

«TERRITORIAL GENERATING COMPANY-2» OJSC
(«TGC-2» OJSC)
MAIN ADMINISTRATION IN ARKHANGELSK REGION
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«Northern Interindustry Company
«The Alternative» Ltd
For the attention of Chief Engineer
V.I. Manykovsky

Appraisal report
on RAH heat exchange elements usage

There are 4 ТГМЕ-464 power boilers operating under supercharge at Severodvinsk CHP-plant. As the main fuel type mazut of M-100 type is used.

In 2006 in a boiler unit No.5, the replacement of heat exchange elements of hot and cold ends was executed. The heat exchange elements were replaced by the improved CMKA® heat exchange elements produced by «Northern Interindustry Company «The Alternative» Ltd.

During the period of under control operation after RAH CMKA® heat exchange elements replacement, quick tests of a boiler unit No.3 were carried out to determine technical and economic parameters of the boiler functioning and to correct parameter chart.

The results are as follows (steam load equals 450t/h):

№	Parameter	Operation tests data	
		before repair	after repair
1	Fuel	Mazut M-100	
2	Steam capacity, t/h	450	450
3	Heat loss with released gases q_2 , %	6.64	6.12
4	Air temperature at RAH inlet, °C	83	92
5	Temperature of released gases, °C	180	159
6	RAH flows, %	31.6	15.4
7	RAH resistance by air, kg/m^2	110	55
8	RAH resistance by gas, kg/m^2	130	65
9	Difference between gas temperature before RAH and air temperature behind RAH, °C	70	35
10	Gross efficiency, %	91.27	93.49
11	Power consumption for the drive of blast fan, kWatt-hour/Gcal (the norm is 1400)	1690	1180

It should be taken into account that besides real economic effect received from:

- 1- fuel economy due to the reduction of heat loss with released gases;
- 2- power economy for the drive of blast fan;

while power boiler No.3 functioning, safe RAH performance is observed. Since December 2006 when heat exchange elements replacement was executed there was no need in stopping power boiler operation because of the dirtying of heat exchange elements. At the moment fuel economy is:

- 1 – in comparison with normative indices – 0.195 tce/h;
- 2 – in comparison with operation before repair – 0.44 tce/h.

According to our calculations recoument of heat exchange elements replacement has been achieved in 5450 hours of the boiler operation and further fuel economy is 0.195 tce/hr.

We recommend «Northern Interindustry Company «The Alternative» Ltd not only as a manufacturer of improved CMKA® heat exchange elements for RAH but also as a reliable business partner that has a competent approach to business and respect to the customer.

Technical Director

I.U. Chaplya