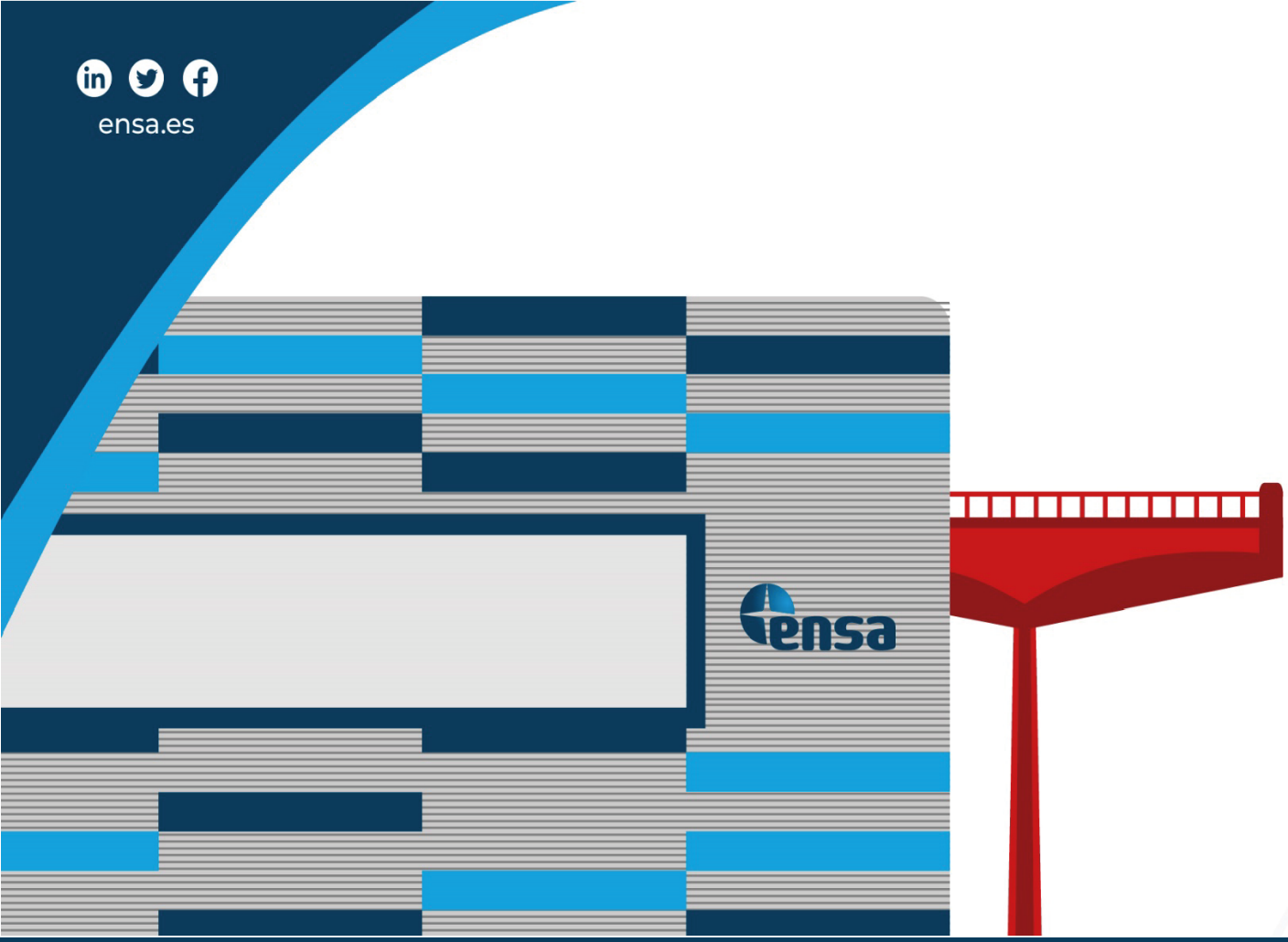




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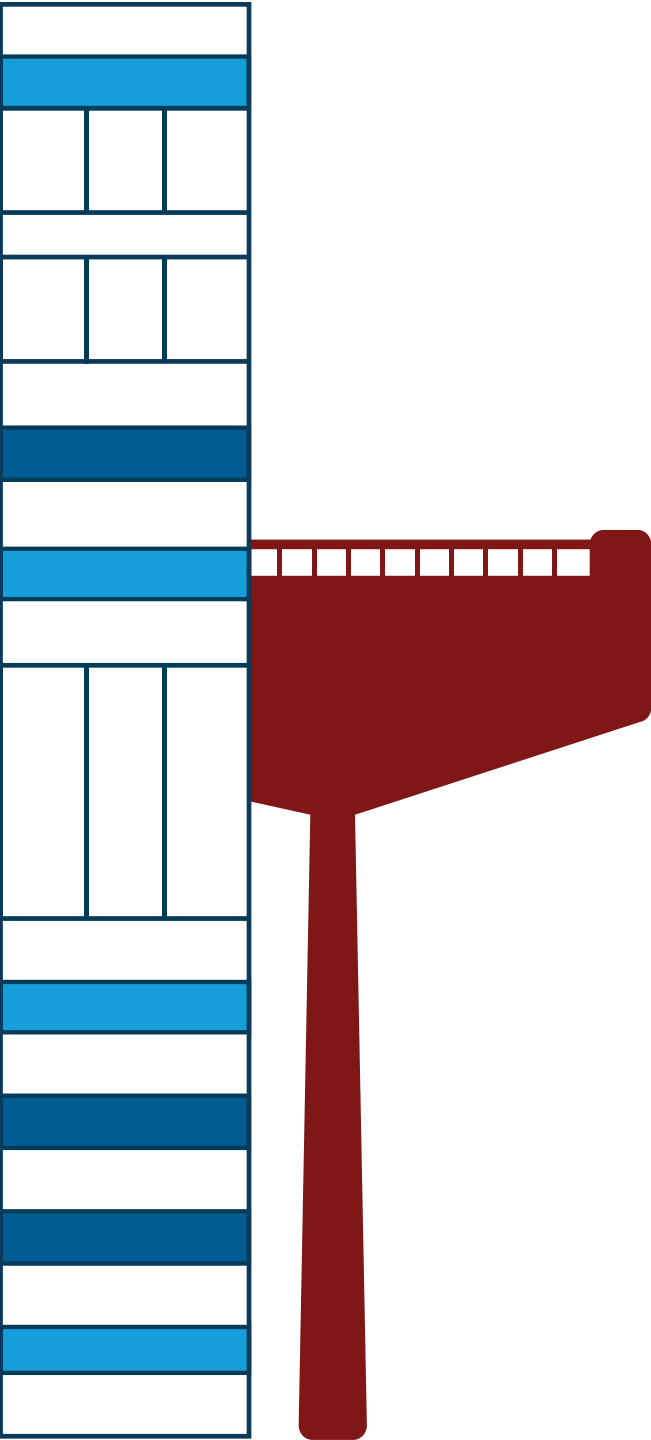


Passion_{for}
improvement



Nuclear Safety Culture & Implementation of measures for fighting CFSI (Counterfeit, Fraudulent and Suspect Items)

Presentation for suppliers



NUCLEAR SAFETY CULTURE

- 1. BACKGROUND**
- 2. NUCLEAR SAFETY CULTURE**
- 3. WHAT IS EXPECTED FROM SUPPLIERS**
- 4. TRAITS FOR A HEALTHY SAFETY CULTURE**
- 5. BASIC INDICATORS OF A HEALTHY NUCLEAR SAFETY CULTURE ORGANIZATION**
- 6. NUCLEAR SAFETY CULTURE - INFORMATION REFERENCES**

BACKGROUND

Nuclear risk – incidents in Nuclear Power Plants

Three Mille Island (1979)



Davis Besse (2002)



Chernobyl (1986)



Fukushima (2011)

The series of decisions and actions that resulted in these events can usually be traced to the shared assumptions, values, and beliefs of the organization → **direct result of the culture at the plant**

NUCLEAR SAFETY CULTURE

Definition

The Nuclear safety culture is defined as the core values and behaviors resulting from a collective commitment by leaders and individuals to **emphasize safety over competing goals** to ensure protection of people and the environment.

This definition implies:



High awareness with respect to error consequences (radiation).



Nuclear safety remains the overriding priority over competing goals.



The concept of safety culture applies to every employee in the nuclear supply chain.

WHAT ENSA EXPECTS FROM SUPPLIERS

- ✓ Clear understanding that Nuclear industry is special, unique and Nuclear Safety is the priority
- ✓ Development of a strong Nuclear Safety Culture by application of the INPO Traits
- ✓ Key-role of management, by maintaining a good level of dialogue, by creating the conditions for transparent communication, by accepting the right to make mistakes, by encouraging the escalation of events
- ✓ Conduct their work complying with rules, procedures and meeting quality requirements: the non compliance with requirements can have a direct impact on nuclear safety
- ✓ Safety awareness and questioning attitude of the individuals

TRAITS FOR A HEALTHY SAFETY CULTURE

Leadership Safety Values and Actions	Problem Identification and Resolution	Personal Accountability
<p>Leaders demonstrate a commitment to safety in their decisions and behaviors.</p>	<p>Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.</p>	<p>All individuals take personal responsibility for safety.</p>
Work Processes	Continuous Learning	Environment for Raising Concerns
<p>The process of planning and controlling work activities is implemented so that safety is maintained.</p>	<p>Opportunities to learn about ways to ensure safety are sought out and implemented.</p>	<p>A safety conscious work environment is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment or discrimination.</p>
Effective Safety Communications	Respectful Work Environment	Questioning Attitude
<p>Communications maintain a focus on safety.</p>	<p>Trust and respect permeate the organization.</p>	<p>Individuals avoid complacency and continually challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.</p>

Decision-Making
 Decisions that support or affect nuclear safety are systematic, rigorous, and thorough

BASIC INDICATORS OF A HEALTHY NUCLEAR SAFETY CULTURE ORGANIZATION

- ✓ Management's visible commitment to safe operations
- ✓ Safety awareness and questioning attitude of the individuals
- ✓ Complying with the rules and procedures
- ✓ Open reporting of non-conformances



BASIC INDICATORS OF A HEALTHY NUCLEAR SAFETY CULTURE ORGANIZATION

MANAGEMENT'S VISIBLE COMMITMENT TO SAFE OPERATIONS

- ✓ Management expresses its commitment in the safety policy statement of the organization.
- ✓ Management has given examples in their decisions that emphasize the goal of ensuring safety, rather than short term economic benefits.
- ✓ Adequate resources have been provided to achieve safety goals: technical support, work spaces, tools...
- ✓ Management participates actively in handling safety relevant topics, and ensures it has the required competence for decisions.
- ✓ Staff is awarded on their performance in ensuring safety.
- ✓ Management is open for external evaluations, takes the critique positively and initiates promptly the needed corrective measures.



SAFETY AWARENESS AND QUESTIONING ATTITUDE OF THE INDIVIDUALS

- ✓ Every person contributing to manufacture components for a nuclear power plant, understands based on his/her experience and training, how the tasks under his/her responsibility influence the safety of the plant under construction, and what are the key topics in this own work that require most attention for assuring safety.
- ✓ Questions for one-self to avoid errors:
 1. Do I understand what the main objectives are and what my own responsibility is?
 2. What kind of errors I might commit, and how can I avoid the errors?
 3. What would be the consequences of the error?
 4. What would I do if the error occurs?
 5. What would be the exceptional conditions that could lead to the error?
 6. When would I need help?



BASIC INDICATORS OF A HEALTHY NUCLEAR SAFETY CULTURE ORGANIZATION

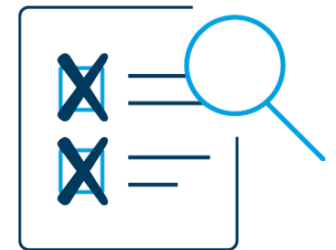
COMPLYING WITH THE RULES AND PROCEDURES

- ✓ Procedures are adequate for ensuring safety .
- ✓ Procedures are on hand and are being used in tasks where correct sequential performance of each task is important and is not based on a well mastered routine .
- ✓ Complying of the rules is evaluated and supervised.
- ✓ Procedures are continuously developed and updated with the aim to achieve maximum clarity and usefulness in practical work situations. Deficiencies are corrected promptly



OPEN REPORTING OF NON-CONFORMANCES

- ✓ The entire organization has adopted a practice to report detected deviations, near misses and other observations.
- ✓ Supervisors and management receive positively the deviations reported by the staff, also in cases the persons have by themselves committed an error.
- ✓ Non-conformances are responded and their causes are investigated without delay.



NUCLEAR SAFETY CULTURE - INFORMATION

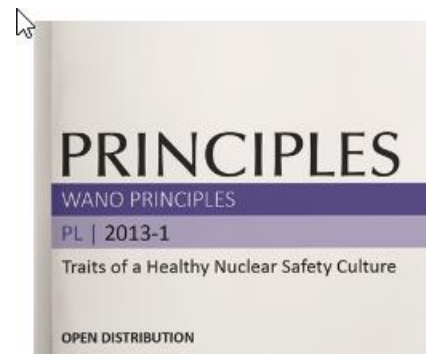
REFERENCES

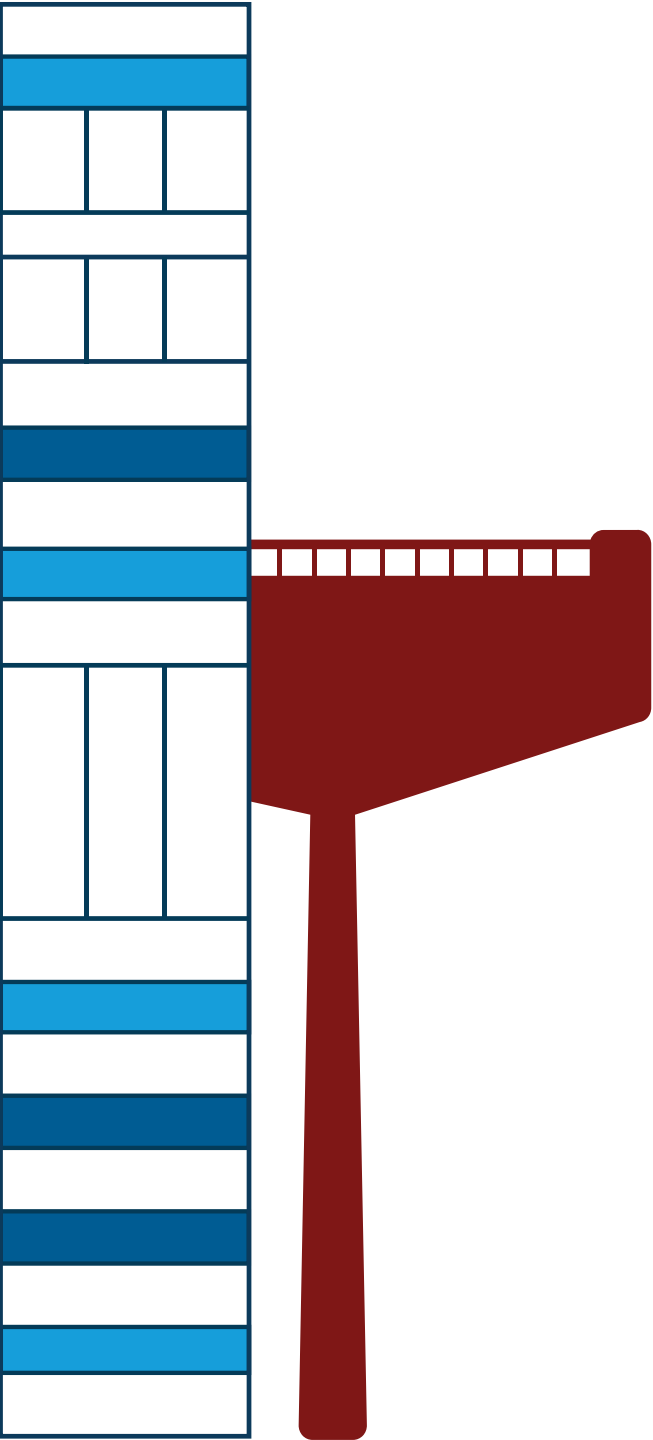
<http://www.inpo.info/>

<https://www.wano.info/resources/traits-of-a-healthy-nuclear-safety-culture>

<https://www.wano.info/getmedia/49f169b0-a385-4cd2-a7d8-2f64b64cd8d2/WANO-PL-2013-1-Pocketbook-English.pdf.aspx>

<https://www.nrc.gov/about-nrc/safety-culture.html>



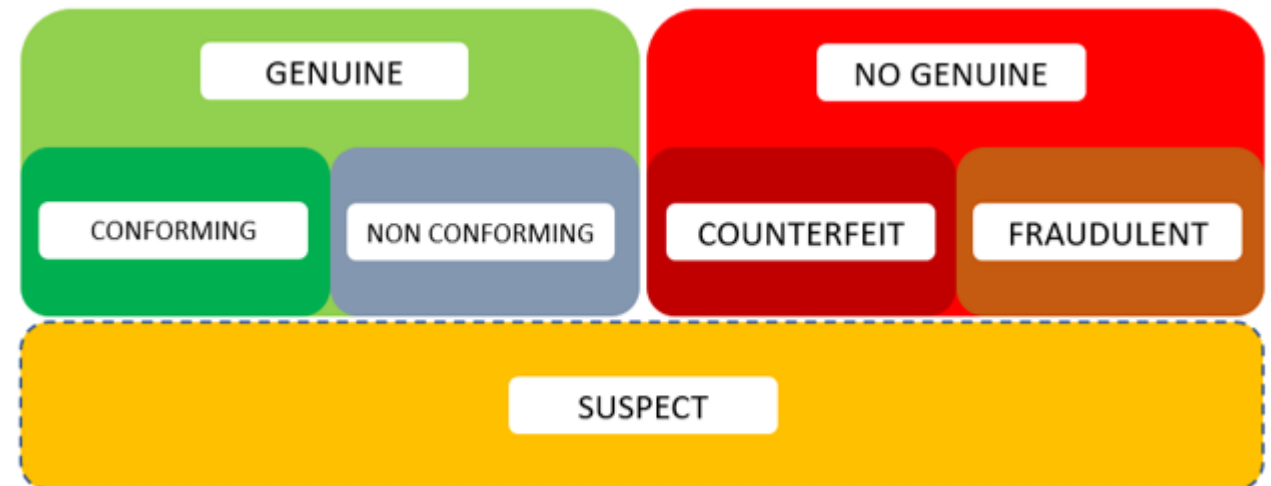


Implementation of measures for fighting CFSI (Counterfeit, Fraudulent and Suspect Items)

- 1. DEFINITION FOR CFSI : Counterfeit, Fraudulent and Suspect Item**
- 2. EXAMPLES OF WHAT IS CONSIDERED CFSI**
- 3. WHAT MOTIVATES COMPANIES TO DEFRAUD?**
- 4. WHAT ENSA EXPECTS FROM SUPPLIERS**
- 5. REPORTING CFSI ACTIVITIES**
- 6. ENSA AVAILABLE MEASURES FOR PREVENTION/DETECTION**

Definition for CFSI : Counterfeit, Fraudulent and Suspect Item^[1]

- **Counterfeit:** items that are intentionally manufactured, refurbished or altered to imitate original products without authorization, in order to pass them off as genuine.
- **Fraudulent:** items that are intentionally misrepresented with the intent to deceive. For example items provided with incorrect identification or falsified / inaccurate certification.
- **Suspect:** products for which there is an indication or suspicion that they may not be genuine.
- **Genuine:** products that are produced and certified without the intent to deceive.
- **No genuine:** products that are produced and certified with the intent to deceive.
- **Non conforming:** products that do not meet intended requirements or functions. They may be provided by legitimate suppliers without the intent to deceive.



[1] Item: raw material, component, parts or services

Examples of what is considered CFSI

- ! **Intentional modification in a record / certificate**, which no longer reflects the reality of the product
- ! **Duplication of an existing test record**, for use on another unchecked product, while checking is mandatory
- ! **Excessive use / usurpation of the signature** of a person authorized to make an operation, by a person not authorized
- ! **Intentional non-declaration of non-compliant product or a repair process**
- ! **Use of unrepresentative parts** or deliberate modification of normal conditions, to favor acceptance, tests, or test results
- ! **Use of one product instead of another** one without statement, for example material batch
- ! Company which fabricated **an excess amount of products and that tries to sell surpluses in unauthorized sectors**

Examples of what is considered CFSI

Original certificate

REPERE	SENS PRELEVEMENT	TEMPE	ENERGIE de RUPTURE (IMPACT ENERGY)			FERROSITE DUCTILE	EXPANSION LATERALE
			IMPOSEE	RESULTAIS	MOYENNE		
ITEM	ORIENTATION	RATURE	REQUISSE	RESULTATS	AVERAGE	FRACURE	EXPANSION
NR	PROBENLAGE	TEMP	SOUMERT	ERMITTELT	MITTELWERT	%	mm
Z5887							
VD1	Circonférentiel (Longitudinal)	0°C	≥ 80 Moy.	170	159	80	2,2
VD2	"	"	≥ 60 Indi.	139		50	1,8
VD3	"	"	"	167		75	2,1
AD1	Axial (Travers)	0°C	≥ 80 Moy.	42	83	5	0,7
AD2	"	"	≥ 60 Indi.	42		5	0,7
AD3	"	"	"	165		70	2,2

Final certificate

REPERE	SENS PRELEVEMENT	TEMPE	ENERGIE de RUPTURE (IMPACT ENERGY)			FERROSITE DUCTILE	EXPANSION LATERALE
			IMPOSEE	RESULTAIS	MOYENNE		
ITEM	ORIENTATION	RATURE	REQUISSE	RESULTATS	AVERAGE	FRACURE	EXPANSION
NR	PROBENLAGE	TEMP	SOUMERT	ERMITTELT	MITTELWERT	%	mm
Z5887							
VD1	Circonférentiel (Longitudinal)	0°C	≥ 80 Moy.	170	159	80	2,2
VD2	"	"	≥ 60 Indi.	139		50	1,8
VD3	"	"	"	167		75	2,1
AD1	Axial (Travers)	0°C	≥ 80 Moy.	98	128	25	1,5
AD2	"	"	≥ 60 Indi.	120		40	1,7
AD3	"	"	"	165		70	2,2

Result of first test

ESSAIS DE TRACTION TENSILE TESTS ZUGVERSUCH							
EPROUVETTES TESTS SPECIMENS PROBESTAB			TEMPE	E 0.2(Y.S. 0.2)		R (U-T-S)	
REP NR	TYPE FORM	SENS PRELEVEMENT ORIENTATION PROBENLAGE	RATURE °C TEMP.	IMPOSEE REQUIRED SOLL	RESULTAIS RESULTS ERMITTELT	I R S	R E
Z5818							
TCA3D	10 x 50	Circonférentiel (Longitudinal)	Amb.	≥ 450	475	620 / 795	645

Additional tests

ESSAIS DE TRACTION TENSILE TESTS ZUGVERSUCH							
EPROUVETTES TESTS SPECIMENS PROBESTAB			TEMPE	E 0.2(Y.S. 0.2)		R (U-T-S)	
REP NR	TYPE FORM	SENS PRELEVEMENT ORIENTATION PROBENLAGE	RATURE °C TEMP.	IMPOSEE REQUIRED SOLL	RESULTAIS RESULTS ERMITTELT	I R S	R E
Z5818							
TCA3D	10 x 50	Circonférentiel (Longitudinal)	Amb.	≥ 450	475	620 / 795	645
TCA304					487		637
TCA302					464		610

Final certificate

ESSAIS DE TRACTION TENSILE TESTS ZUGVERSUCH							
EPROUVETTES TESTS SPECIMENS PROBESTAB			TEMPE	E 0.2(Y.S. 0.2)		R (U-T-S)	
REP NR	TYPE FORM	SENS PRELEVEMENT ORIENTATION PROBENLAGE	RATURE °C TEMP.	IMPOSEE REQUIRED SOLL	RESULTAIS RESULTS ERMITTELT	I R S	R E
Z5818							
TCA3D	10 x 50	Circonférentiel (Longitudinal)	Amb.	≥ 450	475	620 / 795	625

Examples of what is considered CFSI



Counterfeit valve

Legitimate (left) and counterfeit (right) valves.

The "L" logo on the counterfeit valve appears to have added via welding (instead of cast into the valve body) and "cleaned up" with grinding.



Repair by welding not declared

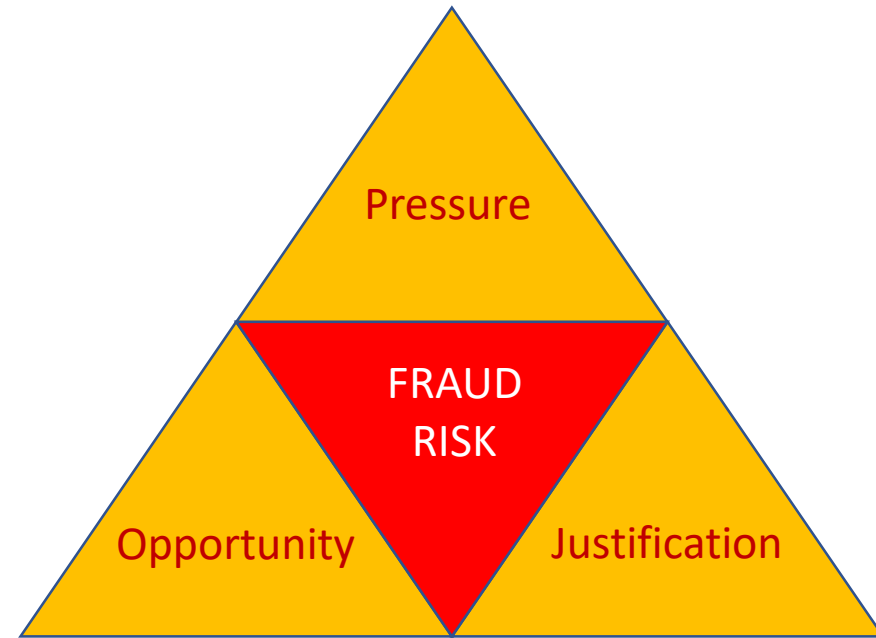
Data integrity

- Data integrity aims to guaranty that data has not been altered accidentally or intentionally. This is a main aspect in the fight against CFSI.
- Are prohibited in all internal or contractual documentation related to the capture or transcription of data the use of: erasable ink pen, graphite pencil, Or liquid/corrector tape.
- In case of corrections or modifications on record, field sheets or data sheets in paper format, the corrected or modified information shall remain visible (crossed out with a single line) and the inspector/technician/issuer making the corrections or modifications shall be identified by his/her signature, name and date

What motivates companies to defraud?

Whatever its nature, fraud is always intentional and can be explained according to the following 3 motivations for the fraudster or the company:

- **Pressure:** Difficulties with which the actors are confronted, as deadlines, costs and technical complexities.
- **Opportunity:** use of a in a system, for example ineffectiveness or control absence
- **Justification:** moral justification which allows acceptance of the act: survival of the company, technical considerations...



This triangle represents motivations for the fraudster.
The accumulation of these conditions constitutes a risk factor.

What Ensa expects from suppliers

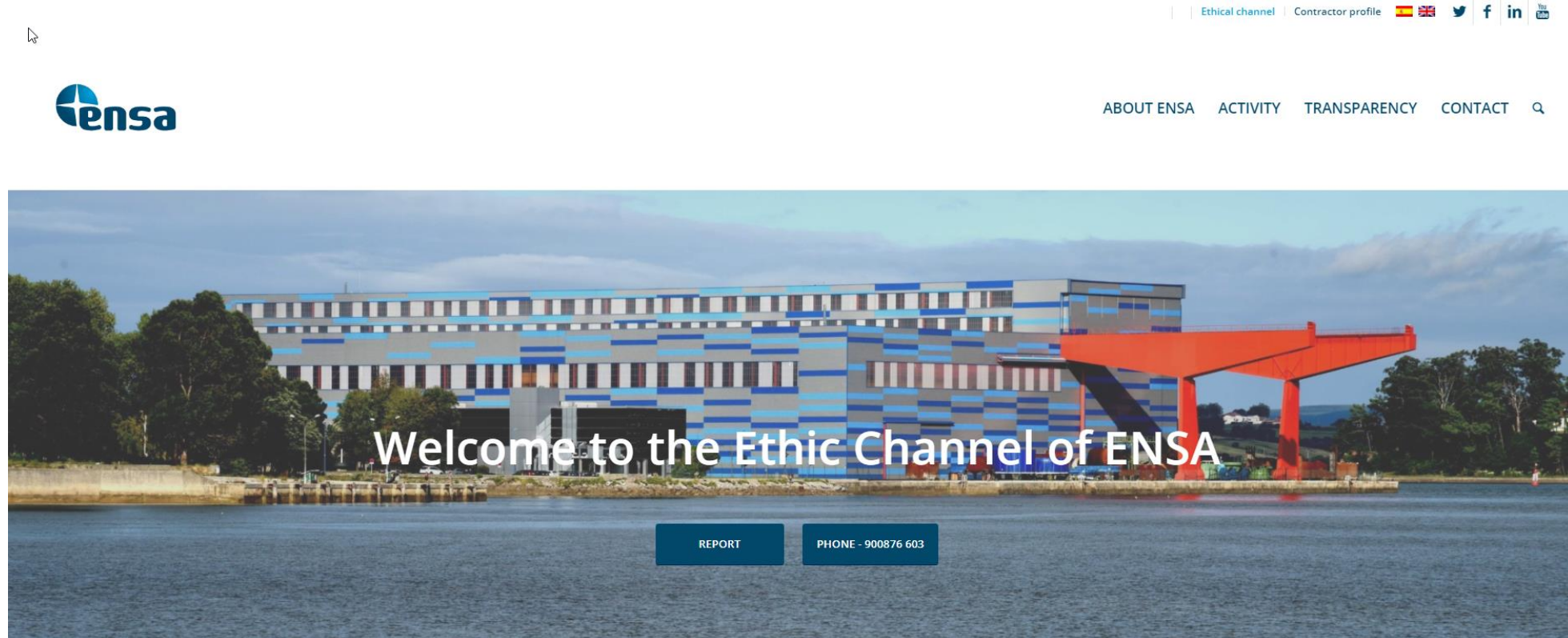
Implementation of necessary measures for prevention and detection of cases of CFSI within your activities, and at your suppliers

- Raising awareness of the whole staff on the risk of CFSI
- Implementation of procedures for prevention and detection of cases of CFSI (internal, Supply Chain)
- Independence, with regard to operations, of the staff in charge of QA and QC
- Authorize Ensa to conduct inspections, controls and programmed or unscheduled audits/inspections (so every supplier has to give Ensa access to its industrial plants, workshops, documentation associated with orders, with software and original or raw data).
- Authorize Ensa to ask the tier 2 or higher suppliers for the original reports, and ensure they agree to transmit them directly to Ensa.
- Inform Ensa from first knowledge of case of fraud, suspect practice or infringement detected in its own activities or in its subcontracting chain.

Reporting CFSI activities

- Possibility for every supplier and their individual staff, without disclosing his identity, to alert on CFSI practices with possible impact on compliance with requirements or safety

[Ethical Channel – ENSA](#)



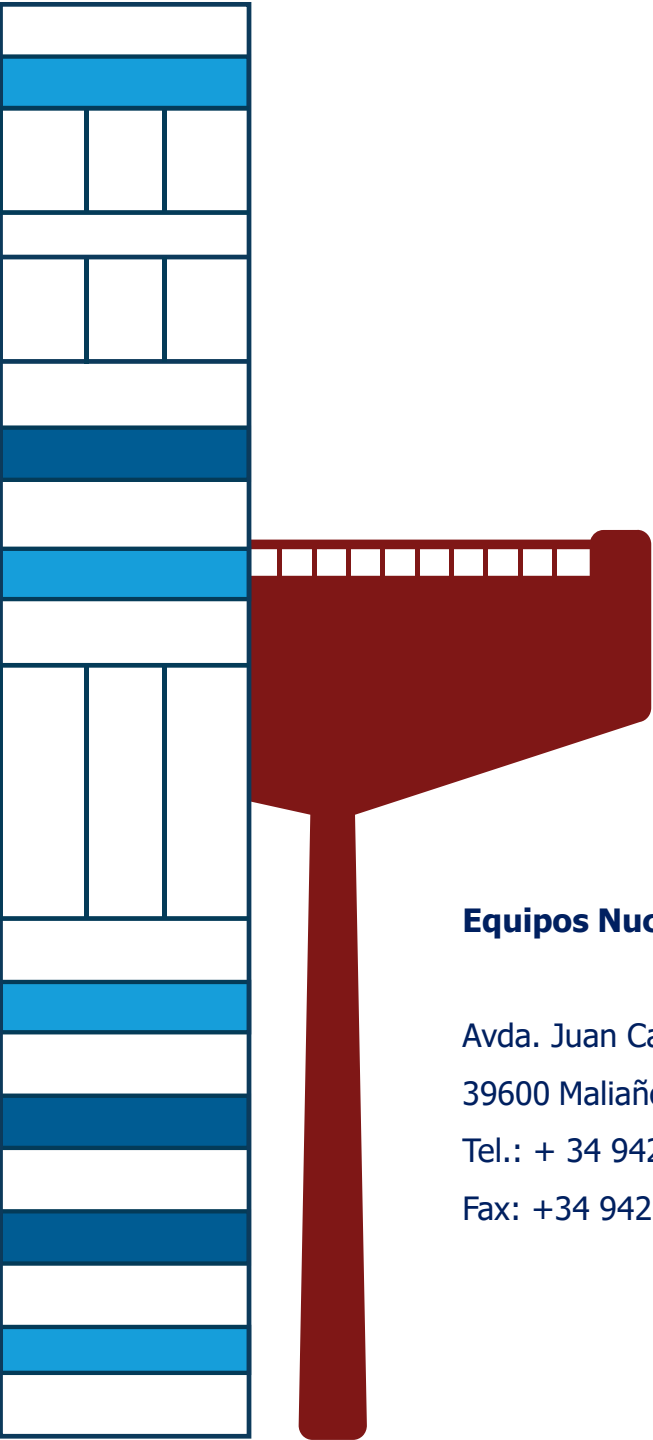
For supplies intended for France, there is also a description possibility in ASN via its web site, for your whole staff and your suppliers.

[Reporting non-conformant activities to ASN - Whistle-blower - ASN \(french-nuclear-safety.fr\)](http://french-nuclear-safety.fr)

Ensa available measures for prevention/detection

- Trained inspectors
- Suppliers sensibilization
- Source inspections
- Documentation Cross Check
- Contradictory Examinations (Mechanical test, Chemical analysis, NDE,...)
- Mechanical test curves and raw data examination
- Whistle-blower available to suppliers and their staff to alert on CFSI





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