

«KAZAN CHP-PLANT-1»
«TERRITORIAL GENERATING COMPANY NO. 16» OJSC
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July 04, 2014

«Northern Interindustry Company
«The Alternative» Ltd
For the attention of
Deputy Director General for Development
A.E. Lebedev

About the results of operation

Dear Mr. Lebedev,

With reference to your letter No.08-0.13/192 dated 18.06.2014, we inform you that there was overhaul repair of TIE-429 boiler unit No.6 at Kazan power plant-3 in 2011. Within the scope of the works there was modernization of air heater PBI-68 with the installation of CMKA® heat exchange elements.

According the results of the tests executed after the repair the following results were obtained:

- flue gas temperature was 121°C (before repair it had been 122°C)
- heat loss with flue gases q_2 was 4.65% (before repair it had been 5.19%)
- boiler gross efficiency was 94.52% (before repair it had been 93.9%)
- difference between “air temperature after air heater” – “air temperature before air heater” was 50°C (before the repair it had been 70°C)
- air heater resistance, gas side was 162 mm of w.c., air side was 115 mm of w.c., (values before repair had been 201 and 150 accordingly)

During the operation period after overhaul repair, the boiler unit showed reliable and economic work in the whole range of load. Operation indexes show the real efficiency of CMKA® heat exchange elements usage.

We express our gratitude to you and your colleagues and hope for further cooperation.

Enclosure:

1. List of the main indexes of boiler unit operation – in 1 sheet in 1 copy.

Best regards,
Chief Engineer

D.V. Demidov

**List of the main operation indexes of steam-boiler unit
TIE-429 No.6 of Kazan power plant-3**

No	Parameter	Dimension	Data	
			Before repair May 17, 2011	After repair with the CMKA® heat exchange elements installation into air heater Nov.30, 2011
1	Type of RAH		PBII-68	PBII-68
2	Steam production	tons/hour	341	375
3	Type of fuel	gas/mazut	gas	gas
	Fuel consumption	m ³ /hour	7.56	8.18
	Calorie content of fuel	kcal/ nm ³	8015	8026
4	Air inleakage into furnace	%	0	0
	Excess air coefficient at furnace outlet	-	1.069	1.036
	Excess air coefficient before air heater	-	1.084	1.05
	Excess air coefficient behind air heater	-	1.1	1.069
5	Gas temperature at air heater inlet	°C	390	385
	Air temperature at air heater inlet	°C	22	15
	Gas temperature at air heater outlet	°C	122	121
	Air temperature at air heater outlet	°C	320	335
6	Air heater resistance by gas	mm of w.c.	201	162
	Air heater resistance by air	mm of w.c	150	115
7	Temperature of flue gases	°C	122	121
	Heat loss with flue gases, q ₂	%	5.19	4.65
	Boiler gross efficiency	%	93.3	94.52

Head of Technical Engineering Dpt .

A.P. Vasiltsov