

**Nuclear Power Production & Development Company**

**Operating Company of Bushehr NPP**

**Committee of Passive Defense & Crisis Management**

**Plan for**

**Bushehr NPP Comprehensive Emergency Communication Exercise**

**With Participation of WANO Regional Crisis Management Center (RCC) and Center Members**

**July 2016**

**Plan for**

**Bushehr NPP Comprehensive Emergency Communication Exercise**

**With Participation of WANO Regional Crisis Management Center (RCC) and Center Members**

1. **Date for implementing the emergency preparedness exercise**: July 12, 2016.
2. **Time for implementing the emergency preparedness exercise**: 08:30–12:30 and 14:00-16:00.
3. **Subject**:

Bushehr NPP Comprehensive Emergency Communication Exercise with Participation of WANO Regional Crisis Management Center (RCC**)** during the Accident and Exchanging Information for fixing it based on the Accident Scenario.

1. **A summary of accident scenario**

On Tuesday dated 12.07.16 at 8 o’clock a.m., reactor safety system actuation is suddenly actuated. The signals received from the MCR panels indicate the increase of the speed of gamma rays in the steam pipelines of steam generator No.2 more than 10-3ms/h and also increase of the level of this steam generator to 2.7 m which means primary circuit water leakage into secondary circuit due to collector fracture in this steam generator. In this condition, this steam generator is limited from all sides in a way that the route for exit of steam from it toward turbine and also the route for return of water to it are blocked. Immediately reactor core cooling operation is performed via the opening of the automatic valve BRU-A of the sound steam generators No. 1, 3 and 4.

At this time, steam pressure in the steam generator No. 2 until the opening point of the BRU-A increases and this valve is turned on and off several times alternatively in order to regulate pressure. Later and due to technical defect, this valve remains open and is not turned off. Therefore, water steam contaminated with radioactive material is uncontrollably dispersed into space.

Immediately by the order of the Manager of NPP, the group for restoration of the I&C equipment acts with software in order to examine and resolve the problem. The radiation data indicate that dose in the operational area of NPP site increases to 2.5 µm/h. Therefore, by the order of NPP manager, "Emergency preparedness" alarm is sounded in the site and crisis management committee chaired by NPP manager is established.

After a lot of endeavor, the team for restoration of APCSD equipment announces that it is not able to resolve the problem. In this stage, the team pipelines, vessels & valves recovery acts with its equipment in order to do necessary measures for shutting off the valves. The radiation data indicate that dose NPP site has increased to 210 µm/. Therefore, by the order of NPP manager, "Emergency situation" alarm is sounded and necessary measures about calling up emergency operation teams inside and outside the site are taken. Also the process of evacuation of the BNPP staff and the residents around NPP begins.

With continuous endeavor, the team the team pipelines, vessels & valves recovery manages to block the exit route of the steam (contaminated to radioactive material) into space.

Although dose rate is decreased below the permissible rate and considering other effective parameters, the normal condition is announced and "Normal situation" alarm is sounded. But, due to existence of contamination in the atmosphere, WANO Crisis Center (Moscow) was requested for aerial monitoring.

1. **Objective of Exercise:**

* Ensuring a systemic communication between Bushehr NPP and WANO Crisis Center at Moscow;
* Evaluating the quality and efficacy of communication systems in NPP and WANO Crisis Center;
* Evaluating the people in using the communication systems;
* Evaluating the people in filling and approving the report forms;
* Evaluating the inter-team communications during the accident and how to offer recommendation, consultancy and required guides;
* Evaluating the amount of required responses received from off-site (recommendation, consultancy, expertise).

1. **Manager of Exercise:**

Mr. Hossein Ghaffari: Director Bushehr NPP-1.

1. **Coordinator Person:**

Mr.Mohammad Hadi Jafari: Manager of Emergencies Planning at Bushehr NPP-1; (Saturday to Wednesday, 07:30a.m– 04:30p.m).

1. **Protocol group manager:**

Mr. Hamid Valikhani: Manager of Management and Supervision System at Bushehr NPP-1.

1. **Participants:**

* Bushehr NPP-1;
* WANO Crisis Center (Moscow);
* National Nuclear Safety Department (Regulatory Body);
* Nuclear Power Production & Development Co. of Iran (Operating Organization);
* Passive Defense and Crisis Management Committee of AEOI;
* Other WANO-MC Members (other NPPs).

1. **Initial Organization of Participants:**

* Declaring the exercise subject in the NPP Crisis Man genet Meeting and getting primary points of view;
* Ensuring the readiness of communication systems considered in Crisis Center;
* Sending the exercise plan to different sections in NPP;
* Making coordination with NNSD (Regulatory Body);
* Making coordination with operating organization for implementing the exercise;
* Making coordination with WANO Crisis Center (Moscow).

1. **Type of exercise**

Comprehensive Communication with participation of WANO Crisis Center (Moscow**).**

1. **Method of performing the exercise**

* Schematic Performance of employees in the workplace with simulating the accident in BNPP-1 and informing to the WANO Crisis Center (Moscow) as per the regulation for information exchange and procedure on “how to plan, implement and evaluate the preparedness drills of emergencies at BNPP-1”
* Informing to the WANO Crisis Center (Moscow) and other member NPPs as per the regulation for information exchange and procedure on “how to inform the emergencies during the accident at BNPP-1”.

1. **Organizing the information transfer in emergency preparedness exercises within RCC framework:**

* Readiness of communication system for operation such as telephone, fax, internet, email;
* Telephone number of drill manager for responding: +987731112644;
* Telephone number of Crisis Center for responding: +987731112640 ( Saturday to Wednesday, 07:30a.m– 04:30p.m);
* Fax number of Crisis Center for responding: +987731112655;
* E-mail of Crisis Center Coordinator Person: [jafari.hadi@nppd.co.ir](mailto:jafari.hadi@nppd.co.ir);
* Telephone number of plant shift Supervisor:

+987731113112 & +987731114403 (24 hours);

* All information and reports are developed and sent on the basis of Regulation for Information Exchange;
* All conversations and correspondences are initialized through various communication systems with the word **“exercise”**.

1. **Evaluating the emergency preparedness exercise:**

Evaluation is made based on achieving the objectives in article 2 and as per the following criteria:

* Using the Regulation for Information Exchange;
* Using the approved reporting forms;
* Using sufficient communication systems during the accident;
* Implementing the exercise as per schedule of accident trend;
* Correct answers for fixing the simulated accident;

**Т Р Е Н И РО В К А! E X E R C I S E!**

**Plan of BNPP Crisis Center in Exercising the Communication Emergency Preparedness**

| NO | Official time | Time for taking measures | Simulated accident, Measures taken by participants | Participants |
| --- | --- | --- | --- | --- |
| 1 | 08:30 | H+0:00 | Starting the emergency preparedness exercise with simulating the accident in initial hours of accident in BNPP | Bushehr NPP |
| 2 | 08:50 | H+0:20 | Sending the safety significant accident repot at BNPP (Form No.2) to WANO Crisis Center (Moscow), NPPD Co. of Iran (Operating Organization), NNSD (Regulatory Body) and Passive Defense and Crisis Management Committee of AEOI | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 3 | 09:00 | H+0:30 | Sending the message from WANO Crisis Center (Moscow), NPPD Co. of Iran (Operating Organization), NNSD (Regulatory Body) and Passive Defense and Crisis Management Committee of AEOI to BNPP on receiving the information on safety significant accident in Bushehr NPP | Shift Supervisor of WANO Crisis Center (Moscow) |
| 4 | 09:35 | H+01:05 | Sending the message on on-site accidents / extensive accidents (From No.3) to WANO Crisis Center (Moscow), NPPD Co. of Iran (Operating Organization), NNSD (Regulatory Body) and Passive Defense and Crisis Management Committee of AEOI | Bushehr NPP |
| 5 | 09:40 | H+01:10 | Sending the message from WANO Crisis Center (Moscow), NPPD Co. of Iran (Operating Organization), NNSD (Regulatory Body) and Passive Defense and Crisis Management Committee of AEOI to BNPP on receiving the information about the on-site or extensive accidents | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 6 | - | When needed | Sending the information from NPP in each inspection made from Unit status as well as the radiation status in BNPP and on-site (Forms No.3a and 4) | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 7 | 11:30 | H+03:00 | Sending a message about the on-site /extensive accidents (Form No.3) to WANO Crisis Center (Moscow), NPPD Co. of Iran (Operating Organization), NNSD (Regulatory Body) and Passive Defense and Crisis Management Committee of AEOI | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 8 | 12:20 | H+03:50 | Sending the request for consulting-expert and technical- engineering support as well as aerial monitoring during the accident in on-site/extensive accidents (Form No.4) | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 9 | 12:30 | H+04:00 | Sending the request for stopping the exercise to WANO Crisis Center (Moscow) | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 10 | 14:00 | H+05:30 | Sending the information from NPP in each inspection made from Unit status as well as the radiation status in BNPP and on-site (Forms No.3a and 4) | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 11 | 15:00 | H+06:30 | Receiving the consulting-expert and technical- engineering response from WANO Crisis Center (Moscow), NPPD Co. of Iran (Operating Organization), NNSD (Regulatory Body) and Passive Defense and Crisis Management Committee of AEOI | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |
| 12 | 15:50 | H+07:20 | Announcing the resolving of accident in Bushehr NPP | BNPP |
| 13 | 16:00 | H+07:30 | Announcing the end of emergency exercise plan (Form specified for end of exercise) | Shift Supervisor of WANO Crisis Center (Moscow) - BNPP |

**ТР Е Н И РО В К А! E X E R C I S E!**

Форма РКЦ-2 (Format RCC-2)  
Сообщение о событиях на АС важных с точки зрения безопасности/  
*Plant safety significant event message*сообщение / *message* №

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| Адресат /Аddressee: | | | | | Региональный кризисный центр ВАО АЭС в Москве  WANO Moscow Centre VVER NPPs Regional Crisis Centre | | | | | | | | | | | | | | | | |
| От /From: | | | | |  | | | | | | | | | | | | | | | | |
| Факс /Fax: | |  | | | | | | Эл. почта / Email: | | |  | | | | | Телефон / Phone: | | |  | | |
| Число страниц /Pages | | | | | | | |  | | | | | | | | | | | | | |
|  | срочно  /urgently | | |  | | | требует ответа /response required | | | | |  | для ознакомления / for information | | | |  | подтвердить получение  /acknowledge receipt | | | | | |
| 1. Станция /Plant: Блок / Unit: Страна / Сountry: | | | | | | | | | | | | | | | | | | | | | | |
| 2. Возникновение события (местное время) /Event Occurrence (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | | | | | | | | |
| 3. Состояние реакторной установки до возникновения события / Unit status prior event: | | | | | | | | | | | | | | | | | | | | | | |
|  | **На мощности / At power** | |  | | | **% от ном./ % of nominal** | | |  | **Горячий ост. / Hot Condition** | | | |  | **Холодный ост./ Cold Condition** | | | | |  | **Перегрузка / Refueling** | |
| 4. Событие / Event:  4.1 Срабатывание системы безопасности/ Safety system actuation  4.2 Отказ системы безопасности / Safety system failure  4.3 Отключение от энергосистемы / Loss of external grid   4.4 Пожар или взрыв/ Fire or explosion  4.5 Внешняя опасность злонамеренных действий/ External human threat  4.6 Экстремальные внешние условия/ Extreme external conditions  4.7 Выход радиоактивности в пределах станции/ Release of radioactivity inside plant  4.8 Выход радиоактивности за пределы станции/ Release of radioactivity outside plant  4.9 Другое/ Other | | | | | | | | | | | | | | | | | | | | | | |
| 5. Описание события /Description of event: *при необходимости, продолжите описание события на стр. 2 / if necessary, continue the description on page 2)* | | | | | | | | | | | | | | | | | | | | | | |

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| 6. Последствия / Consequences:  6.1 Количество пострадавших/ Number of injured persons:  6.2 Повреждения станции/ Plant damages:  6.3 Радиационная обстановка/ Radiation situation: нормальная / normal  6.4 Повышенные уровни радиации внутри зданий станции/ Increased levels measured inside plant buildings        мЗв/ч / mSv/h 6.5 Повышенные уровни радиации на промплощадке / Increased levels measured inside the fence        мЗв/ч / mSv/h | | | | | | | | | |
| 7. Надзорные органы оповещены/ Authorities informed: Да / Yes  Нет / No   7.1 Население и пресса оповещены/ Public and media informed: Да / Yes  Нет / No | | | | | | | | | |
| 8. Состояние энергоблока на момент сообщения / Unit status at time of message: | | | | | | | | | |
|  | На мощности / At power |  | % от ном./ of nominal |  | Горячий ост. / Hot Condition |  | Холодный ост./ Cold Condition |  | Перегрузка / Refueling |
| 9. Отправлено: Ф.И.О. и должность / Sender and position:  Год/Year: Месяц/ Month:       День/ Day: Час/ Hour:       Мин/ Min: | | | | | | | | | |
| 10. Получено Ф.И.О. и должность /Receiver and position:  Год/Year:      Месяц/ Month:       День/ Day:       ас/ Hour:       Мин/ Min: | | | | | | | | | |
| 11. Направлено на станции- члены ВАО АЭС / Forwarded to member plants:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | |

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| *(при необходимости продолжите описание события здесь / if necessary, continue the description here)* |
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**ТР Е Н И РО В К А! E X E R C I S E!**

Форма РКЦ-3 (Format RCC-3)  
Сообщение об аварии в пределах промплощадки АС / общей аварии   
*ON-SITE / GENERAL EMERGENCY* message

Сообщение / *message* №

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| Адресат /Аddressee: | | | | Региональный кризисный центр ВАО АЭС в Москве/  WANO Moscow Centre VVER NPPs Regional Crisis Centre | | | | | | | | | |
| От /From: | | | |  | | | | | | | | | |
| Факс /Fax: | |  | | | | Эл. почта / Email: |  | | | Телефон / Phone: | | |  |
| Число страниц /Pages | | | | | |  | | | | | | | |
|  | срочно  /urgently | |  | | требует ответа /response required | | |  | для ознакомления / for information | |  | подтвердить получение  /acknowledge receipt | |

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| 1. Станция /Plant: Блок / Unit: Страна / Сountry: | | | | | | | | | | | | | | | |
| 2 Объявлена /Announced: авария в пределах промплощадки АС/ On-Site Emergency , общая авария / General Emergency | | | | | | | | | | | | | | | |
| 3. Авария объявлена (местное время) /Announced at (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | |
| 4. Состояние реакторной установки до возникновения события / Unit status prior event: | | | | | | | | | | | | | | | |
|  | | На мощности / At power |  | | | % от ном./ % of nominal |  | | Горячий ост. / Hot Condition | |  | | Холодный ост./ Cold Condition |  | Перегрузка / Refueling |
| 5. Работоспособность систем безопасности / Availability of safety systems:  Внешнее питание / External grid: Да/Yes  Нет/ No  Неизвестно/Status unknown  Наличие аварийного электропитания /  Emergency power supply: Да/Yes  Нет/No  Неизвестно/Status unknown  Отвод остаточного энерговыделения / Residual heat removal: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ ВД /High pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ НД/Low pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  Баки САОЗ/Emergency water tanks: Да/Yes  Нет/No  Неизвестно/Status unknown  Гидроемкости САОЗ/ECCS accumulators: Да/Yes  Нет/No  Неизвестно/Status unknown | | | | | | | | | | | | | | | |
| 6. Описание события /Description of event: | | | | | | | | | | | | | | | |
| *(при необходимости, продолжите описание события на стр. 2 / if necessary, continue the description on page 2)* | | | | | | | | | | | | | | | |
| 7. Последствия / Consequences:  7.1 Количество пострадавших/ Number of injured persons:  7.2 Повреждения станции/ Plant damages:  7.3 Радиационная обстановка/ Radiation situation: нормальная /normal  7.4 Максимальное повышение уровня радиации внутри зданий станции / Maximum Increased levels measured inside plant buildings        мЗв/ч / mSv/h; Указать где / Where?       7.5 Радиационная обстановка на промплощадке /  Increased levels measured inside the fence        мЗв/ч / mSv/h;  Указать где / Where? | | | | | | | | | | | | | | | |
| 8. Надзорные органы оповещены/ Authorities informed: Да / Yes  Нет / No   8.1 Население и пресса оповещены/ Public and media informed: Да / Yes  Нет / No | | | | | | | | | | | | | | | |
| 9. Состояние энергоблока на момент сообщения/ Unit status at time of message: | | | | | | | | | | | | | | | |
|  | На мощности / At power | | |  | % от ном./ % of nominal | | |  | | Горячий ост. / Hot Condition |  | Холодный ост./ Cold Condition | |  | Перегрузка / Refueling |
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| 12. Получено Ф.И.О. и должность/ Receiver and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | |
| 13. Направлено на станции- члены ВАО АЭС / Forwarded to member plants: Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | |
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| 1. Станция /Plant: Блок / Unit: Страна / Сountry: | | | | | | | | | | | | | | | |
| 2 Объявлена /Announced: авария в пределах промплощадки АС/ On-Site Emergency , общая авария / General Emergency | | | | | | | | | | | | | | | |
| 3. Авария объявлена (местное время) /Announced at (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | |
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|  | | На мощности / At power |  | | | % от ном./ % of nominal |  | | Горячий ост. / Hot Condition | |  | | Холодный ост./ Cold Condition |  | Перегрузка / Refueling |
| 5. Работоспособность систем безопасности / Availability of safety systems:  Внешнее питание / External grid: Да/Yes  Нет/ No  Неизвестно/Status unknown  Наличие аварийного электропитания /  Emergency power supply: Да/Yes  Нет/No  Неизвестно/Status unknown  Отвод остаточного энерговыделения / Residual heat removal: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ ВД /High pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ НД/Low pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  Баки САОЗ/Emergency water tanks: Да/Yes  Нет/No  Неизвестно/Status unknown  Гидроемкости САОЗ/ECCS accumulators: Да/Yes  Нет/No  Неизвестно/Status unknown | | | | | | | | | | | | | | | |
| 6. Описание события /Description of event: | | | | | | | | | | | | | | | |
| *(при необходимости, продолжите описание события на стр. 2 / if necessary, continue the description on page 2)* | | | | | | | | | | | | | | | |
| 7. Последствия / Consequences:  7.1 Количество пострадавших/ Number of injured persons:  7.2 Повреждения станции/ Plant damages:  7.3 Радиационная обстановка/ Radiation situation: нормальная /normal  7.4 Максимальное повышение уровня радиации внутри зданий станции / Maximum Increased levels measured inside plant buildings        мЗв/ч / mSv/h; Указать где / Where?       7.5 Радиационная обстановка на промплощадке /  Increased levels measured inside the fence        мЗв/ч / mSv/h;  Указать где / Where? | | | | | | | | | | | | | | | |
| 8. Надзорные органы оповещены/ Authorities informed: Да / Yes  Нет / No   8.1 Население и пресса оповещены/ Public and media informed: Да / Yes  Нет / No | | | | | | | | | | | | | | | |
| 9. Состояние энергоблока на момент сообщения/ Unit status at time of message: | | | | | | | | | | | | | | | |
|  | На мощности / At power | | |  | % от ном./ % of nominal | | |  | | Горячий ост. / Hot Condition |  | Холодный ост./ Cold Condition | |  | Перегрузка / Refueling |
| 10. Отправлено: Ф.И.О. и должность / Sender and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | |
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| 13. Направлено на станции- члены ВАО АЭС / Forwarded to member plants: Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | |
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**ТР Е Н И РО В К А! E X E R C I S E!**

**Format RCC-3 а**

**Форма РКЦ-3 а (Format RCC-3 а)  
Данные о развитии аварии в пределах площадки/общей аварии**

***Status up-date of on-site / general emergency*сообщение / *message* №**

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| Адресат /*Аddressee:* | | | | Региональный кризисный центр ВАО АЭС в Москве  *WANO Moscow Centre VVER NPPs Regional Crisis Centre* | | | | | | | | | |
| От /*From:* | | | |  | | | | | | | | | |
| Факс /*Fax:* | |  | | | | Эл. почта / Email: |  | | | Телефон / Phone: | | |  |
| Число страниц /Pages | | | | | | 2 | | | | | | | |
|  | срочно  */urgently* | |  | | требует ответа /*response required* | | |  | для ознакомления / *for information* | |  | подтвердить получение  */acknowledge receipt* | |

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| 1. Станция /Plant: Блок / Unit: Страна / Сountry: |
| 2 Объявлена /Announced: авария в пределах промплощадки АС/ On-Site Emergency , общая авария / General Emergency |
| 3 Авария объявлена (местное время) /Announced at (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 4. Состояние критических функций безопасности / Status of critical safety functions:  Функция (Состояние)/ Экстремальное Тяжелое Неудовл. Удовл. Неизвестно  Function(Condition) Extreme Severe Unsatisf. Satisf. Not known  4.1 Подкритичность активной зоны /Reactor core sub criticality  4.2 Охлаждение активной зоны / Reactor core cooling  4.3 Отвод остаточного тепловыделения (перв./втор. контур)/ Residual heat removal (prim./sec. circuit)  4.4 Наличие конечного поглотителя /  Ultimate heat sink availability  4.4 Целостность первого контура /Primary circuit integrity  4.5 Целостность гермооболочки / Containment integrity  4.6 Запас теплоносителя в первом контуре /  Primary circuit inventory |
| 5. Работоспособность систем безопасности / Availability of safety systems:  Внешнее питание / External grid: Да/Yes  Нет/ No  Неизвестно/Status unknown  Питание от дизель-генератора/  Emergency diesel power: Да/Yes  Нет/No  Неизвестно/Status unknown  Отвод остаточного энерговыделения/ Residual heat removal: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ ВД /High pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ НД/Low pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  Баки САОЗ/Emergency water tanks: Да/Yes  Нет/No  Неизвестно/Status unknown  Гидроемкости САОЗ/ECCS accumulators: Да/Yes  Нет/No  Неизвестно/Status unknown |
| 6. Корректировка данных по ситуации (изменения в ситуации перед последним сообщением)/ Situation update (changes in situation prior last message): |
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| 7. Последствия /Consequences:  7.1 Количество пострадавших/ Number of injured persons:  7.2 Повреждения станции/ Plant damages:  7.3 Радиационная обстановка/ Radiation situation: нормальная / normal  7.4 Максимальное повышение уровня радиации внутри зданий станции / Maximum Increased levels measured inside plant buildings        мЗв/ч mSv/h   Указать где / Where?       7.5 Повышенные уровни радиации на промплощадке /  Increased levels measured inside the fence        мЗв/ч mSv/h  Указать где / Where?  7.6 Персонал станции эвакуирован /Plant personnel evacuated: Да/Yes  Нет/No  7.7 Население из зоны аварийного реагирования эвакуировано / Protective area evacuated:Да/Yes  Нет/No |
| 8. Метеорологические условия/ Weather conditions:   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Направление распространения выброса / release transport direction | |  | Осадки/ Precipitation |  | да/yes | |  | нет/no |  | | | | | | |  | Скорость/ Speed, м/с  m/s |  | Интенсивность осадков / Precipitation intensity | | | мм/ч       mm/h | | |  |  |  |  |  |  | |  |  |  | | |  | | |  |  |  |  |  |  | |
| 9. Дополнительная информация/ Additional information  Ф.И.О. Name: Телефон/ Phone: |
| 10. Отправлено: Ф.И.О. и должность / Sender and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 11. Получено Ф.И.О. и должность / Receiver and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 12. Направлено на станции- члены ВАО АЭС / Forwarded to member plants:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| *(при необходимости продолжите описание здесь / if necessary, continue the description here)* |
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**ТР Е Н И РО В К А! E X E R C I S E!**

**Форма РКЦ-4 (Format RCC-4 )**

**Запрос об оказании экспертной / консультативной и инженерно-технической поддержки/ Format of request for expert/consultative and engineering and technical support**

***Request for expert/consultative and engineering support***

**сообщение / *message* №**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Адресат /*Аddressee:* | | | | Региональный кризисный центр ВАО АЭС в Москве  *WANO Moscow Centre VVER NPPs Regional Crisis Centre* | | | | | | | | | |
| От /*From:* | | | |  | | | | | | | | | |
| Факс /*Fax:* | |  | | | | Эл. почта / Email: |  | | | Телефон / Phone: | | |  |
| Число страниц (Pages) | | | | | | 1 | | | | | | | |
|  | срочно  */urgently* | |  | | требует ответа /*response required* | | |  | для ознакомления / *for information* | |  | подтвердить получение  */acknowledge receipt* | |

1. Станция /Plant: Блок / Unit: Страна / Сountry:

2. Суть запроса / Content of request:

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| 3. Отправлено: Ф.И.О. и должность / Sender and position: |
| 4. Дата и время (местное) / Date and time (local time):   Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 5. Получено Ф.И.О. и должность (местное время) /Receiver and position (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 6. Направлено на станции- члены ВАО АЭС (местное время) / Forwarded to member plants (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |

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| Стр. 1 из 1 / page 1 of 1 |

**ТР Е Н И РО В К А! E X E R C I S E!**

**Форма РКЦ-3 (FormatRCC3)  
Сообщение об аварии в пределах промплощадки АС /общей аварии   
 ON-SITE / GENERAL EMERGENCY message Сообщение / message№**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Адресат /Аddressee: | | | | Региональный кризисный центр ВАО АЭС в Москве/  WANO Moscow Centre VVER NPPs Regional Crisis Centre | | | | | | | | | |
| От /From: | | | |  | | | | | | | | | |
| Факс /Fax: | |  | | | | Эл. почта / Email: |  | | | Телефон / Phone: | | |  |
| Число страниц /Pages | | | | | | 2 | | | | | | | |
|  | срочно  /urgently | |  | | требует ответа /response required | | |  | для ознакомления / for information | |  | подтвердить получение  /acknowledge receipt | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Станция /Plant: Блок / Unit: Страна / Сountry: | | | | | | | | | | | | | | | | | |
| 2 Объявлена /Announced: авария в пределах промплощадки АС/ On-Site Emergency , общая авария / General Emergency | | | | | | | | | | | | | | | | | |
| 3. Авария объявлена (местное время) /Announced at (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | | | |
| 4. Состояние реакторной установки до возникновения события / Unit status prior event: | | | | | | | | | | | | | | | | | |
|  | | На мощности / At power |  | | | % от ном./ % of nominal |  | | Горячий ост. / Hot Condition | |  | | Холодный ост./ Cold Condition |  | | Перегрузка / Refueling | |
| 5. Работоспособность систем безопасности / Availability of safety systems:  Внешнее питание / External grid: Да/Yes  Нет/ No  Неизвестно/Status unknown  Наличие аварийного электропитания /  Emergency power supply: Да/Yes  Нет/No  Неизвестно/Status unknown  Отвод остаточного энерговыделения / Residual heat removal: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ ВД /High pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ НД/Low pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  Баки САОЗ/Emergency water tanks: Да/Yes  Нет/No  Неизвестно/Status unknown  Гидроемкости САОЗ/ECCS accumulators: Да/Yes  Нет/No  Неизвестно/Status unknown | | | | | | | | | | | | | | | | | |
| 6. Описание события /Description of event: | | | | | | | | | | | | | | | | | |
| *(при необходимости, продолжите описание события на стр. 2 / if necessary, continue the description on page 2)* | | | | | | | | | | | | | | | | | |
| 7. Последствия / Consequences:  7.1 Количество пострадавших/ Number of injured persons:  7.2 Повреждения станции/ Plant damages:  7.3 Радиационная обстановка/ Radiation situation: нормальная /normal  7.4 Максимальное повышение уровня радиации внутри зданий станции / Maximum Increased levels measured inside plant buildings        мЗв/ч / mSv/h; Указать где / Where?       7.5 Радиационная обстановка на промплощадке /  Increased levels measured inside the fence        мЗв/ч / mSv/h;  Указать где / Where? | | | | | | | | | | | | | | | | | |
| 8. Надзорные органы оповещены/ Authorities informed: Да / Yes  Нет / No   8.1 Население и пресса оповещены/ Public and media informed: Да / Yes  Нет / No | | | | | | | | | | | | | | | | | |
| 9. Состояние энергоблока на момент сообщения/ Unit status at time of message: | | | | | | | | | | | | | | | | | |
|  | На мощности / At power | | |  | % от ном./ % of nominal | | |  | | Горячий ост. / Hot Condition |  | Холодный ост./ Cold Condition | | |  | | Перегрузка / Refueling |
| 10. Отправлено: Ф.И.О. и должность / Sender and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | | | |
| 12. Получено Ф.И.О. и должность/ Receiver and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | | | |
| 13. Направлено на станции- члены ВАО АЭС / Forwarded to member plants: Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: | | | | | | | | | | | | | | | | | |
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**ТР Е Н И РО В К А! E X E R C I S E!**

**Format RCC-3 а**

**Форма РКЦ-3 а (Format RCC-3 а)  
Данные о развитии аварии в пределах площадки/общей аварии**

***Status up-date of on-site / general emergency*сообщение / *message* №**

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| Адресат /*Аddressee:* | | | | Региональный кризисный центр ВАО АЭС в Москве  *WANO Moscow Centre VVER NPPs Regional Crisis Centre* | | | | | | | | | |
| От /*From:* | | | |  | | | | | | | | | |
| Факс /*Fax:* | |  | | | | Эл. почта / Email: |  | | | Телефон / Phone: | | |  |
| Число страниц /Pages | | | | | | 2 | | | | | | | |
|  | срочно  */urgently* | |  | | требует ответа /*response required* | | |  | для ознакомления / *for information* | |  | подтвердить получение  */acknowledge receipt* | |

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| 1. Станция /Plant: Блок / Unit: Страна / Сountry: |
| 2 Объявлена /Announced: авария в пределах промплощадки АС/ On-Site Emergency , общая авария / General Emergency |
| 3 Авария объявлена (местное время) /Announced at (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 4. Состояние критических функций безопасности / Status of critical safety functions:  Функция (Состояние)/ Экстремальное Тяжелое Неудовл. Удовл. Неизвестно  Function(Condition) Extreme Severe Unsatisf. Satisf. Not known  4.1 Подкритичность активной зоны /Reactor core sub criticality  4.2 Охлаждение активной зоны / Reactor core cooling  4.3 Отвод остаточного тепловыделения (перв./втор. контур)/ Residual heat removal (prim./sec. circuit)  4.4 Наличие конечного поглотителя / Ultimate heat sink availability    4.5 Целостность первого контура /Primary circuit integrity  4.6 Целостность гермооболочки / Containment integrity  4.7 Запас теплоносителя в первом контуре /Primary circuit inventor |
| 5. Работоспособность систем безопасности / Availability of safety systems:  Внешнее питание / External grid: Да/Yes  Нет/ No  Неизвестно/Status unknown  Питание от дизель-генератора/  Emergency diesel power: Да/Yes  Нет/No  Неизвестно/Status unknown  Отвод остаточного энерговыделения/ Residual heat removal: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ ВД /High pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  САОЗ НД/Low pressure safety injection: Да/Yes  Нет/No  Неизвестно/Status unknown  Баки САОЗ/Emergency water tanks: Да/Yes  Нет/No  Неизвестно/Status unknown  Гидроемкости САОЗ/ECCS accumulators: Да/Yes  Нет/No  Неизвестно/Status unknown |
| 6. Корректировка данных по ситуации (изменения в ситуации перед последним сообщением)/ Situation update (changes in situation prior last message): |
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| 7. Последствия /Consequences:  7.1 Количество пострадавших/ Number of injured persons:  7.2 Повреждения станции/ Plant damages:  7.3 Радиационная обстановка/ Radiation situation: нормальная / normal  7.4 Максимальное повышение уровня радиации внутри зданий станции / Maximum Increased levels measured inside plant buildings        мЗв/ч mSv/h   Указать где / Where?       7.5 Повышенные уровни радиации на промплощадке /  Increased levels measured inside the fence        мЗв/ч mSv/h  Указать где / Where?  7.6 Персонал станции эвакуирован /Plant personnel evacuated: Да/Yes  Нет/No  7.7 Население из зоны аварийного реагирования эвакуировано / Protective area evacuated:Да/Yes  Нет/No |
| 8. Метеорологические условия/ Weather conditions:   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Направление распространения выброса / release transport direction | |  | Осадки/ Precipitation |  | да/yes | |  | нет/no |  | | | | | | |  | Скорость/ Speed, м/с  m/s |  | Интенсивность осадков / Precipitation intensity | | | мм/ч       mm/h | | |  |  |  |  |  |  | |  |  |  | | |  | | |  |  |  |  |  |  | |
| 9. Дополнительная информация/ Additional information  Ф.И.О. Name: Телефон/ Phone: |
| 10. Отправлено: Ф.И.О. и должность / Sender and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 11. Получено Ф.И.О. и должность / Receiver and position:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 12. Направлено на станции- члены ВАО АЭС / Forwarded to member plants:  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| *(при необходимости продолжите описание здесь / if necessary, continue the description here)* |
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**ТР Е Н И РО В К А! E X E R C I S E!**

**Форма РКЦ-4 (Format RCC-4 )**

**Запрос об оказании экспертной / консультативной и инженерно-технической поддержки/** Format of request for expert/consultative and engineering and technical support

***Request for expert/consultative and engineering support***

**сообщение / *message* №**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Адресат /*Аddressee:* | | | | Региональный кризисный центр ВАО АЭС в Москве  *WANO Moscow Centre VVER NPPs Regional Crisis Centre* | | | | | | | | | |
| От /*From:* | | | |  | | | | | | | | | |
| Факс /*Fax:* | |  | | | | Эл. почта / Email: |  | | | Телефон / Phone: | | |  |
| Число страниц (Pages) | | | | | | 1 | | | | | | | |
|  | срочно  */urgently* | |  | | требует ответа /*response required* | | |  | для ознакомления / *for information* | |  | подтвердить получение  */acknowledge receipt* | |

1. Станция /Plant: Блок / Unit: Страна / Сountry:

2. Суть запроса / Content of request:

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| --- |
| 3. Отправлено: Ф.И.О. и должность / Sender and position: |
| 4. Дата и время (местное) / Date and time (local time):   Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 5. Получено Ф.И.О. и должность (местное время) /Receiver and position (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |
| 6. Направлено на станции- члены ВАО АЭС (местное время) / Forwarded to member plants (local time):  Год/Year:      Месяц/ Month:       День/ Day:       Час/ Hour:       Мин/ Min: |

**Тренировка! Exercises!**

**Региональный кризисный центр**

**Объявление оперативной паузы при проведении тренировки/**

**Regional Crisis Centre**

**Operational break announcement**

Aдpecaт /Addressee:

Участникам РКЦ / RCC Participants:

OT /from:

Факс /Fax: Эл. почта / Email: Телефон / Phone:

срочно требует ответа / ознакомления/ Утвердить получение/

Urgently response required for information knowledge receipt

То тправлено: Ф.И.О. должность

Sender and position:

Год/Year: Месяц/ Month День/ Day Час/ Hour Мин/ Min:

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Стр.1 и з 1

Page 1 of 1

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**ТР Е Н И РО В К А! E X E R C I S E!**

**Форма РКЦ «Окончание тренировки» (Format”End of Exercise”)**

Адресат / Addressee: Участникам РКЦ / RCC Participants

От / From:

Факс /Fax Эл. почта / Email: Телефон / Phone:

Число страниц /PagesЖ

срочно требует ответа для ознакомления подтвердить получени /urgently /response required / For information /acknowledge receipt

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| --- |
| Отправлено: Ф.И.О. должность  Sender and position: |
| Дата и время (местное) / Date and time (local time):  Год / Year: Месяц / Month: День / Day: Час / Hour: Мин / Min: |
| Получено Ф.И.О. и должность (местное время) / Receiver and position (local time):  Год / Year: Месяц / Month: День / Day: Час / Hour: Мин / Min: |

Стр.1 и з 1

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