightened security measures including in airports and other major transport hubs. You should co-operate with the Philippine authorities and allow extra time to pass through security.

There are further significant issues and this relates to the fact that the Philippine Government is suspending mines for environmental issues, the government recently issued the following statement;

"We have had mining in this country for over a hundred years and until now we don't even have one rehabilitated mine. Just gaping holes, destroyed rivers, children with brain disease".

The government authorities which oversee mining operations are;

MGB - Mines and Geosciences Bureau

DENR – Department of the Environment and Natural Resources.

The DENR has released a list of mines facing suspension (we have high-lighted those involved in the nickel ore trade);

- Libjo Mining Corporation **-(NICKEL ORE)**
- AAM-Phil Natural Resources Exploration and Development Corporation - Parcel 1 and Parcel 2B - **-(NICKEL ORE)**
- Krominco Incorporated
- Carrascal Nickel Corporation- **-(NICKEL ORE)**
- Marcventures Mining and Development Corporation- **-(NICKEL ORE)**
- Filminera Resources Corporation
- Strongbuilt Mining Development Corporation
- Sinosteel Philippines HY Mining Corporation



- Oriental Synergy Mining Corporation- -(NICKEL ORE)
- Wellex Mining Corporation- -(NICKEL ORE)
- Century Peak Corporation - Rapid City Nickel Project and Casiguran Nickel Project- (NICKEL ORE)

- Oriental Vision Mining Philippines Corporation- (NICKEL ORE)
- CTP Construction and Mining Corporation- (NICKEL ORE)
- Agata Mining Ventures Incorporated- (NICKEL ORE)
- Hinatuan Mining Corporation- (NICKEL ORE)
- Benguet Corporation
- Lepanto Consolidated Mining Company
- OceanaGold Phils, Incorporated
- Adnama Mining Resources, Incorporated-(NICKEL ORE)
- SR Metals, Incorporated- (NICKEL ORE)

Also 11 mining firms that are not recommended for suspension, but will continue to be monitored. They are:

- Philex Mining Corporation
- Rio Tuba Nickel Mining Corporation-(NICKEL ORE)
- Atlas Consolidated Mining and Development Corporation
- Techiron Resources Incorporated
- Cagdianao Mining Corporation- (NICKEL ORE)
- Taganito Mining Corporation(NICKEL ORE)
- Platinum Group Metals Corporation(NICKEL ORE)
- Greenstone Resources Corporation
- Philsaga Mining Corporation
- Pacific Nickel Philippines, Incorporated(NICKEL ORE)
- Apex Mining Company Incorporated

One vessel we are currently attending has already been affected by these issues;

<http://newsinfo.inquirer.net/822187/ship-stopped-from-loading-ore>

Current advice

We are involved in a significant number of vessels wherein an independent laboratory analysis had established the FMP was 35% not 40% as declared by the mines and the actual TML 31%. The cargo loaded had moisture content well beyond the TML and not compliant with the IMSBC.

This has resulted in very serious situations for the owners and P&I Clubs involved looking at significant costs and delay to take remedial actions.

In order to avoid similar situations we would strongly recommend that prior to loading that intended nominated cargo is tested independently to ensure that it complies with the IMSBC Code for safe carriage.

For more details on Nickel Ore locations and loading in the Philippines we have a PDF document that can be emailed if required.

Andy Malpass
Pandiman Philippines Inc.
Manila



