

IAC

The Standards of the Insurance Association of China

T/ IAC XXXX—XXXX

Risk Assessment Guideline for Nuclear Insurance Survey

(Draft Version)

Released on xx-xx-2018

Implemented on xx-xx-2018

Released By IAC

Table of Contents

Introduction	ii
Risk Assessment Guideline for Nuclear Insurance Survey	1
1 Scope.....	1
2 Terminologies and Definitions	1
3 General Framework of Nuclear Insurance Risk Assessment	1
4 Nuclear Insurance Risk Assessment Methods.....	3
5 Nuclear Insurance Risk Assessment Report.....	4
Bibliography	6

Introduction

The standards are drafted according to the rules of GB/T 1.1-2009.

The standards are formulated and administered by IAC.

Drafted by: China Property & Casualty Reinsurance Company Ltd., PICC Property & Casualty Company LTD., China Pacific Property Insurance Co., Ltd., Ping An Property & Casualty Insurance Company of China, Ltd.

Principal drafter(s): Liu Yubo, Jiang Ping, An Jiangtao, Liang Songbo, Wang Xin, Li Shenglan, Wang Honghai, Feng Jia, Liu Shengyang, Li Qiang.

Risk Assessment Guideline for Nuclear Insurance Survey

1 Scope

The standards herein contain provisions with regard to the general framework, modules and procedures for the risk assessment of civil nuclear facilities that are currently under operation or are about to be put into operation.

The standards are applicable to nuclear insurance risk assessment that are conducted by insurance professionals on civil nuclear facilities. The standards can be used as reference to the nuclear insurance risk assessment of radioactive sources.

2 Terminologies and Definitions

The following terminologies and definitions are applicable to the standards herein.

2.1 Civil Nuclear Facilities

Civil nuclear facilities refer to all nuclear reactors and assemblies that are used for non-military purposes including nuclear power plants, nuclear thermal power plants, nuclear gas and heating supply plants, other reactors such as research reactors, experimental reactors and critical assemblies, nuclear fuel recycling facilities, and facilities that are used for the treatment, storage and disposal of radioactive wastes.

2.2 Nuclear Insurance

Nuclear insurance refers to property insurance to cover civil nuclear facilities nuclear risks.

2.3 Nuclear Risk

2.4 Nuclear risk refers to any risk arises out of or results from ionizing radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear material coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter. Risk Assessment

Risk assessment refers to the process to give full consideration of the probability of risks and the extent of losses on the basis of risk identification and risk estimation and with reference to other factors, and to compare with good practices and general indexes of the industry so as to measure the extent of the risk and decide on relevant steps to be taken.

3 General Framework of Nuclear Insurance Risk Assessment

Nuclear insurance risk assessment refers to the risk appraisal and technical evaluation that are conducted in different areas such as site conditions, organizational management, safety culture, operation and operating

experience, training, radiation protection, industrial safety, equipment performance, conditions and configuration management, maintenance, technical support, chemistry, fire protection, and emergency preparedness, with reference to the highest international standards of the industry, the general performance indexes, and the good practices, and on the basis of operating experiences derived from historical insurer compensation events, and from the perspectives of "insurance to prevent disasters and reduce losses".

3.1 Nuclear Insurance Risk Assessment Purposes

- a) To provide technical support and offer advice to underwriting, and to help underwriter identify and control risks.
- b) To offer risk management advice and introduce international good practices and operating experiences in various areas to the insured or the potential insured, and to assist the insured or the potential insured to improve risk management and enhance safe operation standard from the perspective of "insurance to prevent disasters and reduce losses".

3.2 Nuclear Insurance Risk Assessment Subjects

3.2.1 Nuclear Power Plants

On principle, assemblies that are on the same site and are built in the same period or of the same type shall be categorized into the same nuclear insurance risk assessment unit. For reactors that are built in different periods or have different types of nuclear assemblies, the scope of nuclear insurance risk assessment may be decided upon with the insured or the potential insured according to *No.12 Instruction on the Methods to Categorize Risk Units for Property Insurance: The Operating Period of Nuclear Power Station* as issued by the regulating authorities.

3.2.2 Civil Nuclear Facilities other than the Nuclear Power Plants

On principle, the nuclear facilities that are on the same site and are built for the same purpose or for the same function shall be categorized into the same nuclear insurance risk assessment unit. For nuclear facilities that have nuclear assemblies of a variety of types and functions, the scope of nuclear insurance risk assessment may be decided upon with the insured or the potential insured.

3.3 Nuclear Insurance Risk Assessment Period

3.3.1 Nuclear Power Plants

- a) For any nuclear power plant that is about to be put into operation, nuclear insurance risk assessment must be conducted before its first fuel loading.
- b) For any nuclear power plant that is already under operation, nuclear insurance risk assessment must be conducted on a regular basis. On principle, the period of nuclear insurance risk assessment is as follows:
International Nuclear Insurance Risk Assessment period: once every four or five years;
Domestic Nuclear Insurance Risk Assessment period: once a year. Combine when the two processes occur simultaneously.

3.3.2 Civil Nuclear Facilities other than the Nuclear Power Plants

On principle, nuclear insurance risk assessment must be carried out once every two years owing to the complexity of this type of nuclear facilities. The exact nuclear insurance risk assessment period shall be agreed upon after discussion with the insured.

3.4 Nuclear Insurance Risk Assessment Areas

Normally, nuclear insurance risk assessment is conducted in three areas: Nuclear Safety, Operations & Third-Party Liability, Machinery Breakdown, and Fire Protection.

3.4.1 Details of Nuclear Insurance Risk Assessment Areas

- a) Nuclear Safety, Operations & Third-Party Liability: chiefly include site conditions (including natural risks and artificial risks), management and operation, nuclear safety management, nuclear safety culture, and off-site third-party liabilities.
- b) Machinery Breakdown: chiefly include major problems and modification information discovered from the basic information, failure logs, maintenance records, and maintaining processes about major machinery and electrical equipment.
- c) Fire Protection: chiefly include the organization and management, combustible control, zoning of fire protection areas and building fire prevention measures, fire protection system design and maintenance, fire brigade development, fire protection for special risk areas, and fire protection considerations for nuclear risks.

3.4.2 Choice of Nuclear Insurance Risk Assessment Areas

One or more areas may be chosen for each nuclear insurance risk assessment. The exact coverage of the nuclear insurance risk assessment shall align with that of the insurance.

3.5 Nuclear Insurance Risk Assessment Surveyors

In light of the particularity of civil nuclear facilities, the surveyors should have qualifications or must be professionally competent, and nuclear insurance risk assessment should be conducted in strict accordance with the regulations of civil nuclear facilities operators. The surveyors should abide by the rules of confidentiality, and should make sure that the files, documents and other information provided by civil nuclear facilities operator should be used for the nuclear insurance risk assessment purposes only, and that the confidentiality of all the information including the nuclear insurance risk assessment report itself should not be compromised in the using and transmitting process.

4 Nuclear Insurance Risk Assessment Methods

The nuclear insurance risk assessment can be conducted via questionnaires, document review, technical interviews and site inspections.

4.1 Nuclear Insurance Risk Assessment Procedures

Nuclear insurance risk assessment procedures chiefly include the following:

- a) Making pre-survey preparations;
- b) Conducting site risk surveys;
- c) Drafting nuclear insurance risk assessment report.

4.2 Nuclear Insurance Risk Assessment requirements

4.2.1 Pre-survey preparations

4.2.1.1 Discussing with the insured or the potential insured to agree on the time, scope, details of the nuclear insurance risk assessment and decide on such issues as counterparts and agenda.

4.2.1.2 Collecting data

Issuing questionnaires and collecting necessary data. The data to be collected chiefly include but are not limited to the following:

- a) Profile about the operator;
- b) Profile about the civil nuclear facilities;
- c) Profile about the civil nuclear facilities' major equipment;
- d) Profile about the civil nuclear facilities' fire protection;

4.2.2 Site Risk Survey

Nuclear insurance risk assessment surveyors can be classified into three teams, namely, the team of Nuclear Safety, Operations & Third-Party Liability, the team of Machinery Breakdown and the team of Fire Protection. If necessary, a separate team of nuclear safety culture can be instituted. Each team shall conduct the risk survey according to the standard and guide via document review, technical interviews, site inspection, among others.

4.2.3 Discussions on Risk Improvement Suggestions

Nuclear insurance risk assessment teams shall hold discussions with the civil nuclear facilities operator about risk improvement suggestions. If improvements have been made and are regarded as satisfactory by the Insured, such suggestions should be closed.

5 Nuclear Insurance Risk Assessment Report

5.1 Contents of the Nuclear Insurance Risk Assessment Report

The nuclear insurance risk assessment report should include subject profile, subject risk analysis, results of risk survey, and risk improvement suggestions.

5.1.1 Subject Profile

Subject Profile includes but is not limited to the civil nuclear facilities's location, facility type, designed size, construction period and operation period, site conditions, adjacent population and economic standards as well as the equity structure, organization structure, and human resources of the operator.

5.1.2 Subject Risk Analysis

Subject risk analysis shall cover the civil nuclear facilities's major risk sources, risk types and risk history.

5.1.3 Nuclear Insurance Risk Assessment Results

The nuclear insurance risk assessment report shall offer qualitative or quantitative evaluation of the civil nuclear facilities 's nuclear insurance risks.

5. 1. 4 Risk Improvement Suggestions

- a) The nuclear insurance risk assessment report shall propose risk improvement measures in light of the identified concerns that may weaken the civil nuclear facilities' overall risk-resistant capabilities. The risk improvement suggestions must be able to assist the insured or the potential insured to improve risk control capabilities and enhance safe control performance from the perspective of "insurance to prevent disaster and reduce losses and in reference to the operating experiences and the international good practices for that area.
- b) The risk improvement suggestions should be graded according to the gravity of the potential consequences of the risk and the amount of expenses that have to be spent on the improvement.

5. 2 Submission of Nuclear Insurance Risk Assessment Report

Upon conclusion of the site survey, the risk surveyor teams shall submit an nuclear insurance risk assessment report to the insured or the potential insured within a given limit of time. Upon receipt of the nuclear insurance risk assessment report, the insured or the potential insured shall conduct internal surveys in accordance with the risk improvement suggestions, and shall provide written feedbacks to the nuclear insurance risk assessment teams within a set limit of time.

Bibliography

1. A Reply to the Issue of Compensation Liabilities for Nuclear Accidents; State Council Letter No. [2007] 64,
 2. Law of the People's Republic of China on Nuclear Safety, 1 Jan. 2018;
 3. No.12 Instruction on the Methods to Categorize Risk Units for Property Insurance: The Operating Period of Nuclear Power Station. Insurance Supervision Release [2007] No.36;
 4. CONVENTION ON SUPPLEMENTARY COMPENSATION FOR NUCLEAR DAMAGE. IAEA INFCIRC/567
-