The construction of Nuclear Safety Culture for Equipment Vendors in China

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1. Background

NNSA has always attached high importance on building a positive nuclear safety culture. We actively cultivated a nuclear safety culture that is in line with the international advanced practices and China's national reality after IAEA introduced the concept of nuclear safety culture.

On the 30th anniversary conference of NNSA in 2014, we concluded that the acknowledgement of nuclear safety culture in China is one of 10 achievements.
1. Background

We advocate the basic principle of “safety first, quality first”.

Implement the nuclear security view of “Rationality, Coordinative and Common Progress”.

Keep on the spirit of "strict, careful, cautious and realistic".
《The policy of nuclear safety culture》 was issued by NNSA, NEA and CAEA together in December of 2014.

In this year, 《The Features of nuclear safety culture》 was published. It introduced 8 features, in order to push forward nuclear safety culture construction.
Currently, the major problem in the Chinese nuclear equipment manufacturing industry is related to human factors. In order to solve this issue, we took various actions to advanced the development of a positive nuclear safety culture in nuclear equipment vendors, utilizing the outcomes of MDEP/VICWG and the feedbacks from Korea CFSI issues.
2. Main Actions of NNSA

1. From 2014 to 2015, NNSA conducted a year-long promotion of nuclear safety culture designed to improve the nuclear safety culture level of the equipment industry.

- Compiled specific manuals on nuclear safety culture and regulations.
- Targeted at eliminating the fraudulent behaviours and illegal operations.
- Covered all the equipment licensees and qualified persons.
2. Main Actions of NNSA

2. In the latter half of 2016, we conducted a “Risk Screening” and “look back” action to recheck the progress of the continuous building of nuclear safety culture and consolidate previous results in the nuclear equipment area.

3. From July to September 2017, NNSA carried out a comprehensive inspection on nuclear safety for 23 equipment vendors. Nuclear safety culture was one of the key evaluation points.
2. Main Actions of NNSA

4. Took the nuclear safety culture as one of the most significant elements in supervision and inspection, NNSA carried out evaluations on nuclear safety culture levels for some crucial equipment vendors in daily surveillance.

Evaluate contents

1. Policy levels: concept and commitment.
2. Management levels: good example with correct attitude toward safety.
3. All individual’s indispensable role in safety and personally responsible.
4. Organizational and constant learning.
5. Complete and effective management system.
6. Proper working environment is created.
7. Mechanism of questioning, reporting and experience feedback on safety issues.
2. Main Actions of NNSA

Sample Survey
Coverage 50% of all the staff (executive persons less than 30%)

Dialogue and Interview
formal and informal

Documents Review
QA program, procedures, guidance, Quality record.

Behavior Observe
activities and circumstance

Evaluation Ways
2. Main Actions of NNSA

Nuclear culture levels and building advice.

<table>
<thead>
<tr>
<th>Test Scores</th>
<th>Nuclear culture levels</th>
<th>Advice</th>
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<tbody>
<tr>
<td>A≤60</td>
<td>Disorderly management level</td>
<td>Rectification and safety culture construction measures shall be taken immediately.</td>
</tr>
<tr>
<td>60&lt;B≤75</td>
<td>Passive constraint level</td>
<td>Positively construct safety culture</td>
</tr>
<tr>
<td>75&lt;C≤90</td>
<td>Active management level</td>
<td>Steadily promote and create the mechanism to encourage all staff to be involved</td>
</tr>
<tr>
<td>D&gt;90</td>
<td>Self-control promotion level</td>
<td>Keep and carry forward the safety culture</td>
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2. Main Actions of NNSA

5. In order to enhance equipment licensees’ nuclear safety culture level, we push equipment vendors to publish their own enterprise’s nuclear safety culture policies and objective, organized quality assurance leaders test, compiled regulation manual for vendor legal representative.
2. Main Actions of NNSA

6. Push forward “six steps methods” of nuclear safety culture building.
2. Main Actions of NNSA


Organised 10 forums according to the equipment catalogues.
### 2. Main Actions of NNSA

8. Between 2014 and 2017, we took enforcement action or sanctioned more than 30 equipment vendors who didn’t abide by the laws and regulations.

2014-2017 年核安全设备持证单位行政处罚情况汇总

（共计 34 家单位违规）

<table>
<thead>
<tr>
<th>序号</th>
<th>单位名称</th>
<th>违规问题</th>
<th>违反条款</th>
<th>适用罚则</th>
<th>处罚情况</th>
<th>处罚时间</th>
<th>来源</th>
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<tbody>
<tr>
<td>1</td>
<td>大连华能核岛工程有限责任公司</td>
<td>在运行5、6号机组核3级泵最终阀门焊接过程中违规补焊</td>
<td>第二十二条 第三十二条 第五十一条</td>
<td>停止设备设计、制造活动，2017 年2月28日前改正，罚款20 万元。</td>
<td>2017-02</td>
<td>监检</td>
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<tr>
<td>2</td>
<td>中国核工业二三建设有限公司</td>
<td>热交换器在运行5、6号机组期间未按辐射要求进行检测，2015年7月31日前改正，罚款20 万元。</td>
<td>第八条 第四十八条</td>
<td>停止违法行为，2017 年1月31日前改正，罚款20 万元。</td>
<td>2017-01</td>
<td>举报</td>
<td></td>
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<tr>
<td>3</td>
<td>东方电气集团东方锅炉股份有限公司</td>
<td>检验人员违反无损检测规程，误用卷焊标准。</td>
<td>第二十五条 第五十四条</td>
<td>通报批评，吊销人员证书。</td>
<td>2017-01</td>
<td>华北站</td>
<td></td>
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3. Further Prospect

1. Formulate a specific nuclear safety culture inspection procedure to standardize the content of the inspection of equipment vendors.

2. Develop guidance on nuclear safety culture construction to guide equipment vendors’ nuclear safety culture activities.
3. Further Prospect

3. Complete the development of online experience feedback systems to streamline experience feedback work processes and raise efficiency.

4. Advance internal capacity building, enhance the nuclear safety culture levels of NNSA’s inspectors.
Thank you for your attention!