

**«KAZAN CHP-PLANT-1»  
BRANCH OF «GENERATING COMPANY» OJSC  
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Ref: 301-09-730 dated March 13, 2012

«Northern Interindustry Company  
«The Alternative» Ltd  
For the attention of Chief Engineer  
V.I. Mankovsky

**About the results of operation**

Dear Vladimir Igorevich,

Kazanskaya CHP-plant-1 has been applying CMKA® heat exchange elements of regenerative air heater PBII-54 of boiler unit No.9 since 2010 year.

As result of its installation was the increasing of efficiency index of boiler unit TГM-84 «Б» by 1.4% that is very significant in conditions of market and electric power industry enterprises functioning. We thank you for design and production effective types of heat exchange elements and hope for further cooperation.

Enclosure:

1. List of the main technical and economical indexes of boiler unit.

Head of Boiler-Turbine Shop

R.E. Bezrukov

**List of the main technical and economical indexes of steam-boiler unit  
TGM-84B (No.9)**

No	Parameter	Dimension	Data	
			Until repair Feb.10, 2010	After repair with the CMKA® heat exchange elements installation into RAH Oct.06, 2010
1	Type of RAH		PБП-54	PБП-54
2	Steam generating	tons/hour	372	361
3	Type of fuel	gas/mazut	gas	gas
	Fuel consumption	m <sup>3</sup> /hour	25000	26600
	Calorie content of fuel	kcal/ m <sup>3</sup>	8013	7989
	Feed water temperature	°C	244	214
4	Air inleakage into furnace	%	10	7
	Excess air coefficient at furnace exit	-	1.084/1.079	1.069/1.069
	Excess air coefficient before RAH	-	1.212/1.199	1.212/1.168
	Excess air coefficient behind RAH	-	1.289/1.245	1.296/1.267
5	Gas temperature at RAH inlet	°C	280/284	295/298
	Air temperature at RAH inlet	°C	122/123	106/110
	Gas temperature at RAH outlet	°C	4/2	19/18
	Air temperature at RAH outlet	°C	211/220	261/266
6	RAH resistance by gas	mm of w.c.	77	85
	RAH resistance by air	mm of w.c	-	-
7	Temperature of flue gases	°C	132/134	116/120
	Heat loss with flue gases	%	6.15	4.91
	Boiler gross efficiency	%	92.94	94.34

Chief Engineer of «Kazan CHP-plant-1»

E.V. Gilyazeev