

EPERC's Task Groups Conference, Milan, Italy

Andrea Tonti

INAIL DIT



Pressure Equipment Recertification

Dipartimento innovazioni tecnologiche e sicurezza degli impianti prodotti e insediamenti antropici

ABSTRACT

- Proposed pre-normative activity.
- The rules for the certification of old pressure equipments, originally designed according to the National rules of the single member States and/or rules for the certification after relevant modifications of CE pressure equipments.
- There are no specific rules in the PED.
- For this issue it is necessary a strong cooperation with the European Commission



Pressure Equipment Recertification

The modification interventions require the submission of the equipment to be modified to a conformity assessment procedure in accordance with Directive 97/23 / CE - PED, whatever its original construction code was.

This procedure requires the re-assessment of the entire pressure equipment according to Directive 97/23/EC - PED.

PED Guideline A.03 (1-3):

Are replacements, repairs or modifications of pressure equipment in use covered by the Pressure Equipment Directive (PED)? 3) Pressure equipment which has been subject to important modifications that change its original characteristics, purpose and/or type after it has been put into service has to be considered as a new product covered by the directive. This has to be assessed on a case by case basis.



Pressure Equipment Recertification

Certification of used pressure equipment is something different from the normal certification.

The requirement in PED are the same.

The re-used PE are not the same as the new ones



Main problems:

- Ex-service damage and defects
- Incidents and accidents during previous use of the pressure equipment
- Manufacturing code, different from the codes for PED
- Missing manufacturing files

Pressure Equipment Recertification

- The assessment of the PE status, the life history and the documentation analysis as essential steps that must precede the conformity assessment
- The conformity assessment procedure should be established on the basis of the results of the above mentioned steps
- None of the existing conformity assessment procedures are suitable for the used PE, manufactured according to the National legislations or according PED



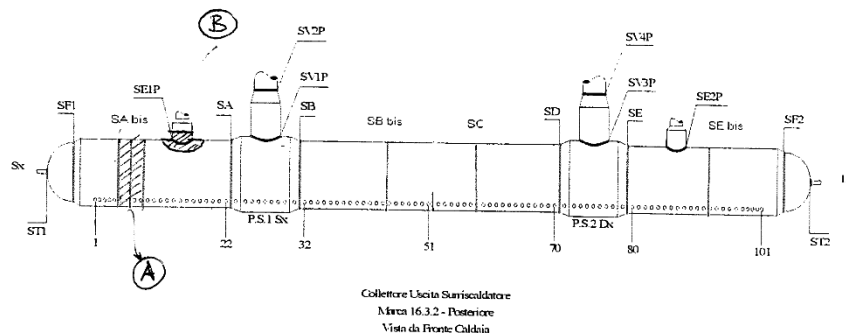
Pressure Equipment Recertification

- The new working conditions can be completely different from the previous one, resulting in an increased risk
- There is the need to address all kind of hazards, including hazards that were not addressed by the original manufacturing code (main reason for which the EC required the PED conformity assessment for modifications)



Pressure Equipment Recertification

- Is it mandatory to perform the conformity assessment of the whole equipment, even in the case that only one component has been modified?
- How many member States in the EU have adopted a legislation complying with this requirement?
- Where is the end of a PE? Can this end be different for the PE submitted for recertification?



Pressure Equipment Recertification

Available documentation:

- Before the PED the certificates and their annexes were provided by official bodies, appointed by the local authorities. Official papers were provided, including all relevant information
- After PED: user manual, conformity declaration (?), drawings (?), ...
- All in-service inspection activities should be collected and delivered to the PED manufacturer for the recertification.
- Creep and fatigue assessements

ASSOCIAZIONE NAZIONALE PER IL CONTROLLO DELLA COMBUSTIONE
SERVIZIO SOSTENIBILITÀ APPARECCHI A PRESSIONE
Legge 16 Giugno 1927 N. 1122 Regolamento R.D. 12-5-1927 N. 824

SEZIONE COMBUSTORI CENTRALI SENZA CATERIZZAZIONE 04

Apparecchio tipo: RA RA M. n. 3293
Costruttore: COARATE SpA COARATE 2101
Località: COARATE, RI. Anno: 1981 1981 1981

CAMERA		PRESSIONE NOMINALE	TEMP. DI SOTTOFUSIONE	FLUIDO		CAPACITÀ	
1	2	MPa	°C	NATURA	COMPOSIZIONE	IN LITRI	IN KG
☐ 1	☐ 2						
☐ 3	☐ 4						
☐ 5	☐ 6						
☒ 7	☒ 8	<u>0.1</u>	<u>220</u>	<u>97/55</u>	<u>INERGI</u>	<u>C.K.G.</u>	<u>31</u>

M STATO FISICO: L - Liquido; V - Vapore; G - Gas
Superficie risultata m²: 31 Capacità totale: 31
Precedibilità (h): 31 Potenza (kW): 31

VERIFICHE DI COSTRUZIONE
VISTA INTERNA (se apparecchio a pressione) data 11/11/81
Località: COARATE, RI.
La costruzione su i materiali impiegati (vedere documentazioni allegati) risultano conformi alle disposizioni vigenti; le parti soggette a sorveglianza corrispondono al progetto approvato, e firma:
Ing. G. C. MARRAS ALBO. M. 10440
Note: Nelle note del L'Agente Tecnico 10/81
2.5.81 allegato 2.81

PROVE IDRAULICHE:

DATA	PROVA	ESITO	LOCALITÀ	VERBA E MATRICOLA TECNICO
<u>1981</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>1981</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>1981</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>1981</u>	<u>4</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>1981</u>	<u>5</u>	<u>1</u>	<u>1</u>	<u>1</u>

195783 ML

LIBRO RILASCIATO IN SEDE DI COSTRUZIONE

PRIMA UTENZA E VARIAZIONI SUCCESSIVE

DATA	UTENTE	LOCALITÀ	COMUNE

AVVERTENZE:

- IL PRESENTE LIBROTTA SCHEDA DEVE ESSERE ACCOMPAGNARE L'APPARECCHIO IN TUTTE LE SUE FASI, ADIACENTE AI DOCUMENTI DELL'ANNO, O ALLE INFEZIONI DEL LAVORO.
- UTILIZZARE LA SCHEDA, DI CUI È COMPARTITO IL PRESENTE LIBROTTA, PER COMUNICARE ALLA SEDE ANGOLO COMPITI E LA CESSAZIONE DELL'APPARECCHIO.
- L'APPARECCHIO DOVRA SUBIRE, PRIMA DI ESSERE POSTO IN FUNZIONE, LE REGOLAMENTI VERIFICHE SUL LUOGO DI IMPIANTO.

Pressure Equipment Recertification

- A detailed NDE program should be issued by the manufacturer appointed for the conformity assessment of the used PE, according to the PED
- New drawings and calculations should be provided, taking into account the results of the NDE and other relevant issues (residual thickness, etc..).
- Is the use of the original code for the calculation allowed?
- Are the quality system acceptable to verify the PED conformity of the used PE?
- Module D (production quality assurance)?
- Module D1 (production quality assurance)?
- Module E (product quality assurance)?
- Module E1 (product quality assurance)?
- What about in series production and conformity assessment?



Pressure Equipment Recertification

Some other issues:

Material ageing

Material embrittlement

Sigma phase precipitates

High temperature embrittlement

Welding procedure qualification

Welders qualification

PMA

Pressure test limitation

All these issues can be adapted to the PE type: steam generators, heat exchangers, simple vessels, etc..



Conclusions

- The needs for pressure equipment recertification
- Review of existing standard
- Requirements for prenormative activity
- Requirement for normative amendments
- Requirements for the new PED
- Collecting the interests and resources



THANK YOU FOR YOUR ATTENTION!

