# ANALISIS KEGAGALAN KIPAS INDUCE DRAF FAN (ID FAN) PADA BOILER WUXIHUAGUANG KAPASITAS 10.000kg/jam

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***ABSTRACT***

*Boilers or ”Ketel uap” are converters of water into water vapor, in the process of energy conversion, the boiler functions to convert chemical energy stored in fuel into heat energy that is transferred to the working fluid. One of the tools in a steam boiler is the indueced draft fan (id Fan). This tool works to suck hot air mixed with coal ash in the combustion chamber and then push the air out through the chimney.*

*In carrying out the function of sucking and pushing air from the combustion chamber to free air, the id fan turns out to have a failure, where a failure occurs in the impeller, failure occurs due to residual stress in the HAZ region generated by the welding process at making the impeller.*

*The formation of residual stresses in the welding process, welding metals and parent metals undergo a thermal cycle of heating and cooling. This thermal cycle causes stresses and stresses which in turn result in residual stresses and distortion. Residual stress can cause shaking, reduced fatigue resistance, reduced welding strength and corrosion resistance.*

*These conditions will cause a shorter service life, so the costs for purchasing these components are greater. To anticipate this, failure analysis is needed to find the root of the problem, so that improvements can be made to prevent similar incidents.*

*Keywords: boiler, id fan (induced draft fan), crevice corrosion, HAZ, welding*

# DAFTAR PUSTAKA

1. Akhmad Hendriawan, Maula Nurul Khakam S.T, M.T Simulasi Sistem Kontrol *Induced Draft (ID*) Fan Sebagai *Furnace Pressure Control* pada Boiler di Pltu Paiton Unit 7&8
2. *Annual book of ASTM Standards;2004*
3. *ASM. Metals Hand Book Volume 11.*

*Failure Analysis and Its Prevention*

1. *ASM. Metals Hand Book Volume 09.*

*Mettalography and microstructures*

1. *Atlas of Microstructure of industrial,Metal Handsbook,vol.7 8th Edition*
2. *Corrosion, Metals Handbook, Vol. 13 9th edition, hal. 131 dan 614, American Society for Metals, Metal Park, Ohio;1986*
3. *Damage Mechanisms Affecting Fixed Equipment in the Refining Industry, RECOMMENDED PRACTICE 571 FIRST EDITION;2003*
4. Eka pebriyanti,Khairul Anwar,Sutarjo. *ANALISIS KEGAGALAN IMPELLER PENYEBAB KERUSAKAN POMPA AIR KAPAL LAUT*

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1. *Induced Draft Fan Instruction Manual. Yancheng Saige Manchinery Limited Company;2013.*
2. Surdia, Tata & Saito, Shiinroku *Pengetahuan bahan teknik*. Jakarta: PT. Pradnya Paramita; 2005
3. Sutikno, D., Soenoko, R., Pratikto, P., PT, F. P., & Nur Cahyo, P. M. *Study On Pressure Distribution In The Blade Passage Of The Francis Turbine. Rekayasa Mesin Vol. 2 No.2, 154- 158;*2011
4. *William D. Callister, Fundamentals of Materials Science and Engineering 5th edition, John Willey & Sons Inc., 2001.*
5. Yolanda Pravitasari, Mariana B. Malino, Muhlasah Novitasari Mara. *Analisis Efisiensi Boiler Menggunakan Metode Langsung*