DIMENSION BID

WIRELINE INTERVENTION | PERFORATION SERVICES

EXPLOSIVE SERVICE SAFE OPERATIONS PLACARD

1. Always meet with client upon arriving on location.

2.Field Engineer In Charge (FEIC) lead the crew to **check well area** for hazards and correct it on the spot.

3. **Perform spot safety meeting**.

4. Declare **NO SMOKING** except in designated areas. No smoking materials in declared area.

5. Rig up logging cable.

6. Outside preparations before attaching an explosive device (Lead by FEIC) :

i. Discontinue all electric welding job.
ii. Link grounding cable from logging cabin to powerpack generator.
iii. Turn off electrical cathodic protection systems.
iv. **Check voltage between the rig, casing and cable armor using a multimeter**. Eliminate it at its source, if present.
v. Test and install **Casing-to-Rig Voltage Monitor/Safety Panel** in the logging cabin.
vi. **DO NOT PROCEED WITH JOB IF RESIDUAL VOLTAGE IS IN EXCESS OF 0.20V BETWEEN RIG, CASING, AND CABLE ARMOR.**
vii. Install **safety grounding straps** between the unit, rig and casing.
viii. Put out sign reading **"DANGER EXPLOSIVES - KEEP OUT".**
viiii. Turn off all radio frequency (RF) transmitters (radio, radar, RF wireless networks, etc.) within 250 ft or 76 meter of the well **(Disregard if RF Safe Detonator used)**
x. All transmitters (such as radio or TV stations) greater than 200 watts and within 0.5 mile (0.8 km) of the well must be disabled such that they cannot transmit. **(Disregard if RF Safe Detonator used)**

7. **HOT CHECK**. APPLYING POWER AT SURFACE ONCE THE EXPLOSIVE OPERATION HAS STARTED IS PERMITTED ONLY ON THE CONDITION THAT THE **CABLE HEAD AND CCL IS IN THE LOGGING CABIN** OR **FEIC HAS DIRECT VIEW OF THE LOGGING HEAD WITHOUT OBSTRUCTION.**

Power must not be applied through a gun or explosive tool assembly at any time while on the surface, **ARMED OR UNARMED**.

Explosive operations have started when detonator are **no longer in the magazine**.

8. Logging Cabin preparations for explosive operations:

i. Ensure continuity of logging cable to the safety switch. Do not disconnect collector plug.
ii. **Turn off all AC powered instrumentation**, main circuit breakers, inverters, UPSs, AC power generators at powerpack, and rig power supply to the logging cabin. Follow the official powerdown procedures posted on the power distribution panel.
iii. **Turn off safety switch** on the Perfo Panel and remove key. The key **MUST remain outside** the logging unit until the explosive device is introduced into the well to a minimum depth of **350 ft (107 m)** below the sea floor.

9. Procedure for attaching any explosive device to the cable:

i. Arming or disarming a gun must **not** be performed during a **lightning storm**.
ii. Arming procedures must not be commenced if such weather, a helicopter or a boat is expected to arrive before the arming operation can be completed and the gun introduced into the well to a minimum depth of 350 ft (107 m) below ground level or the sea floor.
iii. Verify that the Casing-to-Rig Voltage Monitor reads less than 0.20V.
iv. Clear the **line of fire** of all personnel.
v. Attach the explosive device to the head.

The individual performing this operation **MUST have the safety switch key in their possession** at the time. The key MUST remain outside the logging unit until the explosive device is introduced into the well to a minimum depth **of 350 ft (107 m)** below ground level or the sea floor.

10. Arming perforating guns (**ONLY certified FE may arm a gun**);

i. The cable must be attached to the gun string before the gun string is armed.
ii. Confirm that the line of fire is still clear.
iii. Check the tool ground and GO plunger for sparking. If using GO Plunger connection, use alligator clip to short the connection.
iv. Remove the shunt plug from the firing head assembly
v. Insert the top firing head connector to the pin connector and thighten it. **Firing head now is armed electrically.**
vi. Remove the arming plug at the bottom of the firing head.
vii. Allign the bottom of the firing head to the top of gun assembly and tighten it. **Gun now armed balistically.**
viii. Store all explosive remnants.
viiii. Prepare the gun to run in the hole.

11. Proceed into the well.

12. Safety procedures while in the hole:

i. At a minimum depth of **350 ft (107 m) below the sea floor,** turn on the safety switch and restore AC power.
Essential RF transmitters may be turned on.
Continue into the hole.
ii. Tie in, position the gun and shoot.
iii. Coming out of hole, at a **minimum depth of 350 ft (107 m) below the sea floor**, reestablish RF silence and prepare the instrument cab as for explosives operations (8.i. through iii.). Verify that the Casing-to-Rig voltage is less than 0.20V.

CAUTION

If a lightning storm, helicopter or boat will arrive before the disarming operation can be completed, the gun must be kept in the well at a **minimum depth of 350 ft or 107 m below the sea floor.**

13. If hollow carrier gun(s) did not fire (misfire), perform the test to determine if an **ongoing thermal event (a hang fire) is occurring**. If there is, follow the recovery procedures.

Otherwise, immediately **relieve any trapped pressure** and then disarm the gun(s) (ballistically before electrically using the procedure provided in the Explosive Operations Manual (EOM).

Once disarmed, the gun may be disconnected from the cable. **If the gun contains HMX explosives that were heated to more than 330°F or 166°C, disarm it but do not download the explosives from the gun for minimum 48hrs.**

14. All guns must be safely relieved of any trapped pressure immediately upon removal from well according to the instructions in the EOM.

15. **Check the area for explosives remnants**, and pack them in the explosives remnants box. Pack misfired detonators in the detonator carrying case after shunting their leads. All remnants must be returned to the magazine for storage and then properly disposed.

RF SAFE OPERATIONS SECTION

Operations utilizing detonator from the RF Safe family, following exceptions apply to the procedures above:

- Radio transmitters can be left powered and used without restrictions.
- Casing-to-Rig voltages can exceed 0.20V, but MUST NOT exceed 30.0V AC or DC.
- Electrical cathodic protection systems can be left powered.
- Helicopter and boat operations can be continued.

RF SAFE Initiator Family list;

- JRC Rig Environment Detonator (RED) all types
- Combination of PX-1 and conventional detonator
- Combination of OM-1 and conventional detonator
- Dynawell RF Safe system with Electronic Detonator

WARNING

FAILURE TO FOLLOW SPECIFIC INSTRUCTIONS IN THIS PLACARD WILL RESULT OF EMPLOYEE TERMINATION UPON CONFIRMATION OF NEGLIGENCE. THIS APPLIED TO ALL FIELD OPERATIONS POSITIONS.

ANY VIOLATION OR DEVIATION FROM THIS PLACARD MUST BE APPROVED BY FSM OR EXPLOSIVE SAFETY COMMITTEE MEMBERS.

EXPLOSIVE SAFETY PLACARD (ESP) REVISION 2.2R DATE : 7TH-FEB-2014

EXPLOSIVE FIELD SAFETY PROCEDURES WARNING :
An approved exemption is required per CHS Operations Specific Procedure - Exemption) if any of these procedures cannot be followed.