

***Branch   
in Ust-Ilimsk***

***Branch   
in the Ust-Ilimsk Region***

**И 05.03-02-15**

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I N S T R U C T I O N

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Primary fire-fighting equipment.

Operation and maintenance of fire extinguishers

**To replace** *И 05.03-02-11*

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**Introduced by** *the of 30.12.2015 No. 791/818*

**Introduction date** 01 January 2016

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# **1 PURPOSE**

This Instruction sets forth major requirements for provisioning, operation, execution of maintenance for fire extinguishers in the units of JSC Ilim Group in Ust-Ilimsk and Ust-Ilimsk Region.

# **2 SCOPE**

2.1 The requirements of the present Instruction shall apply for all of the units:

- JSC Ilim Group Branch in Ust-Ilimsk;

- JSC Ilim Branch in Ust-Ilimsk Region;

- regional separate units of JSC Ilim Group in Ust-Ilimsk and Ust-Ilimsk Region (hereinafter referred to as RSU);

2.2 The present Instruction is recommended for application by the JSC Ilim Group affiliates in the town of Ust-Ilimsk and Ust-Ilimsk Region, subcontractor organizations that perform works on the Branch territory.

2.3 The requirements of the present Instruction shall not apply to non-rechargeable (single-use), special (targeted-application) and backpack extinguishers.

# **3 TERMS AND DEFINITIONS, ABBREVIATIONS**

Present Instruction uses the following:

***Pressurizing gas bottle*** is a vessel with a neck opening for installation of a valve, flange or a fitting, intended for storage and usage of pressurized or liquified gases.

***Pressurizing gas*** is a pressurized or liquified gas that creates pressure excess inside the fire extinguisher casing, thus used for feeding of fire extinguishing agent from the extinguisher to the combustion scene

***Test pressure (Рtest)*** is a pressure level for testing of the fire extinguisher casing robustness testing.

***Operational (rated) pressure (Рrated)*** is a stabilized pressurized gas pressure inside the fire extinguisher casing loaded with fire extinguishing agent up to rated value and stored under temperature conditions of (20±2) °С for 24 hours (indicated in the specifications or the extinguisher certificate)

***Maximum operational pressure(Рmax)*** is the maximum allowed value for operational pressurized gas pressure inside the fire extinguisher charged with fire extinguishing agent up to maximum value and stored under temperature conditions of   
(50±2) °С for 24 hours (indicated in the standards and regulations documents or the extinguisher certificate)

***Double hose roll*** is a type of fire hose packing that includes folding the hose in half, then rolling it from the folding point to ends so that the fitting heads are placed outside the roll

***Fire extinguisher charge*** is the amount of fire extinguishing agent stored inside the extinguisher casing and stated in units of mass or volume.

***Fire extinguisher casing*** is an airtight vessel used for storing fire extinguishing agent and feeding it to the fire scene under excessive pressure of the agent’s own vapors or pressurizing gas

***Expansion*** is a ratio of foam volume to foam solution contained in the foam.

***Protected facility*** is a building, construction (irrespective of its purpose), outside installation, open materials storage plot, vehicle that can hold people and tangible assets

***Fire-extinguishing agent (FEA)*** is a substance that possesses certain physical and chemical characteristics that provide for creation of conditions that prevent further combustion

***Fire extinguisher*** is a manually or automatically handled device for extinguishing a fire scene by emitting stored fire extinguishing agent

***Air-foam fire extinguisher (AFE)*** is a type of extinguisher charged with water solution of foaming agents and equipped with a special nozzle that forms an air-filled foam jet with air ejection

***Rechargeable fire extinguisher*** is a type of extinguisher that holds a charge that is constantly under pressurized gas or fire-extinguishing agent fumes pressure

***Wheeled fire extinguisher*** is an extinguisher that weights not less than 20 kg and no more than 400 kg, mounted on wheel axis or a cart

***Portable fire extinguisher*** is an extinguisher with full weight of not more than 20 kg and construction that allows it to be carried and handled by a single person

***Dry powder extinguisher (DPE)*** is an extinguisher charged with dry powder extinguishing agent

***Gas bottle extinguisher*** is an extinguisher with casing under pressure of compressed or liquified gas inside of a bottle located either inside or outside of the extinguisher casing

***Extinguisher with gas-generating unit*** is and extinguisher with excess pressure created inside its casing by gas-emitting chemical reaction between charge components of the extinguisher special detail

***Thermal element fire extinguisher*** is and extinguisher that discharges its extinguishing agent due thermal exposure of FEA to electric current or chemical reaction products of the special construction element components

***Carbon dioxide extinguisher (CDE)*** is an extinguisher charged with carbon dioxide

***Unit*** is a workshop, group, plot, production or laboratory

***Maintenance*** is a set of measures aimed at maintaining or recovering of operational condition of the primary fire-fighting equipment (fire valves and extinguishers), as well as creation of conditions for their unimpeded use in case of necessity

***Department for PW*** is department for preventive works of the fire safety and emergency service

***Department for FSPW*** stands for department for fire safety provisioning works of the fire safety and emergency response service.

***FS ER service*** stands for fire safety and emergency response service.

# **4 GENERAL PROVISIONS**

4.1 Primary fire-fighting equipment (PFFE) includes devices, tools and materials intended for containment or extinguishing of fire in its initial stage, namely:

- fire valves;

- fire extinguishers;

- sand;

- felt, fire blanket, asbestos cloth;

- buckets, shovels, etc.

It is impossible and very dangerous to fight fire with PFFE. Fire extinguishing is effected by experts of the fire safety and emergency response service.

4.2 Primary fire-fighting equipment location spots shall be marked on the primary fire-fighting equipment location schemes that are attached as Annexes to the fire safety measure instructions of the structural units.

4.3 ***It is strictly prohibited to use*** PFFE for types of works not directly associated with extinguishing fires or running trainings.

4.4 Requirements for usage and maintenance of the fire-fighting water supply equipment (fire valves, fire hoses and so on) are defined in the Instruction 05.03-14-15 “Operation, maintenance, disconnection, testing, repairs of the fire-fighting water sources and supply equipment”.

# **5 TYPES AND PURPOSE OF THE PRIMARY FIRE FIGHTING EQUIPMENT**

|  |  |
| --- | --- |
| 5.1 **Water** is the most commonly used for fire fighting. Fire extinguishing capacity mainly relies on its potential to cool the conflagrant object and decrease the flames temperature. While fed over the combustion scene, water that is not vaporized in the process soaks and cools the surface of the conflagrant object and while running down prevents its other, non-conflagrant parts from combusting. Water is a good conduit, so ***it is prohibited to use*** it for extinguishing voltage-carrying cable networks and installations. Getting water on electric cables may cause short circuit. | J:\ORDERS2018\Ilim\10287\WORK_DTP\Швецова\OCR\pdf\21_05.03-02-15 (первич.ср-ва пожпротушения-5.jpg  Fig. 1 |

5.1.1 **It is strictly prohibited** to extinguish burning gasoline, kerosene, oil and other combustible and flammable liquids with water. Being lighter than water, these fluids float and continue to burn, increasing the overall combustion area by spreading across the water surface. Therefore to extinguish them, not only fire extinguishers but also sand, soil, sodium bicarbonate, as well as closely-woven fabrics like woolen blankets or coats soaked in water should be used.

5.2 **Sand and soil** are used for extinguishing small fire scenes, including combustible liquid (kerosene, gasoline, oil, tar, etc.) spills.

5.2.1 Using sand (soil) for extinguishing the fire requires carrying these substances in a bucket or on a shovel to the fire scene. Pour sand mainly along the outer rim of the combustion zone, surrounding the fire scene with sand and preventing further spillage of liquid. Then use a shovel to cover the conflagrant surface with a layer of sand that will imbibe the liquid. After the flames have been beaten out from the conflagrant liquid, commence extinguishing the conflagrant objects immediately.

|  |  |
| --- | --- |
| 5.2.2 Sandbox (Fig. 2) shall:  a) have a 0.5 m3 volume;  b) be painted red with a white “Sand” inscription;  c) have a tightly sealing cover equipped with handle;  d) be completed with a square-point shovel. Instead of square-point shovel, it is allowed to use other tools fitting for handling sand. | ящик для песка  **and be completed with a square-point shovel**  **sandbox shall have a following volume in m3:**  **0.5**  **1.0**  **3.0**  **SAND**  Fig. 2 |

Sandbox design shall provide for easy sand removal and prevent precipitation ingress. Sand in the boxes shall be periodically inspected, sieved and replaced if needed.

5.2.3 A reserve of 0.5 m3 of sand for every 500 m2 of protected area shall be provided for premises and external technological installations of categories A, B and C for fire and fire hazard, and at least 0.5 m3 for every 1000 m2 of protected area for premises and external technological installations of categories D and E of explosion and fire hazard.

|  |  |
| --- | --- |
| 5.3 **Fire blanket, felt or asbestos fibers** (Fig. 3) are used for isolating fire scene from air supply. This method is very effective but is only used for small fire scenes.  Synthetic clothes that easily melt and decay upon contact with fire, emitting toxic gases, are prohibited to use for extinguishing a combustion. Synthetics decay products are as a rule combustible on their own and are prone to sudden combustion. | кошмаFig. 3 |

Fire blankets for isolation of small fire scenes shall be no less than one meter long and one meter wide.

For rooms where flammable and (or) combustible liquids are used or stored, fire blankets shall have dimensions not less than 2 x 1.5 meters.

Blankets shall be stored in water-tight sealable casings (covers, packings) that allow for fast application of these tools in case of fire.

5.4 **Fire rack** is intended for placement of fire extinguishers, non-mechanized fire-fighting equipment and tools. Fire racks (Fig. 4) shall only have the primary fire-fighting equipment that is allowed for application inside the current premises, construction or installation.

|  |
| --- |
| пожарный%20щит  **FIRE RACK**  Fig. 4 |

5.4.1 Fire racks with sets of primary fire-fighting equipment and related inventory (hooks, crow bars, hatchets, buckets, etc.) shall be applied:

a) in production and storehouse premises not equipped with internal fire pipeline and automatic fire fighting installations;

b) in case of absence of outside fire pipeline;

c) in case if the buildings (constructions) and outside technological installations are removed from outside fire water sources for more than 100 m.

5.4.2 Fire rack shall be completed by the person responsible for fire safety inside the unit depending on the rack type and fire class [1].

5.5 **Internal fire valve** is used for extinguishing combustions of all types of substances and materials except for voltage-carrying electrical installations. Fire valve shall be placed in a special fire cabinet (Fig. 5), equipped with a branch piece and hose connected to the valve. Fire hose shall be folded into double roll.

|  |  |
| --- | --- |
| ПК  **OR**  **CALL**  **IN CASE OF FIRE**  Fig. 5 | Legend:  1. Key storage spot (in case if stipulated in the cabinet design)   1. Remote booster pumps engagement (if any) 2. Fire valve gate 3. Fire hose 4. Branch piece |

5.5.1 Upon combustion the following shall be done:

1). break the seal;

2) get the key from its keeping place on the cabinet door (if any);

3) open the door;

4) unfold the fire hose;

5) turn the valve gate and feed the water into the fire hose;

6) commence extinguishing of combustion.

5.5.2 It is recommended to operate the fire valve by pairs. One person shall turn the water on, while another shall bring the fire hose to the combustion scene as shown on the Figure 6.



**Number 2 takes the branch piece and unfolds the hose towards the fire scene**

**the fire**

**Number 2 shall work the branch piece to extinguish the fire**

**(if any)**

**Number 1 opens the valve and presses the booster pump button**

**Number 1 breaks the seal and opens the cabinet**

Fig. 6

5.6 **Fire extinguishers**

5.6.1 Branch facilities are equipped with different types of extinguishers subdivided by:

|  |  |  |
| --- | --- | --- |
| 1 | By type of the fire extinguishing agent | * air-foam (AF) |
| * dry powder (DP) |
| * gas (GE) |
| 2 | By weight: | * portable, up to 20 kg |
| * wheeled (20 to 400 kg) |
| 3 | By the fire extinguishing agents displacement principle: | - charged |
| - equipped with bottle of compressed or liquified gas |
| - with gas-generating element |
| 4. | By operational pressure value (Рrated): | * low pressure (Рrated (l)) – pressure is lower or equal to 2.5 MPa at temperature of 20 ± 2 °С; |
| * high pressure (Рrated (h)) – pressure is higher than 2.5 MPa at temperature of 20 ± 2 °С. |
| 5 | By purpose, depending on type of charged fire extinguishing agent | - for extinguishing combusted solid combustible substances (fire class A) |
| - for extinguishing combusted liquid combustible substances (fire class B); |
| * - for extinguishing combusted gaseous combustible substances (fire class C); |
| * - for extinguishing combusted metals and metal-containing substances (fire class D); |
| * - for extinguishing combusted electrical installations (fire class E). |

Fire extinguishers can be fit for extinguishing several classes of fires.

# **6 MAIN RULES FOR CHOOSING AND PLACING THE FIRE EXTINGUISHERS**

6.1 Completeness, brands and types of fire-fighting technical equipment installed in units and on vehicles shall be defined by the employees of Department for PW together with the person responsible for the unit fire safety. Installation is performed as per the Fire fighting equipment placement Schemes.

6.2 When choosing an extinguisher with corresponding temperature operation limits, it is necessary to take into account the buildings and constructions climatic operation conditions.

6.3 In Winter (when temperature is below 1 °С) [fire extinguishers](http://www.0-1.ru/shop/) charged with water-based FEA shall be stored in heated premises.

6.4 If it’s possible there are combustion scenes of different substance physical state, then a more versatile type of extinguisher shall be used.

6.5 Aspects of production facilities protection such as interaction between fire-fighting agents and protected equipment, products and materials shall be taken into account.

6.6 If there are several small premises of one fire hazard category, then the necessary number of extinguishers shall be distributed with due regard to total area of there premises.

6.7 Definition of minimal necessary amount of extinguishers for protection of a certain production facility shall be performed by the head engineer of the department for PW, as per the tables of the Annex No. 1 FSR [1].

6.8 Completing of the technological equipment with fire extinguishers shall be done as per the requirements from this equipment specifications or corresponding fire safety rules.

6.9 Administrative and utility buildings shall have at least two portable fire extinguishers per floor.

6.10 Calculation of necessary amount of extinguishers shall be done for each production premise and facility separately.

6.11 Extinguishers shall be places in such a manner that they are protected against direct sunlight, heat streams, mechanical impacts and other negative factors (vibration, aggressive environment, increased humidity, etc.). They shall be clearly visible and easily accessible in case of fire. It is preferable to place extinguishers near potential combustion areas, along the pass ways and also near exits. Extinguishers shall not create obstacles for people evacuating in case of fire.

6.12 Distance from possible fire scene to the nearest extinguisher is defined by the Rules requirements [1] and shall not exceed the following value:

- 20 m for public buildings and constructions;

- 30 m for premises of category A, B and C

- 40 m for premises of category D and E;

- 70 m for premises of category F.

6.13 Production workshops and rooms for timber harvesting teams extinguisher locations markings shall be placed 2 - 2.5 m above floor level, taking into account visibility conditions.

6.14 Portable fire extinguishers shall be mounted on wall mounts or in special cabinets, with not more than 1.5 meters distance from the floor level to the extinguisher top.

6.15 Fire extinguishers shall always:

a) be maintained in good condition;

b) be periodically inspected and checked;

c) be timely recharged.

6.16 Extinguishers and special cabinets for their placement shall be cleared from flammable materials and other substances as required. Flammable materials include tree bark, sawdust, wood and industrial dust, paper, rubber, cardboard, wooden planks, etc.

# **7 EXTINGUISHERS OPERATION**

7.1 **It is prohibited** to use extinguishers when they have the following damage signs:

a) dents, chips, deep scratches on the casing, control assemblies, nuts and cartridge;

b) absence of clear and understandable usage instructions;

c) lack of sealed safety lock;

d) manometer or pressure gauge failure (provided they are part of the extinguisher design);

e) traces of mechanical damage, corrosion, molding scraps or other items that can prevent FEA freely exiting the extinguisher, on the flexible hose (if any) and FEA nozzle;

f) failures and damages on the cartwheeled extinguisher running gear and casing fixtures (for wheeled extinguisher).

In case if the above mentioned faults are detected, extinguisher is subject to replacement and shall be sent to the extinguisher charging station of the Department for FSPW.

7.2 Extinguishers sent for recharge shall be replaced by respective amount of charged extinguishers.

7.3 Extinguisher application efficiency depending on the fire class and charged fire-fighting agent is provided in the table 1.

Table 1

|  |  |  |  |
| --- | --- | --- | --- |
| Fire class | Fire extinguishers | | |
| Air-foam  (medium-expansion foam) | Dry powder | Carbon dioxide |
| **А** | + | + +1 | + |
| **B** | ++ | + + + | + |
| **С** | - | + + + | - |
| **D** | - | + + +2 | - |
| **Е** | - | + + | + + + +3 |

Note:

- “1” - for extinguishers charged with powder of АВСЕ type.

- “2” - for extinguishers charged with a special type of powder and equipped with a powder spray arrester.

- “3” - apart from the extinguishers equipped with metal diffusors for feeding of carbon dioxide towards fire scene.

- “+ + +” are extinguishers especially fit for extinguishing fire of this particular class;

- “+ + +” are extinguishers that fit for extinguishing fire of this particular class;

- “+ + +” are extinguishers that do not fit enough for extinguishing fire of this particular class;

- “-” are extinguishers that do not fit for extinguishing fire of this particular class.

7.4 Extinguishers or charges that have no fire safety certificates shall not be used at any circumstance.

7.5 Tactical specification for the main used types of extinguishers is provided in the table 2.

Table 2

**Tactical specification for extinguishers**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Type and brand of the extinguisher | | Type of  FEA | Casing volume, (l) | Charge weight,  (kg) | Operational bottle pressure value, MPa (kg/sm2) | Spray length, (m) | Operational duration, (s) | Operational temperature range,  °С | Average service life (years) |
| 1 | | 2 | 3 | 4. | 5. | 6. | 7 | 8 | 9 |
| **1 Air-foam** | | | | | | | | | |
| OVP-10 | | Foam concentrate | 10 | 9 | 1.4(14) | 4. | 50 | +5 +45 | 10 |
| OVP-100 | | Foam concentrate | 100 | 90 | 0.8/(8) | 6.5 | 65 | +5 +50 | 5 |
| **2 Gas and carbon dioxide** | | | | | | | | | |
| OU-2 | | Liquified carbon dioxide | 2 | 1.4 | 6/(60) | 1,5 | 8 | -40 +50 | 10 |
| OU -5 | | Liquified  carbon dioxide | 5 | 3.5 | 15/(150) | 2 | 9 | -40 +50 | 10 |
| OU -10 | | Liquified  carbon dioxide | 10 | 7 | 15/(150) | 4. | 15 | -40 +50 | 10 |
| OU -25 | | Liquified carbon dioxide | 15 | 17.5 | 15/(150) | 4. | 15 | -40 +50 | 10 |
| OU -80 | | Liquified carbon dioxide | 80 | 28 | 15/(150) | 4. | 15 | -40 +50 | 10 |
| **3 Dry powder** | | | | | | | | | |
| OP-5 | Dry powder extinguishers ABCE or BCE or others | | 5 | 5 | 1.4/(14.5) | 5 | 15 | -50 +50 | 10 |
| OP-10 | Dry powder extinguishers ABCE or BCE or others | | 10 | 10 | 1.6/(1.6) | 3.5 | 20 | -40 +50 | 10 |
| OP-100 | Dry powder extinguishers ABCE or BCE or others | | 100 | 90 | 0.7/(7) | 45 | 45 | -35 +50 | 5 |

# **8 DESIGN AND OPERATIONAL PRINCIPLES OF EXTINGUISHERS**

8.1 Before putting and extinguisher into use, it is mandatory to read and understand the operational directions of the extinguisher stipulated on the marking label outside the extinguisher casing. If the marking label is absent or is impossible to read, it is prohibited to use this extinguisher.

8.2 **Dry powder extinguishers**

8.3.1. Dry powder extinguishers:

a. are designed for fighting fires and combustions of:

- petroleum products;

- flammable and combustible liquids;

- solvents;

- solid substances;

- voltage-carrying electrical installations up to 1000 V, from a minimum distance of 1 m;

b. are subdivided into charged extinguishers and extinguishers equipped with a built-in pressure source.

8.3.2 **Charged dry powder extinguishers**

**Siphon tube**

8.3.2.1 Design and types of charged dry powder extinguishers are provided in the Fig. 7

**Lock and release device**

|  |  |
| --- | --- |
| **ОП%20закачной**  **Charge  (powder)**  **Siphon tube**  **Operation gas** | J:\ORDERS2018\Ilim\10287\WORK_DTP\Швецова\OCR\pdf\21_05.03-02-15 (первич.ср-ва пожпротушения-12.jpg  return the used extinguisher for recharging  **HANDLE**  **PRESSURE GAUGE**  **NOZZLE**  **LOCK PIN**  **LEVER**  **LEVER** |
| **ОП%20закачные** | |

Fig. 7

8.3.2.2 Operational principle of the charged dry powder extinguisher Operational gas is charged directly into the extinguisher casing. Upon actuation of the lock and release device the powder is displaced by gas fed by siphon tube into the hose and onto the turret branch piece or into nozzle.

Powder can be fed in portions. Upon hitting a burning substance it isolates the fire scene from the air oxygen supply.

8.3.2.3 Activating a charged dry powder extinguisher is shown on the Fig. 8

****

**Commence extinguishing of fire**

**Press the lever**

**Break the seal, remove the locking pin**

**towards the fire scene**

**Turn the nozzle or the turret branch piece**

Fig. 8

8.3.3 **Dry powder extinguishers with built-in pressure source**

8.3.3.1 Design and types of dry powder extinguishers with built-in pressure source are provided in the Fig. 9.

|  |  |
| --- | --- |
| ОП%20балонный  **Operational gas bottle or gas generator**  **Charge  (powder)**  **Tube for feeding of operational gas**  **Lock and release device**  **Siphon  tube** | J:\ORDERS2018\Ilim\10287\WORK_DTP\Швецова\OCR\pdf\21_05.03-02-15 (первич.ср-ва пожпротушения-13.jpg  **LOCK PIN**  **SEAL**  **BUTTON**  **TRIGGER**  **TURRET BRANCH PIECE**  **LEVER** |
| ОП%20балонные | |

Fig. 9

8.3.3.2 Operational principle of the dry powder extinguisher with built-in pressure source. Upon actuation of the lock and release device, operational gas (carbon dioxide, nitrogen, etc.) bottle seal is broken. Gas is fed through a tube into lower part of the extinguisher casing and creates excess pressure. The powder is displaced through a siphon tube into hose to the branch piece. You can discharge the powder by portions by pressing the branch piece trigger. Upon hitting a burning substance powder isolates it from the air oxygen supply.

8.3.3.3 Activating the dry powder extinguisher with built-in pressure source is shown on the Fig. 10



**After 5 seconds, commence extinguishing of fire**

**Turn the turret branch piece towards the fire scene and press the trigger**

**Turn the lever up all the way or hit the button**

**locking pin**

**Break the seal, remove the**

Fig. 10

8.3.4 **Operation procedure for dry powder extinguishers (DPEs)**

8.3.4.1 Area of the pressure gauge bar indicating the working pressure range corresponding to the standards is a green-colored area outside the operating pressure range of red (yellow) color, which means *“Excess increase or decrease of pressure.”*

8.3.4.2 If the minimum and maximum operational pressure values mismatch, the fire extinguisher shall be sent for recharging.

8.3.4.3 Extinguisher activation mechanism shall be equipped with locking fixture (pin) that prevents from unauthorized action. Lockout device shall be sealed.

8.3.4.4 In case of extinguishing a fire with a DPE one must take into account the possibility of high suspended materials concentration in the air.

8.3.4.5 **It is prohibited:**

a) to operate the extinguisher upon detection of faults stipulated in cl. 7.1;

b) to turn the FEA spray towards people in close proximity;

c) to use DPE for extinguishing burning electrical installations while the spraying nozzle or casing are located closer than 1 m from the current-carrying parts;

d) use dry powder extinguishers to extinguish fires on electrical equipment carrying voltage over 1000 V.

It is not recommended to use for extinguishing office equipment, as well as electronic and high-precision devices.

**8.4 Carbon dioxide extinguishers**

8.4.1 Carbon dioxide extinguishers are designed for extinguishing combustions of different types of substances and materials, electrical installations carrying 1000 V to 10 KV voltage (except for extinguishers equipped with metallic diffuser for carbon dioxide feeding onto the fire scene), internal combustion motors, combustible liquids.

8.4.2 Design and types of carbon dioxide extinguishers are provided in Fig. 11, 12.

**WHEELED**

**PORTABLE**

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| J:\ORDERS2018\Ilim\10287\WORK_DTP\Швецова\OCR\pdf\21_05.03-02-15 (первич.ср-ва пожпротушения-14.jpg  **HANDLE**  **LOCK PIN**  **Lock and release device**  **Siphon tube**  **Charge**  **(carbon dioxide)**  **3-4 mm**  discharge horn  **SEAL**  **SEAL**  **LEVER**  discharge  horn  **LEVER** |
| Fig. 11 |

|  |  |
| --- | --- |
| ОУ%20ручные%202 | Portable |
| ОУ%20передвижные%202 | Wheeled |
|  | Fig. 12 |

8.4.3 Operation principle is based on carbon dioxide displacement by excess pressure. Upon opening of the lock and release device СО2 is fed through the siphon tube into discharge horn. From liquified state СО2 turns into gas or solid substance (of snow-like consistence). Temperature drops rapidly (down to -70 °С). Upon hitting a burning substance carbon dioxide isolates it from the oxygen supply and cools it down.

8.4.4 Actuating a carbon dioxide extinguisher is shown on the Fig. 13.

|  |
| --- |
| **ACTUATING A PORTABLE EXTINGUISHER**  J:\ORDERS2018\Ilim\10287\WORK_DTP\Швецова\OCR\pdf\21_05.03-02-15 (первич.ср-ва пожпротушения-15.jpg  **Number 1 turns the discharge horn towards the flames**  **Number 2 breaks the seal and pulls the lever all the way**  **Number 1 unfolds the hose and moves into fire extinguishing position**  **Turn the charge spray onto the flames**  **Turn the discharge horn into horizontal position and press the lever**  **Break the seal, remove the locking pin**  **Take the extinguisher and bring it to the fire scene**  **ACTUATING A WHEELED EXTINGUISHER** |

Fig. 13

8.4.5 **Operation procedure for carbon dioxide extinguishers (CDEs)**

8.4.5.1 Requirements for operating CDEs are similar to DPEs (cl. 8.3.4), with the following specifics:

1. CDE discharge horn with flexible hose shall be equipped with a handle to protect the operator’s hands from overcooling;

2. In case of extinguishing fire inside premises using CDEs it is necessary to take into account the possibility of air oxygen level decreasing below permissible limit, and therefore to use respiratory protection. After CDE usage small premises should be winded;

3. In case of extinguishing electrical equipment, it is necessary to keep the current-carrying parts away at a safe distance (not less than 1 m) from the spraying nozzle and from the extinguisher casing;

4. During operating of all types of CDEs it is prohibited to hold the discharge horn with a bare hand, for carbon dioxide upon exiting it turns into a snow-like mass with temperature of   
-70 °С.

8.4.5.2 It is prohibited to use dry powder extinguishers to extinguish fires on electrical equipment carrying voltage over 10 KV.

8.5 **Air-foam extinguishers**

8.5.1 Air-foam extinguishers are designed for fighting fires and combustions of solid substances and materials, HFLs and CLs, apart from alkaline metals and substances, as well as voltage-carrying electric installations.

8.5.2 Air-foam extinguisher with built-in pressure source (AFE) design is provided in the Fig. 14.

|  |
| --- |
| **J:\ORDERS2018\Ilim\10287\WORK_DTP\Швецова\OCR\pdf\21_05.03-02-15 (первич.ср-ва пожпротушения-16.jpg**  **NOZZLE**  **SEAL**  **LEVER**  **or button**  **LEVER**  **LOCK PIN**  **Nozzle**  **Foam solution**  **PROHIBITED**  **Lock** **and release device**  **Operating gas bottle**  **Siphon tube** |

Fig. 14

8.5.3 Operation principle is based on foam solution displacement by the operation gas pressure (air, nitrogen, carbon dioxide). Upon actuation of the lock and release device, operational gas bottle seal is broken. Foam concentrate is displaced by the gas through valves and siphon tube. Inside the branch pipe, foam concentrate is mixed with inflowing air to form foam. It hits the burning substance, cools it and isolates it from the oxygen supply.

Charged air-foam extinguishers act similarly to charged foam extinguishers (cl. 8.3.2.2).

8.5.4 Activating the air-foam extinguisher with built-in pressure source is shown on the Fig. 15



**Commence extinguishing of fire**

**Turn the branch piece towards the fire scene and press the lever**

**Hit the button or press the lever**

**Break the seal, remove the lock pin**

Fig. 15

8.5.5 **Operation procedure for air-foam extinguishers (AFEs)**

8.5.5.1 Requirements for operating AFEs are similar to FEs (cl. 8.3.4), with the following specifics:

1. air-foam extinguishers are only operational under temperatures above zero, and shall be kept in heated premises during winter months;
2. to extinguish fire with AFE the operator shall stand windward of the fire;
3. it is recommended to maintain distance (of at least 1.5 m) from the conflagrant substance, it is necessary for sufficient foam expansion;
4. while operating, avoid foam and foam solution getting into eyes.

8.5.5.2 **It is** **prohibited** to use air-foam extinguishers to extinguish fires on electrical equipment carrying voltage.

# **9 GENERAL RULES OF HANDLING FIRE EXTINGUISHERS**

9.1 To use an extinguisher, it is necessary to:

1. remove the extinguisher from the wall mount (take it out of the cabinet);

2. break the seal;

3. take out the locking fixture (safety pin);

4. get closer to the combustion scene and direct the extinguisher branch piece towards it, whereupon activate the extinguisher (cl. 8.3.2.3, 8.3.3.3, 8.4.4, 8.5.4).

9.2 Upon operating outside, operator shall approach fire scenes windward (so that wind or air-stream is behind the operator) at a distance not less than minimum length of fire extinguishing agent spray (indicated on the extinguisher marking label). It is necessary to bear in mind that a strong wind can create an obstacle for extinguishing fire by blowing away the extinguishing agent and intensifying the combustion.

9.3 When acting inside premises do not try to extinguish fire when it starts spreading over furniture and other items, also when the premises start to fill with smoke. It is only feasible to extinguish fire on the early stages of combustion, when it has just been detected and when you are completely sure you can do this.

***If you were unable to contain the conflagration within the first couple of minutes, then further doing it is not only useless, but also lethally dangerous.***

9.4 **Fire scene extinguishing rules**

|  |  |  |
| --- | --- | --- |
|  | Right | Wrong |
| Extinguish a fire scene from windward side | y1 | n1 |
| In case of FL spill, start extinguishing from the front edge of the spill, directing the powder spray towards the burning surface, not at flames | y2 | n2 |
| Extinguish the spilling liquid in the downwards direction | y3 | n3 |
| Conflagrant vertical surface should be extinguished in the upwards direction | n4 | y4 |
| In case if there are several extinguishers available, it is necessary to use them all at once | y5 | n5 |
| Make sure that extinguished fire scene does not combust anew (never turn your back on it) | y6 | n6 |
| After usage, extinguishers shall be immediately sent for recharging | y7 | n7 |

Fig. 16

# **10 PROVISIONING WITH FIRE EXTINGUISHERS**

10.1 Production units provisioning with extinguishers shall be performed on basis of registers of the extinguishers availability standards calculated by the head of the units in cooperation with the FS ER service employees. Availability standards shall be agreed upon with the head of the FS ER service and approved by the Branch Director.

10.2 Branch units shall order for extinguishers through electronic applications submitted via AWS to the FS ER liability center.

10.3 Accountable persons shall receive extinguishers along with technical specifications and certificates for each extinguisher, as per claims agreed upon with the head of the Department for FSPW.

10.4 Extinguishers shall be installed

a) in production units - as per the Fire fighting equipment placement Schemes;

b) in ASB buildings as per the personnel fire evacuation schemes that have designated places for fire protection equipment installation.

# **11 EXTINGUISHERS ACCOUNTING**

11.1 Each unit shall have a person (hereinafter referred to as Unit Person in Charge) appointed to be in charge of safekeeping and operational status of fire extinguishers and other primary fire-fighting equipment.

11.2 **Head engineer of the Department for FSPW** shall maintain records of extinguishers availability and status in the extinguisher accounting log (Annex A). Extinguishers accounting log pages shall be considered their operative passport.

11.3 Each installed extinguisher shall be completed with reference number, name of unit that owns it, warranty certificate of maintenance (ТО-1). Inscriptions shall be made on the casing using white paint or printed on paper and then adhered to the casing.

11.4 FS ER service shall have a reserve fund of 10% of total extinguishers number of each brand.

# **12 MAINTENANCE OF FIRE EXTINGUISHERS**

12.1 Newly put into operation extinguishers shall be subject to maintenance.

12.2 Maintenance shall be performed in accordance with the yearly schedules of the Department for PW and Department for FSPW Yearly schedule or Department for PW shall be drawn up in accordance with capacity for quarterly maintenance of every equipment unit available.

12.3 Maintenance includes:

a) inspections and examinations;

b) repairs;

c) tests;

d) extinguisher recharge.

**12.4 Extinguishers inspections and examinations**

12.4.1 Inspection can be:

a) initial (ТО-1);

b) quarterly ТО-~~2~~ 1);

c) annual (ТО-2);

d) test-inspection (ТО-3).

12.4.2 Inspections include:

a) external examination;

b) check of the extinguisher completeness;

c) check of the extinguisher installation spot condition.

12.4.3 ТО-1, 2, 3 also include examinations in order to detect:

a) dents, chips, deep scratches on the casing, control assemblies, nuts and cartridge;

b) condition of protective and paint coatings;

b). availability of clear and understandable usage instructions;

c) presence of sealed safety lock;

d) manometer or pressure gauge failure (provided they are part of the extinguisher design);

e) presence of necessary brand and corresponding pressure in charged extinguisher or in gas bottle;

f) extinguisher weight, as well as FEA weight inside the extinguisher;

g) condition of the flexible hose (if any), FEA nozzle;

h) condition of the running gear and robustness of the extinguisher casing fixtures on the cartwheel (for wheeled extinguisher), on the wall or inside a fire cabinet (for portable fire extinguisher).

12.4.4 During ТО-3 the extinguisher is additionally inspected for:

a) checking the condition of internal extinguisher casing surface (for dentures or metal bulging, peeling of protective cover);

b) corrosion traces;

c) condition of gaskets, baffles and other types of seals;

d) condition of safety devices, filters, pressure measuring tools, reducers, valves, locking devices and their mounting supports;

e) gas bottle weight, date for its next testing, warranted operational period of the gas generating element;

f) hose surface and fitting assembly condition;

g) main FEA parameters values, condition, warranted shelf life;

h) condition and air-tightness of the surface-active agent container or foam concentrate container (for water-type and foam extinguishers with separate storage of water and other components of the charge).

12.4.5 Requirements for extinguisher inspections:

Table 3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Inspections supervision liability** | **Schedule** | **Inspection scope, actions  based on inspection results** | **Records based on the inspection results** | |
| **Description** | **Responsible person** |
| 1 | 2 | 3 | 4. | 5 |
| **Initial inspections (ТО-1)** | | | | |
| Department for fire safety provisioning works of the fire safety and emergency response service. | upon putting into operation | Completeness check and examination as per the cl. 12.4.3 | Extinguishers acceptance-delivery act (Annex B) | Department for FSPW |
| Warranty certificate (ТО-1) (Annex C) |
| Extinguishers accounting log (Annex A) |
| **Quarterly inspections (ТО-1)** | | |  | |
| Department for preventive works | As per the approved department works schedule | Inspection of the installation location, external examination as per the cl. 12.4.3. If necessary: repairs, tests, recharging | Warranty certificate (ТО-1) (Annex C) | Department for PW |
| Extinguishers inspection certificate (Annex D) |
| Extinguishers accounting log (Annex A) | Department for FSPW |
| **Annual inspections (TO-2)** | | | | |
| Department for fire safety provisioning works of the fire safety and emergency response service. | As per the approved schedule, with due regard to the terms according to the table 4 | Completeness check and examination as per the cl. 12.4.3, repairs, tests, recharging (if necessary) | Extinguishers acceptance-delivery act (Annex B) | Department for FSPW |
| Warranty certificate (ТО-1) (Annex C) |
| Extinguishers recharge certificate (Annex D) |
| **Test-inspection once in 5 years (ТО-3)** | | | Hydraulic testing certificate (Annex F) |
| Department for fire safety provisioning works of the fire safety and emergency response service. | As per the approved schedule, with due regard to the terms according to the table 4 | Inspection of the extinguisher installation location and pass ways to it, external examination of the extinguisher as per all the items stipulated in cl. 12.4.3, 12.4.4, collection of extinguishers from their locations, delivery to charging stations, repairs, tests, recharging. |
| Vessels technical examination log (Annex G) |
| Extinguishers charging accounting log (Annex D) |
| Label indicating the type of conducted works |

12.4.6 Inspection terms for FEA parameters and extinguisher recharging are provided in the table 4.

Table 4

|  |  |  |
| --- | --- | --- |
| **Type of FEA used** | **Term** (minumum) | |
| **of FEA parameters**  **inspection** | **extinguisher recharge** |
| Foam solution | Once a year | Once a year |
| CO2  (carbon dioxide) | Once a year | Once in 5 years, or  in case if weight deviation of more than 5% |
| Fire extinguishing powder | Once a year | Once in 5 years, or  in case if there are deviations detected during powder inspection on one or several aspects |

12.4.7 For extinguishers that haven’t passed the tests and are beyond repair:

a) Rejection Report for fire protection equipment shall be drawn up (Annex K);

b) Suggestion to rectify the fire safety requirements violations shall be drawn up, in accordance with the Regulation on Provision of Fire Safety and Emergency Preparedness.

12.4.8 Rejection Report and Replacement Suggestion shall be submitted to the person responsible for fire safety in the unit. Extinguisher replacement shall be provided from the reserve fund, at the expense of the facility.

12.4.9 In case of using fire extinguishers for fighting fires and emergencies, in trainings and upon detection of malfunctions during inspections and tests, maintenance works procedure is organized.

**12.5 Extinguisher recharge procedure**

12.5.1 Terms for extinguishers weighting and recharge are provided in the table 4.

12.5.2 Heads of units that are responsible for fire safety, or other persons appointed by them shall organize and supervise the extinguishers accounting and repair (examination) process as per the established procedures.

12.5.3 Accountable persons of the units or other persons responsible fire safety shall provide access to extinguishers for the experts of department for FSPW for maintenance and recharge, if necessary. Extinguishers shall be collected as per information from the extinguisher log entries and submitted as per the Extinguisher Acceptance-delivery Act (Annex B).

12.5.4 Extinguishers sent for recharge (repair) shall be replaced with extinguishers of the same parameters, provided from the reserve fund.

12.5.5 The following data shall be stipulated on the safety device seal: month and year of recharge, seal reference number.

**12.6 Extinguisher transportation requirements**

12.6.1 Extinguishers shall be transported for repair and weighting using tools that prevent their mechanical damage.

12.6.2 It is prohibited to transport extinguishers in bulk in the vehicle carriage body.

# **13 LIABILITY**

13.1 Managers and specialists charged by the present Instruction to perform activities shall be fully liable for non-fulfillment and/or improper fulfillment of the said activities.

13.4 All Branch and RSU workers shall be liable for correct operation of extinguishers in case of fire.

|  |  |  |
| --- | --- | --- |
| Head of the   fire safety and emergency  response service | *Signature* | N.S. Sugakov |
|  |  |  |
| Head of the Department for fire safety works organization | *Signature* | M.S. Tsvetkov |

# **REFERENCE LIST**

[1] FSR approved by the Russian Federation Government of 25.04.2012 No. 390

[2] FR 166-97 Fire Regulations “Fire equipment, extinguishers, operation requirements”

[3] Procedure Code SP 9.13130.2009 “Fire equipment. Fire extinguishers. Operation requirements.”

[4] Regulations on Organization of Fire Safety and Emergency Preparedness in JSC Ilim Group

[5] Fire Safety Regulations of JSC Ilim Group

[6] Standard for Service maintenance of the fire protection and emergency equipment in the JSC Ilim Group

[7] “Internal fire piping test methods” developed by the FGA Fire Safety Research Institute EMERCOM of Russia (Ph.D. in Engineering Sciences L.M. Meshmanov, V.A. Bylinkin, engineer R.U. Gubin) Moscow - 2005

# **Annex A** (mandatory)

# **Template for Cover page and extinguishers accounting log pages**

**EXTINGUISHERS AVAILABILITY AND MAINTENANCE ACCOUNTING LOG**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of the unit

Commencement date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 20 \_\_\_

Completion date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 20 \_\_\_

**Operation passport for the extinguisher**

1. Extinguisher number 5. Ex manufacturer

2. Extinguisher commissioning date 6. Serial number

3. Extinguisher installation place 7. Extinguisher manufacturing date

4. Type and brand of the extinguisher 8. Brand (concentration) of the charged FEA

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date and type of provided maintenance | Maintenance results | | | | |  |
| External appearance and condition of the extinguisher’s assemblies | Full weight of the extinguisher | Pressure (if a pressure gauge or gas bottle mass indicator is available) | Running gear status of the wheeled extinguisher | Measures taken for elimination of detected faults | Position, name, initials and signature of the responsible person |
|  |  |  |  |  |  |  |

# **Annex B** (mandatory)

# **Extinguisher Acceptance-delivery act template**

JSC Ilim Group Branch in Ust-Ilimsk   
WPF production site, town of Ust-Ilimsk, Irkutsk Region, Russia, 666684

**Extinguisher Acceptance-delivery act from the customer**

**No. \_\_\_\_\_\_ of \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ 20\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Structural unit \_\_\_\_\_\_\_\_\_\_\_\_\_

customer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Brand of the extinguisher | Total  quantity | Brand of the extinguisher | Total  quantity | Brand of the extinguisher | Total  quantity |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |
| CDE |  | FE |  | AFE |  |

Number of extinguishers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Received:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (from the contractor: position, full name, signature)  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Delivered:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (from the customer: position, full name, signature)  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**Performed works acceptance act of \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ 20\_\_\_**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Brand of the extinguisher | Total  qty | Maintenance | Recharging | Technical examination | Paining | Note |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |

**Annex B**(finish)

**Repairs**

|  |  |  |
| --- | --- | --- |
| Type of repairs | Brand of the extinguisher | Quantity |
| Replacement of discharge horn with tube |  |  |
|  |  |
|  |  |
| Replacement of hose with discharge horn |  |  |
|  |  |
| Replacement of hose |  |  |
|  |  |
|  |  |
| Replacement of pressure gauge |  |  |
|  |  |
|  |  |
|  |  |
| Replacement of Lock and release device |  |  |
|  |  |
|  |  |
|  |  |
| Replacement of gas-generating plant-5 |  |  |
|  |  |
| Replacement of gas-generating plant-10 |  |  |
|  |  |
| Replacement of activation bottle |  |  |
|  |  |
|  |  |
| Replacement of hose with lock and release device |  |  |
|  |  |
|  |  |
| Replacement of foam maker |  |  |
|  |  |
|  |  |
|  |  |

The aforementioned works have been completed in full, customer acknowledges that the contractor is in good standing.

Number of extinguishers:

Delivered:

(from the contractor: position, full name, signature)

Received:

(from the customer: position, full name, signature)

# **Annex C** (mandatory)

# **Warranty certificate template for TO-1**

|  |  |  |
| --- | --- | --- |
| Warranty certificate (ТО-1) | | |
| Date  of inspection | Verifier's Signature | Signature |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# **Annex D** (mandatory)

# **Extinguisher inspection certificate template**

**Certificate**

for extinguisher inspection

(to be drawn up during ТО-1)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_

The Commission consisting of:

|  |
| --- |
|  |
|  |
|  |
|  |

has performed extinguishers inspection in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(name of the structural unit)

Established inspection results:

As per the Availability standards register, it is required:

(indicate the brand of extinguisher and quantity)

As of the date of inspection, there are:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item No. | Registration number as per the passport | Brand of the extinguisher | Date  of manufacture | ТО-2 date | Date  of charging ТО-3 | Location  of installation | Note |
| 1 |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |

*Comments*

|  |
| --- |
|  |
|  |
|  |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| (title) |  | (signature) |  | (FULL NAME) |
| (title) |  | (signature) |  | (FULL NAME) |
| (title) |  | (signature) |  | (FULL NAME) |

# **Annex E** (mandatory)

# **Extinguisher recharging certificate template**

For dry powder and air-foam extinguishers

|  |  |
| --- | --- |
| |  | | --- | | ***Branch  in Ust-Ilimsk*** |   FS ER Service  Ust-Ilimsk 14, mail box 353  WPF production site, tel. 92303,  fax 93207  **Extinguisher recharging certificate**  Type of the extinguisher  Brand (amount) of FEA  Fire class  Testing date or the next testing date:  \_\_\_\_\_\_\_\_\_\_\_\_ / \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Charged / next charging:  \_\_\_\_\_\_\_\_\_\_\_\_ / \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Operational pressure:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ MPa  Expert full name |

For carbon dioxide extinguishers

|  |  |
| --- | --- |
| |  | | --- | | ***Branch  in Ust-Ilimsk*** |   FS ER Service  Ust-Ilimsk 14, mail box 353  WPF production site, tel. 92303, fax 93207  **Extinguisher recharging certificate**  Type of the extinguisher  and (amount) of FEA  Fire class  Total weight  Testing date or the next testing date:  \_\_\_\_\_\_\_\_\_\_\_\_ / \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Charged / next charging:  \_\_\_\_\_\_\_\_\_\_\_\_ / \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Operational pressure:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ MPa  Maintenance\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Next maintenance  Expert full name |

# **Annex F** (mandatory)

# **Hydraulic test report template**

REPORT No. \_\_\_\_

for hydraulic test

|  |  |
| --- | --- |
|  | \_\_\_\_ \_\_\_\_\_\_\_\_\_\_ *20\_\_\_\_* |

Hydraulic test (bottle description), ser. No.

Reg. No.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (No. \_\_\_\_\_\_\_\_\_\_\_\_\_) from steel

Main dimensions

In operation since "\_\_\_\_\_" \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_

Performed in accordance with requirements of the Federal Mining and Industrial Supervision of Russia.

(value of test pressure, time of test pressure application)

(water temperature)

After exposure to test pressure and pressure decrease to (operational), a

bottle examination was performed

The following was established:

(no signs of residual deformation, cracks, breaks, spills, <...> in welded seams,

main metal body and connectable junctions (detected))

It was resolved that:

(vessel has passed (failed) the hydraulic testing)

Test pressure

Test performed by:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(position, signature, name and initials)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(position, signature, name and initials)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(position, signature, name and initials)

# **Annex G** (mandatory)

# **Template of high-pressure vessels technical examination log**

LOG BOOK

high-pressure vessels technical examination

commencement date \_\_\_\_\_\_\_\_\_\_\_\_\_

completion date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Vessel number | Vessel weight  Kg | Vessel capacity  Litres | Operational pressure, MPa  (kg/cm2) | Test pressure, MPa  (kg/cm2) | Examination results (Pass/Fail) | Date for next vessel examination | Reason for rejection (please stipulate the reason) |
| 1 | 2 | 3 | 4. | 5. | 6. | 7 | 8 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

# **Annex I** (mandatory)

# **Extinguishers charge accounting log template**

LOG BOOK

accounting for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ extinguishers

commencement date

completion date

(for dry powder and air-foam extinguishers)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Brand and serial number of the extinguisher | Brand of FEA | Type of performed works  (maintenance, recharging) | Date of works | Full Name  of the employee | Issued for organization |
| 1 | 2 | 3 | 4. | 5. | 6 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

(for carbon dioxide extinguishers)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Transport bottle number | Brand and serial number of the extinguisher | Type of performed works (maintenance, recharging) | FEA weight  (kg) | Charged extinguisher weight  (kg) | Date of works | Full Name  of the employee | Issued for organization |
| 1 | 2 | 3 | 4. | 5. | 6. | 7 | 8 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

# **Annex K** (mandatory)

# **Rejection Report for fire protection equipment template**

Rejection Report for fire protection equipment

|  |  |
| --- | --- |
|  | \_\_\_\_ \_\_\_\_\_\_\_\_\_\_ *20\_\_\_\_* |

The Commission consisting of:

full name, position

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

full name, position

Rejected \_\_\_\_\_\_\_\_\_ extinguishers

Owned by:

Reason for rejection: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Extinguisher(s) is (are) subject to withdrawal from operation, for which purpose the threading inside the neck opening is rendered nonoperational, or a hole is drilled in the extinguisher casing.

Signature

(FULL NAME)

(FULL NAME)

# **DOCUMENT REVISION SHEET**

|  |  |  |  |
| --- | --- | --- | --- |
| Number  of the amendment amendment | Name, date, number of the administrative document | Pages with the amendments | List  of the amended sections  (paragraphs) |
| 1 | Order  of 27.09.2016 No. 453 / 519 | 10 | cl. 6.16 |
| 19 | cl. 12.2, 12.4.1, 12.4.4 |
| 20 | cl. 12.4.5 |
| 21 | cl. 12.4.6, 12.5.5 |
|  |  |  |  |