EPC CONTRACT

CONTRACT SPECIFICATIONS

DOCUMENT NAME:	**OPERATION AND MAINTENANCE DOCUMENT**
VERSION DATE:	**March 2025**

CONTENT:

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- OPERATION AND MAINTENANCE DOCUMENT, ATTACHMENT 1 - 4.1 TABLE 1 - TYPICAL ORGANIZATIONAL CHART OF NPP IN OPERATION IN THE CZECH REPUBLIC
- OPERATION AND MAINTENANCE DOCUMENT, ATTACHMENT 2 - 4.2 TABLE 2 - EXAMPLE OF KEY MILESTONES AND REQUIRED OWNER'S PERSONNEL STAFING

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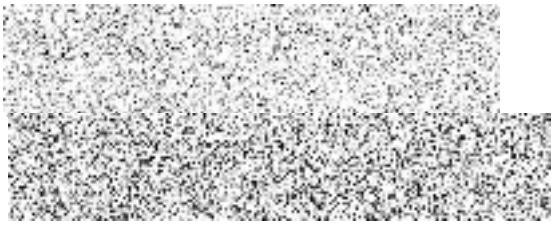
SIGNATURE PAGE

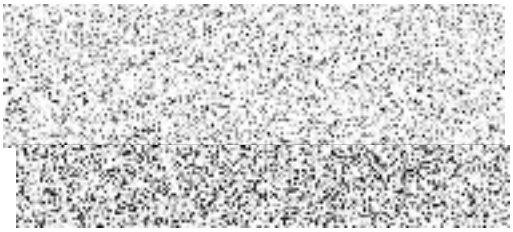
IN WITNESS WHEREOF the Owner* and the Supplier* have hereby signed the above listed parts of the EPC Contract*.

For and on behalf of the **OWNER**, **Elektrárna Dukovany II, a. s.**

Signature 
Name
Title

Signature 
Name
Title

For and on behalf of the **SUPPLIER, Korea Hydro & Nuclear Power Co., Ltd.**

Signature 
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0 INTRODUCTION

A

This Operation and Maintenance Document* defines the requirements related to the personnel (see Chapter 1 of this Operation and Maintenance Document*), training of the personnel (see Chapter 2 of this Operation and Maintenance Document*) and requirements related to Plant* operation and maintenance (see Chapter 3 of this Operation and Maintenance Document*).

B

This document further specifies requirements set up in the Terms and Conditions*, in particular, but not limited to, those defined in the Chapters 4, 18 and 19. This document is interrelated with other documents of the EPC Contract* and Nuclear Fuel Contract*, therefore it shall be read, construed and explained together with those related documents. For this purpose, this document contains references to other parts of the EPC Contract* or Nuclear Fuel Contract* containing, inter alia, specification of detailed requirements.

C

Requirements related to Plant Operability* are defined in the Chapter 14 of the Technical Requirements Document*.

1 PERSONNEL

1.1 GENERAL

Operating personnel - shall mean those members of the Owner's* personnel (among others Operators*, Shift Supervisor, shift technical advisor, field operators, technical support personnel, etc.) who are directly involved in the operation of the Plant*.

A

It is the intent of the Owner* to optimize the number of operating and maintenance personnel, both per shift and their total number. However, the number and qualifications of operating personnel shall be adequate for the safe and reliable operation of the Plant* in Normal Operation* and for DBC 2-4 and for DEC. The Supplier* shall provide to the Owner* the optimized numbers of the operating and maintenance personnel and the bases for the relevant staffing analysis.

AA

The organization and the number and qualifications of the operating and maintenance personnel shall be adequate also for the outage work to be performed by the Plant's* staff, and supervision of the work of the Owner's* suppliers. The Supplier* shall also provide to the Owner* analysis and expected number of the Owner's* maintenance suppliers personnel optimized for peak outage work and special processes (e.g. welding, nondestructive tests), special services (e.g. SW updating and/or SW testing) based on realized outage actions or modification actions.

AB

The Supplier*, based on its design, shall also analyze and provide to the Owner* the minimum number and composition of the operating personnel required to perform all the simultaneous operations necessary to bring the Plant* into the Safe State*.

B

It is the intent of the Owner* to complete initial recruitment in sufficient time before the Commissioning* in order to allow Owner's* personnel and Owner's* future maintenance suppliers personnel to gain experience of the design and construction by working alongside the Supplier's* personnel, and to receive appropriate training at NPP and familiarize themselves with the Plant*. By participating in design and construction activities, Owner's* personnel will acquire a better understanding of the design intents, the assumptions on which the safety criteria are based and the technical characteristics of the Plant*.

BA

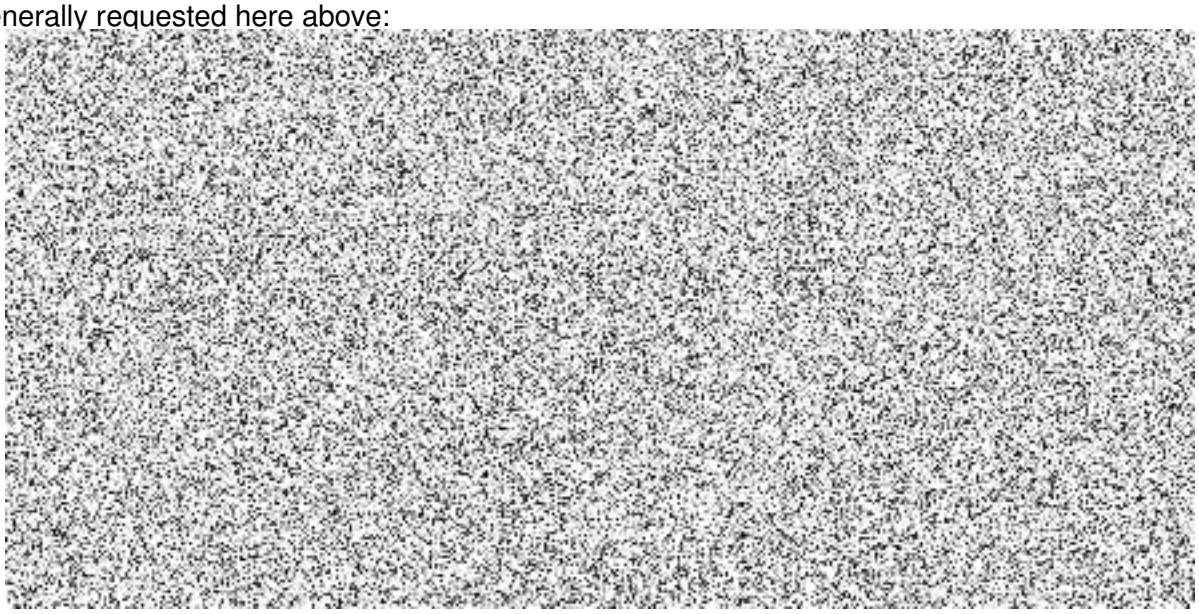
The Supplier* shall provide to the Owner* all necessary information (among others number of personnel, structure, etc.) and the Supplier's* requirements on involvement of Owner's* personnel at each stage of the Project* (design, construction, Commissioning*) and Plant* operation in accordance with the time frame stated in the item C below, so that the Owner* will be able to develop staffing plan and to recruit required number of personnel in time, which allows the Owner's* personnel to obtain training and required previous practices at NPP in operation. Therefore, the Supplier* shall provide required information as is described in the Operation and Maintenance Document*, Chapter 4, Table 2.

BB

Education, training and minimum length of practices at NPP in operation for licensed personnel are defined by the Czech Atomic Act* and Decree No. 409/2016 Coll., as amended. The Supplier* shall take into account that for Shift Supervisor it takes approximately 8 years to obtain previous training and practice at NPP in operation before placing him/her to the training for the new NPP.

BC

The Supplier* shall provide to the Owner*, but not limited to, following specific information as generally requested here above:



C

The Supplier* shall prepare and submit to the Owner* the final information requested in this Section 1.1 and its other requirements, if any, no later than one hundred and eighty (180) days following the LNTP1 Notice* issue.

D

In addition, the Supplier* shall also provide to the Owner* all necessary data, analysis and documentation enabling the Owner* to prove to the Authorities* any requirement and/or recommendation of IAEA Specific Safety Standards and relevant Safety Guide dedicated for NPP personnel (e.g. SSR-2/2, NS-G-2.14, NS-G- 2.8, etc.).

1.2 ORGANIZATION

A

The organization of the Plant* personnel is the responsibility of the Owner* who shall be supported in this task by the Supplier*. The Supplier* shall provide a recommended organization for the Plant* personnel to the Owner* in accordance with the requirements stated in this Chapter.

AA
Proposed organization of the Plant* personnel and relevant documentation shall be adjusted to the conditions of operation of the Plant* at the Site* and shall correspond with the Rules*.

AB
The Supplier* shall develop documentation describing the Plant's* functional organizational chart which shall indicate the staffing arrangements within the categories of direct line operating personnel and technical support personnel. The Supplier* shall clearly describe functional responsibilities, lines of authority and lines of internal and external communication for the safe operation of the Plant* in the Normal Operation* and for DBC 2-4 and for DEC.

Clear links of responsibility between operating personnel and technical support personnel shall be described, taking into account the Plant* safety.

The extent to which the technical support personnel support functions are self-sufficient or dependent upon services from outside the Plant* organization shall be demonstrated by means of functional organizational charts and the Supplier* shall provide description which include personnel resource allocations and specify the duties and responsibilities of key job positions.

AC
To ensure proper transfer and understanding of the Plant* design intent and assumptions, information and experience, the Supplier* shall assure that the preparation of the Owner's* operating organization is coordinated with design, construction, the Commissioning*, manufacturing and other groups or organizations involved with the Project*.

AD
The Supplier*, in its proposal of the Owner's* operating organization, shall consider relationship between the Plant* personnel and administrative policies and procedures. The Supplier's* proposal shall avoid undue burden of the Plant* personnel due to administrative policies and Owner's* operating organization shall be sized and structured in such a way that allows safe and effective control of all operation and maintenance-related activities (including outage work).

AE
The proposal of the Owner's* operating organization shall be as far as possible based on organization established on NPPs in operations in the Czech Republic. All deviations proposed by the Supplier* shall be clearly described. Therefore, the Supplier* shall provide required information as is described in the Operation and Maintenance Document*, Chapter 4, Table 1.

B
The Supplier's* description of the structure and the functions to be performed by the individual departments in the operating organization of the Owner*, on and off the Site*, and by the individual job positions in each department, as well as the lines of responsibility, authority and communication, shall be unambiguous and shall be provided in detail enabling the Owner* to create its own version of the Plant* organization for Normal Operation* and for DBC 2-4 and for DEC.

BA
To ensure that there is a clear understanding of responsibilities and relationships between organizational departments and between personnel within the Plant* organization and Owner´s* supplier's personnel, the Supplier* shall provide to the Owner* detailed job position specifications. These relationships shall be clearly defined for all activities having a direct or indirect impact on the safety.

BB
The structure of the operating organization of the Owner*, described in the Supplier's* proposal, shall be specified so that all job positions which are important to safety and for safe operation are specified and described.

C
The description of the responsibilities and competencies needed for each job position shall form the basis for the definition of the required qualifications and of the prerequisites for recruiting, training and continuing training and retraining of the individual persons. Therefore, the Supplier* shall develop detailed analysis of tasks and activities to be performed by the Owner's* personnel based on the Supplier's* developed description of the responsibilities and competencies needed for each job position. The Supplier* shall provide to the Owner* for information here above mentioned analysis which shall contain analysis of tasks and activities to be performed by Owner´s* suppliers maintenance personnel.

D
The number of personnel on each shift and their responsibilities shall be based on Supplier's* Plant* design and shall satisfy requirements of the Rules* (especially see Decree No. 409/2016 Coll., as amended). The shift personnel shall be staffed in such a way that a sufficient number of licensed operators and other licensed staff (reactor physicists and radiation protection personnel), as defined by the here above mentioned Rules*, are available for the reliable accomplishment of assigned tasks for the Normal Operation* and for DBC 2-4 and for DEC.

DA
The Supplier* shall include in the shift the Shift Technical Advisor (STA). The Supplier* shall clearly describe training and responsibilities of this job position.

Note:
Due to Owner's* requirement to use the symptomatic oriented procedures and for reason to support to the Control Room Supervisor for engineering expertise in the control room of an affected Unit* in the event of DBC 2-4 and in DEC it is requested that the shift is supplemented by additional licensed personnel – STA. STA shall evaluate the Plant* conditions and provide technical expertise and analytical assistance for the Normal Operation* and for DBC 2-4 and for DEC. For the transient Operational States* and for DBC 2-4 and for DEC this job positions shall analyze the adherence of critical Plant* parameters to those predicted in the safety analysis to verify that the Plant* is responding adequately.

DB
The shift crew shall also include shift technical support personnel (field operators, radiation protection, Plant* water chemistry and other categories of technical support based on the Supplier's* design) for the direct operation of the Plant*. The number of personnel necessary

for technical support on each shift shall be determined by the Supplier* on the basis of the proposed organizational structure of the Owner* and the design characteristics of the Plant*. The functions, responsibilities and lines of reporting of such technical support personnel shall be also clearly specified by the Supplier*.

DC
The shift patterns, shift cycles and adherence to allowed working hours defined by the Rules* (also set by Act No. 262/2006 Coll., as amended) shall provide also sufficient time for the shift personnel training and retraining (including Training Simulator* training) and other activities outside shift (holidays, illness, etc.).

Note:
In the Czech Republic it is usual that at NPP in operation are used shift patterns with 7 shifts and working in line with schedule at maximum 8 hour per shift.

E
The Supplier* shall provide to the Owner* all necessary information, analysis and documentation enabling the Owner* to prove to the Authorities* any requirement and/or recommendation of IAEA Specific Safety Standards and relevant Safety Guide dedicated for NPP organization (e.g. SSR-2/2, NS-G-2.14, NS-G-2.4 and NS-G-2.8, etc.).

EA
Scope of information, analysis and documentation provided by the Supplier* shall also assure that the Owner* will be able in the future to assess, analyze and justify changes to the structure of the Owner's* organization, which are of a safety importance, independently on the Supplier*.

EB
The Supplier* shall prepare and submit to the Owner* a final proposal of recommended organization for the Plant* personnel and all other related documents, as requested in this Chapter, no later than one hundred and eighty (180) days following the LNTP1 Notice* issue.

EC
The Supplier* shall also provide assistance to the Owner* (including provision of analysis) so the Owner* will be able to fulfill all requirements set by the Authorities*.

2 TRAINING

A

Only qualified personnel of the Supplier* and the Owner* shall be acting in activities important to safety in all stages of the Project* and operation of the Plant*. For each category of personnel, the Supplier* shall provide requirements to obtain initial knowledge, developing and maintaining appropriate competence through education, experience and training, which Supplier* shall implement into the training programmes. For the purpose of the training the personnel shall be organized in profession categories (e.g. Control Room Supervisor, Shift Supervisor, Reactor physicists, I&C personnel, etc.).

2.1 GENERAL

A

Training and training documentation shall be provided by the Supplier* in accordance with the provisions of the Terms and Conditions*, Chapter 18 and without negative impact on the Contractual Time Schedule* and safety. This shall also include the Owner's* ability to train its personnel by itself.

B

The Supplier* shall accurately determine a trainee entry level knowledge and skills to ensure that the proposed training begins at an appropriate level. Particular entry level skills and skills obtained by the training for each job position or group of positions shall be included in the Supplier's* training programme. Therefore, the Supplier* shall determine justified demands for trainee entry level knowledge and skills to allow the Owner* to hire adequate candidates for the training in time.

Note:

The difference between skills and knowledge requirements of job position and trainee entry level skills and knowledge is what shall be provided by initial training programme.

Continuing training programme provide the closed loop that ensures that job competence is continually updated and maintained above minimum standards required by the relevant training programme.

Retraining programme ensures that the personnel obtain necessary job competence and skills for another job. Requalification is usually used for licensed personnel, for example retraining from the Turbine operator to the Reactor operator or previous kind of NPP and new kind of NPP.

Special trainings/OJTs should complement the initial training, continuing training and retraining and/or provide specific group of trainees with respective knowledge (i.e. specialised training for maintenance subcontractors, Training Simulator* engineering training etc.). The venue of special training/OJTs could be both Czech Republic or South Korea, as applicable.

BA

The Supplier* shall prepare and provide to the Owner* retraining programme for trainee with previous practice as is required by the Rules*, obtained at both NPP in operation in the Czech Republic.

C
The Supplier* shall consider that most of the Owner's* personnel will be inexperienced (graduates) therefore the Supplier* shall allocate sufficient time for the training. The Supplier* shall provide to the Owner* the training and training (formal, on job and the Training Simulator* training) documentation organized into segments, i.e. initial training of inexperienced, initial training of experienced personnel, continuing training, retraining and special training of the Owner's* personnel.

CA
A comprehensive training programme of initial training, continuing training and retraining (requalification to other job position) for all Owner's* personnel shall be established by the Supplier*.

D
Training documentation and materials (see Section 2.2 of this Operation and Maintenance Document*) shall be updated and shall include all changes to the relevant Rules* and/or procedures, modifications to the Plant* equipment and changes to the organizational structure for the whole period of the Project* until takeover of responsibility for the training of the Owner's* personnel by the Owner*.

Note:
Especially see the Czech Atomic Act*, Act No. 262/2006 Coll., as amended, Decree No. 409/2016 Coll., as amended, Decree No. 408/2016 Coll., as amended and Decree No. 21/2017 Coll., as amended for the requirements set on training, timeframe of training and continuous training, required level of education, previous practice of the licensed personnel, validation and verification procedures at the Training Simulator*, etc.

DA
The Supplier* shall also provide special training on internal and external operational feedback relevant for the safety of the Plant*, resolved under the system of operation internal and external feedback, until takeover of responsibility for the training of the Owner's* personnel by the Owner*.

E
The Supplier*, based on its knowledge of its Plant* design, shall prepare categorization of each job positions with respect to their importance to safety. This categorization shall be approved by the Owner* for each job position.

EA
The Supplier* shall incorporate results of the approved categorization into the training programmes.

EB
In addition, the Supplier* shall include into the training programmes requirements on the acquisition of the knowledge and practical experience of the Owner's* personnel (including requirements on the job training of the Owner's* personnel at the Supplier's* and/or Subcontractor's* facilities, if applicable).

F
The Supplier* shall, in line with the Contractual Time Schedule* and based on information provided to the Owner* in the Chapter 1 of this document, provide to the Owner* schedule of training and required number of the Owner's* personnel to be trained for each job position or groups of job positions in each stage of the Project* up to the Provisional Takeover* of the later unit (i.e. design, construction, Commissioning*) for approval.

FA
The Supplier* shall, no later than thirty (30) days following the LWA Date*, provide the Owner* for approval the schedule and required number of the Owner's* personnel to be trained during LWA Phase* (Owner's* personnel involved in the Project* activities during LWA Phase*, e.g. Owner's* design participants, Owner's* management, etc.).

FB
The Supplier* shall, no later than thirty (30) days following the LNTP2 Notice* issue, provide the Owner* for approval the schedule of training and required number of all Owner's* personnel to be trained after FNTP Notice* issue. The schedule of training shall be in line with the Contractual Time Schedule* and shall respect requirements set by Rules*.

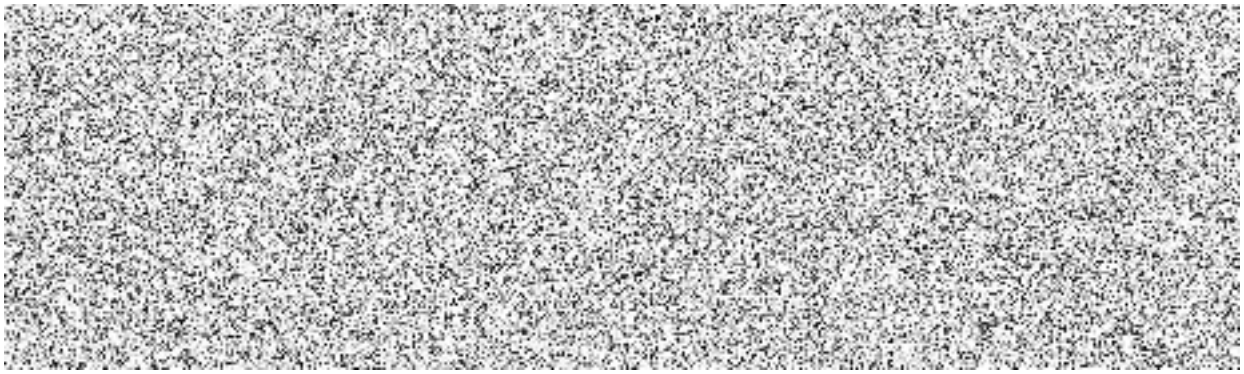
G
The Supplier* shall, no later than thirty (30) days following the LNTP2 Notice* issue, provide the Owner* information describing Owner's* personnel training in the scope and detail required by the Rules* (especially see the Czech Atomic Act*, Annex 1, par. 1 b)

H
The Supplier* shall establish requirements on qualification of the Owner's* training instructors (including Training Simulator* instructor), number of Owner´s* training instructors for initial training, continuing training and retraining, division of training subjects among Owner´s* training instructors and the time schedule of incorporation of Owner´s* training instructors into training preparation activities and shall provide them to the Owner* no later than one hundred and eighty (180) days following the LNTP1 Notice* issue. The Supplier* shall determine justified demands for trainee entry level knowledge and skills to allow the Owner* to hire adequate candidates for the training in time.

HA
The Supplier* shall analyze and determine the final number of Owner´s* training instructors necessary to perform the initial training, continuing training and retraining in accordance with Contractual Time Schedule*. The number of Owner´s training instructors should be appropriate for expected training activities and shouldn´t cause undue delay to the project.

HB
The Supplier* shall analyze and assign training subjects within the initial training, continuing training and retraining among the Owner´s* training instructors in a suitable way that shouldn´t place undue burden on Owner´s training instructors and hinder their ability to prepare the initial training, continuing training and retraining programmes and implementation of mentioned training.

HC
The Supplier* shall incorporate Owner´s training instructors into Systematic Approach to Training activities, development of training documentation (see Project Management document, Attachment 3, chapter 3.2) and other training related activities, if applicable, in an appropriate way.



IA
The Supplier* shall provide to the Owner* curriculum vitae of its training instructors (excepting training instructors of the Owner*) and shall provide to the Owner* documented assurance that its training instructors have the required qualifications prior to the commencement of the training. Owner* will make sure that Owner´s* training instructors are proficient in English.

J
The Supplier* shall use a Systematic Approach to Training methodology to ensure that training process and training documentation and materials for the Owner's* personnel are prepared, analyzed, designed, developed, implemented and evaluated on the basis of an analysis of the responsibilities and tasks of the particular job positions.

JA
The Supplier* shall define minimum time of both formal training the Training Simulator* training and on job training, designate their inputs and outputs, type of the feedback from the training, etc.

JB
The Supplier* shall, as a part of the Development phase of Systematic Approach to Training methodology, create training materials and training aids according to training needs (e.g. training texts, syllabi, define utilization of operational and maintenance procedures during the training, etc.) and shall define utilization of HW and SW support for training, including utilization of audio and media equipment.

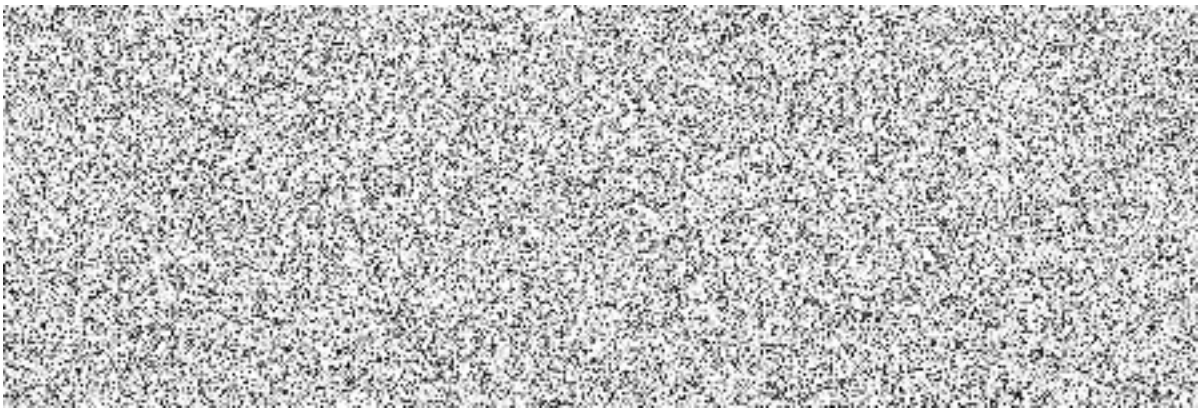
K
The Supplier* shall provide to the Owner* for review and approval administrative procedure which will describe timely modification and updating of the training facilities, computer models, simulators, training materials etc. during all stages of the Project* (especially during the Commissioning*) as part of the training documentation. The Supplier* shall ensure that current stage of the Commissioning* up to the Provisional Takeover* of the relevant Unit* (including

modifications, if applicable) are reflected in the training (i.e. training documentation, HW and SW of simulators, etc.) and these changes are incorporated into the training in timely manner.

L
The Supplier* shall provide the Owner* all necessary information, analysis and documentation enabling the Owner* to prove to the Authorities* compliance with any requirement of the Rules*, IAEA Specific Safety Standards and relevant Safety Guide dedicated for the Operation and Maintenance Document*, Chapter 2 (as minimum SSR-2/2, NS-G-2.14, NS-G-2.4, NG-T2.2, NS-G-2.8 and NG-T-2.8) and to comply with good practices recommended in WANO, INPO, and WENRA documents.

LA
The Supplier* shall provide to the Owner* documentation set by the Rules* for successful licensing process for the training of the Owner's* personnel (especially see Decree No. 409/2016 Coll., as amended).

LB
In addition, the Supplier* shall provide assistance to the Owner* (including provision of analysis and/or documentation) so that the Owner* will be able to fulfill all requirements set by the Authorities*.



2.2 TRAINING DOCUMENTATION AND MATERIALS

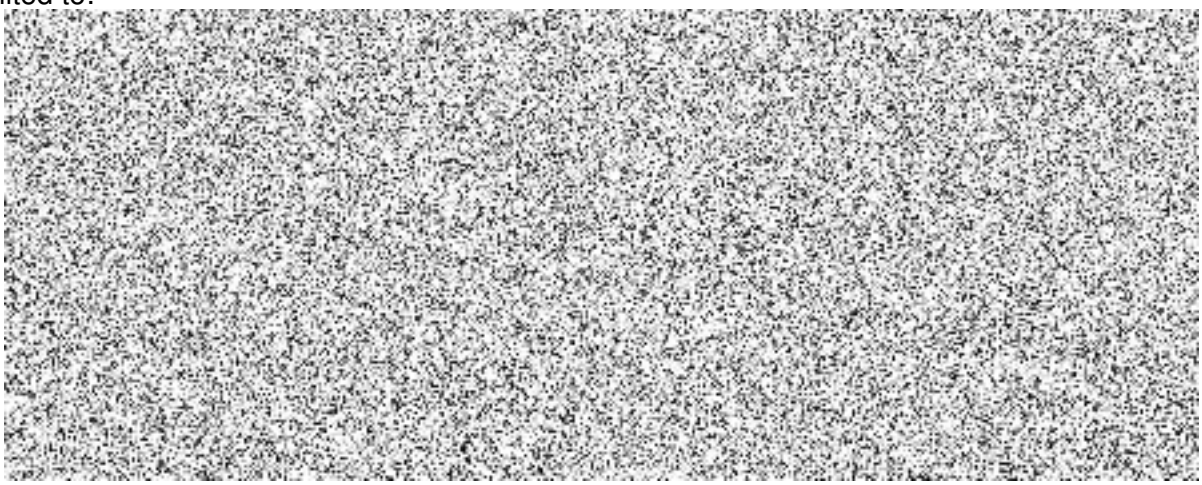
A
The Supplier* shall ensure that the training and qualification requirements for all jobs/positions in the Owner's* organization are established. Therefore, the Supplier* shall provide to the Owner* training documentation and materials developed in accordance with the general principles set by Section 2.1 of this Operation and Maintenance Document*.

Training documentation shall be provided to the Owner* in accordance with the Scope of Supply Document*, Section 2.2.3.10 and Terms and Conditions*, Chapter 18 and is subject of the Owner's* approval.

AA Training documentation shall be developed and updated in accordance with the Rules*.

B

The training documentation and materials provided to the Owner* shall consist of, but not limited to:



Note:

For more specific requirements see IAEA NG-T-2.8 and IAEA No. NS-G-2.8.

BB

In addition, the Supplier* shall provide to the Owner* for information Systematic Approach to Training methodology documentation (e.g. used analysis and its results developed during process and description of how first three phases of Systematic Approach to Training methodology were fulfilled and evaluated by the Supplier* no later than thirty (30) days after FNTP Notice* issue.

C

The Supplier* shall develop, establish and maintain training documentation, including history of each trainee (e.g. provided training, on job training, test results, evaluation, attendance lists, etc.) until takeover of the responsibility for the training by the Owner*.

CA

The Supplier* shall provide administrative procedure describing periodic review of training documentation, including incorporation and justification of trainee feedback.

CB

The Supplier* shall appropriately incorporate into the training documentation an operating experience gained at the Plant*, as well as relevant experience at other plants.

CC

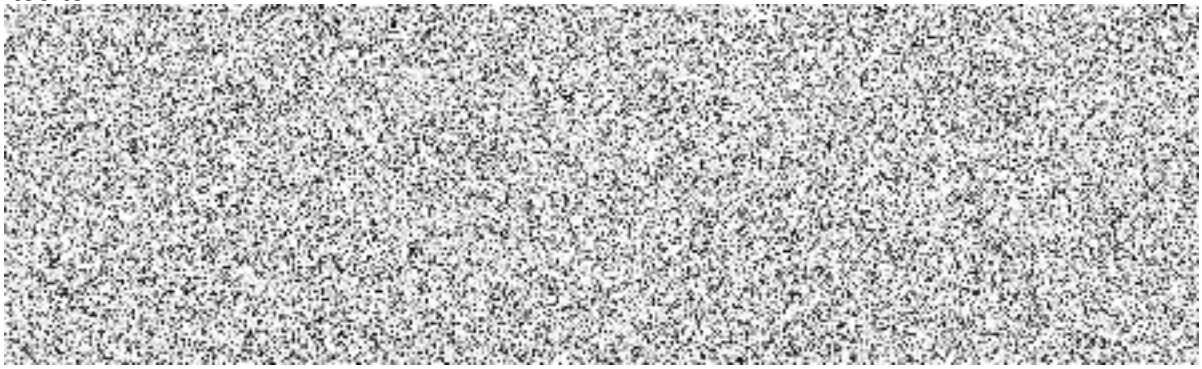
All changes of the training documentation shall be also approved by the Owner* before their implementation.

D

Training documentation shall be coordinated and shall be content-compliant with documentation for operation, maintenance and documentation for the Commissioning* of the Plant*.

E

Training documentation shall cover training on the Training Simulator* and shall incorporate training scenarios for Normal Operation* states and for DBC2-4 and for DEC. Therefore, the training documentation shall also include training scenarios for the training of DBC and DEC states which are consistent with the approved Documents* for operation.
The Supplier* shall provide to the Owner* the training scenarios which shall consist of, but not limited to:



For requirement set up on operation procedures see Operation and Maintenance Document*, Section 3.6.

EA

Training documentation shall cover a detailed Training Simulator* user manual enabling Training Simulator´s* instructors to understand how to prepare, manage and practice training on the Training Simulator* independently.

F

Training documentation shall cover documentation enabling the trainee to understand and practice human-machine interface.

G

The Supplier* shall provide documentation for maintenance of the Training Simulator* and other technical documentation required for operation and supervision of the Training Simulator* as is presented in Chapter 2.20 of the Technical Requirements Document*.

GA

The Supplier* shall provide to the Owner* special training related to Training Simulator* operation and maintenance to such extent that allows Owner´s personnel to operate and maintain the Training Simulator* and also implement Training Simulator* updates independently on the Supplier*.

2.2.1 TRAINING PROGRAMMES

A

The training programmes shall provide training goals, scope and content of training modules, training plans, duration of the formal training, the Training Simulator* training and on job training (based on Contractual Time Schedule*) for the various categories of the Owner's* personnel and for each stage of the Project*. The Supplier* shall take into account for the scheduling of the training the availability and preparedness of the Plant* facilities.

B
The training programmes shall be, where applicable, divided into modules of classroom training (formal, on job and the Training Simulator* training), each having specified goals and duration.

C
The training programmes shall mix both classroom training and on job training (including simulator training, laboratory training, mock up training, etc.) and shall also specify goals and duration of such on job training.

CA
The training programme for the licensed personnel, as is required by the Decree No. 409/2016 Coll., as amended, shall include the training at the Training Simulator*.

D
Content of the training programmes shall be prepared in accordance with IAEA NG-T- 2.8 and IAEA No. NS-G-2.8.

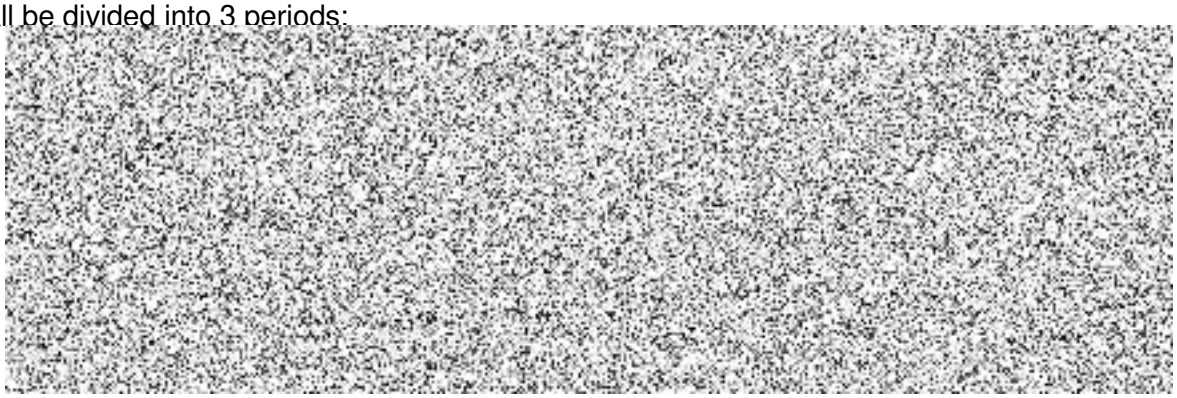
2.3 TRAINING REALIZATION

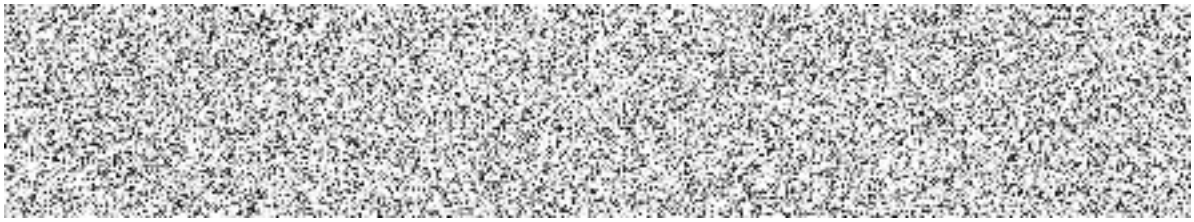
A
The training shall be carried out in accordance with the training documentation approved by the Owner*.

AA
The Supplier* shall provide training materials, training aids and implementation of the training in accordance with the training programmes and with the Contractual Time Schedule*.

AB
The Supplier* shall also provide training facilities as in detail specified in Technical Requirements Document*, Chapter 4.7 and in accordance with the Contractual Time Schedule*. Training facilities shall be prepared and equipped in time corresponding with training schedule.

B
Initial training, continuing training, retraining shall be scheduled, managed and organized by the Supplier* with the linkage to particular stages of the Project* (i.e. design, construction, the Commissioning*) and operation and shall correspond to the Contractual Time Schedule*. Training of each provided training programme for each job position or groups of job positions shall be divided into 3 periods:





Note:
Training of Owner´s* training instructors (the first period) shall start sufficiently in advance for the training instructors to be prepared and ready to perform the initial training of first generation of the Owner´s* personnel under the responsibility of the Supplier* and then next generations of the Owner´s* personnel under the responsibility of the Owner* (see paragraph 2.3 D) in time and quality.

The first generation of the Owner's* personnel means individuals defined by the Owner* who are trained in the training groups according to the corresponding training programme provided for each job position or groups of job positions as the first.
The end of the training of the first generation of the Owner's* personnel shall occur at the moment that the corresponding training programme provided for each job position or groups of job positions is completely finished (i.e. realized completely once to the end).

Next generations of the Owner's* personnel means further Owner's* personnel who are newly trained in the groups according to the same training programme provided for each job position or groups of job positions (e.g. in the second generation are trained trainees according to the corresponding training programme provided for each job position or groups of job positions after the training of the first generation of the Owner's* instructors and trainees according to the same training programme is completely finished).

BA
The Supplier* shall, in cooperation with the trainees, evaluate the first two periods of the training to support the third period of the Owner's* personnel training and shall implement any changes into the training documentation on the basis of the evaluation results and as approved by the Owner*.

BB
Special training shall be scheduled, managed and organized by the Supplier with the linkage to particular stages of the Project and operation shall correspond to the Contractual time schedule.

C
The Supplier* shall prepare and until takeover of the responsibility for the training by the Owner*, continually maintain following documents:

- Documentation of the training progress (e.g. assessment of trainee performance which includes written examinations, oral questioning and performance demonstrations).
- Documentation of the training process (e.g. documenting each Owner's* personnel formal and on job training and examinations of their results, so the Owner* will be able to prove to the Authorities* preparedness of the Owner's* personnel for correspondent stage of the Commissioning* and for operation).

Here above mentioned documentation shall be available to the Owner* and shall be a part of the documentation handed over to the Owner* at the moment of its takeover of the responsibility for the training.

D

At the end of the 2nd period of each realized training programme, the Supplier* shall prepare the document describing takeover of the responsibility for the training (including training on the Training Simulator*) of the Owner's* personnel by the Owner*. The takeover document shall be attached with the set of the documentation of the training progress and training process mentioned in the paragraph C above. The Supplier* shall provide the takeover document with attached documentation for Owner's* review and after incorporation of Owner's* comments it shall be mutually signed.

E

Important part of the on job training shall be participation of the Owner's* personnel on relevant activities at all stages of the Project* (design, construction, the Commissioning*) and operation.

EA

The Supplier* shall organize, based on results of Systematic Approach to Training methodology, special on job training for selected Owner's* personnel and Owner´s* maintenance suppliers personnel at the Subcontractor's* facilities and/or during Subcontractor's* works focused on the construction, fabrication, assembly and testing of particular Items Important to Safety*.

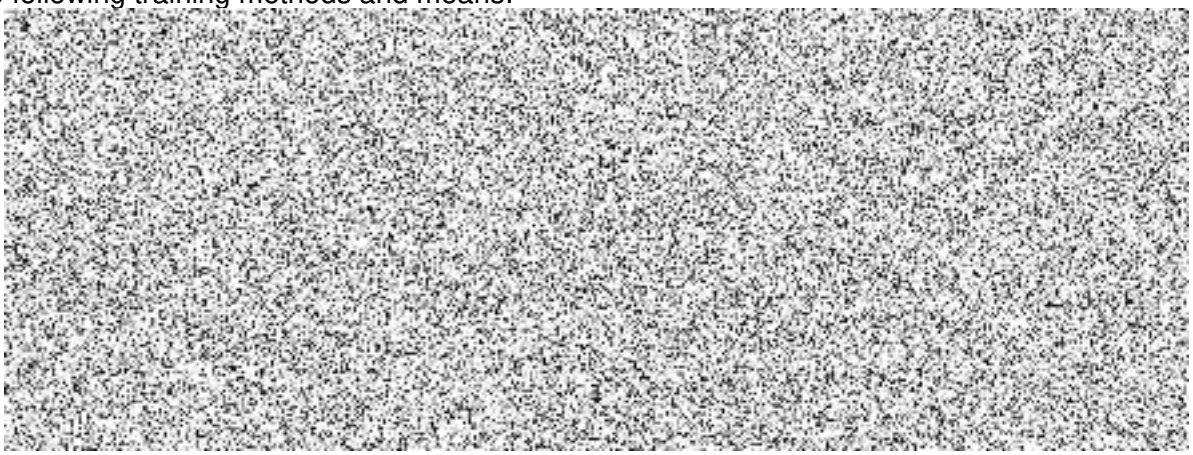
EB

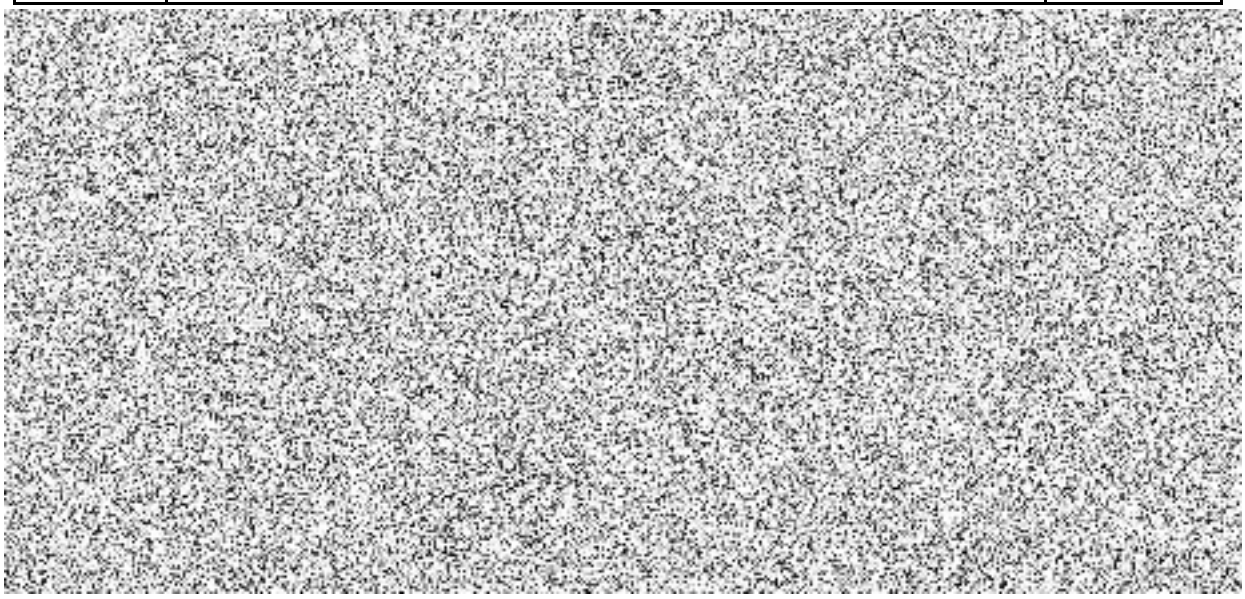
F

The formal training shall include lessons in the classroom mixed with intervals of the Training Simulator*, other simulators, computer based training, mockups, laboratory or workshop training.

FA

The Supplier*, based on results of Systematic Approach to Training methodology, should use the following training methods and means:





H

The Supplier* shall acknowledge that in addition to the initial training programme for the licensed personnel in the area of the reactor engineering, i.e. reactor physicists, covered under this Chapter 2, there are other specialized trainings in the reactor engineering area which are subject of the scope of supply in the NFC, Appendix J. The Supplier* shall assure that the initial training programme for the reactor physicists and the other specialized training for this profession provided under NFC shall be well coordinated, shall not duplicate in any part each other but rather complement each other, where applicable.

I

The Supplier* shall provide to the Owner* special training as required in the Technical Requirements Document*, Section 2.12.12.

J

The Supplier* shall also provide to the Owner* special training on the OIMS. Requirements on the OIMS are described in Project Management Document*, Section 4.12.

K

The Supplier* shall provide to the Owner* special training on the methodology, HW and SW tools used for the PSA (according to methodology described in the Technical Requirements Document*, Chapter 2.17.) and special training in relation to performance of safety assessment and update of all Licensing Documents* throughout the Plant* design life (according to requirements described in the Technical Requirements Document*, Section 2.19.2).

L

The Supplier* shall provide special training for all personnel at the Site* as is required in the Licensing and Permitting, Safety and Quality Document*, especially Section 2.1.2.

M

The Supplier* shall provide to the Owner* (such as Owner's* design participants, Owner's* management, etc.) special training to get familiar with design, engineering, licensing and permitting processes. Requirements on such training are defined in the Project Management

Document *, Section 2.10 and training shall be organized, managed and scheduled by the Supplier* as is required in the Operating and Maintenance Document*, Section 2.1.

3 OPERATION AND MAINTENANCE

3.1 GENERAL

A

AA

Therefore, the Supplier* shall also organize housekeeping, maintenance and/or Repair*, monitor, evaluate and document the maintenance actions and repairs realized in all stages of the Project* up to Provisional Takeover* of the relevant Unit*. All taken actions shall not decrease the reliability and life time of SSC.

AB The Supplier* shall perform remedial measures or repairs to SSC as promptly as practicable.

AC

The Supplier* shall, based on approved FME procedure, implement and monitor FME measures during all stages of the Project* up to the Provisional Takeover* of the relevant Unit*.

B

The organization of maintenance during all stages of the Project* up to the Provisional Takeover* of the relevant Unit* (especially for the Commissioning*) shall be adequately described and documented by the Supplier* so as to be clear to all Parties* involved.

C

The Supplier* shall ensure that the identification and labelling of SSC, equipment, rooms, piping and instruments are accurate, legible and well maintained and that they do not introduce any degradation in all stages of the Project* up to the Provisional Takeover* of the relevant Unit*.

D

The Supplier* shall ensure that MCR, ECR, other control rooms and all other related operational panels outside the control rooms will be kept operable, clean and free from obstructions, as well as from non-essential material that would prevent their immediate operation up to the Provisional Takeover* of the relevant Unit*.

E

The Supplier* shall ensure that all activities, especially safety related activities, are carried out in accordance with the authorized Documents* for operation and maintenance in order to ensure that the Plant* is operated safely and within the established Technical Specifications* in all stages of the Project* up to the Provisional Takeover* of the relevant Unit*. The mentioned activities shall be carried out with a high-level of safety culture standard.

EA
The Supplier* shall be aware that the availability of the authorized Documents* for operation and maintenance also for the Owner's* personnel and its correct use is an important contribution to the safe Commissioning* and operation of the Plant*. Therefore, Documents* for operation and maintenance, including reference documentation, shall be clearly identified by the Supplier* and shall be readily accessible also to the Owner's* personnel during all stages of the Project*.

F
When activities which are not included in the procedures and programmes for operation and maintenance are planned during the Project* up to the Provisional Takeover* of the relevant Unit*, the Supplier* shall provide special procedures which shall be written in accordance with the correspondent administrative procedure and which will include the contents and the operational and/or maintenance details of the proposed activity. Such procedures shall respect requirements set by the Rules* and shall be distributed in accordance with the correspondent administrative procedure and during the Active Testing* shall be also approved by the Owner*.

G
The Supplier* shall have Human performance programme in place at least prior to commencement of the Commissioning*. The Supplier* shall maintain, monitor and evaluate Human performance programme during the Commissioning* up to the Provisional Takeover* of the later Unit*.

GA
The Supplier* shall use pre-job briefings and post-job debriefing during the Commissioning* up to the Provisional Takeover* of the later Unit* as a means of avoiding personnel errors, difficulties in communication and misunderstandings. Administrative procedure for pre-job briefings and post-job debriefing shall be provided by the Supplier*. Supplier's* commissioning personnel shall use pre-job briefings and post-job debriefing, as minimum for all safety or safety related activities, in all stages of the Commissioning* up to the Provisional Takeover* of the later Unit*.

GB
In addition, the Supplier* shall evaluate risks of planned activities and shall determine adequate tools to avoid human errors.

GD
The Supplier* shall implemented high-level of safety culture level during all construction stages and maintain high-level of safety culture up to the Provisional Takeover* of the later Unit*.

H
The Documents* for operation and maintenance shall be used during the Commissioning* as far as the conditions at the Plant* will allow it. Therefore, the Supplier* shall schedule utilization of these Documents* to ensure that these procedures are adequately validated and verified (see also Section 3.3. of this Operation and Maintenance Document*).

HA
The Supplier* shall ensure that the Documents* for operation and maintenance will be verified to ensure their technical accuracy and will be validated to ensure their usability with the installed equipment and control systems.

HB
Verification and validation of the Documents* for operation and maintenance shall be performed by the Supplier* in cooperation with the Owner*.

HC
The Supplier* shall perform verification and validation of the Documents* for operation and maintenance, to the extent possible, prior to the commencement of Nuclear Fuel* handling operations at the Plant*.

HD
The Supplier* shall finish verification and validation of procedures for operation and maintenance during the Active Testing*.

HE
The Supplier* shall perform verification and validation of the Emergency Operating Procedures* and Severe Accident Management Guidelines* with respect requirements set by Rules*.

I
The Supplier* shall provide the Owner* all necessary information, analysis and documentation enabling the Owner* to prove to the Authorities* any requirement and/or recommendation of the Rules*, IAEA Specific Safety Standards and relevant Safety Guide dedicated for the operation and maintenance (e.g. NS-G-2.6, NS-G-2.2, NS-G-2.14, GS-G-1.1, SSR-2/2, NS-G2.4, SSG-28, NP-T-3.8, etc.) and to comply with good practices recommended in WANO, INPO, and WENRA documents.

J
Scope of information, analysis and documentation provided by the Supplier* shall also assure that the Owner* will be able in the future to assess, analyze, justify changes and update and/or optimize the Documents* for operation and maintenance, which are of a safety importance, independently on the Supplier*.

K
In addition, the Supplier* shall provide the Owner* with all necessary assistance (including analysis and documentation) so as the Owner* will be able to fulfill all requirements set by the Authorities*.

3.2 EVALUATION OF THE MAINTENANCE AND OPERATION

A
The Supplier* shall provide to the Owner* proposal of the policy for operation with respect to maintenance and other supporting functions (such as the extent of maintenance carried out on

the shift and during the Planned Outages*, the proposed extent of employment of contractors, external operational support etc.) during the design stage of the Project*.

B
The Supplier* shall provide to the Owner* Maintainability* and testability analysis for review during the design stage of the Project*.

BA
In these analysis, the Supplier* shall prove that the maintenance and testing configurations do not cause undue risk to the Core Damage* frequency and to the safety and efficient operation of the Plant*.

BB
The Supplier* shall maintain the Maintainability* and testability analysis during the Project* up to the Provisional Takeover* of the relevant Unit* and it shall be available for Owner* during the Project* and shall be provided to the Owner* as part of as-built Documents*.

BC
The Maintainability* and testability analysis shall achieve a suitable balance between design, operation and maintenance including surveillance and in service testing.

BD
The Maintainability* and testability analysis shall include results which shall be incorporated into programmes and/or procedures for operation or maintenance.

BE
The Supplier* shall ensure that all maintenance activities can be accomplished within the Planned Outages* period in accordance with the availability goals defined in the Technical Requirements Document*, Section 2.2.7.2.

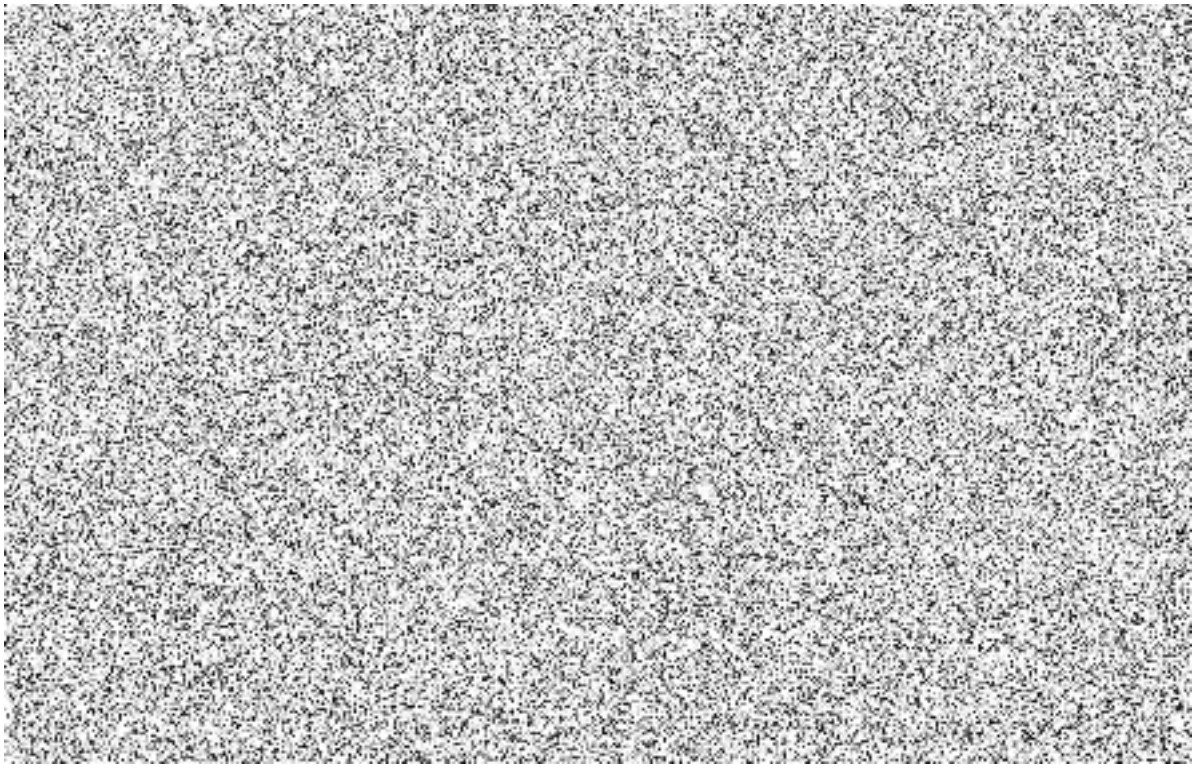
C
In addition, the Supplier* shall provide to the Owner* for information Maintainability* evaluation report during the design stage of the Project* and Maintainability* evaluation report shall be maintained by the Supplier* until Provisional Takeover* of the relevant Unit*. For specific requirements see the Technical Requirements Document*, Section 2.14.2.8.

3.3 PROCEDURE GUIDELINES

A
The Supplier* shall provide to the Owner* the Documents* for operation and maintenance (see Terms and Conditions*, Section 4.4 and Scope of Supply Document*, Section 2.2.3.6).

AA
The Documents* for operation and maintenance shall be developed and updated by the Supplier* up to the Provisional Takeover* of the relevant Unit* in accordance with the Rules*.

AB
The Documents* for operation and maintenance shall, but not limited to, consist of:



Note:
The lay up procedures shall contain guidelines and provision for protection of pipes, heaters, boilers, tanks and other components and equipment during all stages of the Project* and during operation, especially during the Commissioning* and outages.

3.3.1 GENERAL

A
Only the Supplier's* knowledgeable personnel shall prepare the Documents* for operation and maintenance.

AA
The Supplier* shall utilize co-operation of experts from manufacturing, design, construction and other organizations during preparation of the Documents* for operation and maintenance.

B
The Supplier* shall describe in the Documents* for operation and maintenance how the activities can be carried out safely and, where appropriate, identify the steps to be taken in the event of an abnormal situation. Acceptable margins shall be ensured between normal operating values and the established safety system settings to avoid undesirable frequent actuation of the Safety Systems*.

C
The Documents* for operation and maintenance and its changes shall respect requirements set by Rules*. The Supplier* shall also take into account the timeframe set by Mandatory Law* for documents and shall count with the time needed to familiarize/train operating personnel

with the Documents* for operation and maintenance during the planning of the Project* activities.

D
The Documents* for operation and maintenance shall be clear, straight-forward and userfriendly. The sequence and the steps which are presented in the Documents* for operation and maintenance shall prevent misinterpretation.

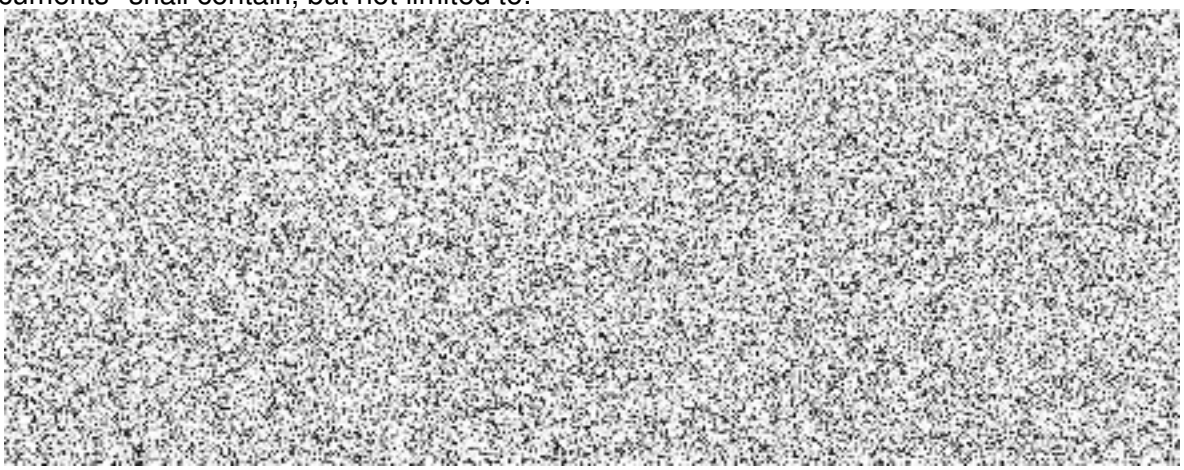
DA
The Supplier* shall use the techniques of Human factors, e.g. task analysis, in order to develop safe, reliable and effective Documents* for operation and maintenance. The Supplier* shall take into account layout of the control rooms, working area and conditions for maintenance and the Plant* design.

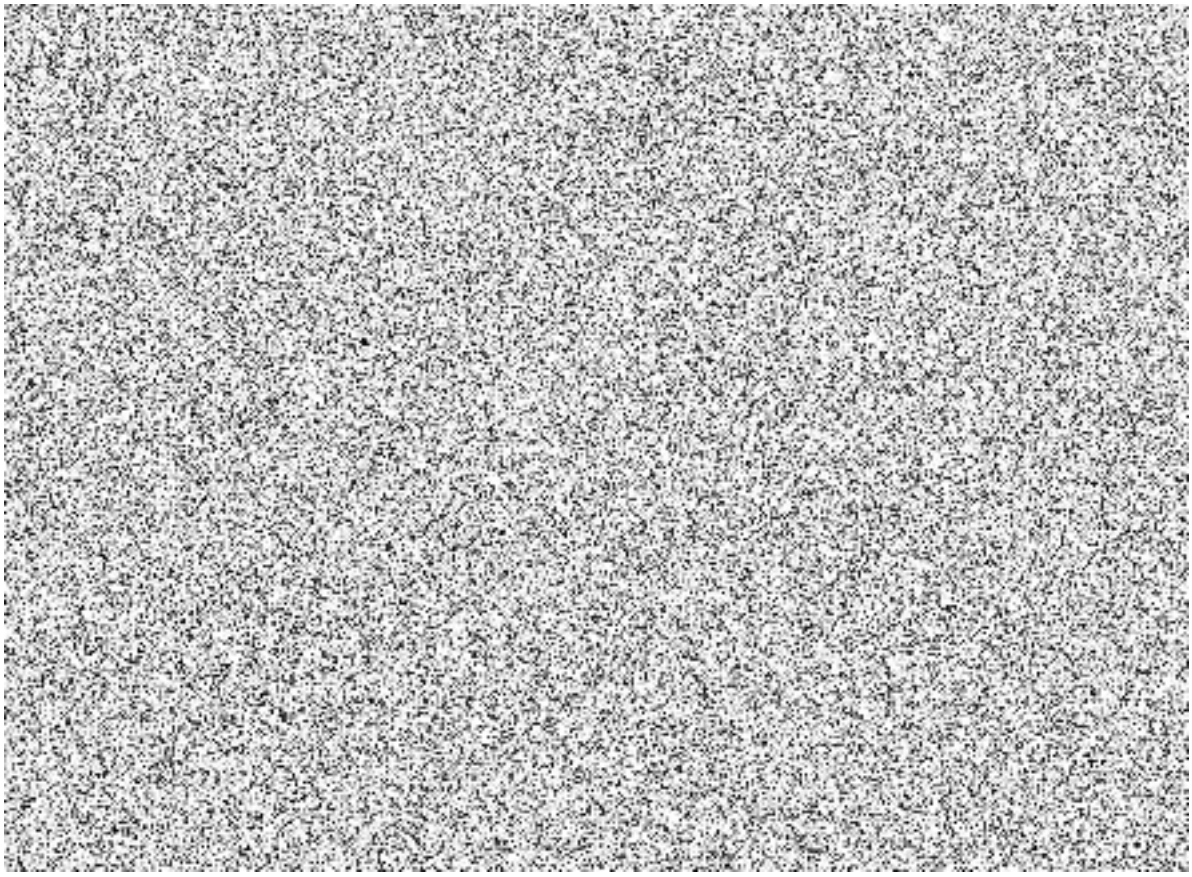
DB
The Supplier* shall also take into account organization of the Plant* personnel, resolution of past problems and operational experience feedback.

E
The Supplier* shall, as part of the Documents* for operation and maintenance, provide to the Owner* written explanations of used prerequisites, relevant design basis and results of analyses used in its process of developing the Documents* for operation and maintenance for each document related to the safety. This will allow the Owner* to be able to modify the Documents* for operation and maintenance independently on the Supplier* in future.

F
The level of detail of a particular document for operation and maintenance shall be appropriate for the purpose of the Documents*. The Documents* for operation and maintenance shall include clarification of objectives and ways of particular document use and, if applicable, shall contain reference to flow charts, drawings, mechanical interfaces - fits and tolerances and other relevant documentation and/or aids.

FA
According to purpose of the Documents* for the operation and/or maintenance, the Documents* shall contain, but not limited to:





G
The Supplier*, in the process of preparing maintenance procedures, shall determine their technical content and shall determine reference documents. These reference documents shall include appropriate drawings, codes, standards, instruction books and manuals including documentation provided by equipment suppliers.

GA
The information contained in the maintenance procedures shall be presented step by step in a logical order. The level of detail shall be such that the individual carrying out the work can follow the procedure without further guidance or supervision.

GB
The Supplier* shall specify requirements for calibration and verification of sensors, instruments and equipment.

GC
The Supplier* shall specify frequency of the maintenance and execution of the Inspections* and tests of the safety or safety related SSC in correspondence with Maintenance programme.

H
The Supplier* shall also provide to the Owner* electronically displayed procedures for operation.

HA
Computerized procedures for operation shall provide the flexibility to present the Plant* information to the Operators* and shall assist the Operators* in performing and/or verifying their tasks and help them gain an overview of the Plant* status.

HB
These computerized procedures for operation shall display online data from I&C. Such data from I&C shall be in the correct position in the text. For requirements on I&C see the Technical Requirements Document*, Chapter 2.10.

HC
For the Operator's* workplaces and, where practical, at other workplaces which utilize electronic displays, computerized procedures shall be utilized.

HD
For those workplaces where application of computerized procedures is not practical, authorized hard copy of the operating procedures shall be available.

I
The hard copy of the procedures for operation shall be as similar as possible to the information displayed on the electronic displays.

J An authorized hard copy of all procedures for operation shall be also available at the MCR.

JA
An authorized hard copy of all procedures for operation shall be also located at other working places where they are used or will be used in appropriate situations or if is required by Rules* (for example at the Emergency Control Room*).

K
The Documents* for operation and maintenance shall be available sufficiently in advance to the Owner* in order to the Owner* will be able review the Documents* for operation and maintenance prior to implementation of particular document (see Terms and Conditions*, Section 4.4). The Supplier* shall also take in account time needed for approve Documents* for operation and maintenance by the Owner* during the Active Testing*.

KA
Review and approval of Documents* for operation and maintenance imposes a major workload on the Owner's* personnel. The Supplier* shall take into account workload of the Owner's* personnel when the Supplier* will be preparing schedule of training, drawn up recommendation for the recruitment of Owner's* personnel and drawn up requirements on involvement of the Owner* in other Project* activities.

Therefore, handover of the Documents* for operation and maintenance for review and approval by the Owner* shall be carefully planned by the Supplier* well in advance and in line with the Contractual Time Schedule*, with the schedule of training and with Supplier's* requirements on involvement of the Owner* in other Project* activities.

KB
The Supplier* shall not provide to the Owner* Documents* for operation and maintenance in such a way that places undue burden on the Owner's* personnel, therefore handover schedule of the Documents* for operation and maintenance shall be reviewed and approved by the Owner*.

L
The Supplier* shall provide the Documents* (including flowcharts, drawings, graphics, etc.) for review in accordance with the Terms and Conditions*, Article 4.1.13 and 4.1.14 and the Project Management Document, Chapter 2.13.4.7.

Note: see also Operation and Maintenance Document*, Section 3.1 for other requirements for Documents* of operation and maintenance.

3.3.2 ADMINISTRATIVE PROCEDURES FOR OPERATION AND MAINTENACE

A
The Documents* for operation and maintenance shall be prepared, written, reviewed, modified when required, validated, authorized and distributed in accordance with correspondent administrative procedures provided by the Supplier* and established under the document management.

AA
The Supplier* shall provide to the Owner* for review and approval here above mentioned administrative procedures no later than at the commencement of the review process of Documents* for operation and maintenance by the Owner*.

AB
The administrative procedures shall ensure that the Documents* for operation and maintenance are issued, authorized, updated and distributed in controlled conditions to prevent the use of the superseded and/or unauthorized Documents*.

AC
The administrative procedures shall ensure that all Documents* for operating and maintenance will be distributed for use only after they are approved by the Owner*.

AD
The administrative procedures shall ensure that Documents* for operation and maintenance are updated in a timely manner, especially during the Commissioning* (e.g. actual Plant* conditions and configuration, temporary or permanent modifications at the Plant*, gained experience, etc.) and under controlled conditions.

AE
The administrative procedures shall ensure that temporary changes to the Documents* for operation and maintenance will be properly controlled and shall be subject to appropriate review and approval by the Owner*.

The Supplier* shall such temporary changes promptly incorporate into permanent revisions of the Documents* for operation and maintenance, where appropriate, in order to limit the number of temporary procedures and their duration.

B
The Supplier* shall also provide to the Owner* for review and approval administrative procedure for the control of the Operator's* aids. The administrative procedure shall prevent the use of non-authorized Operator's* aids and any other non-authorized materials such as instructions or labels of any kind on the equipment, local panels, boards and measurement devices within the work areas during the Project*.

BA
The Supplier* shall, based on approved administrative procedure, implement and monitor measures for Operator's* aids during the Project* up to the Provisional Takeover* of the relevant Unit* to ensure that Operator's* aids contain correct information and that they are updated, periodically reviewed and approved.

BB
It is priority of the Owner* to minimize the use of, and reliance on, temporary Operator's* aids. The Supplier* shall, where appropriate, temporary Operator's* aids implement into permanent Plant* features or aids shall be incorporated into corresponding Documents* for operation and maintenance.

C
The Supplier* shall also provide to the Owner* for review and approval administrative procedures describing shift rules before the Commissioning* commencement.

CA
The Supplier* shall provide administrative procedure for shift turnover. The administrative procedure shall identify the persons involved and their responsibilities, the locations, times and conduct of the shift turnovers and the methods of reporting the Plant* status and shall include provisions for special circumstances such as abnormal Plant* status and unavailability of staff. The procedure shall provide clear declaration of acceptance of duty from the incoming shift persons before the outgoing shift persons are released.

CB
The Supplier's* administrative procedures shall ensure that adequate and prompt support is provided to shift crews in off-normal situation (e.g. problem with shift turnover/missing personnel, reporting obligations, communications contacts to the est leaders etc.) during the Project* up to the Provisional Takeover* of the relevant Unit*.

CC
The Supplier* shall ensure that requirements on reporting during the Project* up to the Provisional Takeover* of the relevant Unit* do not place an excessive burden on the Shift Supervisor and do not affect the Shift Supervisor's ability to supervise the shift crew and the development of the Plant* processes.

CD
The Supplier's* administrative procedures shall ensure that the Operators* will have sufficient time for preparation to planned activities on their shift during the Commissioning* up to the Provisional Takeover* of the relevant Unit*.

CE
The administrative procedure shall also identify rules and responsibilities of each particular shift persons during shift, for fulfilling and maintaining log sheets and control sheets and checklists, communications way and reporting of the Plant* status, etc. during the Project* up to the Provisional Takeover* of the relevant Unit*.

CF
The administrative procedure shall also ensure that the verbal and/or written instructions do not diverge from the established Documents* for operation and maintenance and do not compromise the Technical Specifications*.

D
The Supplier* shall provide to the Owner* for review and approval operating log sheets for all shift positions. Log sheets shall contain a description of the Plant* status and of all events and records of the data that are necessary to maintain a safe and efficient Plant* operation and shall contain information about compliance with the Technical Specifications*.

DA
The field operators log sheets shall specify the list of measurements and reference values necessary to assist them in assessing any reading taken in the field.

E
The Supplier* shall provide to the Owner* for review and approval FME procedure prior to commencement of equipment installation. FME procedure shall contain suitable arrangements for locking, tagging or otherwise securing isolation points for systems or components to ensure safety.

F
The Supplier* shall also provide to the Owner* administrative procedures to ensure that all maintenance, surveillance and Inspection* activities at the Plant* are carried out effectively and safely.

FA
The Supplier* shall take into account the interfaces between each activity and other activities such as maintenance on other systems or components, operation, radiation protection and further aspects.

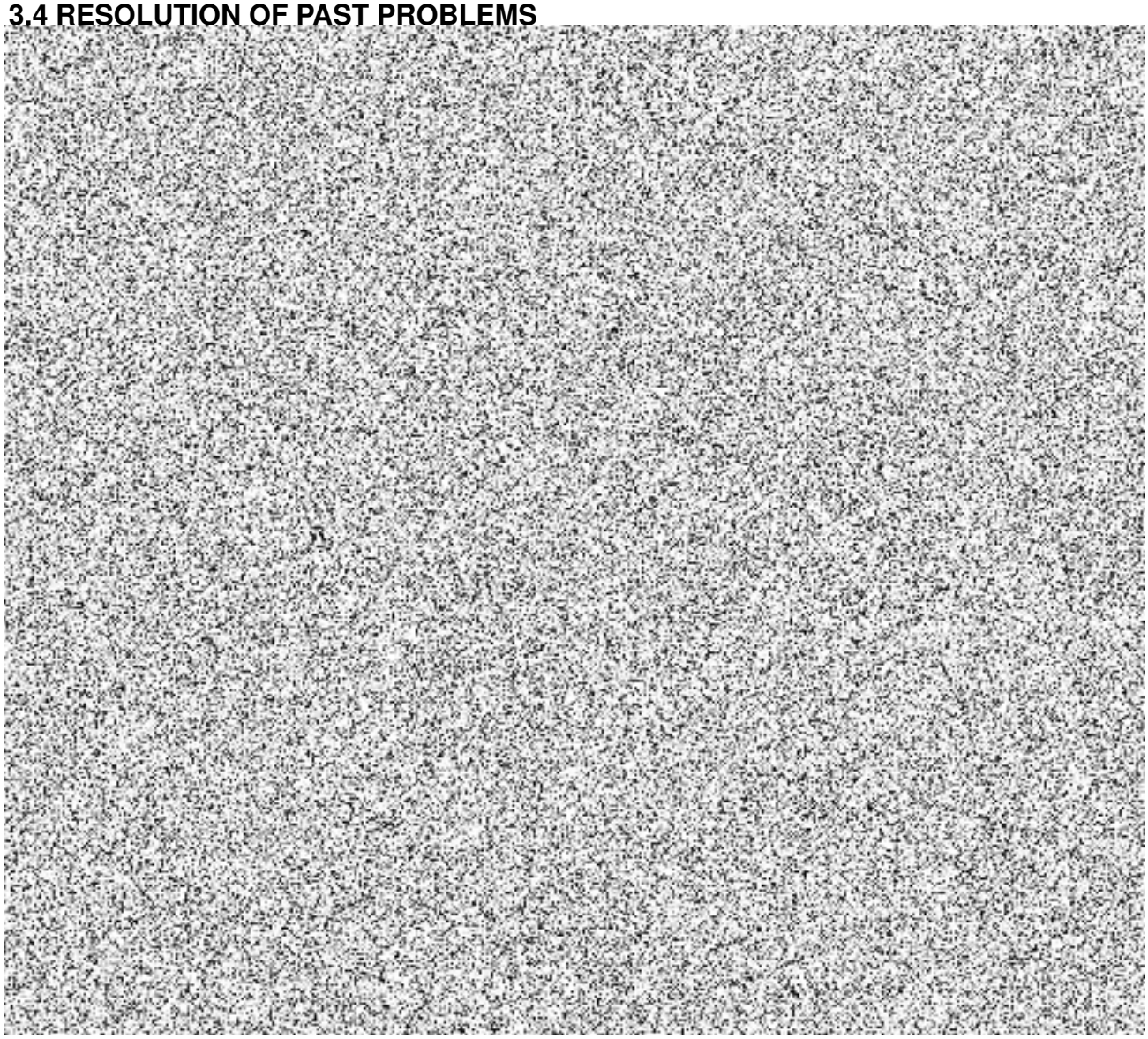
The aspects to be taken into account shall include, but not limited to, the following:

- Delineation of responsibilities between persons performing maintenance, testing, surveillance and Inspection* tasks and persons directly responsible for the Plant* operation.
- Ensuring that the operating personnel have adequate information about the Plant* status at all times during maintenance activities.

- Work management system (see Section 3.7 of this Operation and Maintenance Document*).

- Provision of a direct positive indication of equipment that is not available for the operational state. This includes tagging, where appropriate, and any steps to be taken to prevent unintentional return to service.
- Ensuring that, after maintenance, testing, surveillance and Inspection* tasks, the SSCs are inspected for their intended operational state and, where necessary, are tested by authorized persons before being formally declared functional and fully reinstated for operation.

3.4 RESOLUTION OF PAST PROBLEMS



3.5 MAINTENANCE

A

The Supplier* shall use a systematic approach to evaluation and to establish which maintenance tasks shall be performed, on which SSC, and at what intervals, in order to optimize the use of resources allocated for maintenance and to ensure the safety and availability of the Plant*.

AA

The Supplier* shall use systematic approach to maintenance in order to establish a maintenance programmes and to optimize maintenance programmes.

A systems approach to maintenance of the Essential Components* and safety classified Structures* shall include, but not be limited, to the following:

- systematic evaluation of the functions and objectives of SSC, to determine the necessary maintenance activities and the related requirements;
- focus on long term maintenance objectives, establishing a proactive as opposed to reactive maintenance approach;
- reliability centered approach to maintenance;
- maintenance planning and scheduling which is derived from overall maintenance programme objectives;
- systematic evaluation of planned maintenance activities by the PSA (Living PSA, Risk profile, etc.).

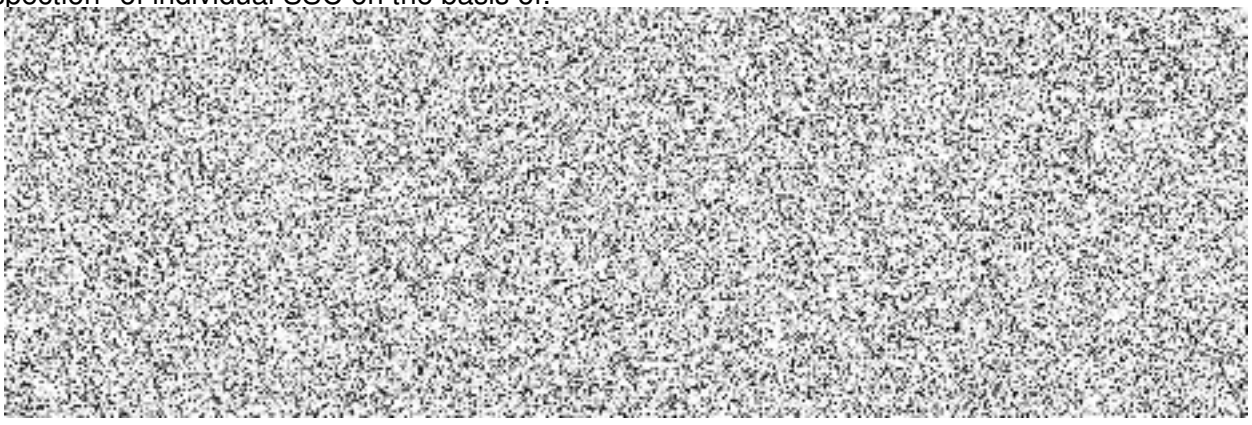
For more specific requirement set on PSA see the Technical Requirements Document*, Chapter 2.17 and for requirement set on PAM see the Technical Requirements Document*, Section 2.18.2.

B

The maintenance, testing, surveillance and in service Inspection* of all Essential Components* and safety classified SSC shall be to such a standard and at such a frequency so as to ensure that their levels of reliability and effectiveness remain in accordance with the assumptions and intent of the design throughout the Plant* lifetime and shall respect requirements set by Rules*.

BA

The Supplier* shall determine the frequency of maintenance, testing, surveillance and Inspection* of individual SSC on the basis of:



For more specific requirements set on ageing management, see Technical Requirements Document*, Section 2.4.2. and Chapter 2.15.5.5.F.

C
The Supplier* shall minimize, but without negative affecting Plant* performance, reliability or safety, the time required for the maintenance activities.

D
The Supplier* shall, when it will be preparing the Documents* for operation and maintenance, take into account Technical Specifications* as well as any other applicable Rules*.

E
The Supplier's* in service Inspection* programmes and procedures shall allow the Owner* examine SSC for possible deterioration and to determine whether they are acceptable for continued safe operation or whether remedial measures shall be taken. Emphasis shall be placed on examination of the pressure boundaries of the primary and secondary coolant systems.

F
The Supplier's* surveillance programmes and procedures shall verify that the Essential Components* and safety classified Structures* are ready to operate at all times and are able to perform their functions as intended in the Plant* design.

FA
The surveillance programmes and procedures shall ensure compliance with Technical Specifications* and shall enable the Owner* detect and correct any abnormal condition before it can have negative impact on the safety.

FB
The surveillance programmes and procedures shall also help the Owner* to detect trends in ageing and enable the Owner* prepare and implement the plan for mitigating the effects of ageing during operation and collect data to support long term operation analysis.

G
The Supplier's* testing programmes and procedures shall include periodic tests of Essential Components* and safety classified Structures* in order to demonstrate their reliability and allow the Owner* to determine whether they are acceptable for continued safe and reliable operation of the Plant* or whether any remedial measures are necessary.

H
The Supplier's* maintenance programmes shall cover all preventive and remedial measures, both administrative and technical, that are necessary to detect and mitigate degradation of a functioning SSC or to restore function of SSC to an acceptable level of performance and reliability intended by the Plant* design.

HA
The maintenance programmes shall include Predictive Maintenance* (based on expected behavior), Preventive Maintenance* (based on performance experience) and Corrective Maintenance* activities. These maintenance activities shall be conducted to maintain availability during the design life of SSC by controlling degradation and preventing failures.

HB
Preventive Maintenance* establishes maintenance activities on equipment independently of its actual condition but based on general past experience. Preventive Maintenance* programme shall be based on the appropriate Inspection* and maintenance codes.

Note:
Examples of such Inspection* and maintenance codes are American Society of Mechanical Engineers (ASME) Section XI and the French Règles de Surveillance en Exploitation des Matériels Mécaniques des îlots nucléaires (RSEM).

HC
Predictive Maintenance* aims at considering the specific equipment condition (ageing or deterioration for example) to anticipate Repair* or replacement needs. Predictive Maintenance* programme shall be based on the inputs from the equipment online condition monitoring system.

HD
Selection of representative equipment for these programmes shall be based on performance assessments as requested in the Technical Requirements Document*, Chapter 2.18.
Consistency of the design shall be checked by the PAM.

HE
The maintenance programmes and procedures shall also ensure optimal performance and reliability of the Plant* equipment and shall be based on RCM.

I
The Supplier* shall provide to the Owner* Preventive Maintenance* and routine Inspection* plans for the Plant* lifetime. Preventive Maintenance* plans shall be based on reliability analysis and shall be consistent with the spare part plans (for example addressing the identification of replacement pieces of equipment and the recommended amount of individual pieces of equipment).

J
The Supplier* shall optimize programmes for maintenance, testing, surveillance and in service Inspection* during the Project* up to the Provisional Takeover* of the later Unit* and provide proposed changes to the Owner* for review and approval.

JA
Up to the Provisional Takeover* of the later Unit*, the Supplier* shall use PSA and PAM for optimization of the maintenance programmes and shall evaluate the impact of maintenance optimization on PSA and PAM. The Supplier* shall, if applicable, incorporate back into the PSA and PAM results of optimization of the maintenance programmes.

JB
In addition, the Supplier* shall analyze changes deriving from the optimization of maintenance to assess the effects of the changed maintenance approach on system availability and the overall risks to the Plant* in all operation and shutdown states.

K
Maintenance procedures shall contain detailed instructions and controls necessary for carrying out surveillance, maintenance, testing, in-service Inspection*, lay up, etc.

KA
Maintenance procedures shall also contain instruction and drawings of places for equipment disassembly and reassembly, provision for decontamination, repair, technological limits, equipment adjustment, calibration of tools and equipment, I&C calibration, spare parts and special tools storage, consumable storage etc.

L

The Supplier* shall provide to the Owner* for review and approval lay up procedures.

LA
The Supplier* shall provide to the Owner* for approval recommended lay up practices during design stage of the Project*. Recommended lay up practices shall be based on the Supplier's* analysis which shall be in line with the Plant* design, protected components and equipment, the Supplier's* experience from the previous projects and shall be based on the state of the art.

3.5.1 REPAIR SHOPS

A
The Supplier* shall provide the Owner* with well-equipped repair shops designed for maintenance and Repair* of mechanical, electrical, and I&C equipment and contaminated equipment (hot workshop in controlled area).

AA
The Supplier* shall take into account that radioactive work areas shall be separated from clean work areas.

AB
The Supplier* shall take into account that on the Site* shall be at least one hot workshop per Unit* plus one Plant* clean workshop common for the Plant*.

AC
The Supplier* shall, as part of design documentation, provide lay-out of repair shops and its facilities.

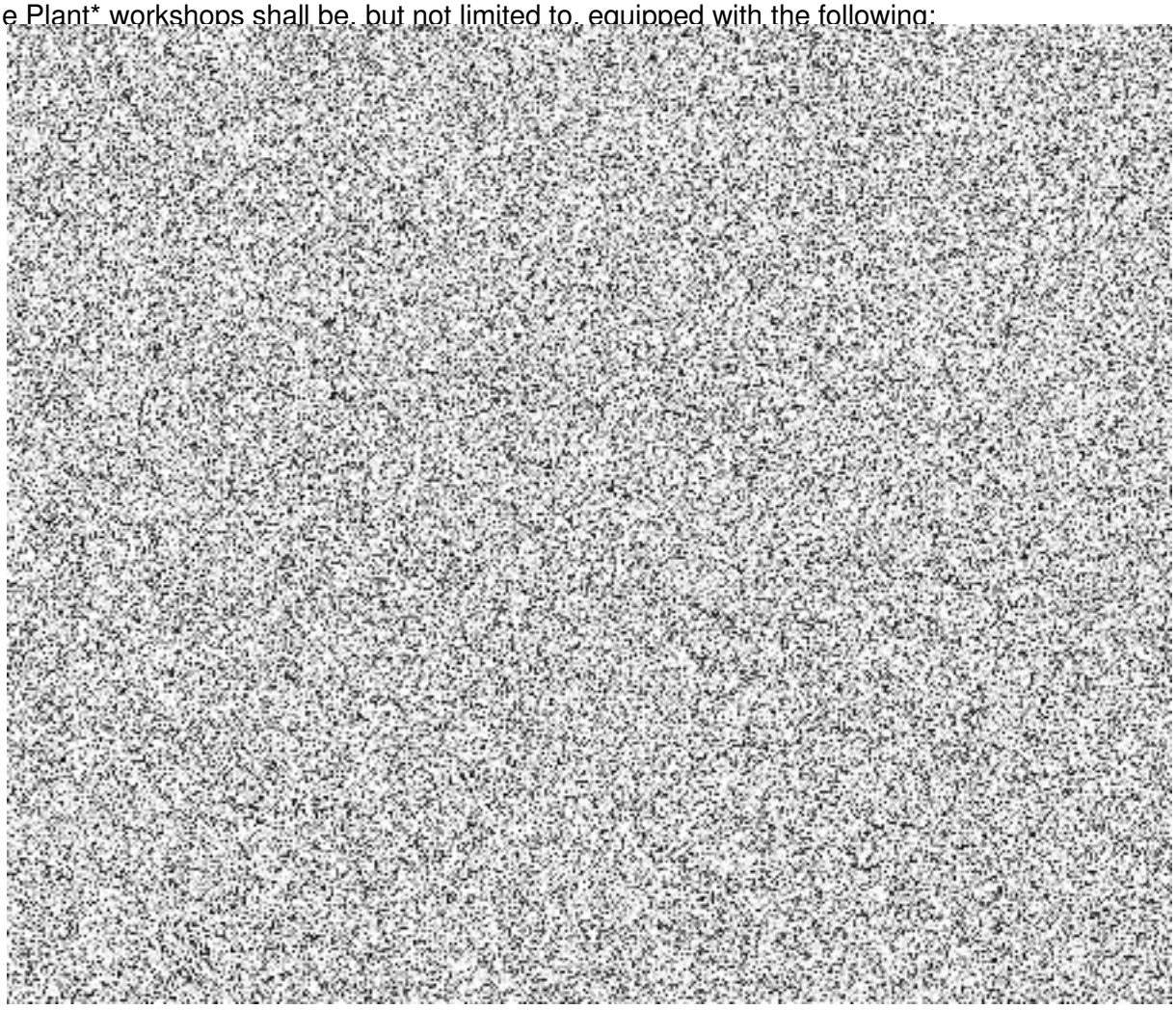
B
Initial scope of repair shops equipment shall be part of the overall approach to maintenance of the Plant*.

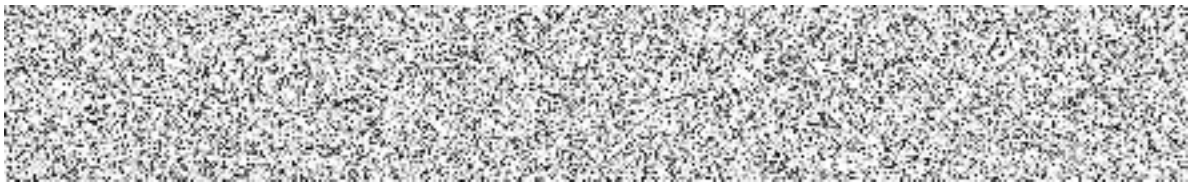
C

Final scope of repair shops equipment shall be in accordance with agreed maintenance programmes and shall correspond with Availability Factor* objective.

CA

The Plant* workshops shall be, but not limited to, equipped with the following:





CB
Clean repair shops shall permit unrestricted access during the Plant* operation except for security requirements. Provisions shall be made for monitoring equipment brought into the shop to assure they are uncontaminated.

D
Repair shops shall be located at ground level and as close as practical to the equipment being maintained. The repair shops shall be equipped with a truck bay.

E
Provisions in repair shops shall be made for repairing instruments, controls, and electronic equipment in a humidity and temperature controlled environment.

F
Hot workshops shall have a decontamination area and provisions for decontamination for items to be repaired in the hot workshops.

FA
The facilities and equipment in the hot workshops shall facilitate work on contaminated equipment by personnel dressed in anti-contamination clothing, and special precautions to reduce personnel exposure and the spread of contamination shall be considered.

FB
The hot workshops shall be equipped with lifting and handling equipment and clean storage areas for spare parts, inspection tools (e.g. bore gauges, micrometers, etc.)

FC
The reactor coolant pump seal repair shop, if applicable, shall be equipped with lapping tables, optical equipment to check flatness of seal faces.

The arrangement of the pump seal overhaul shop and the design of equipment for decontamination of pump seal ports shall assure that pump seal overhaul, after decontamination, can be accomplished by personnel wearing cotton gloves rather than full anti-contamination clothing.

FD
In addition to the above defined requirements for mechanical workshops, the hot workshops shall be, but not limited to, equipped with the following:

- sufficient ventilation flow and features such as flexible exhaust ducts to control airborne particles during repair activities;
- handling and temporary storage of solid and liquid Radioactive Waste*;
- storing of radioactive items;

- decontamination of equipment brought into the shop;
- temporary shielding for equipment stored in the shop;
- easy transportation into, out of and within the area of contaminated equipment;
- protective covers for transportation and maintenance work;

- access to a truck bay for equipment properly packaged and decontaminated; equipment for radiation monitoring and radiation protection; access control.

G
Material and tools issue rooms shall be located in the immediate vicinity of the repair shops. Tool rooms shall be sized to accommodate storage of special equipment and tools which have been manufactured or purchased for the specific maintenance work.

3.5.2 SPARE PARTS SUPPLY, STORAGE AND CONTROL

A
The Supplier* shall provide to the Owner*, as part of the Documents* for maintenance, specifications and procedures for the procurement, verification, receipt, store and issue of Consumables*, special tools and spare parts for use at the Plant*.

AA
The administrative procedure for control of the receiving items and acceptance process shall include visual external Inspection* for transit damage or deterioration, and verification of correct packaging and identification. Identification details shall be recorded for subsequent controls. Items that are found to be incomplete or incorrect or that carry inadequate documentation shall not be accepted for final storage. The procedure shall also include a requirement to label or tag such items until the nonconformity is resolved.

B
The Supplier's* administrative procedures for storage shall clearly define how to check and maintain stored item (e.g. materials, tools, spare parts, Consumables*, etc.) and assure that it will be ready for use in the Plant* during the Plant* lifetime.

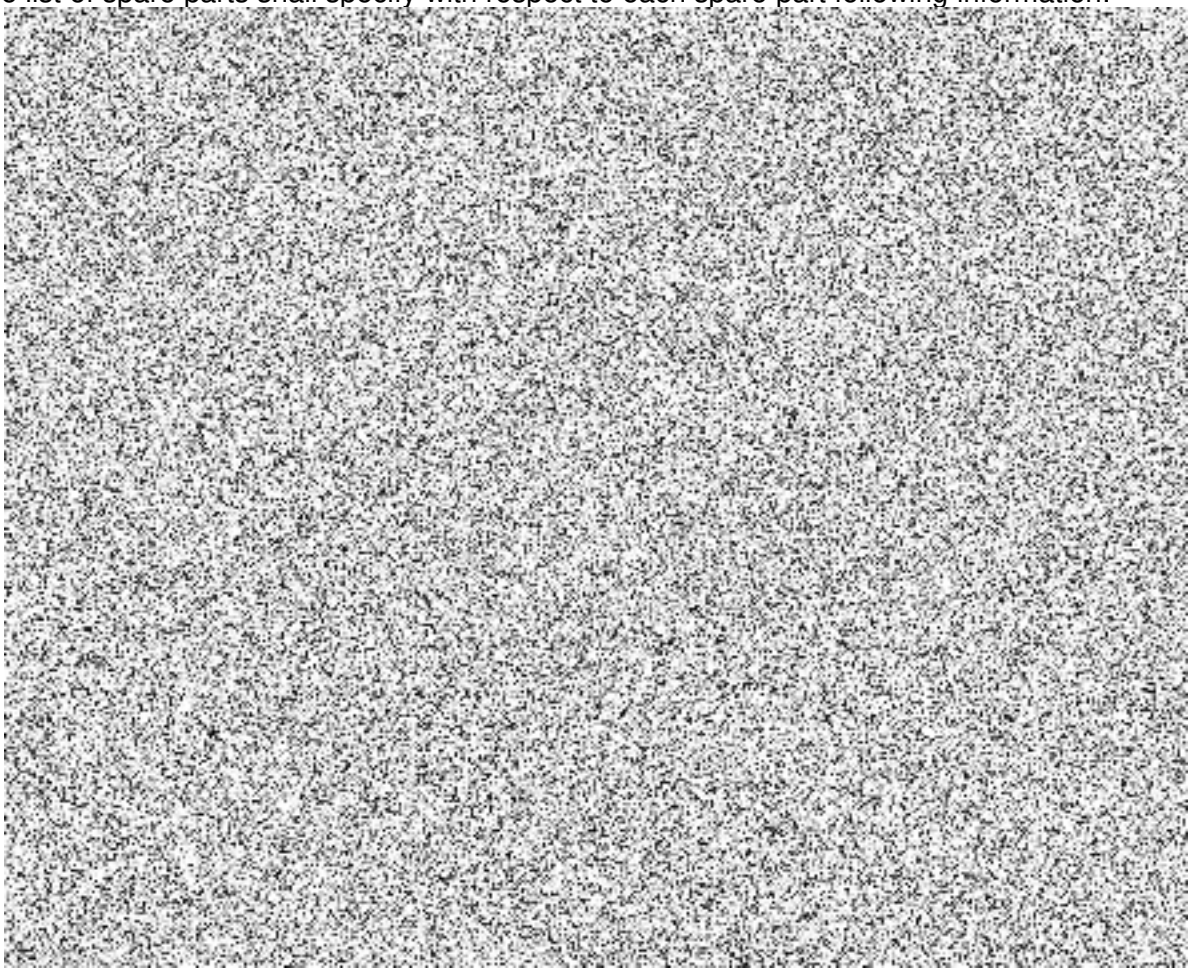
BA
The administrative procedures for storage shall contain special measures for storage with respect of stored item qualification (e.g. safety, commercial, shelf life, etc.).

BB
The procedures for storage shall also contain additional provisions for ensuring adequate protection during long term storage.

C
Recommended list of spare parts and special tools for the Plant* lifetime shall be based on the Supplier's* experience with maintenance at plants in operation, manufacturers specifications and maintenance programmes and in accordance with the Terms and Conditions*, Section 19.2.

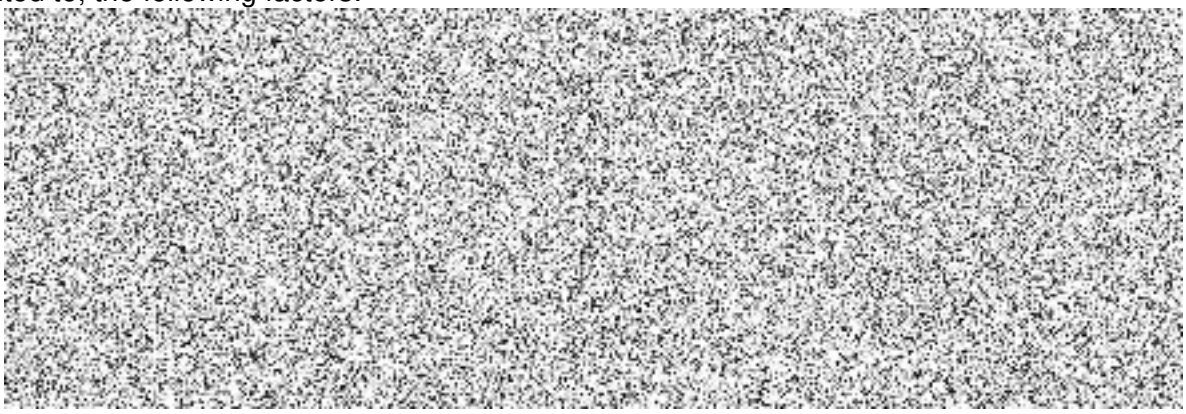
CA

The list of spare parts shall specify with respect to each spare part following information:



CB

The Supplier* shall consider, during preparation of recommended list of spare parts, but not limited to, the following factors:



CC

In addition, the Supplier* shall provide to the Owner* recommended list of spare parts (including large spare parts) for initial stocks of each Unit*.

D
The Plant* shall have:

- adequate facilities (or space, as applicable) for storage and maintenance of spare parts including all the Strategic Spare Parts* and large spare parts;
- adequate facilities for storage of the Consumables*;
- an additional spare space of 40 % in excess of all the above mentioned.

DA
The Supplier* shall design storage in such way which ensures required environmental conditions for storage of the above mentioned.

E
Access and the installed handling equipment shall be adequate for the all types and sizes of items to be stored.

EA
The receiving area shall include equipment for safe, convenient handling, and sufficient space with appropriate environmental conditions for proper Inspection* of items upon receipt. A separate and secure quarantine area shall be provided for the temporary retention of stocks not cleared for final storage or issue.

F
The Supplier* shall provide an automated system and administrative procedure to facilitate identification and location of spare parts as well as to maintain the desired inventory of storage items.

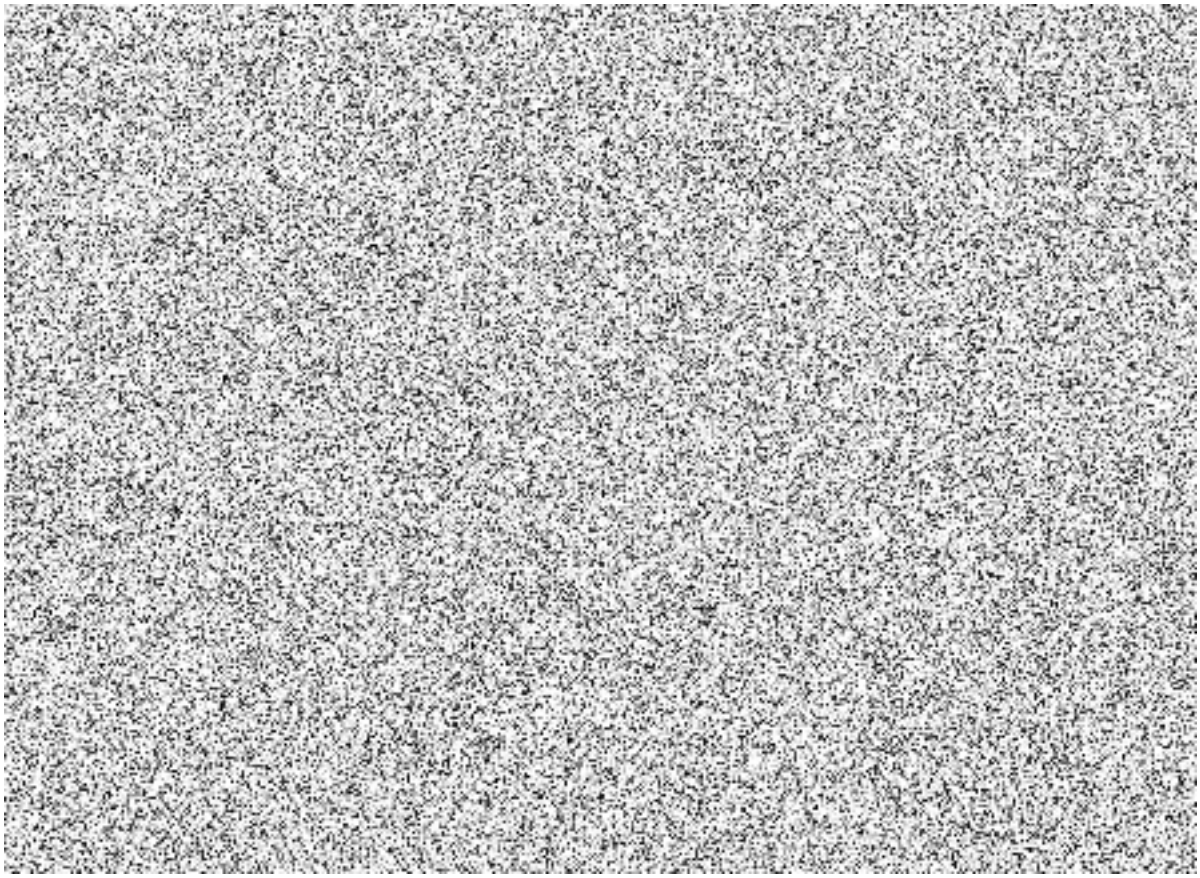
FA
Routine reordering of materials, spare parts, Consumables* and other Plant* items already held in store shall be initiated automatically in accordance with administrative procedures whenever a predetermined low stock limit is reached.

3.5.3 CONSUMABLES

A
The Supplier* shall provide to the Owner* specifications for replacement of the Consumables* (e.g. oils, lubricants, hydraulic fluids, and others process fluids, resins, gaskets, filters, chemicals, etc.) in such way which enables the Owner* to purchase the Consumables* of a quality at least equivalent to that originally supplied and compatible with the equipment during the operation.

B
The Supplier* shall provide a list of the recommended Consumables* based on the maintenance experience at operating nuclear plants, manufacturers or technical calculations.

BA
The complete list of all Consumables* shall specify with respect to each Consumable* following information:



BB
The selection of the type of the first filling of lubricants, hydraulic fluids etc. shall be agreed with the Owner*.

C
The Supplier* shall provide to the Owner* a management system for the Consumables* (e.g. procedures for purchasing specifications, management, inventory control, history and tracking, etc.).

D
The Supplier* shall monitor and keep under control the use of chemicals at the Site* during all stages of the Project*, including chemicals brought into the Site* by the Subcontractors*.

DA
The Supplier* shall establish appropriate control measures to ensure that the use of chemical substances and reagents does not adversely affect equipment or lead to its degradation.

E
For other requirements see also the Technical Requirements Document*, Section 2.14.7 and Terms and Conditions*, Article 3.2.8.

3.6 OPERATION

A

The Supplier* shall provide to the Owner* for review and approval normal operating procedures. Normal operating procedures shall be used to govern the Normal Operation* of the Plant* in a controlled manner to achieve the most safe and efficient generation of electrical power and also to ensure that the Plant* is operated within the Technical Specifications*.

B

The Supplier* shall provide to the Owner* for review and approval Abnormal Occurrence Procedures*. Abnormal Occurrence Procedures* shall govern Anticipated Operational Occurrences* of the Plant*.

C

The Supplier* shall provide to the Owner* for review and approval the Accident Management Procedures* which shall consist of:

C.1

The Emergency Operating Procedures* shall govern postulated Design Basis Accidents* and Complex Sequences* situations.

C.2

The Severe Accident Management Guidelines* which shall assist the Operator* to mitigate the consequences of Severe Accidents* in cases where the measures provided by EOP have not been successful.

D

In addition, the Supplier* shall provide to the Owner* for review and approval the special procedures. Such special procedures shall cover use of mobile equipment and management of events with Plant* extreme damage from natural External Hazards* which shall be developed taking into account the local conditions including the Existing Nuclear Power Plants*.

D.1

Special procedures shall be provided to the Owner* as part of EOP and/or SAMG, where is more appropriate.

E

The Supplier* shall provide to the Owner* the Emergency Procedure Guidelines*. The Emergency Procedure Guidelines* shall also contain background guidelines/explanations and analyses used during the development of AOP, EOP, SAMG procedures and guidelines.

F

Normal Operating Procedures, Abnormal Occurrence Procedures*, Emergency Operating Procedures* and the Severe Accident Management Guidelines* shall respect requirements set by Rules*.

3.6.1 NORMAL OPERATING PROCEDURES

A

The Normal Operating Procedures shall be provided with technological diagrams (piping and instrumentation, electrical and fluid power diagrams etc.) and production detail information and drawings necessary for safe and efficient operation.

The following types of Normal Operating Procedures shall be prepared:

- System operation procedures (e.g. system description, nominal and limiting parameters, startup and shut down of systems, periodic test, diagnostics, taking system or its part out of service for maintenance and returning to operation, etc.).

  Plant* operation procedures (e.g. the Plant* startup, cool down, process monitoring, fuel handling, etc.).
- Alarm response procedures (alarm sheets).
- Procedures for shutdown of the Plant* from the outside of the Main Control Room*.

B

Alarm response procedures shall be established for all alarms in the control rooms, including alarms displayed on workstations. These procedures shall guide the Operators* in verifying abnormal conditions or changes in the Plant* status and shall specify the appropriate subsequent action or procedures. Alarm response procedures shall be available at the affected panels and/or workstations and shall be easily accessible to the Operators* who are responding to alarms.

3.6.2 ABNORMAL OCCURRENCE PROCEDURES AND EMERGENCY OPERATING PROCEDURES

A

AOP shall cover Design Basis Conditions 2* and EOP shall cover Design Basis Conditions 2* and Design Basis Accidents* and Complex Sequences*.

A.1

AOP should be event oriented and/or symptom oriented where practically reasonable. The format of these procedures shall be the same as for symptom based EOP.

B

Symptom based EOP shall manage complicated Design Basis Accidents*, such as Steam Generator* Tube Rupture or Loss of Coolant Accident, etc. Symptom based EOP shall also cover the measures to control Complex Sequences* to prevent their escalation to Severe Accidents*.

C

AOP and EOP shall cover all initiating events in all Operational Modes* (i.e. power generation, hot shutdown and cold shutdown conditions, fuel handling and storage) and both the internal and the External Hazards*.

D
EOP shall be symptom oriented and shall provide instructions to the Plant* personnel for activities solving emergency situations, including instructions for solution of complicated and multiple emergency events.

E
Symptom oriented approach in EOP shall be based on the fact that the corresponding action is selected upon actual development of the emergency situation, which is identified on the basis of clear symptoms. In the case that during the emergency situation solution the symptoms change, and the applied strategy cannot be used any more, then the structure of these procedures enables the operating personnel to modify the original strategy and continue by other emergency operating procedure which better corresponds to new conditions. Therefore, permanent Plant* state diagnostics during emergency situation enables the operating personnel to correctly respond to possible changing conditions and emergency situation development and so their response is always appropriate to the given Unit* state.

EA


F
The AOP and EOP shall be based on function-related restoration strategies, possibly in combination with event-related recovery strategies.

Note:
These strategies are usually combined. Event recovery strategies provide guide to diagnosis and the Plant* recovery to the optimal end state while the function restoration ensures explicit diagnosis and restoration of the Plant* Safe State* independent of event sequence.

G
The Supplier* shall perform analysis to identify risk-significant concerns and to determine appropriate EOP requirements. The Supplier* shall also perform a comprehensive thermal hydraulic analysis which shall ensure that the generic set of Operator* actions in connection with the deterioration of each critical Safety Function* is sufficient to withstand the most severe challenge to that Safety Function*.

GA
The here above mentioned analyses, justifications and background guidelines shall be documented by the Supplier* and provided to the Owner* as attachments of the particular accident procedure.

G
The Supplier* shall address interfaces between the EOP and the Severe Accident Management Guidelines* and shall provide adequate transition from EOP into the Severe Accident Management Guidelines*, where appropriate. Therefore, the EOP shall contain exits to the Severe Accident Management Guidelines*, i.e. if certain steps are not successful, entry into the Severe Accident Management Guidelines* is realized.

H
EOP shall include special procedure (also, for example, for use of mobile equipment), as is described in Section 3.6

See also the Technical Requirements Document*, Section 2.1.2, Design Conditions.

3.6.3 SEVERE ACCIDENT MANAGEMENT GUIDELINES

A
The Severe Accident Management Guidelines* shall address strategies to cope with scenarios identified by the Severe Accidents* analyses and shall be developed for all identifiable mechanisms for which the development of Severe Accident* management is feasible.

AA
These guidelines shall be developed in a systematic way using the Plant* specific approach and shall cover all Operational Modes* (i.e. power operation, hot shutdown and cold shutdown conditions incl. outages, fuel storage and handling, etc.) of the Plant* operation and both the internal (e.g. fires) and the External Hazards* (e.g. earthquake, aircraft crash and design extension aircraft crash).

B
The Severe Accident Management Guidelines* shall be based on in-depth investigations of human factors considerations, the interfaces with the emergency procedures, the Site* emergency plan, etc.

BA
Instructions of the Severe Accident Management Guidelines* may be less strict and prescriptive than is in the EOP and rather may propose a range of possible mitigation actions, describe both the positive and negative potential consequences of proposed actions and may allow for additional evaluation and alternative actions.

BB
These guidelines shall be set out in such a way, that it is not necessary for the responsible staff to identify the accident sequence in order to be able to execute the accident management guidance correctly.

C
The Severe Accident Management Guidelines* shall be developed to cover, but not limited, to the following goals:

- terminate excessive release of radioactive substances from the Plant*;
- maintain or return to the Plant* Fundamental Safety Functions*;
- return the Core* and/or fuel handling and storage systems to the Severe Accident Safe State*;
- minimize fission product releases;
- maximize equipment availability and monitoring capabilities.

CA
The Supplier* shall provide to the Owner* SW support (e.g. the Critical Safety Functions* status trees, special displays, etc.) to ensure correct diagnostics of the Plant* condition during Severe Accidents* situation and which enable the operating personnel to follow the guidelines developed for mitigation of this accident situations.

D
The Severe Accident Management Guidelines* shall be developed for each affected operating or support group (external and internal) of the Plant* and shall cover at least three subject areas:

- conserving and/or replenishing limited resources during an accident (e.g. battery capacity, borated water, compressed air, etc.);
- using the Structures, Systems and Components* for innovative applications during an accident (e.g. enabling cross-ties of support systems, use of fire systems and other auxiliary and backup possibilities, use of mobile equipment, etc.) In addition, this category includes procedures to connect alternate electrical power sources to meet critical safety needs during an accident;
- defeating appropriate interlocks and overriding component protective trips in emergency conditions.

E
The Supplier* shall perform Severe Accidents* analysis, analysis of degree of both internal and external damages and its consequences (e.g. uses of emergency routes, alternative access for fire brigade, loss of cooling water sources, etc.) and other relevant analysis in order to be able to develop the Severe Accident Management Guidelines*.

EA
The here above mentioned analyses, justifications and background information shall be documented by the Supplier* and provided to the Owner* as attachments of the particular accident guidelines.

F
The Severe Accident Management Guidelines* shall include special procedures (also, for example, for use of Non-Permanent Equipment*), as is described in Section 3.6 of this Operation and Maintenance Document*.

See also the Technical Requirements Document*, Section 2.1.2, Design Conditions.

3.7 WORK MANAGEMENT

A
The Supplier* shall, based on approved procedures and relevant documents for work management by the Owner*, implement a comprehensive work management system prior to commencement of the Inactive Testing*. The work management system shall ensure that work for purposes of maintenance, testing, surveillance and Inspections* is properly authorized, is carried out safely and is documented in accordance with established administrative procedures.

B
The work management system shall be a cross-functional process, not exclusive to any one work group but integrating the important activities of all work groups. The Supplier* shall consider all needs and concerns in relation to operation, maintenance, technical support, radiation protection, fire hazards, procurement and stores, spare parts and other relevant matters.

BA
The Supplier* shall establish coordination among different organizational groups (e.g. mechanical, electrical, instrumentation and control, civil, commissioning, construction, etc.), and with operation and support groups (e.g. fire protection, radiation protection, physical protection, industrial safety, etc.).

C
The work management system shall include suitable and sufficient assessments of the risks to health and safety arising from particular activities. The purpose of risk assessment is to verify the acceptability of the proposed activity and to determine the appropriate measures. The results of the risk assessment shall be incorporated into the procedures for work management and/or work related documents (work orders, safety permits, etc.).

Principles of the Human factors and the ALARA principle shall be considered in the preparation of work instructions (e.g. work orders, tagging, etc.).

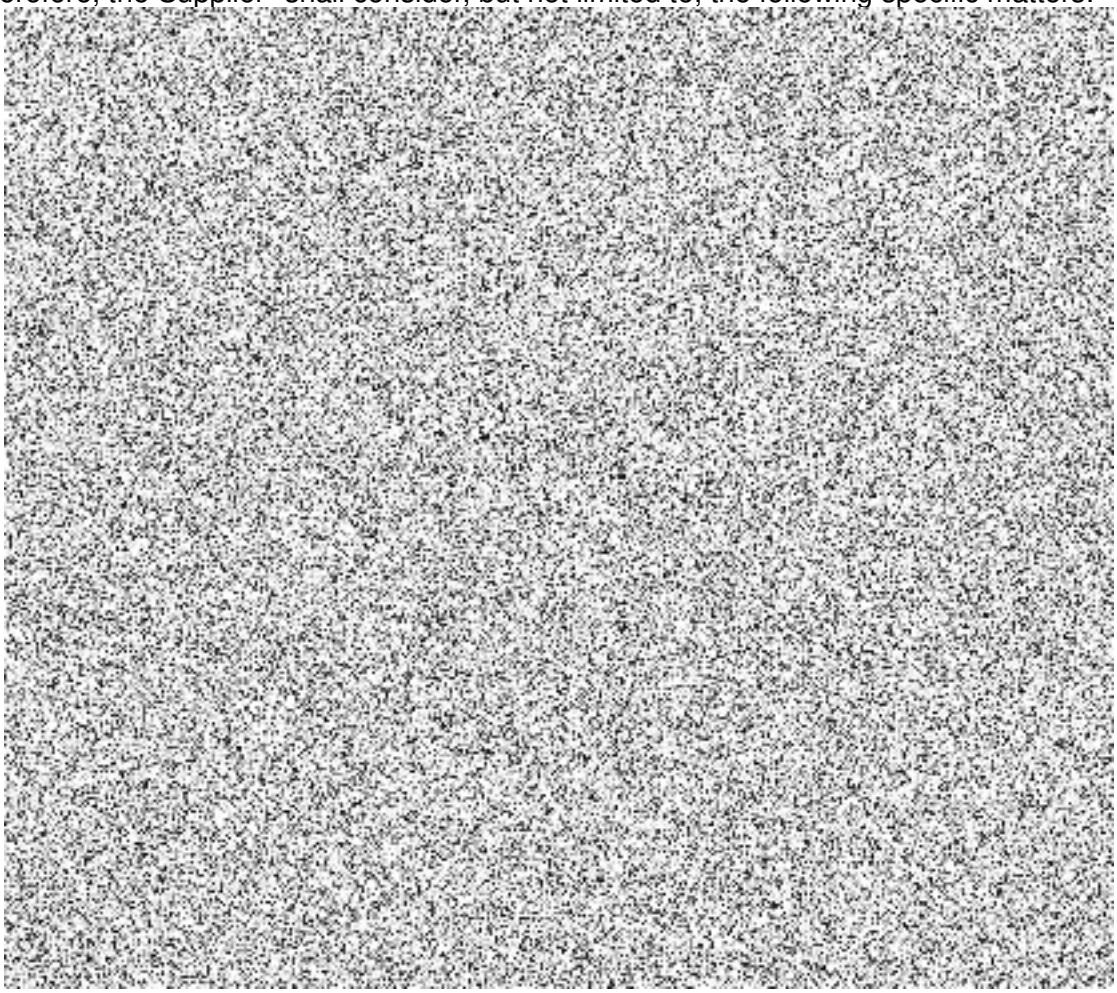
D

The work management system shall include its own assessment described in work management procedures. The Supplier* shall establish and monitor effectiveness of the work management process by appropriate indicators (e.g. repeated work orders, individual and collective radiation doses, the backlog of pending work orders, interference with operations, etc.). The Supplier* shall provide to the Owner* its assessment of the work management effectiveness on regular basis during the Project* up to the Provisional Takeover* of the later Unit*.

E

The work management system shall cover SW support (OIMS), any authorizations, permits and certificates necessary for ensuring safety in the work area and for preventing work activities from having undue effects on safety. The work management system shall also ensure that all maintenance, surveillance, tests, Inspection* activities and other planned activities at the Plant* are carry out effectively, in coordinated manner and safely.

Therefore, the Supplier* shall consider, but not limited to, the following specific matters:



F
The work management system shall cover scheduling and planning of the work at the Plant*. The Supplier* shall well-coordinate and plan work on SSC important to safety in order to ensure that the Plant* remains in a safe condition at all times during the Commissioning* up to Provisional Takeover* of the later Unit* and in accordance with the Technical Specifications*.

FA
The Supplier* shall use scheduling and planning of the work to prioritize the work so as to minimize the risk to safety and availability. PSA shall be used in optimizing work planning in operation, testing, shutdown and outages conditions to minimize the overall risk at the Plant*.

In addition, the Supplier*shall respect requirements set by Rules* (especially Decree No. 21/2017 Coll., as amended) during scheduling and planning of the work and activities at the Plant*.

FB
The causes of deviations from the planned schedule shall be subject to a thorough Supplier's* analysis to identify any necessary amendments to the system covering the planning and performance of the work during the Project* up to the Provisional Takeover* of the later Unit*.

FC
The work management system shall include procedures for planning and work performance for both daily planning and outages planning (i.e. outage management for planned and Unplanned Outages*).

FD
Unscheduled or unauthorized work shall be refused by the Supplier's* commissioning personnel on the shift and/or by the Owner's* operating personnel.

G
The work management system shall include procedures for outages preparation and management. This procedure shall cover tasks, rights and responsibilities of the groups and persons involved in preparing, scheduling and conducting or assessing outage schedules and outage activities and shall be followed by all involved personnel at the Plant*.

GA
This procedure shall describe how to perform comprehensive review after each outage and how to perform lessons learned.

GB
The Supplier* shall perform comprehensive review and provide to the Owner* lessons learned after each outage during the Project* up to the Provisional Takeover* of the later Unit*.

GC

In addition, the Supplier* shall provide to the Owner* the reference outage programmes and schedules for the different Planned Outages* as specified in the Technical Requirements Document*, Section 2.2.7.2.2.

H
The work management system shall include procedures and relevant documentation necessary for equipment isolation process (tagging).

I
Responsibilities and rights relating to the isolation (tagging) of equipment, authorization of work related documents, requirements on post-maintenance testing and restoration of systems to service after maintenance shall be clearly defined in the work management procedures.

J
The Supplier* shall provide, as part of the Documents* for operation and maintenance, to the Owner* for review and approval all work management procedures and work related documents composing the work management system. For additional requirements set on the Documents* for maintenance and operation see Operation and Maintenance Document*, Section 3.3.

JA
The work management procedures and work related documents shall specify pre conditions and shall provide clear instructions how the work shall be done, shall apply the defense in depth principle, and shall ensure that work is performed in accordance with the rules and procedures established at the Plant*.

JB
The work management procedures and work related documents shall be technically accurate, properly validated, verified and authorized, and shall be periodically reviewed and maintained by the Supplier* during the Project* up to Provisional Takeover* of the later Unit*.

JC
All proposed changes into work management procedures and work related documents by the Supplier* shall be reviewed by the Owner* prior to its implementation and approved by the Owner* during the Active Testing*.

K
From the commencement of the Active Testing* of the first Unit*, the work management system shall ensure that Plant* equipment is released from service for maintenance, put into service after maintenance, released for testing, surveillance or inspection only after authorization of designated Owner's* personnel and in compliance with the Technical Specifications*. For additional requirements set on work management see the Scope of Supply Document*, Section 3.1.

KA
The work management system shall also ensure that, following maintenance, the SSC is not returned to the service before completion of a documented check of its configuration and, where appropriate, a functional test.

L
More specifics requirements set on OIMS are described in the Project Management Document*, Section 4.12.

3.8 PLANT PERFORMANCE ASSESSMENT

A
The Supplier* shall provide to the Owner* the Plant* performance assessment system and shall implement function of the Plant* performance assessment that can be used for both:

- tests during the Plant* Commissioning*;
- evaluation of the Plant* conditions during the operation (including periodic testing).

AA
The Supplier* shall respect requirements set by the Mandatory Law* (in particular § 25 of the Czech Atomic Act* and § 8 of the Decree No. 21/2017 Coll., as amended).

B
The Plant* performance assessment system shall provide, but not be limited to, the following features:

- data recording and processing;
- data displaying on screens and printing, including reports printing;
- long-term storage (retention) of data and permanent records;
- the Plant* performance data evaluation and analysis, SSC technical state determination.

BA Therefore, the Plant* SSC shall be suitably equipped to monitor its performance and condition.

See also the Technical Requirements Document*, Section 2.4.2., Section 2.14.2.7, Section 2.15.5.2 and Section 2.15.5.5.

BB
The Plant* performance assessment system and its function shall allow optimization of operation and maintenance (including optimization of maintenance programmes, see also Operation and Maintenance Document*, Section 3.3).

C
The Supplier* shall provide to the Owner* its standard package of HW and SW tools necessary for evaluation of the Plant* performance including, but not be limited to:

- calculation of technical-economical parameters;
- calculation of reactor thermal power at different power levels;
- primary part thermal balance calculation;
- Steam Generator* thermal balance calculation;
- secondary part thermal balance calculation and efficiency verification; electrical calculations (net power output, self-consumption, etc.).

D
The Plant* performance assessment system shall have the capability to determine the safety, availability, reliability and efficiency of the Plant* during operation (e.g., condenser performance, heat exchanger performance, turbine and filters performance, etc.). The information provided shall also enable Plant* life to be re-evaluated through full fatigue analysis. Critical components and limiting transients shall be determined and remedial actions shall be taken.

E
The Supplier* shall define scope of the collected, stored, calculated and analyzed data to support safety and reliable operation and maintenance. Such data shall cover, but shall not be limited to, requirements of the Rules* (especially see Decree No. 21/2017 Coll., as amended.)

F
The Supplier* is responsible that data of the maintenance, testing, surveillance and the Inspection* shall be recorded, stored and analyzed for confirming that the operating performance is in accordance with the design intent and with requirements for the reliability and availability of equipment during all stages of the Project* and operation.

FA Historical records shall be easily retrievable for purposes of reference or analysis.

FB
The Supplier* is responsible that above historical data and data analysis performed by the Supplier* up to the Provisional Takeover* of the relevant Unit* shall be easily available to the Owner's* personnel.

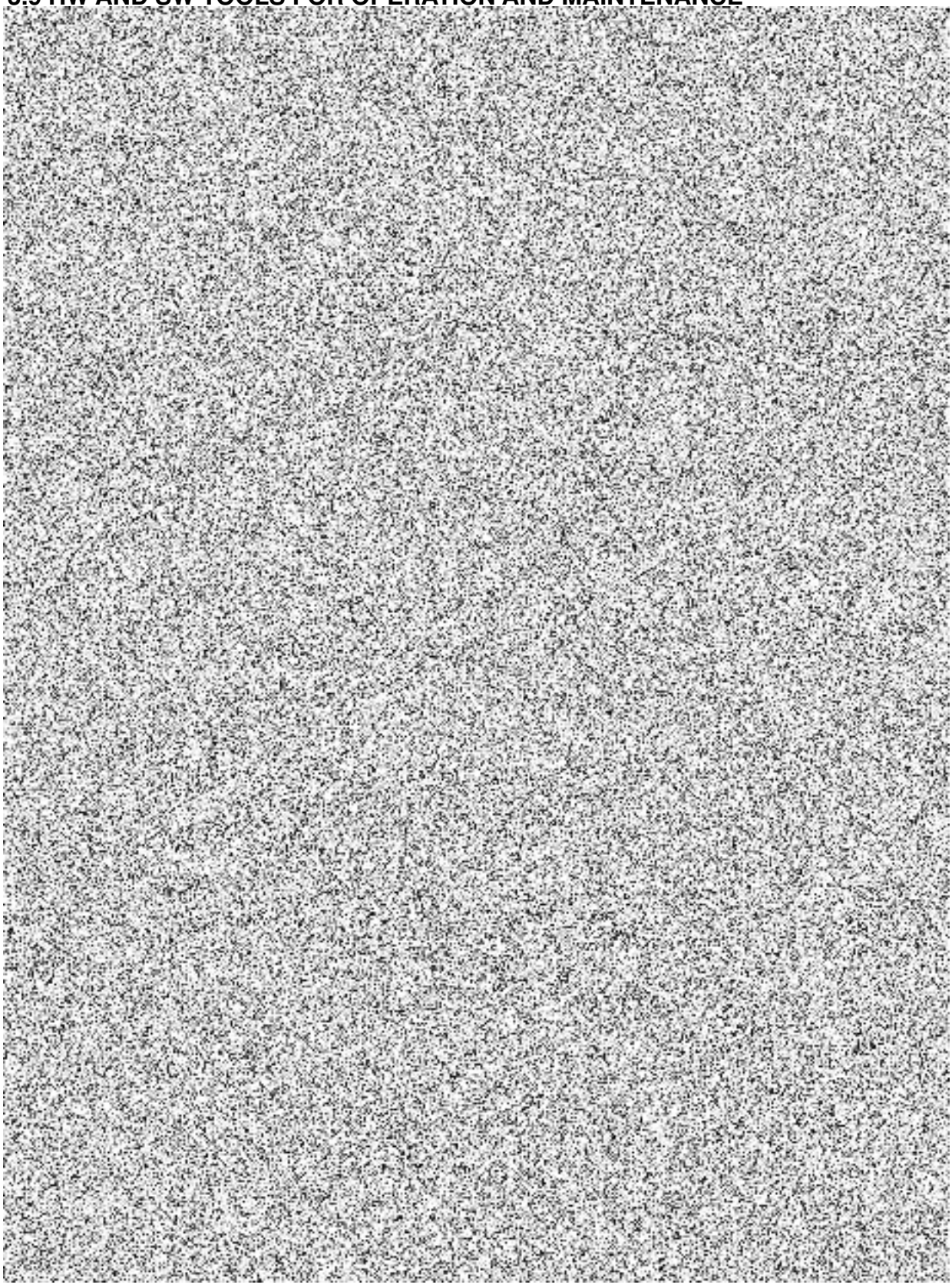
FC
The use of computerized systems for the keeping of historical records shall facilitate this process.

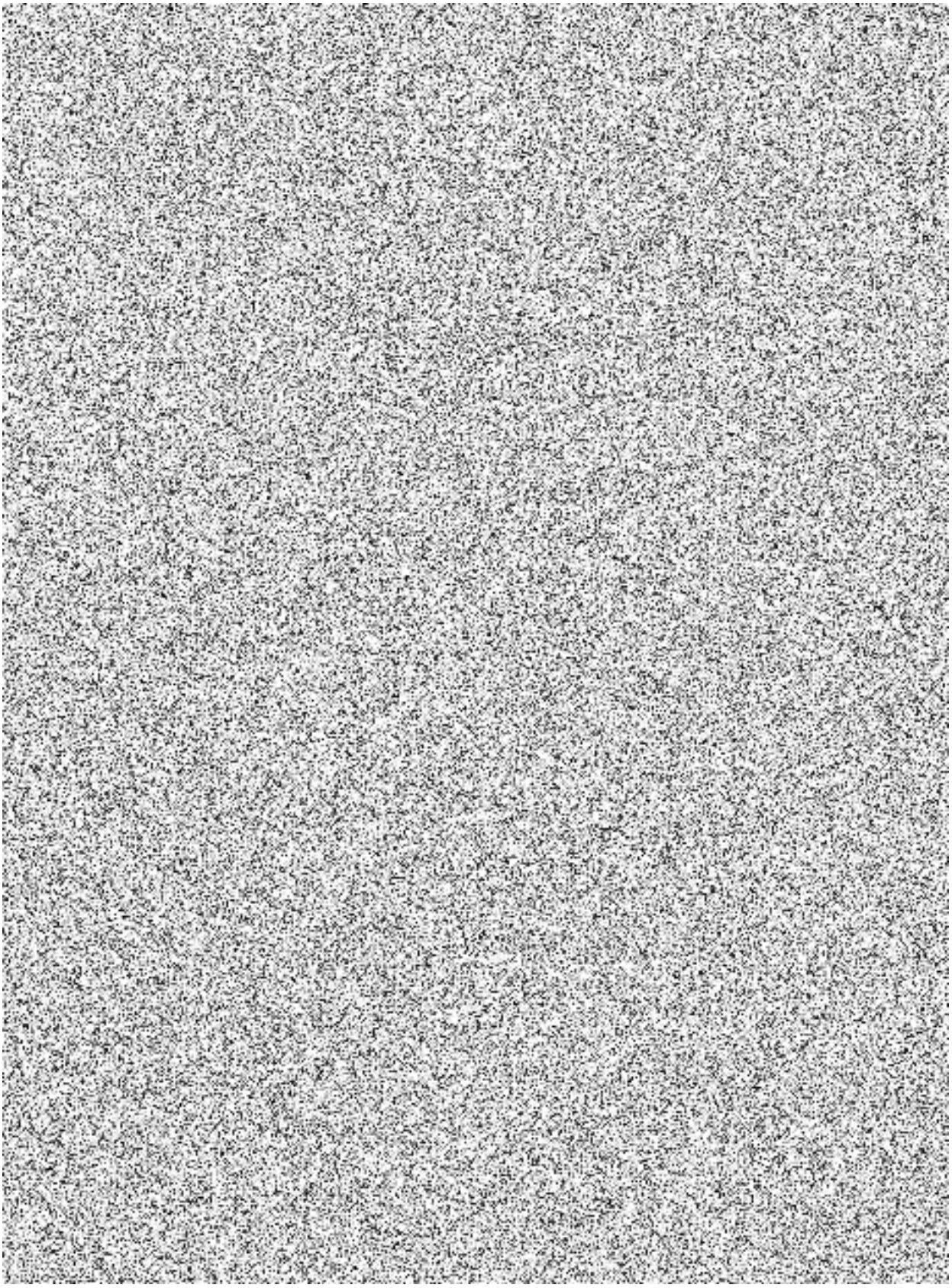
FD
The Supplier* shall keep data and historical records of the operation and maintenance from the time of the equipment initial energization of each Plant* system and relevant components and structures (especially safety and safety related SSC).

FE
In addition, here above mentioned historical data and data analysis shall be handed over to the Owner*.

G
The Supplier* shall provide to the Owner* for review and approval a complete description of the Plant* performance assessment system, including proposed arrangements and administrative procedures which shall ensure proper data collection and storage, analysis of records and production of reports.

3.9 HW AND SW TOOLS FOR OPERATION AND MAINTENANCE





3.10 CHEMISTRY PROGRAMME AND PROCEDURES

A

The Supplier* shall provide to the Owner* chemistry programmes and corresponding procedures as part of the Documents* for maintenance and operation. The chemistry programmes and procedures shall provide the necessary information and assistance for chemistry and radiochemistry control for ensuring safe operation, long term integrity of SSC, and minimization of radiation levels.

AA

The chemistry programmes shall include chemistry monitoring and data acquisition systems. These systems, together with laboratory analyses, shall provide accurate measuring and recording of chemistry data and shall provide alarms for relevant chemistry parameters. Records shall be kept available and shall be easily retrievable also for the Owner's* personnel.

AB

The chemistry programmes shall include procedures for laboratory monitoring, sampling and analysis of the Plant* systems for specific chemical parameters, concentrations of dissolved and suspended impurities, and radionuclide concentrations.

AC

The chemistry programme shall contain clearly defined responsibilities between the Operators* and their reporting to the chemistry department with respect to chemistry control.

B

The Supplier* shall conduct chemistry surveillance at the Plant* to verify the effectiveness of chemistry control in the Plant* systems and to verify that SSC important to safety are operated within the specified chemical limit values during the Project* up to the Provisional Takeover* of the relevant Unit*.

BA

The Supplier* shall implement the chemistry programmes at least from the commencement of SAT.

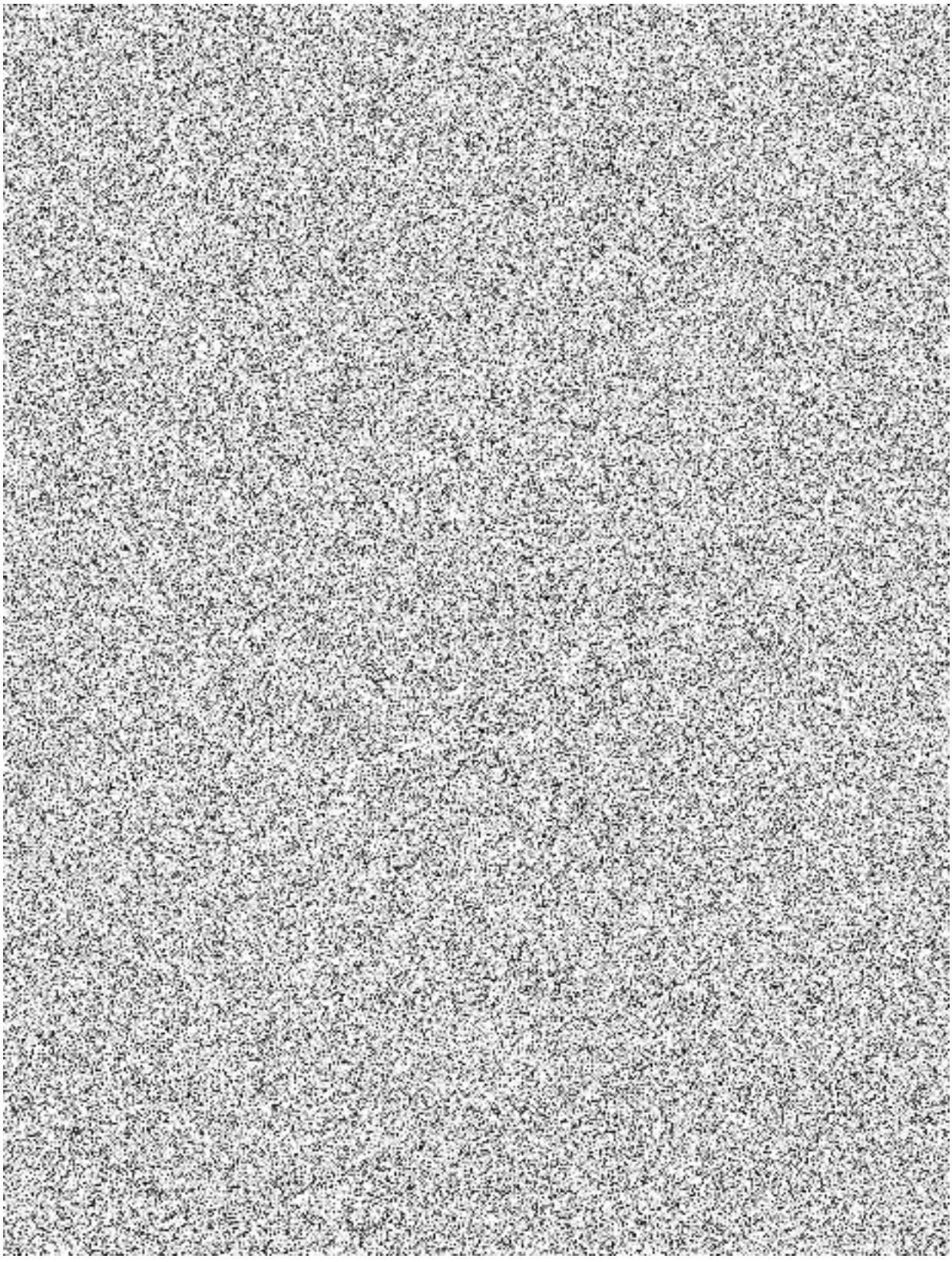
4 TABS

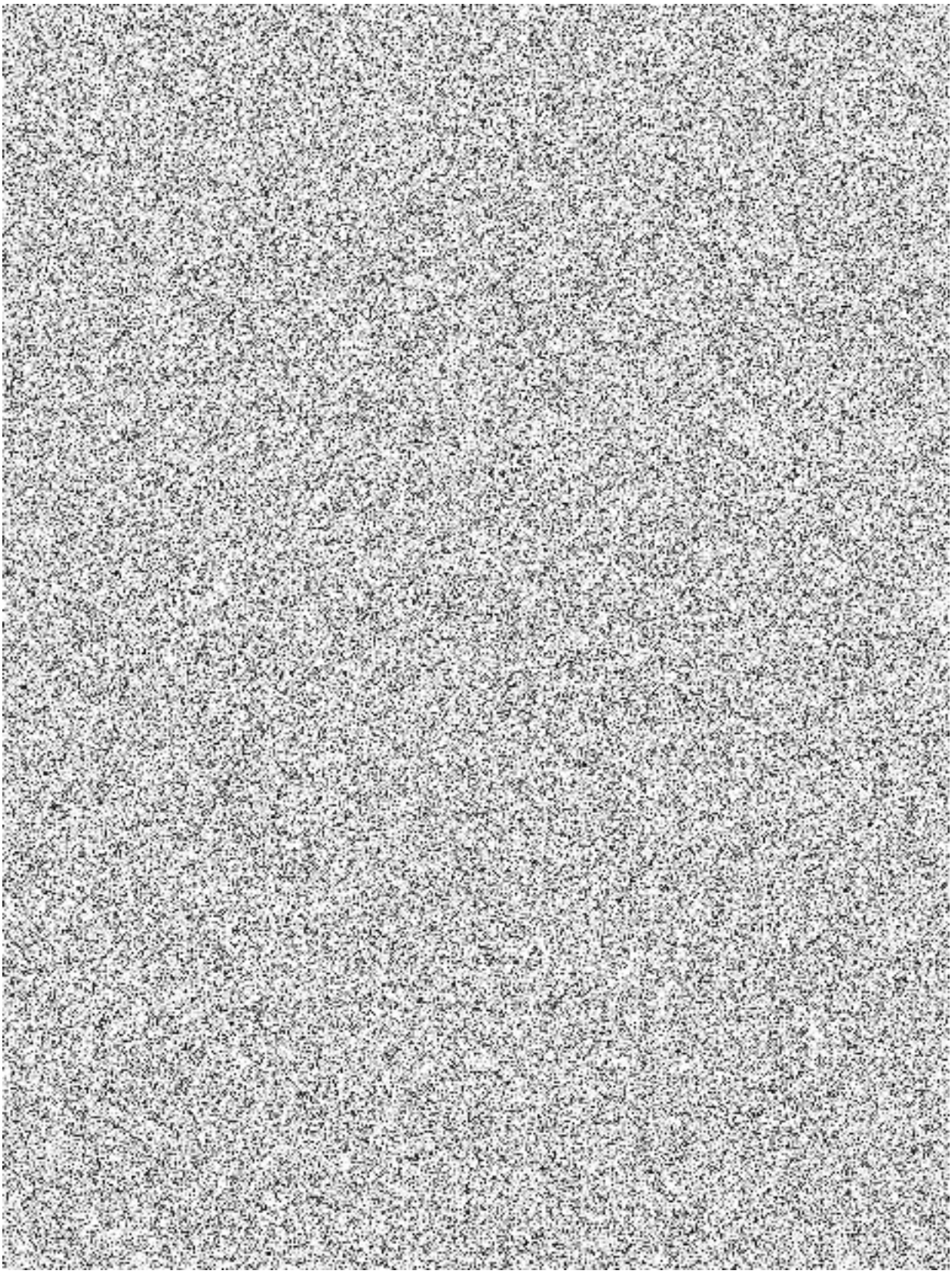
See included separate files (OM_Att1 and OM_Att2)

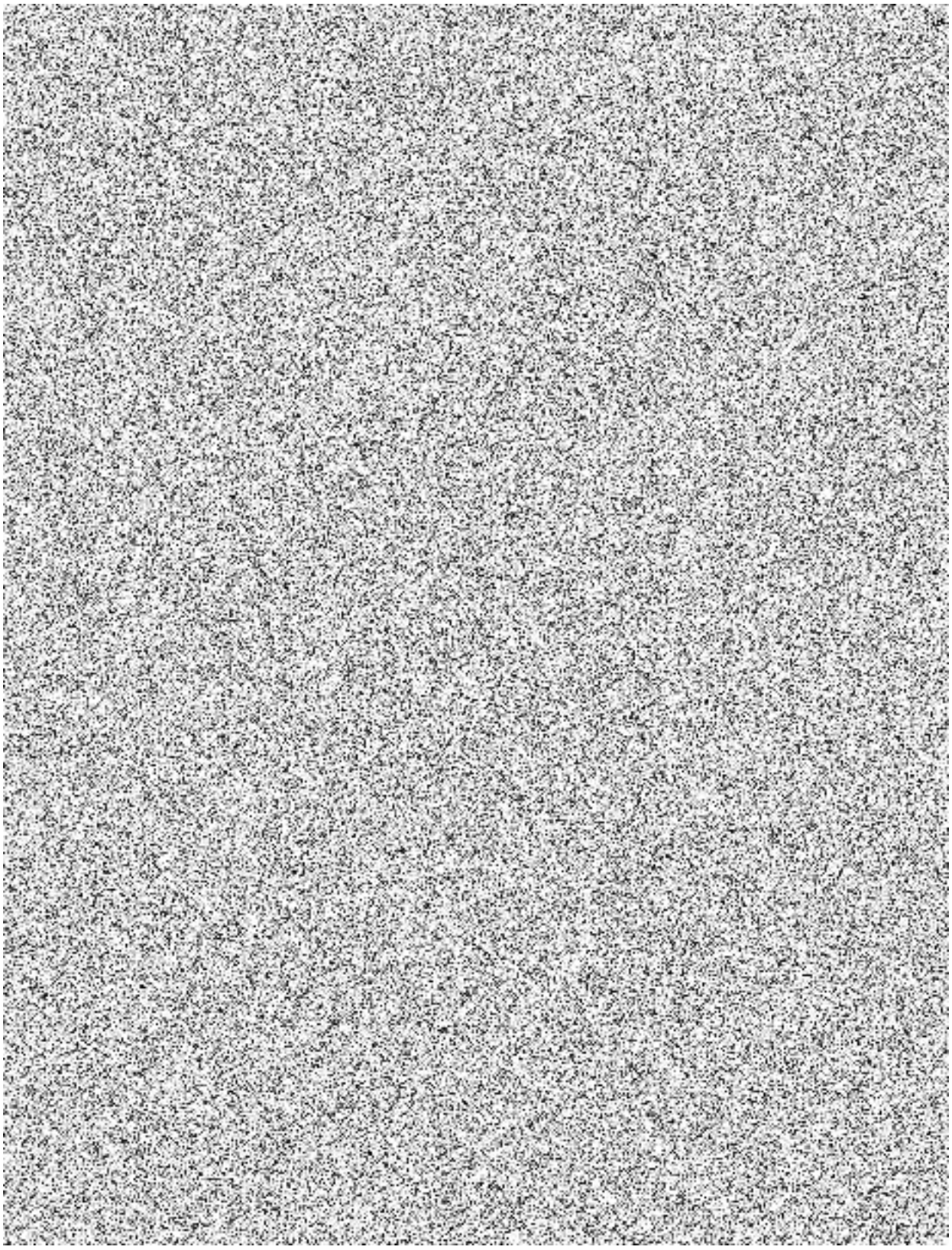
EPC CONTRACT

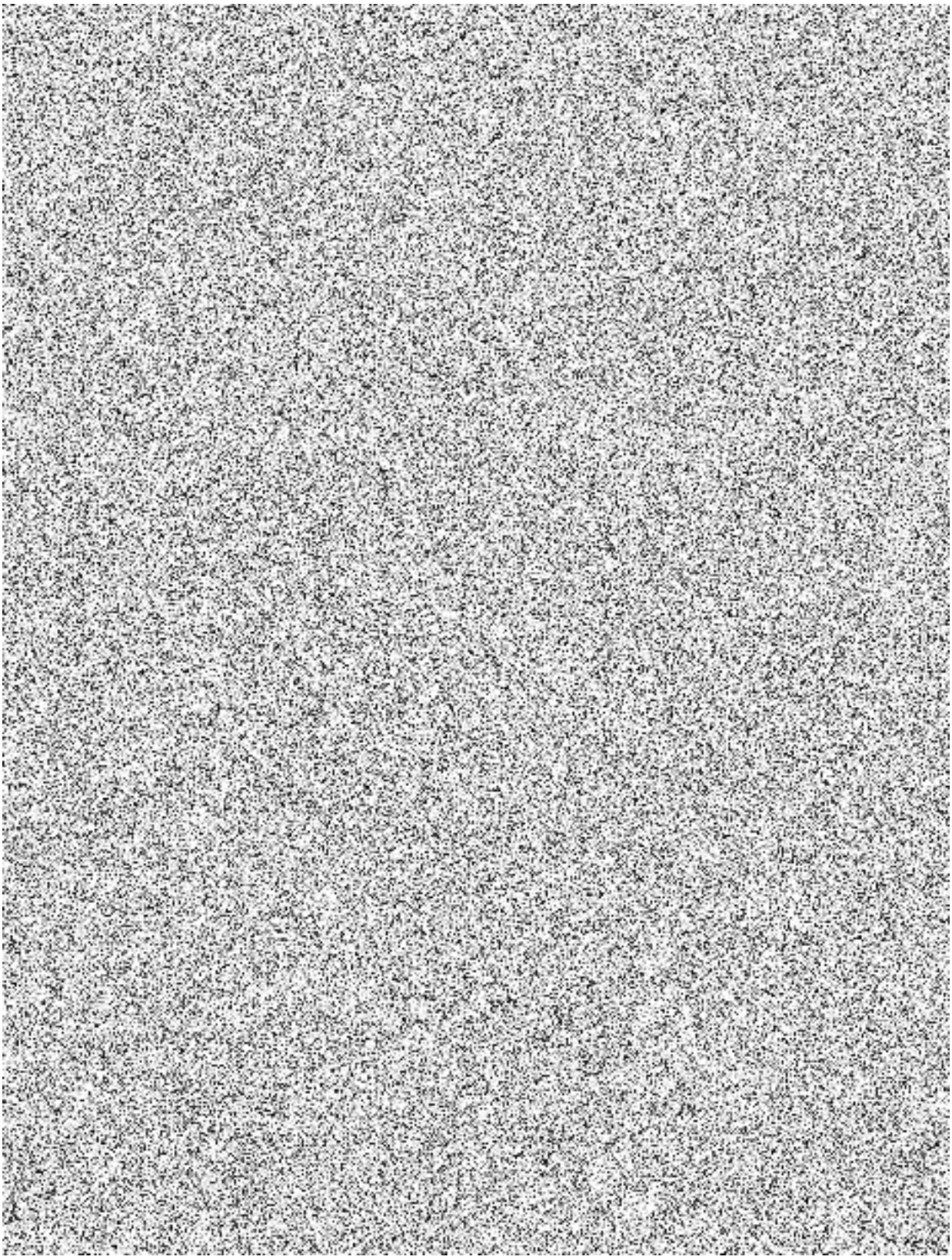
CONTRACT SPECIFICATIONS

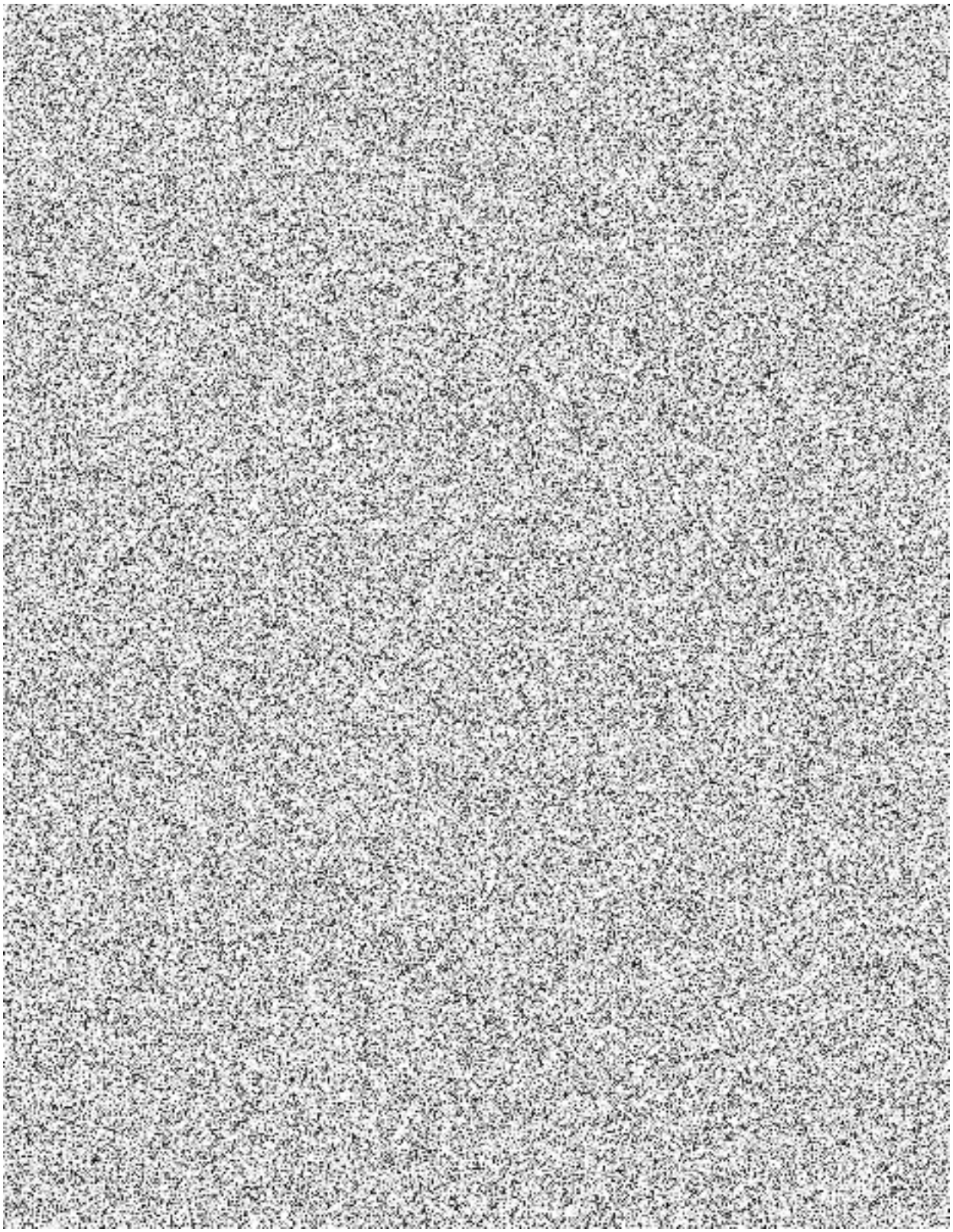
DOCUMENT NAME:	**OPERATION AND MAINTENANCE DOCUMENT** ATTACHMENT 1 - TABLE 1 - TYPICAL ORGANIZATIONAL CHART OF NPP IN OPERATION IN THE CZECH REPUBLIC
VERSION DATE:	**March 2025**

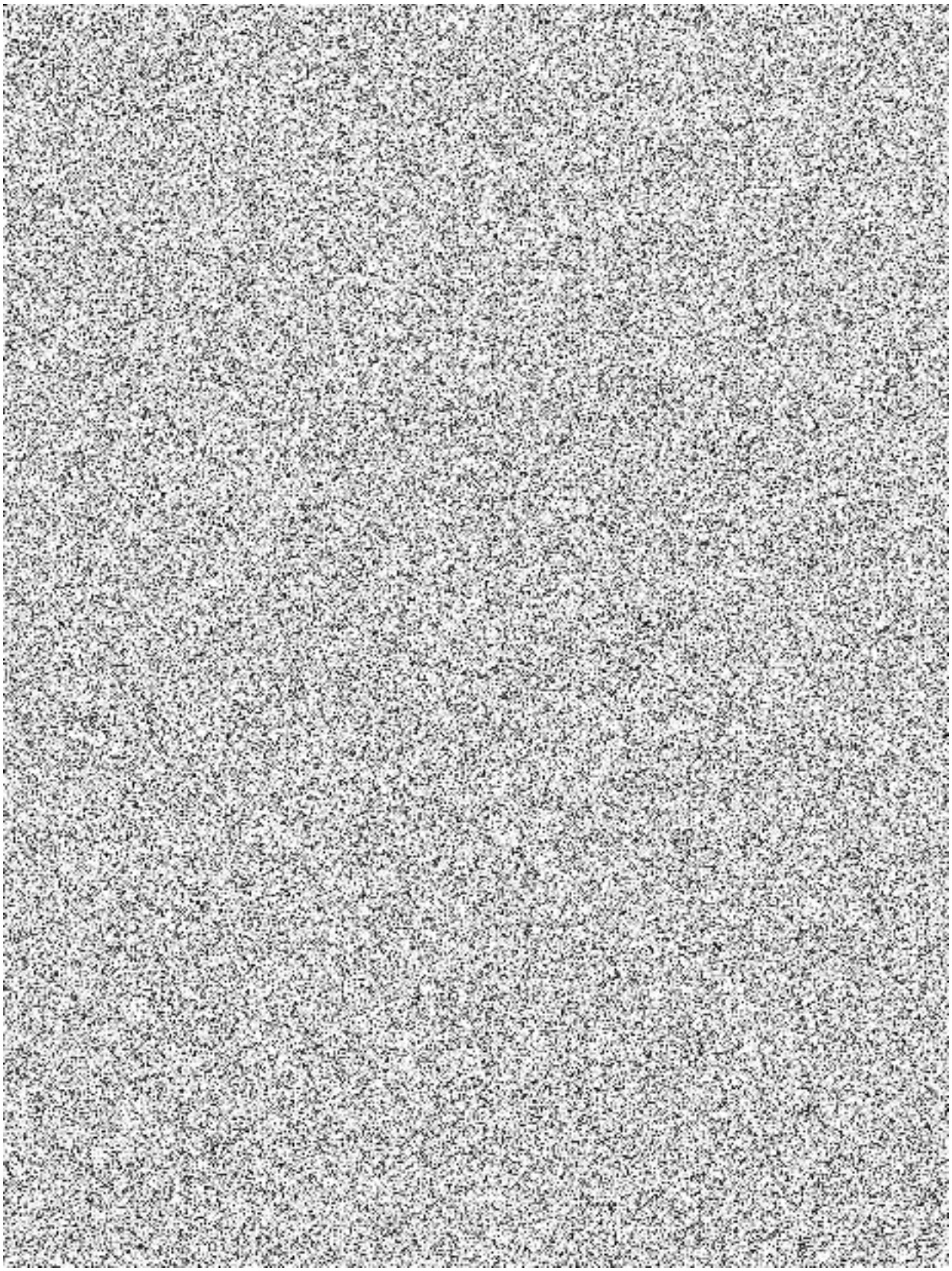


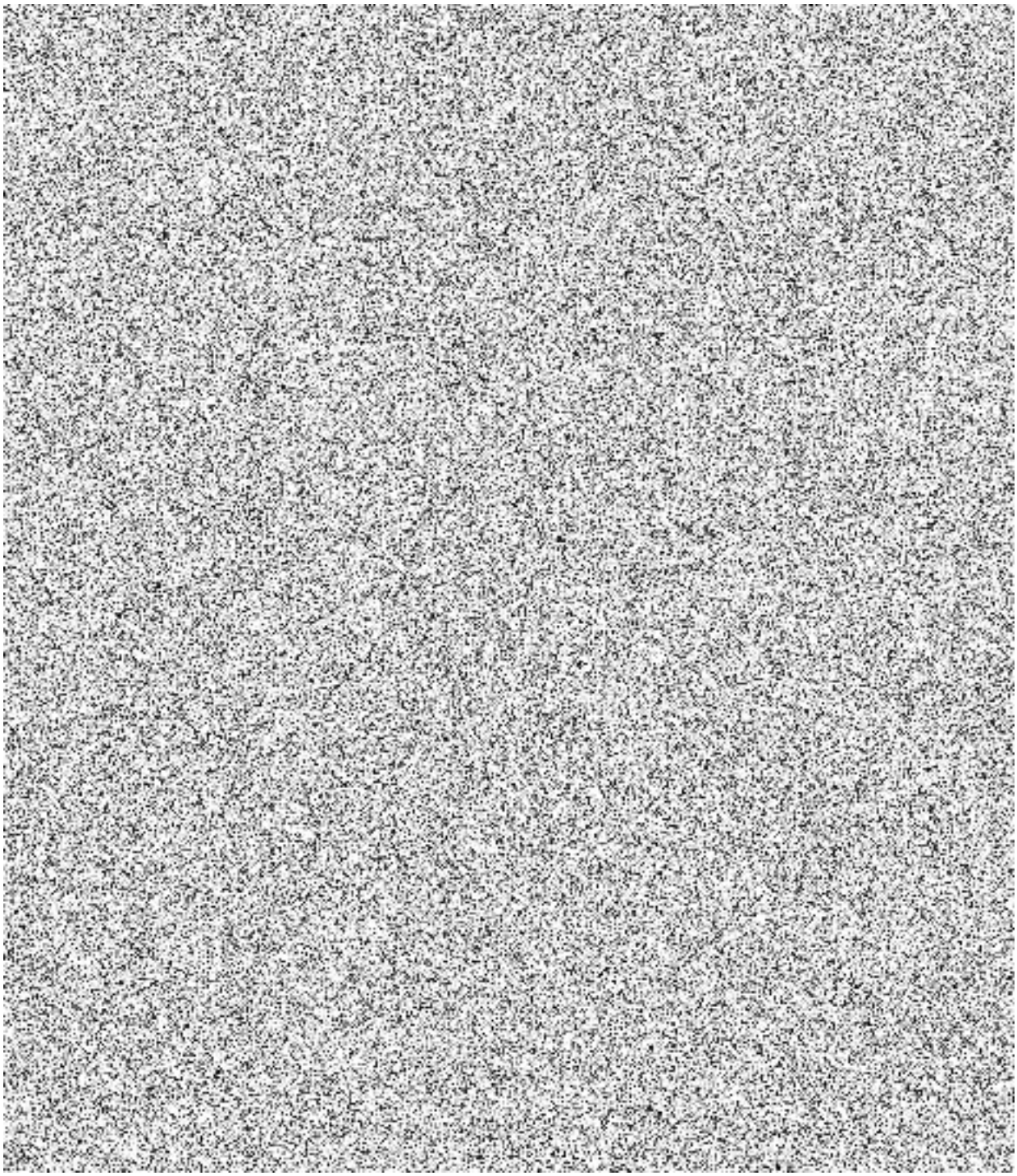












EPC CONTRACT

CONTRACT SPECIFICATIONS

DOCUMENT NAME:	**OPERATION AND MAINTENANCE DOCUMENT** ATTACHMENT 2 -TABLE 2 - EXAMPLE OF KEY MILESTONES AND REQUIRED OWNER'S PERSONNEL STAFING
VERSION DATE:	**March 2025**