IMIA Short Paper by Infrassure (March 2011)

Guarantee on repairing works and entrepreneurial risk
MB in IAR – new for old instead of actual value

Type of Insurance:

IAR- Industrial All risk (including Machinery Breakdown and BI)

Description of Damage:

Short circuit between secondary bars of an 85 MVA arc furnace transformer

Claim amount:

USD 3,000,000

Description of the event and measures taken:

In June 2008, as scheduled in the maintenance program, the administration of a Venezuelan steel making company proceeded to replace the 70 MVA transformer that was feeding the Fusion Furnace with an 85 MVA transformer, which had been stored at their premises since it was purchased in 1994. Operation was resumed and normal operating conditions were maintained until 10:30 am on 13th October, when a number of protections were activated and a leak of oil was observed. It was confirmed later that there had been a short circuit between secondary bars.

In order to avoid a loss of production, the Insured incurred emergency expenses when replacing the affected transformer with another 75 MVA transformer that was stored as a back-up unit.

Background

The transformer was manufactured by ABB Norway in 1994 as a spare transformer. After the failure, ABB Brazil was invited for a preliminary inspection of the active part by manhole accessibility only, and an initial post-failure inspection report was issued.
The report concluded with two important facts: in order to understand the origin of the short circuit and the extent of the damage, the disassembling of the active part (de-tanking of the equipment) and an inspection by specialists was required; this repair can only be carried out at the plants in Europe (Spain or Norway) where they have the expertise and resources for the intervention of “shell type technology” transformers.
The loss adjuster immediately began to search for a specialized company able to provide the de-tanking service as, given the dimensions and weight of the equipment, the de-tanking was not possible for the Insured. Specialists (former ABB employees, currently retired) were also contacted by the Loss Adjuster in order to discover the cause and extent of the damage.

Picture 1 shows the disassembling activities

This second inspection was finally carried out with the assistance of these ex ABB specialists during the week 8th to 12th June 2009 and during the inspection it was necessary to remove the elements connecting the active part of the transformer to the tank. Amongst the elements removed, together with the cables and pins, were the vibration absorption bars.

Picture 2 shows bar links to phase C

Cause

After the analysis of the bars it was discovered that one of them had signs of burning and rupture of the superficial copper sheets that make up the parts.

Picture 3

Picture 4

Picture 5

Pictures 3 to 5 show the bar and copper sheets that produced the short-circuit

It was observed that the bars were bolted to a surface by bolt heads with sharp, cutting edges which could have been the cause of the deterioration of the laminates and subsequent short circuit. In addition, the specialists advised that the bars were not long enough, which could have contributed to the acceleration of the rupture process.

Coverage

It was evident that the origin of the short circuit was an error in the design and manufacturing of the bars, for which the machinery breakdown section of the policy provides coverage.

Decision: repair versus replacement

This is where the discussion point arises. When the repair work of transformers of such a size and/or technology requires the intervention of the winding, it is mandatory to send the equipment to the manufacturing site. Among other reasons, it is only at the manufacturing site that it is possible to make the necessary electrical test in order to provide a performance guarantee.

After the second inspection, specialists determined that the winding was not affected and that repair was possible in situ provided new bars were redesigned and supplied. This repair would include certain electrical tests but not those which would guarantee there would not be further short circuits. Nevertheless specialists argued that the transformer would be returned to the same operational condition (14 year old equipment) as before the damage, possibly even better, as the faulty part was exchanged resp. modified and improved.

The Insured, given the lack of guarantee, insisted on a new transformer and proceeded meanwhile with the repair at their own expense (USD 500.000) of the damaged transformer.

Conclusion

The Insured placed the order for a new transformer.
The insurance markets – by granting MB under IAR – increasingly give new for old coverage plus emergency expenses incurred. The affected transformer, once repaired, was set up as an additional back-up unit and the insured was clearly in a better situation than before the loss had occurred. .

Questions are:

- Should guarantee issues not have been considered as entrepreneurial risk resp. decision?
- How much of the entrepreneurial risk is the Insurance responsible for?
- Is the insured entitled to a guarantee on repair works at all, especially for old equipment?
- Was this guarantee argument enough to claim for a new transformer?
- Is new for old appropriate for MB under IAR or does it contradict the betterment ban?

In cases like this one, clients of course prefer new equipment and use the high OEM repair costs as a supporting argument.

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